ANNUAL REPORT ON AGRICULTURAL PROGRAMMES, GRADUATE OUTPUTS AND ENROLMENTS AT PUBLIC HIGHER EDUCATION INSTITUTIONS AND COLLEGES OF AGRICULTURE DURING 2006.

agriculture

Department:
Agriculture
REPUBLIC OF SOUTH AFRICA

List of Acronyms

1	Agricultural Broad Based Black Economic Empowerment	(AgriBee)
2	Agricultural Education and Training –	(AET)
3	Association of Principals of Agricultural Colleges	(APAC)
4	Baccularius of Technology	(BTech)
5	Bachelor of Veterinary Science	(BVSC)
6	Cape Peninsula University of Technology	(CPUT)
7	Categorisation of Education Subject Matter	(CESM)
8	Central University of Technology	(CUT)
9	Doctor of Technology	(DTech)
10	Education, Training and Extension Services	(ETES)
11	Free State Central University of Technology	(CUT,FS)
12	Further Education and Training	(FET)
13	Higher Education	(HE)
14	Higher Education Quality Committee	(HEQC)
15	Higher Education and Training	(HET)
16	Land Reform & Agricultural Development	(LRAD)
17	Magister of Technology	(MTech)
18	Mangosuthu Technikon	(Mantech)
19	National Education and Training Forum	(NAETF)
20	Nelson Mandela Metropolitan University	(NMMU)
21	National Qualification Framework	(NQF)
22	Recognition of Prior Learning	(RPL)
23	Sector Education and Training Authority	(SETA)
24	Standard Generating Bodies	(SGB)
25	Tswane University of Technology	(TUT)
26	University of South Africa	(UNISA)
27	Dept of Agriculture	(D&A)
28	Chief Executive Offerser	(CEO)
29	Gross Domestic Product	(GDP)

Foreword

FOREWORD BY THE ACTING DIRECTOR GENERAL

I am pleased to present the 2006 Annual Report on Agricultural Programmes, Graduate Outputs and Enrolments in Public Higher Education Institutions and Colleges of Agriculture. The 2006 report is the third of a series of annual reports on agricultural enrolments and graduate outputs in public higher education institutions and agricultural colleges as well as the type of programmes offered by these institutions on an annual basis.

The 2006 Annual Report on Agricultural Graduate Outputs and Enrolments originates from a data collection process by the Department of Agriculture on the supply of intermediate and high level skills for the agricultural sector. Stipulated in the 2005 Department of Agriculture strategic plan as a deliverable, the 2006 report endeavours to present the sector with a picture on the supply of intermediate and high level skills for the agriculture sector by public higher education institutions and colleges of agriculture as the major role players in agricultural graduates provision. Apart from that the study is aimed at investigating and identifying agricultural skills which are in shortfall and those that are in oversupply. The preceding 2004 and 2005 reports portrayed an unbecoming picture of the skills provision in the agricultural education and training sector. Like the studies conducted before, the study was focused on the types of agricultural education and training programmes offered by various higher education institutions, agricultural enrolments and graduate outputs in the various fields of study during the 2006 academic year.

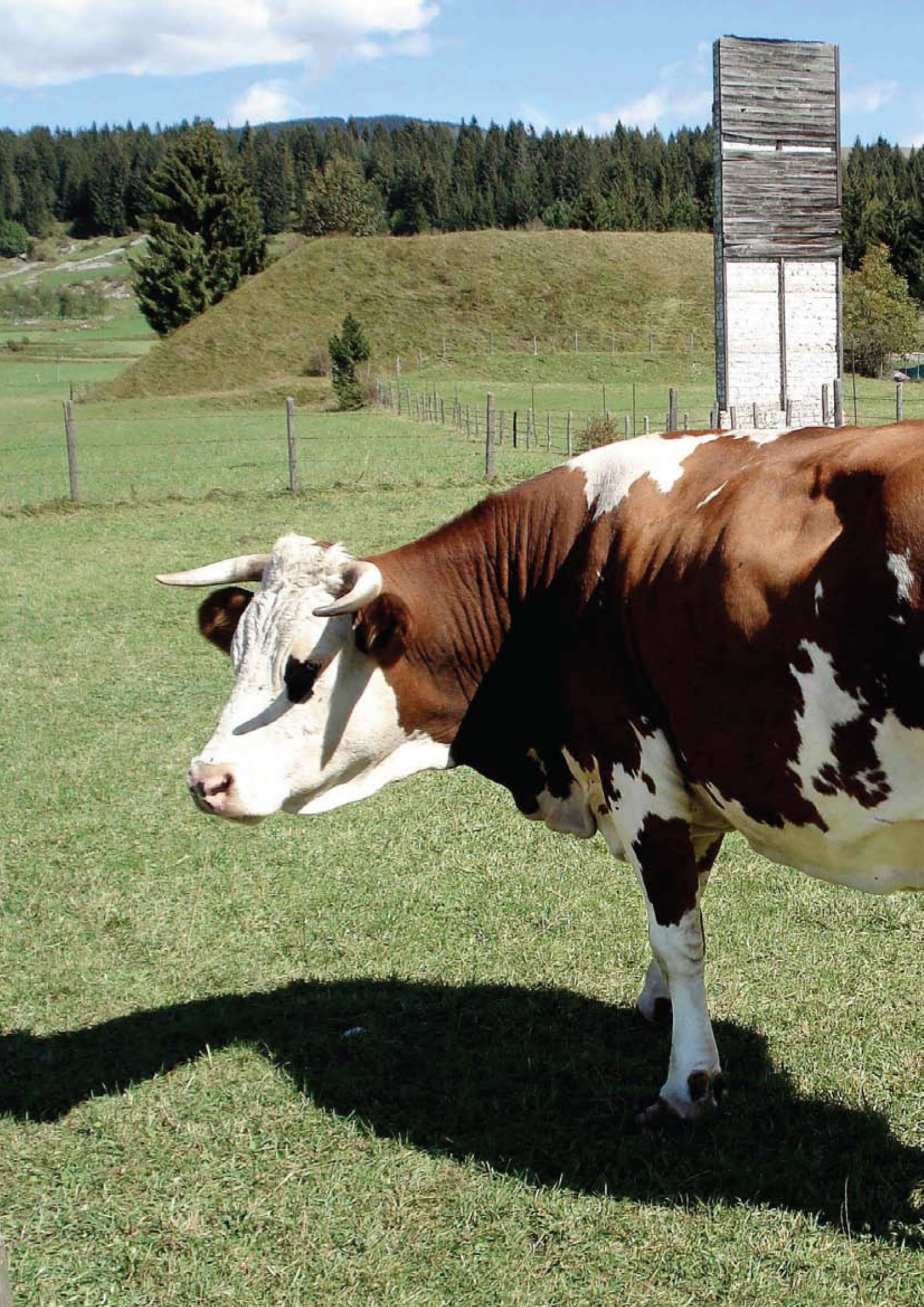
The study outlines trends in terms of skills supply for the agriculture sector by the public institutions of higher learning and agricultural colleges on yearly basis in order to inform planning for AET provisioning and interventions for skills development for the sector.

In the previous reports, findings indicated a severe undersupply of particular critical skills in certain fields of agriculture particularly amongst the African, Coloured and Asian graduates; such skills include BSc Agricultural Engineering and BVSc Veterinary Science. African graduates were on the other hand overly represented on skills such as Animal Science, Agricultural Extension and Agricultural Science. This is the reason for the high unemployment rate amongst African agricultural graduates as these skills are deemed to be in lower demand compared to the supply.

I am certain that this report will make a valuable contribution in addressing the above problem, the implementation of the new AET Strategy and in addressing the skills gap in the sector as well as establishing a cadre of agricultural graduates that will benefit not only the agricultural sector but also the South African economy in general. It is therefore my conviction that this report like the ones before shall provide a very strong and informed basis for decision making in agricultural education and training.

I truly trust that the findings of this report will assist to inform the efforts of transforming agricultural education towards a well coordinated, effective and responsive approach.

Kgabi Mogajane (Dr)
ACTING DIRECTOR-GENERAL



Executive Summary

EXECUTIVE SUMMARY

1. Introduction

This report is based on a study conducted on the agricultural enrolments, graduate outputs and Agricultural Education and Training (AET) programmes offered by various agricultural colleges and higher education institutions in the 2006 academic year. The DoA collates data on the types of programmes offered in the Colleges of Agriculture and Higher Education (HE) institutions, agricultural enrolment figures and graduate output figures in all the agricultural programmes offered by these institutions on an annual basis. The 2006 report is the third of a series of annual reports on AET enrolments, graduate outputs and programmes offered by Colleges of Agriculture as well as HE institutions that.

2. Objectives of the project

The primary objective of the study is to observe the trends in terms of skills development for the agriculture sector by the HE institutions and the agricultural colleges. The other objective of the study is to observe trends with regard to AET enrolments, graduate outputs and the types of AET programmes offered by the various institutions, in order to inform policy decisions and planning regarding AET provisioning in the public Colleges of Agriculture and higher education institutions for the purposes of skills supply priorities for the sector. The findings would further assist in the development of strategies for addressing the skills demand in the agriculture sector.

3. Methodology for the study

The research study was quantitative in nature and its aim was to yield quantitative descriptive data. The Education, Training and Extension Services (ETES) Directorate conducted a questionnaire-based survey with all the Colleges of Agriculture, Universities and Universities of Technology offering AET programmes. The study was conducted from April 2006 to March 2007.

Data was collected on the number of AET enrolments and graduates from undergraduate to postgraduate levels who were engaged in studies in all the agricultural disciplines. It also focused on the types of programmes and short courses offered by these institutions. Questionnaires requesting information on the number of enrolments and graduates in all the agricultural programmes offered by each institution were distributed electronically to all public HE institutions offering agricultural programmes and the 12 Colleges of Agriculture. The questionnaires were completed and returned to the Directorate in the same way.

The study only focused on those public institutions that were offering higher education and training programmes.

For ease of interpretation, the qualifications are categorised using the Categorisation of Education Subject Matter (CESM) of the Department of Education. However, in some cases the CESM was further broken down into sub-categories to obtain a better understanding of the enrolments and supply of AET graduates. The report indicates how the qualifications were classified per CESM.

4. Limitations

The study is quantitative in nature and thus it does not provide in-depth analysis of the factors influencing the trends in agricultural enrolments and graduate outputs in various programmes.

The study could not report on each qualification and used the CESM, which impacted on the different scarce skills within the CESM not clearly indicated e.g. entomology, which is a scarce skill, is included under plant health. This was due to the fact that institutions do not provide the information per field of specialisation within the CESM.

The other limitation of the study is that the Faculty of Veterinary Science at the University of Pretoria could not provide the data on graduate outputs and enrolments at postgraduate level. This problem also applies in the case of agricultural engineering. The study therefore does not give an indication of the number of graduates and enrolments in veterinary and agricultural engineering at postgraduate level.

5. Findings

5.1. Agricultural Education and Training at Colleges of Agriculture

There are twelve (12) Public Colleges of Agriculture offering qualifications on an annual basis in the Higher Education and Training (HET) band to the BTech Degree level.

5.1.1 AET Programmes offered by the Colleges of Agriculture in 2006

All the Colleges of Agriculture have their qualifications registered with the National Qualifications Framework (NQF). In the 2006 academic year, all the colleges offered programmes ranging from NQF level 1 to NQF level 6. The common qualifications offered in all the colleges are a Higher Education Certificate in Agriculture at NQF level 5, and a Diploma in Agriculture at NQF level 6. A Diploma in Agriculture is pursued after completion of the Higher Certificate in Agriculture. All the higher certificates are offered on a two-year programme. A third year of study will result in the acquisition of a Diploma in Agriculture.

The Higher Education Certificate and the Diploma programmes are accredited by the Higher Education Quality Committee of the Council on Higher Education, while the programmes from NQF levels 1 to 4 (including short courses) are accredited by Umalusi and AgriSETA. However, some of the short courses from NQF levels 1 and 4 are not accredited.

Nine (75%) of the 12 colleges offered NQF level 6 programmes in 2006. Madzivhandila, Tompi Seleka and Tsolo have phased out the NQF level 5 programmes and are presently concentrating on learnerships and short courses.

5.1.2 Agricultural Education and Training enrolment figures at Colleges of Agriculture in 2006

A breakdown of enrolments according to gender and race at Colleges of Agriculture is presented in table below.

Breakdown of enrolments according to gender and race

Name of the College	African			Coloured			White			Asian			Total	%
	M	F	Total	M	F	Total	M	F	Total	M	F	Total		
1. Cedara	66	45	111	3	0	3	65	1	66	0	3	3	183	16
2. Elsenburg*	3	0	3	10	5	15	54	2	56	0	0	0	74	7
3. Fort Cox	49	17	66	0	0	0	0	0	0	0	0	0	66	6
4. Glen	87	56	143	0	0	0	0	0	0	0	0	0	143	13
5. Grootfontein	20	0	20	21	0	21	119	7	126	0	0	0	167	14
6. Lowveld	46	43	89	0	0	0	6	0	6	0	0	0	95	9
7. Madzivhandila	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Owen Sitole	82	89	171	0	0	0	0	0	0	0	0	0	171	15
9.Potchefstroom	35	13	48	1	2	3	47	9	56	0	0	0	107	10
10. Taung	66	45	111	0	0	0	0	0	0	0	0	0	111	10
11.Tompi Seleka	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12. Tsolo	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	454	308	762	35	7	42	291	19	310	0	3	3	1117	10
%	41	28	68	3	1	4	26	2	28	0	0	0		100

*Information on B Agric: Viticulture is discussed under chapter 5

A total number of 1 117 students enrolled in 2006 at all the Agricultural Colleges. Like 2004 and 2005, Colleges of Agriculture collectively have total enrolment figures of less 2000 Full-Time Equivalent a norm to determine an institution to operate at higher education level.

Cedara College had the highest number of enrolments with 183 students, followed by Owen Sitole with 171 students and Grootfontein College with167 students and the lowest enrolments were registered at Lowveld and Elsenburg with 95 and 74 students respectively and Fort Cox 66 students of the total enrolment figures in the 2006 academic year. African students dominate the enrolments with 68% (762) followed by White students with 28% (310). The other population groups enrolled less than 5% of the total enrolments at Colleges in 2006.

Male enrolments constitute 70% (780) of the total number of students enrolled in 2006 and female enrolments constitute 30% (337). African males dominate with 59% (454); followed by White males with 37% (291). There was a significant decrease in the number of Coloured enrolments in Colleges of Agriculture from 113 in 2005 to 49 students in 2006. Asian students are almost non-existent. These high gender and race imbalances call for a further review of student recruitment strategies by the Colleges of Agriculture.

5.1.3 Number of people registering and completing Short Courses during 2006

A breakdown of people registering and completing short courses by gender and race at Colleges of Agriculture is presented in the table below.

Breakdown of people registered and completing in short courses by gender and race

Name of the college	African			Coloured			White			Asian			Unknown	Total	%
	M	F	T	M	F	T	M	F	T	M	F	T			
1. Cedara	*	*	448	*	*	5	*	*	55	*	*	15	385	908	10
2. Elsenburg	*	*	564	*	*	1107	*	*	73	0	0	0	0	1744	20
3. Fort Cox	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4. Glen	338	113	451	0	0	0	0	0	0	0	0	0	0	451	5
5. Grootfontein	*	*	722	0	0	0	*	*	165	0	0	0	0	887	10
6. Lowveld	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7. Madzivhandila	294	295	589	0	0	0	0	0	0	0	0	0	0	589	7
8. Owen Sitole	861	1341	2202	0	0	0	0	0	0	0	0	0	0	2202	25
9. Potchefstroom	80	40	120	0	2	2	88	22	110	0	0	0	0	232	3
10. Taung	0	0	0	0	0	0	0	0	0	0	0	0	484	484	5
11. Tompi Seleka	355	529	884	0	0	0	0	0	0	0	0	0	0	884	10
12. Tsolo	166	274	440	0	0	0	0	0	0	0	0	0	0	440	5
TOTAL	2029	2592	6420	0	2	1114	88	22	403	0	0	15	869	8821	100

*Information not available

Owen Sitole, Elsenburg, Cedara, Grootfontein and Tompi Seleka enrolled more students for short courses than any othe colleges, with 25% (2202), 20% (1744), 10% (908), 10% (887) and 10% (884) respectively. African students enrolled for short courses constitute 73% (6 420), followed by Coloured students with 13% (1 114) and Whites constitute 5% (403). Asian students were poorly represented.

5.1.4 Agricultural Education and Training graduate figures at Colleges of Agriculture in 2006

A breakdown of graduates by gender and race at Colleges of Agriculture is presented in the table below.

Breakdown of graduates by gender and race

Name of the college	African			Coloured			White			Asian			Total	%
	M	F	Total	M	F	Total	M	F	Total	M	F	Total		
1. Cedara	19	18	37	2	0	2	43	0	43	0	0	0	82	14
2. Elsenburg	0	0	0	4	0	4	34	7	41	0	0	0	45	7
3. Fort Cox	41	18	59	0	0	0	0	0	0	0	0	0	59	10
4. Glen	43	23	66	0	0	0	0	0	0	0	0	0	66	11
5. Grootfontein	4	1	5	5	0	5	55	9	64	0	0	0	74	12
6. Lowveld	51	22	73	0	0	0	10	1	11	0	0	0	84	14
7. Madzivhandila	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Owen Sitole	37	57	94	0	0	0	0	0	0	0	0	0	94	15
9. Potchefstroom	12	2	14	0	0	0	36	7	43	0	0	0	57	9
10. Taung	31	15	46	0	0	0	0	0	0	0	0	0	46	8
11.Tompi Seleka	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12. Tsolo	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	238	156	394	11	0	11	178	24	202	0	0	0	607	
%	39	26	65	2	0	2	29	4	33	0	0	0		100

In 2006, 607 students graduated at Colleges of Agriculture. Owen Sitole had a high number of graduates with 15% (94), followed by Lowveld College with 14% (84) and Cedara with 14% (82). African graduates were the largest group of graduates with 65% (394) followed by White graduates with 33% (202) and Coloured graduates with 2% (11). No Asian student graduated in the 2006 academic year. Male graduates dominate with 70% (427) of the total number of graduates and female graduates constitute 30% (180).

African females dominate the female graduates at Colleges of Agriculture with 87% (156) followed by White females with 13% (24). No Coloured female student graduated at Colleges of Agriculture in the 2006 academic year. African males dominate with 55% (238), followed by White males with 42% (178) and Coloured males with 3% (11).

5.2 Agricultural Education and Training at Universities of Technology in 2006

There are five Universities of Technology offering AET programmes in South Africa namely: Cape Peninsula University of Technology (CPUT), Central University of Technology Free State (CUT), Mangosuthu Technikon (Mantec), Durban University of Technology (DUT), and Tshwane University of Technology (TUT). The agricultural programmes offered at these institutions range through the HET Band from NQF level 5 to NQF level 8. i.e. from Certificate to a Doctor of Technology (DTech).

All the Universities of Technology, except TUT, offer few agricultural programmes such as Agriculture Management from Diploma level to BTech level. TUT offers a wide range of agricultural programmes on a broad curriculum that is divided into four main streams namely Horticulture, Crop Sciences, Nature Conservation and Animal Sciences.

5.2.1 Agricultural Education and Training enrolment figures at Universities of Technology in 2006

The table below presents the demographics of AET enrolments at Universities of Technology in the 2006 academic year.

Demographic Breakdown of AET enrolments at Universities of Technology in the 2006 academic year.

University of Technology	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
CPUT	6	3	9	12	1	13	57	6	63	0	0	0	85
CUT	67	46	113	3	0	3	61	10	71	0	0	0	187
MANTEC	321	258	579	0	0	0	1	1	2	0	0	0	581
DUT	177	355	532	5	11	16	18	27	45	69	230	299	892
TUT	775	547	1322	6	5	11	302	216	518	1	2	3	1854
TOTAL	1346	1209	2555	26	17	43	439	260	699	70	232	302	3599
%	37	35	72	1	0	1	12	7	19	2	6	8	100

A total number of 3 599 students were enrolled in 2006 at all the Universities of Technology. TUT enrolled 52% (1 854) of the total enrolments followed by DUT with 25% (892) and MANTEC with 16% (581). CUT and CPUT all enrolled the lowest with 5% (187) and 2% (85) respectively.

African students dominate the Universities of Technology enrolments with 72% (2 555), followed by White students with 19% (699) and Asian students with 8% (302). Coloured students constitute very low enrolments in the 2006 academic year 1% (43) of the overall enrolments in 2006. Male students constitute 52% (1 881) of the total enrolments at Universities of Technology and females constitute 48% (1 718).

5.2.2 Agricultural Education and Training enrolments at Universities of Technology by level of qualifications & CESM in 2006

The table below presents agricultural enrolments at Universities of Technology by CESM and levels of qualifications.

Agricultural enrolments at Universities of Technology by CESM & levels of qualification in 2006							
CESM	N. H. CER.	DIPLOMA	BTECH	MTECH	DTECH	TOTAL	%
Animal Science	0	800	47	5	1	853	24
Horticulture	0	215	34	5	2	256	7
Plant Science	0	202	17	0	0	219	6
Renewable Natural Resources	0	668	111	25	1	805	22
Agricultural Management	0	241	86	21	2	350	10
Other Agricultural & Renewable Resources	0	31	0	0	0	31	1
Wildlife Management	0	133	10	0	0	143	4
Agricultural Science-General	3	181	25	13	3	225	6
Agricultural Extension	0	33	32	0	0	65	2
Veterinary Technology	0	58	21	2	0	81	2
Biotechnology	0	182	51	26	14	273	8
Food Science	0	259	33	4	0	296	8
Land Reclamation	0	2	0	0	0	2	0
TOTAL	3	3005	467	101	23	3599	
%	0	83	13	3	1		100

Animal Science, Renewable Natural Resources and Agricultural Management have the highest enrolment figures with 24% (853), 22% (805) and 10% (350) respectively. Other CESM's registered less than 10% of the enrolments each. Diploma enrolments constitute 83% (3005) of the total enrolments at Universities of Technology in 2006 followed by BTech enrolments with 13% (467). Postgraduate (MTech and DTech) enrolments constitute 4% (124) of the total enrolments at Universities of Technology in 2006.

5.2.3 Agricultural Education and Training graduate figures at Universities of Technology in 2006

The table below presents a demographic breakdown of University of Technology graduates by gender and race.

Breakdown of graduates by gender and race per University of Technology													
Name of the University	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
CPUT	2	3	5	4	1	5	51	7	58	0	0	0	68
CUT	13	6	19	1	0	1	39	6	45	0	0	0	65
DUT	25	65	90	4	3	7	5	12	17	18	69	87	201
MANTEC	79	81	160	0	0	0	1	0	1	0	0	0	161
TUT	193	131	324	1	4	5	74	61	135	0	0	0	464
Total	312	286	598	10	8	18	170	86	256	18	69	87	959
%	32	30	62	1	1	2	18	9	27	2	7	9	100

A total of 959 graduates were graduated in 2006 at all Universities of Technology. TUT account for 48% (464) of the overall graduates at Universities of Technology in 2006 followed by DUT and MANTEC with 21% (201) and 17% (161) respectively. The other two Universities of Technology produced 7% of the overall graduates in 2006 each.

African graduates constitute 62% (598) of all the AET graduates at Universities of Technology in 2006, followed by White graduates with 27% (256). Asian and Coloured graduates together comprised 11% (105) of the total number of graduates produced by Universities of Technology in 2006. Male graduates constitute 53% (510) of the overall AET graduates at Universities of Technology in 2006 and female graduates account for 47% (449).

5.2.4 Agricultural Education and Training graduate figures at Universities of Technology by level of qualification and CESM in 2006

The table below presents a breakdown of graduates at Universities of Technology by CESM and level of qualification.

Agricultural graduates at Universities of Technology by CESM & levels of qualification in 2006							
CESM	N. H. CER.	DIPLOMA	BTECH	MTECH	DTECH	TOTAL	%
Agricultural Management	3	138	38	1	0	180	19
Animal Science	2	142	47	0	1	192	20
Horticulture	0	44	11	2	0	57	6
Plant Science	0	62	17	0	0	79	8
Renewable Natural Resources	1	103	63	5	1	173	18
Other Agricultural & Renewable Resources	0	10	0	0	0	10	1
Wildlife	0	10	2	0	0	12	1
Agricultural Science-General	5	28	14	3	0	50	5
Agricultural Extension	0	7	23	0	0	30	3
Veterinary Technology	0	12	6	0	0	18	2
Biotechnology	0	40	28	12	2	82	9
Food Science	0	56	15	3	0	74	8
Land Reclamation	0	2	0	0	0	2	0
TOTAL	11	654	264	26	4	959	
%	1	68	28	3	0		100

Animal Science, Agriculture Management and Renewable Natural Resources have high graduate figures with 20% (192), 19% (180) and 18% (173) respectively. Other CESM categories comprise less than 10% of the graduates each.

Diploma graduates dominate the AET graduates at Universities of Technology produced in 2006 with 68% (654) followed by BTech graduates with 28% (264), MTech graduates with 3% (26) and Certificates with 1% (11). DTech graduates constitute less than 1% of the total number of graduates at Universities of Technology produced in the 2006 academic year.

5.3 Agricultural Education and Training at Universities in 2006

There are thirteen Universities offering AET programmes in South Africa. These institutions offer agricultural qualifications from NQF level 5 to level 8 i.e. from University Diploma to Doctor of Philosophy (PhD) programmes. All the Universities offer various agricultural programmes and they vary in terms of scope. For instance the Universities of Stellenbosch, Pretoria, KwaZulu-Natal, Free State, South Africa and Fort Hare, offer many programmes in their agricultural curricula.

5.3.1 Agricultural Education and Training enrolment figures at Universities in 2006

A demographic breakdown of AET enrolments by gender and race at Universities is presented in the table below.

Breakdown of enrolments by gender and race per University in 2006													
Name of the University	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
University Fort Hare	376	201	577	0	0	0	2	0	2	4	0	4	583
University North West	323	417	740	1	5	6	4	4	8	0	3	3	757
Nelson Mandela Metropolitan University	57	29	86	2		2	14	2	16	0	0	0	104
University of Free State	127	222	349	7	7	14	100	411	511	2	3	5	879
University of KwaZulu-Natal	114	109	223	2	3	5	73	105	178	7	53	60	466
University of Limpopo	271	184	455	0	0	0	0	0	0	0	0	0	455
University of Pretoria	167	149	316	3	13	16	365	866	1231	9	20	29	1592
University of South Africa	667	468	1135	18	8	26	160	174	334	18	13	31	1526
University of Stellenbosch	70	32	102	29	28	57	535	270	805	1	1	2	966
University of Venda	208	154	362	0	0	0	0	0	0	0	0	0	362
University of Zululand	59	62	121	0	0	0	0	0	0	0	0	0	121
University of Western Cape	3	18	21	25	46	71	4	3	7	1	3	4	103
Total	2442	2045	4487	87	110	197	1257	1835	3092	42	96	138	7914

A total number of 7 914 students enrolled in 2006 at all the Universities. The Universities of Pretoria and South Africa account for 20% (1 592) and 19% (1 526) of the total enrolments in the 2006 academic year respectively, followed by the University of Stellenbosch with 12% (966). Enrolments in Free State University account for 11% (879) of the total enrolments at Universities in the 2006 academic year, surpassing North West (10% (757)) by 1%. Likewise in 2005, the Universities of Fort Hare, KwaZulu-Natal, Limpopo, Venda and Zululand attracted less than 9% of the total enrolments in agricultural education and training at Universities in the 2006 academic year.

As depicted in figure above, Africans constitute 57% (4487) of the total enrolments at Universities in the 2006 academic year, followed by Whites with 39% (3 092). Coloured and Asian students account for 2% each. Female students constitute 52% (4 086) and male students comprised 48% (3 828) of total enrolments in the 2006 academic year.

5.3.2 Agricultural education and training enrolments at Universities by level of qualifications & CESM in 2006

The table below presents agricultural enrolments at Universities by CESM and levels of qualifications.

Agricultural enrolments at Universities in 2006 by CESM and academic level.							
CESM	Undergraduate	Postgraduate Diploma	Honours	Masters	PhD	TOTAL	%
Agricultural Economics (Science Stream)	219	4	21	52	35	331	4
Agricultural Economics (Art Stream)	103	0	7	3	0	113	1
Agricultural Economics (BCom Stream			6	6	1	13	0
AgriBusiness Management (Inst.Agrar. Stream)	0	0	11	0	0	11	0
Agricultural Eco. (AgriBusiness)	149	0	0	0	0	149	2
Agricultural Science (Art Stream)	608	0	6	43	9	666	9
Agricultural Science (Science Stream)	658	0	17	255	146	1076	15
Agric. Extension (Inst. Agrar. Stream)	0	0	5	9	0	14	0
Agric. Extension	190	26	11	8	5	240	3
Agric. Food Technology	206	20	3	8	2	239	3
Animal Science	1212		29	63	14	1318	18
Horticulture	20		1	9	7	37	0
Plant Science	254		51	29	8	342	4
Plant Science (Inst.Agrar Stream)	7	0	4	4	0	15	0
Rural Development	0	0	17	0	2	19	0
Soil Science	65		2	7	10	84	1
Forestry	38	0	0	21	15	74	1
Renewable Natural Resources	109	8	0	26	16	159	2
Agric. Management	1292	0	86	82	0	1460	19
Other Agric. and Renewable Resources	0	0	0	152	0	152	2
Animal Sc (Insta. Agrar. Stream)	0	0	0	9	0	9	0
Horticulture (Inst. Agrar. Stream)	0	0	0	2	0	2	0
Land Rec (Land Use Inst. Agrar. Stream)	2	0	0	4	0	6	0
Rural Dev (Inst. Agrar. Stream)	1	0	5	2	0	8	0
Agric Econ (Inst. Agrar. Stream)	0	0	6	22	0	28	0
Environmental Management	133	0	0	16	0	149	2
Agronomy	93	0	3	11	10	117	2
Chemistry	14	0	0	0	0	14	0
Microbiology	16	0	0	0	0	16	0
Biochemistry	17	0	0	0	0	17	0
BSc:Veterinary Biology	478	0	0	0	0	478	6
Agronomy (Inst. Agrar. Stream)		0	0	5	0	5	0
Wildlife	6		12	56	4	78	1
Consumer Science	429	0	0	37	9	475	6
TOTAL	6319	58	303	941	293	7914	
%	79%	1%	4%	12%	4%		100

As indicated in the table above, Junior Degree levels dominate the overall AET enrolments at Universities with 79% (6 319), followed by Masters enrolments with 12% (941). Honours and PhD enrolments account for 4% each. Postgraduate Diploma constitue the least number of students with 1% (58) of the overall enrolments. This can be attributed to the fact that relatively few institutions offer postgraduate Diploma programmes. There has been a 1 % drop of Honours and PhD studies in 2006 when compared to the 2005 academic year enrolment figures at Universities. A significant 4% decrease of Masters enrolments was recorded in 2006 from 16% in 2005.

Agricultural Management, Animal Science and Agricultural Science (Science Stream) enrolled the highest number of students at Universities with 19% (1 460), 18% (1 318) and 15% (1 076) respectively. Agricultural Science (Art Stream), BSc: Veterinary Biology and Consumer Science constitute 9% (666), 6% (478) and 6% (475) of the overall enrolments in the 2006 academic year at Universities respectively. Enrolments across all other CESM were less than 5% of the overall enrolments at Universities in the 2006 academic year.

5.3.3 Agricultural education and training graduate figures at Universities in 2006

A demographic breakdown of AET graduates by gender and race at Universities is presented in table below.

Demographic breakdown of AET graduates at Universities in 2006													
Name of the University	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Fort Hare University	32	27	59	0	0	0	0	0	0	0	0	0	59
North West University	66	99	165	0	3	3	0	0	0	0	0	0	168
Nelson Mandela Metroplitan University	9	4	13	1		1	3	0	3	0	0	0	17
University of Free State	18	49	67	1	1	2	28	72	100	1		1	170
University of KwaZulu-Natal	20	28	48	0	1	1	21	30	51	0	9	9	109
University of Limpopo	137	122	259	0	0	0	0	0	0	0	0	0	259
University of Pretoria	33	22	55	1	2	3	70	174	244	2		2	304
University of South Africa	21	9	30	1	0	1	5	10	15	1	0	1	47
University of Stellenbosch	13	7	20	9	3	12	115	52	167	0	0	0	199
University of Venda	21	20	41	0	0	0	0	0	0	0	0	0	41
University of Western Cape	4	1	5	9	7	16	1	1	2	0	0	0	23
University of Zululand	7	3	10	0	0	0	0	0	0	0	0	0	10
Total	381	391	772	22	17	39	243	339	582	4	9	13	1406

One thousand four hundred and six (1 406) graduates were graduated in 2006 at all the Universities. The University of Pretoria account for 22% (304) of the total number of graduates in the 2006 academic year, followed by the University of Limpopo with 18% (259). The University of Stellenbosch accounts for 14% (199), the University of Free State and North West University each constute 12% (170 & 168) of the total number of graduates at Universities in the 2006 academic year respectively. All other Universities produced less than 10% of the graduate figures each.

African and White graduates constitute the most significant figures overall. African graduates comprised 52% and White graduates constitute 44% of the total University graduates in the 2006 academic year, whilst Coloured and Asian graduates collectively constitute 4%. Female graduates dominate the University graduates with 55% and female graduates constitute 45% of the total number of graduates in the 2006 academic year at Universities.

5.3.4 AET graduates at Universities by level of qualifications & CESM in 2006

The table below presents a breakdown of University graduates by level of qualification and CESM categories.

Agricultural Graduates at Universities in 2006 by CESM and academic level.							
CESM	Undergraduate	Postgraduate Diploma	Honours	Masters	PhD	TOTAL	%
Agricultural Economics (Science Stream)	34	3	21	3	6	67	5
Agricultural Economics (Art Stream)	12	0	2	14	0	28	2
Agricultural Economics (BCom Stream	0	0	1	0	0	1	0
Agricultural Economics (AgriBusiness)	14	0	0	0	0	14	1
Agricultural Science (Art Stream)	92	0	5	0	0	97	7
Agricultural Science (Science Stream)	83	0	10	64	25	182	13
Agric. Extension (Inst. Agrar. Stream)	0	0	1	1	0	2	0
Agric. Extension	15	11	0	38	1	65	5
Agric. Food Technology	32	22	1	2	0	57	4
Animal Science	172	2	27	9	3	213	16
Horticulture	0	0	0	4	1	5	0
Plant Science	28	0	22	20		70	5
Plant Science (Inst.Agrar Stream)	2	0	2	0	0	4	0
Rural Development	0	0	7	0	0	7	0
Soil Science	0	0	1	14	0	15	1
Forestry	5	0	0	5	4	14	1
Renewable Natural Resources	17	0	0	9	0	26	2
Agric. Management	71	5	8	48	0	132	9
Other Agric. and Renewable Resources	0	0	0	24	0	24	2
Animal Sc (Insta. Agrar. Stream)	0	0	0	2	0	2	0
Land Rec (Land Use Inst. Agrar. Stream)	0	0	0	1	0	1	0
Rural Dev (Inst. Agrar. Stream)	0	0	1	0	0	1	0
Agric Econ (Inst. Agrar. Stream)	0	0	3	4	0	7	0
Environmental Management	152	0	0	1	0	153	12
Agribusiness (Inst.Agrar Stream	0	0	7	0	0	7	0
Land Reclamation (Land Use)	1	0	0	0	0	1	0
Agronomy	10	0	1	3	0	14	1
Agronomy (Inst. Agrar. Stream)	0	0	0	1	0	1	0
Wildlife	2	0	11	11	0	24	2
BSc Veterinary Biology	103	0	0	0	0	103	7
Microbiology	2	0	0	0	0	2	0
Consumer Science	62	0	0	4	1	67	5
TOTAL	909	43	131	282	41	1406	
%	65%	3%	9%	20%	3%	100%	

Animal Science, Agricultural Science (Science Stream) and Environmental Management produced 16% (213), 13% (182) and 12% (153) respectively. Other CESM constitute less than 10% of the total AET graduates produced at Universities during 2006.

Graduates at Junior Degree level account for 65% (909) of the total enrolments at Universities in 2006 followed by Masters graduates with 20% (282) and Honours with 9% (131). Postgraduate Diploma and PhD levels each contributed 3% of the total number of graduates at Universities in 2006.

5.4. Enrolments and graduate outputs for scarce skills in agriculture

Veterinary Science (BVSc), Agricultural Engineering, Viticulture and Oenology, Food Science and Technology, and Biotechnology are regarded as scarce skills by the Department of Agriculture; hence they are discussed separately from other CESM.

5.4.1 Enrolments for scarce skills in agriculture

Breakdown of scarce skills enrolments by study field and per institution during 2006 is represented in the table below.

Enrolments of the scarce skills programmes per institution				
Name of Institution	Study field	Number of enrolled students in 2006		Percentage (%)
		Sub-total	Total	
1. Elsenburg College of Agriculture	B Agric Viticulture	108	108	9
2. University of Western Cape	Biotechnology	257	257	21
3. University of KwaZulu-Natal	Agricultural Engineering	76	76	6
4. University of Pretoria	BVSc	119	235	19
	Food Science & Technology	116		
5. University of Johannesburg	Food Technology	144	144	12
6. University of Stellenbosch	Food Science	177	424	33
	BSc Viticulture & Oenology	247		
TOTAL		1244	1244	100

One thousand two hundred and forty four (1 244) students enrolled at scarce skills programmes during the 2006 academic year. The table above shows that the University of Stellenbosch dominate the number of enrolments in the scarce skills category with 33% (424), followed by the University of Western Cape with 21% (257). The lowest enrolment numbers were recorded at Elsenburg College of Agriculture and the University of KwaZulu-Natal with 9% (108) and 6% (76) respectively.

The table below presents a demographic breakdown according to gender and race of scarce skills enrolments at Universities during 2006.

Demographic breakdown of scarce skills enrolments by gender and race														
LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
BSc Agricultural Engineering	11	46	57	0	0	0	7	3	10	0	9	9	76	6
B Agric Viticulture	0	1	1	4	3	7	70	30	100	0	0	0	108	9
BSc Biotechnology	34	54	88	50	78	128	8	5	13	11	17	28	257	21
Food Science and Technology	56	139	195	8	12	20	28	181	209	3	10	13	437	34
BSc Viticulture and Oenology	9	8	17	4	5	9	128	92	220	1	0	1	247	20
BVSc Veterinary Science	6	3	9	1	0	1	41	66	107	0	2	2	119	10
TOTAL	116	251	367	67	98	165	282	377	659	15	38	53	1244	
%	9	21	30	5	8	13	23	30	53	1	3	4		100

Food Science and Technology, BSc Biotechnology and BSc Viticulture and Oenology enrolled the highest number of students at scarce skills programmes with 34% (437), 21% (257) and 20% (247) respectively.

White students dominate the total enrolments in these programmes with 53% (659) followed by African students with 30% (367). Coloured students constitute 13% (165) of the total number of scarce skills enrolment in the 2006 academic year while Asian students constitute 4% (53). Gender breakdown indicated that female students dominate the scarce skills enrolments with 61% (764) and male enrolments constitute only 39% (480) of the total number of enrolments in these programmes in the 2006 academic year. It should be noted, that it is only from 2004 that the DoA started to offer bursaries to redress issues of inequity in the sector.

Breakdown of scarce skills enrolments by levels of qualification in the 2006 academic year

Breakdown of scarce skills enrolments in 2006 by academic level							
CESM	Diploma	Undergraduate	Honours	Masters	PhD	TOTAL	%
Agricultural Engineering	0	76	0	0	0	76	
B Agric Viticulture	0	108	0	0	0	108	
BSc Biotechnology	0	203	18	36	0	257	
BSc Viticulture and Oenology	0	225	2	19	1	247	
BVSc Veterinary Science	0	119	0	0	0	119	
Food Science and Technology	121	240	17	39	20	437	
TOTAL	121	971	37	94	21	1244	
%	10	78	3	8	2		100

The table above indicates that Undergraduates dominate the scarce skills enrolments in the 2006 academic year with 78% (971), followed by Diploma enrolments with 10% (121) and Masters enrolments with 8% (94). Honours and PhD enrolments constitute 3% (37) and 2% (21) of the overall scarce skills enrolments in the 2006 academic year.

5.4.2 Graduates for scarce skills in agriculture

A breakdown of scarce skills graduates by study field and per institution is represented in the table below.

Graduates of scarce skills programmes per institution and field of study				
Name of institution	Study Field	Number of graduates in 2006		Percentage (%)
		Sub-total	Total	
1. Elsenburg College of Agriculture	B Agric Viticulture	68	68	17
2. University of Western Cape	Biotechnology	61	61	15
3. University of KwaZulu-Natal	Agricultural Engineering	4	4	1
4. University of Pretoria	BVSc	92	130	32
	Food Science & Technology	38		
5. University of Johannesburg	Food Science & Technology	34	34	8
6. University of Stellenbosch	Food Science & Technology	38	106	26
	BSc Viticulture & Oenology	68		
TOTAL		403	403	100

Four hundred and three (403) graduates qualified in 2006 in scarce skills programmes. The University of Pretoria account for 32% (130) of the total number of scarce skills graduates in the 2006 academic year followed, by the University of Stellenbosch with 26% (106). Elsenburg College of Agriculture and the University of Western Cape account for 17% (68) and 15% (61) of the total number of graduates in scarce skills programmes in the 2006 academic year respectively. The lowest number of graduates was recorded at the University of Johannesburg and the University of KwaZulu-Natal with 8% (34) and 1% (4) respectively of the total number of graduates at scarce skills programmes in the 2006 academic year.

The table below presents a demographic breakdown according to gender and race of scarce skills graduates at institutions of higher learning during 2006.

Demographic breakdown of scarce skills graduates by gender and race														
LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
BSc Agricultural Engineering	2	0	2	0	0	0	2	0	2	0	0	0	4	1
B Agric Viticulture	1	1	2	7	1	8	36	22	58	0	0	0	68	17
BSc Biotechnology	6	7	13	12	26	38	1	2	3	2	5	7	61	15
Food Science and Technology	22	22	44	1	2	3	6	55	61	0	2	2	110	27
BSc Viticulture and Oenology	1	0	1	3	0	3	32	32	64	0	0	0	68	17
BVSc Veterinary Science	4	0	4	0	1	1	21	60	81	2	4	6	92	23
TOTAL	36	30	66	23	30	53	98	171	269	4	11	15	403	
%	9	7	16	6	7	13	24	43	67	1	3	4		100

Food Science and Technology and BVSc Veterinary Science comprised the highest number of graduates at scarce skills programmes with 27% (110) and 23% (92) respectively. B Agric Viticulture and BSc Viticulture and Oenology each account for 17% (68) of the total number of graduates produced at scarce skills programmes in the 2006 academic year. The lowest number of graduates was recorded at Agricultural Engineering with 1% (4).

White students dominate the total number of graduates produced in the scarce skills programmes with 67% (269) followed by African students with 16% (66). Coloured students constitute 13% (24) of the total number of scarce skills enrolments in the 2006 academic year, while Asian students constitute 4% (15). Gender breakdown indicates that females dominate the scarce skills with 60% (242) and male graduates constitute 40% (161) of the total number of graduates in the 2006 academic year.

A breakdown of scarce skills graduates by levels of qualification in the 2006 academic year is presented in the table below.

Scarce skills graduates in 2006 by academic level						
CESM	Diploma	Undergraduate	Honours	Masters	PhD	TOTAL
Agricultural Engineering	0	4	0	0	0	4
B Agric Viticulture	0	68	0	0	0	68
BSc Biotechnology	0	35	19	7	0	61
BSc Viticulture and Oenology	0	65	1	2	0	68
BVSc Veterinary Science	0	92	0	0	0	92
Food Science and Technology	33	51	15	7	4	110
TOTAL	33	315	35	16	4	403
%	8	78	9	4	1	100

Junior degrees graduates dominate the scarce skills graduates in 2006 with 78% (315) followed by Honours graduates with 9% (35), Diploma graduates with 8% (33) and Masters graduates with 4% (16). PhD graduates constitute 1% of the total number of scarce skills produced in the 2006 academic year.

5.5 Total AET provision in 2006

A total of 13 076 students enrolled for AET programmes in 2005 and 12 630 enrolled for AET programmes in 2006. One thousand one hundred and seventeen (1 117) were from Colleges, 3 599 were from Universities of Technology and 7 914 were from the Universities. As far as race is concerned, Africans formed the majority with 7 854, followed by Whites with 4 101 as was the case in the 2005 academic year. Coloureds and Asian enrolments were minimal. A gender analysis indicates that males dominate with 6 489 while females account for 6 141. A total number of 8 821 students enrolled for short courses offered by Colleges of Agriculture. However, gender and racial classification cannot be made due to poor information records.

The findings depict that graduates account to 2 972 graduates. This represents 18% of the total population of employees in the sector with intermediate to higher level skills as indicated in the labour force survey conducted in 2005. In terms of race, Africans formed the majority with 1 764, followed by Whites with 1 040. In terms of gender, males dominate with 1 587, whilst females account for 1 385. Generally there were relatively few Coloured and Asian graduates.

In terms of enrolments within the scarce skills categories, 1 244 students were registered compared to a mere 516 who enrolled in 2005. In terms of race, Whites were dominant with 659 followed by Africans with 367. By comparison, during the 2005 and 2004 academic years, Africans have improved from just 61students in 2005. Contrary to the 2005 findings, females dominate the scarce skills enrolments with 764, whilst males account for 480 students.

The total number of scarce skills graduates produced was 403. Whites dominate with 269 followed by Africans, Coloureds and Asians with 66, 53 and 15 graduates respectively. All race groups have improved when compared to the 2005 academic year.

6. RECOMMENDATIONS

6.1. Reducing over production of graduates in programmes which are not in demand in the agriculture sector.

From the findings it is evident that some institutions account for many graduates and enroll more students in programmes which are not in demand in the agriculture sector. This over production and over enrolment in certain programmes is attributed to the fact that institutions do not have information about market demands and the rate of employment for their graduates. It is also a known fact that graduates in certain programmes and from certain institutions have high employment rates than others. It is therefore necessary to investigate the reasons for these trends. To curb this problem it is crucial that all the institutions should develop systems which will track the employability of their graduates in the various programmes in order to decrease over production of skills which are not in demand in the agriculture sector. Funding formula for Universities should also be analysed in terms of the relevance and type of programmes offered as well as the employment rate of graduates in those programmes.

6.2. Effective participation of the agriculture sector in agricultural curriculum reviews and development of higher and further education institutions

The National Agricultural Education and Training Forum established in terms of the Agricultural Education and Training Strategy (2005) should play a major role in curriculum review meetings of higher education institutions as well as during the development and reviews of agricultural curriculum for General Education and Training and Further Education and Training bands by the Department of Education. This will ensure that agricultural curriculum at all levels of the education system addresses the needs of the agriculture sector.

This study also recommends that DoA Directorates play a major role in determining the agricultural curricula i.e. directly influence the curricula for respective departments at Universities e.g. Directorate Animal Health should liaise with Animal Health departments at different Universities for them to know what the labour market requires in terms of skills required e.g. Animal Health Technicians.

6.3. Quality benchmarking of some agricultural programmes in all the higher education institutions

The perception that the quality of programmes varies in terms of content from one institution to the other is also a cause for concern. For instance, BSc in Agriculture does not offer the same content in all the institutions offering the programme and admission requirements for the same programme may vary. It is therefore necessary that the Department of Agriculture in collaboration with the Department of Education investigate the quality of programmes at each institution and to establish quality benchmarks for same programmes at higher education institutions.

6.4. Encouraging undergraduates to pursue post graduate studies in specialised fields in agriculture to increase the pool of agricultural scientists

From the findings, the general trend is that there is an increasing number of entrants into agriculture at junior Degree level, for instance, a high number of Africans are enrolling for agricultural programmes at junior Degree level. However, this is not addressing the needs of the rapidly changing landscape as well as the skills demands in the sector. It is also evident from the findings that there are a limited number of agricultural enrolments and graduates at post graduate level, particularly at Masters and PhD levels. It is therefore recommended that graduates with undergraduate qualifications outside of the identified scarce skills programmes including those with undergraduate qualifications in agricultural economics should pursue higher education programmes and be specialists in certain fields of agriculture. This will establish a strong scientific research base for the sector.

6.5. Marketing agricultural careers to Indians and Coloureds

From the findings, there is a insignificant number of Indians and Coloureds graduating in and enrolling for agricultural programmes. It is necessary to target Indian and Coloured dominate schools to market agriculture as a career to Indian and Coloured youth.

6.6. Recruiting girl learners to register for scarce skills programmes in agriculture

The general trend is that there is a lower number of Black (Coloured, Indian and African) female enrolments and graduates in scarce skills categories. In order to recruit females into the agricultural scarce skills professions, it is important to work in collaboration with the Provincial Departments of Education and to liaise with Girl-Learner coordinators to market agricultural scarce skills careers to girl learners. Girl-Learner Coordinators in the various PDEs can also provide a platform for providing guidance to girls in terms of the correct subject combinations at the General Education and Training levels to pursue scarce skills in agriculture.

6.7. Increasing the number of black students enrolling for and graduating in scarce skills programmes in agriculture

Massive career awareness campaigns will be implemented at schools, targeting learners before entry into the FET (Grade 10) phase so that they can choose the appropriate subject combinations which will enable them to engage in studies in agricultural scarce skills earlier in the FET phase. The target group will be learners from the African, Coloured and Indians communities. White females should also be targeted for agricultural engineering and other scarce skills, except for BVSc where they are in the majority. This will be a collaborative venture with Public Relations Departments at the Universities and managers of girl learner educational programmes from the Provinces.

It is necessary that agricultural engineering courses are offered in the agricultural colleges so as to generate agricultural engineering technicians. This will provide basic skills and knowledge of agricultural engineering for those with Mathematics and Science at senior Certificate level, but do not meet the admission requirements for a Degree in agricultural engineering. The engineering technician qualification obtained from agricultural colleges might provide the skills and knowledge required to pursue an agricultural engineering Degree at University level. This will then require systems which will allow easy progression and mobility from the agricultural college sector to the University or University of Technology, as well as effective Recognition of Prior Learning (RPL) systems.

6.8 Introduction of veterinary science studies by another University

Given the failure of the University of Pretoria to produce African, Coloured and Asian veterinarians meeting the labour market demand, this study highly recommends that another University should introduce in its agricultural curricula the veterinary science studies. Secondly, a variety in this field of study is envisaged as it is impossible for one institution to successfully and sustainably provide the entire country's labour market with enough veterinarians. Moreover, this veterinarian shortage is further aggravated by the fact that a significant number of veterinarians leave the country through "brain drain", preferring oversees countries like the United Kingdom.

6.9 Partnership between the Department of Agriculture and Faculties of Agriculture at HET and Colleges of Agriculture.

The Department of Agriculture should develop relations with all the faculties of agriculture in Higher Education Institutions, whereby the DoA officials will get a platform to communicate the type of people the agricultural labour market is looking for in terms of skills, knowledge and behaviour. Secondly, elites in the agricultural business such as CEOs and other senior managers of private companies should be invited for lectures on an ongoing basis as it is being done at institutions such as the University of Johannesburg.

An indication will be given as to what exactly should be the focus of the curricula in the institutions of higher learning with regards to AET. This will not only give confidence to the students completing their qualifications, but will ensure that by the time graduates get to the labour market they are ready to take on tasks assigned to them and can comprehend the skills that are currently required in the labour market.

6.10 Task team formulation to look at the progression of non-white individuals in scarce skills programmes particularly the BVSc Veterinary Science

Factors contributing to Blacks not progressing in the scarce skills need to be investigated, especially when one considers the fact that, during 2004, 2005 and 2006, there has not been significant representation of Blacks in these programmes. The skills shortage impact is two-fold: firstly, it cripples the economic growth due to poor contribution to the GDP by the agriculture sector and secondly, politically efforts towards fair distribution of opportunities in the agricultural economic division such as employment equity experience a setback as there are relatively very few Black professionals in these fields of study.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Chapter 1

Chapter 1

1.1 Introduction

This report is based on a study conducted on the agricultural enrolments, graduate outputs and AET programmes offered by various agricultural colleges and higher education institutions in the 2006 academic year. The DoA collects data on the types of programmes offered in the Colleges of Agriculture and Higher Education (HE) institutions, number of enrolments and number graduates in all the Agricultural programmes offered by these institutions on an annual basis. The 2006 report is the third in a series of annual reports on AET enrolments, graduate outputs and programmes offered by Colleges of Agriculture as well as HE institutions to be produced by the DoA.

1.2 Objectives of the project

The primary objective of the study was to observe the trends in terms of skills supply for the agriculture sector by the HE institutions and the agricultural colleges. The other objective of the study was to observe trends with regard to AET enrolments, graduate outputs and the types of AET programmes offered by the various institutions in order to inform policy and planning regarding AET provisioning in the public Colleges of Agriculture and higher education institutions for the purposes of skills supply priorities for the sector. The findings would further assist in the development of strategies for addressing the skills demand in the agriculture sector.

1.3 Methodology for the study

The research study was more quantitative in nature and its aim was to yield quantitative descriptive data. The Education, Training and Extension Services (ETES) Directorate conducted a questionnaire-based survey with all the Colleges of Agriculture, Universities and Universities of Technology offering AET programmes. The study was conducted from April 2007 to March 2008.

Data collection for the study focused on the number of AET enrolments and graduates from undergraduate to postgraduate levels focusing on all the agricultural disciplines. It also focused on the types of programmes offered at these institutions. Questionnaires requesting information on the number of enrolments and graduates in all the agricultural programmes offered by each institution were distributed electronically to all public HE institutions offering agricultural programmes and the 12 Colleges of Agriculture. The questionnaires were completed and returned to the Directorate in the same way.

For ease of interpretation, the qualifications were categorised using the Categorisation of Education Subject Matter (CESM) of the Department of Education. However, in some cases the CESM was further broken down into sub-categories to obtain a better understanding of the enrolments and supply of AET graduates. The following table indicates how the qualifications and sub-categories were classified in the report.

Table 1: Classification of qualifications in the report

CESM	Qualifications
Animal Science	Diploma: Animal Health, BTech: Animal Heath, MTech: Animal Health, DTech: Animal Health. Diploma: Animal Production, BTech: Animal Production, MTech: Animal Production, DTech: Animal Production Diploma: Pig Production Management, BTech: Pig Production Management, MTech: Pig Production Management, DTech: Pig Production Management Diploma: Equine Science, BTech: Equine Science, MTech: Equine Science, DTech: Equine Science Diploma: Nutrition, BTech: Nutrition, MTech: Nutrition DTech: Nutrition Diploma: Production Physiology, BTech: Production Physiology, MTech: Production Physiology, DTech: Production Physiology Diploma: Animal Production Management, BTech: Animal Production Management, MTech: Animal Production Management B.A.: Animal Production, B.A.(Hons): Animal Production, M.A. Animal Production, PhD: Animal Production BSc: Animal Production, BSc (Hons): Animal Production, MSc: Animal Production, PhD: Animal Production BSc: Animal Health, BSc (Hons): Animal Health MSc: Animal Health, PhD: Animal Health BSc: Animal Science and Animal Genetics, BSc (Hons): Animal Science and Animal Genetics, MSc: Animal Science and Animal Genetics, PhD: Animal Science and Animal Genetics

Table 1: Classification of qualifications in the report	
CESM	Qualifications
Horticulture	Diploma: Horticulture, BTech: Horticulture, MTech: Horticulture, DTech: Horticulture BSc: Horticulture, BSc (Hons): Horticulture, MSc: Horticulture, PhD: Horticulture
Plant Science	Diploma: Crop Production, BTech: Crop Production, MTech: Crop Production, DTech: Crop Production Diploma: Plant Production, BTech: Plant Production, MTech: Plant Production, DTech: Plant Production BSc: Pasture Science, BSc (Hons): Pasture Science, MSc: Pasture Science, PhD: Pasture Science B.A.: Crop Production Management, B. A. (Hons): Crop Production Management, M.A.: Crop Production Management, PhD: Crop Production Management BSc: Crop Science, BSc (Hons): Crop Science, MSc: Crop Science, PhD: Crop Science BSc: Plant Pathology, BSc (Hons): Plant Pathology, MSc: Plant Pathology, PhD: Plant Pathology BSc: Plant Pathology and Entomology, BSc (Hons): Plant Pathology and Entomology, MSc: Plant Pathology and Entomology, PhD: Plant Pathology and Entomology BSc: Plant Breeding and Genetics, BSc Hons): Plant Breeding and Genetics, MSc: Plant Breeding and Genetics, PhD: Plant Breeding and Genetics BSc: Plant Protection, BSc Hons): Plant Protection, MSc: Plant Protection, PhD: Plant Protection BSc: Plant Production, BSc Hons): Plant Production, MSc: Plant Production, PhD: Plant Production
Land Reclamation	Diploma: Landscape Technology, BTech: Landscape Technology, MTech: Landscape Technology, DTech: Landscape Technology
Renewable Natural Resources	Diploma: Nature Conservation, BTech: Nature Conservation, MTech: Nature Conservation, DTech: Nature Conservation
Agriculture Management	Diploma: Agricultural Management, BTech: Agricultural Management, MTech: Agricultural Management, DTech: Agricultural Management
Other Agriculture and Renewable Resources	Diploma: Agriculture: Mixed Farming, BTech: Agriculture: Mixed Farming, MTech: Agriculture :Mixed Farming, DTech: Agriculture : Mixed Farming
Wildlife Management	Diploma: Game Ranch Management, BTech: Game Ranch Management, MTech: Game Ranch Management, DTech: Game Ranch Management Diploma: Ecotourism, BTech: Ecotourism, MTech: Ecotourism, DTech: Ecotourism
Agricultural Science (in Universities of Technology)	Diploma Agriculture, BTech: Agriculture, MTech: Agriculture, DTech: Agriculture Diploma: Agricultural Science, BTech: Agricultural Science, MTech: Agricultural Science, DTech: Agricultural Science
Agricultural Science (B.Agric. Stream)	B.Agric. Science, B.A. (Hons): Agricultural Science, M.A.: Agricultural Science, PhD: Agricultural Science
Agricultural Science (Science Stream)	BSc: Agricultural Science, BSc: (Hons) Agricultural Science, MSc: Agric. Science, PhD: Agricultural Science
Agriculture Extension	Diploma: Agricultural Rural Development, BTech: Agricultural Rural Development, MTech: Agricultural Rural Development, DTech: Agricultural Rural Development B.Agric. Extension, B. (Hons): Agricultural Extension, M. Agricultural Extension, PhD: Agricultural Extension
Agricultural Economics	B. Agricultural Economics, B.A (Hons): Agricultural Economics, M.A.: Agricultural Economics, PhD: Agricultural Economics BSc: Agricultural Economics, BSc Hons): Agricultural Economics, MSc: Agricultural Economics, PhD: Agricultural Economics B .Com.: Agricultural Economics, B. Com. (Hons): Agricultural Economics, M. Com.: Agricultural Economics, PhD: Agricultural Economics
Agricultural Economics (AgriBusiness)	B.Com.: Agricultural Economics (AgriBusiness), B.Com. (Hons): Agricultural Economics (AgriBusiness), M.Com.: Agricultural Economics (AgriBusiness), PhD: Agricultural Economics (AgriBusiness)
Agricultural Extension (Inst. Agrar. Stream)	B .Inst.Agrar. Agricultural Extension, B. (Hons) Inst.Agrar. Agricultural Extension, M .Inst.Agrar. Agricultural Extension,

Table 1: Classification of qualifications in the report	
CESM	Qualifications
Agricultural Food Technology	BSc: Food Science and Technology, BSc Hons): Food Science and Technology, M Sc: Food Science and Technology, PhD: Food Science and Technology BSc: Food Science and Chemistry, BSc Hons): Food Science and Chemistry, MSc: Food Science and Chemistry, PhD: Food Science and Chemistry BSc: Food Science and Biochemistry, BSc Hons): Food Science and Biochemistry, MSc: Food Science and Biochemistry, PhD: Food Science and Biochemistry, BSc: Food Science and Microbiology, BSc Hons): Food Science and Microbiology, MSc: Food Science and Microbiology, PhD: Food Science and Microbiology
Soil Science	BSc: Agric. Soil Science, BSc Hons): Agric. Soil Science, MSc: Agric. Soil Science, PhD: Agric. Soil Science
Forestry	BSc: Forestry, BSc Hons): Forestry, MSc: Forestry, PhD: Forestry
Agricultural Food Technology (Inst. Agrar. Stream)	B. Inst.Agrar. Food Technology, B. (Hons) Inst.Agrar. Food Technology, M. Inst.Agrar. Food Technology,
Agricultural Management (Inst.Agrar. Stream)	B. Inst.Agrar. Agricultural Management, B. Inst.Agrar. (Hons) Agricultural Management, M. Inst.Agrar. Agricultural Management,
Animal Science (Inst.Agrar. Stream)	B. Inst.Agrar. Animal Science. B. (Hons) Inst.Agrar. M. Inst.Agrar. Animal Science,
Horticulture (Inst. Agrar. Stream)	B. Inst.Agrar. Horticulture, B. (Hons) Inst.Agrar. Horticulture, M. Inst.Agrar. Horticulture,
Land Reclamation (Inst. Agrar. Stream)	B. Inst.Agrar. Land Reclamation, B. (Hons) Inst.Agrar. Land Reclamation, M .Inst.Agrar. Land Reclamation,
Rural Development (Inst.Agrar. Stream)	B. Inst.Agrar. Rural Development, B. (Hons) Inst.Agrar. Rural Development, M Inst.Agrar. Rural Development,
Agricultural Economics (Inst. Agrar. Stream)	B Inst.Agrar. Agricultural Economics, B Inst.Agrar. (Hons) Agricultural Economics, M Inst.Agrar. Agricultural Economics,
Environmental Management (Inst.Agrar. Stream)	B Inst.Agrar. Environmental Management, B Inst.Agrar. (Hons) Environmental Management, M Inst.Agrar. Environmental Management,
Agronomy (Inst. Agrar. Stream)	B. Inst.Agrar. Agronomy, B Inst.Agrar. (Hons) Agronomy, M Inst.Agrar. Agronomy

The Agricultural Science and the Agricultural Extension CESM were sub-categorised into the B.Agric. stream, Inst.Agrar. stream and the B.Sc. stream. The Agricultural Economics stream was also further sub-categorised into the Science stream (B.Sc. Agricultural Economics, B.Sc. Hons and M.Sc. Agricultural Economics) and the B.Agric. Stream (B. Agricultural Economics, B.A. Honours in Agricultural Economics and M.A. Agricultural Economics/MPhil Agricultural Economics). Owing to the fact that Agricultural Engineering, Veterinary, Oenology and Viticulture were identified as scarce skills in the agriculture sector, these programmes were discussed separately from the other programmes. The data presents a demographic breakdown of the number of enrolments and graduate outputs for all the AET programmes in the report.

Chapter 1 presents the introduction of this study. Chapter 2 presents findings on the number of enrolments, graduate outputs and programmes offered at Colleges of Agriculture. Chapters 3 and 4 present the same information from the Universities of Technology and Universities respectively. Chapter 5 presents the agricultural scarce skills at Universities and Colleges of Agriculture.

1.4 Limitations

The study is mostly quantitative in nature and because the study is not qualitative, it does not go into depth with regard to factors influencing the trends in agricultural enrolments and graduate outputs in the various programmes.

The study could not report on each qualification and used the CESM which resulted into the different scarce skills within a CESM not clearly indicated e.g. entomology is included under plant health. This was due to the fact that institutions could not provide the information per field of specialisation within the CESM.

Furthermore, the study could not clearly indicate the different specialisations within each CESM, owing to the fact that some institutions did not provide the information on specialisation.

The other limitation of the study is that the Faculty of Veterinary Science at the University of Pretoria could not provide the data on graduate outputs and enrolments at postgraduate level. This problem also applies in the case of agricultural engineering. The study therefore does not give an indication of the number of graduates and enrolments in veterinary and agricultural engineering at postgraduate level.

TRENDS IN AGRICULTURAL EDUCATION AND TRAINING AT THE COLLEGES OF AGRICULTURE IN THE 2006 ACADEMIC YEAR

Chapter 2

2.1 Introduction

There are 12 Colleges of Agriculture in the country namely: Cedara College of Agriculture, Elsenberg College of Agriculture, Fort Cox College of Agriculture and Forestry, Glen College of Agriculture, Grootfontein Agricultural Development Institute, Lowveld College of Agriculture, Madzivhandila College of Agriculture, Owen Sitole College of Agriculture, Potchefstroom College of Agriculture, Taung College of Agriculture, Tompi Seleka College of Agriculture and Tsolo Agriculture and Rural Development. Nine (9) of the 12 colleges offer programmes in the HET band as well as programmes in the FET band which are usually offered in the form of short courses. Madzivhandila and Tompi Seleka phased out programmes in the HET band, i.e. Diploma and Higher Certificate in Agriculture in 2004, and they only offer FET and GET agricultural programmes.

This chapter presents the types of programmes: NQF levels, accrediting bodies and duration of programmes offered in the Colleges of Agriculture. The chapter also presents the number of graduates and enrolments in the various programmes offered at the colleges.

2.2 Curriculum and programme offerings at the Colleges of Agriculture

There have been no changes in terms of the programmes offered in the colleges in 2004, 2005 and 2006 and the colleges still offer programmes ranging from NQF level 1-6. The common qualifications offered by the colleges are a Higher Education Certificate in Agriculture at NQF level 5, and a Diploma in Agriculture at NQF level 6. A Diploma in Agriculture is pursued after completion of the two year Higher Certificate in Agriculture. All the higher certificates are offered as a two-year programme of which the third year will lead to the acquisition of a Diploma.

Colleges have attempted to design their programmes to suit the skills requirements of the particular agricultural industry in their locality (e.g. wine farming in the Western Cape or subtropical crop production in the Lowveld).

The types of partnerships which existed between some of the colleges and local Higher Education Institutions still exist. For example, Elsenberg College is linked with the University of Stellenbosch in providing a Degree programme related to local industrial needs in the Western Cape. The Taung College of Agriculture is engaged in a partnership agreement with the North West Province's Vuselela College, specifically its branch in Pudimoe, Taung. Under their agreement, the College has commenced teaching the FET College N1-N6 programme, having started with the first N1 group in 2003. The idea is for students to begin with the N1 to N3 programmes and then proceed to the traditional agricultural college programmes based on the Certificate, Higher Certificate and Diploma requirements. All students at Taung who are engaged in FET courses are counted in the FET dataset operated by the National Department of Education.

Furthermore, the colleges are working hard to provide support for small and emerging farmers in the provinces in which they are located. These factors have brought about marked differentiation between the colleges in their programme mix as well as the introduction of short courses to address the needs of the farmers.

Unlike the FET colleges, the Colleges of Agriculture do not provide highly standardised programmes. There is flexibility because the Colleges of Agriculture orient their courses towards supporting the agricultural activities that are practiced in their region. For example: Cedara focuses on forestry and horticulture; Lowveld focuses on sugar cane, tobacco and horticulture as well as cotton to attract students from other regions; Potchefstroom focuses on mixed farming as carried out in the Highveld and adjacent regions; and Elsenberg has set itself the aim of specializing in agribusiness.

Even though the curriculum at the Colleges of Agriculture is not highly standardised as in the FET Colleges, the survey reveals that the Agricultural Colleges present programmes that cover the same broad fields of knowledge offered by the FET college curriculum: plant production, animal production, agricultural management and agricultural engineering.

Table 2: Knowledge fields and courses incorporated into agricultural subject matter offered by the Colleges of Agriculture			
General courses	Courses covering specific sub-fields	More specialised courses within sub-fields	Specific product courses include:
Plant Production	Agronomy (Grain crops)	Crop protection	E.g.: Vegetable, fruit production, viticulture, sugar cane etc. Also: green house management, forestry
	Crop production	Pasture management	
	Horticulture		
	Soil science		
Animal production	Animal breeding	Artificial insemination	E.g.: Beef cattle, dairy cattle, fish, mutton, pig, poultry, wool etc.
	Animal nutrition	Animal husbandry	
		Feedlot management	
	Animal production	Small stock production	
		Large stock production	
	Animal health		
Agricultural Engineering	Hydraulics/Hydraulic systems	Irrigation and drainage systems	
	Agricultural implements		
	Mechanisation planning		
	Electrical apparatus/motors		
	Surveying		
Agricultural Management	Marketing		
	Farm management	Office administration	
		Land use planning	
	Community development		
	Financial management	Farm accounting	
	Economics	Production factors	
		IT applications	
		Entrepreneurial skills	
Environmental management	Game ranching		
	Veld management	Problem animal control	
Other		Farm safety	

Agricultural colleges offer courses at a more advanced level than the FET colleges. For example, within the knowledge field of animal production, more advanced courses such as 'Artificial Insemination' are offered. Likewise, in crop production more advanced courses like 'Greenhouse Management' are offered. Furthermore, what is called the "Farm Mechanics" of the FET College Curriculum is taken to a more advanced level in the form of "Agricultural Engineering" at the agricultural colleges. Also, agricultural management at colleges includes higher-level courses in agricultural economics that are not offered at the FET Colleges. Finally, a knowledge domain not found in the FET College curriculum deals with Environmental management, conservation and game farming.

The equitable balance between theoretical and practical information within the college programmes is considered to be important. Broadly, across the curriculum there is a 55-60% theoretical component; the remaining component is made up of practical application. This is not necessarily the case for Universities and Universities of Technology. Colleges of Agriculture are therefore providing more hands-on-training in comparison to other FET and Higher Education Institutions. Some colleges also offer non-formal training programmes, typically short courses for the further education and training sector.

The agricultural college is the only institutional type that exclusively offers agricultural programmes. This means that student choice of courses is strictly restricted to what is offered by the institution. Therefore, Colleges of Agriculture are similar to FET colleges because student choice is defined by the boundaries of the institution or by the limits of the programme, unlike Universities and Universities of Technology (HE institutions) which offer a variety of programmes within a single qualification and students can select from a wide range of options which may be extraneous to the faculty of agriculture.

There is further similarity between FET Colleges and Colleges of Agriculture because their programmes are based on a relatively straightforward progression of students between curriculum levels. In the case of the FET Colleges, a student enters at N1 and progresses over three years to N3; and in the agricultural colleges a student progresses from the two-year National Higher Certificate to the one-year National Diploma. In each case the completion of a strictly defined three year programme leads to a single qualification.

Colleges of Agriculture like FET colleges, offer relatively 'closed' programmes, whereas the Universities and, increasingly, the Universities of Technology offer more open programmes which offer a wide variety. This means that it is possible for programmes at Universities and Universities of Technology to support higher levels of specialisation than in the Colleges of Agriculture.

Agricultural programmes at the Colleges of Agriculture have a clearly defined shape and are relatively standardised and they are almost similar with regard to content in all the colleges. These factors make it highly possible to describe the actual curriculum within each programme/qualification and for student progression from one college to the other, which is not necessarily the case with Universities and Universities of Technology.

The Higher Education Certificate and the Diploma programmes are accredited by the Higher Education Qualifications Committee of the Council on Higher Education, while the programmes from NQF level 1 to 4 (including short courses) are accredited by Umalusi and AgriSETA.

Nine (9) Colleges of Agriculture offer NQF level 5 qualifications, i.e. Higher education programmes. Madzivhandila and Tompi Seleka colleges have ceased offering the year programmes in the year 2004, while Tsolo College ceased offering HE programmes in the year 2001. Table 3 below indicates the types of programmes offered in the individual colleges, the NQF levels, duration of and accrediting bodies for the different programmes as well as short courses.

Table 3: Programmes offered by the Colleges of Agriculture

College	Programme	NQF level	Duration	Accrediting body
1. Cedara	1. Higher Certificate in Agriculture.	5	2 years Full-Time	HEQC
	2. Diploma in Agriculture.	6	3 years Full-Time	HEQC
	3. Short Courses	*	(1 day-1week)	*
2. Elsenburg	1.National Certificate	1 & 4	Variable (Short courses)	AgriSETA
	2 Higher Cert in Agriculture.	5	2 years Full-Time	HEQC
	3. Dip in Agriculture in Cellar Technology.	5	1 year Full-Time	HEQC
	4. Diploma in Agriculture.	5	1 year Full-Time	HEQC
	5. B.Agric	6	3 years Full-Time	HEQC
	6. Short courses	1-4	1 – 10 days	AgriSETA
3. Fort Cox	1. Diploma in Social Forestry.	5	3 years Full-Time	HEQC
	2. Diploma in Agriculture: Animal Production.	5	3 years Full-Time	HEQC
	3. Diploma in Agriculture: Crop Production.	5	3 years Full-Time	HEQC
	4. Diploma in Agriculture: Agribusiness	5	3 years Full-Time	HEQC
4. Glen	1. National Certificate	5	2 years Full-Time	HEQC
	2. N Dip in Agriculture.	6	1 year (Post Cert)	HEQC
	3. Various Short courses	*	1– 3 days	*

Table 3: Programmes offered by the Colleges of Agriculture				
College	Programme	NQF level	Duration	Accrediting body
5. Grootfontein	1. Higher Certificate in Agriculture. 2. Diploma in Agriculture. 3. Various Short Courses	5 6 *	2 years Full-Time 3 years Full-Time (1-3 weeks)	HEQC HEQC *
6. Lowveld	1. Higher Certificate. Plant Production 2. Diploma Plant Production	5 6	2 years Full-Time 1 year Full-Time (post certificate)	HEQC HEQC
7. Madzivhandila	1. Learnership programme: (i) Animal Production (i) Plant Production 2. Various short courses	 1	8 months 8 months 2 days – 3 months	AgriSETA AgriSETA
8. Owen Sitole	1. Higher Certificate in Agriculture. 2. Diploma in Agriculture 3.Higher Certificate in Home Economics 4. Dip in Agriculture: Home Economics.	5 6 5 6	2 years Full-Time 3 years 2 years 3 years	HEQC HEQC HEQC HEQC
9. Potchefstroom	1. Higher Certificate in Agriculture. 2. Dip in Agriculture. 3. Various short courses	4 5 1	2 years 3 years (1-4 days)	HEQC HEQC AgriSETA
10. Taung	1. N4 Certificate in Farming Management. 2. N5 Certificate in Farming Management. 3. N6 Certificate in Farming Management.	4 4 5 (after completion of 18 months experiential training)	1 year 2 years 3 years	Umalusi Umalusi Umalusi
11. Tompi Seleka	Various short courses	*		*
12. Tsolo	Various short courses	1	5-20 days	AgriSeta

* Not accredited

From Table 3, it is clear that all the Colleges of Agriculture, in accordance with their programme offerings, fit well into the FET sector. Taung College of Agriculture is still pursuing the N-stream that is used by technical colleges. After the completion of the N6 certificate, the students in this college may enroll for the national Diploma in Farm Management at any University of Technology. In order to qualify for this Diploma, candidates need to complete 18 months of practical training in an agricultural related workplace.

Elsenburg College has entered into a partnership with the University of Stellenbosch to offer the Bachelor of Agriculture degree. Potchefstroom College also had a partnership with TUT to offer BTech Agricultural Management; however this partnership ceased at the end of 2005.

The challenge in most of the colleges is accreditation of short courses, which are offered either at GET or FET levels. In most of the colleges these programmes are not accredited and are, therefore, more like information-sharing programmes, rather than training programmes.

2.3 Enrolment figures at Colleges of Agriculture

A total number of 1 117 students enrolled in 2006 at nine agricultural colleges. Madzivhandila, Tompi Seleka and Tsolo enrolled no new students during the 2006 since they phased out their Diploma and Higher Certificate programmes and focused their curricula on short courses and learnerships at GET and FET levels.

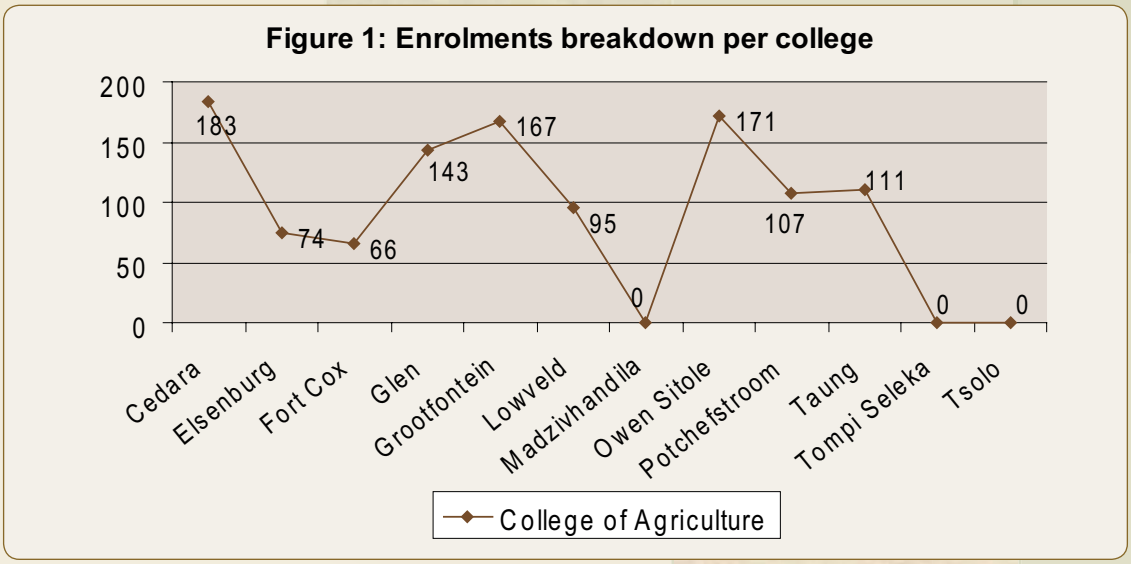
Table 4 below presents the enrolment figures per College of Agriculture in the 2006 academic year.

Table 4: Enrolments per College of Agriculture

Name of the college	Number of enrolled students in 2006	Percentage (%)
1. Cedara College of Agriculture	183	16
2. Elsenburg College of Agriculture	74*	7
3. Fort Cox College of Agriculture & Forestry	66	6
4. Glen College of Agriculture	143	13
5. Grootfontein Agricultural Development Institute	167	14
6. Lowveld College of Agriculture	95	9
7. Madzivhandila College of Agriculture	0	0
8. Owen Sitole College of Agriculture	171	15
9. Potchefstroom College of Agriculture	107	10
10. Taung College of Agriculture	111	10
11. Tompi Seleka College of Agriculture	0	0
12. Tsolo Agriculture and Rural Development Institute	0	0
TOTAL	1117	100

*Information on B Agric: Viticulture is discussed under chapter 5

Cedara College had a high number of enrolments with 183 (16%) students, followed by Owen Sitole College with 171 (15%) students. Grootfontein and Glen colleges enrolled 167 (14%) and 143 (13%) students in the 2006 academic year respectively. The remaining colleges each enrolled less than 11% the overall students enrolled by the colleges in the 2006 academic year.



* Note that Madzivhandila, Tompi Seleka and Tsolo are offering short courses and learnerships only

Figure 1 above depicts that generally colleges in the 2006 academic year have enrolled fewer students compared to the 2004 and 2005 academic. Only three out of nine colleges have enrolled less than a hundred students.

Table 5 below presents a demographic breakdown of enrolments per Colleges of Agriculture.

Table 5: Breakdown of enrolments by gender and race

Name of the College	African			Coloured			White			Asian			Total	%
	M	F	Total	M	F	Total	M	F	Total	M	F	Total		
1. Cedara	66	45	111	3	0	3	65	1	66	0	3	3	183	16
2. Elsenburg	3	0	3	10	5	15	54	2	56	0	0	0	74	7
3. Fort Cox	49	17	66	0	0	0	0	0	0	0	0	0	66	6
4. Glen	87	56	143	0	0	0	0	0	0	0	0	0	143	13
5. Grootfontein	20	0	20	21	0	21	119	7	126	0	0	0	167	14
6. Lowveld	46	43	89	0	0	0	6	0	6	0	0	0	95	9
7. Madzivhandila	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Owen Sitole	82	89	171	0	0	0	0	0	0	0	0	0	171	15
9.Potchefstroom	35	13	48	1	2	3	47	9	56	0	0	0	107	10
10. Taung	66	45	111	0	0	0	0	0	0	0	0	0	111	10
11.Tompi Seleka	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12. Tsolo	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	454	308	762	35	7	42	291	19	310	0	3	3	1117	100
%	41	28	68	3	1	4	26	2	28	0	0	0		100

Table 5 above indicates that 4 out of the 9 colleges enrolled predominantly African students with no Coloured, White or Asian students at all. These colleges are Fort Cox, Glen, Owen Sitole and Taung.

The data in Table 5 depicts that African students dominate the enrolments at Colleges of Agriculture with 68%, followed by Whites students with 28% and Coloured students with 4%. Asian students enrolled at colleges in the 2006 academic year were less than 1%. Male enrolments constitute 70% (780) of the total number of enrolled students in 2006 and female enrolments constitute 30% (337).

African males dominate male enrolments at Colleges of Agriculture during the 2006 academic with 59% (454) followed by White males with 37% (291) and Coloured males with 4% (35). No Asian males enrolled at these colleges in the 2006 academic year. African female students dominate the female enrolments with 91% followed by White females with 6%. Coloured and Asian female students respectively account for 2% and 1% of the overall female graduates at these colleges in the 2006 academic year.

Figure 2: Breakdown of enrolments by gender

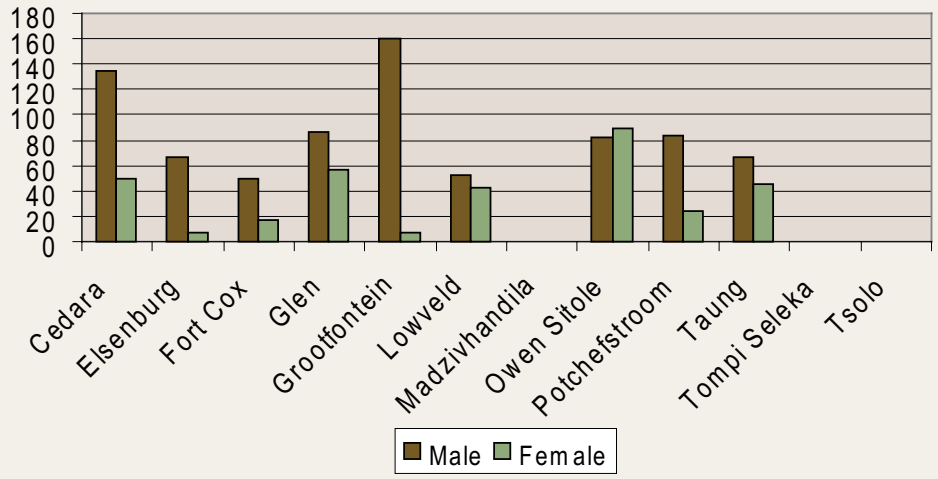


Figure 2 above indicates that the difference in numbers between male enrolments and female enrolments in some colleges were very high. For instance, there is a significant difference between male and female students at Grootfontein, Potchefstroom, Cedara and Elsenburg. But it is different case at Owen Sitole, where female enrolments outnumbered the male enrolments.

The trends in Figure 2 above indicate that the number of male enrolments in the agricultural colleges is generally higher than that of female enrolments in the 2006 academic year. The figures also depict that the colleges that are regarded as historically Black colleges in terms of their student attraction have so far failed to attract other race groups to their institutions. This is a continued trend from the 2004 and 2005 academic years.

Table 6: Breakdown of enrolments per programme at Colleges of Agriculture in 2006

COLLEGES OF AGRICULTURE	NUMBER OF ENROLMENTS PER PROGRAMME						
	NQF 1-4 (Including N1-N2)	CERTIFICATE (Including N3)	HEC (Including N4-N5)	DIPLOMA	DEGREE	TOTAL	%
Cedara	0	0	141	42	0	183	15
Elsenburg	0		29	45	0	74	15
Fort Cox	0	0	0	66	0	66	5
Glen	0	0	109	34	0	143	12
Grootfontein	0	0	111	56	0	167	13
Lowveld	0	0	0	95	0	95	8
Madzivhandila	0	0	0	0	0	0	0
Owen Sitole	0	0	0	171	0	171	14
Potchefstroom	0	0	78	29	0	107	9
Taung	0	52	40	19	0	111	9
Tompi Seleka	0	0	0	0	0	0	0
Tsolo	0	0	0	0	0	0	0
Total	0	52	508	557	0	1117	
%	0	5	45	50	0		100

The data in Table 6 above depict that Diploma students constitute 50% (557) of the total number of enrolled students per programme in 2006, followed by the Higher Education Certificate level with 41% (508). The least enrolments were from certificate level (N3) with only 5% (52) of the total number of enrolled students in the 2006 academic year at Colleges of Agriculture. No students enrolled at N1-N2 in the 2006 academic year.

2.4 Short Courses offered in Colleges of Agriculture

Colleges have engaged on short course programmes to a large degree during the 2006 academic year. Colleges that offer these short course programmes include Cedara, Elsenburg, Glen, Grootfontein, Madzivhandila, Owen Sitole, Potchefstroom and Tompi Seleka. Some colleges offer accredited short courses and these are Elsenburg and Potchefstroom. The accreditation of their short courses ranges between NQF levels 1 and 4 and they are accredited by AgriSETA. Short courses range in duration from 1 day to 3 months. Table 7 presents the types of courses offered by the Colleges of Agriculture in the 2006 academic year.

Table 7: Various Short Courses offered at Colleges of Agriculture in 2006

	Cedara	Elsenburg	Fort Cox	Glen	Grootfontein	Lowveld	Madzivhandila	Owen Sitole	Potchefstroom	Taung	Tompi Seleka	Tsolo
Atchar Processing							X					
Agricultural Extension	X											
Agricultural Engineering		X										
Agricultural Management/Economics		X										
Agricultural Marketing		X										
Agronomy								X				
Alien Plant Control	X											
Animal Production								X				
Animal Husbandry		X										
Arch Welding					X				X			
Artificial Insemination									X			
Arts & Crafts	X											
Arts & Crafts: Quality Control	X											
Applying Fertiliser Manually												X
Avcasa		X										
Banking											X	
Basic Electricity					X							
Basic Nursery Practices							X					
Basic Soil Science and Vine Nutrition		X										
Beef (Feeding)											X	
Beef Production	X						X	X				
Beekeeping	X											
Bioresource Programme	X											
Boer Goat Production		X										
Branding					X							
Branding Operators					X							
Broiler								X				
Broiler Production							X		X		X	
Calibration of Knapsack Sprays		X										
Cattle Management									X			
Care for Farm Animals												X
Clean Poultry House & Equipment												X
Conservation Tillage	X											
Cotton Production								X				
Crop & Veg. Production	X											
Crop Production (Comm. Farm)	X											

Table 7: Various Short Courses offered at Colleges of Agriculture in 2006												
	Cedara	Elsenburg	Fort Cox	Glen	Grootfontein	Lowveld	Madzivhandila	Owen Sitole	Potchefstroom	Taung	Tompi Seleka	Tsolo
Crop Protection (Viticulture)		X										
Crop Types to Plant				X								
Citrus and Mango Production							X					
Cultivated Pastures	X											
Dairy Processing	X				X							
Dairy Production		X					X		X		X	
Dairy Production (Basic)	X											
Digital Photography	X											
Egg Production								X				
Equine Health: Skin Diseases		X										
Equine Health: Conformation and Claudication		X										
Equine Health: Respiratory Ailments		X										
Equine Health: Neurological Diseases		X										
Equine Health: Claudication 2 (Practical)		X										
Farm Business Management	X							X				
Farming of goats					X							
Farming Systems Approach	X											
Farm Management									X			
Fencing					X							
Fertilizing of crops				X								
Fertiliser Use/ Management							X					
Fish Production							X					
Food Preservation											X	
Framework development of Vines		X										
Fruit Production		X									X	
Functional and Maintenance of Windmills		X										
Game Management	X											
General Agriculture		X										
Goat Production	X											
Harvesting & Post-Harvest Handling of Deciduous Fruit		X										
Health & Food Safety	X											
Human and Social Sciences		X										
Hydroponics	X											
Introduction to Greenhouse Management		X										
Irrigation	X											
Jam Manufacturing	X											
Join Component Parts												X
Judging of Beef Cattle				X								
Know & Understand Tractor					X							
Leadership, Management, Mentorship & Support												X
Land Assessment	X											
Landcare Facilitation												X

Table 7: Various Short Courses offered at Colleges of Agriculture in 2006

	Cedara	Elsenburg	Fort Cox	Glen	Grootfontein	Lowveld	Madzivhandila	Owen Sitole	Potchefstroom	Taung	Tompi Seleka	Tsolo
Layers Production							X					
Maintenance of equipments												X
Maintenance Pruning of Vines												
Making Scientific Posters	X											
Manufacture Craft Baked from Confectionery Products												X
Macadamia Production							X					
Maintenance of Apple Trees		X		X								
Map Reading	X											
Metalwork on the Farm		X										
Nursery Management							X					
Organic Farming	X											
Operating & Performing Routine Maintenance of Equipments & Tools												X
Peanut Processing	X											
Pig Production	X	X					X	X	X		X	
Plant Production									X			
Planting crops				X								
Poultry production	X	X							X			
Poster Module Course	X											
Preparing soil for Planting				X								
Production & Pruning of Olives		X										
Project Management											X	
Pruning and Manipulation of Deciduous Fruit		X										
Research Methodology	X											
Research Paper Writing	X											
Routine Tractor Care on the Farm		X										
Safe Use of Chemicals							X					
Seedling Production									X			
School Gardens				X								
School Gardens for teachers				X								
Sheep Management					X							
Sheep Production	X											
Small scale Dairying	X											
Small Stock AI					X							
Small Stock Production							X				X	
Soil Classification	X											
Soil Fertility	X											
Soil Preparation and Plant Nutrition		X										
Soyabean Processing	X											
Special Event School Gardening							X					
Sweet Potato Production							X					
Tractor driving				X								
Tractor maintenance				X								

Table 7: Various Short Courses offered at Colleges of Agriculture in 2006												
	Cedara	Elsenburg	Fort Cox	Glen	Grootfontein	Lowveld	Madzivhandila	Owen Sitole	Potchefstroom	Taung	Tompi Seleka	Tsolo
Traditional Food Workshop	X											
Training Poster Module	X											
Tomato Processing	X											
Vegetable Production	X	X					X	X	X		X	
Veld Management	X											
Vineyard Block Management		X										
Vineyard Canopy Management		X										
Venison Preparation					X							
Viticulture		X										
Welding					X							
Windmill					X							
Wool classing for registration					X							
Learnership Programmes												
Animal Production							X					
Plant Production							X					
Management skills												
Conflict Management		X										
Co-operative Management	X											
Effective Public Speaking	X											
Effective Communication	X											
Entrepreneurial	X											
Entrepreneurship		X										
Farm Business Management	X											
Farm-Record Keeping	X											
Financial Management		X			X		X					
Leadership Skills		X										
Life Orientation		X										
Marketing	X											
Computer Skills												
Computer, Click, Click					X							
Computer Beginners					X							
Computer for Beginners					X							
Computer Literacy							X					
Excel Level 1					X						X	
Excel Level 2					X						X	
Introduction to Computers		X										
Ms. Word											X	
Power Point											X	
Windows Level 1					X							

2.4.1 Number of people registering and completing Short Courses during 2006

Table 8 presents the number of people who registered and completed short courses per college. Madzivhandila College has a learnership programme which is offered according to its demand and is accredited by AgriSETA. The programme consists of animal production and plant production and runs for a period of 8 months (32 weeks). Refer to the Annexure for the number of beneficiaries per short course per college.

Table 8: Breakdown of people registered in and completing short courses by gender and race

Name of the college	African			Coloured			White			Asian			Unknown	Total	%
	M	F	T	M	F	T	M	F	T	M	F	T			
1. Cedara	*	*	448	*	*	5	*	*	55	*	*	15	385	908	10
2. Elsenburg	*	*	564	*	*	1107	*	*	73	0	0	0	0	1744	20
3. Fort Cox	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4. Glen	338	113	451	0	0	0	0	0	0	0	0	0	0	451	5
5. Grootfontein	*	*	722	0	0	0	*	*	165	0	0	0	0	887	10
6. Lowveld	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7. Madzivhandila	294	295	589	0	0	0	0	0	0	0	0	0	0	589	7
8. Owen Sitole	861	1341	2202	0	0	0	0	0	0	0	0	0	0	2202	25
9. Potchefstroom	80	40	120	0	2	2	88	22	110	0	0	0	0	232	3
10. Taung	0	0	0	0	0	0	0	0	0	0	0	0	484	484	5
11. Tompi Seleka	355	529	884	0	0	0	0	0	0	0	0	0	0	884	10
12. Tsolo	166	274	440	0	0	0	0	0	0	0	0	0	0	440	5
TOTAL	2029	2592	6420	0	2	1114	88	22	403	0	0	15	869	8821	100

*Information not available

Owen Sitole and Elsenburg enrolled more students for short courses than any college with 25% and 20% respectively. Cedara, Grootfontein and Tompi Seleka each contributed 10% of the total number of short courses enrolled at Colleges of Agriculture in the 2006 academic year. African beneficiaries who participated in short courses constitute 72% followed by Coloureds with 13% and Whites and others with 10% and 5% respectively. Asian beneficiaries were almost non-existent.

2.5 Graduate outputs at Colleges of Agriculture

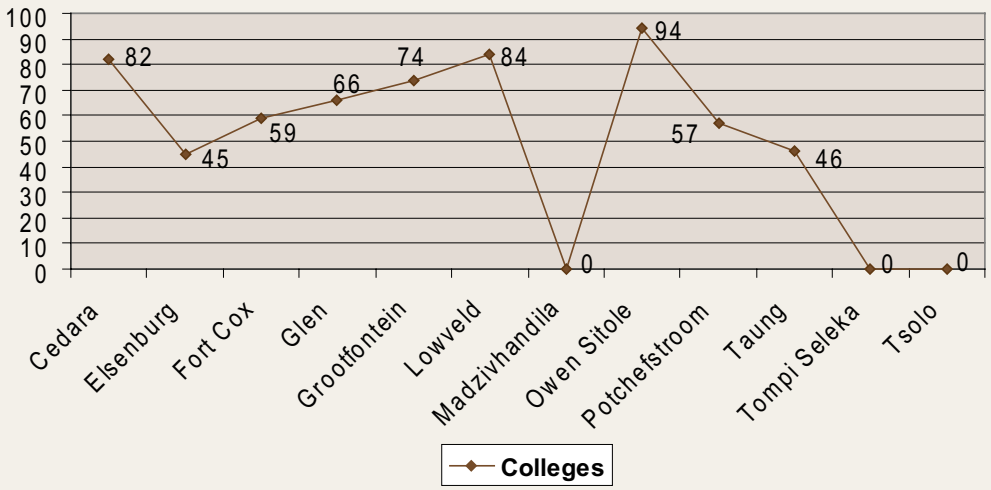
Table: 9 Graduates per College of Agriculture.

Name of the college	Number of graduates in 2006	Percentage (%)
1. Cedara College of Agriculture	82	14
2. Elsenburg College of Agriculture	45*	7
3. Fort Cox College of Agriculture & Forestry	59	10
4. Glen College of Agriculture	66	11
5. Grootfontein Agricultural Development Institute.	74	12
6. Lowveld College of Agriculture	84	14
7. Madzivhandila College of Agriculture	0	0
8. Owen Sitole College of Agriculture	94	15
9. Potchefstroom College of Agriculture	57	9
10. Taung College of Agriculture	46	8
11. Tompi Seleka College of Agriculture	0	0
12. Tsolo	0	0
TOTAL	607	100

*Information on B Agric: Viticulture is discussed under chapter 5

Six hundred and seven (607) students graduated from the Colleges of Agricultural in the 2006 academic year. Owen Sitole produced more graduates than any other college with 15% (94), followed by Lowveld and Cedara with 14% each. Grootfontein graduates account for 12% (74) of the total number of graduates at colleges. The other colleges each produced less than 12% of the overall college graduates during 2006 academic year.

Figure 3: Graduates per college of agriculture



As depicted in figure 3 above, it is evident that none of the nine colleges that enrolled students in the 2006 academic year produced 100 or more graduates. The lowest number of graduates was recorded from Elsenburg with 45 graduates.

Table 10: Breakdown of graduates by gender and race

Name of the college	African			Coloured			White			Asian			Total	%
	M	F	Total	M	F	Total	M	F	Total	M	F	Total		
1. Cedara	19	18	37	2	0	2	43	0	43	0	0	0	82	14
2. Elsenburg	0	0	0	4	0	4	34	7	41	0	0	0	45	7
3. Fort Cox	41	18	59	0	0	0	0	0	0	0	0	0	59	10
4. Glen	43	23	66	0	0	0	0	0	0	0	0	0	66	11
5. Grootfontein	4	1	5	5	0	5	55	9	64	0	0	0	74	12
6. Lowveld	51	22	73	0	0	0	10	1	11	0	0	0	84	14
7. Madzivhandila	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Owen Sitole	37	57	94	0	0	0	0	0	0	0	0	0	94	15
9. Potchefstroom	12	2	14	0	0	0	36	7	43	0	0	0	57	9
10. Taung	31	15	46	0	0	0	0	0	0	0	0	0	46	8
11.Tompi Seleka	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12. Tsolo	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	238	156	394	11	0	11	178	24	202	0	0	0	607	
%	39	26	65	2	0	2	29	4	33	0	0	0		100

As indicated in Table 10 above, African graduates were the largest group of graduates and comprised 65%, followed by White graduates with 33%, Coloureds with 2% of the total number of graduates. No Asian graduates were produced at colleges in the 2006 academic year. Male graduates dominate with 70% (427) of the total number of graduates and female graduates constitute 30% (180).

African females dominate the female graduates at Colleges of Agriculture with 87% (156) followed by White females with 13% (24). No Coloured female graduates were produced at Colleges of Agriculture in the 2006 academic year. African males dominate with 55% (238), followed by White males with 42% (178) and Coloured males with 3% (11).

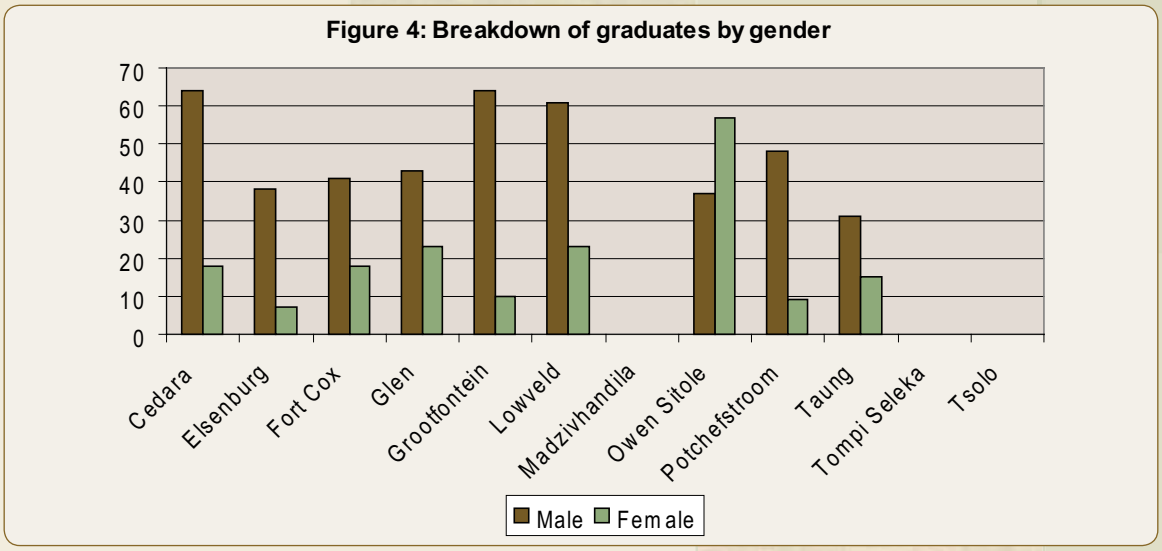


Figure 4 above indicates that the difference in numbers between male graduates and female graduates in some colleges has been very high. For instance, there is a significant difference between male and female graduates with regard to numbers in Elsenburg, Grootfontein, Cedara, Lowveld and Potchefstroom. Again the situation is different at Owen Sitole, where female graduates outnumbered the male graduates.

Table 11: Breakdown of graduates per programme

College	Number of graduates					
	NQF 1-4 (including N1-N2	Cert (including N3	HEC (including N4-N5)	Diploma (including N6	Degree	Total
1. Cedara	0	0	40	42	0	82
2. Elsenburg	0	0	0	45	0	45
3. Fort Cox	0	0	0	59	0	59
4. Glen	0	0	36	30	0	66
5. Grootfontein	0	0	37	37	0	74
6. Lowveld	0	0	56	28	0	84
7. Madzivhandila	0	0	0	0	0	0
8. Owen Sitole	0	0	41	53	0	94
9. Potchefstroom	0	0	38	19	0	57
10. Taung	0	0	32	14	0	46
11. Tompi Seleka	0	0	0	0	0	0
12. Tsolo	0	0	0	0	0	0
Total	0	0	280	327	0	607
%	0	0	46	54	0	100

The data in Table 11 above depicts that Diploma graduates dominate the total number of graduates produced at Colleges of Agriculture during the 2006 with 54% (327), followed by Higher Education Certificates with 46% (280).

2.6 CONCLUSION

The number of enrolments at the Colleges of Agriculture decreased from 1 461 in 2004 and 1 739 in 2005 to 1 117 in 2006. On the other hand, graduate figures decreased from 668 in 2004 and 638 in 2005 to 607 in 2006. As it was the case in the 2004 and 2005 academic year, Africans and Whites dominate enrolments at the Colleges of Agriculture. In comparison to 2004 and 2005 college enrolments, there is a major decrease in the overall number of enrolments and graduates in 2006. African enrolments decreased from 888 in 2004 and 872 in 2005 to 762 in 2006, while White enrolments decreased from 528 in 2004 and 749 in 2005 to 310 in 2006.

There is a noticeable decrease in both the number of Coloured enrolments and graduates in the Colleges of Agriculture in 2006 in comparison to 2004 and 2005. Coloured enrolments decreased from 43 in 2004 and 113 in 2005 to 42 in 2006, while Coloured graduate figures also decreased from 29 in 2004 and 72 in 2005 to 11 in 2006. This is a negative sign: the interventions to recruit Coloureds and Asians in the agriculture sector should be intensified. On the other hand, Asians are still largely underrepresented

in all the Colleges of Agriculture. The general trend from the 2004, 2005 and 2006 figures, indicate that males dominate both the enrolments and graduate figures.

Even in the 2006 academic year, Cedara, Elsenburg, Grootfontein, Lowveld and Potchefstroom continued to attracted students from more than one race group while other colleges continued to enroll students from one race group. Madzivhandila had introduced learnerships in the process of phasing out the old curricula. Tompi Seleka and Tsolo concentrate on short courses only.

During the 2005 and 2006 academic years, in addition to the Diploma and Higher Certificate Programmes offered by the Colleges of Agriculture, almost all the agricultural colleges introduced many short courses at General Education and Training (GET) and Further Education and Training (FET) levels compared to the 2004 academic year. The short courses offered by the colleges are more demand driven and are aimed at addressing the needs of the farming community and LRAD beneficiaries in their respective locations. Some of the short courses are accredited and others are not. The non-accredited programmes are offered in the form of short courses which focuses on information sharing, rather than being competency based and, consequently, the participants receive certificates of attendance only.

Most of the beneficiaries and participants in the short courses are Africans, and very few participants are from the other race groups. Some colleges reported that they did not keep statistics of the trainees who participated on these programmes, and others have statistics but no demographic breakdown of the participants in the short courses. From the information gathered, a record of 8 821 students enrolled for short courses in the 2006 academic year compared to 6 175 in 2005. This figure may be far greater, considering that some of the colleges did not record statistics of the number of participants in short courses. It is therefore crucial that all the colleges should keep a database of the beneficiaries and participants in these programmes in order to be able to evaluate the impact of the programmes on the socio-economic situation of the beneficiaries at a later stage.

AGRICULTURAL EDUCATION AND TRAINING AT UNIVERSITIES OF TECHNOLOGY IN THE 2006 ACADEMIC YEAR

Chapter 3

Chapter 3

3.1 INTRODUCTION

There are five Universities of Technology offering the AET programmes in South Africa. The agricultural programmes offered at these institutions range through the HET band from NQF levels 5 to 8. i.e. from Certificate to a Doctor of Technology (DTech). This chapter presents the programmes offered at higher education institutions and the demographic breakdown of agricultural enrolments and graduates.

The Universities of Technology offering AET programmes in South Africa are Cape Peninsula University of Technology (CPUT), Central University of Technology, Free State (CUT,FS), Mangosuthu Technikon (MANTEC), Durban University of Technology (DUT) and Tshwane University of Technology (TUT).

3.2. AET programmes and National Qualification Framework offered at Universities of Technology in 2006

Table 12: Agricultural Education and Training at Universities of Technology in the 2006 Academic year

	Cape Peninsula University of Technology	Central University of Technology Free State	Durban University of Technology	Mangosuthu Technikon	Tshwane University of Technology
National Certificate programmes					
N.Certificate Agriculture Animal Production					X
N.Certificate Agriculture Crop Science					X
N.Certificate Agricultural Management Crop Science					X
N.Certificate Game Ranch Management					X
N.Certificate Horticulture					X
N.Certificate Nature Conservation					X
N.Certificate Landscape Technology					X
N.Certificate Turfgrass Management					X
National Higher Certificate Programmes					
N.H.Certificate Agriculture Animal Production					X
N.H.Certificate Agriculture Crop Science					X
N.H.Certificate Agricultural Management Crop Science					X
N.H.Certificate Game Ranch Management					X
N.H.Certificate Nature Conservation					X
National Diploma programmes					
NDip. Agriculture	X				X
NDip. Animal Health					
NDip. Agriculture Crop Production					X
NDip. Agriculture Crop Science					X
NDip. Agriculture Mixed Farming					X
NDip. Agriculture Rural Development					X
NDip. Agricultural Management	X	X			X
NDip. Agriculture Animal Production				X	X
NDip. Agriculture Plant Production				X	
NDip. Agriculture Equine Science					X
NDip. Agriculture Horticulture			X		X
NDip. Food Science			X		
NDip. Biotechnology			X		

Table 12: Agricultural Education and Training at Universities of Technology in the 2006 Academic year					
	Cape Peninsula University of Technology	Central University of Technology Free State	Durban University of Technology	Mangosuthu Technikon	Tshwane University of Technology
NDip. Landscape Technology			X		X
NDip. Nature Conservation			X		X
NDip. Turfgrass Management					X
National Higher Diploma programmes					
N.H.Dip. Pig Production					X
BTech. Programmes					
BTech. Agriculture	X	X			X
BTech. Agricultural Management					X
BTech. Agricultural Science					X
BTech. Agriculture Animal Production					X
BTech. Agriculture Crop Production					X
BTech. Agriculture Mixed Farming					X
BTech. Agriculture Rural Development					X
BTech. Agriculture Animal Health					X
BTech. Biotechnology			X		
BTech. Food Science			X		
BTech. Game Ranch Management					X
BTech. Agriculture Horticulture			X		X
BTech. Landscape Technology					X
BTech. Nature Conservation					X
BTech. Turfgrass Management					X
MTech. Programmes					
MTech. Agriculture					X
MTech. Biotechnology			X		
MTech. Food Science			X		
MTech. Nature Conservation					X
DTech. programmes					
DTech. Agriculture					X
DTech. Agriculture Animal Production					X
DTech. Biotechnology			X		
DTech. Nature Conservation					X

Table 12 above indicates the types of agricultural programmes offered by individual Universities of Technology. As depicted in table 12 above, TUT offers a wide range of agricultural programmes on a broad curriculum that is divided into four main streams: Horticulture, Crop Science, Nature Conservation and Animal Science.

All the Universities of Technology offer few agricultural programmes like Agriculture Management from Diploma to BTech level, with the exception of TUT and DUT which offer programmes up to DTech level. Historically Black institutions have curricula focused on skills that are less in demand in the public sector agriculture labour market. i.e. general agriculture and agriculture management qualifications with no focus on agricultural scarce skills such as Agricultural Economics, Agricultural Engineering, Viticulture, and Veterinary Science.

There is a high probability that graduates qualifying in these programmes might not get employment. However, in the private sector the situation with regard to the demand for agricultural graduates with these qualifications might be different since there is no research in this area.

Table 13 below presents the NQT Levels at University of Technology

Table 13: NQF levels at Universities of Technology		
NQF level	Band	Types of qualification and certificates
8	Higher Education and Training Band	Doctorate/ further research Degree
7		Higher Degree/professional qualifications
6		First Degree/ higher Diploma
5		Diplomas/occupational certificates

Coordination of Agricultural Higher Education at Universities of Technology has been more progressive, considering the transformation made as far as regulation is concerned. All the agricultural programmes offered at either of these Universities of Technology have their standards monitored, certified and registered under the NQF. The table below presents the programme levels together with NQF levels at which the programmes are rated (Department of Agriculture, 2005). The NQF levels determine the programme levels at each University of Technology which range between NQF level 5 which is a higher certificate, to NQF level 8 which is the DTech.

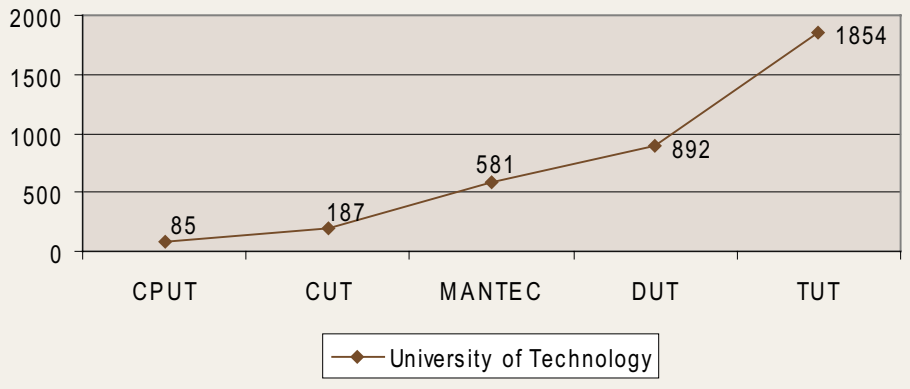
3.3 Enrolments in AET programmes at Universities of Technology during 2006

Table 14: Enrolments per University of Technology in the 2006 academic year		
University of Technology	Enrolment figures	Percentage (%)
CPUT	85	2
CUT	187	5
MANTEC	581	16
DUT	892	25
TUT	1854	52
Total	3599	100

Table 14 above presents enrolment figures at Universities of Technology in the 2006 academic year. TUT enrolled 52% of the total enrolments followed by DUT with 25% and MANTEC with 16%. CUT and CPUT recorded the lowest enrolment figures with 5% and 2% respectively.

Table 14 above and Figure 5 below depict a significant difference between TUT and the rest of the Universities of Technology in terms of student intake. The highest enrolment figures at TUT may be attributed to the many programmes offered by the institution as compared to fewer programmes offered by the other Universities of Technology. Of the 3 599 agricultural enrolments registered nationally at Universities of Technology, 1 854 students are registered with TUT, which is 52% of all the enrolments at Universities of Technology.

Figure 5: Enrolments at Universities of Technology



3.3.1 Demographic Breakdown of AET Enrolments at Universities of Technology in 2006

Table 15 below presents a demographic breakdown of AET enrolments by Universities of Technology in the 2006 academic year.

Table 15: Demographic Breakdown of AET enrolments at Universities of Technology in the 2006 academic year.

University of Technology	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
CPUT	6	3	9	12	1	13	57	6	63	0	0	0	85
CUT	67	46	113	3	0	3	61	10	71	0	0	0	187
MANTEC	321	258	579	0	0	0	1	1	2	0	0	0	581
DUT	177	355	532	5	11	16	18	27	45	69	230	299	892
TUT	775	547	1322	6	5	11	302	216	518	1	2	3	1854
TOTAL	1346	1209	2555	26	17	43	439	260	699	70	232	302	3599
%	37	35	72	1	0	1	12	7	19	2	6	8	100

Figure 6: Racial breakdown of AET enrolments at Universities of Technology

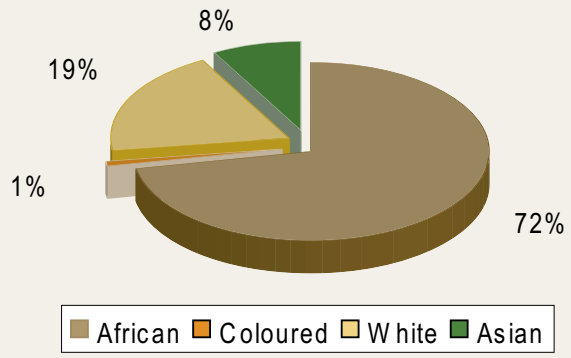


Table 15 and Figure 6 above depict that African and White students have higher enrolments constituting 72% and 19% of the total enrolments respectively. Coloured and Asian students collectively constitute less than 10% of the total enrolments.

Figure 7: Gender breakdown of AET enrolments at University of Technology

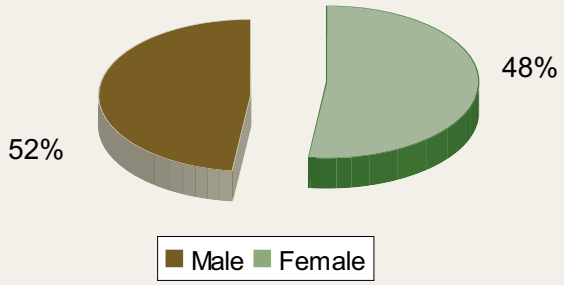


Figure 7 above depicts that male students constitute 52% of the total enrolments and female students constitute 48%.

Figure 8: Racial breakdown of female enrolments at Universities of Technology

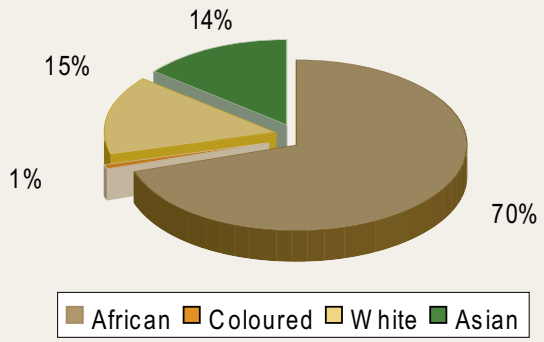


Figure 8 above suggests that African female students constitute the highest enrolments with 70% of the overall female enrolments. Female students from other races recorded the lowest number of student enrolments; White females constitute 15%, Asian females account for 14% and Coloured females account for only 1% of the overall female enrolments.

Figure 9: Racial breakdown of male enrolments at Universities of Technology

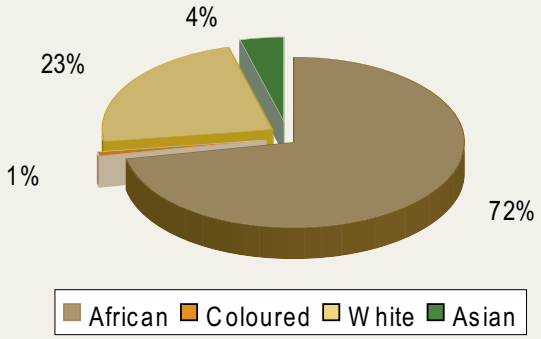


Figure 9 above indicates that African males constitute 72% of the total male enrolments followed by White males with 23%. Asian and Coloured males account for 4% and 1% of the overall male enrolments respectively.

3.3.2 AET Enrolments at Universities of Technology by Level of Qualifications & CESM in 2006

Table 16: Agricultural enrolments at Universities of Technology by CESM & levels of qualification in 2006							
CESM	N. H. CER.	DIPLOMA	BTECH	MTECH	DTECH	TOTAL	%
Animal Science	0	800	47	5	1	853	24
Horticulture	0	215	34	5	2	256	7
Plant Science	0	202	17	0	0	219	6
Renewable Natural Resources	0	668	111	25	1	805	22
Agricultural Management	0	241	86	21	2	350	10
Other Agricultural & Renewable Resources	0	31	0	0	0	31	1
Wildlife Management	0	133	10	0	0	143	4
Agricultural Science-General	3	181	25	13	3	225	6
Agricultural Extension	0	33	32	0	0	65	2
Veterinary Technology	0	58	21	2	0	81	2
Agricultural Biotechnology	0	182	51	26	14	273	8
Food Science and Technology	0	259	33	4	0	296	8
Land Reclamation	0	2	0	0	0	2	0
TOTAL	3	3005	467	101	23	3599	
%	0	83	13	3	1		100

Table 16 above presents enrolments at Universities of Technology by Category of Education Subject Matter (CESM). Universities of Technology offer programmes in the various CESM as indicated in table 16.

From Table 16 above, Animal Science, Renewable Natural Resources and Agricultural Management have the highest enrolment figures with 24%, 22% and 10% respectively. Other CESM represend less than 10% of enrolments each.

3.3.2.1 Demographic Breakdown of Agricultural Education and Training Enrolments at Universities of Technology by CESM & Levels of Qualification in 2006

Table 17: Demographic breakdown of Diploma enrolments by CESM at Universities of Technology in 2006														
CESM Category (Diploma)	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Animal Science	383	308	691	1	0	1	25	82	107	1	0	1	800	27
Horticulture	101	82	183	0	0	0	14	10	24	4	4	8	215	7
Plant Science	113	84	197	0	0	0	4	1	5	0	0	0	202	7
Renewable Natural Resources	280	246	526	3	4	7	71	51	122	4	9	13	668	22
Agricultural Management	97	59	156	6	1	7	74	4	78	0	0	0	241	8
Other Agricultural and Renewable Resources	15	8	23	0	0	0	8	0	8	0	0	0	31	1
Wildlife Management	15	7	22	0	0	0	95	16	111	0	0	0	133	4
Agricultural Science-General	76	65	141	3	1	4	33	3	36	0	0	0	181	6
Agricultural Extension	21	12	33	0	0	0	0	0	0	0	0	0	33	1
Veterinary Technology	17	20	37	0	1	1	5	14	19	0	1	1	58	2
Agricultural Biotechnology	14	53	67	1	5	6	2	5	7	18	84	102	182	6
Food Science and Technology	25	114	139	1	1	2	1	12	13	26	79	105	259	9
Land Reclamation	0	0	0	0	0	0	2	0	2	0	0	0	2	0
TOTAL	1157	1058	2215	15	13	28	334	198	532	53	177	230	3005	
%	39	35	74	0	0	1	11	7	18	2	6	8		100

Table 17 above presents the enrolments for the Diploma in Agricultural programmes at Universities of Technology in 2006. Diploma enrolments constitute 83% of the total enrolments at Universities of Technology in 2006.

Africans contributed 73% of total number of Diploma enrolments, followed by Whites with 18%. Coloured and Asian students collectively comprised less than 10% of the total number of Diploma students.

Table 18: Demographic breakdown of BTech enrolments by CESM at Universities of Technology in 2006

CESM Category (BTECH)	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Animal Science	34	12	46	0	0	0	1	0	1	0	0	0	47	10
Horticulture	6	4	10	0	0	0	13	11	24	0	0	0	34	7
Plant Science	11	2	13	0	0	0	3	1	4	0	0	0	17	4
Renewable Natural Resources	40	27	67	2	1	3	18	23	41	0	0	0	111	24
Agricultural Management	35	23	58	1	0	1	16	11	27	0	0	0	86	18
Wildlife Management	2	0	2	0	0	0	7	1	8	0	0	0	10	2
Agricultural Science-General	6	3	9	5	0	5	7	4	11	0	0	0	25	5
Agricultural Extension	16	16	32	0	0	0	0	0	0	0	0	0	32	7
Veterinary Technology	8	5	13	0	0	0	3	5	8	0	0	0	21	4
Agricultural Biotechnology	8	17	25	0	2	2	1	0	1	6	17	23	51	11
Food Science and Technology	1	14	15	0	1	1	0	0	0	1	16	17	33	7
TOTAL	167	123	290	8	4	12	69	56	125	7	33	40	467	
%	36	26	62	2	1	3	15	12	27	1	7	8		100

Table 18 above presents the enrolments for BTech in Agricultural programmes at Universities of Technology in 2006. BTech enrolments constitute 13% of the total enrolments at Universities of Technology in 2006. Africans constitute 62% of the total number of BTech enrolments during 2006 academic year at Universities of Technology, followed by Whites with 27%. Asian and Coloured students contributed 8% and 3% of the total BTech students respectively.

Table 19: Demographic breakdown of Postgraduates enrolments by CESM at Universities of Technology in 2006

CESM Category (Postgraduate)	Africans			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
MTech (Animal Science)	3	0	3	0	0	0	2	0	2	0	0	0	5	4
MTech (Horticulture)	0	0	0	0	0	0	3	2	5	0	0	0	5	4
MTech (Agricultural Management)	10	5	15	0	0	0	5	1	6	0	0	0	21	17
MTech (Renewable Natural Resources)	4	0	4	1	0	1	15	5	20	0	0	0	25	20
MTech (Agricultural Science-General)	7	4	11	0	0	0	1	1	2	0	0	0	13	10
MTech (Veterinary Technology)	0	0	0	0	0	0	1	1	2	0	0	0	2	2
MTech (Agricultural Biotechnology)	0	7	7	2	0	2	1	0	1	4	12	16	26	21
MTech Food Science)	0	0	0	0	0	0	0	0	0	0	4	4	4	3
DTech (Animal Science)	0	0	0	0	0	0	1	0	1	0	0	0	1	1
DTech (Agricultural Biotechnology)	1	1	2	0	0	0	0	0	0	6	6	12	14	11
DTech (Horticulture)	0	0	0	0	0	0	2	0	2	0	0	0	2	2
DTech (Renewable Natural Resources)	1	0	1	0	0	0	0	0	0	0	0	0	1	1
DTech (Agricultural Science-General)	3	0	3	0	0	0	0	0	0	0	0	0	3	2
DTech (Agricultural Management)	1	0	1	0	0	0	1	0	1				2	2
TOTAL	30	17	47	3	0	3	32	10	42	10	22	32	124	
%	24	14	38	2	0	2	26	8	34	8	18	26		100

Table 19 above outlines enrolments at Postgraduate level in Agricultural programmes at Universities of Technology in 2006.

Postgraduate enrolments constitute 4% of the total enrolments at Universities of Technology in 2006. One hundred and twenty four (124) students enrolled for Postgraduate Degrees in agricultural programmes in 2006, of which 101 were MTech and 23 were DTech students.

3.3.2.2 Animal Science Enrolments at Universities of Technology in 2006

This CESM at Universities of Technology includes Diploma, BTech, MTech and DTech in Animal Health, Animal Production, Pig Production Management, Equine Science, Nutrition, Production Physiology and Animal Production Management. Programmes in this CESM are offered by MANTEC and TUT. There were 853 students enrolled in this CESM in the 2006 academic year. Table 20 below presents a demographic breakdown of animal science enrolments in the 2006 academic year by level of qualification.

Table 20: Demographic breakdown of Animal Science enrolments by level of qualification

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	383	308	691	1	0	1	25	82	107	1	0	1	800	93
BTech	34	12	46	0	0	0	1	0	1	0	0	0	47	6
MTech	3	0	3	0	0	0	2	0	2	0	0	0	5	1
DTech	0	0	0	0	0	0	1	0	1	0	0	0	1	0
TOTAL	420	320	740	1	0	1	29	82	111	1	0	1	853	

High numbers of enrolments were evident in the animal science Diploma which constitute 93%. Animal Science BTech enrolments constitute only 6% of the total enrolments in this CESM. MTech and DTech Animal Science enrolments are very low and the two programmes collectively enrolled less than 2% of the total number of animal science enrolments.

Figure 10: Racial breakdown of Diploma in Animal Science enrolments

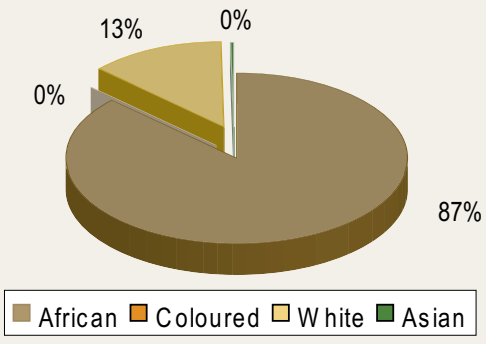


Figure 10 above depicts that African and White students constitute 87% and 13% of the Animal Science Diploma enrolments respectively. Asian and Coloured students enrolments in this CESM were insignificant.

Figure 11: Gender breakdown of Diploma in Animal Science enrolments

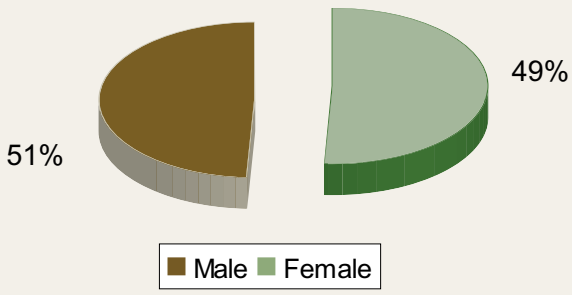


Figure 11 above depicts that male students dominate the Diploma enrolments in this CESM with 51%, while female students constitute only 49%. Male enrolments dominated largely by African males with 94% of the total male enrolments in the Diploma in animal science. White males constitute 6%, Coloured and Asian males collectively account for less than 1% of the total number of Diploma enrolments in Animal Science. African females constitute a significant 79% followed by White females with 21%.

Figure 12: Racial breakdown of BTech in Animal Science enrolments

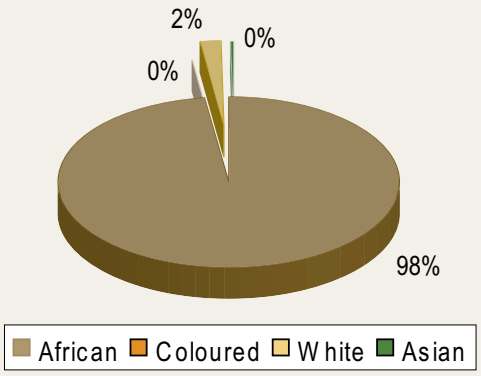


Figure 12 above indicates that African students constitute the majority of BTech Animal Science enrolments with 98% and White students constitute only 2%. There were no Coloured and Asian students enrolled for the BTech Animal Science at Universities of Technology in the 2006 academic year.

Figure 13: Gender breakdown of BTech in Animal Science enrolments

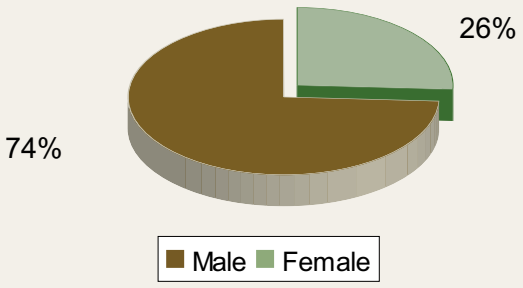


Figure 13 above depicts that male students comprised 74% of the total BTech animal science enrolments and female students account for only 26% of the overall BTech animal science enrolments. African males constitute 97% and White males constitute 3% of the enrolments for this programme. African females were the only females registered for BTech Animal Science in the 2006 academic year at Universities of Technology. Only 5 male students registered for MTech in this CESM in the 2006 academic year; 3 were African and 2 were White. Only 1 White male student enrolled for DTech Animal Science in 2006 at Universities of Technology.

3.3.2.3 Horticulture Enrolments at Universities of Technology in 2006

Horticulture CESM at Universities of Technology includes Diploma, BTech, MTech and DTech in Horticulture. Two hundred and fifty six (256) students registered for Horticulture at Universities of Technology in 2006. The Horticulture CESM enrolments constitute 6% of the total AET enrolments at Universities of Technology in the 2006 academic year. TUT and DUT are the only Universities of Technology offering Horticulture programmes in South Africa. Table 21 below presents a demographic breakdown of Horticulture enrolments in the 2006 academic year by level of qualification.

Table 21: Demographic breakdown of Horticulture enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	101	82	183	0	0	0	14	10	24	4	4	8	215	84
BTech	6	4	10	0	0	0	13	11	24	0	0	0	34	13
MTech	0	0	0	0	0	0	3	2	5	0	0	0	5	2
DTech	0	0	0	0	0	0	2	0	2	0	0	0	2	1
TOTAL	107	86	193	0	0	0	32	23	55	4	4	8	256	

Table 21 illustrates that Diploma enrolments in Horticulture are the highest with 84% of the overall Horticulture CESM enrolments and BTech Horticulture comprised 34 students which is 13% of the total Horticulture enrolments in the 2006 academic year. MTech and DTech enrolments collectively account for 3% of the total Horticulture enrolments in the 2006 academic year.

Figure 14: Racial breakdown of Diploma in Horticulture enrolments

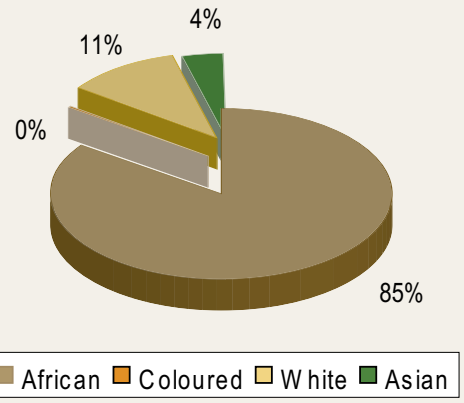


Figure 14 above depicts that African students constitute 85% of the Diploma enrolments in Horticulture, followed by White and Asian students with 11% and 4% respectively. No Coloured students registered in this CESM at Universities of Technology in the 2006 academic year.

Figure 15: Gender breakdown of Diploma in Horticulture enrolments

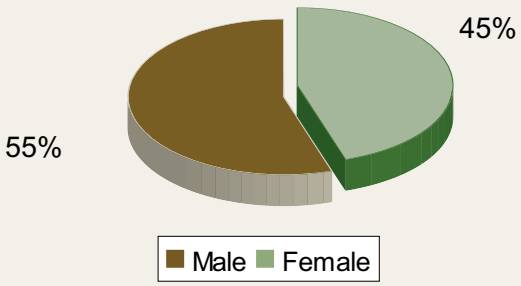


Figure 15 above shows that male students dominate with 55% and female students constitute 45% of the Horticulture Diploma enrolments. African males dominate male enrolments with 85%, followed by White males with 12% and Asian males with 3%. African females dominate with 86% of the total number of Diploma enrolments in Horticulture, followed by White females with 10% and Asian females with 4%.

Figure 16: Racial breakdown of BTech in Horticulture enrolments

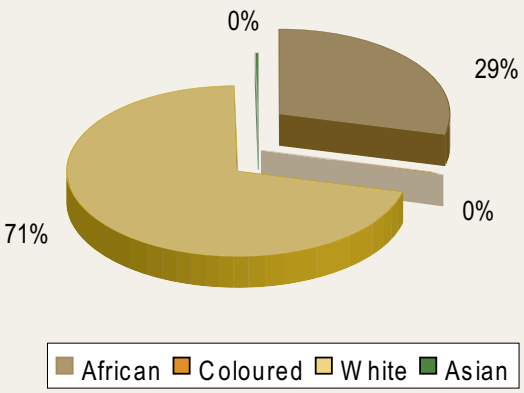


Figure 16 above indicates that White students constitute 71% of the BTech Horticulture enrolments followed by African students with 29%. There were no Asian and Coloured enrolments for this programme during 2006.

Figure 17: Gender breakdown of BTech in Horticulture enrolments

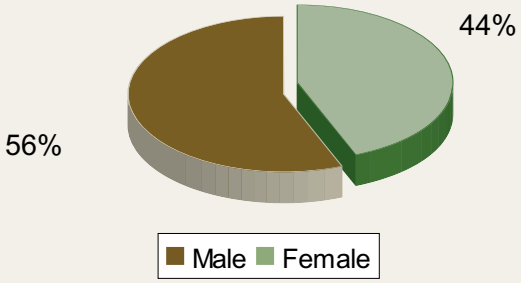


Figure 17 above depicts that male students dominate the BTech Horticulture enrolments with 56% and female students constitute 44%. Six (6) African males and 13 White males enrolled for BTech Horticulture in the 2006 academic year at Universities of Technology. Fifteen (15) female students registered for BTech Horticulture in the 2006 academic year at Universities of Technology, of which 11 were White and 4 were African. Five (5) White students registered for MTech Horticulture in the 2006 academic year: 3 were males and 2 were females. Two (2) White male students registered for DTech Horticulture in the 2006 academic year.

3.3.2.4 Plant Science Enrolments at Universities of Technology in 2006

Plant Science CESM consists of Diploma, BTech, MTech and DTech in Crop Production and Plant Production. Two hundred and nineteen (219) students registered for this programme in 2006, which constitute 6% of the total AET enrolments during 2006. There were only Diploma and BTech enrolments for this CESM in 2006 at Universities of Technology. Table 22 below presents a demographic breakdown of Diploma in Plant Science enrolments in 2006 by level of qualification.

Table 22: Demographic breakdown of Plant Science enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	113	84	197	0	0	0	4	1	5	0	0	0	202	92
BTech	11	2	13	0	0	0	3	1	4	0	0	0	17	8
TOTAL	124	86	210	0	0	0	7	2	9	0	0	0	219	

Table 22 above illustrates that enrolments in the Diploma Plant Science account for 92% of the overall Plant Science enrolments and BTech Plant Science comprised 8% of the total Plant Science enrolments in the 2006 academic year.

Figure 18: Racial breakdown of Diploma in Plant Science enrolments

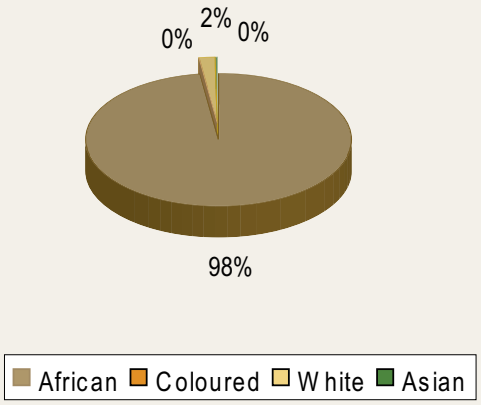


Figure 18 above indicates that African students dominate with 98% of the Diploma Plant Science enrolments followed by White students with 2%. There were no Asian and Coloured enrolments for this programme during 2006.

Figure 19: Gender breakdown of Diploma in Plant Science enrolments

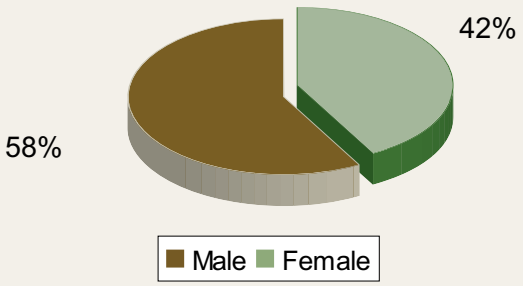


Figure 19 above depicts that male students dominate the Diploma Plant Science enrolments with 58% and female students constitute 42%. African males dominate the enrolments of Diploma Plant Science with 97% followed by White male students with 3%. African females dominate the enrolments of Diploma Plant Science with 99% followed by White male students with only 1%.

Figure 20: Racial breakdown of BTech in Plant Science enrolments

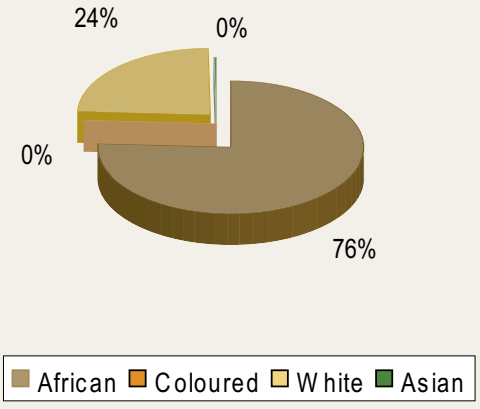


Figure 20 above indicates that African students dominate with 76% of the BTech Plant Science enrolments followed by White students with 24%. There were no Asian and Coloured enrolments for this programme in the 2006 academic year.

Figure 21: Gender breakdown of BTech in Plant Science enrolments

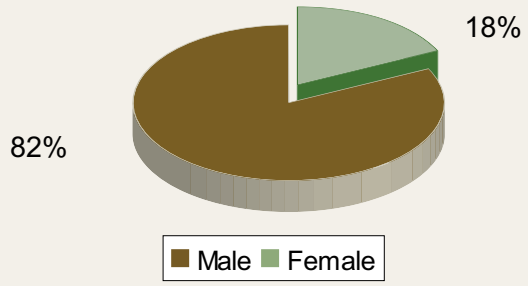


Figure 21 above depicts that male students dominate the BTech Plant Science enrolments with 82% and female students constitute 28%. African males dominate the enrolments of BTech: Plant Science with 79% followed by White male students with 21%. Two (2) African female students and 1 White female student enrolled in BTech: Plant Science in the 2006 academic year at Universities of Technology.

3.3.2.5 Agricultural Management Enrolments at Universities of Technology in 2006

Agricultural Management programmes are offered by CPUT, CUT and TUT. Three hundred and fifty (350) students registered for Agricultural Management in the 2006 academic year at Universities of Technology. Agricultural Management constists of students at Diploma, BTech, MTech and DTech levels in the 2006 academic year. Table 23 below presents a demographic breakdown of Agricultural Management enrolments in the 2006 academic year by level of qualification.

Table 23: Demographic breakdown of Agricultural Management enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	97	59	156	6	1	7	74	4	78	0	0	0	241	69
BTech	35	23	58	1	0	1	16	11	27	0	0	0	86	25
MTech	10	5	15	0	0	0	5	1	6	0	0	0	21	6
DTech	1	0	1	0	0	0	1	0	1				2	0
TOTAL	143	87	230	7	1	8	96	16	112	0	0	0	350	

Table 23 above illustrates that enrolments for the Diploma: Agricultural Management account for 69%, followed by BTech with 25% and MTech with 6% of the total number of Agricultural Management enrolments in the 2006 academic year. DTech contributed less than 1% of the total number of Agricultural Management enrolments in the 2006 academic year at Universities of Technology.

Figure 22: Racial breakdown of Diploma in Agricultural Management enrolments

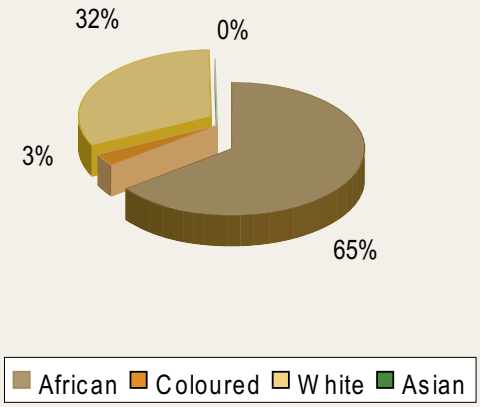


Figure 22 above depicts that the majority of the enrolments at Diploma level in this CESM are African students who comprised 65% of the total number of enrolments followed by White students with 32% and Coloured students constitute only 3%. No Asian students were registered at Diploma level in this CESM in the 2006 academic year.

Figure 23: Gender breakdown of Diploma in Agricultural Management enrolments

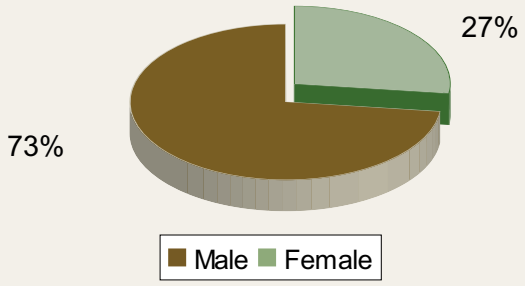


Figure 23 above indicates that male students dominate enrolments at Diploma level in this CESM with 73% and female students constitute 27%. African males account for 55% of the male enrolments at Diploma level in this CESM. White males comprised 42% of the male enrolments at Diploma level in this CESM, followed by Coloured males with only 3%. African females dominate the female enrolments in this CESM at Diploma level with 92%, followed by White and Coloured females with 6% and 2% respectively.

Figure 24: Racial breakdown of BTech in Agricultural Management enrolments

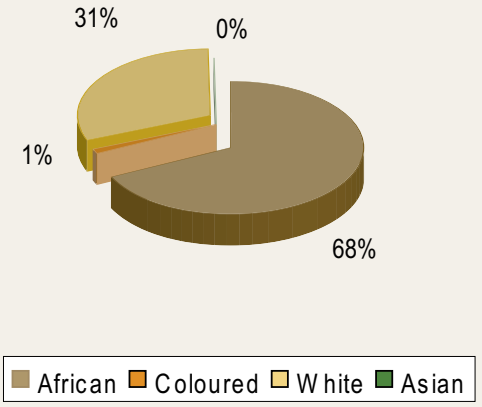


Figure 24 above indicates that African students constitute 68% of the BTech Agricultural Management enrolments, followed by White students with 31%. Coloured students constitute only 1% of the BTech enrolments in this CESM.

Figure 25: Gender breakdown of BTech in Agricultural Management enrolments

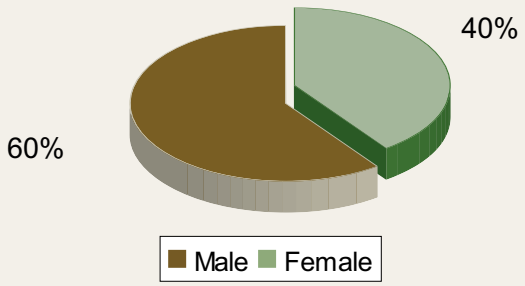


Figure 25 above depicts that male students dominate the BTech Agricultural Management enrolments with 60% and female students constitute 40%. African males comprised 67% of the male enrolments at BTech level in this CESM followed by White males with 31%. Coloured males constitute only 2% of BTech male enrolments in this. African females dominate the female enrolments in this at BTech level with 68%, followed by White females with 32%. No Asian and Coloured female students enrolled in this CESM at BTech level at Universities of Technology in the 2006 academic year.

Figure 26: Racial breakdown of MTech in Agricultural Management enrolments

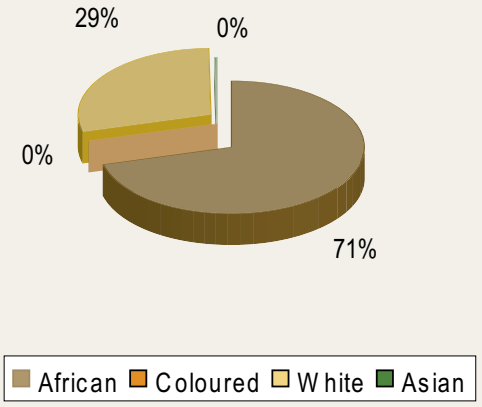


Figure 26 above indicates that African students constitute 71% of the MTech Agricultural Management enrolments followed by White students with 29%. No Coloured or Asian students enrolled for this CESM at MTech level during the 2006 academic at Universities of Technology.

Figure 27: Gender breakdown of MTech in Agricultural Management enrolments

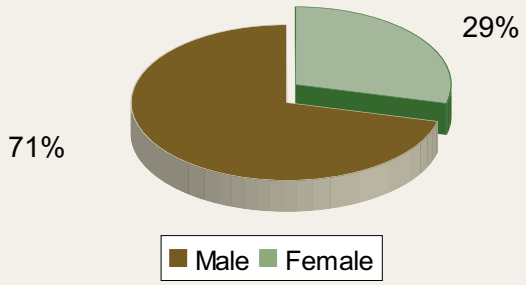


Figure 27 above indicates that 71% of MTech students in Agricultural Management were males and 29% were females. Two (2) male students registered for DTech Agricultural Management in the 2006 academic year at Universities of Technology: 1 was African and 1 was White.

3.3.2.6 Agricultural Science-General Enrolments at Universities of Technology in 2006

Agricultural Science-General CESM includes Diploma, BTech, MTech and DTech. Two hundred and ninety (290) students enrolled for Agricultural Science-General in 2006. Agricultural Science-General programmes at Universities of Technology are offered by CPUT, TUT and CUT. Table 24 below presents a demographic breakdown of Agricultural Science-General enrolments in the 2006 academic year by level of qualification.

Table 24: Demographic breakdown of Agricultural Science-General enrolments by level of qualification in 2006

LEVELa	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	76	65	141	3	1	4	33	3	36	0	0	0	181	62
BTech	35	23	58	1	0	1	16	11	27	0	0	0	86	30
MTech	10	5	15	0	0	0	5	1	6	0	0	0	21	7
DTech	1	0	1	0	0	0	1	0	1				2	1
TOTAL	122	93	215	4	1	5	55	15	70	0	0	0	290	

Table 24 above illustrates that enrolments in the Diploma: Agricultural Science-General account for 62% of the overall enrolments in this CESM, followed by BTech with 30%. MTech and DTech collectively contributed 8% of the total enrolments in this CESM.

Figure 28: Racial breakdown of Diploma in Agricultural Science-General enrolments

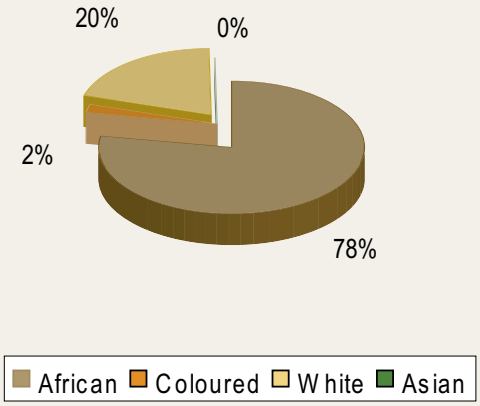


Figure 28 above depicts that African students dominate the Diploma in Agricultural Science-General enrolments during 2006 with 78%, followed by White students with 20% and Coloured students with 2%.

Figure 29: Gender breakdown of Diploma in Agricultural Science-General enrolments

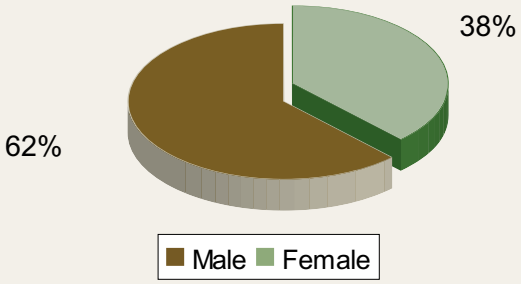


Figure 29 above indicates that male students constitute 62% of the Diploma in Agricultural Science-General enrolments and female students account for 38%. African males enrolled in higher numbers with 68%, followed by White males with 29% and Coloured males with 3% of the total number of male Diploma students in this CESM. African female students dominate the Diploma: Agricultural Science-General enrolments with 95%.

Figure 30: Racial breakdown of BTech in Agricultural Science-General enrolments

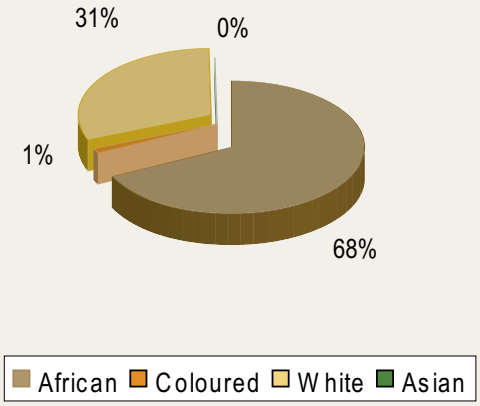


Figure 30 above depicts that the BTech: Agricultural Science-General programme was dominated by African students with 68%. White and Coloured students constitute 31% and 1% respectively of the total BTech enrolments in this CESM in the 2006 academic year.

Figure 31: Gender breakdown of BTech in Agricultural Science-General enrolments

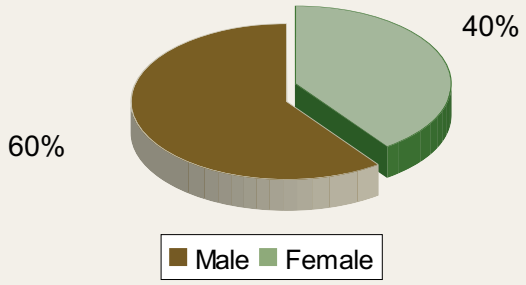


Figure 31 above indicates that male students constitute 60% of the total BTech Agricultural Science-General enrolments and female students constitute 40%. African males constitute 67%, followed by White males with 31% and Coloured males with 2% of the total number of male BTech students in this CESM. African female students dominate the BTech Agricultural Science-General enrolments with 68%, followed by White females with 32%.

Figure 32: Racial breakdown of MTech in Agricultural Science-General enrolments

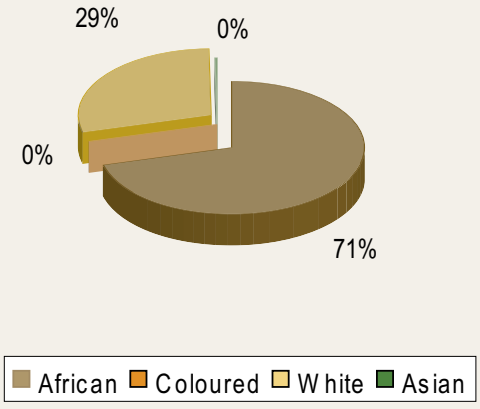


Figure 32 above depicts that the MTech: Agricultural Science-General programme was dominated by African students with 71%, while White students constitute 29% of the total enrolments. No Asian or Coloured students enrolled for this CESM at MTech level in the 2006 academic year at Universities of Technology.

Figure 33: Gender breakdown of MTech in Agricultural Science-General enrolments

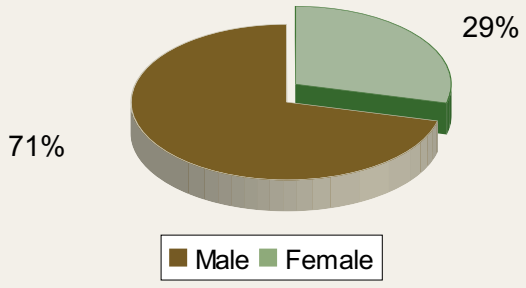


Figure 33 above indicates that male students constitute 71% of the total MTech Agricultural Science-General enrolments and female students constitute 29%. African males represented the majority of male students registered for MTech in this CESM with 10 students and there were 5 White students. Only 6 female students enrolled for this programme in the 2006 academic year: 5 were African and 1 was White. Two (2) male students registered for DTech: Agricultural Science-General in the 2006 academic year at Universities of Technology: 1 was African and 1 was White.

3.3.2.7. Renewable Natural Resources Enrolments at Universities of Technology in 2006

Renewable Natural Resources includes Diploma, BTech, MTech and DTech in Nature Conservation. TUT and DUT are the only Universities of Technology offering programmes in Renewable Natural Resources. Eight hundred and five (805) students enrolled in this CESM in the 2006 academic year. Table 25 below presents a demographic breakdown of Renewable Natural Resources enrolments in the 2006 academic year by level of qualification.

Table 25: Demographic breakdown of Renewable Natural Resources enrolments by level of qualification

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	280	246	526	3	4	7	71	51	122	4	9	13	668	83
BTech	40	27	67	2	1	3	18	23	41	0	0	0	111	14
MTech	4	0	4	1	0	1	15	5	20	0	0	0	25	3
DTech	1	0	1	0	0	0	0	0	0	0	0	0	1	0
TOTAL	325	273	598	6	5	11	104	79	183	4	9	13	805	

Table 25 above shows that Diploma level constitute 83% of the total Renewable Natural Resources followed, by BTech: Renewable Natural Resources with 14% and MTech with 3%. DTech enrolments constitute less than 1%.

Figure 34: Racial breakdown of Diploma in Renewable Natural Resources enrolments

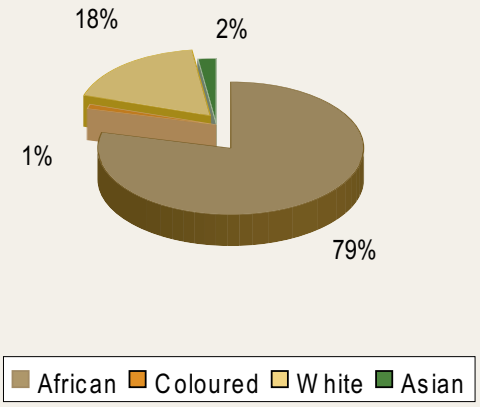


Figure 34 above depicts that African students dominate the Diploma: Renewable Natural Resources enrolments with 79%, followed by White students with 18%. Asian and Coloured students contributed only 2% and 1% of the total number of Diploma enrolments in this CESM respectively in the 2006 academic year.

Figure 35: Gender breakdown of Diploma in Renewable Natural Resources enrolments

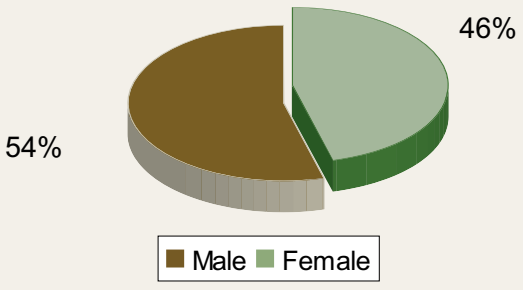


Figure 35 above depicts that male students dominate the Diploma in Renewable Natural Resources enrolments with 54%, while female students constitute 46%. African male enrolments constitute 78% of the total male students for the Diploma: Renewable Natural Resources followed by White males with 20%. Asian and Coloured males each constitute 1% of the overall Diploma in Renewable Natural Resources enrolments at Universities of Technology in the 2006 academic year. Female enrolments were dominate by African females with 80%, White females constitute 16%, Asian females conprised 3% and Coloured females account for 1% only.

Figure 36: Racial breakdown of BTech in Renewable Natural Resources enrolments

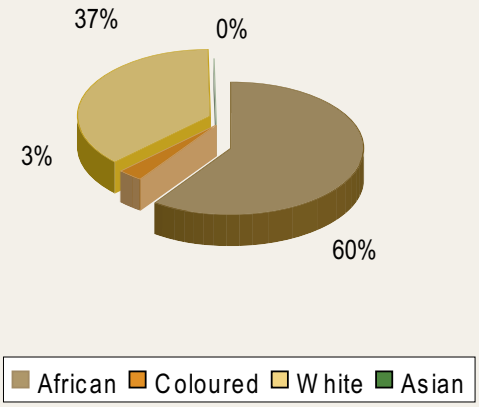


Figure 36 above depicts that African students dominate the BTech: Renewable Natural Resources enrolments with 60%, followed by White students with 37%. Coloured students contributed only 3% of the total number of BTech enrolments in this CESM in the 2006 academic year. There were no Asian students enrolled for this programme in the 2006 academic year.

Figure 37: Gender breakdown of BTech in Renewable Natural Resources enrolments

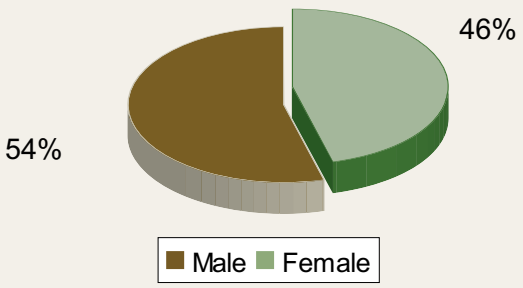


Figure 37 above depicts that male students dominate the BTech in Renewable Natural Resources enrolments with 54%, while female students constitute 46%. African male students constitute 67% of the total number of BTech male enrolments in this CESM followed by White male students with 30%. Coloureds constitute only 3% of the male enrolments in this CESM at BTech level. African female students constitute 53% of the total female enrolments for the BTech Renewable Natural Resources in the 2006 academic year, followed by White females with 45%. Coloured females registered only 2% of the female students in the BTech: Renewable Natural Resources in the 2006 academic year.

Figure 38: Racial breakdown of MTech in Renewable Natural Resources enrolments

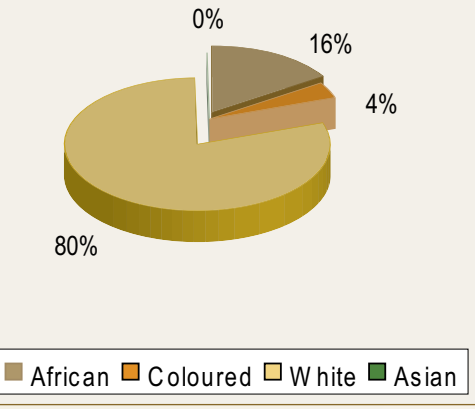


Figure 38 above depicts that White students dominate the MTech: Renewable Natural Resources enrolments with 80% followed by African students with 16%. Coloured students contributed only 4% of the total number of MTech enrolments in this CESM in the 2006 academic year. There were no Asian students enrolled for this programme in the 2006 academic year.

Figure 39: Gender breakdown of MTech in Renewable Natural Resources enrolments

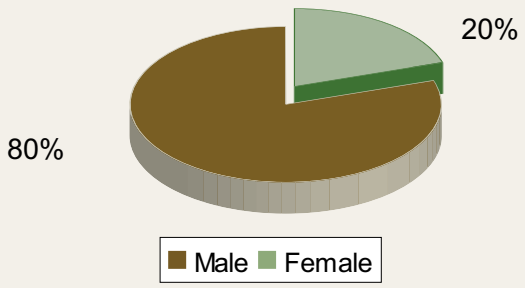


Figure 39 above depicts that male students dominate the BTech in Renewable Natural Resources enrolments with 80%, while female students constitute 20%. White male students constitute 75% of the total number of BTech male enrolments in this CESM, followed by African male students with 20%. Coloureds constitute only 5% of the male enrolments in this CESM at BTech level in the 2006 academic year. Only White female students registered for MTech in this CESM in the 2006 academic year at Universities of Technology. One (1) African male student registered for a DTech in Renewable Natural Resources in the 2006 academic year.

3.3.2.8 Other Agricultural and Renewable Resources Enrolments at Universities of Technology in 2006

Other Agricultural and Renewable Resources at Universities of Technology encompass the Diploma in Agriculture: Mixed Farming. TUT is the only University of Technology that offers programmes in this CESM. Other Agricultural and Renewable Resources represant 31 students in the 2006 academic year. Table 26 below presents a demographic breakdown of the Diploma in Other Agricultural Renewable Resources Diploma enrolments in the 2006 academic year by level of qualification.

Table 26: Demographic breakdown of Other Agricultural and Renewable Resources Management enrolments by level of qualification

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	15	8	23	0	0	0	8	0	8	0	0	0	31	
TOTAL	15	8	23	0	0	0	8	0	8	0	0	0	31	

All the 31 students enrolled in this CESM were registered at Diploma level. This CESM is dominated by African enrolments.

Figure 40: Racial breakdown of Diploma in Other Agricultural Renewable Resources enrolments

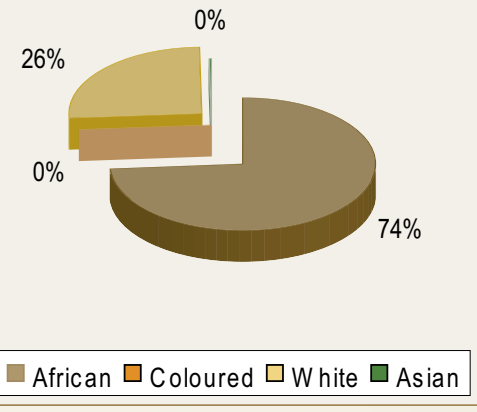


Figure 40 above depicts that 74% of enrolments in this CESM are African students and White students constitute 26%. No Coloured and Asian students registered for this programme in the 2006 academic year at Universities of Technology.

Figure 41: Gender breakdown of Diploma in Other Agricultural Renewable Resources enrolments

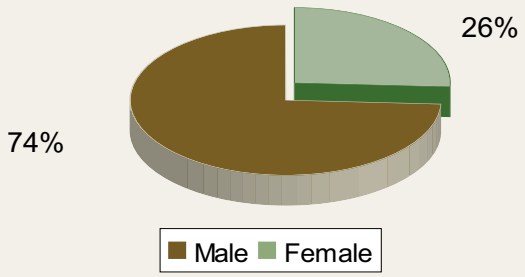


Figure 41 above indicates that male enrolments dominate with 74% while female enrolments constitute 26%. African males account for 65% of male enrolments in this programme, followed by White males with 35%. Only 8 African female students enrolled for this programme in the 2006 academic year at Universities of Technology.

3.3.2.9 Wildlife Management Enrolments at Universities of Technology in 2006

Wildlife Management CESM includes Diploma, BTech, MTech and DTech in Game Ranch Management. TUT is the only University of Technology offering this programme. This programme has registered 143 students in 2006. In this CESM, students were enrolled at Diploma and BTech levels only. Table 27 below presents a demographic breakdown of the Diploma in Wildlife Management enrolments in the 2006 academic year by level of qualification.

Table 27: Demographic breakdown of Wildlife Management enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	15	7	22	0	0	0	95	16	111	0	0	0	133	93
BTech	2	0	2	0	0	0	7	1	8	0	0	0	10	7
TOTAL	17	7	24	0	0	0	102	17	119	0	0	0	143	

Table 27 above shows that the Diploma constitute 93% of the total Wildlife enrolments in the 2006 academic year at Universities of Technology followed by BTech with 7%.

Figure 42: Racial breakdown of Diploma in Wildlife Management enrolments

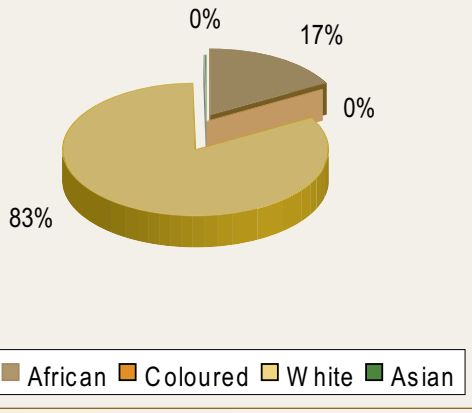


Figure 42 above indicates that enrolments at Diploma level in this CESM in 2006 were dominated by White students with 83%, followed by African students with 17%. No Coloured and Asian students enrolled in this CESM at Diploma level in the 2006 academic year at Universities of Technology.

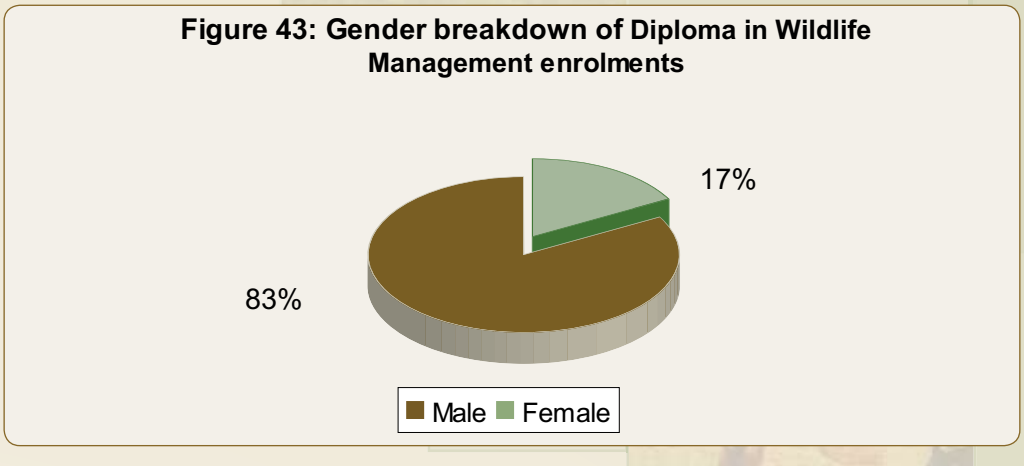


Figure 43 above shows that male students dominate the Diploma in Wildlife Management enrolments with 83% and female students constitute only 17%. White males constitute 86% of the male enrolments at Diploma level in this CESM and African males account for 14%. White females constitute 70% of the Diploma enrolments in this CESM and African females account for 30%.

Ten (10) students enrolled at BTech level in this CESM in the 2006 academic year: 7 were White males, 2 were African males and 1 was a White female.

3.3.2.10 Agriculture Extension Enrolments at Universities of Technology in 2006

Agriculture Extension CESM includes Diploma, BTech, MTech and DTech in Agricultural Rural Development and the only University of Technology offering this programme is TUT. Agricultural Extension CESM enrolled 65 students in the 2006 academic year. Table 28 below presents a demographic breakdown of BTech: Agricultural Extension enrolments during 2006 academic year by level of qualification.

Table 28: Demographic breakdown of Agricultural Extensions enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	21	12	33	0	0	0	0	0	0	0	0	0	33	51
BTech	16	16	32	0	0	0	0	0	0	0	0	0	32	49
TOTAL	37	28	65	0	0	0	0	0	0	0	0	0	65	

Table 28 above shows that Diploma constitute 51% of the total Agricultural Extension enrolments in the 2006 academic year at Universities of Technology, followed by BTech with 49%. Racial breakdown of Diploma enrolments in this CESM depicts that the 33 students enrolled were African. Gender breakdown of Diploma enrolments in this CESM depicts that males dominate: 21 male students and 12 female students registered. Thirty two (32) African students registered for BTech: Agricultural Extension in the 2006 academic year: 16 were males and 16 were females.

3.3.2.11 Veterinary Technology Enrolments at Universities of Technology in 2006

Veterinary Technology programmes are offered by TUT only. Eighty one (81) students registered in this CESM in the 2006 academic year. Table 29 below presents a demographic breakdown of Veterinary Technology enrolments in the 2006 academic year by level of qualification.

Table 29: Demographic breakdown of Veterinary Technology enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	17	20	37	0	1	1	5	14	19	0	1	1	58	72
BTech	8	5	13	0	0	0	3	5	8	0	0	0	21	26
MTech	0	0	0	0	0	0	1	1	2	0	0	0	2	2
TOTAL	25	25	50	0	1	1	9	20	29	0	1	1	81	

Table 29 above shows that the Diploma constitute 72% of the total Veterinary Technology enrolments in the 2006 academic year, followed by BTech with 26% and MTech with 2%.

Figure 44: Racial breakdown of Diploma in Veterinary Technology enrolments

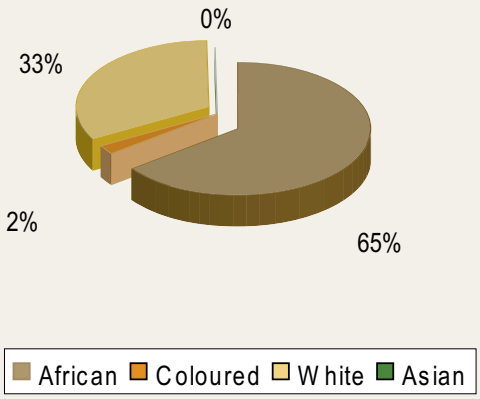


Figure 44 above indicates that African students comprised 65% of the total Diploma Veterinary Technology enrolments followed by White students with 33% and Coloured students with 2%. Asian student enrolments were insignificant in this programme in the 2006 academic year.

Figure 45: Gender breakdown of Diploma in Veterinary Technology enrolments

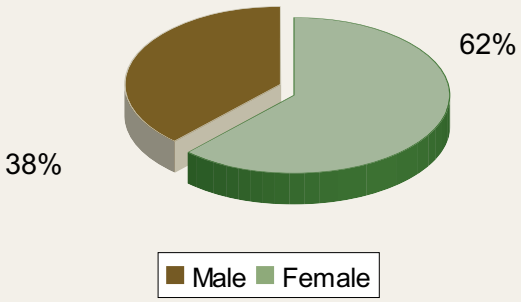


Figure 45 above indicates that male students dominate with 62% and female students constitute 38% of the total Diploma Veterinary Technology enrolments in the 2006 academic year. African males dominate male Diploma enrolments in this CESM with 77%, followed by White males with 23%. There were no Coloured and Asian males enrolled in this CESM at Diploma level in 2006.

African females constitute 55% of the female enrolments in Diploma Veterinary Technology, followed by White females with 39%. Coloured and Asian females each contributed 3% of the total Diploma: Veterinary Technology enrolments in the 2006 academic year.

Figure 46: Racial breakdown of BTech in Veterinary Technology enrolments

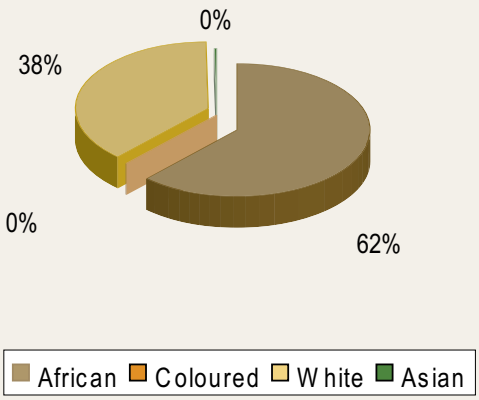


Figure 46 above indicates that African students comprised 62% of the total BTech: Veterinary Technology enrolments followed by White students with 38%. No Coloured or Asian students registered for BTech in this CESM in the 2006 academic year.

Figure 47: Gender breakdown of BTech in Veterinary Technology enrolments

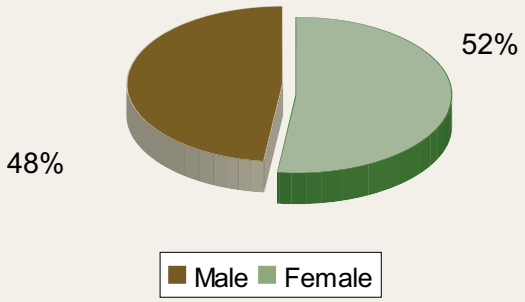


Figure 47 above indicates that male students dominate with 52% and female students constitute 48% of the total BTech Veterinary Technology enrolments in the 2006 academic year. African males dominate male BTech enrolments in this CESM with 73%, followed by White males with 27%. African females constitute 50% of the female enrolments in BTech: Veterinary Technology and White females account for 50%. Two (2) White students registered for MTech Veterinary Technology in the 2006 academic year: 1 was male and 1 was female.

3.3.2.12 Agricultural Biotechnology Enrolments at Universities of Technology in 2006

Biotechnology programmes are offered by DUT only. Two hundred and seventy three (273) students registered in this CESM in the 2006 academic year. Table 30 below presents a demographic breakdown of Agricultural Biotechnology enrolments in the 2006 academic year by level of qualification.

Table 30: Demographic breakdown of Agricultural Biotechnology enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	14	53	67	1	5	6	2	5	7	18	84	102	182	67
BTech	8	17	25	0	2	2	1	0	1	6	17	23	51	19
MTech	0	7	7	2	0	2	1	0	1	4	12	16	26	10
DTech	1	1	2	0	0	0	0	0	0	6	6	12	14	5
TOTAL	23	78	101	3	7	10	4	5	9	34	119	153	273	

Table 30 above shows that the Diploma constitute 67% of the total Agricultural Biotechnology enrolments in the 2006 academic year, followed by BTech with 19%, MTech with 10% and DTech with 5%.

Figure 48: Racial breakdown of Diploma in Agricultural Biotechnology enrolments

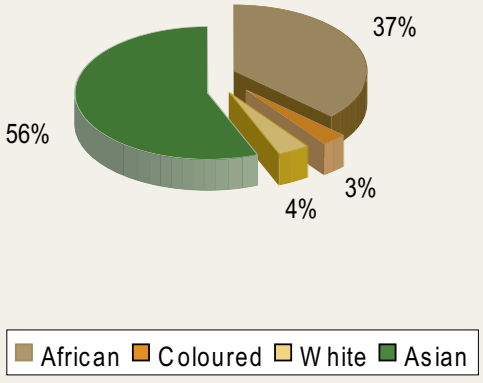


Figure 48 above indicates that Asian students comprised 56% of the total Diploma Agricultural Biotechnology enrolments followed by African students with 37%. White and Coloured students contributed 4% and 3% of the overall Diploma Agricultural Biotechnology enrolments respectively in the 2006 academic year.

Figure 49: Gender breakdown of Diploma in Agricultural Biotechnology enrolments

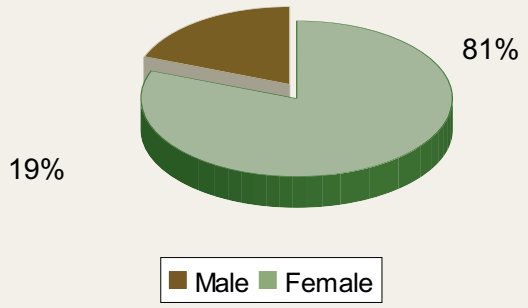


Figure 49 above indicates that female students dominate with 81% and male students constitute 19% of the total Diploma Agricultural Biotechnology enrolments in the 2006 academic year. Asian males dominate male Diploma enrolments in this CESM with 51%, followed by African males with 40%. White and Coloured males contributed 6% and 3% of the overall male Diploma enrolments respectively in this CESM in the 2006 academic year.

Asian females constitute 68% of the female enrolments in the Diploma: Agricultural Biotechnology, followed by African females with 36%. Coloured and White females contributed 3% of the total Diploma: Agricultural Biotechnology enrolments in the 2006 academic year each.

Figure 50: Racial breakdown of BTech in Agricultural Biotechnology enrolments

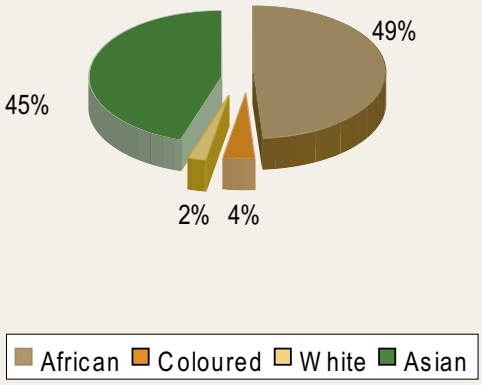


Figure 50 above indicates that African students comprised 49% of the total BTech: Agricultural Biotechnology enrolments, followed by Asian students with 45%. Coloured and White students collectively constitute 6% of the overall BTech enrolments in this CESM in the 2006 academic year.

Figure 51: Gender breakdown of BTech in Agricultural Biotechnology enrolments

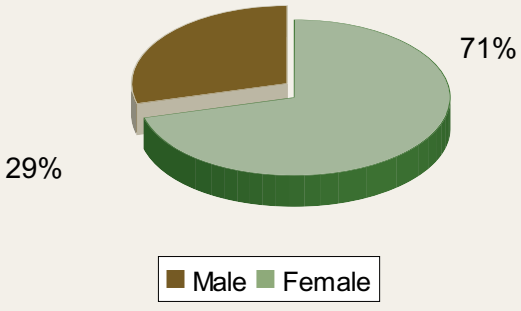


Figure 51 above indicates that female students dominate with 71% and male students constitute 29% of the total BTech: Agricultural Biotechnology enrolments in the 2006 academic year. African males dominate male BTech enrolments in this CESM with 53%, followed by Asian males with 40% and White males with 7%. African and Asian females each constitute 47% of the female enrolments in BTech: Agricultural Biotechnology and White females account for the remaining 6%.

Figure 52: Racial breakdown of MTech in Agricultural Biotechnology enrolments

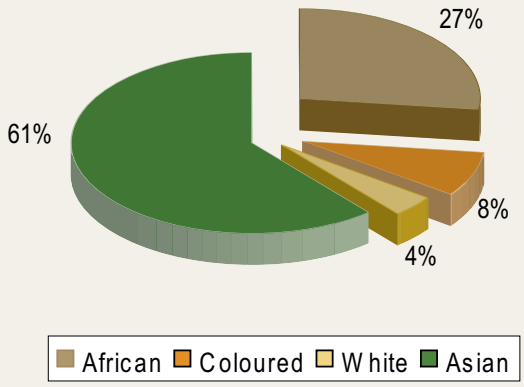


Figure 52 above indicates that Asian students comprised 61% of the total MTech: Agricultural Biotechnology enrolments followed by African students with 27%. Coloured and White students collectively constitute 12% of the overall MTech enrolments in this CESM in the 2006 academic year.

Figure 53: Gender breakdown of MTech in Agricultural Biotechnology enrolments

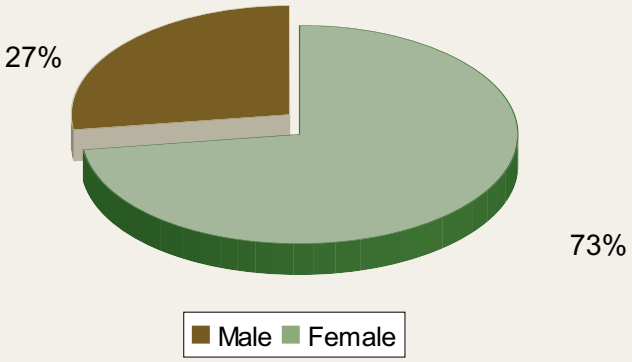


Figure 53 above indicates that female students dominate with 73% and male students constitute 27% of the total MTech Agricultural Biotechnology enrolments in the 2006 academic year. Seven (7) male students were enrolled in this CESM at MTech level in the 2006 academic year: 4 were Asian, 2 were Coloured and 1 was White. Nineteen (19) female students enrolled for MTech: Agricultural Biotechnology in the 2006 academic year: 12 were Asian and 7 were African. Fourteen (14) students registered for DTech: Agricultural Biotechnology in the 2006 academic year: 2 were Africans and 12 were Asian. Gender breakdown indicates that there were 7 males and 7 females.

3.3.2.13 Food Science and Technology Enrolments at Universities of Technology in 2006

Two hundred and ninety six (296) students registered in this CESM in the 2006 academic year. Table 31 below presents a demographic breakdown of Food Science and Technology enrolments in the 2006 academic year by level of qualification.

Table 31: Demographic breakdown of Food Science and Technology enrolments by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	25	114	139	1	1	2	1	12	13	26	79	105	259	88
BTech	1	14	15	0	1	1	0	0	0	1	16	17	33	11
MTech	0	0	0	0	0	0	0	0	0	0	4	4	4	1
TOTAL	26	128	154	1	2	3	1	12	13	27	99	126	296	

Table 31 above indicates that the Diploma constitute 88% of the overall Food Science and Technology enrolments in the 2006 academic year. This was followed by BTech with 11% and MTech with only 1%.

Figure 54: Racial breakdown of Diploma in Food Science and Technology enrolments

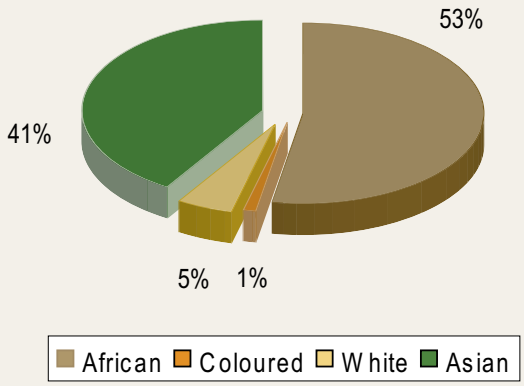


Figure 54 above indicates that African students comprised 53% of the total Diploma: Food Science and Technology enrolments followed by Asian students with 41%. White and Coloured students contributed 5% and 1% of the overall Diploma: Food Science and Technology enrolments in the 2006 academic year respectively.

Figure 55: Gender breakdown of Diploma in Food Science and Technology enrolments

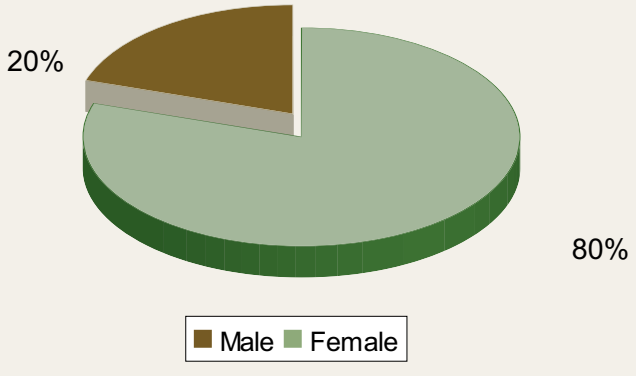


Figure 55 above indicates that female students dominate with 80% and male students constitute 20% of the total Diploma: Food Science and Technology enrolments in the 2006 academic year. African males dominate male Diploma enrolments in this CESM with 62%, followed by Asian males with 32%. White and Coloured males each contributed 3% of the overall male Diploma enrolments in this CESM in the 2006 academic year.

African females constitute 74% of the female enrolments in the Diploma: Food Science, followed by Asian females with 17%. Coloured and White students collectively constitute less than 10% of the overall female Diploma enrolments in this CESM in the 2006 academic year.

Figure 56: Racial breakdown of BTech in Food Science and Technology enrolments

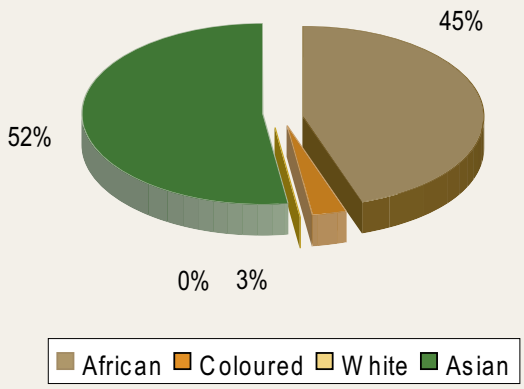


Figure 56 above indicates that Asian students comprised 52% of the total BTech: Food Science and Technology enrolments, followed by African students with 45% and Coloured with 3%. There were no White students enrolled in this CESM at BTech level in the 2006 academic year.

Figure 57: Gender breakdown of BTech in Food Science and Technology enrolments

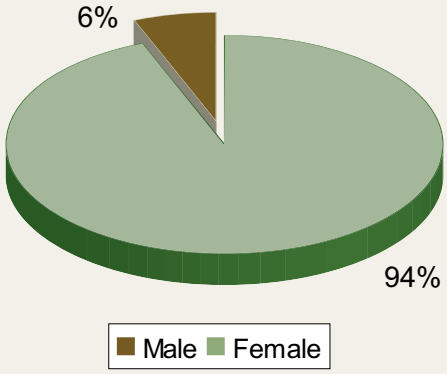


Figure 57 above indicates that female students dominate with 94% and male students constitute 6% of the total BTech: Food Science and Technology enrolments in the 2006 academic year. Two (2) male students were enrolled in this CESM at BTech level in the 2006 academic year: 1 was African and 1 was Asian. Thirty one (31) female students enrolled for the BTech: Food Science and Technology during 2006 academic year: 16 were Asian, 14 were African and 1 was Coloured. Four (4) White female students enrolled for MTech: Food Science and Technology during 2006 academic year.

3.3.2.14 Land Reclamation Enrolments at Universities of Technology in 2006

Land Reclamation CESM includes Diploma, BTech, MTech and DTech, Landscape Technology. Land Reclamation programmes are offered by TUT and DUT only. Two (2) White male students registered in this CESM in the 2006 academic year at Universities of Technology.

3.4 Graduate outputs of Universities of Technology in the 2006 academic year.

Table 32 and figure 58 below present numbers of graduates at the Universities of Technology in the 2006 academic year.

Table 32: Graduate figures at Universities of Technology in 2006		
Name of University of Technology	Number of AET Graduates	Percentage (%)
CPUT	68	7
CUT	65	7
DUT	201	21
MANTEC	161	17
TUT	464	48
Total	959	100

A total of 959 graduates were produced by Universities of Technology during 2006. TUT produced 48% of all the graduates at Universities of Technology in the 2006 academic year, followed by DUT with 21%. The Other three Universities of Technology collectively produced the remaining 31% of the overall graduates during 2006.

Figure 58: Graduates at Universities of Technology in 2006

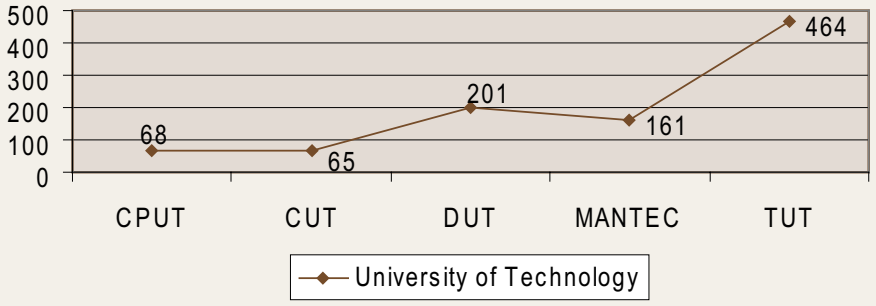


Figure 58 above indicates that the difference between the number of qualifications awarded by CPUT and CUT is insignificant.

Table 33 below presents a demographic breakdown of graduates in AET programmes in the 2006 academic year at the Universities of Technology.

Table 33: Breakdown of graduates by gender and race per University of Technology in 2006													
Name of the University	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
CPUT	2	3	5	4	1	5	51	7	58	0	0	0	68
CUT	13	6	19	1	0	1	39	6	45	0	0	0	65
DUT	25	65	90	4	3	7	5	12	17	18	69	87	201
MANTEC	79	81	160	0	0	0	1	0	1	0	0	0	161
TUT	193	131	324	1	4	5	74	61	135	0	0	0	464
Total	312	286	598	10	8	18	170	86	256	18	69	87	959

African graduates constitute 62% of all the AET graduates during 2006, followed by White graduates with 27% and Asian graduates with 9%. Coloured graduates comprised 2% of the total number of graduates produced by Universities of Technology during 2006. African males dominate the male graduates; they constitute 61% of the total male graduates. White males constitute 33% of the male graduates, followed by Coloured males and Asian males with 4% and 2% respectively. African females also dominate the female graduates with 64%, followed by White females with 19% and Asian females with 15%. Coloured females constitute 2% of the total female graduates produced at Universities of Technology in the 2006 academic year.

Figure 59: Gender breakdown of AET graduates at Universities of Technology

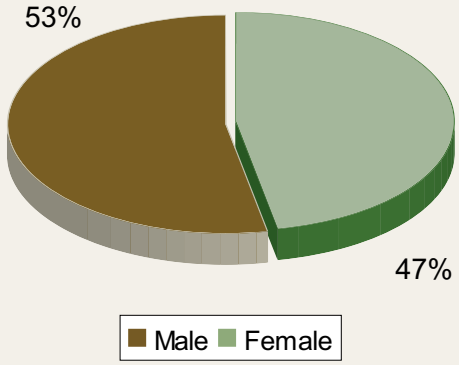
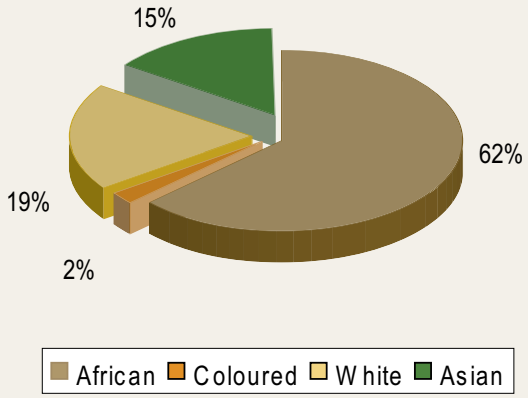


Figure 59 above indicates that male graduates constitute 53% of the overall AET graduates at Universities of Technology during 2006, and female graduates account for 47%.

Figure 60: Racial breakdown of AET female graduates at Universities of Technology



As depicted in figure 60 above, African female graduates account for 64% of the total female graduates in the 2006 academic year. White female and Asian female graduates constitute 19% and 15% respectively. Coloured female graduates account for 2% of the total number of female graduates at Universities of Technology in the 2006 academic year.

Figure 61: Racial breakdown of AET male graduates at Universities of Technology

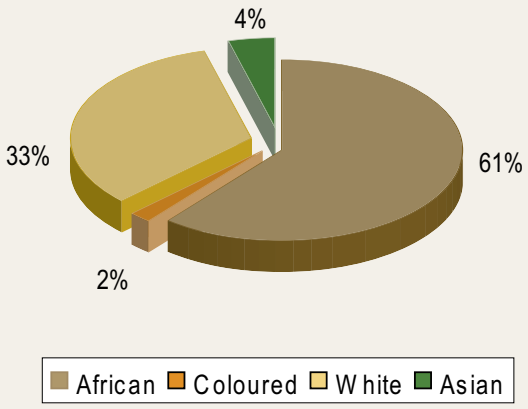


Figure 61 above indicates that African and White male graduates constitute 61% and 33% of the total male graduates respectively. Asian male graduates comprised 4% of the total male graduates at Universities of Technology and Coloured male graduates contributed only 2%.

3.4.1 AET Graduates at Universities of Technology by Level of Qualification and CESM in 2006

Table 34: Agricultural graduates at Universities of Technology by CESM & levels of qualification in 2006							
CESM	N. H. CER.	DIPLOMA	BTECH	MTECH	DTECH	TOTAL	%
Agricultural Management	3	138	38	1	0	180	19
Animal Science	2	142	47	0	1	192	20
Horticulture	0	44	11	2	0	57	6
Plant Science	0	62	17	0	0	79	8
Renewable Natural Resources	1	103	63	5	1	173	18
Other Agricultural & Renewable Resources	0	10	0	0	0	10	1
Wildlife	0	10	2	0	0	12	1
Agricultural Science-General	5	28	14	3	0	50	5
Agricultural Extension	0	7	23	0	0	30	3
Veterinary Technology	0	12	6	0	0	18	2
Biotechnology	0	40	28	12	2	82	9
Food Science	0	56	15	3	0	74	8
Land Reclamation	0	2	0	0	0	2	0
TOTAL	11	654	264	26	4	959	
%	1	68	28	3	0		100

Table 34 above indicates that Animal Science, Agricultural Management and Renewable Natural Resources have high graduate figures with 20%, 19% and 18% respectively. Other CESM categories have contributed less than 10% of the overall graduates each.

The table 34 above indicates that the Diploma level has dominated the graduates at the Universities of Technology in 2006 with 68%, followed by BTech with 28% and MTech with 3%. National Higher Certificate and DTech collectively produced less than 2% of the total number of graduates at Universities of Technology in 2006. This can also be attributed to the high number of Diploma enrolments and low enrolment figures in BTech and MTech enrolments.

Table 35: Demographic breakdown of National Higher Certificate graduates by CESM at Universities of Technology in 2006													
CESM Category (Certificates)	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Agricultural Management	0	3	3	0	0	0	0	0	0	0	0	0	3
Animal Science	0	1	1	0	0	0	0	1	1	0	0	0	2
Agricultural Science-General	4	1	5	0	0	0	0	0	0	0	0	0	5
Renewable Natural Resources	0	0	0	0	1	1	0	0	0	0	0	0	1
TOTAL	4	5	9	0	1	1	0	1	1	0	0	0	11

The National Higher Certificate programmes are rated at NQF level 5. The data in table 35 above depicts that 11 graduates were produced at National Higher Certificate level in the 2006 academic year. Nine (9) were Africans, 1 was Coloured and 1 was White.

Table 36: Demographic breakdown of Diploma graduates by CESM at Universities of Technology in 2006														
CESM Category (Diploma)	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Agricultural Management	43	39	82	0	1	1	53	2	55	0	0	0	138	21
Animal Science	58	65	123	0	0	0	7	12	19	0	0	0	142	22
Horticulture	13	17	30	0	0	0	4	7	11	2	1	3	44	7
Plant Science	33	25	58	0	0	0	4	0	4	0	0	0	62	9
Renewable Natural Resources	34	34	68	0	1	1	16	18	34	0	0	0	103	16
Other Agricultural and Renewable Resources	5	2	7	0	0	0	3	0	3	0	0	0	10	2
Wildlife Management	3	0	3	0	0	0	7	0	7	0	0	0	10	2
Agricultural Science-General	1	0	1	1	1	2	19	6	25	0	0	0	28	4
Agricultural Extension	2	5	7	0	0	0	0	0	0	0	0	0	7	1
Veterinary Technology	4	1	5	0	0	0	1	6	7	0	0	0	12	2
Biotechnology	2	15	17	1	2	3	0	3	3	4	13	17	40	6
Food Science	3	19	22	0	0	0	1	7	8	4	22	26	56	9
Land Reclamation	0	0	0	0	0	0	2	0	2	0	0	0	2	0
TOTAL	201	222	423	2	5	7	117	61	178	10	36	46	654	

Table 36 above indicates that a total number of 654 graduates were awarded Diplomas in the 2006 academic year. Animal Science graduates account for 22% of the overall Diploma graduates, followed by Agricultural Management graduates with 21% of the total Diploma graduates at Universities of Technology during 2006.

Graduates in Agricultural Extension and Land Reclamation constitute the least number of Diploma graduates during 2006 with less than 2% together. African graduates dominate Diploma graduates with 65%, followed by Whites with 27% and Asians with 7%. Coloured students constitute very low figures of the total number of Diploma graduates in the 2006 academic year.

Table 37: Demographic breakdown of BTech graduates by CESM at Universities of Technology in 2006														
CESM Category (BTECH)	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Agricultural Management	5	3	8	1	0	1	24	5	29	0	0	0	38	14
Animal Science	34	12	46	0	0	0	1	0	1	0	0	0	47	18
Horticulture	3	2	5	0	0	0	2	4	6	0	0	0	11	4
Plant Science	11	2	13	0	0	0	4	0	4	0	0	0	17	6
Renewable Natural Resources	32	14	46	1	1	2	7	6	13	1	1	2	63	24
Agricultural Science-General	5	3	8	3	0	3	3	0	3	0	0	0	14	5
Agricultural Extension	15	7	22	1	0	1	0	0	0	0	0	0	23	9
Biotechnology	2	7	9	0	1	1	1	0	1	4	13	17	28	11
Food Science	0	4	4	0	0	0	0	0	0	1	10	11	15	6
Veterinary Technology	0	1	1	0	0	0	1	4	5	0	0	0	6	2
Wildlife Management	0	0	0	0	0	0	2	0	2	0	0	0	2	1
TOTAL	107	55	162	6	2	8	45	19	64	6	24	30	264	
%	41	21	61	2	1	3	17	7	24	1	9	8		100

Table 37 above indicates that a total number of 264 graduates were awarded BTech Degrees in the 2006 academic year. Renewable Natural Resources account for 24%, followed by Animal Science and Agricultural Management with 18% and 14% respectively.

Other CESM categories have awarded a very low number of BTech Degrees with Wildlife Management graduates comprising only 1%. Africans were the largest recipients of BTech Degrees in the 2006 academic year with 61%, followed by Whites with 24%. Coloured and Asian graduates jointly account for 11% of the overall number of BTech graduates produced at Universities of Technology in the 2006 academic year.

Table 38: Demographic breakdown of Postgraduates graduates by CESM at Universities of Technology in 2006														
CESM Category (Postgraduate)	Africans			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
MTech (Agricultural Management)	0	0	0	0	0	0	1	0	1	0	0	0	1	3
MTech (Horticulture)	0	0	0	0	0	0	2	0	2	0	0	0	2	7
MTech (Renewable Natural Resources)	0	0	0	0	0	0	2	3	5	0	0	0	5	17
MTech (Agricultural Science-General)	0	0	0	0	0	0	3	0	3	0	0	0	3	10
MTech (Biotechnology)	0	4	4	2	0	2	0	0	0	1	5	6	12	40
MTech (Food Science)	0	0	0	0	0	0	0	0	0	0	3	3	3	10
DTech (Animal Science)	0	0	0	0	0	0	1	0	1	0	0	0	1	3
DTech (Renewable Natural Resources)	0	0	0	0	0	0	1	0	1	0	0	0	1	3
DTech (Biotechnology)	0	0	0	0	0	0	0	0	0	1	1	2	2	7
TOTAL	0	4	4	2	0	2	10	3	13	2	9	11	30	
%	0	13	13	7	0	7	33	10	43	7	30	37		100

As depicted in Table 38 above a total of 26 graduates were awarded MTech Degrees and 4 were awarded DTech Degrees in AET programmes at Universities of Technology in the 2006 academic year.

3.4.1.1 Agricultural Management Graduates at Universities of Technology in 2006

One hundred and eighty (180) graduates were produced in this CESM at Universities of Technology during 2006. Table 39 below presents a demographic breakdown of Agricultural Management graduates by level of qualification in the 2006 academic year.

Table 39: Demographic breakdown of Agricultural Management graduates by level of qualification in 2006														
LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
N.H. Cert.	0	3	3	0	0	0	0	0	0	0	0	0	3	2
Diploma	43	39	82	0	1	1	53	2	55	0	0	0	138	77
BTech	5	3	8	1	0	1	24	5	29	0	0	0	38	21
MTech	0	0	0	0	0	0	1	0	1	0	0	0	1	0
TOTAL	48	45	93	1	1	2	78	7	85	0	0	0	180	

Diploma graduates constitute 77% of the overall Agricultural Management graduates, followed by BTech with 21%. The lowest numbers of graduates were recorded at National Higher Certificate level with 2% and MTech level with less than 1% of the overall graduates in Agricultural Management.

Figure 62: Racial breakdown of Diploma graduates Agricultural Management

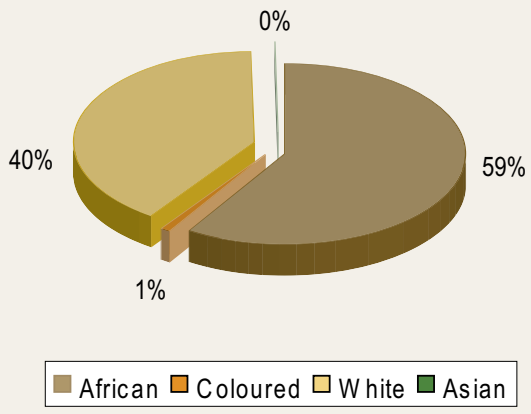


Figure 62 above indicates that 59% of the Diploma graduates in this CESM are Africans. White graduates constitute 40% and Coloured graduates account for only 1% of the total Diploma graduates in Agricultural Management in the 2006 academic year. There were no Asian graduates in Agricultural Management in the 2006 academic year.

Figure 63: Gender breakdown of Diploma graduates Agricultural Management

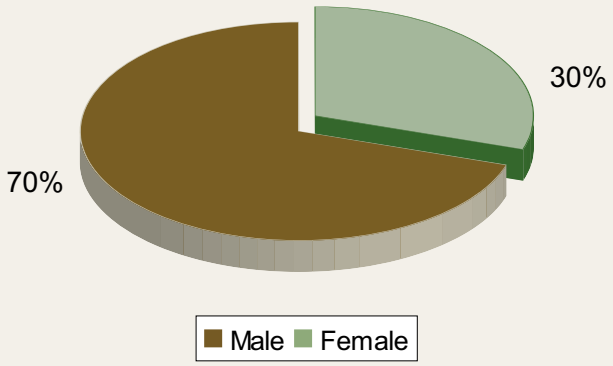


Figure 63 above indicates that male graduates constitute 70% of the Diploma graduates and female graduates account for 30%. White male graduates constitute 55% of the male graduates, followed by African males with 45%. No Coloured or Asian males graduated in this programme during 2006. African female graduates dominate the female Diploma population with 93%. White female graduates constitute 5% and Coloured female graduates constitute 2% only.

Figure 64: Racial breakdown of BTech graduates Agricultural Management

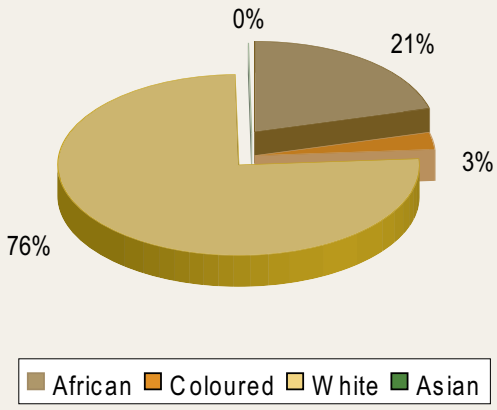


Figure 64 above shows that White graduates constitute 76% of the total BTech graduates in Agricultural Management, followed by African graduates with 21% and Coloured graduates account for only 3%. No Asians graduated in BTech: Agricultural Management in the 2006 academic year at Universities of Technology.

Figure 65: Gender breakdown of Diploma graduates Agricultural Management

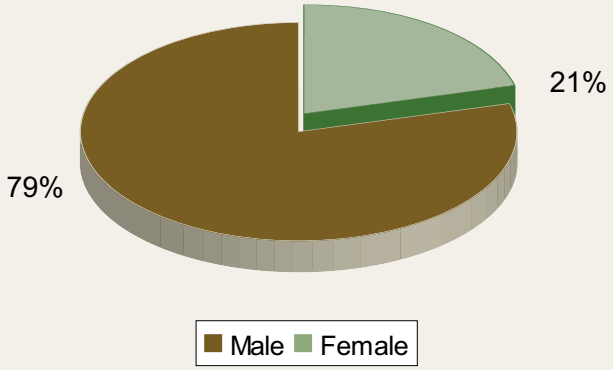


Figure 65 above shows that male graduates constitute 79% of the total BTech graduates in Agricultural Management and female graduates constitute 21%. African male graduates dominate male graduates in the BTech Agricultural Management with 80%, followed by White male graduates with 17% and Coloured male graduates account for only 3%. No Coloured males graduated with BTech in Agricultural Management in the 2006 academic year.

White female graduates constitute 62% of all the female graduates in BTech Agricultural Management, while African female graduates account for 38%. One (1) White male graduate was produced in this CESM at MTech level in the 2006 academic year.

3.4.1.2 Animal Science Graduates at Universities of Technology in 2006

One hundred and ninety two (192) graduates were produced in Animal Science at Universities of Technology in the 2006 academic year. Table 40 below presents a demographic breakdown of Animal Science graduates in the 2006 academic year by level of qualification.

Table 40: Demographic breakdown of Animal Science graduates by level of qualification

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
N.H. Cert.	0	1	1	0	0	0	0	1	1	0	0	0	2	1
Diploma	58	65	123	0	0	0	7	12	19	0	0	0	142	74
BTech	34	12	46	0	0	0	1	0	1	0	0	0	47	24
DTech	0	0	0	0	0	0	1	0	1	0	0	0	1	1
TOTAL	92	78	170	0	0	0	9	13	22	0	0	0	192	

Seventy four percent (74%) of the total Animal Science graduates are Diploma graduates and 24% are BTech graduates. National Higher Certificate and DTech each constitute 1% of the overall Animal Science graduates. As indicated in Table 39 above, a total number of 142 graduates were produced in Diploma Animal Science level in the 2006 academic year.

Figure 66: Racial breakdown of Diploma graduates in Animal Science

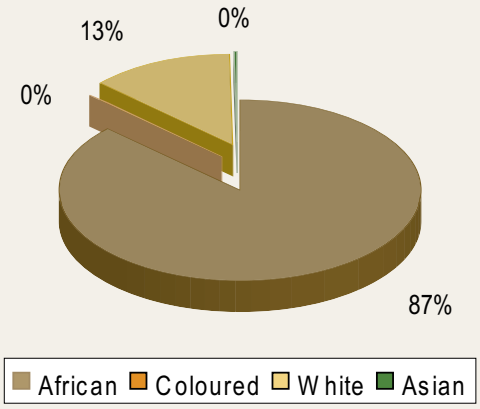
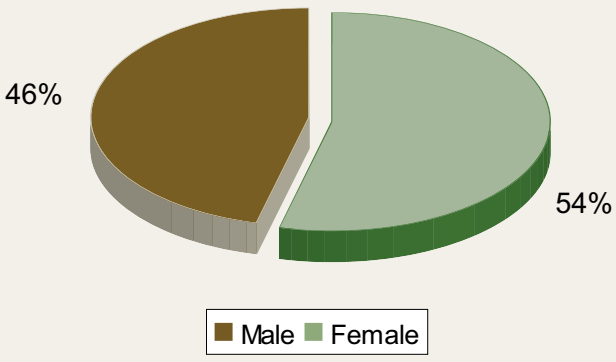


Figure 66 above depicts that African graduates constitute 87% and White graduates account for only 13%. No Coloured or Asian graduates were produced at Diploma level in Animal Science in the 2006 academic year.

Figure 67: Gender breakdown of Diploma graduates in Animal Science



As it appears in figure 67 above, female graduates dominate the Diploma graduates in Animal Science with 54% and male graduates constitute 46%. African males account for 89% and White males comprised 11% of the Diploma: Animal Science male graduates at Universities of Technology during 2006. African females constitute 84% of the total female graduates in the Diploma: Animal Science and White females constitute 16%. Forty six (46) graduates were produced at BTech level in Animal Science at University of Technology during 2006.

Figure 68: Racial breakdown of BTech graduates in Animal Science

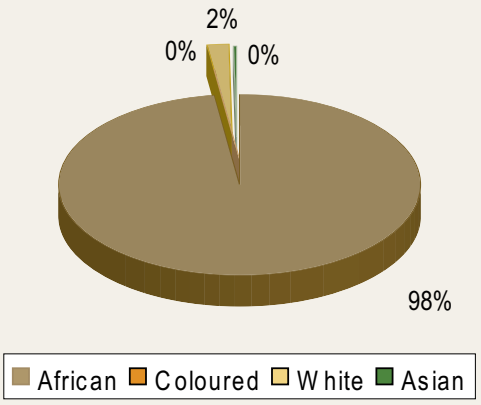


Figure 68 above shows that African graduates dominate the BTech graduates in Animal Science with 98%, followed by White graduates with only 2%. No Coloured or Asian graduates were produced at BTech level in Animal Science in the 2006 academic year.

Figure 69: Gender breakdown of BTech graduates in Animal Science

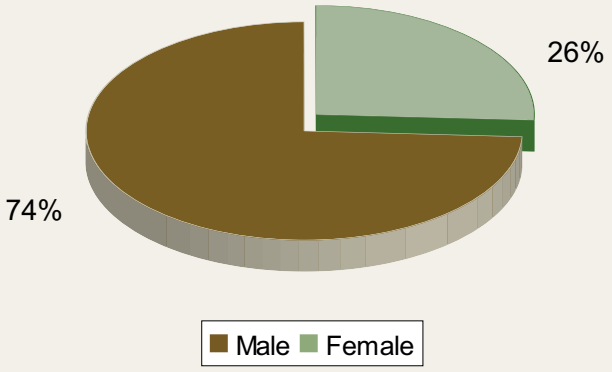


Figure 69 above shows that male graduates dominate the BTech graduates in Animal Science with 74% and females constitute 26%. African males constitute 97% of the male graduates in BTech: Animal Science and White males account for the remaining 3%. Only African females graduated in BTech: Animal Science in the 2006 academic year at Universities of Technology. One (1) White male graduate was qualified in this CESM at DTech level during 2006 at Universities of Technology.

3.4.1.3 Horticulture Graduates at Universities of Technology in 2006

Horticulture produced 57 graduates at Universities of Technology in the 2006 academic year. Table 41 below presents a demographic breakdown of Horticulture graduates in the 2006 academic year by level of qualification.

Table 41: Demographic breakdown of Horticulture graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	13	17	30	0	0	0	4	7	11	2	1	3	44	77
BTech	3	2	5	0	0	0	2	4	6	0	0	0	11	19
MTech	0	0	0	0	0	0	2	0	2	0	0	0	2	4
TOTAL	16	19	35	0	0	0	8	11	19	2	1	3	57	

Seventy seven percent (77%) of the Horticulture graduates graduated with a Diploma, followed by BTech with 19%. MTech candidates comprised only 4% of the total number of graduates in Horticulture produced by Universities of Technology during 2006.

Figure 70: Racial breakdown of Diploma graduates in Horticulture

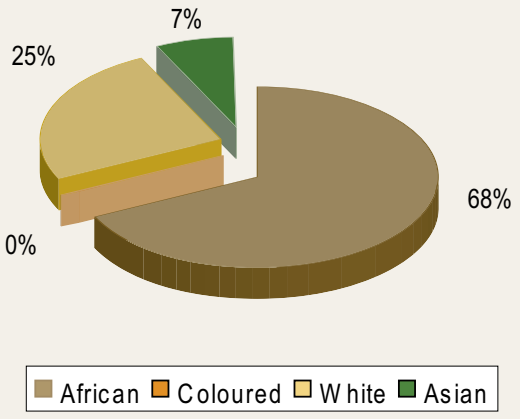
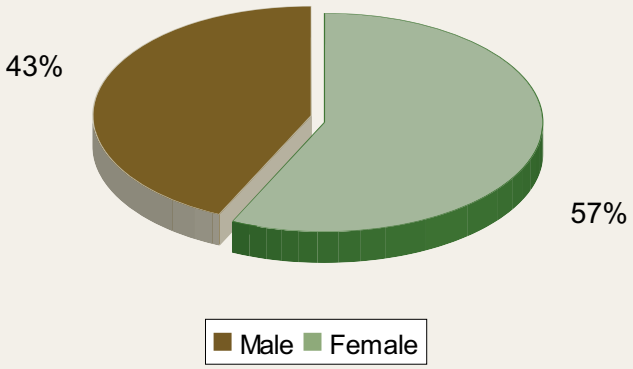


Figure 70 above depicts that African graduates constitute 68% of the Diploma graduates in Horticulture at Universities of Technology in the 2006 academic year, followed by White graduates with 25% and Asian graduates with 7%.

Figure 71: Gender breakdown of Diploma graduates in Horticulture



Gender breakdown in figure 71 above illustrates that female graduates dominate the Diploma graduates in Horticulture with 57% and male graduates contributed 43%. African males dominate the Diploma graduates in Horticulture with 68% followed by White males with 21% and Asian males with 11%. African females constitute 68% of the total female graduates in Diploma Horticulture and White females constitute 28%, while Asian females contributed 11%.

Eleven (11) graduates qualified for BTech Horticulture in the 2006 academic year at Universities of Technology: 5 were Africans and 6 were White. Two (2) White male graduates were produced in this CESM at MTech level in the 2006 academic year at Universities of Technology.

3.4.1.4 Plant Science Graduates at Universities of Technology in 2006

Seventy nine (79) Diploma and BTech graduates in Plant Science qualified at Universities of Technology in the 2006 academic year. Table 42 below presents a demographic breakdown of Plant Science graduates during the 2006 academic year by level of qualification.

Table 42: Demographic breakdown of Plant Science graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	33	25	58	0	0	0	4	0	4	0	0	0	62	78
BTech	11	2	13	0	0	0	4	0	4	0	0	0	17	22
TOTAL	44	27	71	0	0	0	8	0	8	0	0	0	79	

Seventy eight percent (78%) of the total Plant Science graduates are Diploma graduates and 22% are BTech graduates. No graduates

were produced at MTech and DTech levels in this CESM in the 2006 academic year.

Figure 72: Racial breakdown of Diploma graduates in Plant Science

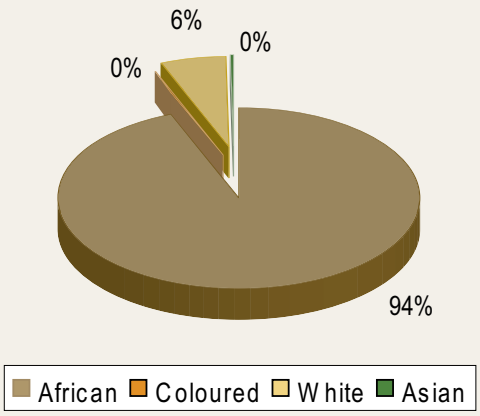


Figure 72 above illustrates that African graduates dominate the number of Diploma graduates in Plant Science with 94%, followed by White graduates with 6%. No Asians or Coloureds graduated in this CESM at Diploma level at Universities of Technology during 2006.

Figure 73: Gender breakdown of Diploma graduates in Plant Science

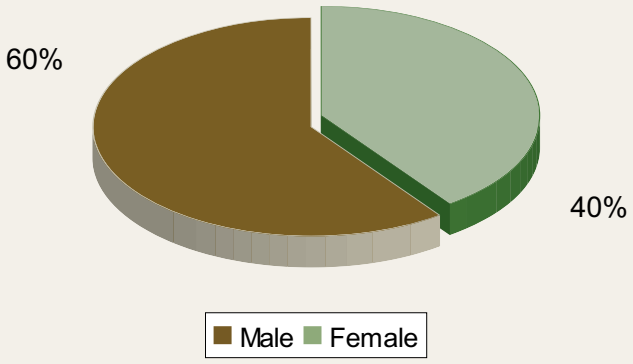


Figure 73 above indicates that male graduates dominate with 60% and female graduates comprised 40% of the Diploma graduates in Plant Science in the 2006 academic year. African males constitute 89% of the male graduates in Diploma Plant Science followed by White males with 11%. Only African female graduates qualified in this CESM at Diploma level.

Figure 74: Racial breakdown of BTech graduates in Plant Science

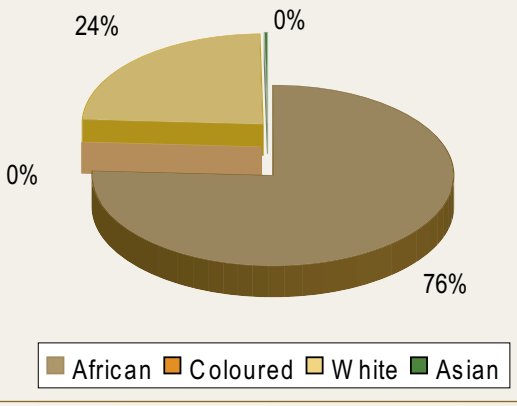


Figure 74 above shows that Africans constitute 76% of the total number of BTech graduates in Plant Science, followed by Whites with 24%. No Coloured or Asian graduates were qualified in this CESM at BTech level in the 2006 academic year at Universities of Technology.

Figure 75: Gender breakdown of BTech graduates in Plant Science

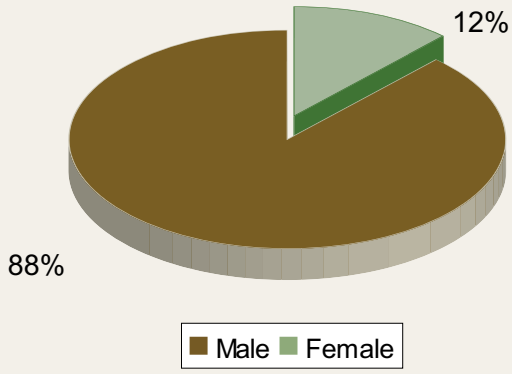


Figure 75 above depicts that male graduates dominate the BTech graduates in Plant Science with 88% and female graduates constitute 12%. African males constitute 73% of the male graduates in BTech: Plant Science during 2006, followed by White males with 27%. There were only 4 African females graduated in this CESM at BTech level during 2006 at Universities of Technology.

3.4.1.5 Renewable Natural Resources Graduates at Universities of Technology in 2006

One hundred and seventy three (173) graduates were produced in Renewable Natural Resources at Universities of Technology in the 2006 academic year. Table 43 above presents a demographic breakdown of graduates in Renewable Natural Resources in 2006 by level of qualification.

Table 43: Demographic breakdown of Renewable Natural Resources graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
N.H. Cert.	0	0	0	0	1	1	0	0	0	0	0	0	1	0.5
Diploma	34	34	68	0	1	1	16	18	34	0	0	0	103	60
BTech	32	14	46	1	1	2	7	6	13	1	1	2	63	36
MTech	0	0	0	0	0	0	2	3	5	0	0	0	5	3
DTech	0	0	0	0	0	0	1	0	1	0	0	0	1	0.5
TOTAL	66	48	114	1	3	4	26	27	53	1	1	2	173	

Sixty percent (60%) of the total number of graduates in Renewable Natural Resources are Diploma graduates, 36% are BTech graduates and 3% are MTech. DTech and National Higher Certificate together contributed 1% of the Renewable Natural Resources graduates at Universities of Technology in the 2006 academic year.

Figure 76: Racial breakdown of Diploma graduates in Renewalble Natural Resources

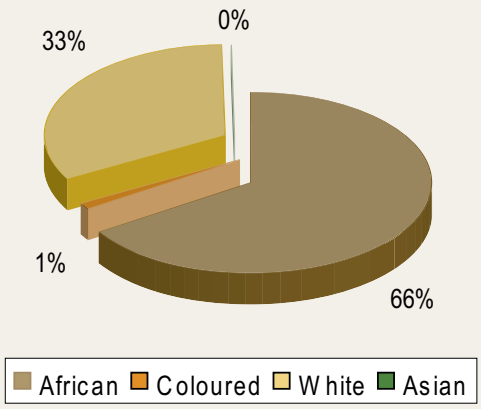


Figure 76 above indicates that African graduates dominate the Diploma: Renewable Natural Resources with 66%, followed by white graduates with 33% and Coloured graduates with 1%. No Asian graduates were produced in the Diploma: Renewable Natural Resources in the 2006 academic year.

Figure 77: Gender breakdown of Diploma graduates in Renewalble Natural Resources

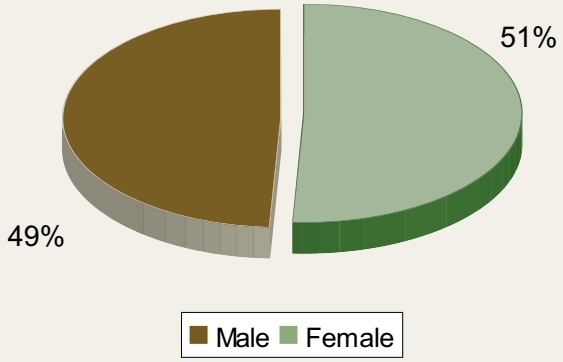


Figure 77 above illustrates that female graduates dominate the graduates in this CESM at Diploma level with 51% and male graduates account for 49%. African males account for 68% of the male graduates in this CESM at Diploma level during 2006 at Universities of Technology and White males constitute 32%. African females constitute 64% of the female graduates, followed by White females with 34% and Coloured females with 2%.

Figure 78: Racial breakdown of BTech graduates in Renewalble Natural Resources

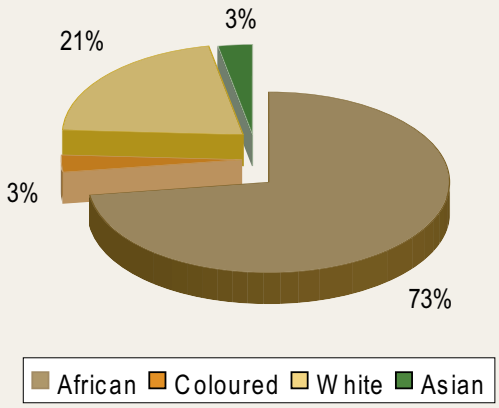


Figure 78 above indicates that African graduates dominate the BTech graduates in Renewable Natural Resources with 73%, followed by White graduates with 21%. Coloured and Asian graduates each account for 3% of the overall graduates in this CESM at BTech level.

Figure 79: Gender breakdown of BTech graduates in Renewalble Natural Resources

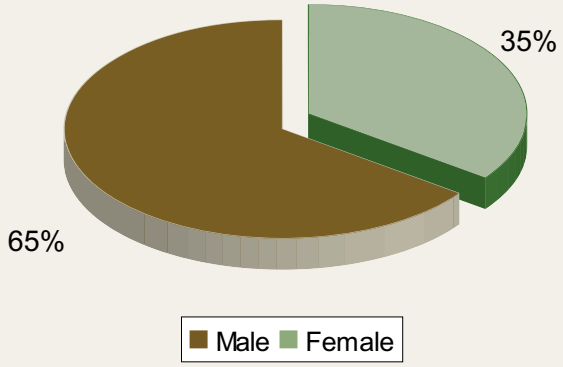


Figure 79 above illustrates that male graduates dominate the graduates in this CESM with 65% and female graduates account for 35%. African males constitute 79% of the male graduates in this CESM at BTech level followed by White males with 17%. Asian and Coloured males each account for 2% of the male graduates in this CESM at BTech level in the 2006 academic year at Universities of Technology. African females account for 63% and White females constitute 27% of the overall female graduates in this CESM at BTech level in the 2006 academic year. Asian and Coloured females each account for 2% of the female graduates.

3.4.1.6 Agricultural Science -General Graduates at Universities of Technology in 2006

A total of 50 graduates qualified in the CESM at Universities of Technology in the 2006 academic year. Graduates in this category included those who graduated with the National Higher Certificate, Diploma, BTech, MTech and DTech in Agriculture Science and in Agriculture. Table 44 below presents a demographic breakdown of Agricultural Science graduates in the 2006 academic year by level of qualification.

Table 44: Demographic breakdown of Agricultural Science General graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
N.H. Cert.	4	1	5	0	0	0	0	0	0	0	0	0	5	10
Diploma	1	0	1	1	1	2	19	6	25	0	0	0	28	56
BTech	5	3	8	3	0	3	3	0	3	0	0	0	14	28
MTech	0	0	0	0	0	0	3	0	3	0	0	0	3	6
TOTAL	10	4	14	4	1	5	25	6	31	0	0	0	50	

Fifty six percent (56%) of the total number of Agricultural Science-General graduates are Diploma graduates, 42% are BTech graduates, 10% are National Higher Certificate graduates and 6% are MTech graduates.

Figure 80: Racial breakdown of Diploma graduates in Agricultural Science-General

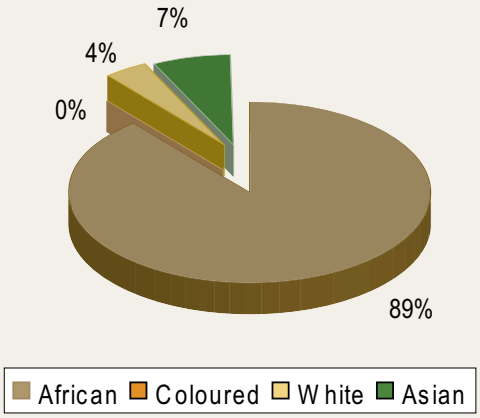


Figure 80 above shows that White graduates dominate the Diploma graduates in this CESM with 89%, followed by Coloured and African graduates with 7% and 4% respectively. No Asians graduated in this CESM at Diploma level in the 2006 academic year.

Figure 81: Gender breakdown of Diploma graduates in Agricultural Science-General

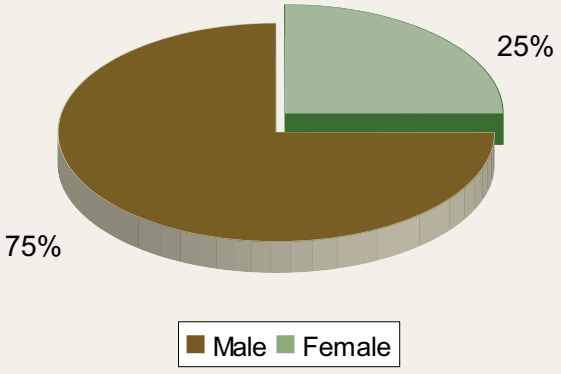


Figure 81 above depicts that male graduates dominate the Diploma graduates in Agricultural Science-General with 75%, followed by females with 25%. White male graduates account for 90% of the male graduates in this CESM, followed by African and Coloured male graduates with 5% each. White female graduates dominate the female graduates in this CESM at Diploma level with 86%, followed by African female graduates with 14%.

Figure 82: Racial breakdown of BTech graduates in Agricultural Science-General

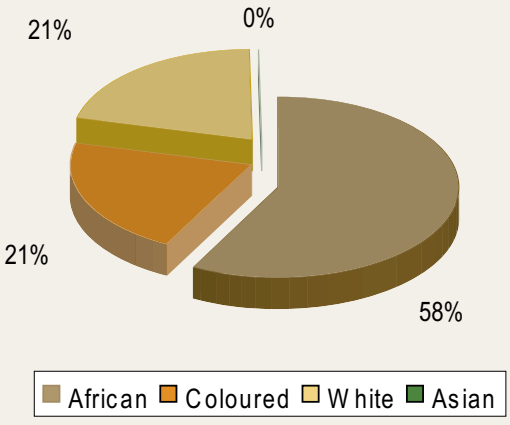


Figure 82 above shows that African graduates constitute 58% of the BTech graduates in this CESM, followed by White and Coloured graduates with 21% each.

Figure 83: Gender breakdown of BTech graduates in Agricultural Science-General

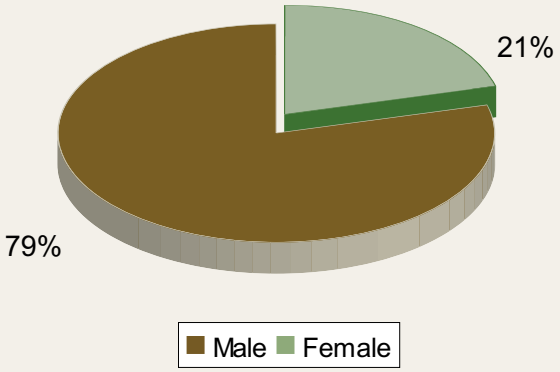


Figure 83 above depicts that male graduates dominate the BTech graduates in Agricultural Science-General with 79% and females constitute 21%. African male graduates account for 46%, followed by Coloured and White male graduates with 27% each. Only 3 African females obtained the Diploma: Agricultural Science-General in the 2006 academic year at Universities of Technology.

3.4.1.7 Agricultural Extension Graduates at Universities of Technology in 2006

Thirty (30) graduates were produced in this CESM at Universities of Technology in the 2006 academic year. Table 45 below presents a demographic breakdown of Agricultural Extension graduates in the 2006 academic year by level of qualification.

Table 45: Demographic breakdown of Agricultural Extensions graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	2	5	7	0	0	0	0	0	0	0	0	0	7	23
BTech	15	7	22	1	0	1	0	0	0	0	0	0	23	77
TOTAL	17	12	29	1	0	1	0	0	0	0	0	0	30	100

Seventy seven percent (77%) of the total number of Agricultural Extension graduates are BTech graduates and 23% are Diploma graduates.

Seven (7) African graduates were awarded the Diploma in Agricultural Extension in the 2006 academic year, of which 5 were females and 2 were males. Twenty three (23) graduates were produced in this CESM at BTech level in the 2006 academic year at Universities of Technology. Racial breakdown indicates that 22 were Africans and 1 was Coloured. Gender breakdown depicts that 16 were male and 7 were female.

3.4.1.8 Agricultural Biotechnology Graduates at Universities of Technology in 2006

A total of 82 graduates were produced in this CESM at Universities of Technology in the 2006 academic year. Graduates in this category include those who graduated with Diploma, BTech, MTech and DTech. Table 46 below presents a demographic breakdown of Agricultural Biotechnology graduates in the 2006 academic year by level of qualification.

Table 46: Demographic breakdown of Agricultural Biotechnology graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	2	15	17	1	2	3	0	3	3	4	13	17	40	49
BTech	2	7	9	0	1	1	1	0	1	4	13	17	28	34
MTech	0	4	4	2	0	2	0	0	0	1	5	6	12	15
DTech	0	0	0	0	0	0	0	0	0	1	1	2	2	2
TOTAL	4	26	30	3	3	6	1	3	4	10	32	42	82	

Forty nine percent (49%) of the total number of Agricultural Biotechnology graduates are Diploma graduates, 34% are BTech graduates, 15% are MTech graduates and 2% are DTech graduates.

Figure 84: Racial breakdown of Diploma graduates in Agricultural Biotechnology

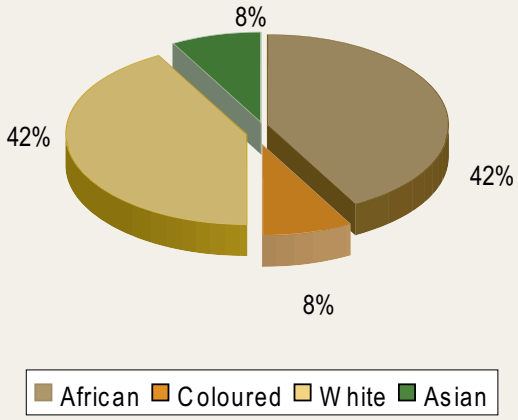


Figure 84 above shows that African and Asian graduates each constitute 42% of the total number of Diploma graduates in Agricultural Biotechnology. Coloured and White graduates each account for 8% of the Diploma graduates in Agricultural Biotechnology in the 2006 academic year at Universities of Technology.

Figure 85: Gender breakdown of Diploma graduates in Agricultural Biotechnology

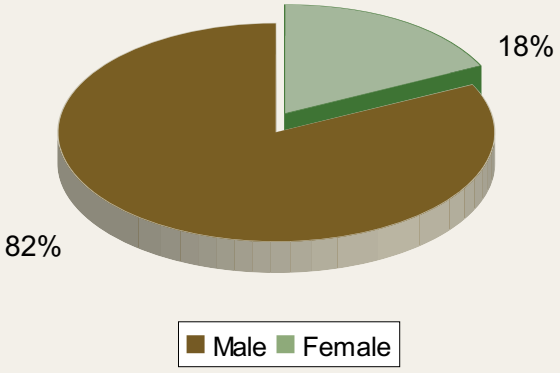


Figure 85 above depicts that female graduates dominate the Diploma graduates in Agricultural Biotechnology with 82%, followed by males with 18%. White male graduates account for 57% of the Diploma male graduates in this CESM, followed by African and Coloured male graduates with 17% and 3% respectively. African female graduates dominate the female graduates in this CESM at Diploma level with 46%, followed by Asian female graduates with 39%. White female graduates and Coloured female graduates account for 9% and 6% respectively.

Figure 86: Racial breakdown of BTech graduates in Agricultural Biotechnology

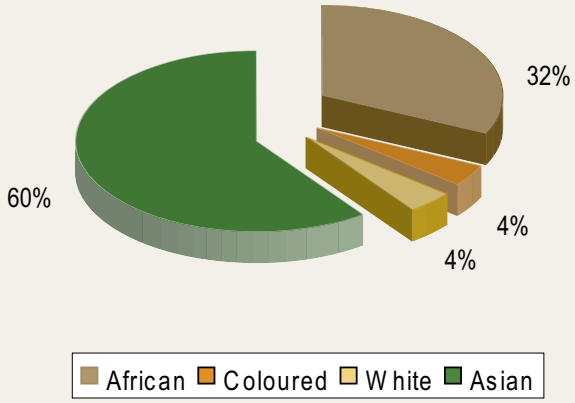


Figure 86 above indicates that Asian graduates dominate the BTech graduates in Agricultural Biotechnology with 60%, followed by African graduates with 32%. Coloured and White graduates each account for 4% of the overall graduates in this CESM at BTech level in the 2006 academic year at Universities of Technology.

Figure 87: Gender breakdown of BTech graduates in Agricultural Biotechnology

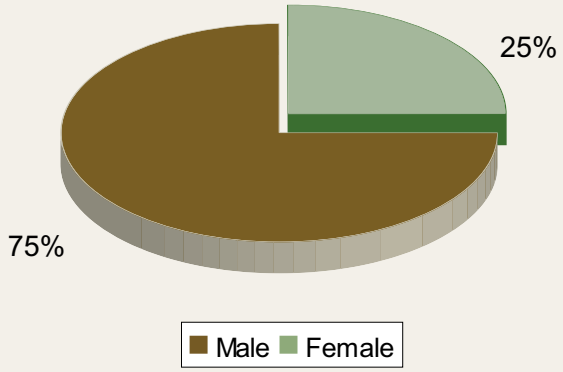


Figure 87 above depicts that female graduates dominate the BTech graduates in Agricultural Biotechnology with 75% followed by males with 25%. Asian male graduates account for 57% of the male graduates in this CESM at BTech level, followed by African male graduates with 29% and White male graduates with 14%. Asian female graduates dominate the female graduates in this CESM at BTech level with 62%, followed by African female graduates with 33% and Coloured female graduates with 5%.

Figure 88: Racial breakdown of MTech graduates in Agricultural Biotechnology

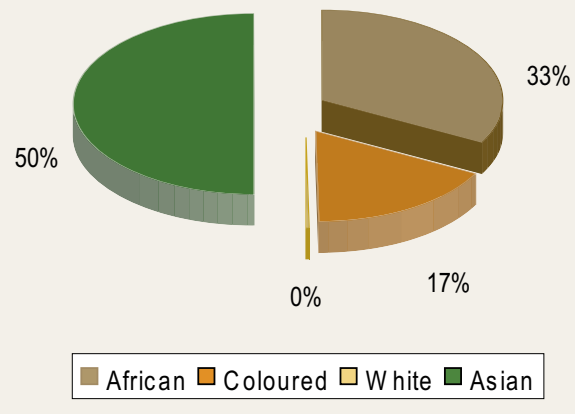


Figure 88 above shows that Asian graduates dominate the MTech graduates in Agricultural Biotechnology with 50%, followed by African graduates with 33% and Coloured graduates with 17%. No White graduates were produced at MTech level in Agricultural Biotechnology in the 2006 academic year.

Figure 89: Gender breakdown of MTech graduates in Agricultural Biotechnology

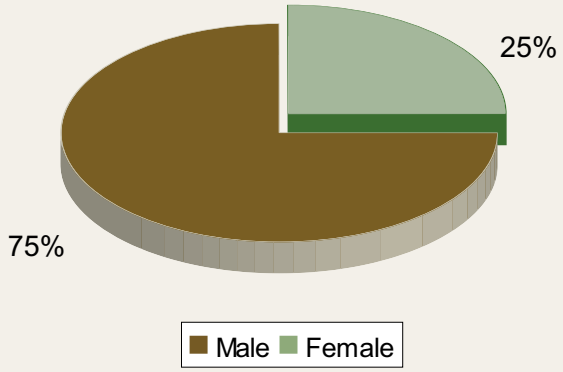


Figure 89 above depicts that female graduates dominate the BTech graduates in Agricultural Biotechnology with 75%, followed by males with 25%.

Two (2) Asian graduates were produced in DTech: Agricultural Biotechnology in the 2006 academic year at Universities of Technology: 1 was male and 1 was female.

3.4.1.9 Food Technology Graduates at Universities of Technology in 2006

Food Technology produced 74 graduates at Universities of Technology in the 2006 academic year. Table 47 below presents a demographic breakdown of graduates in Food Technology in 2006 by level of qualification.

Table 47: Demographic breakdown of Food Technology graduates by level of qualification in 2006

LEVEL	African			Coloured			White			Asian			TOTAL	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	3	19	22	0	0	0	1	7	8	4	22	26	56	76
BTech	0	4	4	0	0	0	0	0	0	1	10	11	15	20
MTech	0	0	0	0	0	0	0	0	0	0	3	3	3	4
TOTAL	3	23	26	0	0	0	1	7	8	5	35	40	74	

Seventy six percent (76%) of the total number of Food Technology graduates are Diploma graduates, 20% are BTech graduates and 4% are MTech graduates.

Figure 90: Racial breakdown of Diploma graduates in Food Science

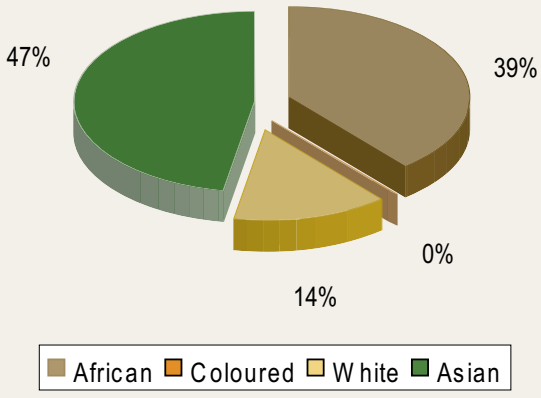


Figure 90 above shows that Asian graduates dominate the Diploma graduates in Food Technology with 47%, followed by African graduates with 39% and White graduates with 14%. No Coloured graduates were produced at Diploma level in Food Technology in the 2006 academic year.

Figure 91: Gender breakdown of Diploma graduates in Food Science

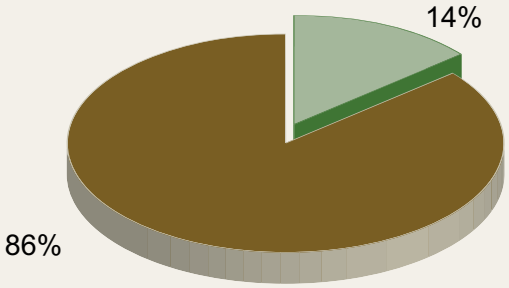


Figure 91 above depicts that female graduates dominate the Diploma graduates in Food Technology with 86% followed by males with 14%. Asian male graduates account for 49% of the male graduates in this CESM at Diploma level followed by African male graduates with 38% and White male graduates with 13%. Asian female graduates dominate the female graduates in this CESM at Diploma level with 45%, followed by African female graduates with 40% and White female graduates with 15%.

Figure 92: Racial breakdown of BTech graduates in Food Technology

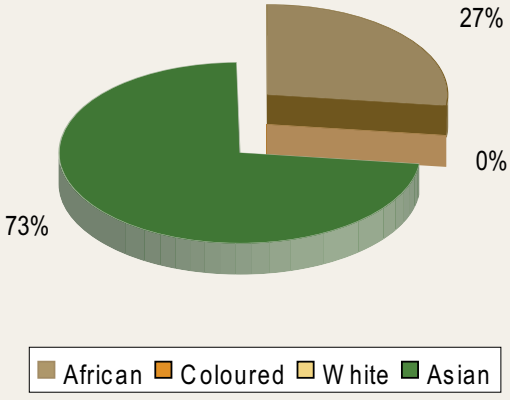


Figure 92 above indicates that Asian graduates dominate the BTech graduates in Food Technology with 73% followed by African graduates with 27%. No Coloured or White graduates were produced at BTech level in Food Technology in the 2006 academic year. Gender breakdown depicts that 14 female graduates and 1 male graduate were produced in this CESM at BTech level in the 2006 academic year. Three (3) Asian female graduates were produced in this CESM at MTech level in the 2006 academic year at Universities of Technology.

3.4.1.10 Land Reclamation Graduates at Universities of Technology in 2006

Two (2) White male graduates were produced in this CESM at Universities of Technology during 2006.

3.4.1.11 Other Agricultural and Renewable Resources Graduates at Universities of Technology in 2006

Ten (10) Diploma graduates were produced in this CESM at Universities of Technology in the 2006 academic year. Race and gender breakdown indicates that 5 were African males, 2 were African females and 3 were White females.

3.4.1.12 Wildlife Management Graduates at Universities of Technology in 2006

Only Diploma and BTech graduates were produced in this CESM in the 2006 academic year at Universities of Technology. Ten (10) male graduates were produced in this CESM at Diploma level at Universities of Technology: 3 were Africans and 7 were Whites. Two (2) White male graduates were produced in this CESM at BTech level in the 2006 academic year at Universities of Technology.

3.5 Conclusion

It is evident from enrolments and graduate figures that enrolments at the Universities of Technology far outweigh graduate figures. For instance, 3 599 students enrolled in agricultural programmes in 2006, while only 959 graduated, which is 73% less than the enrolments. Compared to 2005, the enrolments figures went up by 564 students and graduates recorded a major increase with 274 graduates.

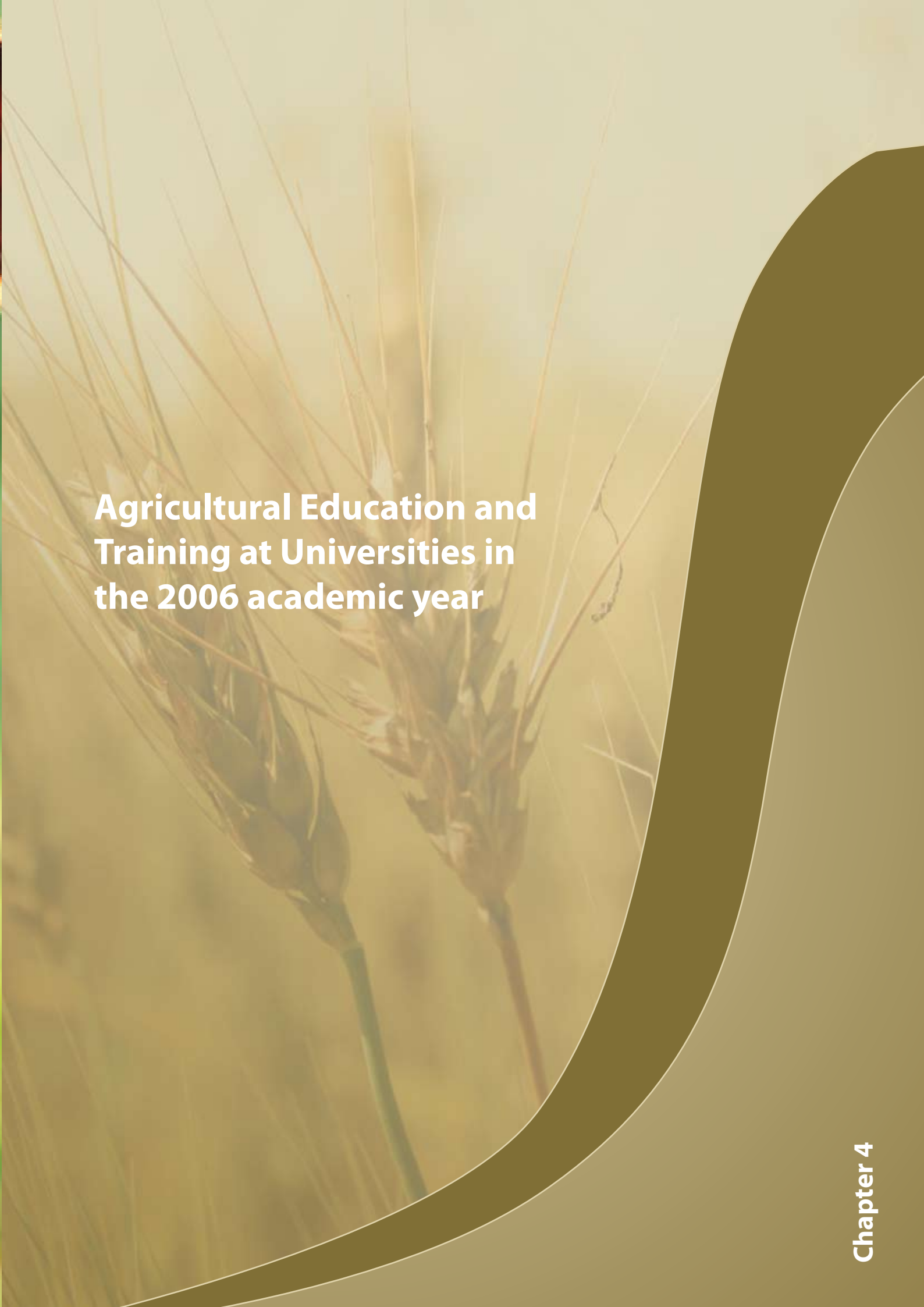
From the findings it is evident that TUT has a bigger share of enrolments and graduates compared to all the Universities of Technology. This is attributed to the fact that the institution offers many agricultural programmes. CUT,FS and CPUT has the lowest number of both enrolments and graduates, and again this is attributed to the number of programmes offered by the institutions.

It is evident from the findings that, generally, Africans dominate both the enrolments and graduate figures in the Universities of Technology. Of the 3 599 enrolments at all the Universities of Technology, 72% were Africans, and, of the 959 graduates, 62% are Africans. However, some programmes are dominate by Whites and Asians. For instance, the trend is that in both enrolments and graduates, Whites dominate in Agricultural Biotechnology, Food Science and Wildlife Management while Africans dominate in Animal Science, Plant Science, Horticulture, Renewable Natural Resources and Agricultural Management. A major improvement has been witnessed with regard to Asian enrolments and graduates. From the findings, Coloured enrolments and graduates are very insignificant in all the agricultural programmes offered by Universities of Technology, ranging from 0% to 1%.

In almost all of the programmes, males dominate enrolments and graduates across all race groups. It is only two cases, in the case of Agricultural Biotechnology and Veterinary Technology enrolments where females outnumber the males. The general trend is that males, particularly African and White males, constitute a higher number of graduates and enrolments, with African males dominating. African males constitute almost half of the enrolment figures with 44% and 41% of the total graduate figures at the Universities of Technology.

The general trend is that the majority of the enrolments and graduates at the Universities of Technology were recorded in the Diploma in Animal Science and none in the scarce skills as identified by the Department of Agriculture. Generally, enrolments for all race groups are very low at BTech to DTech levels, which is cause for concern if the sector's research base is expected to expand.

These trends were also evident in 2003, 2004 and 2005 figures. If the trends continue, the supply of high-level skills will not match and, therefore, not address skills demands in the agricultural public sector and it will exacerbate the problem of unemployed agricultural graduates in the sector, particularly looking at the academic level at which the majority of enrolments and graduates are recorded. The lowest enrolment and graduate figures at postgraduate level is also cause for concern, considering the fact that research scientists have been identified as some of the critical skills required in the sector. There is a need to investigate factors influencing the trends in order to implement interventions which will reverse the situation.



Agricultural Education and Training at Universities in the 2006 academic year

Chapter 4

Chapter 4

4.1 Introduction

Thirteen (13) Universities which offer AET programmes in South Africa are Fort Hare, Free State, Johannesburg, KwaZulu-Natal, Limpopo, North West, Nelson Mandela Metropolitan, Pretoria, Stellenbosch, Unisa, Venda, Western Cape and Zululand. The majority of these institutions offer agricultural qualifications from NQF levels five to eight, i.e. from University Diploma to Doctor of Philosophy (PhD) programmes.

4.2 Agricultural Education and Training programmes and National Qualification Framework offered at Universities in 2006

Universities offer various agricultural programmes and they vary in terms of scope. Table 48 present various programmes offered by Universities. Universities have a broad scope on agricultural curricula.

Table 48: Agricultural programmes offered by Universities in 2006.

	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
N Certificate programmes													
N Cert Commercial Floristry										X			
National Diploma programmes													
N Dip Horticulture										X			
N Dip Nature Conservation										X			
N Dip Open Space & Recreation Management										X			
Diploma in Disaster Management			X										
Diploma in Agriculture			X										
N. Dip Science and Agriculture				X									
Diploma in Rural Resource Management				X									
Diploma Food Security				X									
Diploma Animal Health		X								X			
Diploma in Agriculture: Animal Production			X										
Diploma in Agriculture: Crop Production			X										
Diploma in Agriculture: Agricultural Management			X							X			X
Diploma in Agriculture: Natural Resources			X										
Univ. Dip Ext and Rural Develop						X							
Diploma in Agric Economics and Management		X											
Diploma in Food Technology											X		
BTech programmes													
B Tech Horticulture										X			
B Tech Nature Conservation										X			
B Tech Agricultural Management										X			X
B Tech Food Technology											X		
B.A. Degree programmes													
B Human Ecology										X			
B Consumer Science Educations										X			
B Consumer Science										X			
B Human Ecology (Community Nutrition)										X			

Table 48: Agricultural programmes offered by Universities in 2006.													
	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
B Human Ecology (Community Agriculture)										X			
B. Agric-Economics	X												
B. Agric-Ext/Prod	X												
B. and Agric. Sci. (UP) Foreign Post D. Fellowship						X							
B & Agric Sci. (FRD) Foreign Post D. Fellowship						X							
B. Agric: Irrigation Management			X										
B. Agric: Animal Production Management			X										
B. Agric: Mixed Farming Management			X										
B. Agric: Crop Production Management			X										
B. Agric: Agriculture Management			X	X									
B. Agric: Wildlife Management			X										
B. Agric Management /Admin					X		X						
B. Agric			X	X			X	X					
Bachelor of Family Ecology								X					
Bachelor of Forestry							X						
B. Agric. Admin							X						
B. AgricAdmin Agri-business Management							X						
B. AgricAdmin Business Specific Farm Management-Viticulture							X						
Bachelor of AgriBusiness Management						X		X					
Bachelor of Family Ecology and Consumer Science								X					
BSc Degree Programmes													
Biotechnology			X			X						X	
Agricultural Engineering				X									
BVSc						X							
Viticulture & Oenology							X						
B ScAgric Soil Science and Chemistry							X						
B ScAgric Soil Science and Horticulture							X						
B ScAgric Soil Science and Viticulture							X						
B ScAgric Horticulture and Entomology							X						
B ScAgric Horticulture and Genetics							X						
B ScAgric Horticulture and Agric Economics							X						
B ScAgric Horticulture and Plant Pathology							X						
B ScAgric Agronomy and Entomology							X						
B ScAgric Agronomy and Genetics							X						
B ScAgric Agronomy and Agricultural Economics							X						
B ScAgric Agronomy and Plant Pathology							X						
BScAgric Soil Science and Agronony							X						
BScAgric Animal Science							X						
BScAgric Animal Science with Agronomy							X						
BScAgric Animal Science with Conservation Ecology							X						

Table 48: Agricultural programmes offered by Universities in 2006.

	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
BScAgric Animal Science with Agricultural Economics							X						
BScAgric Aquaculture and Animal Science							X						
BScAgric Aquaculture & Conservative Ecology							X						
BScAgric Plant Pathology and Entomology							X						
BScAgric Aquaculture							X						
B Sc Food Science							X						
B Sc Agriculture		X	X	X	X		X	X	X				
B Sc Food Science and Technology			X	X		X	X	X			X		
BSc Forestry							X	X					
BSc Agric- Animal Science									X				
BSc Conservation Ecology							X						
BSc Agric. Economics		X	X		X	X							
B Sc Agric. Agronomy			X		X				X				
BSc Animal Production					X								
BSc Horticulture					X	X							
BSc Agric. Pasture Science					X								
BSc Soil Science and Agronomy and Pastures							X						
BSc Agric Soil Science			X		X								
B Sc Environmental & Resource Studies					X								
BSc Crop Science		X											
BSc Animal Health		X											
BSc Land Management		X											
B Sc Agronomy and Agrometeorology			X										
BSc Plant Pathology			X			X							
BSc Irrigation Science			X										
B.Sc Plant Pathology & Entomology			X										
BSc Plant Breeding and Genetics			X			X							
BSc Natural Agricultural Resources			X										
BSc Animal Science / Grassland Science		X	X										
BSc Food Science and Biochemistry			X										
BSc Food Science & Microbiology			X										
BSc Food Science & Chemistry			X										
BSc Agric. Econ. Agri-Business Management						X			X				
BSc Animal Science and Animal Genetics						X							
BSc Food Science & Technology						X							
BSc Genetics: Plant Breeding						X							
BSc Plant Production						X							
BSc Plant Protection						X							
BSc Food Management						X							
BSc Nutrition & Food Science						X							
BSc Agric Genetics & Plant Pathology							X						
BSc Conservation Ecology							X						

Table 48: Agricultural programmes offered by Universities in 2006.													
	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
B Sc Agriculture							X						
BSc Agriculture Science										X			
B Inst. Agrar. programmes													
B.Inst. Agrar: Agric.Econ: Animal Production						X							
B. Inst. Agrar: Agronomy/Horticulture						X							
B. Inst. Agrar: Animal Production						X							
B. Inst. Agrar: Animal Production Management						X							
B. Inst. Agrar: Crop Protection						X							
B. Inst. Agrar: Food Production & Process.						X							
B. Inst. Agrar: Land-Use Planning						X							
B. Inst. Agrar: Plant Protection						X							
B. Inst. Agrar: Rural Development Management						X							
Honours Degree programmes													
BAgricAdmin							X						
B Sc Conservation Ecology							X						
B Sc Food Science							X						
B Sc in Geography										X			
B A. Geography										X			
B .Agric	X		X	X									
BSc Food Science						X							
B. Agric. Extension	X												
B. Agric. Crop/Horticulture	X												
B. Agric. Pasture/Livestock	X												
B. Agric. Management			X	X									
B. Agric. Admin					X		X						
Rural Development								X					
B. AgricAdminHons Horticulture							X						
BSc Agric: Animal Health		X											
BSc Agric: Crop Science	X	X											
BSc Agric: Animal Science	X	X							X				
BSc Agric: Economics	X	X	X										
BSc Agric: Extension		X											
BSc Agric: Land Management		X											
BSc Forestry							X						
BSc Agric			X				X		X				
BSc Biotechnology			X										
BSc Soil Science	X		X										
BSc Plant Breeding			X										
BSc Plant Pathology			X										
BSc Animal Science	X		X										
BSc Wildlife Management			X										
B.Com.(Hons): Actuarial Science						X							

Table 48: Agricultural programmes offered by Universities in 2006.

	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
B.Com. (Hons): Agricultural Economics						X							
B. Inst. Agrar. (Hons): Agribusiness Management						X							
B. Inst. Agrar. (Hons): Agricultural Economics						X							
B. Inst. Agrar. (Hons): Crop Protection						X							
B. Inst. Agrar. (Hons): Extension						X							
B. Inst. Agrar. (Hons): Food Processing						X							
B. Inst. Agrar. (Hons): Food Produc. and Process.						X							
B. Inst. Agrar. (Hons): Land-Use Planning						X							
B. Inst. Agrar. (Hons): Plant Production						X							
B. Inst. Agrar. (Hons): Rural Devel. Planning						X							
MTech programmes													
MTech Nature Conservation										X			
MTech Food Technology											X		
Masters Degree programmes													
MPhil Livestock Industry Management							X						
MPhil Livestock Industry: Aquaculture							X						
MPhil Livestock Industry: Pig Production Sciences							X						
MPhil Livestock Industry: Poultry Science							X						
Assisted Reproduction							X						
MPhil Livestock Industry : Dairy Science							X						
MPhil Agriculture							X						
M A Geography										X			
Master in Human Ecology										X			
Master of Consumer Science										X			
M. Agric. Admin/ Management				X	X		X						
M .A. Agriculture			X	X									
MSc Geography										X			
MSc Environmental Science										X			
M .Phil							X						
M Sc Food Science							X						
M Forestry							X						
MSc Forestry							X						
MSc Agriculture		X	X	X	X		X	X	X				
MSc Conservation Ecology							X						
MSc Food Science and Technology						X	X	X					
Masters in Rural Development								X					
M. A. Agric Economics	X				X	X							
M .A. Agric Extension	X				X								
M .Phil Environmental Studies	X												
MSc Agric: Crop Science	X				X								
MSc Agric: Animal Science	X					X	X						

Table 48: Agricultural programmes offered by Universities in 2006.

	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
MSc Agric: Soil Science	X				X	X	X						
MSc Agric: Horticulture	X				X	X	X						
MSc Plant Production						X							
MSc Agric: Pasture Science	X				X								
MSc Agric: Geography and Environmental Science	X												
MSc Agric: Plant Protection & Plant Pathology					X								
MSc Agronomy						X							
MSc Agric: Remote Sensing					X								
M .A : Disaster Management			X										
M .A: Sustainable Agriculture			X										
M. Com: Agric Economics						X							
M. Inst. Agrar: Agric. Economics						X							
M. Inst. Agrar: Agronomy						X							
M. Inst. Agrar: Animal Production Management						X							
M. Inst. Agrar: Animal Production						X							
M. Inst. Agrar: Crop Protection						X							
M. Inst. Agrar: Environmental Management						X							
M. Inst. Agrar: Extension						X							
M. Inst. Agrar: Food Processing						X							
M. Inst. Agrar: Food Production & Processing						X							
M. Inst. Agrar: Horticulture						X							
M. Inst. Agrar: Land Devel.						X							
M. Inst. Agrar: Land-Use Planning						X							
M. Inst. Agrar: Plant Production: Agronomy						X							
M. Inst. Agrar: Plant Production: Horticulture						X							
M. Inst. Agrar: Plant Protection						X							
M. Inst. Agrar: Rural Develop.& Ecotourism						X							
M. Inst. Agrar: Rural Development Planning						X							
M. Inst. Agrar: Rural Household Devel. (Diss)						X							
M. Inst. Agrar: Sust. Ecol. Management						X							
M. Inst. Agrar: Sust. Insect Management.						X							
MSc Agric Agronomy						X	X						
MSc Agric Entomology, Nematology and Insect pest management							X						
Wildlife (M. Inst. Agrar)						X							
MSc Animal Breeding & Genetics						X							
MSc Agric Aquaculture							X						
MSc Agric Plant Pathology							X						
MSc Agric Genetics							X						
MSc Genetics						X							
MSc Microbiology						X							
MSc Plant Biotechnology						X							

Table 48: Agricultural programmes offered by Universities in 2006.													
	Fort Hare	North West	Free State	KwaZulu-Natal	Limpopo	Pretoria	Stellenbosch	Venda	Zululand	South Africa	Johannesburg	Western Cape	Nelson Mandela
PhD Degree Programmes													
PhD : Agricultural Administration							X						
PhD: Literature & Philosophy in Geography										X			
PhD : Geography										X			
PhD: Environmental Management										X			
PhD: Environmental Science										X			
PhD: Agrarian Extension						X							
PhD: Agricultural Economics	X					X							
PhD (Agric) Animal Science							X						
PhD (Agric) Animal Physiology							X						
PhD (Agric) Plant Pathology							X						
PhD (Agric) Horticulture							X						
PhD (Agric) Soil Science							X						
PhD (Agric) Genetics							X						
PhD (Agric) Entomology							X						
PhD: Agronomy						X							
PhD (Agric) Agronomy							X						
PhD: Animal Production						X							
PhD: Animal Science						X							
PhD: Crop Protection						X							
PhD: Food Science						X	X						
PhD: Horticultural Science						X							
PhD: Pasture Science						X							
PhD: Plant Production: Agronomy						X							
PhD: Plant Production: Horticulture						X							
PhD: Plant Production: Pasture Science						X							
PhD: Rural Development Planning						X							
PhD: Soil Science	X					X							
PhD: Soil Science and Plant Nutrition						X							
PhD. Agriculture				X	X	X	X	X	X				
PhD Science and Agriculture				X									
PhD Crop Science	X												
PhD Geography and Environmental Science	X												
PhD Conservation Ecology							X						
PhD Forestry							X						

Table 49 outlines the NQF ratings at Universities i.e. the programme levels and matching NQF levels of these programmes (Department of Agriculture 2005). These ratings have remained fairly static amongst the institutions since 2004, with less substantial changes from one year to the next, except where an institution loses accreditation completely. This largely occurs due to an institution's inability to obtain prescribed credits for a particular qualification or unit standards.

Table 49 presents the NQF Levels at Universities.

Table 49: NQF levels at Universities		
NQF Level	Band	Types of qualification and Certificates
8	Higher Education and Training Band	Doctorate/ further Research Degree
7		Higher Degree/Professional Qualifications
6		First Degree/ Higher Diplomas
5		Diplomas/Occupational Certificates

The rating of the University programmes in terms of NQF standards precisely resembles that of Universities of Technology. The lowest agricultural qualification offered at both Universities is the NQF level 5, i.e. Diploma and the highest qualification is NQF level 8 which is the PhD.

4.3 Enrolments in Agricultural Education and Training Programmes at Universities in 2006

Table 50 depicts the enrolments at Universities in the 2006 academic year.

Table 50: Enrolments per University in the 2006 academic year		
Name of the University	Number of AET enrolments	Percentage (%)
University of Fort Hare	583	7
University of North West	757	10
Nelson Mandela Metropolitan University	104	1
University of Free State	879	11
University of KwaZulu-Natal	466	6
University of Limpopo	455	6
University of Pretoria	1592	20
University of South Africa	1526	19
University of Stellenbosch	966	12
University of Venda	362	5
University of Western Cape	103	1
University of Zululand	121	2
Total	7914	100

The University of Pretoria and the University of South Africa account for 20% (1 592) and each 19% (1526) of the total enrolments respectively in the 2006 academic year, followed by Stellenbosch with 12% (966). Enrolments in Free State University amount to 11% (879) of the total enrolments at Universities in the 2006 academic year, surpassing North West (10% (757)) by 1%. Likewise, in 2005 Fort Hare, KwaZulu-Natal, Limpopo, Venda and Zululand attracted less than 9% of the total enrolments in agricultural education and training at Universities in the 2006 academic year.

Figure 93: Enrolments at universities

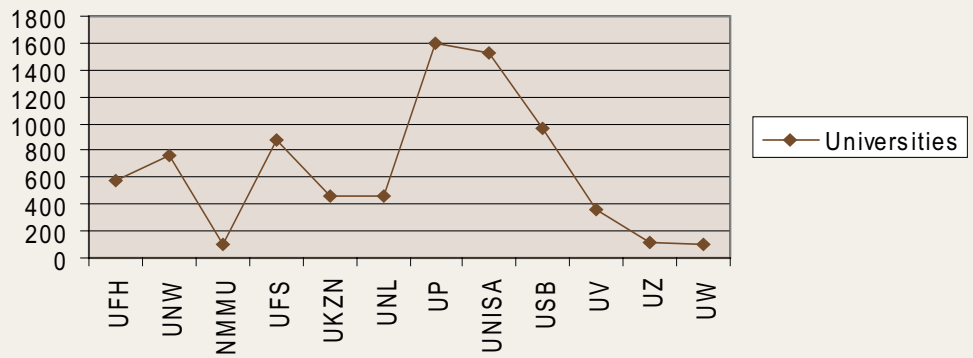


Table 50 and figure 93 depict that the University of Pretoria and Unisa enrolled the highest number of students than any other University, dominating enrolments with 20% and 19% respectively. The Universities of Stellenbosch and Free State also enrolled a significant number of students constituting 12% and 11% of the total enrolments respectively at Universities in the 2006 academic year.

As was the trend in the 2005 academic year, institutions with many programmes enrolled more students than those institutions with fewer programmes in the 2006 academic year. Institutions like Zululand, Venda, Limpopo and Nelson Mandela that offered relatively fewer agricultural education and training programmes thus attracted very few students in the 2006 academic year.

4.3.1 Demographic Breakdown of Agricultural Education and Training Enrolments at Universities in 2006

Table 51 depicts a demographic breakdown of AET enrolments at Universities in the 2006 academic year.

Table 51: Breakdown of enrolments by gender and race per University

Name of the University	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
University Fort Hare	376	201	577	0	0	0	2	0	2	4	0	4	583
University North West	323	417	740	1	5	6	4	4	8	0	3	3	757
Nelson Mandela Metropolitan University	57	29	86	2		2	14	2	16	0	0	0	104
University of Free State	127	222	349	7	7	14	100	411	511	2	3	5	879
University of KwaZulu-Natal	114	109	223	2	3	5	73	105	178	7	53	60	466
University of Limpopo	271	184	455										455
University of Pretoria	167	149	316	3	13	16	365	866	1231	9	20	29	1592
University of South Africa	667	468	1135	18	8	26	160	174	334	18	13	31	1526
University of Stellenbosch	70	32	102	29	28	57	535	270	805	1	1	2	966
University of Venda	208	154	362	0	0	0	0	0	0	0	0	0	362
University of Zululand	59	62	121										121
University of Western Cape	3	18	21	25	46	71	4	3	7	1	3	4	103
Total	2442	2045	4487	87	110	197	1257	1835	3092	42	96	138	7914

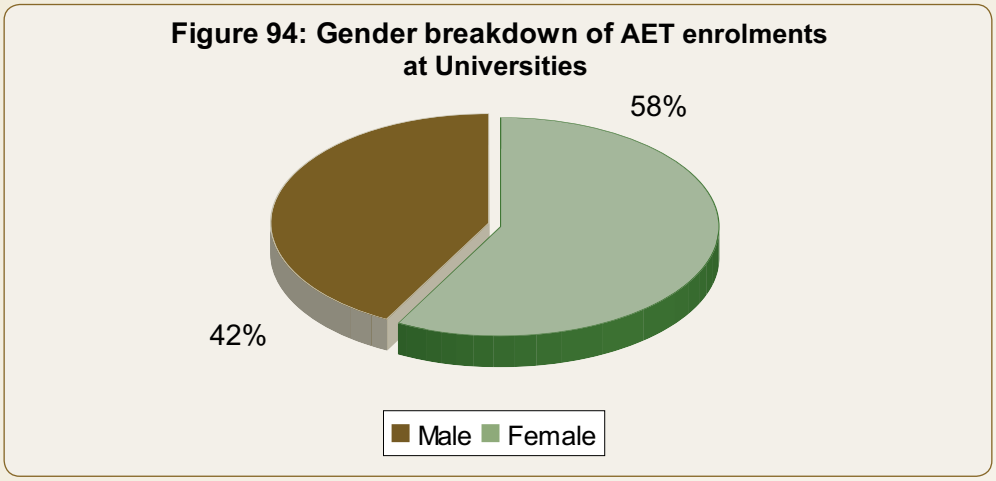
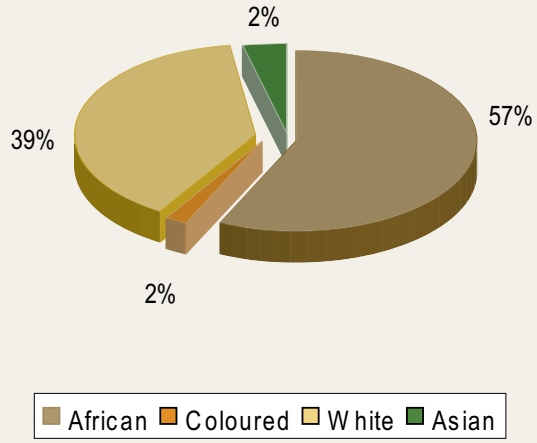


Figure 94 presents the gender breakdown of AET enrolments at Universities in the 2006 academic year, where females constitute 52% and male students comprised 48% of total enrolments in the 2006 academic year.

Figure 95: Racial breakdown of AET enrolments at Universities



As depicted in figure 95 Africans constitute 57% of the total enrolments at Universities in the 2006 academic year, followed by Whites with 39%. Coloured and Asian students account for 2% each.

Figure 96: Racial breakdown of female AET enrolments at Universities

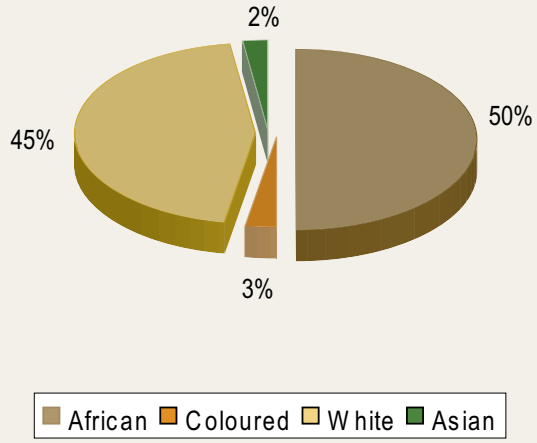
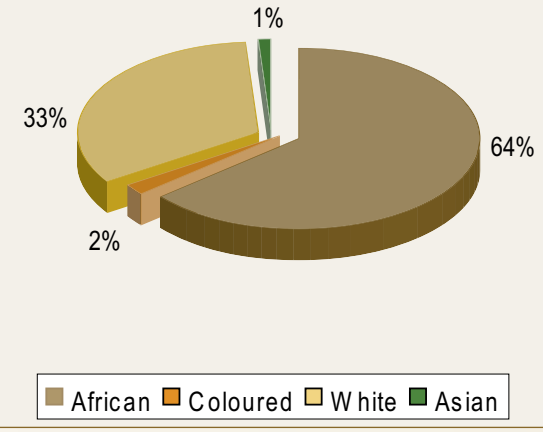


Figure 96 above indicates that African females dominate the female AET enrolments with 50%, followed by Whites with 45%. The number of Coloured and Asian females enrolled at Universities in the 2006 academic year was very insignificant and account for 3% and 2% respectively.

Figure 97: Racial breakdown of male AET enrolments at Universities



According to Figure 97 above, African males account for 64% and White males constitute 33% of the males at Universities in the 2006 academic year. Likewise in 2005, Coloureds and Asians jointly constitute 3% of the total male enrolments in the 2006 academic year.

4.3.2 Agricultural Enrolments at Universities by CESM in 2006

Table 52 presents enrolments at Universities by Category of Education Subject Matter (CESM).

Table 52: Agricultural enrolments at Universities in 2006 by CESM and academic level.

CESM	Undergraduate	Postgraduate Diploma	Honours	Masters	PhD	TOTAL	%
Agricultural Economics (Science Stream)	219	4	21	52	35	331	4
Agricultural Economics (Art Stream)	103		7	3		113	1
Agricultural Economics (BCom Stream)			6	6	1	13	0
AgriBusiness Management (Inst.Agrar. Stream)			11			11	0
Agricultural Eco. (AgriBusiness)	149					149	2
Agricultural Science (Art Stream)	608		6	43	9	666	9
Agricultural Science (Science Stream)	658		17	255	146	1076	15
Agric. Extension (Inst. Agrar. Stream)			5	9		14	0
Agric. Extension	190	26	11	8	5	240	3
Agric. Food Technology	206	20	3	8	2	239	3
Animal Science	1212		29	63	14	1318	18
Horticulture	20		1	9	7	37	0
Plant Science	254		51	29	8	342	4
Plant Science (Inst.Agrar Stream)	7		4	4		15	0
Rural Development			17		2	19	0
Soil Science	65		2	7	10	84	1
Forestry	38			21	15	74	1
Renewable Natural Resources	109	8		26	16	159	2
Agric. Management	1292		86	82		1460	18
Other Agric. and Renewable Resources				152		152	2
Animal Sc (Insta. Agrar. Stream)				9		9	0
Horticulture (Inst. Agrar. Stream)				2		2	0
Land Rec (Land Use Inst. Agrar. Stream)	2			4		6	0
Rural Dev (Inst. Agrar. Stream)	1		5	2		8	0
Agric Econ (Inst. Agrar. Stream)			6	22		28	0
Environmental Management	133			16		149	2
Agronomy	93		3	11	10	117	2
Chemistry	14					14	0
Microbiology	16					16	0
Biochemistry	17					17	0
BSc:Veterinary Biology	478					478	6
Agronomy (Inst. Agrar. Stream)				5		5	0
Wildlife	6		12	56	4	78	1
Consumer Science	429			37	9	475	6
TOTAL	6319	58	303	941	293	7914	
%	79%	1%	4%	12%	4%		100

Table 52 depicts various agricultural programmes offered by Universities under each CESM. The focus of this section is on the AET enrolments by level of qualification per CESM and the demographic breakdown of enrolments in each CESM.

As shown in table 52, the Junior Degree level dominates the overall AET enrolments at Universities with 79%, followed by Masters enrolments with 12%. Honours and PhD enrolments account for 4% each. Postgraduate Diploma registered the least number of students with 1% of the overall enrolments. This can logically be attributed to the fact that relatively few institutions offer postgraduate Diploma programmes. There has been a 1% drop in Honours and PhD studies in 2006, when compared to the 2005 academic year enrolment figures at Universities. A significant 4% decrease of Masters enrolments has been recorded in 2006 from 16% in 2005.

Likewise, in 2005, as indicated in Table 52, Agricultural Management and Animal Science account for 18% each of the total enrolments at Universities, followed by Agricultural Science (Science Stream) with 15%.
Agricultural Science (Art Stream), BSc: Veterinary Biology and Consumer Science constitute 9% (666), 6% (478) and 6% (475) of the overall enrolments respectively at Universities in the 2006 academic year. Enrolments across all other CESM were less than 5% of the overall enrolments at Universities in the 2006 academic year.

4.3.3 Breakdown of Agricultural Education and Training Enrolments at Universities by CESM in 2006

Table 53 outlines the enrolments at Junior Degree level at Universities for 2006.

Table 53: Enrolments in Undergraduate programmes by CESM at Universities in 2006

CESM Category (Undergraduate)	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Agricultural Economics (Science Stream)	125	76	201				4	14	18				219
Agricultural Economics (Art Stream)	50	50	100				2	0	2	1		1	103
Agricultural Eco. (AgriBusiness)	43	49	92	1	1	2	46	8	54	1		1	149
Agricultural Science (Art Stream)	192	107	299	15	6	21	196	92	288				608
Agricultural Science (Science Stream)	170	170	340	10	19	29	170	106	276	6	7	13	658
Agric. Extension	128	59	187							3		3	190
Agric. Food Technology	22	77	99	1	1	2	9	61	70	3	32	35	206
Animal Science	411	402	813	7	7	14	116	261	377	5	3	8	1212
Horticulture	12	6	18				1	1	2				20
Plant Science	46	50	96	16	42	58	20	73	93		7	7	254
Soil Science	41	20	61				3	1	4				65
Forestry	10	2	12	1	2	3	19	3	22		1	1	38
Renewable Natural Resources		4	4		4	4	61	39	100		1	1	109
Agric. Management	635	415	1050	13	2	15	142	79	221	5	1	6	1292
Environmental Management	17	21	38	1	3	4	34	49	83	3	5	8	133
Agronomy	33	39	72		1	1	3	17	20				93
Wildlife				1		1		5	5				6
Consumer Science	3	24	27				14	384	398	1	3	4	429
Plant Science (Inst.Agrar Stream)	3		3				3	1	4				7
Land Reclamation (Inst. Agrar. Stream)		2	2										2
Rural Development (Inst. Agrar. Stream)	1		1										1
BSc: Veterinary Biology	19	13	32	1	6	7	132	288	420	4	15	19	478
Chemistry	6	3	9				1	4	5				14
Microbiology	1	3	4					11	11	1		1	16
Biochemistry	2	3	5				5	7	12				17
TOTAL	1970	1595	3565	67	94	161	981	1504	2485	33	75	108	6319

As indicated in Table 53, Agric Management, Animal Science and Agricultural Science (Science Stream) contributed the highest number of undergraduate enrolments at Universities with 20%, 19% and 10% respectively. The lowest figures at junior Degree level were recorded in Land Reclamation (Inst.Agrar. Stream) and Rural Development (Inst.Agrar. Stream), with 2 students and 1 student respectively.

Africans constitute 56% of the total enrolments at junior Degree level, followed by White students with 39% in the 2006 academic year. Coloureds and Asians enrolments at Junior Degree level were relatively very low and collectively constitute only 5%, one percent higher than the 2005 figure.

Table 54 outlines the enrolments at Postgraduate Diploma level at Universities during 2006.

Table 54: Postgraduate Diploma enrolments by CESM at Universities in 2006													
CESM Category (Postgraduate Diploma)	African			Coloured			White			Asians			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Agricultural Economics (Science Stream)	1	3	4										4
Agricultural Extension	14	11	25				1		1				26
Agricultural Food Technology	1	4	5				1	9	10		5	5	20
Renewable Natural Resources	6	2	8										8
TOTAL	22	20	42				2	9	11		5	5	58

At Postgraduate Diploma level, Agricultural Extension and Agricultural Food Technology constitute the highest number of enrolments with 45% and 34% respectively. Renewable Natural Resources account for 14% of the total enrolments at Postgraduate Diploma level in 2006 academic year, followed by Agricultural Economics (Science Stream) with 7%.

African and White students contributed 72% and 19% of the total Postgraduate Diploma enrolments in the 2006 academic year respectively. Asian students account for 9% of the total enrolments at Postgraduate Diploma level in the 2005 academic year. No Coloureds registered for Postgraduate Diploma studies in Universities in the 2006 academic year.

Table 55 outlines the enrolments at Honours level at Universities in the 2006 academic year.

Table 55: Enrolments in Honours Degree by CESM at Universities in 2006													
CESM Category (Honours)	African			Coloured			White			Asians			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	8	5	13		1	1	1	6	7				21
Agricultural Economics (Art Stream)	3	4	7										7
Agricultural Economics (BCom Stream)	1	1	2				3	1	4				6
Agricultural Science (Art Stream)	3	3	6										6
Agricultural Science (Science Stream)	1	4	5		1	1	7	4	11				17
Agric. Extension	5	5	10								1	1	11
Agric. Food Technology		2	2					1	1				3
Animal Science	10	14	24				4	1	5				29
Horticulture		1	1										1
Plant Science	10	9	19	4	2	6	6	19	25		1	1	51
Soil Science		2	2										2
Rural Development	8	9	17										17
Agric. Management	44	37	81				2	3	5				86
Agronomy		2	2					1	1				3
Wildlife	1		1				4	7	11				12
Agricultural Extension (Inst.Agrar Stream)	2	3	5										5
Plant Science (Inst.Agrar Stream)	3	1	4										4
Rural Development (Inst.Agrar. Stream)	5		5										5
Agribusiness Management (Inst.Agrar.Stream)	5	6	11										11
Agric. Economics (Inst. Agrar. Stream)	3	3	6										6
Total	112	111	223	4	4	8	27	43	70		2	2	303

Agricultural Management, Plant Science and Animal Science registered the highest number of students at Honours level in the overall AET programmes with 28%, 17% and 10% respectively. The other programmes constitute less than 10% of the overall Honours enrolments.

Africans constitute the majority of enrolments at 73%, whilst White student enrolments account for 23% at Honours level in the 2005 academic year, with a 7% increase in the 2006 academic year. Asian and Coloured enrolments at Honours level together decreased from 5% in the 2005 academic year to 4% of the total enrolments in the 2006 academic year.

Table 56 outlines the enrolments at Masters level at Universities in the 2006 academic year.

Table 56: Enrolments in Masters Degree by CESM at Universities in 2006													
CESM Category (Masters)	African			Coloured			White			Asians			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	21	23	44				4	2	6		2	2	52
Agricultural Economics (Art Stream)	2	1	3										3
Agricultural Economics (MCom Stream)		1	1				3	2	5				6
Agricultural Science (Art Stream)	16	9	25		1	1	10	7	17				43
Agricultural Science (Science Stream)	56	63	119	4	2	6	64	62	126	2	2	4	255
Agric. Extension	6	1	7					1	1				8
Agric. Food Technology		2	2				2	3	5		1	1	8
Animal Science	13	2	15				18	24	42	2	4	6	63
Horticulture		4	4				2	3	5				9
Plant Science	10	3	13	6	2	8	4	1	5	1	2	3	29
Soil Science	2	2	4				2	1	3				7
Forestry	13	1	14				5	2	7				21
Renewable Natural Resources	5	3	8		1	1	5	12	17				26
Agric. Management	28	34	62				9	10	19		1	1	82
Other Agric. and Renewable Resources	30	58	88	1	3	4	10	50	60				152
Environmental Management	13	3	16										16
Agronomy	3	4	7				4		4				11
Wildlife	1	5	6	1		1	31	18	49				56
Consumer Science	1	20	21				1	15	16				37
Agric. Extension (Inst. Agrar. Stream)	6	2	8					1	1				9
Plant Science (Inst.Agrar Stream)	1	3	4										4
Animal Science (Inst. Agrar Stream)	7		7				1		1	1		1	9
Land Reclamation (Inst.Agrar. Stream)	2		2				2		2				4
Rural Development (Inst.Agrar. Stream)	1	1	2										2
Agric. Economics (Inst. Agrar. Stream)	12	8	20		1	1				1		1	22
Agronomy (Inst.Agrar. Stream)	3	1	4					1	1				5
Horticulture (Inst.Agrar. Stream)	1	1	2										2
Total	253	255	508	12	10	22	177	215	392	7	12	19	941

Agricultural Science (Science Stream), Other Agricultural and Renewable Resources and Agric Management represent the highest number of Masters students with 28%, 16% and 9% respectively. Other CESM that account for a significant number of students include Animal Science, Wildlife and Agricultural Economics (Science Stream) with 7% (63), 6% (56) and 6% (52) respectively. Other remaining CESM constitute insignificant figures amounting to less than 6% of the Masters enrolments in the 2006 academic year.

African and White students account for 54% and 42% of the Masters level enrolments at Universities respectively. Coloureds and Asians together constitute only 4% on the total Masters enrolments in the 2006 academic year. Racial breakdown of Masters level enrolments in the 2006 academic reflects no changes i.e. increase or decreases from the 2005 academic year figures.

Table 57 presents the enrolments at the PhD level at Universities for 2006 academic year.

Table 57: Enrolments in PhD Degrees by CESM at Universities in 2006													
CESM Category (PhD)	African			Coloured			White			Asians			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	16	12	28		1	1	6		6				35
Agricultural Economics (DCom Stream)	1		1										1
Agricultural Science (Art Stream)	2	2	4				4	1	5				9
Agricultural Science (Science Stream)	21	41	62	2	1	3	36	43	79	1	1	2	146
Agric. Extension	3	1	4				1		1				5
Agric. Food Technology		1	1					1	1				2
Animal Science	5	3	8				3	3	6				14
Horticulture	6		6				1		1				7
Plant Science	5	1	6				1	1	2				8
Rural Development	1		1					1	1				2
Soil Science	5		5				4	1	5				10
Forestry	8	1	9	1		1	4	1	5				15
Renewable Natural Resources	4	1	5	1		1	6	4	10				16
Agronomy	8		8					1	1	1		1	10
Wildlife							4		4				4
Consumer Science		1	1					8	8				9
Total	85	64	149		2	6	70	65	135	2		3	293

Students who enrolled for Agricultural Science (Science Stream) at PhD level account for an outstanding 50% (146), followed by Agricultural Economics (Science Stream) with 11% (35). All other programmes comprised less than 10% of the total number of PhD enrolments in the 2006 academic year.

Africans constitute 51%, followed by White students with 46% of the total PhD enrolments in the 2006 academic year. Coloured and Asian students jointly account for 3% each.

4.3.3.1 Agricultural Economics (Science Stream) Enrolments at Universities in 2006

Three hundred and thirty one (331) students registered in this CESM in the 2006 academic year. Enrolments in this CESM in the 2006 academic year have increased by 36 students when compared to the 2005 academic year, with the majority of these coming from junior Degree. Programmes in this CESM are offered by the Universities of Fort Hare, Free State, Limpopo, North West and Pretoria. Agricultural Economics (Science stream) includes programmes in;

- Agric Economics/Livestock/Extension, Agric Economics/Plant Production, Agricultural Economics (General), Agricultural Economics (Natural) and Environmental Economics.

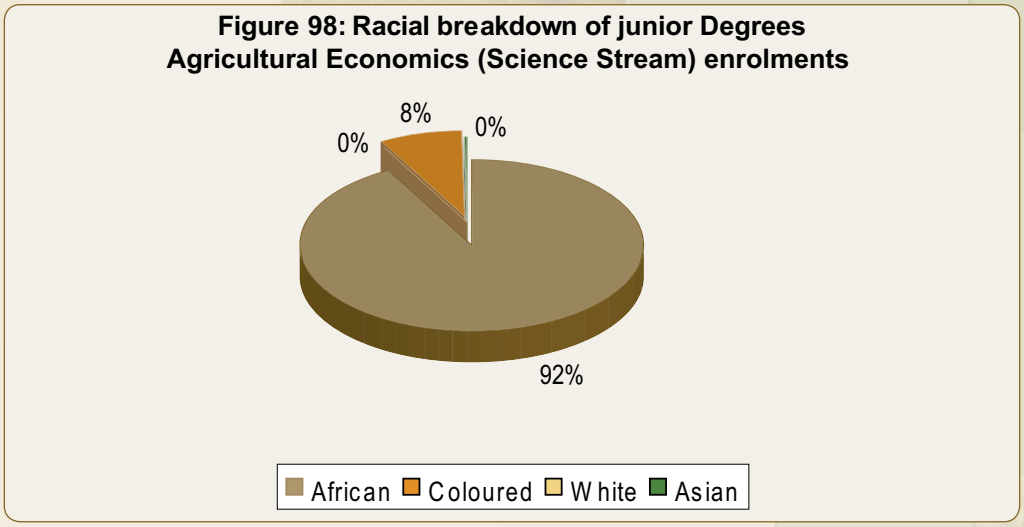
Table 58 presents a demographic breakdown of Agricultural Economics enrolments during the 2006 academic year by academic level.

Table 58: Demographic breakdown of Agricultural Economics (Science Stream) enrolments at Universities in 2006													
LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	125	76	201				4	14	18				219
Postgraduate Diploma	1	3	4										4
Honours	8	5	13		1	1	1	6	7				21
Masters	21	23	44				4	2	6		2	2	52
PhD	16	12	28		1	1	6		6				35
TOTAL	171	119	290		2	2	15	22	37		2	2	331

Junior Degree students constitute 66% of the total enrolments in this CESM, surpassing the 2005 academic year enrolments by 3%. Masters enrolments account for 16% of the total students enrolled in Agricultural Economics (Science Stream), followed by PhD and Honours enrolments with 11% and 6% respectively. Postgraduate Diploma students enrolled in this CESM constitute only 1% of the total enrolments in this CESM in the 2006 academic year. Note the 2% drop of the Postgraduate Diploma enrolments from 3% in 2005.

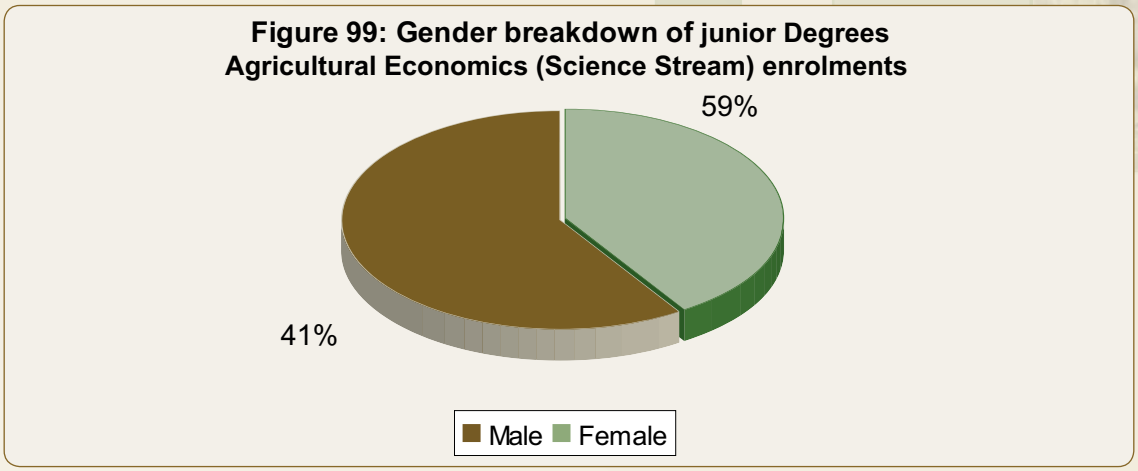
Two hundred and nineteen (219) students registered at junior Degree level in Agricultural Economics in the 2006 academic year, compared to a total of 187 students in the 2005 academic year.

Figure 98: Racial breakdown of junior Degrees Agricultural Economics (Science Stream) enrolments



As indicated in figure 98, Africans account for 92% of the undergraduate enrolments in this CESM, whilst Whites constitute 8%. Neither Coloured nor Asian students were registered for Agricultural Economics (Science Stream) junior Degree level in the 2006 academic year. This was also the case in 2005.

Figure 99: Gender breakdown of junior Degrees Agricultural Economics (Science Stream) enrolments



As indicated in figure 99, males dominate the undergraduate enrolments in Agricultural Economics (Science Stream) with 59%. Female enrolments, however, increased from 37% in 2005 to 41% in the 2006 academic year. On the other hand, males have dropped by 4% from 63% in 2005. As was the case in 2005, African males represent the majority of the male enrolments in this CESM at junior Degree level, while White males account for 3%. Four (4) African students registered for the Postgraduate Diploma in Agricultural Economics (Science Stream) in the 2006 academic year. Three (3) of these students were females and 1 was male. Note the significant drop from 14 students in 2005 to only 4 students in the 2006 academic year. Twenty one (21) students enrolled for Honours in Agricultural Economics (Science Stream) in the 2006 academic year compared to a total of 9 students in 2005.

Figure 100: Racial breakdown of Honours in Agricultural Economics (Science Stream) enrolments

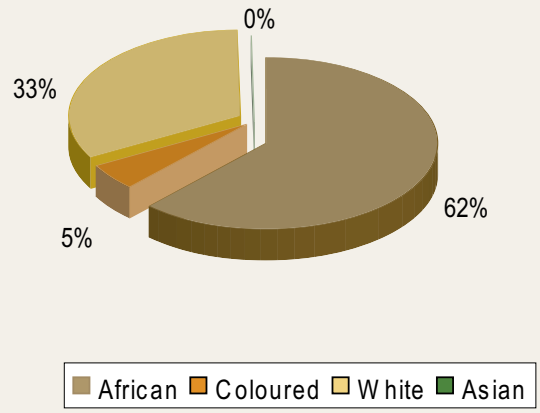
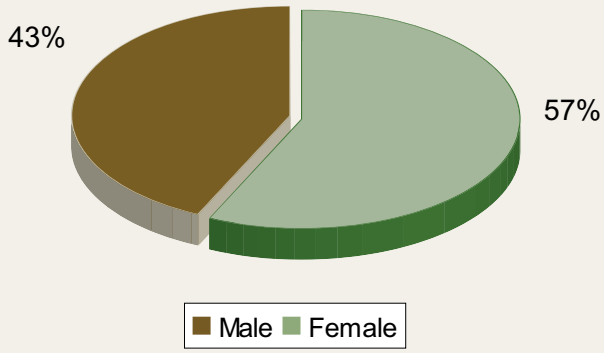


Figure 100 shows that Africans dominate the Honours enrolments in Agricultural Economics (Science Stream) with 62%, followed by Whites with 33%. Coloured students constitute 5%, while Asian students were no represented at Honours Degree level in this CESM.

Figure 101: Gender breakdown of Honours Agricultural Economics (Science Stream) enrolments



The Gender analysis, outlined in figure 101, indicates that females dominate the Honours enrolments in this CESM with 57%, whilst males comprised 43%. White females account for 50% of the female enrolments at Honours level in this CESM followed by Africans and Coloureds with 43% and 8% respectively. No Asians were enrolled in this CESM at Honours level.

Fifty two (52) students enrolled for Masters in Agricultural Economics (Science Stream) in the 2006 academic year.

Figure 102: Racial breakdown of Masters in Agricultural Economics (Science Stream) enrolments

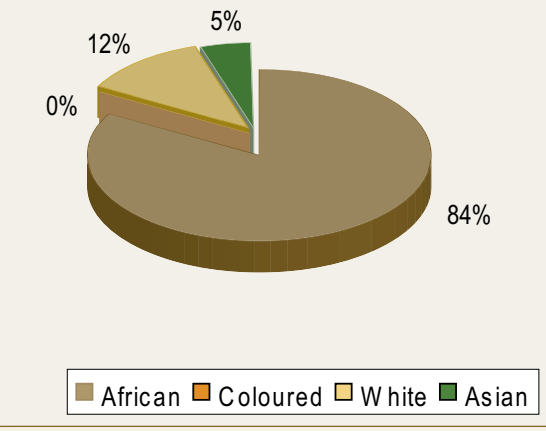


Figure 102 shows that Africans dominate the Masters enrolments in Agricultural Economics (Science Stream) with 84% and Whites account for 12%, followed by Asians with 4%. Likewise, in 2005 no Coloured students enrolled for Masters in this CESM in the 2006 academic year.

Figure 103: Gender breakdown of Masters Agricultural Economics (Science Stream) enrolments

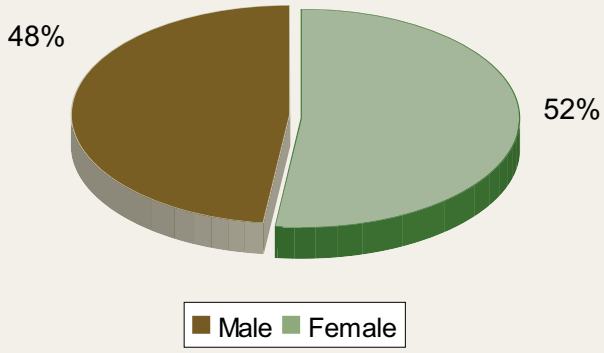


Figure 103 reflects that females dominate Agricultural Economics (Science Stream) Masters enrolments with 52% whilst males account for 48%. There was a significant drop of male students from 63% in 2005. African females are in the majority with 86% of the female enrolments in this CESM at Masters level, while Whites and Asians constitute 7% each.

Thirty five (35) students enrolled at PhD level in Agricultural Economics during the 2006 academic year. This reflects a very slight decrease from the 2005 academic year PhD statistics where 36 students enrolled.

Figure 104: Racial breakdown of PhD in Agricultural Economics (Science Stream) enrolments

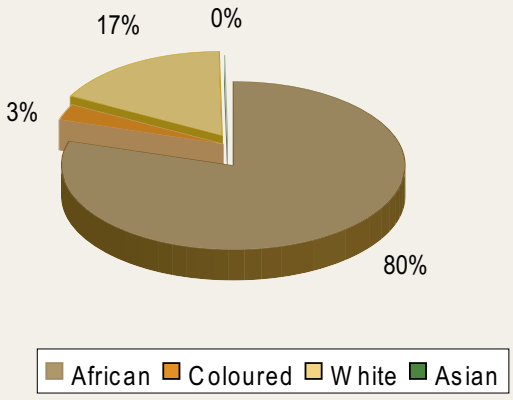


Figure 104 depicts that Africans account for 80% of the PhD enrolments in this CESM, followed by Whites with 17% and Coloureds constitute 3%. White students have increased by 3% from the 2005 (14%). Asian students were not represented in this CESM at PhD level in the 2006 academic year.

Figure 105: Gender breakdown of PhD in Agricultural Economics (Science Stream) enrolments

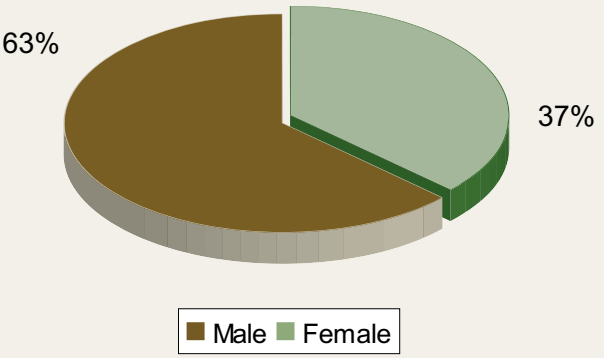


Figure 105 shows that males dominate the PhD enrolments in Agricultural Economics (Science Stream) with 63%, a drop of 1% from the 2005 figures, whilst females increased by 1% from 2005 (36%) to 37%. African males constitute 73% of the male enrolments in this CESM and Whites account for 27%. Neither Coloured nor Asian males were represented in this CESM at PhD level in the 2006 academic year.

4.3.3.2 Agricultural Economics (BCom Stream) Enrolments at Universities in 2006

Thirteen (13) students enrolled in Agricultural Economics (BCom Stream) at Universities during the2006 academic year, reflecting a slight increase from the 11 students in 2005. Programmes in this CESM are offered by the University of Pretoria only. Table 59 presents a demographic breakdown of Agricultural Economics enrolments in the 2006 academic year by academic level.

Table 59: Demographic breakdown of Agricultural Economics (BCom Stream) enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	1	1	2				3	1	4				6
Masters		1	1				3	2	5				6
PhD	1		1										1
TOTAL	2	2	4				6	3	9				13

Six (6) students registered for the Honours Degree in Agricultural Economics (BCom Stream) at Universities in the 2006 academic year.

Figure 106: Racial breakdown of Honours in Agricultural Economics (BCom Stream) enrolments

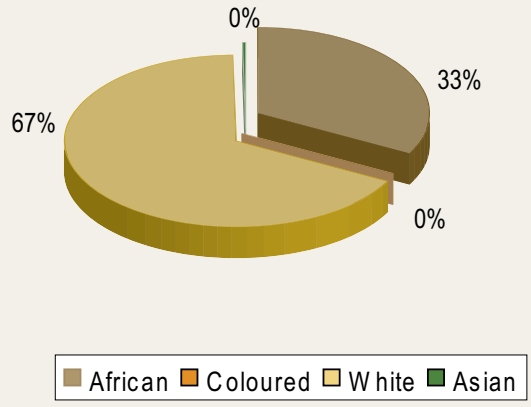
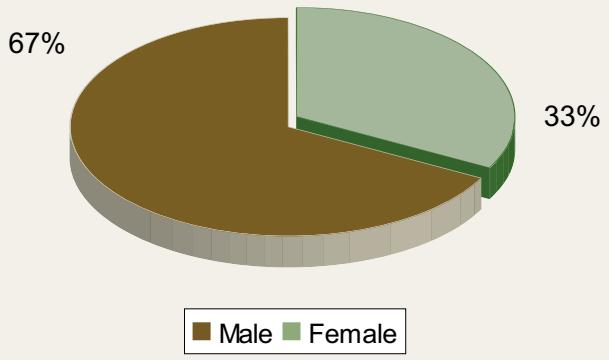


Figure 106 suggests that White students constitute 67% of the Honours enrolments in this CESM, whilst Africans account for 33%. Neither Coloureds nor Asians were represented in this CESM in the 2006 academic year.

Figure 107: Gender breakdown of Honours in Agricultural Economics (BCom Stream) enrolments



As indicated in figure 107, males dominate the Honours enrolments in this CESM with 67%, whilst females constitute 33%. Racial breakdown of the male students shows that 3 were White males and 1 was an African male. Six (6) students enrolled at Masters level in Agricultural Economics (BCom Stream) in the 2006 academic year. Three (3) students were White males, two(2) were White females and 1 was an African female. As was the case in 2005, one (1) African male enrolled in Agricultural Economics (BCom Stream) at Universities at PhD level during the 2006 academic.

4.3.3.3 Agricultural Economics (AgriBusiness Management) Enrolments at Universities in 2006

One hundred and forty nine (149) students enrolled for Agricultural Economics (Agribusiness Management) in the 2006 academic year and this reflects a significant decrease from the 203 registered in this CESM in 2005. Institutions offering programmes in this CESM are the Universities of Pretoria, Zululand, Stellenbosch and Venda.

This CESM includes programmes in Agricultural Economics: AgriBusiness Management. Table 60 presents a demographic breakdown of Agricultural Economics (Agribusiness Management) enrolments for 2006 in terms of academic levels.

Table 60: Demographic breakdown of Agricultural Economics (AgriBusiness Management) enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	43	49	92	1	1	2	46	8	54	1		1	149
TOTAL	43	49	92	1	1	2	46	8	54	1		1	149

All 149 students who enrolled in this CESM in the 2006 academic year were registered at junior Degree level.

Figure 108: Racial breakdown of Junior Degree in Agricultural Economics (Agribusiness Management) enrolments

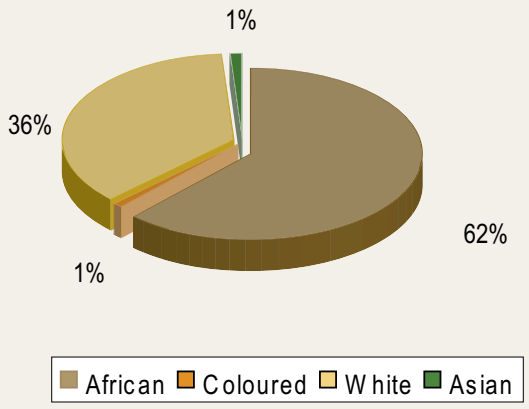
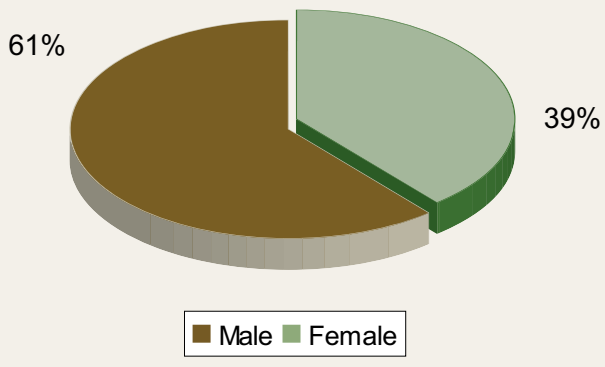


Figure 108 indicates that Africans dominate the junior Degree in this CESM with 62%, followed by Whites with 36%. Both Coloureds and Asians constitute only 1% each of the total enrolments in this CESM at junior Degree level in the 2006 academic year, as was the case in the 2005 academic year.

Figure 109: Gender breakdown of Junior Degree in Agricultural Economics (Agribusiness Management) enrolments



Gender breakdown in figure 109 shows a male domination of this CESM at junior Degree with 61%, whilst females constitute 39%. White males account for 51% of the Agricultural Economics (Agribusiness Management) junior Degree enrolments, whilst Africans constitute 47%. Coloured and Asian males comprised 1% each of the undergraduate enrolments in this CESM.

4.3.3.4 Agricultural Economics (Art Stream) Enrolments at Universities in 2006

One hundred and thirteen (113) students registered in this CESM at Universities during the 2006 academic year. This indicates a decrease of 10 students compared to 2005. The University of Fort Hare is the only institution which offered programmes in Agricultural Economics (Art Stream) in the 2006 academic year. Table 61 presents a demographic breakdown of the Agricultural Economics (Art Stream) enrolments in the 2006 academic year by level of qualification.

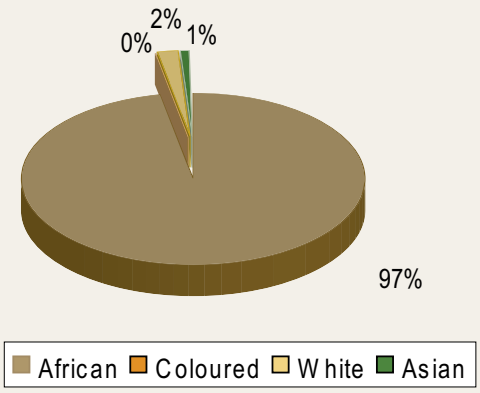
Table 61: Demographic breakdown of Agricultural Economics (Art Stream) enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	50	50	100				2	0	2	1		1	103
Honours	3	4	7										7
Masters	2	1	3										3
TOTAL	55	55	110				2	0	2	1		1	113

Junior Degree students account for 91% of the total enrolments in this CESM. Honours and Masters students registered in Agricultural Economics (Art Stream) in the 2006 academic year constitute 6% and 3% respectively.

The junior Degree enrolments figure at universities has dropped from 117 in 2005 to 103 in the 2006 academic year.

Figure 110: Racial breakdown of Junior Degree in Agricultural Economics (Art Stream) enrolments



As depicted in figure 110, Africans populated the junior Degree enrolments in this CESM by 97%. White and Asian students constitute 2% and 1% of the Agricultural Economics (Art Stream) junior Degree enrolments respectively. As in 2005, Coloured students were not represented in this CESM at junior Degree level in the 2006 academic year.

Figure 111: Gender breakdown of Junior Degree in Agricultural Economics (Art Stream) enrolments

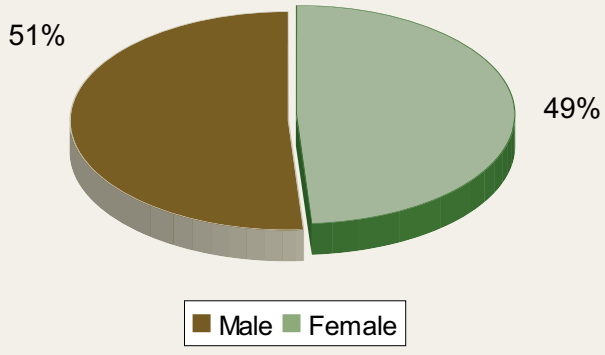


Figure 111 portrays a male dominance of 51% of the junior Degree enrolments in this CESM, whilst females account for 49%. African males formed the majority with 94% of the junior Degree enrolments in this CESM, while Whites and Asians constitute 4% and 2% respectively.

Seven (7) African students enrolled at Honours level in Agricultural Economics (Art Stream), of which 4 were females and 3 were

males. Three (3) African students registered at Masters level in this CESM at Universities for the 2006 academic year: 2 were males and 1 was a female.

4.3.3.5 Agricultural Science (Art Stream) Enrolments at Universities in 2006

Six hundred and sixty six (666) students enrolled at junior Degree in this CESM in the 2006 academic year, surpassing the 2005 figures of 103 students. This CESM includes Agriculture, and programmes in this CESM are offered by the Universities of Free State, Venda, Stellenbosch and KwaZulu-Natal. Table 62 presents a demographic breakdown of Agricultural Science (Art Stream) enrolments in the 2006 academic year by level of qualification.

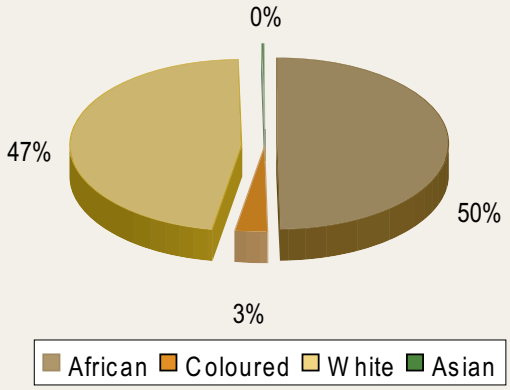
Table 62: Demographic breakdown of Agricultural Science (Art Stream) enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	192	107	299	15	6	21	196	92	288				608
Honours	3	3	6										6
Masters	16	9	25		1	1	10	7	17				43
PhD	2	2	4				4	1	5				9
TOTAL	213	121	334	15	7	22	210	100	310				666

Junior Degree enrolments account for 92% of the enrolments in this CESM, increasing by 5% from 2005. Masters students enrolled in this CESM represented 6% whilst both Honours and PhD students constitute 1% each.

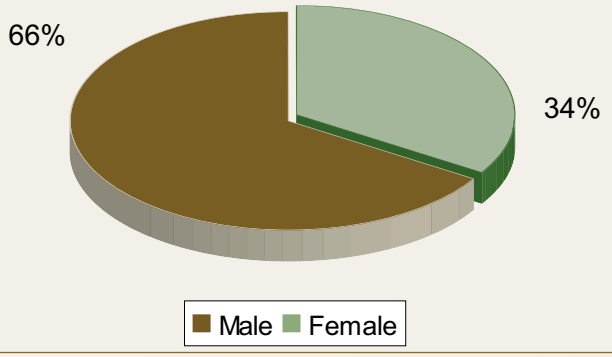
Six hundred and eight (608) students enrolled at junior Degree level in this CESM in the 2006 academic year, compared to the 488 registered at Universities in the 2005 academic year.

Figure 112: Racial breakdown of Junior Degree in Agricultural Science (Art Stream) enrolments



As shown in figure 112, Africans account for 50% of the undergraduate enrolments in this CESM, followed by White and Coloured students with 47% and 3% respectively. Asians were not represented in this CESM at junior Degree level in the 2006 academic year.

Figure 113: Gender breakdown of Junior Degree in Agricultural Science (Art Stream) enrolments



In Figure 113 it is indicated that males were dominant in this CESM at junior Degree level with 66%, a drop of 4% from the 2005 academic year. Females account for 34%. Both African and White males constitute 48% of the junior Degree in Agricultural Science (Science Stream), followed by Coloureds with 4%.

Six (6) African students enrolled at Honours level in Agricultural Science (Art Stream): three (3) males and 3 females.

Forty three (43) students enrolled at Masters level in Agricultural Science (Art Stream) during the 2006 academic year, 16 students fewer than in 2005.

Figure 114: Racial breakdown of Masters in Agricultural Science (Art Stream) enrolments

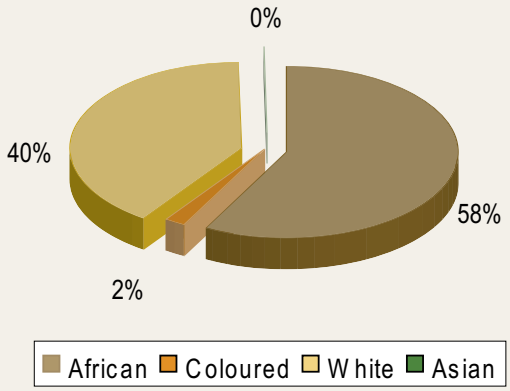
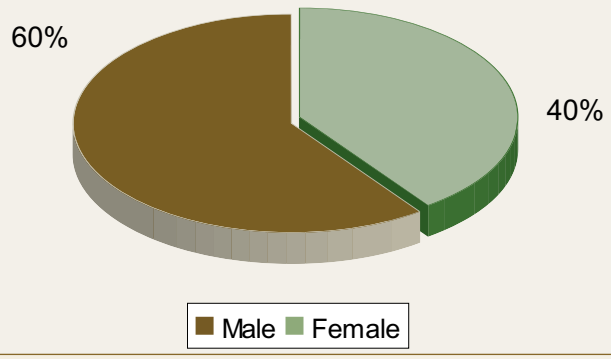


Figure 114 depicts that Africans were the majority of the Masters enrolments in Agricultural Science (Art Stream) with 58%, followed by White and Coloured students with 40% and 2% respectively.

Figure 115: Gender breakdown of Masters in Agricultural Science (Art Stream) enrolments



As shown in figure 115, males dominate the Masters enrolments in this CESM with 60%, whilst female students constitute 40%, reflecting an improvement of 37% in the 2005 academic year. African males comprised 62% of the male enrolments in this CESM at Masters level, whist Whites account for 38%.
Nine (9) students registered at PhD level in this CESM: four (4) were White males, 2 were African males, 2 were African females and 1 was a White female.

4.3.3.6 Agricultural Science (Science Stream) Enrolments at Universities in 2006

One thousand and seventy six (1 076) students enrolled in Agricultural Science (Science Stream) in the 2006 academic year, indicating a drop of 308 students from 2005. Institutions offering programmes in Agricultural Science (Science Stream) are the Universities of Free State, Stellenbosch, KwaZulu-Natal, Limpopo, Venda of Zululand and the University of South Africa.

The Agricultural Science (Science Stream) includes programmes in the following;

- BSc Agric General and Agriculture, Science and Agriculture, B Sc Agriculture and B Sc. Agriculture, Rural Engineering and B.Sc Computer Information Systems.

Table 63 presents a demographic breakdown of Agricultural Science-General (Science Stream) enrolments during the 2006 academic

year by level of qualification.

Table 63: Demographic breakdown of Agricultural Science (Science Stream) enrolments at Universities in 2006													
LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	170	170	340	10	19	29	170	106	276	6	7	13	658
Honours	1	4	5		1	1	7	4	11				17
Masters	56	63	119	4	2	6	64	62	126	2	2	4	255
PhD	21	41	62	2	1	3	36	43	79	1	1	2	146
TOTAL	248	278	526	16	23	39	277	215	492	9	10	19	1076

Junior Degrees account for 60% of the total enrolments in this CESM, followed by Masters and PhD with 24% and 14% respectively. Honours enrolments comprised 2% of the total enrolments at Universities in this CESM in the 2006 academic year.

Six hundred and fifty eight (658) students enrolled for Agricultural Science (Science Stream) at junior Degree level in the 2006 academic year, far below the figure of 212 students who enrolled in 2005.

Figure 116: Racial breakdown of Junior Degrees in Agricultural Science (Science Stream) enrolments

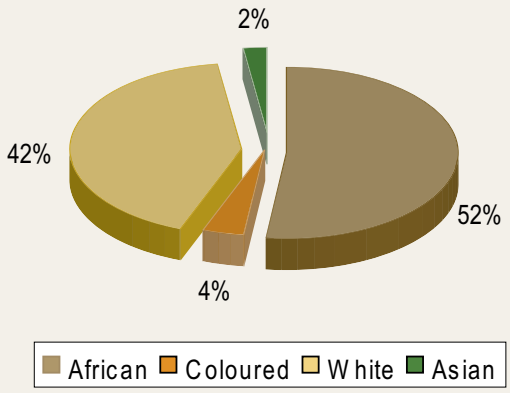


Figure 116 indicates that African students formed the majority with 52% at the junior Degree level in this CESM, followed by Whites with 42%. Coloured and Asian students account for 4% and 2% of undergraduate enrolments in this CESM in the 2006 academic year.

Figure 117: Gender breakdown of Junior Degrees in Agricultural Science (Science Stream) enrolments

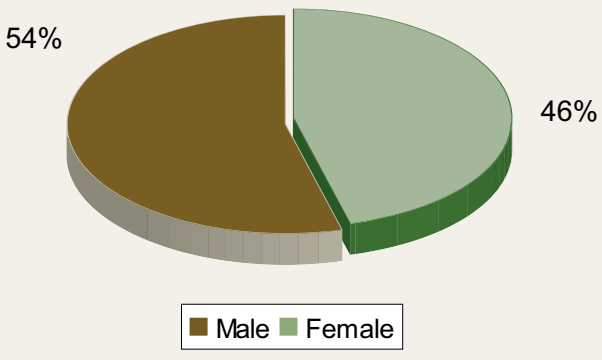


Figure 117 indicates that males account for 54% of the junior Degrees in this CESM, whilst females constitute 46%. White males account for 48%, followed by Africans and Coloureds with 47% and 3% respectively. Asians comprised 2% of the male enrolments in this CESM at junior Degree level.

Seventeen (17) students enrolled for Honours in this CESM in the 2006 academic year, surpassing the 2005 figure by 6 students.

Figure 118: Racial breakdown of Honours in Agricultural Science (Science Stream) enrolments

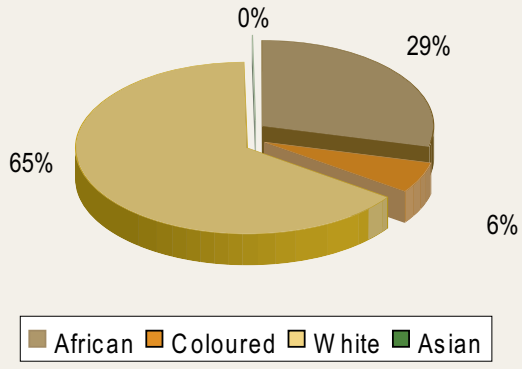
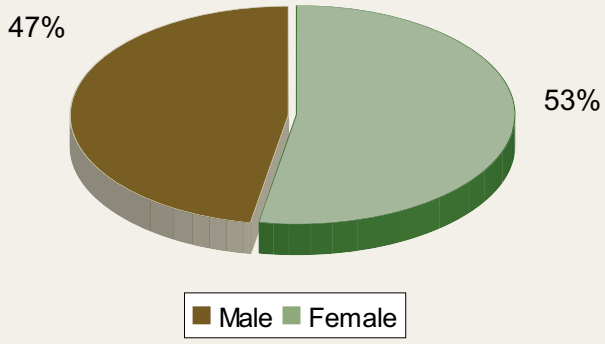


Figure 118 shows that Whites constitute a majority of the Honours enrolments with 65% in this CESM, followed by Africans and Coloureds with 29% and 6% respectively. Asians were not represented in this CESM at Honours level during the 2006 academic year.

Figure 119: Gender breakdown of Honours in Agricultural Science (Science Stream) enrolments



As depicted in figure 119, females constitute 53% of the Honours enrolments in this CESM whilst males account for 47%. Female enrolments consisted of 4 African females, four (4) Whites and 1 Coloured female.
Two hundred and fifty five (255) students enrolled for Masters in Agricultural Science (Science Stream) in the 2006 academic year, eighteen (18) students fewer than in 2005.

Figure 120: Racial breakdown of Masters in Agricultural Science (Science Stream) enrolments

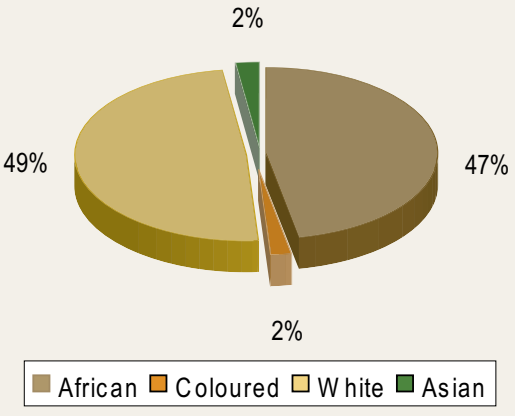
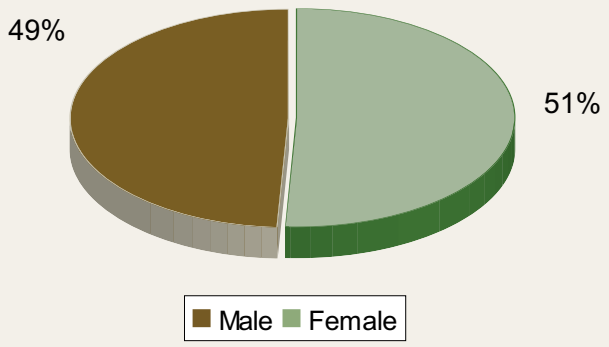


Figure 120 depicts that Whites and Africans constitute the majority of Masters enrolments in this CESM with 49% and 47% respectively. Both Coloureds and Asians account for 2% each of the Masters enrolments in this CESM.

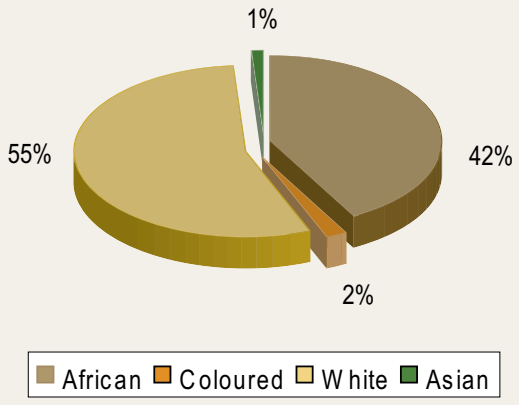
Figure 121: Gender breakdown of Masters in Agricultural Science (Science Stream) enrolments



As shown in figure 121, females comprised 51% of the Masters enrolments in Agricultural Science (Science Stream), whilst males represented 49%. African and White females constitute 48% each, of the female enrolments in this CESM at Masters level. Coloureds and Asians jointly account for 4% of the females in this CESM at Masters level.

One hundred and forty six (146) students registered for PhD in Agricultural Science at Universities in the 2006 academic year, 61 students fewer than in 2005.

Figure 122: Racial breakdown of PhD in Agricultural Science (Science Stream) enrolments



As depicted in figure 122, Whites constitute the majority of Agricultural Science (Science Stream) PhD enrolments with 55%, followed by Africans with 42%. Coloureds and Asians account for 2% and 1% of the PhD enrolments in this CESM respectively.

Figure 123: Gender breakdown of PhD in Agricultural Science (Science Stream) enrolments

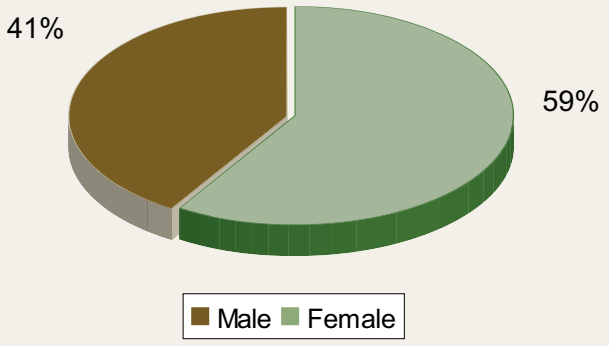


Figure 123 reflects that females dominate the PhD enrolments in this CESM with 59%, compared to 31% in the 2005 academic year. Males constitute 41%. White females comprised 50% of the female PhD enrolments in this CESM, followed by African female students with 48%. Coloureds and Asians represented 1% each of the PhD enrolments in Agricultural Science (Science Stream) in

the 2006 academic year.

4.3.3.7 Agricultural Extension Enrolments at Universities in 2006

Two hundred and forty (240) students registered for the Agricultural Extension CESM at Universities during the 2006 academic year. Programmes in Agricultural Extension are offered by University of North West, University of Pretoria, University of Fort Hare and University of Limpopo.

This CESM includes programmes in the following;

- Extension and Rural Development, Agrarian Extension and Agricultural Extension/Production. Table 64 presents a demographic breakdown of Agricultural Extension enrolments in the 2006 academic year by academic level of qualification.

Table 64: Demographic breakdown of Agricultural Extension enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	128	59	187							3		3	190
Postgraduate Diploma	14	11	25				1		1				26
Honours	5	5	10								1	1	11
Masters	6	1	7					1	1				8
PhD	3	1	4				1		1				5
TOTAL	156	77	233				2	1	3	3	1	4	240

Student enrolments at junior Degree level in Agricultural Extension account for 79%, compared to 54% in 2005. This was followed by Postgraduate Diploma enrolments with 11%. Honours, Masters, and PhD enrolments constitute 5%, 3% and 2% respectively.

Junior Degree enrolments in this CESM reflected a significant rise from 131 students in 2005 to a total of 190 students in the 2006 academic year. Racial breakdown shows that 128 students were African males; fifty nine (59) were African females and 3 were White males.

Whilst 36 students enrolled in 2005, twenty six (26) students registered at Postgraduate Diploma level in this CESM in the 2006 academic year. Accordingly, 14 were African males; eleven (11) were African females and 1 was a White male.

Enrolments at Honours level in this CESM in the 2006 academic year account for 11 students: five (5) were African males; five (5) were African females and one was an Asian female.

Eight (8) students registered at Masters level in Agricultural Extension in the 2006 academic year: six (6) were African males; one (1) was an African female and 1 was a White female.

Findings indicate that PhD enrolments comprised 5 students in this CESM in the 2006 academic year, the same as in 2005: three (3) were African males; one (1) was an African female and 1 was a White male.

4.3.3.8 Agricultural Food Technology Enrolments at Universities in 2006

Whilst 446 students registered for the Agricultural Food Technology in the 2005 academic year, only 239 students enrolled in this CESM in the 2006 academic year.

This CESM includes programmes in;

- BSc, BSc Hons), MSc, and PhD in Food Science and Technology, Food Science and Chemistry, Food Science and Biochemistry, Food Science and Microbiology, Dietetics, Human Nutrition, Food Security, Food Science Technology and Nutrition.

Programmes in Agricultural Food Technology are offered by the Universities of Free State, Stellenbosch, KwaZulu-Natal, Venda and Pretoria. Table 65 presents a demographic breakdown of Agricultural Food Technology enrolments in the 2006 academic year by level of qualification.

Table 65: Demographic breakdown of Agricultural Food Technology enrolments at Universities in 2006													
LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	22	77	99	1	1	2	9	61	70	3	32	35	206
Postgraduate Diploma	1	4	5				1	9	10		5	5	20
Honours		2	2					1	1				3
Masters		2	2				2	3	5		1	1	8
PhD		1	1					1	1				2
TOTAL	23	86	109	1	1	2	12	75	87	3	38	41	239

Junior Degree enrolments in this CESM rose from 78% in the 2005 academic year to 87%, followed by Postgraduate Diploma with 8%. Masters enrolments account for 3% of the Agricultural Food Technology field, whilst Honours and PhD constitute 1% each.

Two hundred and six (206) students enrolled for the junior Degree in this CESM in the 2006 academic year, indicating a significant decrease of 141 students compared to the 2005 academic year.

Figure 124: Racial breakdown of Junior in Agricultural Food Technology enrolments

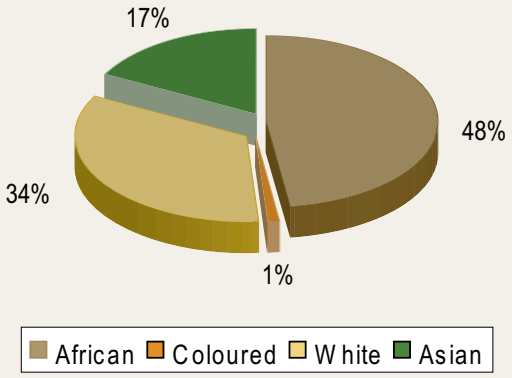
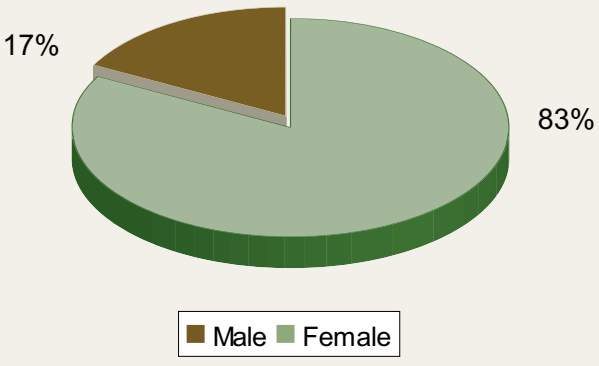


Figure 124 reflects that Africans were a majority with 48% of the junior Degree enrolments in this CESM, followed by Whites who dropped significantly from 60% to 34%. Asians improved from 8% of the junior Degree enrolments in this CESM in the 2005 to 17% in the 2006 academic year. Coloured students constitute 1% of the undergraduate enrolments in this CESM.

Figure 125: Gender breakdown of Junior in Agricultural Food Technology enrolments



Gender classification in Figure 125 shows that females dominate the Agricultural Food Technology undergraduate enrolments with 83%, compared with 79% in 2005. Males constitute 17%. African and White females comprised 44% and 36% of the females in this CESM at junior Degree enrolments respectively, followed by Asian females with 17%.

Twenty (20) students enrolled in this CESM at Postgraduate Diploma level at Universities in the 2006 academic year.

Figure 126: Racial breakdown of Postgraduate Deploma in Agricultural Food Technology enrolments

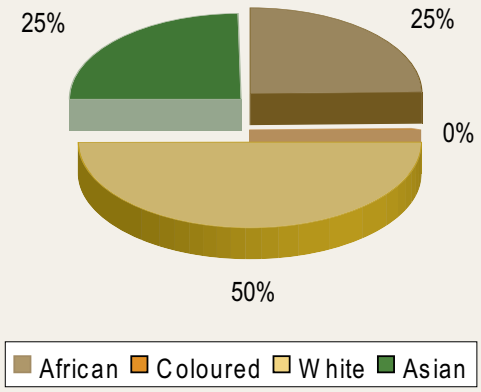
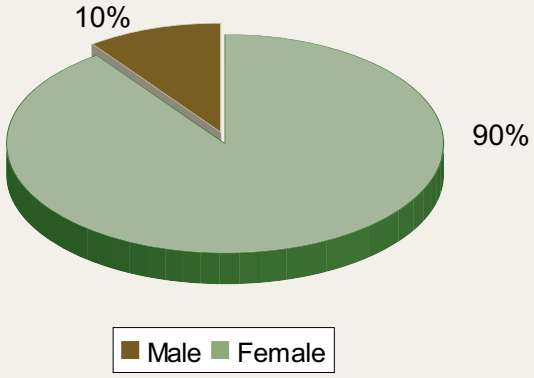


Figure 126 shows that White students constitute 50% of the Postgraduate Diploma enrolments in this CESM, followed by African and Asian students with 25% each. Coloured students were not represented in this CESM at Postgraduate Diploma level.

Figure 127: Gender breakdown of Postgraduate Deploma in Agricultural Food Technology enrolments



Gender breakdown in figure 127 shows that females were dominant with 90% of the Agricultural Food Technology enrolments at Postgraduate Diploma level, whilst males constitute 10%. White females account for 50% of the female enrolments in this CESM at postgraduate level, followed by Asians and Africans with 28% and 22% respectively. Coloured females were not represented in this CESM at Postgraduate Diploma level.

Of the 9 students in the 2005 academic year, only 3 students registered for Agricultural Food Technology Honours in the 2006 academic year: two (2) were African females and 1 was a White male. Masters students registered in this CESM account for eight students, compared to 35 students in the 2005 academic year. Racial classification shows that 3 were White females, two (2) were African females, two (2) were White males and 1 was an Asian female. Two students enrolled for PhD in this CESM in the 2006 academic year, a drop of 21 students when compared to 2005: one (1) was an African female and 1 was a White female.

4.3.3.9 Animal Science Enrolments at Universities in 2006

One thousand three hundred and eighten (1 318) students enrolled for the Animal Science field at Universities in the 2006 academic year. Animal Science CESM includes programmes in;

- Undergraduate, Honours, Masters and PhD. Animal Production Science, Animal Pasture Science, Animal Production, Animal Health, Animal Production Management, Animal Science and Food Science
- Animal Science/Grassland Science, Animal Science with Agronomy, Animal Science with Conservation Ecology, Animal Science with Agricultural Economics, Reproduction Physiology, Animal Physiology, Livestock Industry Management, Assisted Reproduction, Livestock Industry Management: Dairy Science
- Livestock Management: Aquaculture, Livestock Industry Management: Pig Production Sciences and Livestock Industry Management: Poultry Science, Animal Science/ Pasture Management, Animal Science and Animal Genetics, Animal Science: Meat Science, Animal Science: Animal Production

- Animal Science: Animal Breeding, Animal Science: Livestock Nutrition, Animal Science: Production Physiology, Animal Science Nutrition Science, Animal Science: Production Management and Animal Science: Animal Breeding and Genetics

Programmes in Animal Science are offered by the Universities of Fort Hare, Limpopo, North West, South Africa, Zululand, Free State, Stellenbosch and Pretoria. Table 66 presents a demographic breakdown of Animal Science enrolments in the 2006 academic year by level of qualification.

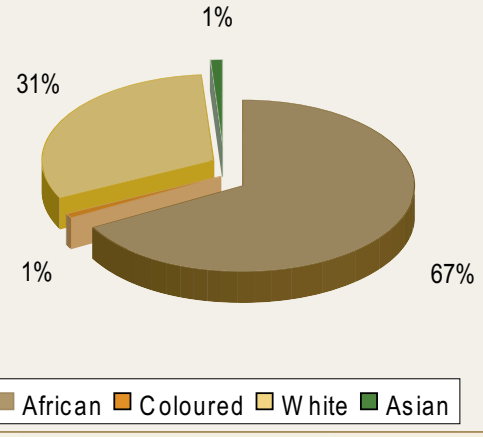
Table 66: Demographic breakdown of Animal Science enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	411	402	813	7	7	14	116	261	377	5	3	8	1212
Honours	10	14	24				4	1	5				29
Masters	13	2	15				18	24	42	2	4	6	63
PhD	5	3	8				3	3	6				14
TOTAL	439	421	860	7	7	14	141	289	430	7	7	14	1318

Undergraduate enrolments constitute 92% of the overall enrolments in Animal Science in the 2006 academic year. Masters and Honours enrolments account for 5% and 2% respectively, whilst PhD constitute only 1%.

One thousand two hundred and twelve (1 212) students enrolled for undergraduate studies in Animal Science in the 2006 academic year, compared with 1 099 in the 2005 academic year.

Figure 128: Racial breakdown of Degrees in Animal Science enrolments



As shown in figure 128, Africans dominate the junior Degree enrolments in this CESM with 67%, followed by Whites with 31%. Coloureds and Asians constitute 1% each of the junior Degree enrolments in Animal Science.

Figure 129: Gender breakdown of Degrees in Animal Science enrolments

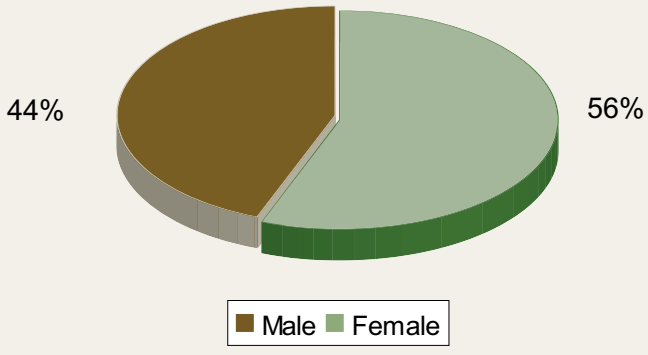
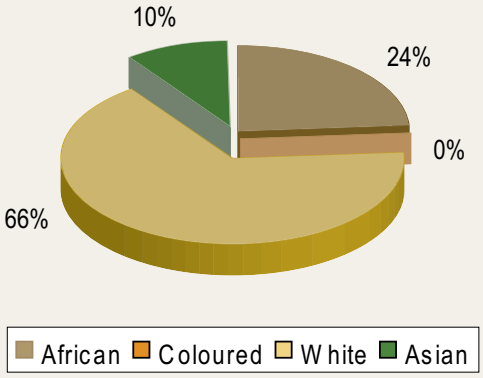


Figure 129 depicts that females dominate the undergraduate enrolments in this CESM with 56%, whilst males account for 44%. African and White females comprised 60% and 36% of the female enrolments in this CESM at junior Degree level respectively, whilst Coloureds account for 1%. Asian females were not represented. Only 29 students enrolled at Honours level in this CESM in the 2006

academic year, compared to 40 students in the 2005 academic year. Fourteen (14) were African females; ten (10) were African males; four (4) were White males and 1 was a White female. Only 63 students enrolled for Masters Degree in this CESM in the 2006 academic year, a decrease of 88 students compared with the 2005 academic year.

Figure 130: Racial breakdown of Masters in Animal Science enrolments



Racial classification in figure 130 indicates that Whites were dominant in this CESM at Masters level with 66%, followed by Africans and Asians with 24% and 10% respectively. No Coloureds enrolled in this CESM at Masters level in the 2006 academic year.

Figure 131: Gender breakdown of Masters in Animal Science enrolments

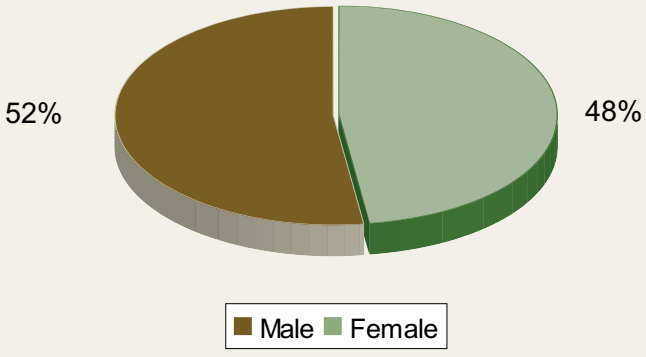


Figure 131 depicts that males account for 52% of the Masters Degrees in Animal Science in the 2006 academic year, whilst females constitute 48%. White males were a majority with 55% of the male enrolments at Masters level in this CESM followed by Africans and Asians with 39% and 6% respectively. Only 14 students enrolled for PhD in this CESM during the 2006 academic year, compared to 22 students enrolled in 2005. Five (5) were African males, three (3) were African females, three (3) were White males and 3 were White females.

4.3.3.10 Horticulture Enrolments at Universities in 2006

Only 37 students registered in this CESM in the 2006 academic year, compared to the 103 students enrolled during the 2005 academic year. Programmes in this CESM are offered by the Universities of Fort Hare, Stellenbosch, Limpopo and Pretoria. Table 67 presents a demographic breakdown of Horticulture enrolments in the 2006 academic year by level of qualification.

Table 67: Demographic breakdown of Horticulture enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	12	6	18				1	1	2				20
Honours		1	1										1
Masters		4	4				2	3	5				9
PhD	6		6				1		1				7
TOTAL	18	11	29				4	4	8				37

Junior Degree enrolments account for 54% of the total enrolments in this CESM in the 2006 academic year at Universities, followed by Masters and PhD with 24% and 19% respectively. Honours comprised 3% of the total enrolments in Horticulture in the 2006 academic year at Universities.

Only 20 students enrolled at junior Degree level in this CESM in the 2006 academic year, compared to a total of 41 students in the 2005 academic year. Twelve (12) were African males, six (6) were African females, one (1) was a White male and 1 was a White female. One (1) African female enrolled for the Honours Degree in this CESM in the 2006 academic year at Universities. Nine students registered for Masters in Horticulture in the 2006 academic year: four (4) were African females, three (3) were White females and 2 were White males. Seven students enrolled for PhD in this CESM at Universities: six (6) were African males and 1 was a White male.

4.3.3.11 Plant Science Enrolments at Universities in 2006

Students enrolled for Plant Science increased from 185 in 2005 to 342 in the 2006 academic year. This CESM includes programmes in the following disciplines:

- Crop Production, Crop Production Management, Irrigation Management, Irrigation Science/Agronomy, Irrigation Science/Soil Science, Plant Pathology, and Entomology, Plant Breeding and Genetics, Plant Production, Plant Protection,
- Pasture Science and Crop Protection, Crop Science, Plant Production, Plant Production: Agronomy, Plant Production: Pasture Science, Plant Production: Weed Science, Pasture Science, Plant Production: Horticulture, Nematology and Insect Management and Crop Soil Science.

Programmes in this CESM are offered by the Universities of Fort Hare, Free State, North West, Limpopo, Stellenbosch and Pretoria. Table 68 presents a demographic breakdown of Plant Science enrolments by level of qualification.

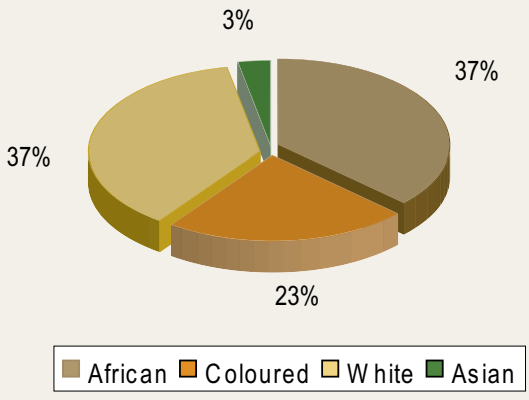
Table 68: Demographic breakdown of Plant Science enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	46	50	96	16	42	58	20	73	93		7	7	254
Honours	10	9	19	4	2	6	6	19	25		1	1	51
Masters	10	3	13	6	2	8	4	1	5	1	2	3	29
PhD	5	1	6				1	1	2				8
TOTAL	71	63	134	26	46	72	31	94	125	1	10	11	342

Enrolments at junior Degree level account for 75% of enrolments in Plant Science, followed by Honours with 15%. Masters and PhD enrolments constitute 8% and 2% of the total enrolments in this CESM respectively.

Enrolments at junior Degree level increased to 254 in the 2006 academic year, compared with 103 in 2005.

Figure 132: Racial breakdown of Degrees in Plant Science enrolments



As indicated in figure 132, Africans and Whites constitute 37% each of the junior Degree enrolments in this CESM, followed by Coloureds with 23%. Asians account for 3% of the total enrolments in Plant Science at junior Degree level.

Figure 133: Gender breakdown of Degrees in Plant Science enrolments

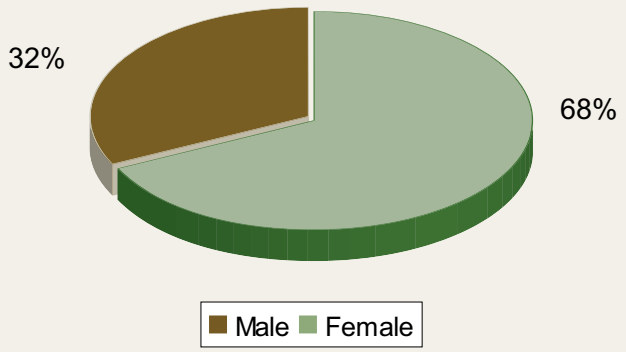
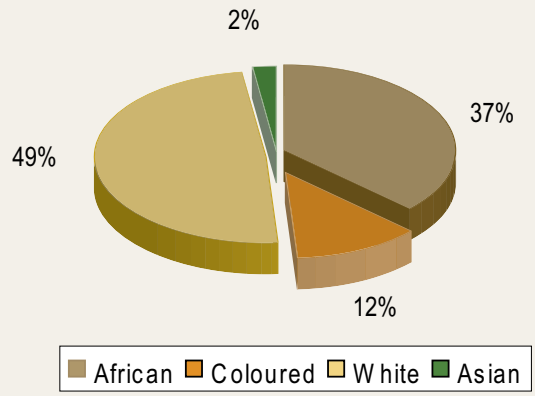


Figure 133 shows dominance by females with 68% of the junior Degree enrolments in Plant Science, whilst males account for 32%. White females formed the majority with 43% of the female enrolments at junior Degree level in this CESM, followed by African females with 29% and Coloured females with 24%. Asians comprised 4% of the Plant Science junior Degree enrolments.

Fifty one (51) students enrolled at Honours level in Plant Science in the 2006 academic year.

Figure 134: Racial breakdown of Honours in Plant Science enrolments



As depicted in figure 134, White students account for 49% of the total Honours enrolments in this CESM, followed by Africans with 37% and Coloureds with 12%. Asians comprised 2% of the Honours enrolments in Plant Science at Universities.

Figure 135: Gender breakdown of Honours in Plant Science enrolments

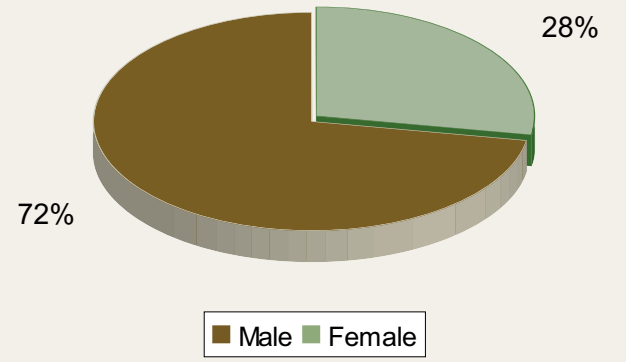


Figure 135 shows that females were dominant in this CESM at Honours level with 72%, whilst males account for 28%. White females comprised 62% of the female enrolments in this CESM at Honours level followed by African females with 29% and Coloureds with 6%. Asian females constitute the least enrolments in this CESM at Honours level with 3%.

Twenty nine (29) students enrolled for the Masters Degree in this CESM in the 2006 academic year, compared to 44 students registering for the same Degree in 2005.

Figure 136: Racial breakdown of Masters in Plant Science enrolments

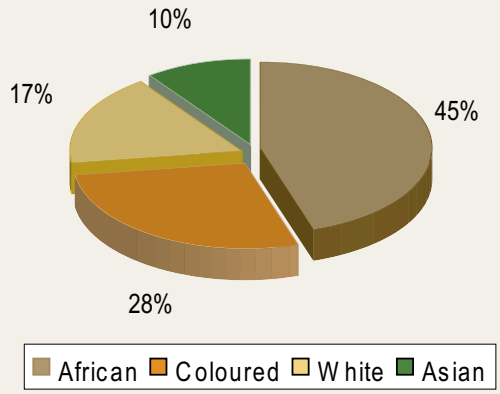


Figure 136 shows that Africans constitute 45% of the Masters enrolments in this CESM, followed by Coloureds and Whites with 28% and 17% respectively. Asians account for 10% of the Masters Degree enrolment in this CESM in the 2006 academic year.

Figure 137: Gender breakdown of Masters in Plant Science enrolments

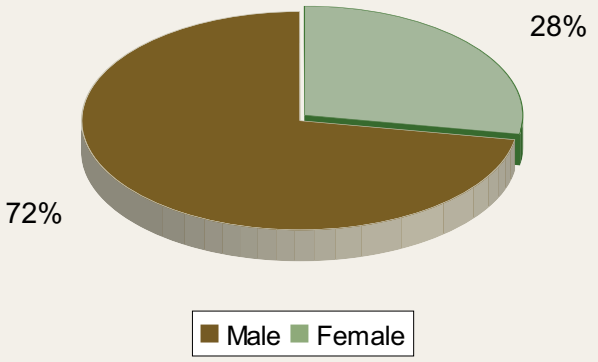


Figure 137 depicts that males were dominant in the Masters Degree in this CESM with 72%, whilst females account for 28%. African males constitute 47% of the male enrolments in this CESM at Masters Degree level, followed by Coloureds and Whites with 29% and 19% respectively. Asians recorded the least enrolments with 5% of the Masters enrolments in this CESM. Enrolments for PhD in Plant Science in the 2006 academic year decreased significantly to 8 students from 20 students in the 2005 academic. Five (5) were African males; one (1) was an African female; one was a White male and 1 was a White female.

4.3.3.12 Rural Development Enrolments at Universities in 2006

Only 19 students enrolled for Rural Development at Universities in the 2006 academic year compared to 30 students during the 2005 academic year. Rural Development is offered by the University of Venda only. Table 69 presents a demographic breakdown of Rural Development enrolments in the 2006 academic year by level of qualification.

Table 69: Demographic breakdown of Rural Development enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honors	8	9	17										17
PhD	1		1					1	1				2
TOTAL	9	9	18					1	1				19

Honours enrolments constitute 89% of the enrolments in Rural Development, followed by PhD enrolments with 11%. All the 17 students enrolled at Honours level in Rural Development were Africans, of which 9 were females and 8 were males. At PhD level 1 African male student and White female enrolled in the 2006 academic year.

4.3.3.13 Soil Science Enrolments at Universities in 2006

The 2006 enrolments in Soil Science at Universities are down to a total of 84 students compared to 113 students who enrolled during the 2005 academic year. Soil Science includes programmes in;

- Remote Sensing, Soil Science/Plant Pathology, Soil Science/Grassland Science, Soil Science and Plant Nutrition, Soil Science and Agronomy.

Programmes in Soil Science are offered by the Universities of Fort Hare, Free State, Stellenbosch, Limpopo and Pretoria. Table 70 presents a demographic breakdown of Soil Science enrolments in the 2006 academic year by level of qualification.

Table 70: Demographic breakdown of Soil Science enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	41	20	61				3	1	4				65
Honours		2	2										2
Masters	2	2	4				2	1	3				7
PhD	5		5				4	1	5				10
TOTAL	48	24	72				9	3	12				84

Table 70 indicates that junior Degree enrolments dominate the Soil Science enrolments with 78%, followed by PhD and Masters with 12% and 8% respectively. Honours enrolments were the lowest at 2%. Sixty five (65) students enrolled in this CESM in the 2006 academic year compared to 70 students in 2005. Racial classification shows that 41 were African males, twenty (20) were African females, three (3) were White males and 1 was a White female. Two students enrolled for Honours Degree in this CESM and were both African females. Of the seven students who registered for Masters in Soil Science, 2 were African males, two (2) were African females, two (2) were White males and 1 was a White female. At PhD level in this CESM there were 10 students who registered: five (5) were Africans males, four (4) were White males and 1 was a White female.

4.3.3.14 Forestry Enrolments at Universities in 2006

Seventy (74) students enrolled at Universities in this CESM in the 2006 academic year. Programmes in this CESM are offered by the Universities of Stellenbosch and Venda. Table 71 presents a demographic breakdown of Forestry enrolments in the 2006 academic year by level of qualification.

Table 71: Demographic breakdown of Forestry enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	10	2	12	1	2	3	19	3	22		1	1	38
Masters	13	1	14				5	2	7				21
PhD	8	1	9	1		1	4	1	5				15
TOTAL	31	4	35	2	2	4	28	6	34		1	1	74

Junior Degree enrolments in Forestry constitute 52% of the enrolments in this CESM and it is followed by Masters enrolments with 28%. PhD enrolments account for 20% of the total enrolments in this CESM. Thirty eight (38) students enrolled at Junior Degree level in this CESM at Universities in the 2006 academic year.

Figure 138: Racial breakdown of Junior Degree in Forestry enrolments

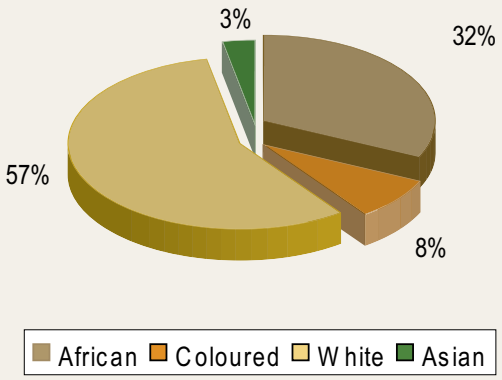
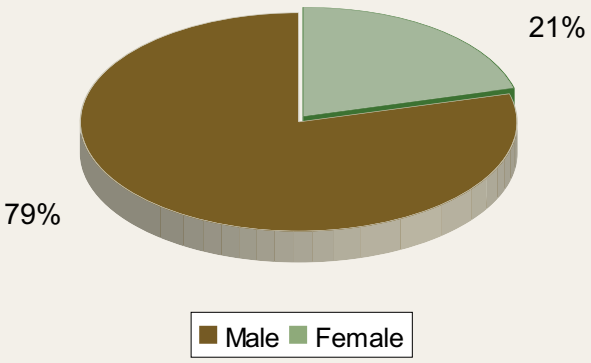


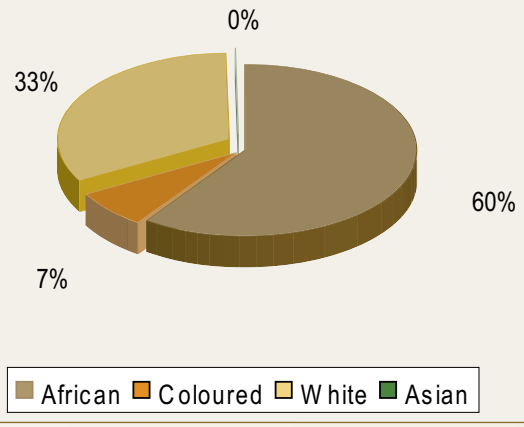
Figure 138 portrays that Whites dominate the junior Degrees in this CESM, followed by Africans and Coloureds with 32% and 8% respectively. Asians constitute 3% of the undergraduate enrolments in this CESM in the 2006 academic year.

Figure 139: Gender breakdown of Junior Degree in Forestry enrolments



As depicted in figure 139, males dominate the undergraduate enrolments in Forestry with 79% whilst females constitute 21%. White males were a majority with 64% of the male enrolments in this CESM at junior Degree level, followed by African and Coloured males with 33% and 3% respectively. Coloured males were not represented in this CESM at junior Degree level. Twenty one (21) students enrolled in this CESM at Masters level in the 2006 academic year: thirteen (13) were African males, five (5) were White males and 2 were White females. Fifteen (15) students enrolled at PhD level in Forestry at Universities in the 2006 academic year.

Figure 140: Racial breakdown of PhD in Forestry enrolments



Racial classification in figure 140 shows that Africans were dominant with 60% of the PhD enrolments in Forestry, followed by Whites and Coloureds with 33% and 7% respectively. Asians were not represented in this CESM at PhD level.

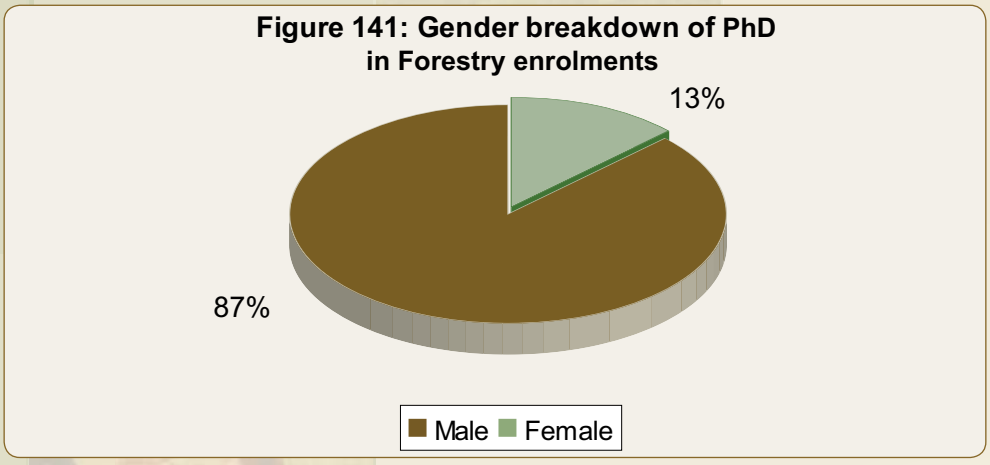


Figure 141 depicts gender breakdown at PhD enrolments in this CESM: males formed the majority with 87%, whilst females constitute 13%. African males comprised 61% of the male enrolments at PhD in this CESM, followed by White and Coloured males with 31% and 8% respectively. Asian males were not represented in this CESM at PhD level.

4.3.3.15 Renewable Natural Resources Enrolments at Universities in 2006

Enrolments for the 2006 academic have increased to 159 from 124 students enrolled in the 2005 academic year. This CESM includes programmes in Rural Resources Management, Natural Resources and Conservation Ecology.

Programmes in this CESM are offered by the Universities of Stellenbosch, Fort Hare, Free State, KwaZulu-Natal and Pretoria. Table 72 presents a demographic breakdown of Renewable Natural Resources enrolments in the 2006 academic year by level of qualification.

Table 72: Demographic breakdown of Renewable Natural Resources enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate		4	4		4	4	61	39	100		1	1	109
Postgraduate Diploma	6	2	8										8
Masters	5	3	8		1	1	5	12	17				26
PhD	4	1	5	1		1	6	4	10				16
TOTAL	15	10	25	1	5	6	72	55	127		1	1	159

Junior Degree enrolments constitute 69% followed by Masters and PhD enrolments with 16% and 10% respectively. Postgraduate Diploma enrolments account for 5% of the total enrolments in Renewable Natural Resources. One hundred and nine (109) students enrolled at junior Degree level in this CESM in the 2006 academic year.

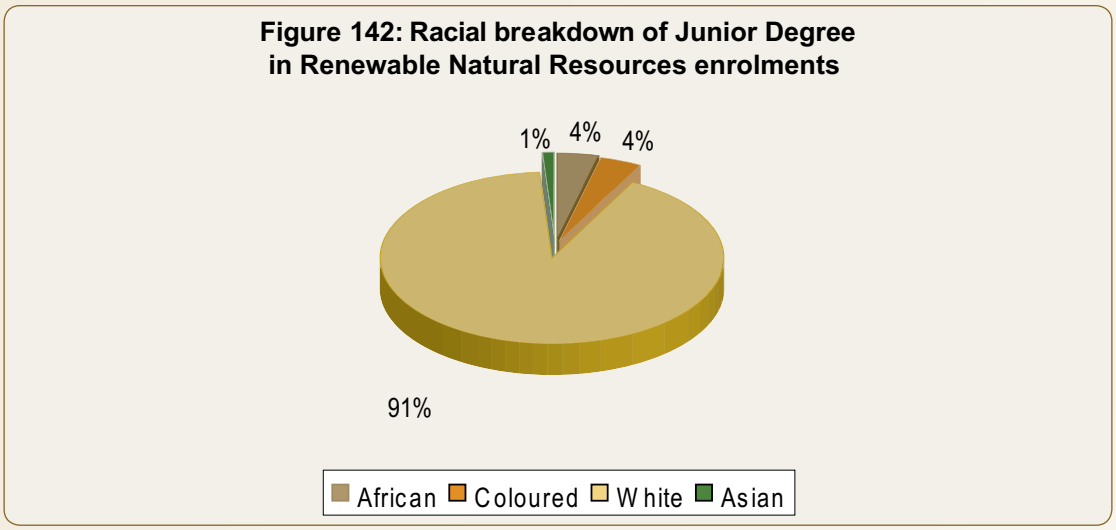


Figure 142 indicates that Whites account for 91% of the undergraduate Degrees in this CESM, followed by Africans and Coloureds with 4% each. No Coloured students enrolled at junior Degree level in this CESM.

Figure 143: Gender breakdown of Junior Degree in Renewable Natural Resources enrolments

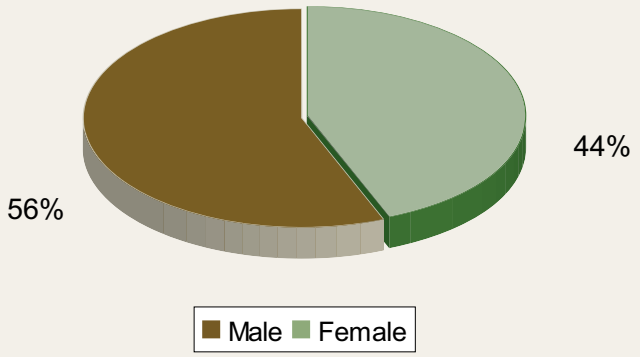
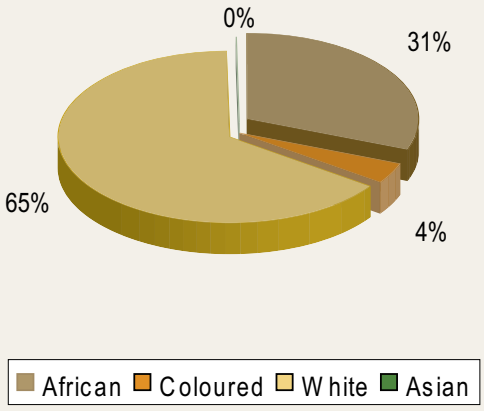


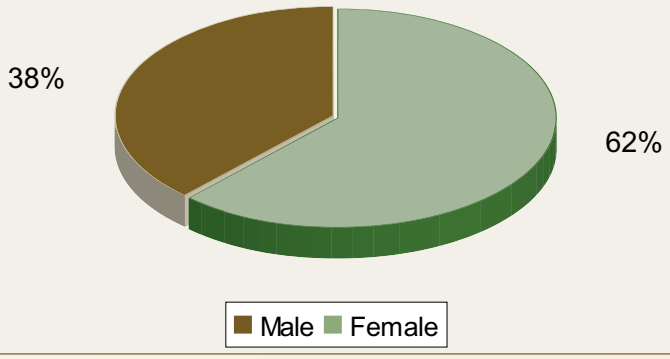
Figure 143 shows that males were dominant with 56% of the undergraduate enrolments in this CESM and females account for 44%. All the males enrolled in this CESM at junior Degree level were White and other race groups were not represented. All 8 students registered for the Postgraduate Diploma in this CESM were Africans: six (6) were African males and 2 were African females. Twenty six (26) students enrolled at Masters level in Renewable Natural Resources in the 2006 academic year.

Figure 144: Racial breakdown of Masters in Renewable Natural Resources enrolments



According to figure 144, Whites made up the majority of Masters enrolments in this CESM with 65%, followed by Africans and Coloureds with 31% and 4% respectively. Asians were not represented in this CESM at Masters Degree level as was the case in 2005.

Figure 145: Gender breakdown of Masters in Renewable Natural Resources enrolments



As depicted in figure 145, females continued the trend of dominating the Masters in this CESM with 62%, whilst males account for 38%. White females comprised the most enrolments with 75% of the males at Masters in this CESM, followed by Africans and Coloureds with 19% and 6% respectively. Sixteen (16) students enrolled at PhD level in this CESM in the 2006 academic year.

Figure 146: Racial breakdown of PhD in Renewable Natural Resources enrolments

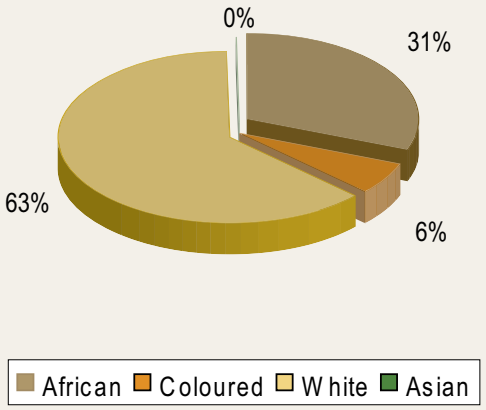


Figure 146 shows that Whites constitute the majority of the PhD enrolments with 63% in this CESM, followed by Africans and Coloureds with 31% and 6% respectively. No Asians registered for PhD in this CESM in the 2006 academic year.

Figure 147: Gender breakdown of PhD in Renewable Natural Resources enrolments

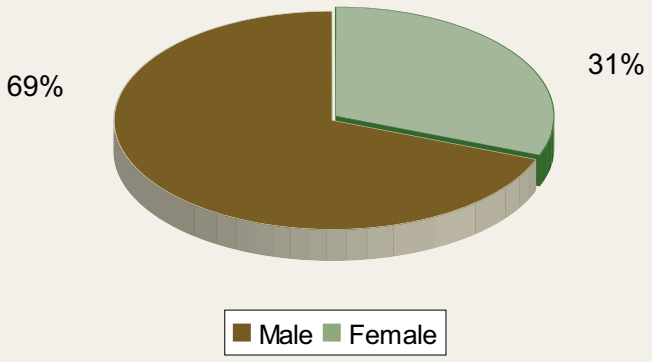


Figure 147 shows that males contributed 69% and females account for 36% of the PhD enrolments in this CESM in the 2006 academic year. Male enrolments included 6 White males; four (4) African males and 1 Coloured male.

4.3.3.16 Agriculture Management Enrolments at Universities in 2006

One thousand four hundred and sixty (1 460) students registered for Agriculture Management in 2006 compared to 1 555 in the 2005 academic year. This CESM includes programmes in;

- Agricultural Administration, Mixed Farming Management, Disaster Management and Business Specific Farm Management-Viticulture.

Programmes in this CESM are offered by the Universities of Free State, North West, Limpopo, Stellenbosch, University of South Africa and University of KwaZulu-Natal. Table 73 presents a demographic breakdown of Agriculture Management enrolments during the 2006 academic year by level of qualification.

Table 73: Demographic breakdown of Agriculture Management enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	635	415	1050	13	2	15	142	79	221	5	1	6	1292
Honours	44	37	81				2	3	5				86
Masters	28	34	62				9	10	19		1	1	82
TOTAL	707	486	1193	13	2	15	153	92	245	5	2	7	1460

Undergraduate enrolments constitute 88% of the total enrolments in this CESM, whilst Masters and Honours enrolments account for 6% each. One thousand two hundred and ninety two (1 292) students enrolled at junior Degree level at Universities in this CESM in the 2006 academic year.

Figure 148: Racial breakdown of Junior Degree in Agricultural Management enrolments

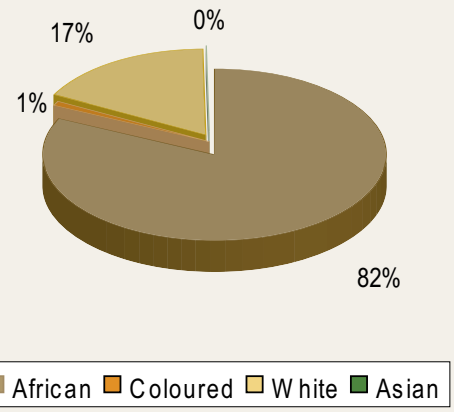


Figure 148 indicates that Africans constitute 82% of the undergraduate enrolments in this CESM, followed by Whites with 17%. Coloureds account for 1%, of the junior Degree enrolments in Agricultural Management. Asians were not represented at junior Degree level in this CESM.

Figure 149: Gender breakdown of Junior Degree in Agricultural Management enrolments

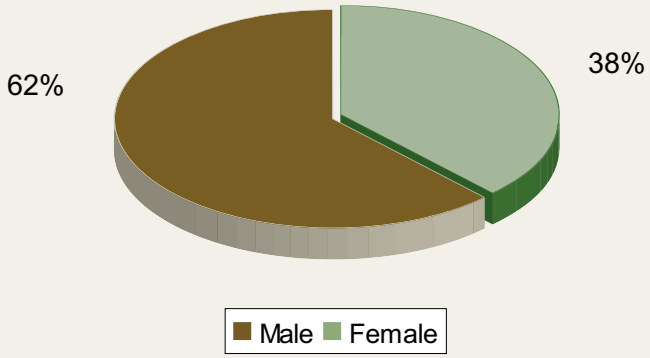


Figure 149 shows that males were dominant in the junior Degree enrolments of Agricultural Management with 62%, whilst females comprised 38%. African males account for 79%, followed by White males with 18% and Coloured males with 2%. Asians recorded the least enrolments in this CESM at junior Degree level with 1%.

Eighty six (86) students enrolled for the Honours Degree in this CESM in the 2006 academic year, compared to 50 students in 2005. Forty four (44) were African males, thirty seven (37) were African females, three were (3) were White females and 2 were White males. Eighty two (82) students enrolled at Masters Level in this CESM in the 2006 academic year at Universities.

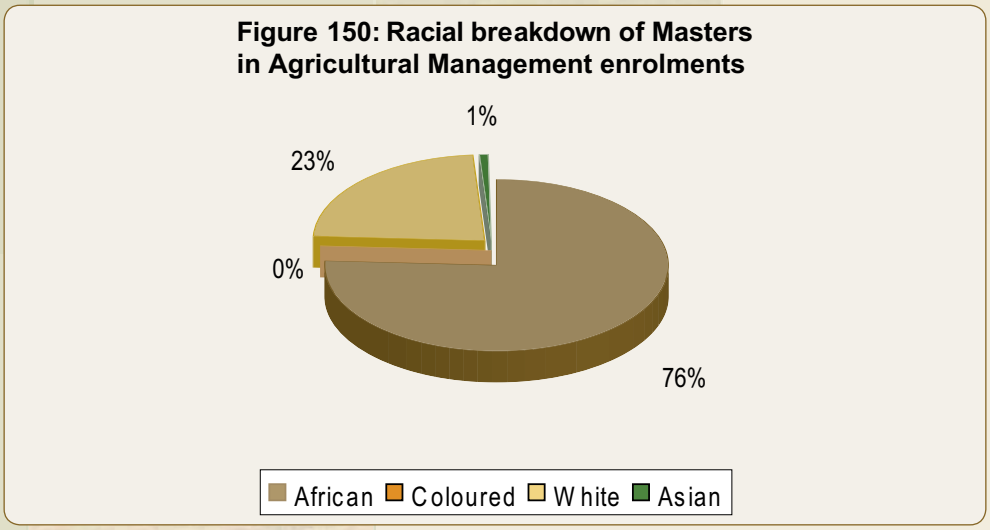
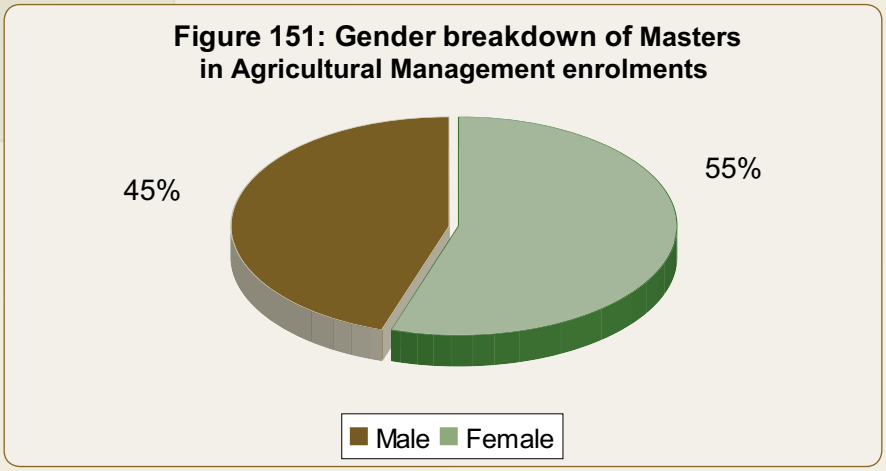


Figure 150 depicts that Africans represented 76% of the Masters enrolments in this CESM, followed by Whites with 23%. Coloureds account for 1% of the Masters enrolments in this CESM and Asians were not represented.



Classification according to figure 151 shows that females account for 55% of the Masters enrolments in this CESM, whilst males constitute 45%. African females comprised 76% of the female enrolments in this CESM, followed by White females with 22% and Asians with 2%. Coloureds were not represented at Masters level in this CESM.

4.3.3.17 Other Agricultural and Renewable Resources Enrolments at Universities in 2006

One hundred and fifty two (152) students enrolled for Masters at Universities in this CESM in the 2006 academic year. This CESM includes programmes in Aquaculture, Sustainable Agriculture, Aquaculture and Animal Science, Aquaculture and Conservation Ecology.

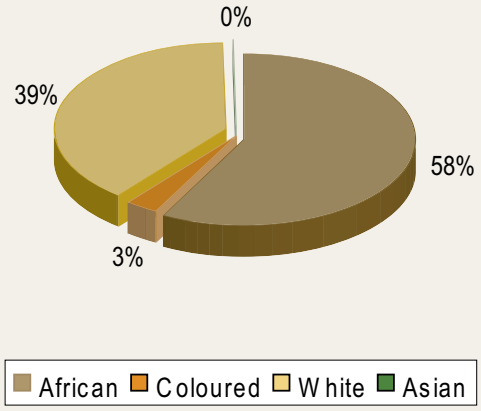
Programmes in this CESM are offered by the Universities Limpopo, Free State and Stellenbosch. Table 74 presents a demographic breakdown of Other Agric. and Renewable Resources enrolments during the 2006 academic year by level of qualification.

Table 74: Demographic breakdown of Other Agric. and Renewable Resources enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	30	58	88	1	3	4	10	50	60				152
TOTAL	30	58	88	1	3	4	10	50	60				152

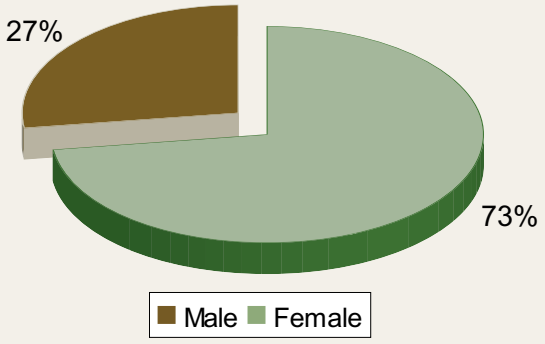
One hundred and fifty two (152) students enrolled for the Masters Degree at Universities in this CESM in the 2006 academic year.

Figure 152: Racial breakdown of Masters in Other Agric and Renewable Resources enrolments



Racial classification in figure 152 shows that Africans were a majority with 58% of Masters Degree in this CESM, followed by Whites with 39% and Coloureds with 3%. Asians were not represented in this CESM in the 2006 academic year.

Figure 153: Gender breakdown of Masters in Other Agric. and Renewable Natural Resources enrolments



Gender breakdown in figure 153 depicts that females dominate the enrolments in this CESM at Masters level (73%) and males account for 27%. African females constitute 52% of the female enrolments in this CESM at Masters level, followed by White females with 45% and Coloureds with 3%.

4.3.3.18 Environmental Management Enrolments at Universities in 2006

Only 149 students enrolled in this CESM at Universities in the 2006 academic year compared to 333 students in 2005. This CESM comprises programmes in Geography, Science and Geography, Environmental Science Studies. Programmes in this CESM are offered by the Universities of South Africa, Limpopo and Fort Hare. Table 75 presents a demographic breakdown of Environmental Management enrolments for the 2006 academic year by level of qualification.

Table 75: Demographic breakdown of Environmental Management enrolments at Universities in 2006.

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	17	21	38	1	3	4	34	49	83	3	5	8	133
Masters	13	3	16										16
TOTAL	30	24	54	1	3	4	34	49	83	3	5	8	149

Junior Degree enrolments constitute 89% of the Environmental Management enrolments and Masters account for 11%. One hundred and thirty three (133) African students enrolled at junior Degree level in this CESM in the 2006 academic year.

Figure 154: Racial breakdown of Junior degree in Environmental Management enrolments

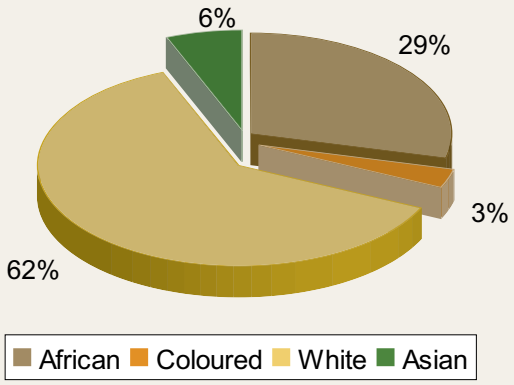


Figure 154 depicts that Whites formed the majority of junior Degree enrolments in this CESM, followed by Africans and Asians with 29% and 6% respectively. Coloured students represented the least enrolments with 3% of the undergraduate enrolments in this CESM in the 2006 academic year.

Figure 155: Gender breakdown of Junior degree in Environmental Management enrolments

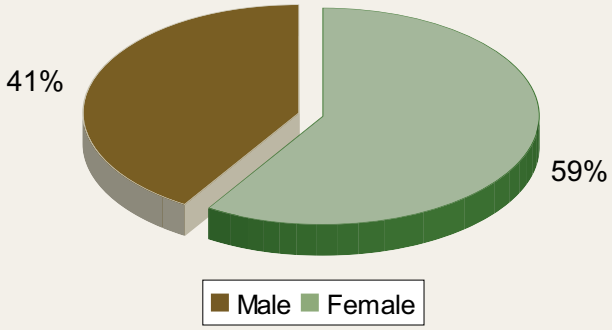


Figure 155 shows that females were dominant in this CESM at junior Degree level with 59%, whilst males account for 41%. White females account for 63% of the female enrolments in this CESM at junior Degree level, followed by Africans and Asians females with 27% and 6% respectively. Coloured females comprised 4% of the female enrolments at junior Degree level in this CESM. Of 16 the African students who enrolled for Masters in this CESM in the 2006 academic year, thirteen (13) were males and 3 were females. All other race groups were not represented in this CESM at Masters level.

4.3.3.19 Wildlife Enrolments at Universities in 2006

Seventy eight (78) students enrolled in this CESM at Universities in the 2006 academic year. The CESM includes programmes in Agricultural Wild Management. Wildlife programmes are offered by the Universities of Pretoria and Free State. Table 76 presents a demographic breakdown of Wildlife enrolments in the 2006 academic year by level of qualification.

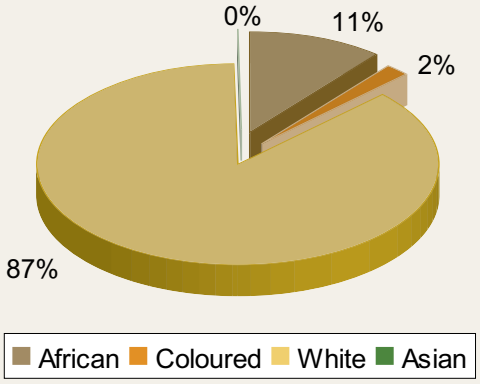
Table 76: Demographic breakdown of Wildlife enrolments at Universities in 2006.

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates				1		1		5	5				6
Honours	1		1				4	7	11				12
Masters	1	5	6	1		1	31	18	49				56
PhD							4		4				4
TOTAL	2	5	7	2		2	39	30	69				78

Masters Degree constitute 75% of the total enrolments in this CESM, followed by Honours with 15% and Undergraduate enrolments with 8%. PhD enrolments were the lowest: 4% of the total enrolments in this CESM. Of the six (6) students enrolled at junior Degree level in this CESM in the 2006 academic year, five (5) were White females and 1 was a Coloured male. Seven students enrolled at Honours level in Wildlife during the 2005 academic year, whilst twelve (12) students enrolled in this CESM in the 2006 academic year at Honours level. Seven (7) were White females, four (4) were White males and 1 was an African male.

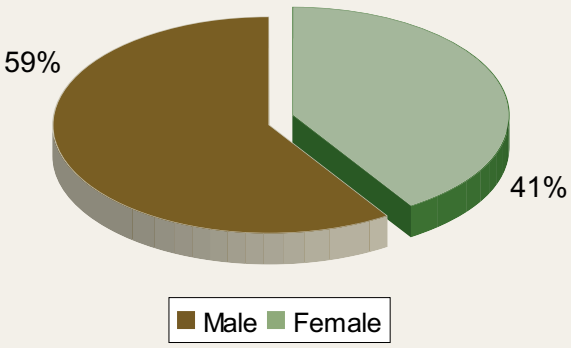
Fifty six (56) students registered at Masters level in this CESM in the 2006 academic year, showing a decrease of 6 students compared to 2005.

Figure 156: Racial breakdown of Masters in Wildlife enrolments



Racial classification in figure 156 shows that Whites represented 87% of the Masters Degree in this CESM, followed by Africans with 11% and Coloureds with 2%. No Asians enrolled for the Masters programme in this CESM in the 2006 academic year.

Figure 157: Gender breakdown of Masters in Wildlife enrolments



As figure 157 indicates, males dominate the Wildlife Masters enrolments with 59%, whilst females account for 41%. White males constitute 94% of the male enrolments at Masters Degree in this CESM, whilst Africans and Coloureds account for 3% each. Four (4) White students enrolled for the PhD Degree in this CESM and other race groups were not represented.

4.3.3.20 Agronomy Enrolments at Universities in 2006

Whilst 128 students enrolled in this CESM during the 2005 academic year at Universities, one hundred and seventeen (117) enrolled in the 2006 academic year.

- This CESM includes programmes in Agronomy and Soil Science, Agronomy and Agriculture Economics, Agronomy and Agrometerology, Agronomy and Plant Breeding, Agronomy and Plant Pathology Agronomy and Animal Science, Agronomy and Food Science and Agronomy and Entomology.

Programmes in this CESM are offered by the Universities of Stellenbosch, Zululand, Limpopo, Pretoria and Free State. Table 77 presents a demographic breakdown of Agronomy enrolments in the 2006 academic year by level of qualification.

Table 77: Demographic breakdown of Agronomy enrolments at Universities in 2006													
LEVEL	African			Coloured			White			Asian			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	33	39	72		1	1	3	17	20				93
Honours		2	2					1	1				3
Masters	3	4	7				4		4				11
PhD	8		8					1	1	1		1	10
Total	44	45	89		1	1	7	19	26	1		1	117

The Undergraduate enrolments account for 79% of the total enrolments in this CESM, followed by Masters and PhD with 9% each and Honours with 3%.

Ninety three (93) students enrolled for junior Degrees in this CESM in the 2006 academic year.

Figure 158: Racial breakdown of Junior degree in Agronomy enrolments

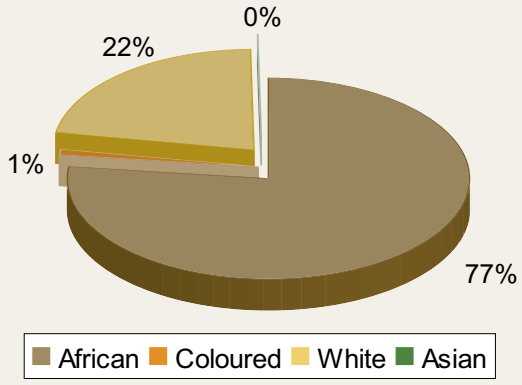
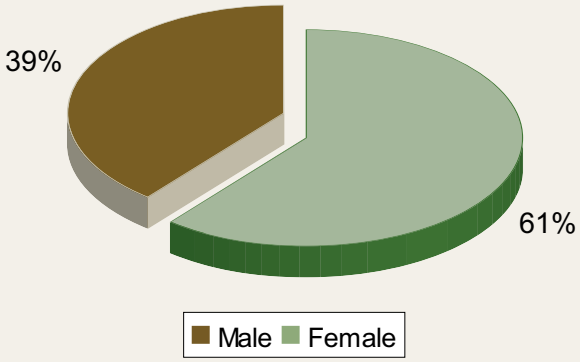


Figure 158 reflects that Africans formed the majority of the junior Degree enrolments in this CESM, followed by Whites with 22% and Coloureds with 1%. Asians were not represented at junior Degree level in this CESM.

Figure 159: Gender breakdown of Junior degree in Agronomy enrolments



As depicted in figure 159, females were dominant in this CESM at junior Degree level with 61%, whilst males account for 39%. African males comprised 68% of the junior Degree enrolments in this CESM, followed by White and Coloured males with 30% and 2% respectively. Three (3) students enrolled at Honours level: two (2) were African females and 1 was a White female. Neither Coloured nor Asian students enrolled in this CESM at Honours level in the 2006 academic year. Eleven (11) students enrolled in this CESM at Universities in the 2006 academic year compared to 16 students in 2005. Four (4) were African females, four (4) were White males and 3 were African males. No Coloured and Asian students enrolled at Masters level in the 2006 academic year in this CESM. Ten (10) students registered for the PhD Degree in this CESM: eight (8) were African males, one (1) was a White female and 1 was an Asian male.

4.3.3.21 Consumer Science Enrolments at Universities in 2006

Consumer Science enrolments decreased from 626 students in the 2005 academic year at Universities to 475 students in the 2006 academic year. This CESM includes the following programmes:

- Family Ecology and Consumer Science, Human Ecology (Community Agriculture, Human Ecology (Community Nutrition), Consumer Science Educations, Cons Sc: Clothing Retail Management, Cons Sc: Clothing Small Business Management, Cons Sc: Food Management (Retail Management), Cons Sc: Hospitality Management, Cons Sc: Interior Management (Inter. Retail Management),

- Cons Sc: Interior Management (Small Busin. Management), Cons Sc: Development, Ed (Home Economics), Cons Sc: Ed (Hotel-Keeping & Catering, Cons Sc: Ed (Consumer Studies), Cons Sc: Ed (Hospitality Studies), Cons Sc: (Interior Merchandise Retail Management), Cons Sc: Food Management, Cons Sc: Merchandise Management, Cons Sc: Clothing Management, Cons Sc: General, and Rural Household Development.

Programmes in this CESM are offered by the Universities of South Africa, Venda and Pretoria. Table 78 presents a demographic breakdown of Consumer Science enrolments in 2006 by level of qualification.

Table 78: Demographic breakdown of Consumer Science enrolments at Universities in 2006.

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	3	24	27				14	384	398	1	3	4	429
Masters	1	20	21				1	15	16				37
PhD		1	1					8	8				9
TOTAL	4	45	49				15	407	422	1	3	4	475

Junior Degree enrolments account for 90% of the total enrolments in this CESM, followed by Masters with 8% and PhD with 2% in the 2006 academic year.

Four hundred and twenty nine (429) students enrolled at junior Degree level in Consumer Science in the 2006 academic year.

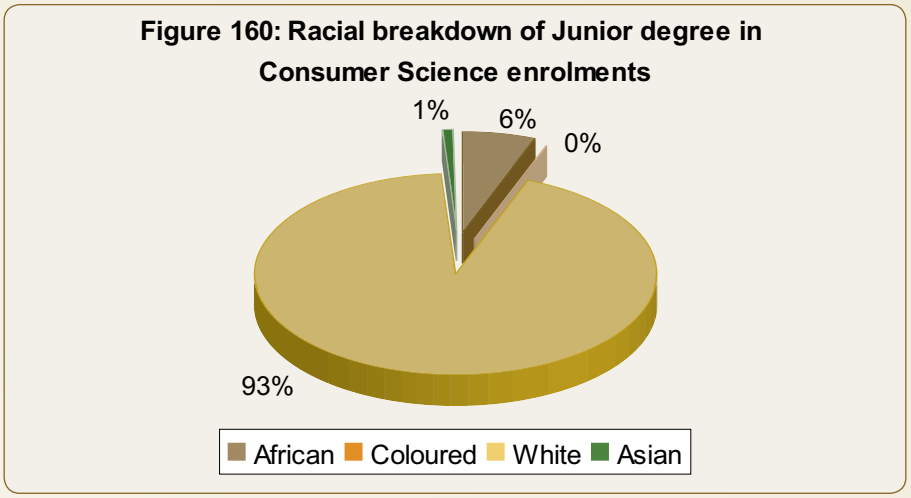
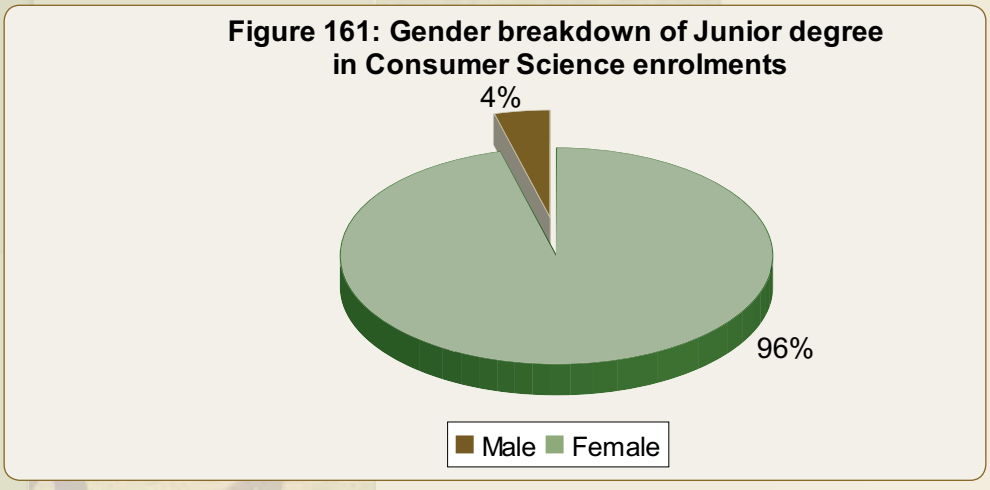


Figure 160 indicates that Whites formed the majority of the junior Degree enrolments in this CESM with 93%, followed by Africans with 6%, whilst Asians constitute 1%. No Coloureds enrolled in this CESM at junior Degree level.



As figure 161 depicts, female students represented a significant majority of the junior Degrees in this CESM with 96%, whilst males account for 4%. White females comprised 93% of the female enrolments in this CESM, whilst Africans and Asians constitute 6% and 1% respectively. Masters enrolments decreased from a total of 50 students in the 2005 academic year to 37 students in the 2006 academic year. Twenty (20) were African females, fifteen (15) were White females, one was an African male and 1 was a White male. Nine (9) students enrolled for the PhD Degree in this CESM in the 2006 academic year: eight (8) were White females and 1 was an African female.

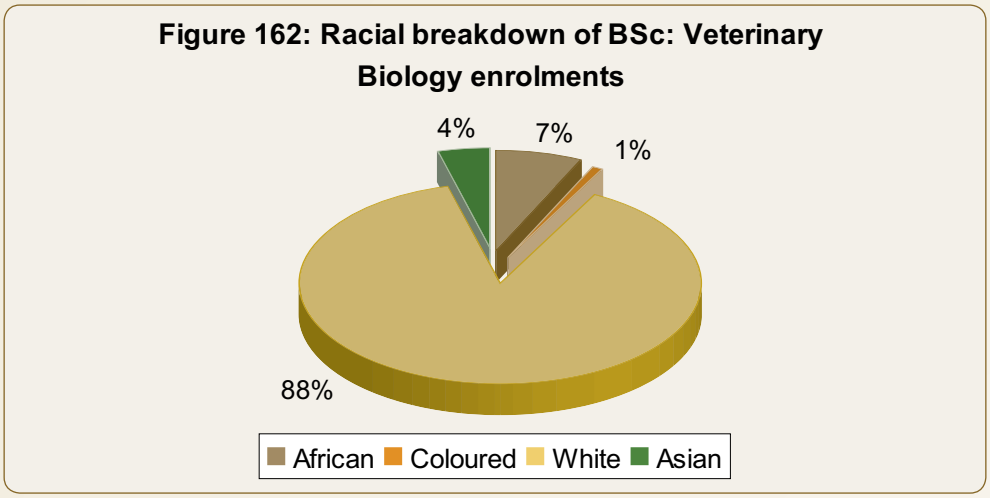
4.3.3.22 BSc:Veterinary Biology Enrolments at Universities in 2006

Four hundred and seventy eight (478) students enrolled for BSc: Veterinary Biology in the 2006 academic year. This programme is only offered by the University of Pretoria. Table 79 presents a demographic breakdown of Veterinary Biology enrolments in 2006 by level of qualification.

Table 79: Demographic breakdown of BSc: Veterinary Biology enrolments at Universities in 2006.

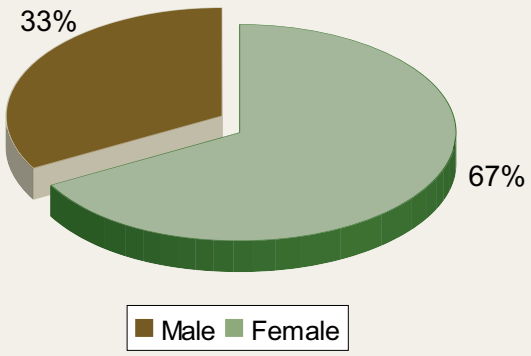
LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	19	13	32	1	6	7	132	288	420	4	15	19	478
TOTAL	19	13	32	1	6	7	132	288	420	4	15	19	478

As illustrated in table 31 above, 478 students registered for BSc: Veterinary Biology.



Racial classification in figure 162 illustrates that Whites dominate this CESM with 88%, whilst Africans and Asians comprised 7% and 4% respectively. Coloureds represented the least enrolments with 1% in this CESM.

Figure 163: Gender breakdown of BSc: Veterinary Biology enrolments



Gender breakdown in figure 163 shows that female students were dominant with 67% of the BSc: Veterinary Biology whilst males account for only 33%. White females represented the most enrolments in this CESM with 89% whilst Asian and African females account for 5% and 4% respectively. Coloured females recorded the least enrolments with 2% of the female enrolments in BSc: Veterinary Biology in the 2006 academic year.

4.3.3.23 Chemistry Enrolments at Universities in 2006

Fourteen (14) students enrolled for Chemistry in the 2006 academic year. This programme is offered by the University of South Africa. This CESM includes Chemistry and Zoology. Table 80 presents a demographic breakdown of Chemistry enrolments in 2006 by level of qualification.

Table 80: Demographic breakdown of Chemistry enrolments at Universities in 2006.

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	6	3	9				1	4	5				14
TOTAL	6	3	9				1	4	5				14

As illustrated in table 80 above, 14 of the students enrolled at junior Degree level in this CESM: six were African males, four (4) were White females, three (3) were African females and 1 was a White male.

4.3.3.24 Microbiology Enrolments at Universities in 2006

Sixteen (16) students enrolled for Microbiology in the 2006 academic year. This programme is offered by the University of South Africa. This CESM includes Microbiology and Zoology. Table 81 presents a demographic breakdown of Microbiology enrolments in 2006 by level of qualification.

Table 81: Demographic breakdown of Microbiology enrolments at Universities in 2006.

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	1	3	4					11	11	1		1	16
TOTAL	1	3	4					11	11	1		1	16

Sixteen (16) students enrolled in Microbiology at junior Degree level: eleven (11) were White females, three (3) were African females, one (1) was a African male and 1 was an Asian male.

4.3.3.25 Biochemistry Enrolments at Universities in 2006

Seventeen (17) students enrolled for Biochemistry in the 2006 academic year. This programme is offered by the University of South Africa. This CESM includes Biochemistry and Zoology. Table 82 presents a demographic breakdown of Biochemistry enrolments in 2006 by level of qualification.

Table 82: Demographic breakdown of Biochemistry enrolments at Universities in 2006.

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	2	3	5				5	7	12				17
TOTAL	2	3	5				5	7	12				17

Table 82 illustrates that of the 17 students enrolled at junior Degree in this CESM, seven (7) were White females, five (5) were White males, three were African females and 2 were African females.

4.3.4. Inst. Agrar. Stream Programme Enrolments

Inst. Agrar. Stream Programmes are offered by the University of Pretoria only. They include Plant Science, Agribusiness Management, Animal Science, Horticulture, Food Technology, Animal Production, Horticulture, Land Reclamation, Rural Development, Agricultural Economics, Agronomy and Agricultural Extension. Students enrolled or qualified in these programmes might be allowed to proceed to the PhD level or divert to the Science Stream in a similar field, depending on their academic performance.

4.3.4.1 Enrolments in Plant Science (Inst. Agrar. Stream) at Universities in 2006

Eleven (11) students enrolled in this CESM in the 2006 academic year at Universities. This CESM consists of programmes in Plant Production, Plant Production: Horticulture, Plant Production: Agronomy and Pasture Science. Table 83 presents a demographic breakdown of Plant Science (Inst.Agrar. Stream) enrolments in 2006 by level of qualification.

Table 83: Demographic breakdown of Plant Science (Inst.Agra.Sream) at Universities in 2006

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	3		3				3	1	4				7
Honours	3	1	4										4
TOTAL	6	1	7				3	1	4				11

Junior Degree enrolments account for 64% of the Plant Science (Inst.Agrar.Stream) enrolments, whilst Honours constitute 36%. Seven (7) students registered at junior Degree level: three were African males, three were White males and 1 was a White female. At Honours level, 4 students enrolled, of which 3 were African males and 1 was an African female.

4.3.4.2 Enrolments in Agribusiness Management (Inst.Agrar.Stream) at Universities in 2006

Eleven (11) students enrolled in this CESM at Honours Degree in the 2006 academic year. Table 84 presents a demographic breakdown of Agribusiness Management enrolments in 2006 by level of qualification.

Table 84: Demographic breakdown of Agribusiness Management (Inst.Agra.Sream) at Universities in 2006

LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	5	6	11										11
TOTAL	5	6	11										11

Of the (11) African students who enrolled in this CESM at Honours Degree level: six (6) were females and 5 were males.

4.3.4.3 Animal Science (Inst. Agrar. Stream) Enrolments at Universities in 2006

Nine (9) students enrolled in this CESM during the 2005 academic year. This CESM comprises programmes in Animal Production and Animal Production Management. Table 85 presents a demographic breakdown of Animal Science (Inst. Agrar. Stream) enrolments in the 2006 academic year by level of qualification.

Table 85: Demographic breakdown of Animal Science (Insta.Agrar.Stream) at Universities in 2006.

LEVEL	African			Coloured			White			Asian			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	7		7				1		1	1		1	9
TOTAL	7		7				1		1	1		1	9

Of the 9 students who enrolled for Masters in this CESM, seven (7) were African males, one was a White male and 1 was an Asian female.

4.3.4.4. Horticulture (Inst. Agrar. Stream) Enrolments at Universities in 2006

This CESM includes B.Inst.Agrar, B.Inst.Agrar Honours, and M.Inst.Agrar in Horticulture. Two (2) students enrolled in this CESM at Universities in the 2006 academic year. Table 86 presents a demographic breakdown of the 2006 Horticulture (Inst.Agrar. Stream) enrolments by level of qualification.

Table 86: Demographic breakdown of Horticulture (Ins. Agrar Stream) at Universities 2006.

LEVEL	African			Coloured			White			Asian			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	1	1	2										2
TOTAL	1	1	2										2

Two (2) students enrolled for Masters in this CESM in the 2006 academic year; one (1) was an African male and 1 was an African female.

4.3.4.5. Land Reclamation (InstAgrar. Stream) Enrolments at Universities in 2006

Six (6) students enrolled in this CESM in the 2006 academic year at Universities. This CESM includes programmes in Land Development and Land Use Planning. Table 87 presents a demographic breakdown of Land Reclamation (Inst.Agrar. Stream) enrolments in the 2006 academic year by level of qualification.

Table 87: Demographic breakdown of Land Rec (Land Use Inst. Agrar.Stream) at Universities in 2006

LEVEL	African			Coloured			White			Asian			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates		2	2										2
Masters	2		2				2		2				4
TOTAL	2	2	4				2		2				6

Two (2) African females registered for junior Degree enrolments in this CESM in the 2006 academic year. Four (4) students enrolled for the Masters Degree in this CESM: two (2) were African males and 2 were White males.

4.3.4.6. Rural Development (Inst.Agrar. Stream) Enrolments at Universities in 2006

Eight (8) students enrolled in this CESM in the 2006 academic year. This CESM encompasses programmes in Rural Development Management and Rural Development. Table 88 presents a demographic breakdown of Rural Development (Inst.Agrar. Stream) enrolments in the 2006 academic year by level of qualification.

Table 88: Demographic breakdown of Rural Dev (Ins. Agrar.Stream) enrolments at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates	1		1										1
Honours	5		5										5
TOTAL	7	1	8										8

Table 88: Demographic breakdown of Rural Dev (Ins. Agrar.Stream) enrolments at Universities in 2006													
LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	1	1	2										2
TOTAL	7	1	8										8

One African male enrolled for the junior Degree in this CESM and five (5) African males registered for Honours in the 2006 academic year. One African male and 1 African female enrolled at Masters level in this CESM in the 2006 academic year.

4.3.4.7 Agriculture Economics (Inst.Agrar. Stream) Enrolments at Universities in 2006

Twenty eight (28) students enrolled in this CESM at Universities in the 2006 academic year. This CESM comprises programmes in Agricultural Economics: Animal Production. Table 89 presents a demographic breakdown of Agric. Economics (Inst.Agrar. Stream) enrolments in the 2006 academic year by level of qualification.

Table 89: Demographic breakdown of Agricultural Economics (Inst.Agrar.Stream) at Universities in 2006.													
LEVEL	African			Coloured			White			Asian			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	3	3	6										6
Masters	12	8	20		1	1				1		1	22
TOTAL	15	11	26		1	1				1		1	28

As illustrated in table 89, six (6) students enrolled for Honours in this CESM: three (3) were African males and 3 were African females. At Masters Degree level, twenty two (22) students registered: twelve (12) were African males, eight (8) were African females, one was a Coloured female and 1 was an Asian male.

4.3.4.8 Agronomy (Inst.Agrar.Stream) Enrolments at Universities in 2006.

Five (5) students enrolled in this CESM in the 2006 academic year at Universities. This CESM includes programmes in Agronomy/ Horticulture. Table 90 presents a demographic breakdown of Agronomy (Inst.Agrar.Stream) at the Universities in 2006.

Table 90: Demographic breakdown of Agronomy (Inst.Agrar.Stream) at the Universities in 2006.													
LEVEL	African			Coloured			White			Asian			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	3	1	4					1	1				5
TOTAL	3	1	4					1	1				5

Of the 5 students who enrolled at Masters level in this CESM, 3 were African males, one (1) was an African female and 1 was a White female.

4.3.4.9 Agricultural Extension (Inst. Agrar. Stream) Enrolments at Universities in 2006

Fourteen (14) students enrolled in this CESM during the 2006 academic year at Universities. Table 91 presents a demographic breakdown of Agricultural Extension (Inst.Agrar.Stream) at the Universities in 2006.

Table 91: Demographic breakdown of Agricultural Extension (Inst.Agrar.Sream) at Universities in 2006													
LEVEL	African			Coloured			White			Asians			TOTAL
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	2	3	5										5
Masters	6	2	8					1	1				9
TOTAL	8	5	13					1	1				14

At Honours level, 3 students were African females and 2 were African males. Nine (9) students enrolled at Masters Degree in this CESM: six (6) were African males, two (2) were African females and 1 was a White female.

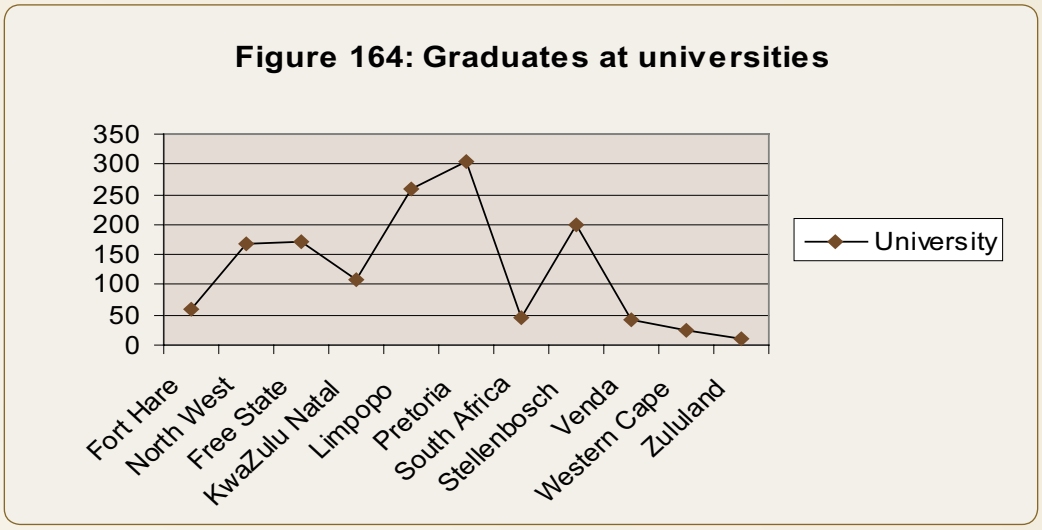
4.4 AET Graduates at Universities in 2006

Table 92 indicates that the University of Pretoria account for 22% of the total number of graduates in the 2006 academic year, followed by the University of Limpopo with 18% and the University of Stellenbosch with 14%. The University of Free State and the University of North West account for 12% each, of the total number of graduates in the 2006 academic year. All other Universities produced less than 9% of the total graduate figure each.

Table 92: AET graduate figures at Universities in 2006

Name of the University	Number of AET graduates	Percentage (%)
Fort Hare University	59	4
University of North West	168	12
Nelson Mandela Metropolitan University	17	1
University of Free State	170	12
University of KwaZulu-Natal	109	8
University of Limpopo	259	18
University of Pretoria	304	22
University of South Africa	47	3
University of Stellenbosch	199	14
University of Venda	41	3
University of Western Cape	23	2
University of Zululand	10	1
Total	1406	100

Table 92 and figure 164 show that the Universities of Pretoria, Limpopo and Stellenbosch produced more graduates in the 2006 academic year. Graduates produced by the four Universities constitute 54% of the total AET graduates at Universities in 2006.



4.4.1 Demographic Breakdown of AET Graduates at Universities in 2006

Table 93 presents a demographic breakdown of graduate figures in AET programmes in the 2006 academic year at Universities.

Table 93: Demographic breakdown of AET graduates at Universities in 2006

Name of the University	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Fort Hare University	32	27	59										59
North West University	66	99	165		3	3							168
Nelson Mandela Metroplitan University	9	4	13	1		1	3		3				17
University of Free State	18	49	67	1	1	2	28	72	100	1		1	170
University of KwaZulu-Natal	20	28	48		1	1	21	30	51		9	9	109
University of Limpopo	137	122	259										259
University of Pretoria	33	22	55	1	2	3	70	174	244	2		2	304
University of South Africa	21	9	30	1		1	5	10	15	1		1	47
University of Stellenbosch	13	7	20	9	3	12	115	52	167				199
University of Venda	21	20	41										41
University of Western Cape	4	1	5	9	7	16	1	1	2				23
University of Zululand	7	3	10										10
Total	381	391	772	22	17	39	243	339	582	4	9	13	1406

African and White graduates constitute the most significant figures overall. African graduates account for 52% and White graduates constitute 44% of the total University graduates in the 2006 academic year, whilst Coloured and Asian graduates collectively constitute 4%. Female graduates dominate the University graduates with 55% and male graduates constitute 45% of the total number of graduates in the 2006 academic year at Universities. African females dominate the female graduates with 50% and White females comprised 47% of the total female graduates in the 2006 academic year. Coloured and Asian female graduates jointly account for 3% of the total female enrolments.

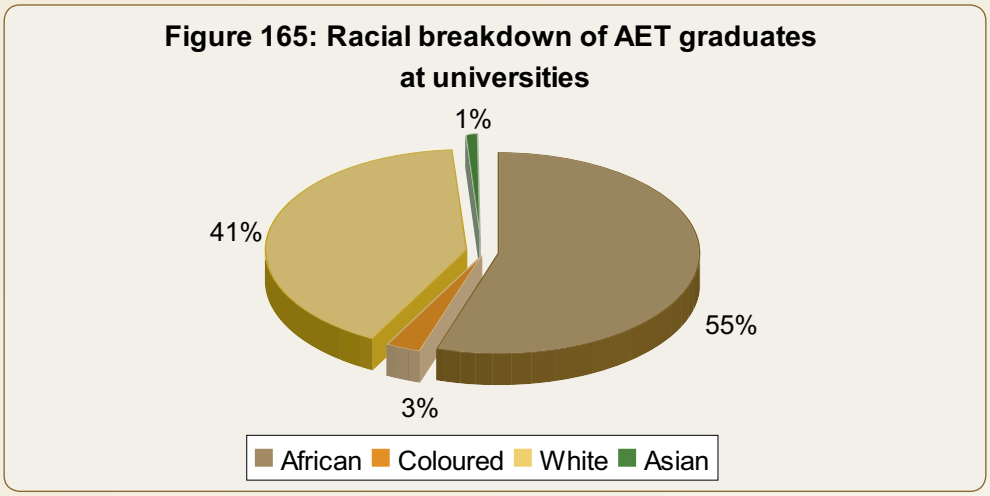


Figure 165 shows that Africans dominate graduates at Universities in the 2006 academic year with 55% followed by Whites with 41% whilst Coloureds and Asians collectively constitute 4%.

Figure 166: Racial breakdown of AET graduates at universities

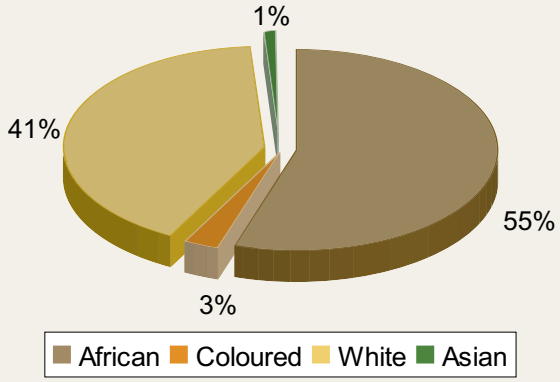


Figure 166 indicates that females formed the majority with 54% of the total number of graduates at Universities, whilst males account for 46%. African females dominance is prevalent at 52% of the female graduates at Universities in the 2006 academic year, followed by 45% of White females. Coloured and Asian females comprised an insignificant 3% of the total female graduates in the 2006 academic year.

Figure 167: Racial breakdown of female AET graduates at universties

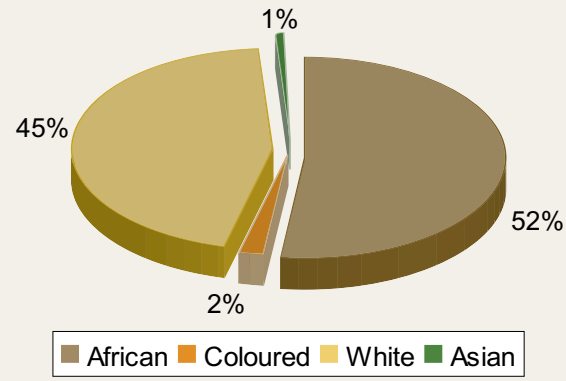
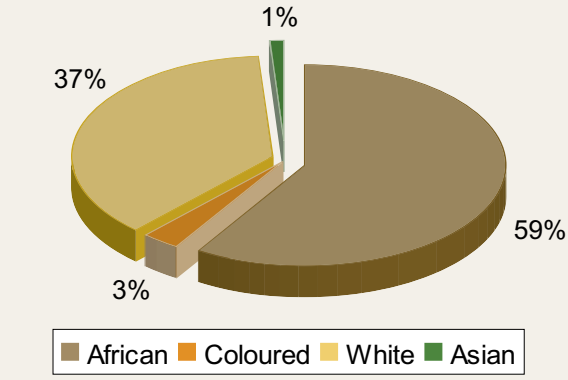


Figure 167 presents a racial classification of females at Universities in the 2006 academic year. Africans dominate with 52% of the female graduates followed by White females with 45%, whilst Coloureds and Asians collectively constitute 3%.

Figure 168: Racial breakdown of AET male graduates at universities



According to the racial breakdown (Figure 168) of the male graduates at Universities in the 2006 academic year, Africans represented 59%, followed by Whites with 37% whilst Coloured males constitute only 3%. Asians males recorded the least graduates with 1% of the total male graduates.

4.4.2 AET Graduates at Universities by CESM in 2006

Table 94 presents AET graduates at Universities by level of qualification per CESM and demographic breakdown of graduates by CESM.

Table 94: Agricultural Graduates at Universities in 2006 by CESM and academic level.

CESM	Undergraduate	Postgraduate Diploma	Honours	Masters	PhD	TOTAL	%
Agricultural Economics (Science Stream)	34	3	21	3	6	67	5
Agricultural Economics (Art Stream)	12		2	14		28	2
Agricultural Economics (BCom Stream			1			1	0
Agricultural Economics (AgriBusiness)	14					14	1
Agricultural Science (Art Stream)	92		5			97	7
Agricultural Science (Science Stream)	83		10	64	25	182	13
Agric. Extension (Inst. Agrar. Stream)			1	1		2	0
Agric. Extension	15	11		38	1	65	5
Agric. Food Technology	32	22	1	2		57	4
Animal Science	172	2	27	9	3	213	16
Horticulture				4	1	5	0
Plant Science	28		22	20		70	5
Plant Science (Inst.Agrar Stream)	2		2			4	0
Rural Development			7			7	0
Soil Science			1	14		15	1
Forestry	5			5	4	14	1
Renewable Natural Resources	17			9		26	2
Agric. Management	71	5	8	48		132	9
Other Agric. and Renewable Resources				24		24	2
Animal Sc (Insta. Agrar. Stream)				2		2	0
Land Rec (Land Use Inst. Agrar. Stream)				1		1	0
Rural Dev (Inst. Agrar. Stream)			1			1	0
Agric Econ (Inst. Agrar. Stream)			3	4		7	0
Environmental Management	152			1		153	12
Agribusiness (Inst.Agrar Stream			7			7	0
Land Reclamation (Land Use)	1					1	0
Agronomy	10		1	3		14	1
Agronomy (Inst. Agrar. Stream)				1		1	0
Wildlife	2		11	11		24	2
BSc Veterinary Biology	103					103	7
Microbiology	2					2	0
Consumer Science	62			4	1	67	5
TOTAL	909	43	131	282	41	1406	
%	65%	3%	9%	20%	3%	100%	

Table 94 indicates that Animal Science, Agricultural Science (Science Stream) and Environmental Management produced 15%, 13% and 11% respectively. Other CESM constitute less than 10% of the total AET graduates produced at Universities in the 2006 academic year.

4.4.3 Breakdown of AET Graduates at Universities by CESM in 2006

Graduates at Junior Degree Programmes by CESM at Universities in 2006

Table 95 outlines the graduates for the undergraduate stream at Universities in 2006.

Table 95: Graduates in Junior Degree programmes by CESM at Universities in 2006

CESM Category (Undergraduate)	African			Coloured			White			Asian			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	18	12	30				3	1	4				34
Agricultural Economics (Art Stream)	6	6	12										12
Agricultural Eco. (AgriBusiness)	2	1	3				8	3	11				14
Agricultural Science (Art Stream)	17	8	25	8	1	9	35	23	58				92
Agricultural Science (Science Stream)	16	22	38		2	2	30	12	42		1	1	83
Agric. Extension	6	9	15										15
Agric. Food Technology	2	14	16				4	9	13		3	3	32
Animal Science	49	61	110	1		1	23	38	61				172
Plant Science	4	5	9	4	5	9	3	7	10				28
Forestry	1		1				4		4				5
Renewable Natural Resources		1	1		1	1	10	5	15				17
Agric. Management	28	14	42	2		2	18	9	27				71
Environmental Management	76	67	143				4	4	8	1		1	152
Agronomy	3	5	8					2	2				10
Wildlife								2	2				2
Consumer Science		4	4				2	56	58				62
Land Reclamation (Land Use InstAgrar)		1	1										1
Plant Science (Inst.Agrar Stream)							1	1	2				2
BSc Veterinary Biology	1	1	2		2	2	24	73	97	2		2	103
Microbiology								2	2				2
TOTAL	229	231	460	15	11	26	169	247	416	3	4	7	909

Table 95 shows that Animal Science, Environmental Management and BSc Veterinary Biology account for 20%, 17%, and 11% of the junior Degree graduates respectively. Agricultural Science (Art Stream) represented 10% of the total undergraduate Degree graduates at Universities in the 2006 academic year. Other categories produced less than 10% each of the total AET graduates in the 2006 academic year.

African graduates and White graduates constitute 50% and 46% of the total number of graduates at Junior Degree level respectively. Coloured and Asian undergraduates collectively account for 4% of the graduates at junior Degree level indicating a 2% difference from the 2005 academic year figures.

Postgraduate Diploma Graduates by CESM at Universities in 2006

Table 96 outlines the Postgraduate Diploma graduates at Universities in 2006

Table 96: Postgraduate Diploma enrolments by CESM at Universities in 2006													
CESM Category (Postgraduate Diploma)	African			Coloured			White			Asians			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Agricultural Economics (Science Stream)		3	3										3
Agricultural Extension	5	6	11										11
Agric Management	1	1	2					3	3				5
Agricultural Food Technology	5	3	8				1	9	10		4	4	22
Animal Science								2	2				2
TOTAL	11	10	21					14	14				43

As was the case in 2005, Agricultural Food Technology constitutes the most graduates with 51%, followed by Agricultural Extension with 26% of the total number of graduates at Postgraduate Diploma level. All other CESM account for less than 15% of the total number of graduates at Postgraduate Diploma level.

Honours Graduates by CESM at Universities in 2006

Table 97 outlines the Honours graduates at Universities in 2006 per CESM.

Table 97: Enrolments in Honours Degree by CESM at Universities in 2006													
CESM Category (Honours)	African			Coloured			White			Asians			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	3	10	13		1	1	1	6	7				21
Agricultural Economics (Art Stream)	1	1	2										2
Agricultural Economics (BCom Stream)								1	1				1
Agricultural Science (Art Stream)	2	3	5										5
Agricultural Science (Science Stream)	1		1				6	3	9				10
Agric. Food Technology		1	1										1
Animal Science	7	7	14				4	9	13				27
Plant Science	6	3	9	3	2	5	2	5	7		1	1	22
Soil Science		1	1										1
Rural Development	3	4	7										7
Agric. Management	1	2	3				2	3	5				8
Agronomy		1	1										1
Wildlife	1		1				4	6	10				11
Agricultural Extension (Inst.Agrar Stream)	1		1										1
Plant Science (Inst.Agrar Stream)	2		2										2
Agribusiness (Inst.Agrar.Stream	3	4	7										7
Rural Development (Inst.Agrar. Stream	1		1										1
Agric. Economics (Inst. Agrar. Stream)	1	2	3										3
Total	33	39	72	3	3	6	19	33	52		1	1	131

Table 97 depicts that Animal Science account for 21% of the total number of graduates at Honours level, followed by Plant Science and Agricultural Economics (Science Stream) with 17% and 16% respectively. Other CESM recorded the lowest number of graduates with less than 10% of the total number of Honours graduates.

African graduates dominate Honours with 54% and White graduates account for 40%. Coloureds and Asians collectively constitute 6% of the Honours graduates in the 2006 academic year at Universities.

Masters Graduates by CESM at Universities in 2006

Table 98 outlines the graduates for the Masters Programmes at Universities in the 2006 academic year.

Table 98: Enrolments in Masters Degree by CESM at Universities in 2006

CESM Category (Masters)	African			Coloured			White			Asians			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	1	2	3										3
Agricultural Science (Art Stream)	2	1	3		1	1	5	5	10				14
Agricultural Science (Science Stream)	10	18	28	1	2	3	20	13	33				64
Agric. Extension	18	20	38										38
Agric. Food Technology		1	1					1	1				2
Animal Science	4	1	5				3	1	4				9
Horticulture	2	2	4										4
Plant Science	10	7	17	2		2	1		1				20
Soil Science	10	3	13					1	1				14
Forestry	3	1	4				1		1				5
Renewable Natural Resources		1	1				3	5	8				9
Agric. Management	21	24	45				2	1	3				48
Other Agric. and Renewable Resources	6	13	19				1	4	5				24
Environmental Management		1	1										1
Agronomy		2	2				1		1				3
Wildlife				1		1	7	3	10				11
Consumer Science	1	0	1					3	3				4
Agric. Extension (Inst. Agrar. Stream)	1		1										1
Animal Science (Inst. Agrar Stream)	2		2										2
Land Reclamation (Land Use Inst.Agrar. Stream)	1		1										1
Agric. Economics (Inst. Agrar. Stream)	3	1	4										4
Agronomy (Inst.Agrar Stream)	1		1										1
Total	96	98	194	4	3	7	44	37	81				282

Table 98 indicates that Agricultural Science (Science Stream) dominate the Masters graduates as was the case in 2005 with 23%, followed by Agricultural Management with 17% and Agric Extension with 13%. All other CESM represented less than 10% of the total Masters.

Africans constitute the highest number of Masters graduates with 69%, followed by Whites with 29%, whilst Coloureds represented the least graduates with 2%. Asians were not represented at Masters Degree level in the 2006 academic year.

PhD Graduates by CESM at Universities in 2006

Table 99 presents PhD graduates at Universities during in 2006.

Table 99: Enrolments in PhD Degree by CESM at Universities in 2006

CESM Category (PhD)	African			Coloured			White			Asians			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Agricultural Economics (Science Stream)	3	1	4				2		2				6
Agricultural Science (Science Stream)	5	10	15				6	3	9	1		1	25
Animal Science	1		1					2	2				3
Consumer Science							1		1				1
Agricultural Extension							1		1				1
Horticulture							1		1				1
Forestry	3		3				1		1				4
Total	12	11	23				12	5	17	1		1	41

The data in table 99 illustrates that Agricultural Science (Science. Stream) dominate the PhD graduates with 61% of the PhD Degree in the 2006 academic year, as was the case in 2005. Other CESM collectively constitute 20% of the total PhD graduates.

African, White and Asian graduates account for 49%, 36% and 15% of the total number of PhD graduates respectively in the 2006 academic year. Coloureds were not represented at PhD level graduates in the 2006 academic year.

4.4.3.1 Agricultural Economics (Science Stream) Graduates at Universities in 2006

Whilst 100 graduates were qualified at Universities during the 2005 academic year, only 64 were qualified in the 2006 academic year. Table 100 presents a demographic breakdown of Agricultural Economics graduates in the 2006 academic year by level of qualification.

Table 100: Demographic breakdown of Agricultural Economics (Science Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	18	12	30				3	1	4				34
Postgraduate Diploma		3	3										3
Honours	3	10	13		1	1	1	6	7				21
Masters	1	2	3										3
PhD	3	1	4				2		2				6
TOTAL	25	28	53		1	1	6	7	13				67

The junior Degree in this CESM comprised 52% of the total number of graduates followed by Honours Degree with 31% and PhD with 9%. The least number of graduates of the total number of graduates in this CESM were at Postgraduate, Diploma and Masters Degree levels with 4% each.

Thirty four (34) graduates were produced at junior Degree level: eighteen (18) were African males, twelve (12) were African females, (3) three were White males and 1 was a White female. Three (3) African males graduated with Postgraduate Diploma in this CESM in the 2006 academic year.

Twenty one (21) graduates were awarded with Honours Degrees in this CESM in the 2006 academic year compared to 13 graduates in 2005.

Figure 169: Racial breakdown of Honours in Agricultural Economics (Science Stream) graduates

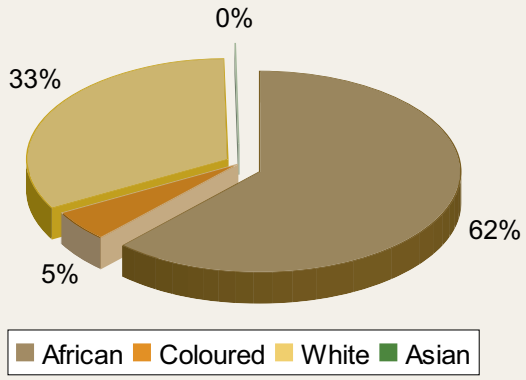
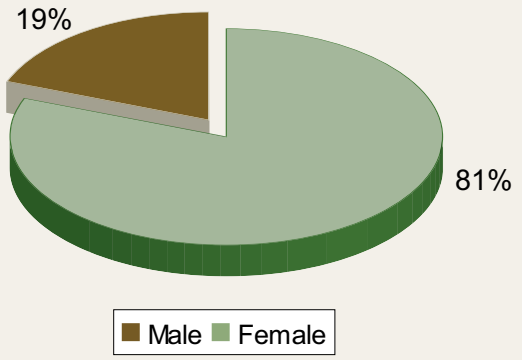


Figure 169 indicates that Africans formed the majority of the Honours graduates in this CESM followed, by Whites with 33% and Coloureds with 5%. Asians were not represented in this CESM at Honours Degree level in the 2006 academic year.

Figure 170: Gender breakdown of Honours in Agricultural Economics (Science Stream) graduates



As illustrated in figure 170, females constitute the majority of Honours Degree graduates in this CESM with 81%, whilst males account for 19%. Ten (10) were African males, six (6) were White females and 1 was a Coloured female. Asians were not represented in this CESM in the 2006 academic year. Three (3) African graduates were produced in this CESM at Masters Degree level: two (2) were females and 1 was a male. At PhD level 6 graduates were produced: three (3) were African males, two (2) were White males and 1 was an African female.

4.4.3.2 Agricultural Economics (Art Stream) Graduates at Universities in 2006

Twenty eight (28) graduates were produced in Agricultural Economics (Art Stream) in the 2006 academic year at Universities. Table 101 presents a demographic breakdown of Agricultural Economics (Art Stream) in the 2006 academic year by level of qualification.

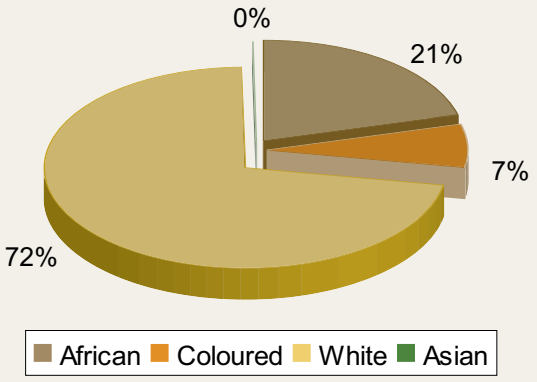
Table 101: Demographic breakdown of Agricultural Economics (Art Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian		
	M	F	T	M	F	T	M	F	T	M	F	T
Undergraduate	6	6	12									12
Honours	1	1	2									2
Masters	2	1	3		1	1	5	5	10			14
TOTAL	9	8	17		1	1	5	5	10			28

Graduates produced at Masters Degree level account for 50% of the total number of graduates in this CESM, followed by junior Degree graduates with 43%, whilst Honours graduates constitute 7%. Of the twelve African graduates produced at junior Degree level in this CESM; six (6) were female and six were male. Two (2) African graduates were produced at Honours Degree level in the Agricultural Economics (Art Stream); one (1) was male and the other was female.

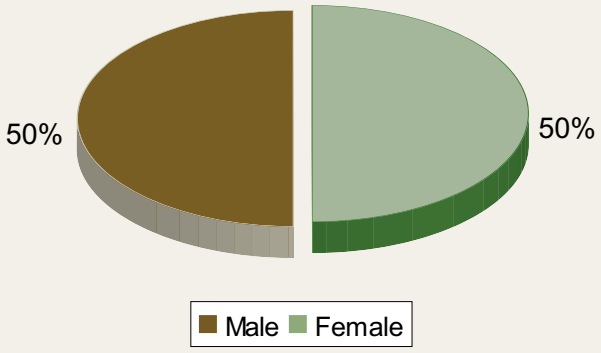
Fourteen (14) graduates were awarded with the Masters Degree in this CESM at Universities in the 2006 academic year, compared to 2 graduates in 2005.

Figure 171: Racial breakdown of Masters in Agricultural Economics (Art Stream) graduates



Racial classification in figure 171 depicts that Whites dominate the Masters Degree in this CESM with 72%, followed by Africans and Coloureds with 21% and 7% respectively. Asians were not represented in this CESM.

Figure 172: Gender breakdown of Masters in Agricultural Economics (Art Stream) graduates



As shown in figure 172, there was an equal distribution of graduates between the genders in this CESM at Masters Degree level with 50% each. Of the (7) females who graduated at Masters level, five (5) were White females, one (1) was an African female and 1 a Coloured female.

4.4.3.3 Agricultural Economics (AgriBusiness) Graduates at Universities in 2006

Fourteen (14) graduates were awarded with Agricultural Economics junior Degree in the 2006 academic year compared to 24 graduates produced during the 2005 academic year. Table 102 presents a demographic breakdown of Agricultural Economics (AgriBusiness) graduates in the 2006 academic year.

Table 102: Demographic breakdown of Agricultural Economics (AgriBusiness) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	2	1	3				8	3	11				14
TOTAL	2	1	3				8	3	11				14

Of the 14 graduates who were awarded with Agricultural Economics at undergraduate Degree, eight (8) were White males, three were White females, two (2) were African males and 1 was an African female. Neither Coloureds nor Asians were represented in this CESM in the 2006 academic year.

4.4.3.4 Agricultural Science (Art Stream) Graduates at Universities in 2006

One hundred and eleven (111) graduates were produced in this CESM in the 2006 academic year, compared to 48 graduates produced during 2005. Table 103 presents a demographic breakdown of Agricultural Science (Art. Stream) graduates in the 2006 academic year by level of qualification.

Table 103: Demographic breakdown of Agricultural Science (Art. Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	17	8	25	8	1	9	35	23	58				92
Honours	2	3	5										5
Masters	2	1	3		1	1	5	5	10				14
TOTAL	21	12	33	8	2	10	40	28	68				111

Undergraduate Degree account for the most graduates with 82% of the Agricultural Science (Art Stream), followed by Masters and Honours with 13% and 5% respectively.

From only 32 graduates produced at Junior Degree level in this CESM during the 2005 academic year, ninety two (92) graduates were awarded with junior Degrees in this CESM in the 2006 academic year.

Figure 173: Racial breakdown of Junior degree in Agricultural Science (Art Stream) graduates

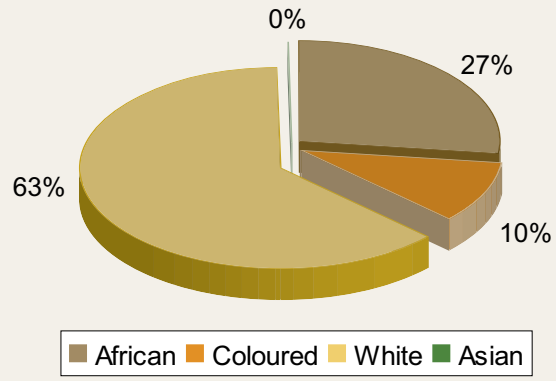
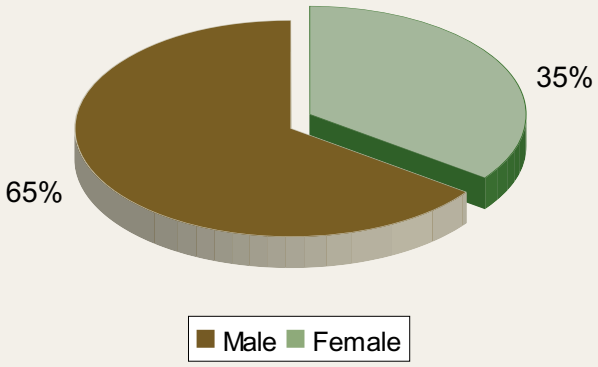


Figure 173 depicts that Whites were dominant in this CESM at junior Degree level with 63%, followed by Africans with 27% and Coloureds with 10%. Asians were not represented in this CESM.

Figure 174: Gender breakdown of Junior degree in Agricultural Science (Art Stream) graduates



As shown in figure 174, males formed the majority in this CESM at junior Degree level with 65%, whilst females account for 35%. White females account for 59% of the female graduates at junior Degree level in this CESM followed by Africans with 28% and Coloureds with 13%. Five (5) African graduates were produced at Honours level in this CESM in the 2006 academic year. Three (3) of these graduates were African males and 2 were females.

Twelve (14) graduates were produced at Masters level in this CESM in the 2006 academic year.

Figure 175: Racial breakdown of Masters in Agricultural Science (Art Stream) graduates

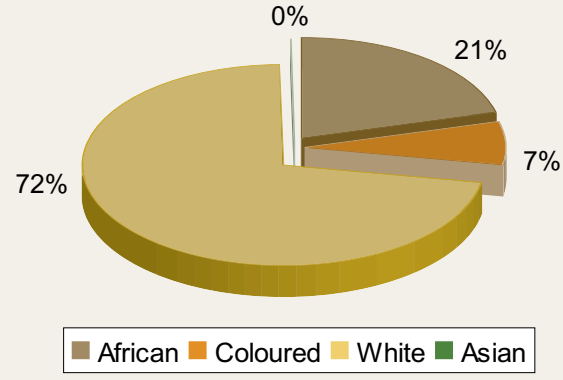
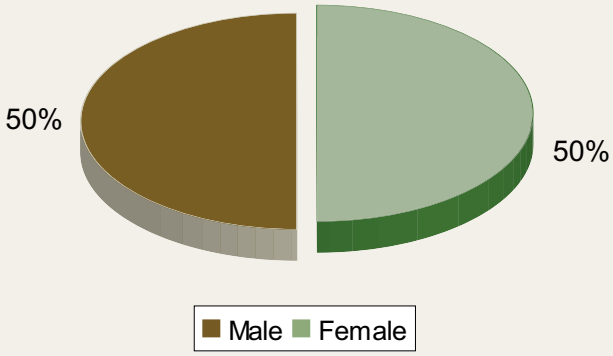


Figure 175 depicts that Whites were dominant in this CESM at Masters Degree level with 72%, followed by Africans and Coloureds with 21% and 7% respectively.

Figure 176: Gender breakdown of Masters in Agricultural Science (Art Stream) graduates



Gender classification in figure 176 depicts an equal distribution of graduates (50% for males and females). Male graduates consisted of 5 White males and 2 African females. Female graduates were made up of 5 White females, one (1) African female and 1 Coloured female.

4.4.3.5 Agricultural Science (Science Stream) Graduates at Universities in 2006

One hundred and eighty two (182) graduates in this CESM were produced at Universities during the 2006 academic year. Table 104 presents a demographic breakdown of Agricultural Science (Science Stream) graduates during the 2006 academic year by level of qualification.

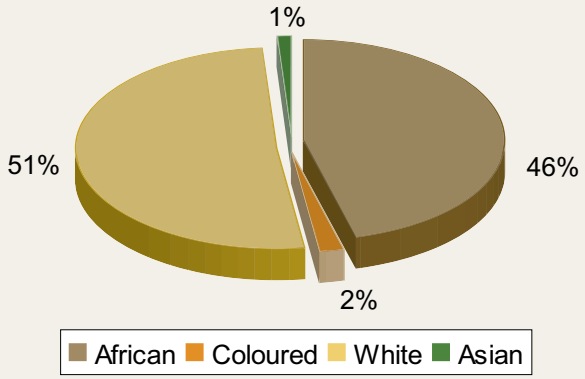
Table 104: Demographic breakdown of Agricultural Science (Science Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			
	M	F	T	M	F	T	M	F	T	M	F	T	Total
Undergraduate	16	22	38		2	2	30	12	42		1	1	83
Honours	1		1				6	3	9				10
Masters	10	18	28	1	2	3	20	13	33				64
PhD	5	10	15				6	3	9	1		1	25
TOTAL	32	50	82	1	4	5	62	31	93	1	1	2	182

The junior Degree produced 46% of the total number of graduates in this CESM followed by Masters with 35% and PhD with 14%. Honours graduates constitute the least number of graduates with 5% of the total number of graduates in this CESM in the 2006 academic year.

Whilst 148 graduates were produced at junior Degree level in the 2005 academic year, only 83 graduates were awarded with junior Degrees in Agricultural Science (Science Stream) in the 2006 academic year.

Figure 177: Racial breakdown of Junior degree in Agricultural Science (Science Stream) graduates



As indicated in figure 177, Whites formed the majority in this CESM with 51% of the junior Degrees, followed by Africans with 46%. Coloureds and Asians jointly constitute 3%.

Figure 178: Gender breakdown of Junior degree in Agricultural Science (Science Stream) graduates

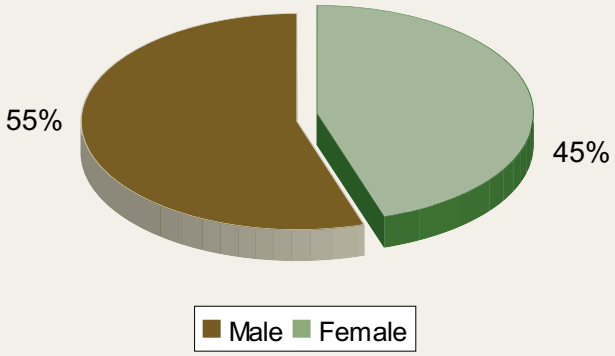


Figure 178 depicts that males formed the majority with 55% of the total number of graduates in this CESM at junior Degree level, whilst females constitute 45%. Male graduates consisted of 30 White males and 16 African males. Coloured and Asian males were not represented in this CESM at junior Degree level. Ten (10) graduates were produced at Honours level in this CESM at Universities in 2006. Six (6) graduates were White males, three (3) were White females and 1 was an African male.

Sixty four (64) graduates were produced at Masters level in this CESM at Universities in the 2006 academic year.

Figure 179: Racial breakdown of Masters in Agricultural Science (Science Stream) graduates

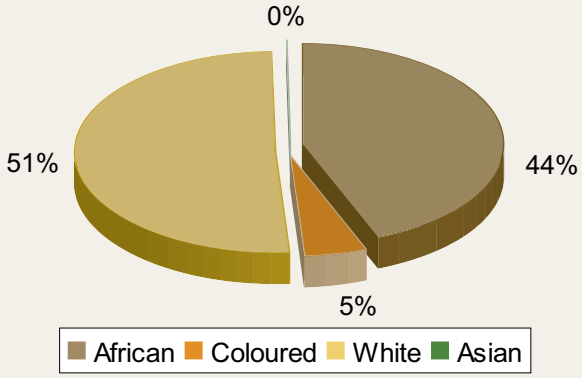


Figure 179 shows that of the 64 graduates produced in this CESM at Masters Degree, 51% were Whites, 44% were Africans and 5% were Coloureds. Asians were not represented in this CESM at Masters Degree level.

Figure 180: Gender breakdown of Masters in Agricultural Science (Science Stream) graduates

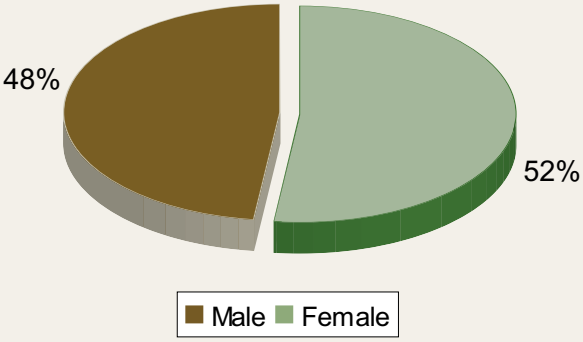


Figure 180 shows that females dominate Agricultural Science (Science Stream) graduates with 52%, whilst males constitute 48%. African females account for 55% of the female graduates in this CESM at Masters Degree level, followed by Whites with 39% and Coloureds with 6%. Asians were not represented in this CESM at Masters Degree level.

Twenty five (25) graduates were produced at PhD level in this CESM in the 2006 academic year.

Figure 181: Racial breakdown of PhD in Agricultural Science (Science Stream) graduates

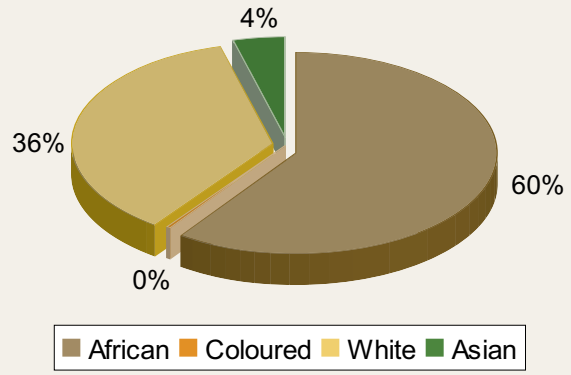


Figure 181 depicts that Africans account for the majority of the PhD Degrees in this CESM with 60%, followed by Whites with 36% and Asians with 4%. Coloureds were not represented in this CESM.

Figure 182: Gender breakdown of PhD in Agricultural Science (Science Stream) graduates

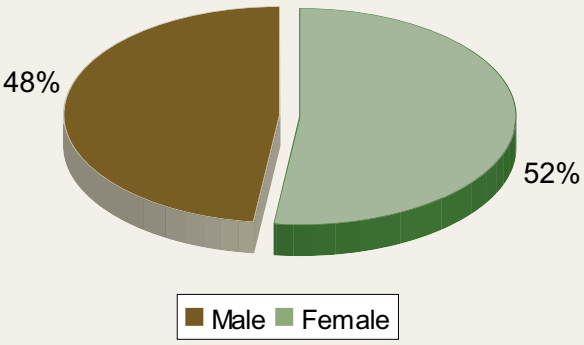


Figure 182 depicts that females represented 52% of the PhD Degree graduates in this CESM whilst males constitute 48%. Female graduates consisted of 10 African females and 3 White females.

4.4.3.6 Agricultural Extension Graduates at Universities in 2006

Sixty five (65) graduates were produced in this CESM in the 2006 academic year. Table 105 presents a demographic breakdown of Agricultural Extension graduates in the 2006 academic year by level of qualification.

Table 105: Demographic breakdown of Agricultural Extension graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	6	9	15										15
Postgraduate Diploma	5	6	11										11
Masters	18	20	38										38
PhD							1		1				1
TOTAL	29	35	64				1		1				65

Masters Degrees represented 58% of the Agricultural Extension qualifications at Universities in the 2006 academic year, followed by junior Degrees with 23% and postgraduate Degrees with 17%. The least graduates were produced at PhD level with 2% of the total number of graduates in this CESM.

Of the 15 African graduates awarded with junior Degrees in this CESM, 6 were males and 9 were females. Other race groups were not represented in this CESM at junior Degree level. At postgraduate Diploma level, eleven (11) African graduates were awarded with Diplomas: six (6) were females and 5 were males. From only 3 graduates produced at Masters Degree level in the 2005 academic year, 38 graduates were awarded with Masters Degrees in this CESM in the 2006 academic year. One (1) White male graduated for the PhD Degree in this CESM.

4.4.3.7 Agricultural Food Technology Graduates at Universities in 2006

Only 57 graduates were produced in this CESM at Universities in the 2006 academic year, compared to 101 graduates produced during the 2005 academic year. Table 106 presents a demographic breakdown of Agricultural Food Technology graduates during the 2005 academic year by level of qualification.

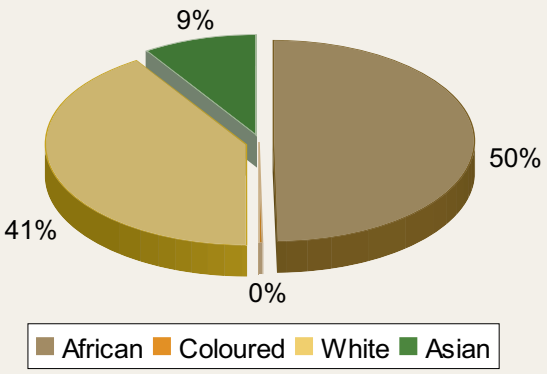
Table 106: Demographic breakdown of Agricultural Food Technology graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	2	14	16				4	9	13		3	3	32
Postgraduate Diploma	5	3	8				1	9	10		4	4	22
Honours		1	1										1
Masters		1	1					1	1				2
TOTAL	7	19	26				5	19	24		7	7	57

As illustrated in Table 106, 55% of the graduates in this CESM were produced at Junior Degree followed by Postgraduate Diploma graduates with 39%, whilst PhD and Masters account for 4% and 2% respectively.

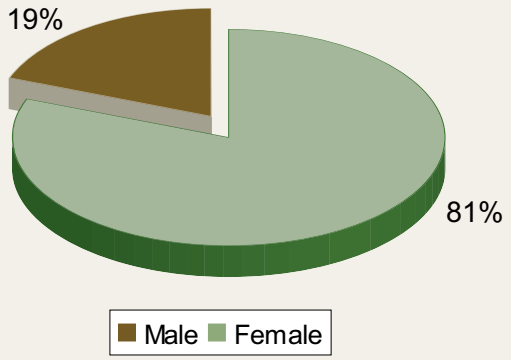
Thirty two (32) graduates were produced at junior Degree level in Agricultural Food Technology in 2006.

Figure 183: Racial breakdown of Junior degree in Agricultural Food Technology graduates



The illustration in figure 183 shows that Africans dominate the undergraduate Degree in this CESM with 50, followed by Whites and Coloureds with 41% and 9% respectively. Asians were not represented in this CESM at junior Degree level.

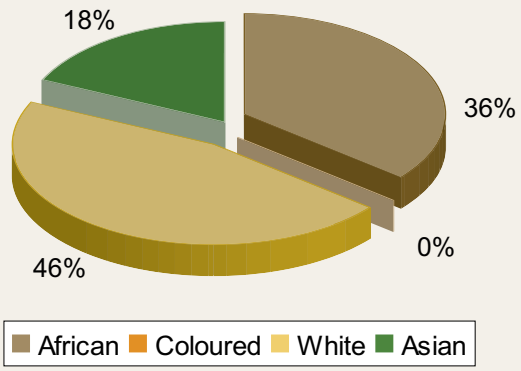
Figure 184: Gender breakdown of Junior degree in Agricultural Food Technology graduates



Gender breakdown in figure 184 depicts that females dominate this CESM at junior Degree level with 81%, whilst males account for 19%. African females represented 53% of the female graduates at junior Degree in this CESM, followed by Whites with 35% and Asians with 12%. Coloured females were not represented in this CESM at junior Degree level.

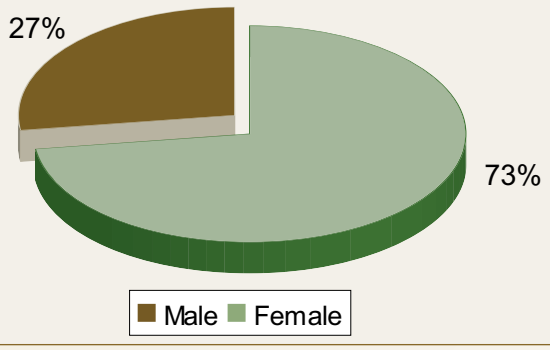
Twenty two (22) graduates were produced at Postgraduate Diploma level in this CESM in the 2006 academic year.

Fugure 185: Racial breakdown of Postgraduate Diploma in Agricultural Food Technology graduates



Racial classification in figure 185 shows that 46% of the postgraduate Diploma students in this CESM were Whites, followed by Africans with 36% and Asians with 18%. Coloureds were not represented.

Figure 186:Gender breakdown of Postgraduate Diploma in Agricultural Food Technology graduates



Females were dominant in this CESM at postgraduate level with 73%, whilst males comprised 27% as shown in figure 186. Female graduates consisted of 9 Whites, three (3) Africans and 4 Asians. At Honours Degree level, 1 African graduate was produced in this CESM. Of the 2 Masters graduates produced, 1 was an African female and 1 was a White female.

4.4.3.8 Animal Science Graduates at Universities in 2006

Two hundred and thirteen (213) graduates were produced in this CESM in 2006 and 265 were produced at Universities during the 2005 academic year. Table 107 presents a demographic breakdown of Animal Science graduates in the 2006 academic year by level of qualification.

Table 107: Demographic breakdown of Animal Science graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	49	61	110	1		1	23	38	61				172
Post graduates Diploma								2	2				2
Honours	7	7	14				4	9	13				27
Masters	4	1	5				3	1	4				9
PhD	1		1					2	2				3
TOTAL	61	69	130	1		1	30	52	82				213

Junior Degree graduates account for 81% of the total number of graduates in this CESM, followed by Honours with 13%. Masters graduates constitute 4% of the Animal Science graduates, whilst both Postgraduate Diploma and PhD comprised 1% each.

Whilst 224 graduates were produced at junior Degree level in this CESM during the 2005 academic year, only 172 graduates were produced in the 2006 academic year.

Figure 187: Racial breakdown of Junior degree in Animal Science graduates

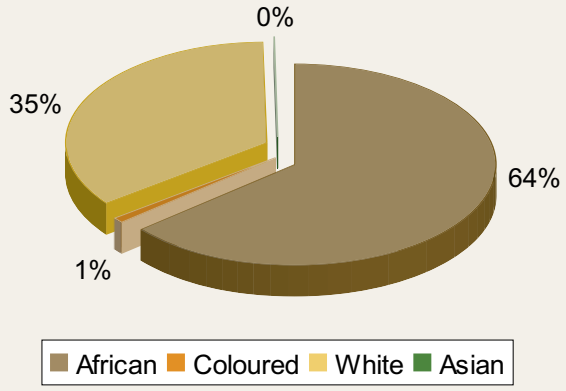
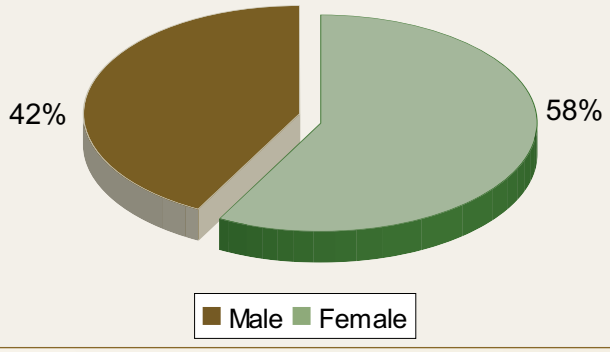


Figure 187 illustrates that Africans were dominant in this CESM at junior Degree level with 64%, followed by Whites with 35% and Coloureds with 1%. Asians were not represented in this CESM at junior Degree level.

Figure 188: Gender breakdown of Junior Degree in Animal Science graduates



Likewise in 2006 female graduates dominate the junior Degree level in Animal Science with 58% and males constitute 42% as indicated in figure 188. Female graduates consisted of 61 African females and 38 White females.

Two White females were awarded postgraduate Diplomas in this CESM in the 2006 academic year. Twenty seven (27) graduates were produced at Honours level: nine (9) were White females, seven (7) were African males, seven (7) were African females and 4 were White males. At Masters level, 9 graduates were produced: four (4) were African males, three (3) were White males, one (1) was a White female and 1 was a African female. Three (3) PhD graduates were produced in this CESM: two (2) were White females and 1 was an African male.

4.4.3.9 Horticulture Graduates at Universities in 2006

Five (5) graduates were produced in Horticulture in the 2006 academic year. Table 108 presents a demographic breakdown of Horticulture graduates in the 2006 academic year.

Table 108: Demographic breakdown of Horticulture graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	2	2	4										4
PhD							1		1				1
TOTAL	2	2	4				1		1				5

At Masters level, 4 African graduates were produced: two (2) were males and 2 were females. One White male obtained the PhD Degree in this CESM in the 2006 academic year.

4.4.3.10 Plant Science Graduates at Universities in 2006

Seventy (70) graduates were produced in this CESM in the 2006 academic year, representing an increase of 27 graduates from 2005. Table 109 presents a demographic breakdown of Plant Science graduates in the 2006 academic year by level of qualification.

Table 109: Demographic breakdown of Plant Science graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	4	5	9	4	5	9	3	7	10				28
Honours	6	3	9	3	2	5	2	5	7		1	1	22
Masters	10	7	17	2		2	1		1				20
TOTAL	20	15	35	9	7	16	6	12	18		1	1	70

The junior and Honours Degrees constitute 40% and 31% of graduates in this CESM, whilst Masters Degrees comprised 29%.

Twenty eight (28) graduates were produced in this CESM at junior Degree level in the 2006 academic year.

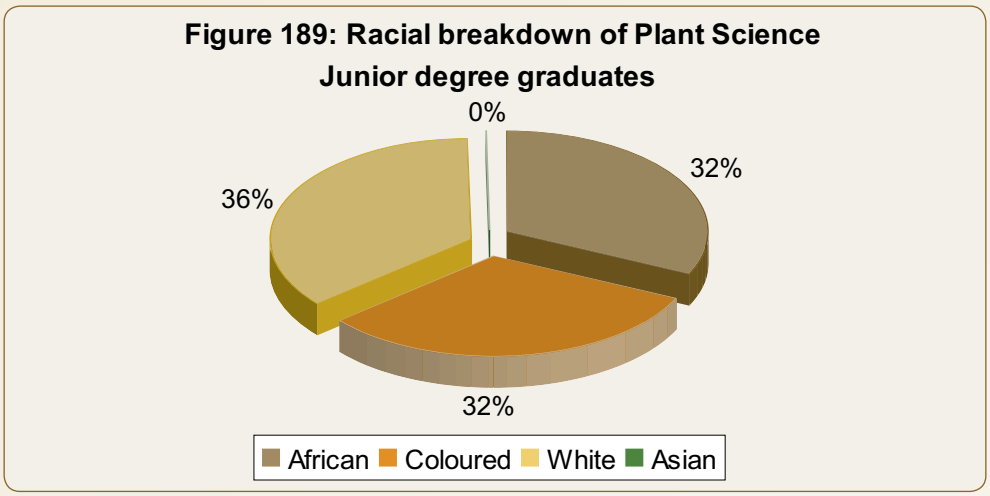
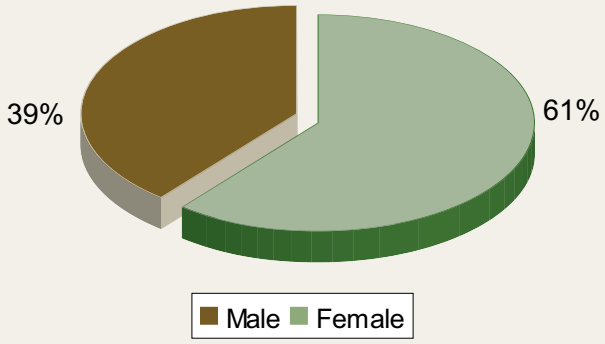


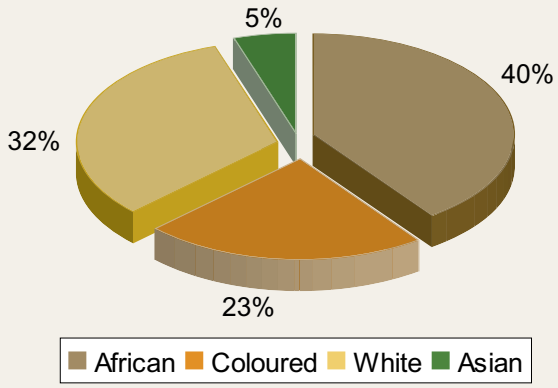
Figure 189 illustrates that Whites dominate the Plant Science junior Degree graduates with 36%, followed by Africans and Coloureds with 32% each, whilst Asians constitute 3%.

Figure 190: Gender breakdown of Junior Degree in Plant Science graduates



Gender classification in figure 190 depicts that females formed the majority with 61% of the junior Degree in this CESM, whilst males constitute 39%. Female graduates consisted of 7 White females, five (5) African and Coloured females. Twenty two (22) graduates were produced in this CESM at Honours Degree level in the 2006 academic year.

Figure 191: Racial breakdown of Honours in Plant Science graduates



As illustrated in figure 191, Africans represented the majority with 40%, followed by Whites with 32% and Coloureds with 23%, whilst Asians comprised 5%.

Figure 192: Gender breakdown of Honours in Plant Science graduates

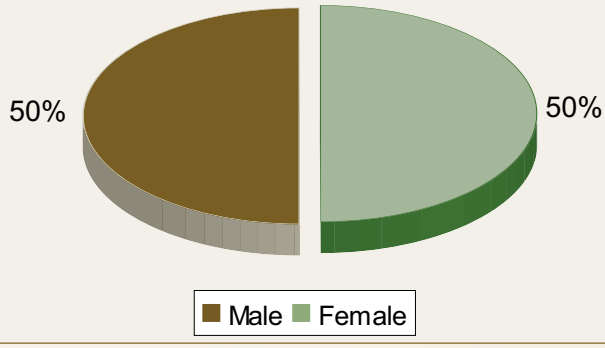


Figure 192 portrays an equal distribution of graduates between the genders in this CESM at Honours Degree level in the 2006 academic year. Male graduates consisted of 6 Africans, three (3) Coloureds and 2 Whites. Females comprised 5 Whites, three (3) Africans, two (2) Coloureds and 1 Asian. Twenty (20) graduates were produced in this CESM at Masters Degree level: ten (10) were African males, seven (7) were African females, two (2) were Coloured males and 1 was a White male.

4.4.3.11 Soil Science Graduates at Universities in 2006

Fifteen (15) graduates were awarded in the 2006 academic year at Universities. Table 110 presents a demographic breakdown of Soil Science graduates in the 2006 academic year by level of qualification.

Table 110: Demographic breakdown of Soil Science graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours		1	1										1
Masters	10	3	13					1	1				14
TOTAL	10	4	14					1	1				15

One (1) African female graduated at Honours Degree level in this CESM in the 2006 academic year. Fourteen (14) graduates were produced at Masters Degree level in this CESM: ten (10) were African males, three (3) were African females and 1 was a White female.

4.4.3.12 Forestry Graduates at Universities in 2006

Fourteen (14) graduates were produced at Universities in this CESM in the 2006 academic year. Table 111 presents a demographic breakdown of Forestry graduates in the 2006 academic year by level of qualification.

Table 111: Demographic breakdown of Forestry graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	1		1				4		4				5
Masters	3	1	4				1		1				5
PhD	3		3					1		1			4
TOTAL	7	1	8				5	1	5	1			14

Of the 5 graduates produced at junior Degree level in this CESM, 4 were White males and 1 was an African female. Five (5) graduates were produced at Masters Degree level: three (3) were African males, one (1) was an African female and 1 was a White male. At PhD Degree level 4 graduates were produced: three (3) were African males and 1 was a White female.

4.4.3.13 Renewable Natural Resources Graduates at Universities in 2006

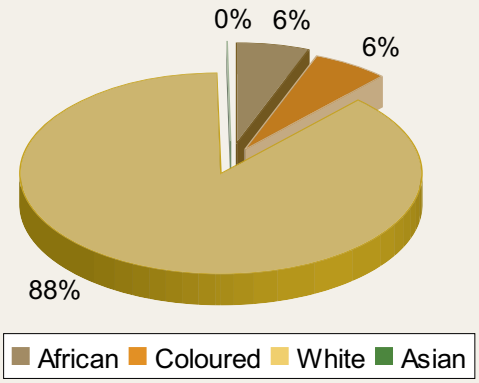
Twenty six (26) graduates were produced in this CESM at Universities in the 2006 academic year. Table 112 presents a demographic breakdown of Renewable Natural Resources by level of qualification at Universities in 2006.

Table 112: Demographic breakdown of Renewable Natural Resources Graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate		1	1		1	1	10	5	15				17
Masters		1	1				3	5	8				9
TOTAL		2	2		1	1	13	10	23				26

The junior Degree graduates produced in this CESM constitute 65% and Masters Degrees account for 35% of the enrolment.

Figure 193: Racial breakdown of Junior Degree in Renewable Natural Resources graduates



As illustrated in figure 193, Whites were dominant in this CESM at junior Degree with 88%, whilst both Africans and Coloureds comprised 6% each. Asians were not represented in this CESM. Gender breakdown shows that there were 10 males and 7 females. All males were White. Of the 9 graduates produced at Masters Degree level, five (5) were White females, three (3) were White males and 1 was an African female.

4.4.3.14 Agricultural Management Graduates at Universities in 2006

One hundred and fifty four (154) were graduates produced in this CESM during the 2005 academic year, whilst 132 graduates were produced in the 2006 academic year. Table 113 presents a demographic breakdown of Agricultural Management graduates in the 2006 academic year by level of qualification.

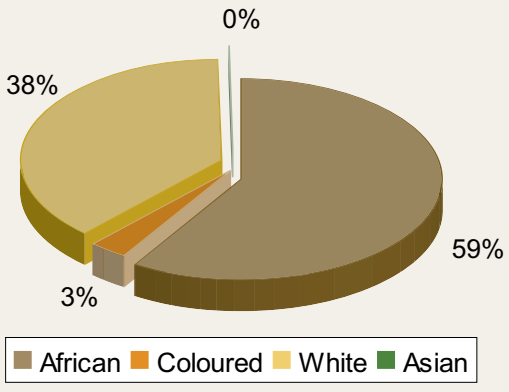
Table 113: Demographic breakdown of Agricultural Management graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	28	14	42	2		2	18	9	27				71
Postgraduate Diploma	1	1	2					3	3				5
Honours	1	2	3				2	3	5				8
Masters	21	24	45				2	1	3				48
TOTAL	51	41	92	2		2	22	16	38				132

Undergraduates represented 54% of the total enrolments in this CESM, followed by Masters with 36% and Honours with 6%. The least graduates were at Postgraduate level with 4% of the total number of graduates in this CESM.

Only (71) graduates were produced in this CESM at junior Degree in the 2006 academic year, compared to 119 graduates produced in 2005.

Figure 194: Racial breakdown of Junior Degree in Agricultural Management graduates



As illustrated in figure 194, Africans formed the majority of the Agricultural Management junior Degree graduates with 59%, followed by Whites with 38%. Coloureds account for 3% and Asians were not represented in this CESM.

Figure 195: Gender breakdown of Junior Degree in Agricultural Management graduates

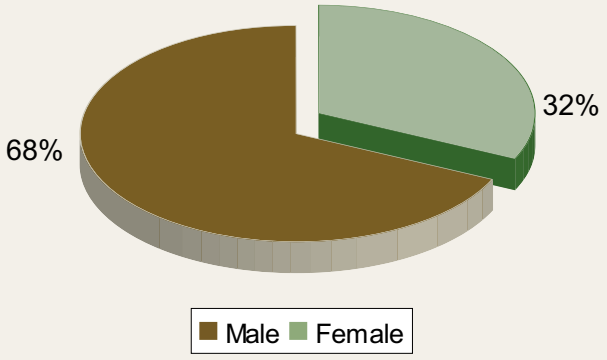


Figure 195 depicts that males dominate the junior Degree level in this CESM with 68%, whilst females account for 32%. African males constitute a majority of the male graduates with 58%, followed by Whites and Coloureds with 38% and 4% respectively. Five (5) graduates were produced at postgraduate Diploma level in this CESM: three (3) were White females, one (1) was an African female and 1 an African male. At Honours level there were 8 graduates, compared to 21 in 2005: three (3) were White females, two (2) were African males, two (2) were White males and 1 was an African male. Of the 48 Masters Degree graduates produced in this CESM, twenty four (24) were African females, twenty one (21) were African males, two (2) were White males and 1 was a White female.

4.4.3.15 Environmental Management Graduates at Universities in 2006

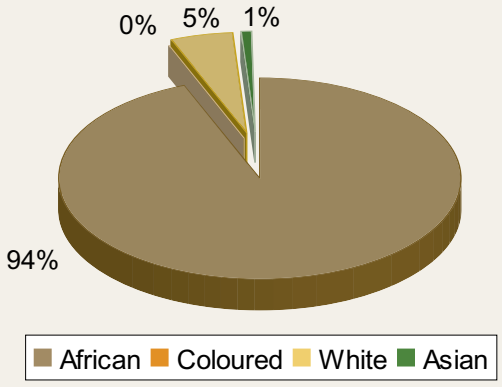
Environmental Management graduates have increased in the 2006 academic year to 153 compared to 41 graduates in 2005. Table 114 presents a demographic breakdown of Environmental Management graduates at Universities in 2006.

Table 114: Demographic breakdown of Environmental Management Graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	76	67	143				4	4	8	1		1	152
Masters		1	1										1
TOTAL	76	68	144				4	4	8	1		1	153

Graduates at junior Degree level account for 153 of the total number of graduates in this CESM, whilst there was only one (1) Masters graduate.

Figure 196: Racial breakdown of Junior Degree in Environmental Management graduates



Africans, as illustrated in figure 196, dominate the junior Degree with 94%, whilst Whites and Asians comprised 6% collectively.

Figure 197: Gender breakdown of Junior Degree in Environmental Management graduates

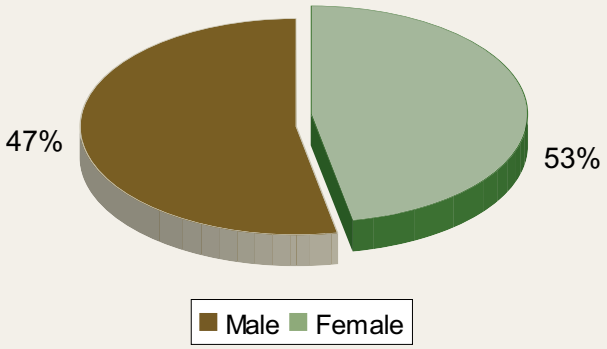


Figure 197 shows that males were dominant in this CESM at undergraduate Degree level with 53% and females account for 47%. African males constitute 94% of the male graduates in this CESM at junior Degree level, whilst Whites and Asian males comprised 6% collectively. One (1) African female graduated with a Masters Degree in this CESM.

4.4.3.16 Agronomy Graduates at Universities in 2006

Fourteen (14) graduates were produced in Agronomy at Universities in the 2006 academic year. Table 115 presents a demographic breakdown of Agronomy graduates at Universities in the 2006 academic year.

Table 115: Demographic breakdown of Agronomy Graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	3	5	8					2	2				10
Honours		1	1										1
Masters		2	2				1		1				3
TOTAL	3	8	11				1	2	3				14

Of the 10 graduates awarded with a junior Degree in Agronomy, 5 were African females, three (3) were African males and 2 were White females. Neither Coloured nor Asian graduates were awarded with junior Degrees in this CESM in the 2006 academic year. One (1) African female graduated at Honours Degree level in this CESM. At Masters Degree level, there were 3 graduates: two (2) were African females and 1 was a White male.

4.4.3.17 Wildlife Graduates at Universities in 2006

Twenty four (24) graduates were produced in this CESM in the 2006 academic year at Universities. Table 116 presents a demographic breakdown of Wildlife graduates in 2006 at Universities.

Table 116: Demographic breakdown of Wildlife graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate								2	2				2
Honours	1		1				4	6	10				11
Masters				1		1	7	3	10				11
TOTAL	1		1	1		1	11	11	22				24

Two (2) White females graduated at junior Degree level in Wildlife. Of the 11 graduates in this CESM at Honours level, six (6) were White females, four (4) were White males and 1 was an African male. Eleven (11) graduates were produced at Masters level: seven (7) were White males, three (3) were White females and 1 was a Coloured male.

4.4.3.18 Consumer Science Graduates at Universities in 2006

Sixty seven (67) graduates were awarded in this CESM in the 2006 academic year. Table 117 presents a demographic breakdown of Consumer Science graduates in the 2006 academic year by level of qualification.

Table 117: Demographic breakdown of Consumer Science graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates		4	4				2	56	58				62
Masters	1		1					3	3				4
PhD							1		1				1
TOTAL	1	4	5				3	59	62				67

Sixty two (62) graduates were produced in the Consumer Science junior Degree level: fifty six (56) were White females, four (4) were African females and 2 were White males. Of the four graduates produced at Masters Degree level in this CESM, three (3) were White females and 1 was an African male. One (1) White male graduated with a PhD Degree in the 2006 academic year in this CESM.

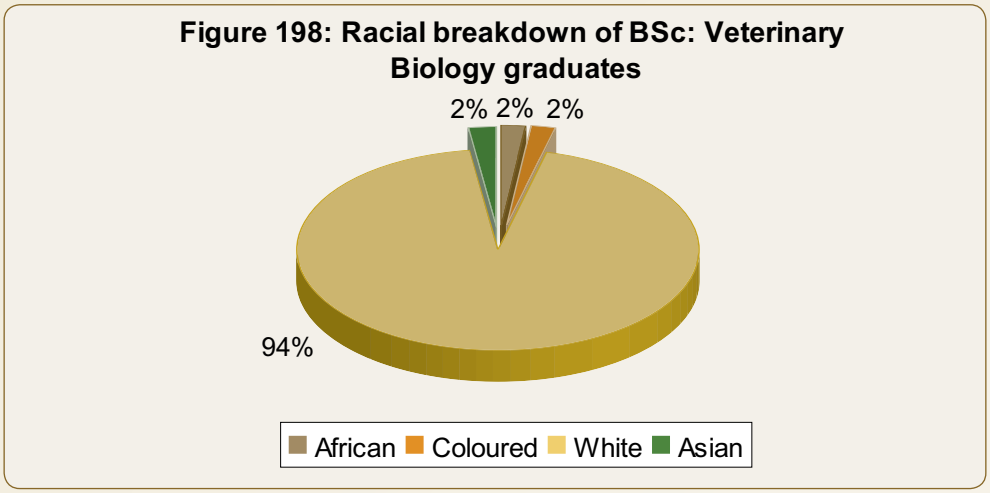
4.4.3.19 BSc Veterinary Biology Graduates at Universities in 2006

One hundred and three (103) graduates were produced at BSc: Veterinary Biology in the 2006 academic year. Table 118 presents a demographic breakdown of Consumer Science graduates in 2006 by level of qualification.

Table 118: Demographic breakdown of BSc Veterinary Biology graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate	1	1	2		2	2	24	73	97	2		2	103
TOTAL	1	1	2		2	2	24	73	97	2		2	103

As illustrated in table 118 above, 103 students registered for BSc: Veterinary Biology.



Racial classification in figure 198 illustrates that Whites dominate this CESM with 94%, whilst Africans, Coloureds and Asians comprised 2% each.

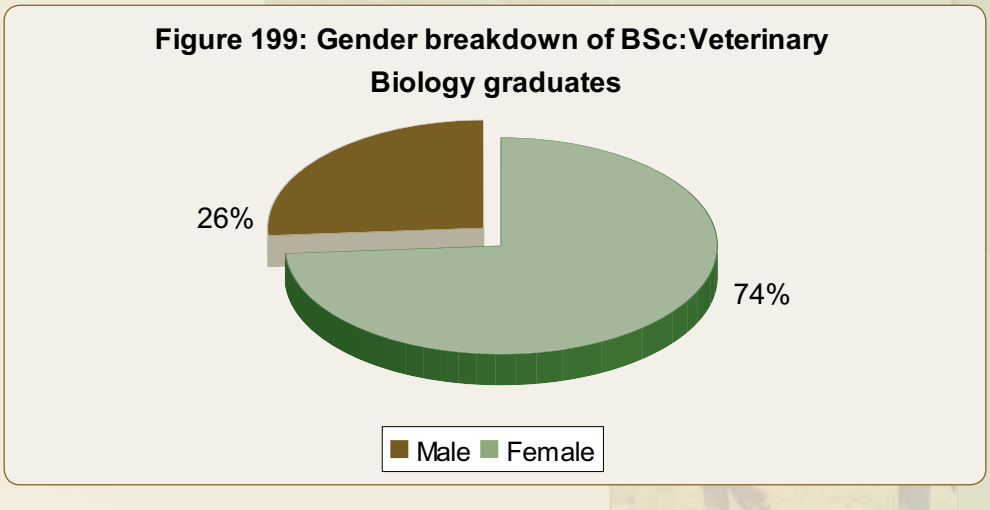


Figure 199 shows that female students were dominant with 74%, whilst males account for 26%. White females represented the most enrolments in this CESM with 96%, whilst Coloured and African females jointly account for 4%.

4.4.3.20 Microbiology Graduates at Universities in 2006

Two (2) White graduates were awarded with Microbiology undergraduate Degrees in the 2006 academic year. Table 119 presents a demographic breakdown of Microbiology graduates in 2006 by level of qualification.

Table 119: Demographic breakdown of Microbiology graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate								2	2				2
TOTAL								2	2				2

4.4.3.21 Agricultural Economics (B Com Stream) Graduates at Universities in 2006

One (1) White female graduate was awarded with an Honours Degree in this CESM in the 2006 academic year. Table 120 presents a demographic breakdown of Agricultural Economics (B Com Stream) graduates in 2006 by level of qualification.

Table 120: Demographic breakdown of Agricultural Economics (BCom Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian		Total
	M	F	T	M	F	T	M	F	T	M	F	
Honours								1	1			1
TOTAL								1	1			1

4.4.3.22 Other Agric. and Renewable Resources Graduates at Universities in 2006

Twenty four (24) graduates were produced in this CESM at Masters Degree level in the 2006 academic year. Thirteen (13) were African females, six (6) were African males, four (4) were White females and 1 was a White male. Table 121 presents a demographic breakdown of Other Agric and Renewable Natural Resources graduates in 2006 by level of qualification.

Table 121: Demographic breakdown of Other Agric and Renewable Natural Resources graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	6	13	19				1	4	5				24
TOTAL	6	13	19				1	4	5				24

4.4.3.23 Rural Development Graduates at Universities in 2006

Seven (7) Africans were awarded with Rural Development Honours Degree in the 2006 academic year: four (4) were females and 3 were males. Table 122 presents a demographic breakdown of Rural Development graduates in 2006 by level of qualification.

Table 122: Demographic breakdown of Rural Development Graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	3	4	7										7
TOTAL	3	4	7										7

4.4.4 Inst. Agrar. Stream Programme Graduates

4.4.4.1 Land Reclamation (Land Use Inst.Agrar Stream) Graduates at Universities in 2006

Two (2) African graduates were produced in this CESM in the 2006 academic year at Universities. At junior Degree level, 1 African female was awarded with a Degree and 1 African male was awarded a Masters Degree in Land Reclamation (Land Use Inst.Agrar Stream). Table 123 presents a demographic breakdown of Land Reclamation (Land Use Inst.Agrar Stream) graduates at Universities in the 2006 academic year.

Table 123: Demographic breakdown of Land Reclamation (Land Use Inst.Agrar Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduates		1	1										1
Masters	1		1										1
TOTAL	1	1	2										2

4.4.4.2 Plant Science (Inst.Agrar Stream) Graduates at Universities in 2006

Four (4) graduates were produced at Universities in this CESM in the 2006 academic year. At junior Degree level, there were 2 White graduates: one (1) was male and 1 female. Two (2) African males were awarded with Honours Degrees in Plant Science (Inst.Agrar Stream).Table 124 presents a demographic breakdown of Plant Science (Inst.Agrar Stream) graduates at Universities in the 2006 academic year.

Table 124: Demographic breakdown of Plant Science (Inst.Agrar Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Undergraduate							1	1	2				2
Honours	2		2										2
TOTAL	2		2				1	1	2				4

4.4.4.3 Agricultural Extension (Inst.Agrar. Stream) Graduates at Universities in 2006

Two (2) graduates were produced in this CESM at Universities in the 2006 academic year. One (1) African male was awarded with Honours Degree in this CESM. At Masters Degree level, 1 African male graduated in Agricultural Extension. Table 125 presents a demographic breakdown of Agricultural Extension (Inst.Agrar Stream) graduates in the 2006 academic year by level of qualification.

4.4.4.4 Agribusiness (Inst.Agrar Stream) Graduates at Universities in 2006

Seven (7) African graduates were produced in this CESM in the 2006 academic year at Universities: four (4) were males and 3 were females. Table 126 presents a demographic breakdown of Agribusiness (Inst.Agrar Stream) graduates in the 2006 academic year by level of qualification.

Table 126: Demographic breakdown of Agribusiness (Inst.Agrar Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	3	4	7										7
TOTAL	3	4	7										7

4.4.4.5 Rural Development (Inst.Agrar. Stream) Graduates at Universities in 2006

One (1) African male graduated at Honours Degree level at Universities in this CESM in the 2006 academic year. Table 127 presents a demographic breakdown of Rural Development (Inst.Agrar Stream) graduates in the 2006 academic year by level of qualification.

Table 127: Demographic breakdown of Rural Development (Inst.Agrar Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	1	0	1										1
TOTAL	1		1										1

4.4.4.6 Agricultural Economics (Inst. Agrar Stream) Graduates at Universities in 2006

Seven (7) Africans graduated in this CESM at Universities in the 2006 academic year at Honours Degree level: 2 were female and 1 was male. Four (4) African graduates were produced at Masters Degree level: three (3) were males and 1 was a female. Table 128 presents a demographic breakdown of Agricultural Economics (Inst.Agrar Stream) graduates in the 2006 academic year by level of qualification.

Table 128: Demographic breakdown of Agricultural Economics (Inst.Agrar Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Honours	1	2	3										3
Masters	3	1	4										4
TOTAL	4	3	7										7

4.4.4.7 Animal Science (Inst.Agrar. Stream) Graduates at Universities in 2006

Two (2) African males were awarded Masters Degrees in this CESM in the 2006 academic year. Table 129 presents a demographic breakdown of Animal Science (Inst.Agrar. Stream) graduates in the 2006 academic year by level of qualification.

Table 129: Demographic breakdown of Animal Science (Inst.Agrar. Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	2		2										2
TOTAL	2		2										2

4.4.4.8 Agronomy (Inst. Agrar.) Graduates at Universities in 2006

One (1) African male graduated in this CESM at Masters Degree level in the 2006 academic year at Universities. Table 130 presents a demographic breakdown of Animal Science (Inst.Agrar. Stream) graduates in the 2006 academic year by level of qualification.

Table 130: Demographic breakdown of Agronomy (Inst.Agrar Stream) graduates at Universities in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Masters	1		1										1
TOTAL	1		1										1

4.5 CONCLUSION

The study coverage has increased from 10 Universities to 13 Universities in the 2006 academic year. This includes institutions that have been classified as Universities of Technology in the 2005 study such as Nelson Mandela Metropolitan University.

In 2006 academic year there ben has seen a slight decrease in enrolments when compared to the 2005 academic year. A total of 7 914 students registered for ATE programmes in 2006, compared to 8 302 in 2005. This represents a reduction of 5%. However, the enrolment trends have generally reflected an increase since the inception of this study, commencing with the 2004 academic year, where only 5 404 students registered for AET programmes at HET Institutions. As was the case in 2005, this trend is attributed to the wider scope of the study which now encompasses 10 to 13 institutions.

Continuously enrolments far outweigh graduate figures at Universities in 2006 as was the trend in 2005. Of the 7 914 students enrolled in AET programmes in 2006, only 1 406 graduated, which constitutes approximately 18% of the total number of enrolments. This definitely strains the throughput rate of the HET institutions throughout the country.

Agricultural Science, both science and art streams, comprised 22% (1 742) of the total enrolments in 2006, whilst Agricultural Management and Animal Science comprised significant enrolment figures with 18% (1 460 &1 318 respectively). Slight decreases in enrolments in both Agricultural Science and Agricultural Management were prevalent in the 2006 academic year, whilst a slight increase is evident in Animal Science, when compared to the 2005 academic year. Horticulture (Inst.Agrar. Stream) enrolments were the lowest with only 2 students registered.

Likewise in 2005, graduates produced in Agricultural Science were the highest at 20% of the total number of graduates, followed by Animal Science with 16% and Agricultural Management with 9%. The lowest graduate output was recorded in Agricultural Economics (BCom Stream), Land Reclamation (Land Use Inst. Agrar Stream), Rural Development (Inst.Agrar. Stream), Land Reclamation (Land Use) and Agronomy (Inst.Agrar. Stream) with 1 graduate per CESM.

Of the 133 students enrolled in Inst.Agrar programmes in 2005, ninety eight (98) students registered in the 2006 academic year. It is the conclusion of this study that the insignificance of the Inst.Agrar programmes representation is due to the fact that InstAgrar programmes are offered solely by the University. The outlook of these programmes is, therefore, subject to the influences and dynamics at that institution such as increases in student's fees.

The University of Pretoria enjoyed a distinct bigger share of both the enrolments and graduates in the 2006 academic year. Enrolments and graduates were the lowest at Nelson Mandela Metropolitan, Venda, Zululand and Western Cape. It is important to note that these institutions offer relatively very fewer programmes ,compared to such institutions that have had significant enrolments and graduate outputs e.g. Stellenbosch.

As the largest population group, Africans continued to be better represented. However, Whites also recorded high enrolment figures. White students were even more dominant in all scarce skills and other AET categories such as Forestry Renewable Natural Resources, Environmental Management, Wildlife, Consumer Science and Veterinary Biology which leads to BVSc: Veterinary Science. As was the case in enrolments, African graduates dominate every race group in almost all AET programmes, with the exception of scarce skills. This further creates an obstacle and derails the employment equity effort on certain scarce skills. There is a great under-representation of Coloureds and Asian students in almost all programmes at HET institutions. This is prevalent even in institutions that are in provinces where these race groups are largely represented, such as Western Cape and KwaZulu-Natal.

As is the case in 2005, males dominate the enrolments and graduates in almost all the programmes except, in the case of Agricultural Food Technology and Consumer Science, where females outweigh the number of male enrolments. In Agricultural Food Technology, this trend is robust to the extent that at certain study levels, such as Honours and PhD, males are not represented at all.

African males and White males collectively comprised 47% of the total enrolments, which is 11% less when compared to the 2005 academic year. In the case of graduates, they decrease from 54% in 2004, 51% in 2005 and to 46% in 2006 of the total number of graduates in all the programmes at Universities in 2006, with the exception of scarce skills categories. Graduate outputs indicate that there are two programmes where female dominance is prevalent: Agricultural Food Technology and Consumer Science.

A trend continued at Universities, whereby the number of enrolments and graduates at junior Degree level is very high, compared to the enrolments and graduates figures at postgraduate level. This is a cause for concern. During 2006 the highest enrolment figures were at junior Degree level, which constitute 66% of the total enrolments, followed by Masters with 20%. PhD and Honours recorded the lowest enrolments figures at Universities with 8% and 6% respectively.

A further cause for concern is that the junior Degrees continued to record the most enrolments and graduate outputs compared to postgraduate Degrees as was the case in 2004 and 2005. In the 2006 academic year, junior Degree enrolments represented 79% of the total enrolments at Universities, followed by Masters with 12%, Honours and PhD with 4% each. The least enrolments were recorded at postgraduate Diploma level with 1% of the total enrolments at Universities. The same applies to graduate outputs, where junior Degrees comprised 65% of the total graduate output at Universities, followed by Masters and Honours with 20% and 9% respectively. Postgraduate Diploma and PhDs account for 3% each of the total number of graduates at Universities in the 2006 academic year.

The findings indicate a continuing trend in the Universities where White students dominate the programmes in Agricultural Food Technology, Agricultural Science (Science Stream), Forestry, Horticulture and Wildlife. On the other hand, Africans dominate significantly in programmes relating to Agricultural Science (Art. Stream), Agricultural Extension, Animal Science, Plant Science, Soil Science, Agricultural Management, Agricultural Food Technology (InstAgrar stream) and Rural Development (InstAgrar).

As the agriculture sector is expected to play a decisive role in the future of the biofuels, a critical evaluation by institutions of relevant study programmes will have to be intensified to ensure a proper contribution by these institutions. Also there is still a need cut down on AET programmes that are less relevant in addressing the needs of the sector, with more emphasis being placed on programmes with high enrolments and graduates to ensure that there is no over production of skills in some of the programmes which leads to unemployed agricultural graduates and a negative imbalance on supply and demand of on agricultural skills in the labour market. It will also be essential that the sector, together with Universities, review the content of the curriculum to ensure that it prepares students for the world of work.

ENROLMENTS AND GRADUATES OUTPUT FOR SCARCE SKILLS IN AGRICULTURE IN THE 2006 ACADEMIC YEAR

Chapter 5

5.2.1 Demographic breakdown of scarce skills enrolments by gender and race

Table 132 below presents a demographic breakdown of scarce skills enrolments by gender and race for 2006.

Table 132: Demographic breakdown of scarce skills enrolments by gender and race for 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
BSc Agricultural Engineering	11	46	57	0	0	0	7	3	10	0	9	9	76	6
B Agric Viticulture	0	1	1	4	3	7	70	30	100	0	0	0	108	9
BSc Biotechnology	34	54	88	50	78	128	8	5	13	11	17	28	257	21
Food Science and Technology	56	139	195	8	12	20	28	181	209	3	10	13	437	34
BSc Viticulture and Oenology	9	8	17	4	5	9	128	92	220	1	0	1	247	20
BVSc Veterinary Science	6	3	9	1	0	1	41	66	107	0	2	2	119	10
TOTAL	116	251	367	67	98	165	282	377	659	15	38	53	1244	
%	9	21	30	5	8	13	23	30	53	1	3	4		100

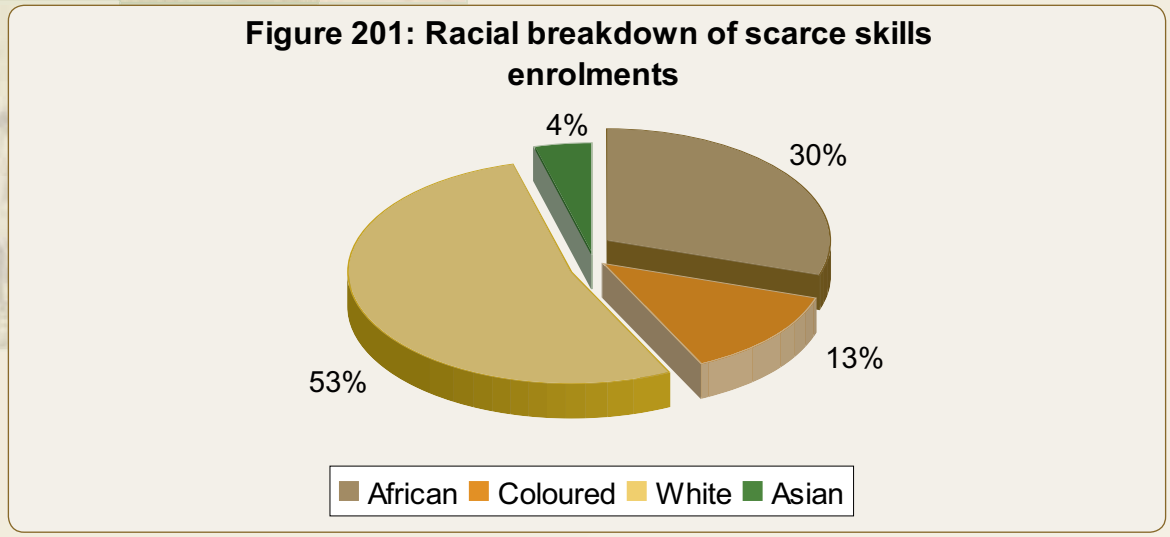


Table 132 and figure 201 above depict that White students and African students have higher enrolments constituting 53% and 30% of the total enrolments respectively. Coloured and Asian students collectively constitute 17% of the total number of scarce skills enrolments.

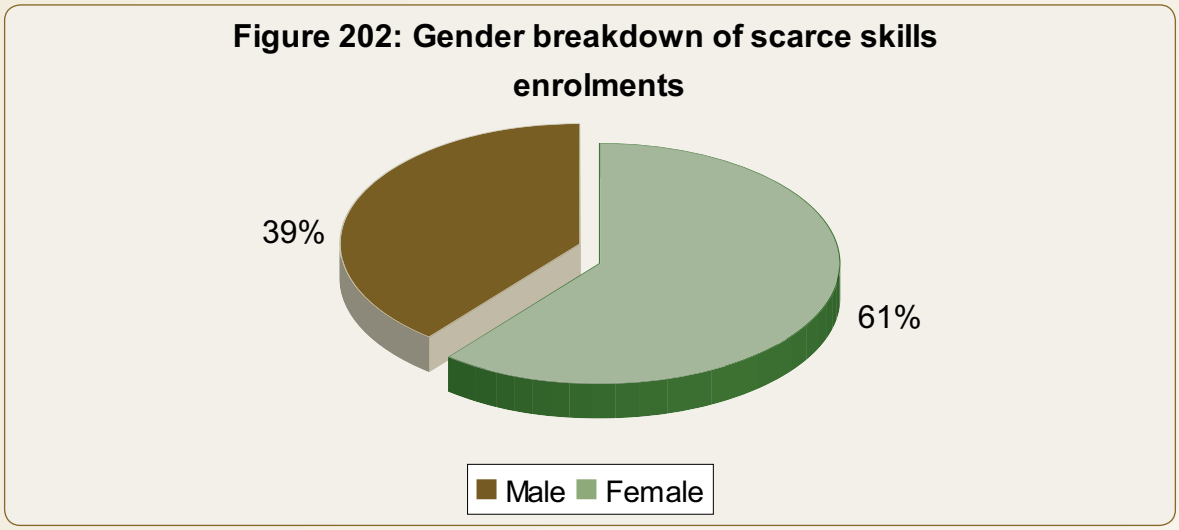


Figure 202 above indicates that female students constitute 61% of the total number of scarce skills enrolments and male students account for 39%.

Figure 203: Racial breakdown of scarce skills male enrolments

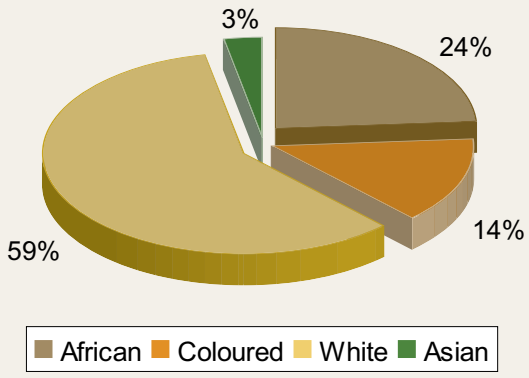


Figure 203 above suggests that White male students constitute the highest enrolments with 59% of the overall male enrolments, followed by African males with 24%. Coloured male students and Asian male students account for 14% and 3% respectively.

Figure 204: Racial breakdown of scarce skills female enrolments

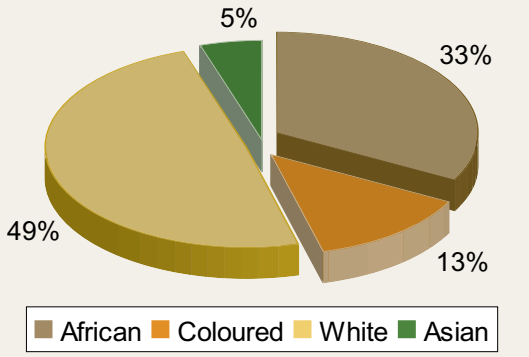


Figure 204 above depicts that White females dominate the female enrolments in scarce skills programmes with 49%, followed African females with 33%. Coloured female students and Asian female students contributed 13% and 5% of the enrolments respectively.

5.2.2 Breakdown of scarce skills enrolments by levels of qualification in the 2006 academic year

Table 133: Breakdown of scarce skills enrolments in 2006 by academic level

CESM	Diploma	Undergraduate	Honours	Masters	PhD	TOTAL	%
Agricultural Engineering	0	76	0	0	0	76	
B Agric Viticulture	0	108	0	0	0	108	
BSc Biotechnology	0	203	18	36	0	257	
BSc Viticulture and Oenology	0	225	2	19	1	247	
BVSc Veterinary Science	0	119	0	0	0	119	
Food Science and Technology	121	240	17	39	20	437	
TOTAL	121	971	37	94	21	1244	
%	10	78	3	8	2		100

Table 133 above indicates that undergraduates dominate the scarce skills enrolments in the 2006 academic year with 78% (971), followed by Diploma enrolments with 10% (121) and Masters enrolments with 8% (94). Honours and PhD enrolments constitute 3% (37) and 2% (21) of the overall scarce skills enrolments in the 2006 academic year.

5.3 Breakdown of scarce skills graduates per institution during 2006

Four hundred and three (403) graduates were produced at scarce skills programmes in the 2006 academic year. Table 134 below presents a breakdown of scarce skills graduates by institution and field of study.

Table 134: Graduates of scarce skills programmes per institution and field of study for 2006 Academic Year				
Name of institution	Study Field	Number of graduates in 2006		Percentage (%)
		Sub-total	Total	
1. Elsenburg College of Agriculture of Agriculture	B Agric Viticulture	68	68	17
2. University of Western Cape	Biotechnology	61	61	15
3. University of KwaZulu-Natal	Agricultural Engineering	4	4	1
4. University of Pretoria	BVSc	92	130	32
	Food Science & Technology	38		
5. University of Johannesburg	Food Science & Technology	34	34	8
6. University of Stellenbosch	Food Science & Technology	38	106	26
	BSc Viticulture & Oenology	68		
TOTAL		403	403	100

Table 134 above and figure 205 below indicate that the University of Pretoria generated the highest number of graduates in the scarce skills category with 32% (130), followed by the University of Stellenbosch with 26% (106). The lowest numbers of graduates were recorded at the Universities of Johannesburg and KwaZulu-Natal with 8% (34) and 1% (4) respectively.

Figure 205 : Graduates in scarce skills programmes per institution

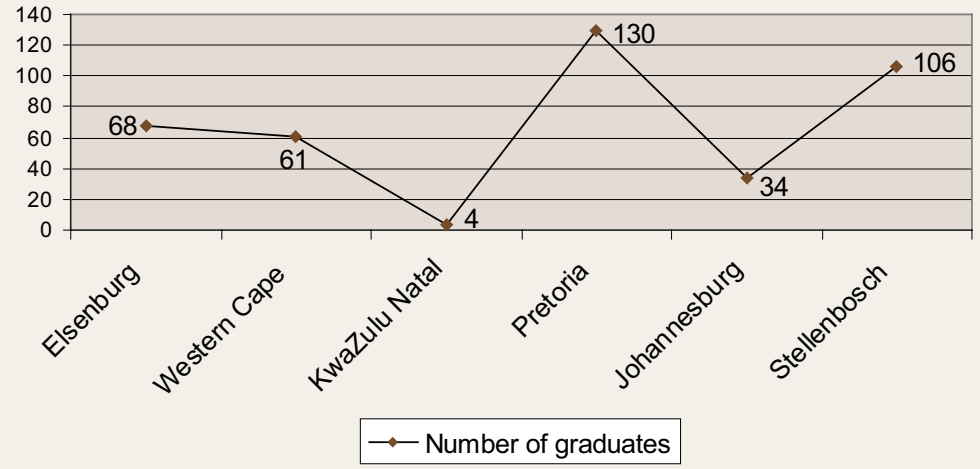


Figure 205 above indicates that the difference between qualifications awarded by the Universities of KwaZulu-Natal, Johannesburg, Western Cape and Elsenburg College of Agriculture is low.

Table 135: Demographic breakdown of scarce skills graduates by gender and race														
LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
BSc Agricultural Engineering	2	0	2	0	0	0	2	0	2	0	0	0	4	1
B Agric Viticulture	1	1	2	7	1	8	36	22	58	0	0	0	68	17
BSc Biotechnology	6	7	13	12	26	38	1	2	3	2	5	7	61	15
Food Science and Technology	22	22	44	1	2	3	6	55	61	0	2	2	110	27
BSc Viticulture and Oenology	1	0	1	3	0	3	32	32	64	0	0	0	68	17
BVSc Veterinary Science	4	0	4	0	1	1	21	60	81	2	4	6	92	23
TOTAL	36	30	66	23	30	53	98	171	269	4	11	15	403	
%	9	7	16	6	7	13	24	43	67	1	3	4		100

Figure 206: Racial breakdown of scarce skills graduates

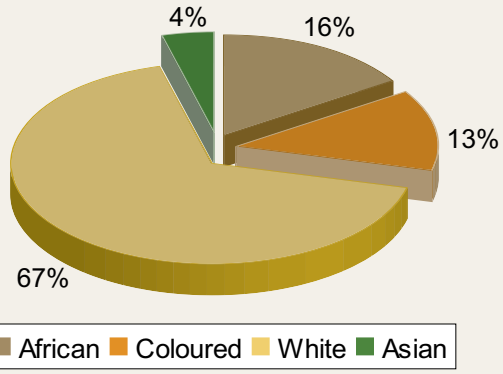


Table 135 and figure 206 above indicate that White graduates dominate the scarce skills graduates with 67%, followed by African graduates with 16%. Coloured and Asian graduates account for 13% and 4% of the overall scarce skills graduates respectively.

Figure 207: Gender breakdown of scarce skills graduates

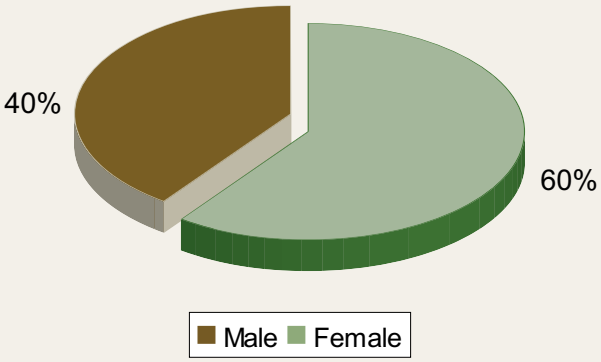


Figure 207 above indicates that female graduates constitute 60% of the overall scarce skills graduates and male graduates account for 40%.

Figure 208: Racial breakdown of scarce skills male graduates

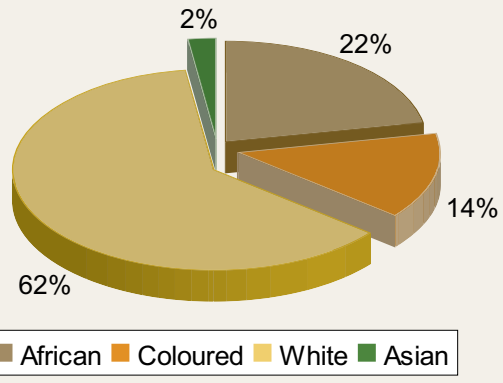
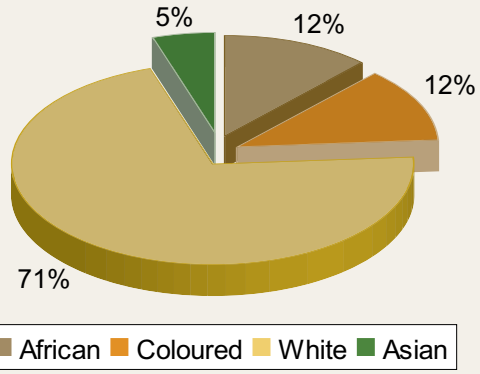


Figure 208 above shows that White male graduates dominate the male graduates in scarce skills programmes with 62%, followed by African males with 22%. Coloured males contributed 14% and Asian males 2%.

Figure 209: Racial breakdown of scarce skills female graduates



As depicted in figure 209 above, White females account for 71% of the overall scarce skills female graduates. African females and Coloured females each constitute 12% of the overall female graduates in scarce skills programmes and Asian females contributed the remaining 5%.

5.3.1 Breakdown of scarce skills graduates by levels of qualification in the 2006 academic year

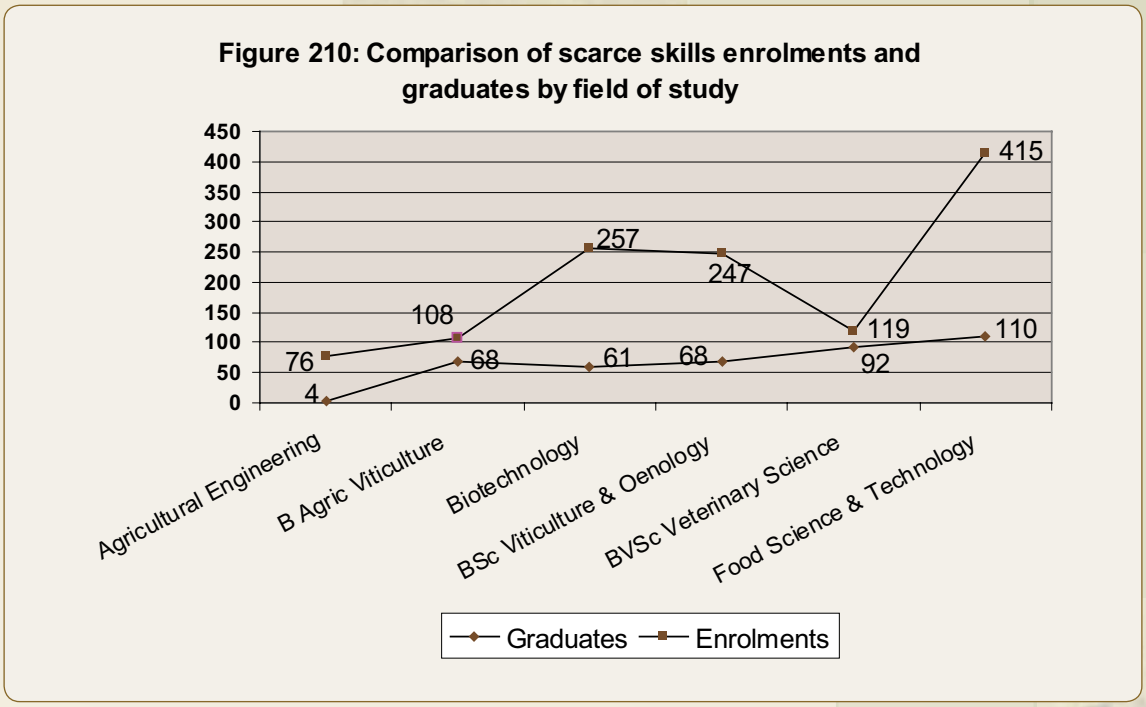
Table 136: Scarce skills graduates in 2006 by academic level

CESM	Diploma	Undergraduate	Honours	Masters	PhD	TOTAL
Agricultural Engineering	0	4	0	0	0	4
B Agric Viticulture	0	68	0	0	0	68
BSc Biotechnology	0	35	19	7	0	61
BSc Viticulture and Oenology	0	65	1	2	0	68
BVSc Veterinary Science	0	92	0	0	0	92
Food Science and Technology	33	51	15	7	4	110
TOTAL	33	315	35	16	4	403
%	8	78	9	4	1	100

Undergraduates dominate the scarce skills graduates produced in 2006 with 78% (315), followed by Honours graduates with 9% (35), Diploma graduates with 8% (33) and Masters graduates with 4% (16). PhD graduates constitute 1% of the total number of scarce skills produced in the 2006 academic year.

5.4 Comparison between number of enrolments and graduates in the scarce skills category

Figure 210 below illustrates the difference between the number of students and graduates produced in the scarce skills category in the 2006 academic year. In all the scarce skills categories, enrolments are extremely higher than the graduates produced. It is only in the case of Agricultural Engineering, B Agric Viticulture and BVSc Veterinary Science where the difference is not significant.



5.5 Enrolments and Graduate outputs for Biotechnology at Universities in 2006

5.5.1 Enrolments in Biotechnology in 2006

Biotechnology programmes in the scarce skills category are offered by the Universities of Western Cape, Pretoria and Free State. Information on Biotechnology was only received from the University of Western Cape. Table 137 below presents a demographic breakdown of Biotechnology enrolments in the 2006 academic year.

Table 137: Demographic breakdown of Biotechnology enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Undergraduates	23	48	71	40	62	102	5	4	9	8	13	21	203	79
Honours	1	0	1	3	9	12	1	0	1	2	2	4	18	7
Masters	10	6	16	7	7	14	2	1	3	1	2	3	36	14
TOTAL	34	54	88	50	78	128	8	5	13	11	17	28	257	
%	13	21	34	20	30	50	3	2	5	4	7	11		100

Seventy nine percent (79%) of the total number of Biotechnology students were enrolled at junior Degree level, 14% at Masters level and 7% at Honours level.

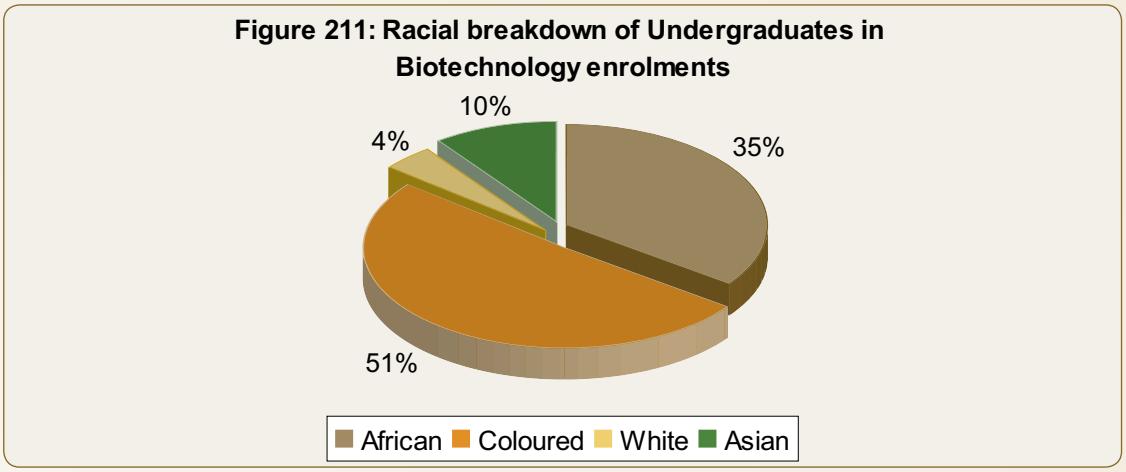
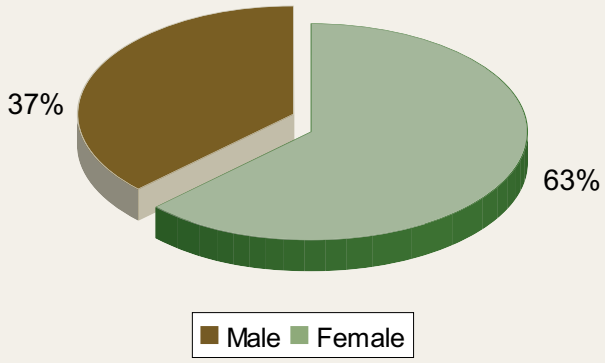


Figure 211 above illustrates that Coloured students constitute the highest number of undergraduate students in Biotechnology with 51%, followed by African students with 35%. Asian and White students contributed 10% and 4% of the Undergraduate students respectively in this CESM in the 2006 academic year.

Figure 212: Gender breakdown of Undergraduates in Biotechnology enrolments



Gender breakdown in figure 212 above indicates that female students dominate the Undergraduate students in Biotechnology with 63% and male students account for 37%.

Coloured males dominate male enrolments with 52% followed by African males with 30%, Asian males with 11% and White males with 7%. Female students were also dominated by Coloured females with 49%, followed by African female students with 38%. Asian and White students account for 10% and 3% of the overall female students respectively in Undergraduate Biotechnology programmes.

Figure 213: Racial breakdown of Honours in Biotechnology enrolments

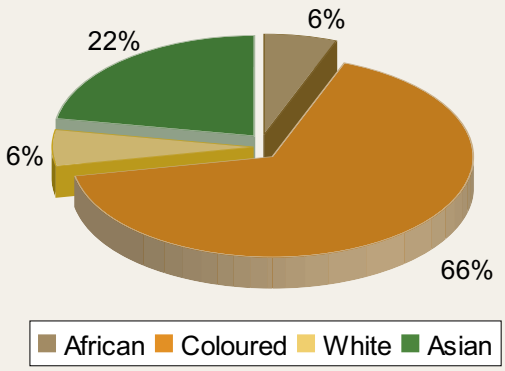


Figure 213 above depicts that Coloured students constitute 66% of the Honours students in Biotechnology, followed by Asian students with 22%. African and White students each account for 6% of the Honours students in Biotechnology in the 2006 academic year.

Figure 214: Gender breakdown of Honours in Biotechnology enrolments

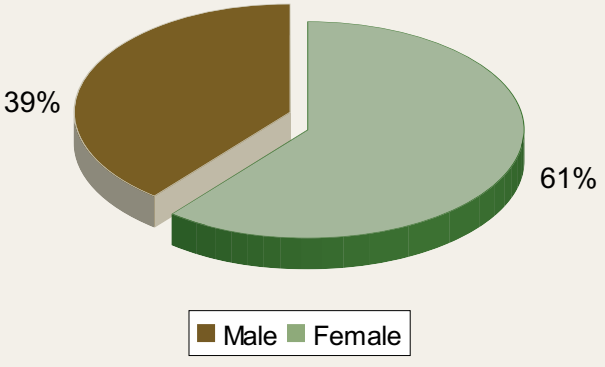


Figure 214 above shows that female students dominate the Honours students in Biotechnology with 61% and male students account for 39%.

Figure 215: Racial breakdown of Masters in Biotechnology enrolments

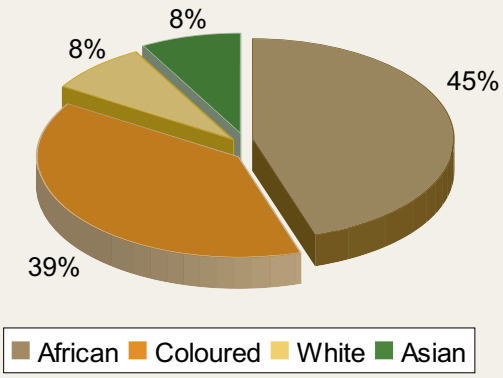


Figure 215 above indicates that African students dominate the overall number of Masters Biotechnology enrolments with 45%, followed by Coloured students with 39%. Asian and White students each constitute 8% of the overall Masters Biotechnology students.

Figure 216: Gender breakdown of Masters in Biotechnology enrolments

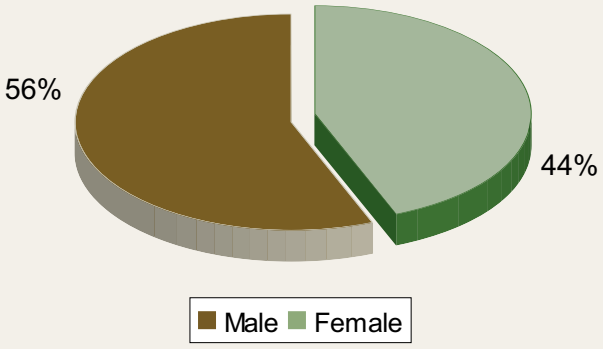


Figure 216 above depicts that male students dominate the Masters students in Biotechnology with 56% and females constitute 44%. African male students account for 50% of the male students in this CESM at Masters level, followed by Coloured male students with 35%, White male students with 10% and Asian male students with 5%. Coloured female students dominate the female students in this CESM at Masters level with 43%, followed by African female students with 38%, Asian female students with 13% and White female students with 6%.

5.5.2 Biotechnology Graduates Output in 2006

The Biotechnology graduates in the 2006 academic year at the University of Western Cape. Table 138 below presents a demographic breakdown of Biotechnology graduates in the 2006 academic year.

Table 138: Demographic breakdown of Biotechnology graduates in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Undergraduates	5	5	10	7	14	21	0	0	0	0	4	4	35	57
Honours	1	0	1	3	11	14	1	0	1	2	1	3	19	31
Masters	0	2	2	2	1	3	0	2	2	0	0	0	7	11
TOTAL	6	7	13	12	26	38	1	2	3	2	5	7	61	
	10	11	21	20	42	62	2	3	5	3	8	11		100

Fifty seven percent (57%) of the total number of Biotechnology graduates are Diploma graduates, 31% are Honours graduates and 11% are Masters graduates.

Figure 217: Racial breakdown of Undergraduates in Biotechnology graduates

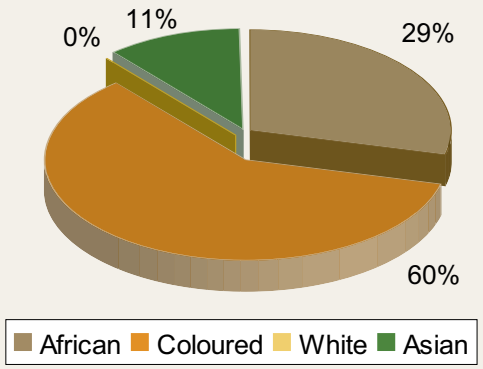


Figure 217 above shows that Coloured graduates dominate the undergraduate graduates in this CESM with 60%, followed by African graduates with 29% and Asian graduates with 11%. No Whites graduated in this CESM at junior Degree level in the 2006 academic year.

Figure 218: Gender breakdown of Undergraduates in Biotechnology graduates

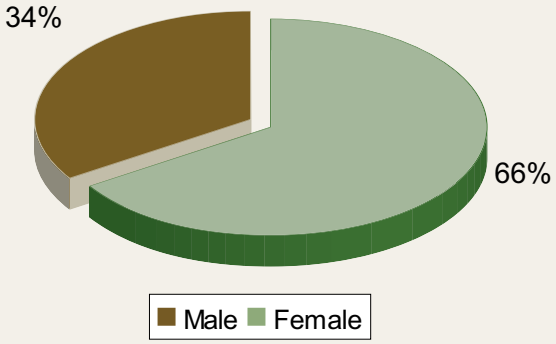


Figure 218 above indicates that female graduates dominate the undergraduate Biotechnology category with 66% and male graduates account for 34%. Coloured males constitute 58% of the male graduates in this CESM at junior Degree level and African males account for the remaining 42%. No Asian or White male graduates were produced in this CESM at junior Degree level. Coloured females dominate the female graduates in Biotechnology at junior Degree level with 61%, followed by African females with 22% and Asian females with 17%.

Figure 219: Racial breakdown of Honours in Biotechnology graduates

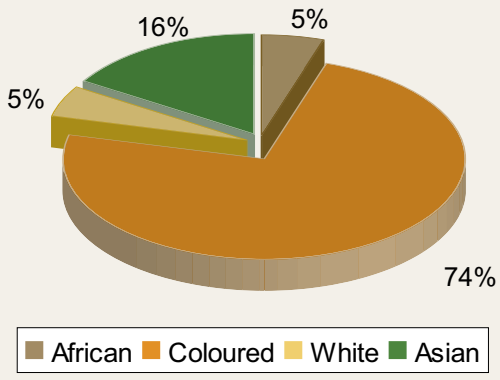


Figure 219 above depicts that Coloured students constitute 74% of the Honours graduates in Biotechnology, followed by Asian graduates with 16%. African and White graduates each account for 5% of the Honours graduates in Biotechnology in the 2006 academic year.

Figure 220: Gender breakdown of Honours in Biotechnology graduates

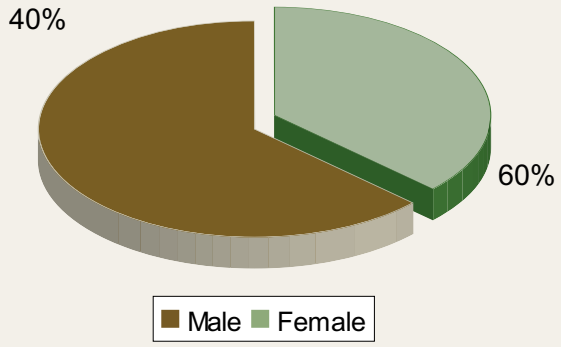


Figure 220 above shows that female graduates dominate the Honours graduates in Biotechnology with 63% and male students account for 37%.

Seven (7) graduates were produced in Masters Biotechnology in the 2006 academic year: 2 were African males, 2 were White males, 2 were Coloured males and 1 was Coloured female.

5.6 Enrolments and Graduate outputs in BVSc Veterinary Science Degree at Universities in 2006

5.6.1 Enrolments in BVSc Veterinary Science Degree in 2006

The BVSc Degree is offered by the University of Pretoria only from undergraduate to postgraduate levels. Table 139 below presents a demographic breakdown of BVSc Veterinary Science Degree enrolments in the 2006 academic year.

Table 139: Demographic breakdown of BVSc Veterinary Science Degree enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
BVSc. Degree	6	3	9	1	0	1	41	66	107	0	2	2	119
TOTAL	6	3	9	1	0	1	41	66	107	0	2	2	119

One hundred and nineteen (119) students enrolled for the BVSc Veterinary Science Degree in the 2006 academic year.

Figure 221: Racial breakdown of BVSc Veterinary Science Degree enrolments

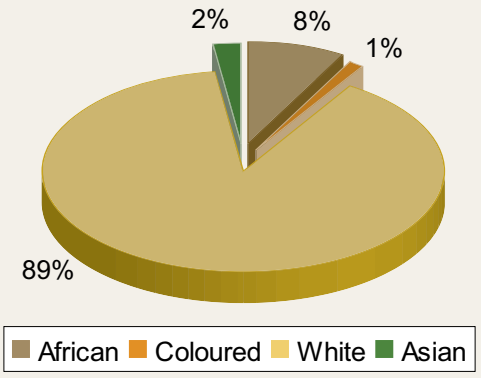
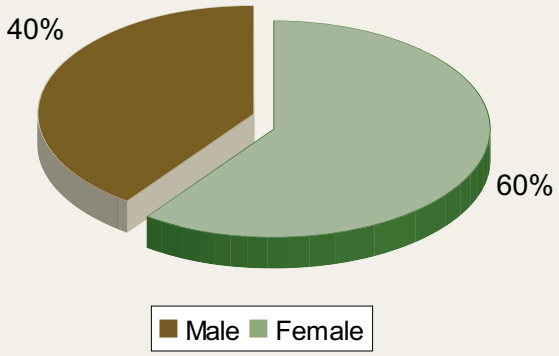


Figure 221 above outlines the racial breakdown of BVSc Degree enrolments in the 2006 academic year. White students account for 89% of the Degree enrolments in this programme, followed by African students and Asian students with 8% and 2% respectively. Coloured students comprised 1% of the BVSc enrolments in the 2006 academic year.

Figure 222: Gender breakdown of BVSc Veterinary Science Degree enrolments



Gender breakdown in figure 222 above depicts that female students constitute 60% of the students in this programme in the 2006 academic year and male students account for 40%. White female students dominate the female students in BVSc with 93%, followed by African female students with 4% and Asian female students with 3%.

White males account for 85% of the male enrolments in BVSc Degree, African males and Coloured males constitute 13% and 2% respectively. No Asian males enrolled for the BVSc degree.

5.6.2 Graduates Output in BVSc Veterinary Science Degree in 2006

Table 140 below presents a demographic breakdown of BVSc Degree graduates in the 2006 academic year.

Table 140: Demographic breakdown of BVSc Veterinary Science Degree graduates in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Degree	4	0	4	0	1	1	21	60	81	2	4	6	92
TOTAL	4	0	4	0	1	1	21	60	81	2	4	6	92

Ninety two (92) graduates were produced in BVSc Veterinary Science in the 2006 academic year.

Figure 223: Racial breakdown of BVSc Veterinary Science Degree graduates

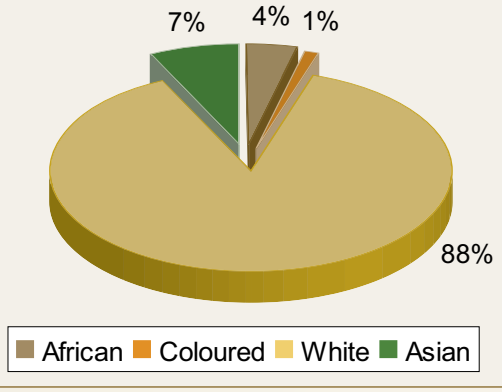


Figure 223 above depicts that White graduates constitute 88% of the BVSc Degree graduates in the 2006 academic year, followed by Asian graduates with 7%, African graduates with 4% and Coloured graduates with only 1%.

Figure 224: Gender breakdown of BVSc Veterinary Science graduates

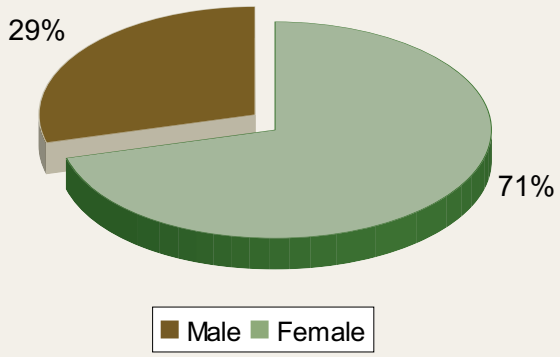


Figure 224 above indicates that female graduates dominate the BVSc Degree graduates with 71% and male graduates account for 29%. White females constitute 92% and other race groups collectively constitute 8% of the female BVSc graduates. White males also dominate the male graduates in this programme with 78%, followed by African males with 15% and Asian males with 7%. No Coloured males graduated in this programme in the 2006 academic year.

5.7 Enrolment and Graduate outputs for BSc Agricultural Engineering at Universities in 2006

5.7.1 Enrolment in BSc Agricultural Engineering in 2006

BSc Agricultural Engineering is offered by the University of KwaZulu-Natal. Table 141 below presents a demographic breakdown of BSc Agricultural Engineering enrolments in the 2006 academic year.

Table 141: Demographic breakdown of BSc Agricultural Engineering Degree enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
BSc Agricultural Engineering Degree	11	46	57	0	0	0	0	9	9	7	3	10	76
TOTAL	11	46	57	0	0	0	0	9	9	7	3	10	76

Seventy six (76) students enrolled for the BSc Agricultural Engineering Degree in the 2006 academic year.

Figure 225: Racial breakdown of BSc Agricultural Engineering enrolments

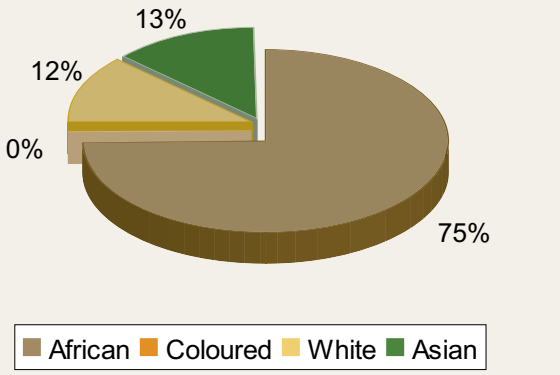


Figure 225 above depicts that African students dominate the total number of BSc Agricultural Engineering enrolments with 75%, followed by Asian students with 13% and White students with 12%. No Coloured students were enrolled in this programme in the 2006 academic year.

Figure 226: Gender breakdown of BSc Agricultural Engineering enrolments

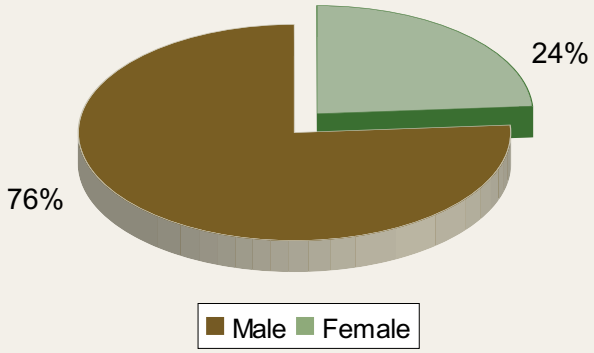


Figure 226 above shows that male students dominate total enrolments of BSc Agricultural Engineering with 76% and female students constitute 24%. African males and White males account for 79% and 16% of the male enrolments in this programme respectively. Asian males comprised 5% of the enrolments for the BSc Agricultural Engineering Degree. African female students dominate the female students in BSc Agricultural Engineering with 61% and Asian female students account for 39%. No Coloured or White female students enrolled in this programme in the 2006 academic year.

5.7.2 Graduate outputs in BSc Agricultural Engineering Degree in 2006

The BSc Agricultural Engineering Degree produced 4 graduates in the 2006 academic year. Table 142 below presents a demographic breakdown of Agricultural Engineering graduates in the 2006 academic year.

Table 142: Demographic breakdown of Agricultural Engineering graduates in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Degree	2	0	2	0	0	0	2	0	2	0	0	0	4
TOTAL	2	0	2	0	0	0	2	0	2	0	0	0	4

Table 142 above indicates that only male graduates were awarded in BSc Agricultural Engineering in the 2006 academic year: 2 were Africans and 2 were Whites.

5.8 Enrolments and Graduate outputs in B Agric Viticulture at Universities in 2006

5.8.1 Enrolments in B Agric Viticulture in 2006

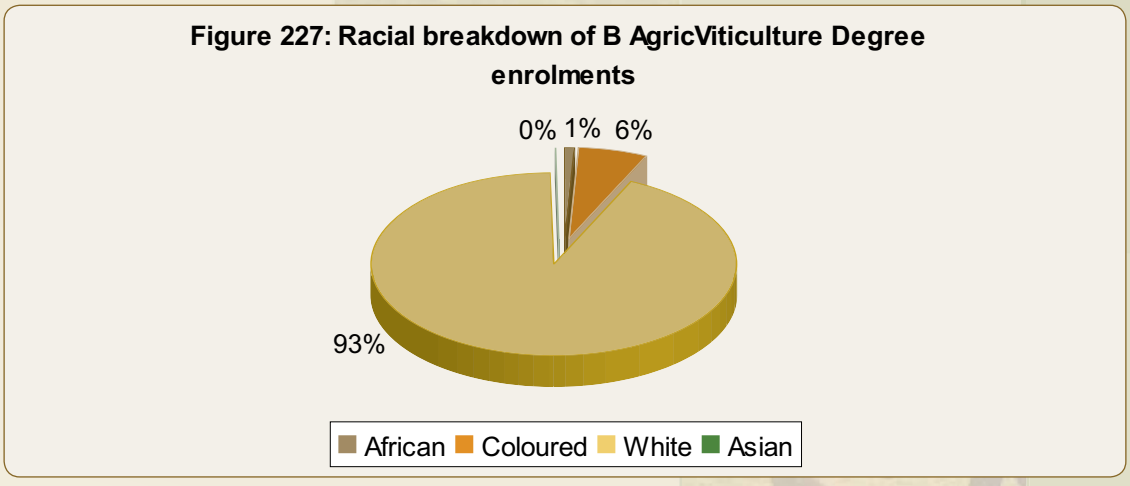
The B Agric Viticulture in South Africa offered is by Elsenberg College of Agriculture only. Viticulture consists of the art and science stream. The Viticulture Art Stream is offered by Elsenburg College of Agriculture of Agriculture. Table 143 below presents a demographic breakdown of B Agric Viticulture enrolments in the 2006 academic year.

Table 143: Demographic breakdown of B Agric Viticulture enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
B Agric Degree	0	1	1	4	3	7	70	30	100	0	0	0	108
TOTAL	0	1	1	4	3	7	70	30	100	0	0	0	108

One hundred and eight (108) students enrolled for the B Agric Viticulture Degree in the 2006 academic year.

Figure 227: Racial breakdown of B AgricViticulture Degree enrolments



Largely, as depicted in figure 227 above, the B Agric Viticulture Degree enrolments are dominate by Whites with 93%, followed by Coloureds with 6% and Africans with only 1%. No Asian students were enrolled in this programme in the 2006 academic year.

Figure 228: Gender breakdown of B Agric Viticulture Degree enrolments

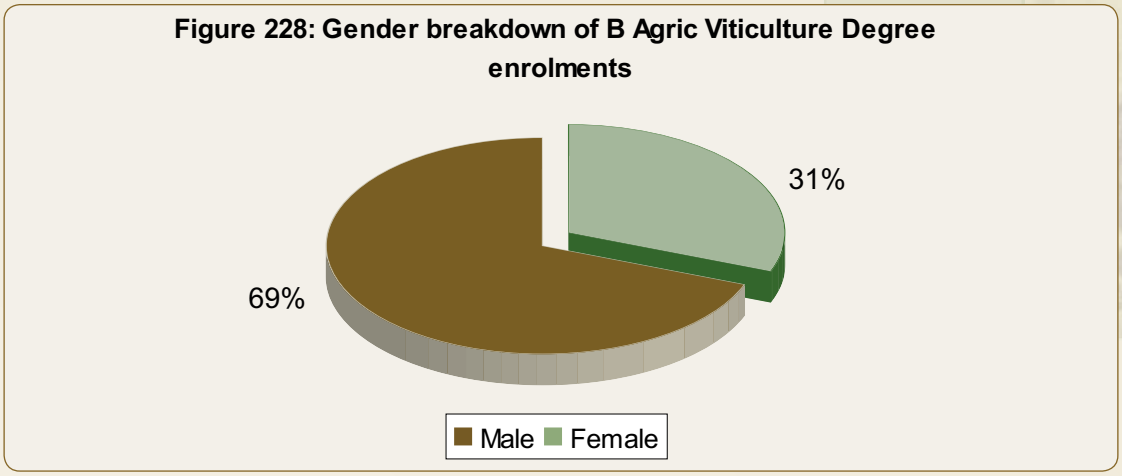


Figure 228 above indicates that male students dominate the B Agric Viticulture Degree enrolments in the 2006 academic year with 69% and female student enrolments account for 31%. Male students are largely dominate by White males with 95%, followed by Coloured male students with 5%. No African or Asian males enrolled in this programme in the 2006 academic year. Female students are dominate by White females with 88%, followed by Coloured females with 9% and African females with 3%. No Asian females enrolled in this programme in the 2006 academic year.

5.8.2 Graduate outputs in B Agric Viticulture Degree in 2006

Table 144 below presents a demographic breakdown of B Agric Viticulture Degree graduates at Elsenburg College of Agriculture in the 2006 academic year.

Table 144: Demographic breakdown of B Agric Viticulture graduates in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
B Agric Degree	1	1	2	7	1	8	36	22	58	0	0	0	68
TOTAL	1	1	2	7	1	8	36	22	58	0	0	0	68

Sixty eight (68) graduates were awarded in B Agric Viticulture Degree in the 2006 academic year.

Figure 229: Racial breakdown of B Agric Viticulture Degree graduates

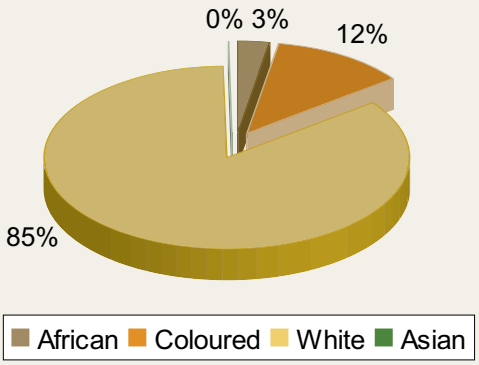


Figure 229 above indicates that Whites dominate the B Agric Viticulture Degree graduates in the 2006 academic year with 85%, followed by Coloureds with 12% and Africans with 3%. No Asians graduated in this programme in the 2006 academic year.

Figure 230: Gender breakdown of B Agric Viticulture Degree graduates

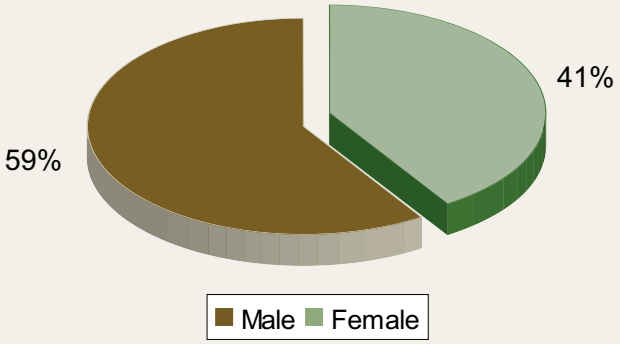


Figure 230 above shows that male graduates account for 59% of the B Agric Viticulture Degree graduates and females constitute 41%. White males constitute 82% of the total male graduates for B Agric Viticulture Degree, followed by Coloured males with 16% and African males with 2%. White females dominate the female graduates in this programme with 92%, followed by African females and Coloured females with 4% each.

5.9 Enrolments and Graduate outputs for BSc Viticulture and Oenology at Universities in 2006

5.9.1 Enrolments in BSc Viticulture and Oenology in 2006

The Viticulture science stream is offered by the University of Stellenbosch. Viticulture science stream is offered from Degree to a PhD level. Table 145 below presents a demographic breakdown of BSc Viticulture and Oenology enrolments in the 2006 academic year.

Table 145: Demographic breakdown of Viticulture and Oenology enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Degree	9	6	15	4	2	6	120	83	203	1	0	1	225	91
Honours	0	0	0	0	0	0	2	0	2	0	0	0	2	1
Masters	0	2	2	0	3	3	5	9	14	0	0	0	19	8
PhD	0	0	0	0	0	0	1	0	1	0	0	0	1	0
TOTAL	9	8	17	4	5	9	128	92	220	1	0	1	247	
%	4	3	7	2	2	4	52	37	89	0	0	0		100

Two hundred and forty seven (247) students enrolled at BSc Viticulture and Oenology in the 2006 academic year. Ninety one percent (91%) of overall students are Degree students, 8% are Masters students and 1% are Honours students. PhD students account for less than 1% of the overall students in this CESM.

Figure 231: Racial breakdown of Degree in BSc Viticulture and Oenology enrolments

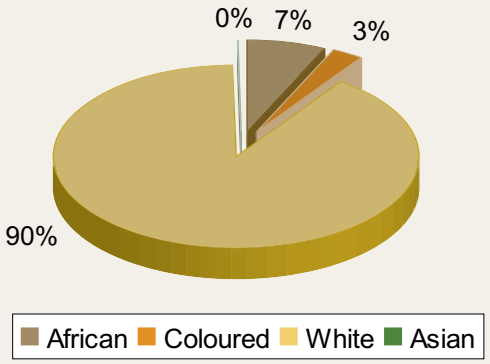


Figure 231 above depicts that White students dominate the total number of BSc Viticulture and Oenology enrolments with 90%, followed by African students with 7% and Coloured students with 3%. Asian students account for less than 1% of the overall students in this CESM at Degree level.

Figure 232: Gender breakdown of Degree in BSc Viticulture and Oenology enrolments

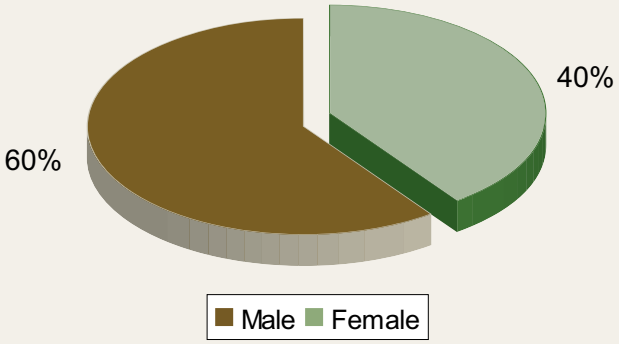


Figure 232 shows that male students dominate the Degree enrolments in BSc Viticulture and Oenology in the 2006 academic year with 60% and female student enrolments account for 40%. White males dominate with 89%, followed by African male with 7%, Coloured males with 3% and Asian males with 1%. White female students dominate with 91%, followed by African females with 7% and Coloured females with 2%. No Asian females enrolled in this programme in the 2006 academic year.

Two (2) White male students enrolled for Honours in BSc Viticulture and Oenology in the 2006 academic year.

Figure 233: Racial breakdown of Masters in BSc Viticulture and Oenology enrolments

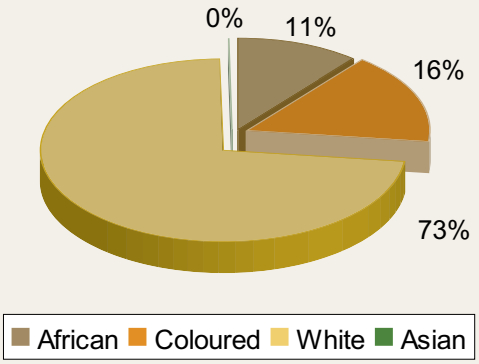


Figure 233 above indicates that Whites dominate the BSc Viticulture and Oenology enrolments in the 2006 academic year with 73%, followed by Coloureds with 16% and Africans with 11%. No Asian students were enrolled in this programme in the 2006 academic year.

Figure 234: Gender breakdown of Masters in BSc Viticulture and Oenology enrolments

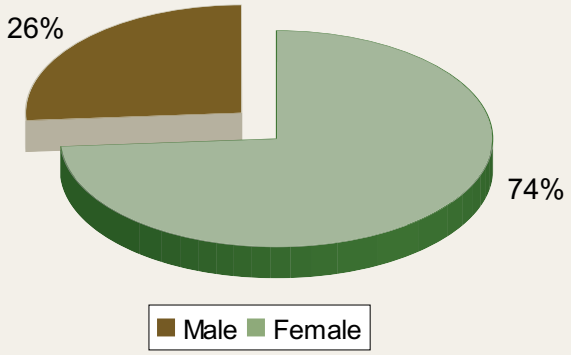


Figure 234 above shows that female students dominate total enrolments of the Masters students in BSc Viticulture and Oenology with 74% and male students constitute 26%. African male students were the only male students registered in this programme at Masters level. White female students dominate the female students in BSc Viticulture and Oenology with 65% followed by Coloured female students with 21% and African female students with for 14%. No Asian female students enrolled in this programme in the 2006 academic year.

One (1) White male student enrolled for PhD in BSc Viticulture and Oenology in the 2006 academic year.

5.9.2 Graduates in BSc Viticulture and Oenology in 2006

Sixty eight (68) graduates were produced in BSc Viticulture and Oenology in the 2006 academic year. Table 146 below illustrates the demographic breakdown of BSc Viticulture and Oenology graduates in the 2006 academic year.

Table 146: Demographic breakdown of BSc Viticulture and Oenology graduates in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Degree	1	0	1	3	0	3	30	31	61	0	0	0	65	96
Honours	0	0	0	0	0	0	1	0	1	0	0	0	1	1
Masters	0	0	0	0	0	0	1	1	2	0	0	0	2	3
TOTAL	1	0	1	3	0	3	32	32	64	0	0	0	68	
%	1	0	1	4	0	4	47	47	94	0	0	0		100

Table 146 above illustrates that 96% of the total number of BSc Viticulture and Oenology graduates are Degree graduates, 3% are Masters graduates and 1% are Honours graduates.

Figure 235: Racial breakdown of Degree in BSc Viticulture and Oenology graduates

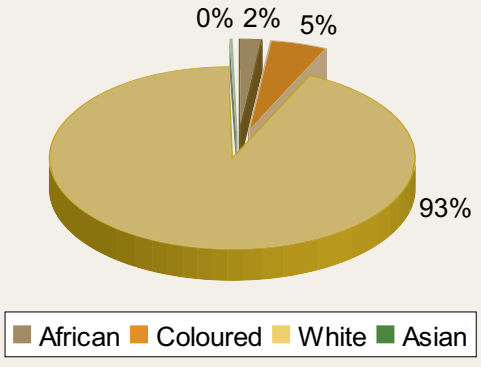


Figure 235 above depicts that White students dominate the total number of BSc Viticulture and Oenology enrolments with 93%, followed by Coloured students with 5% and African students with 2%. No Asian students enrolled for this programme at Degree level.

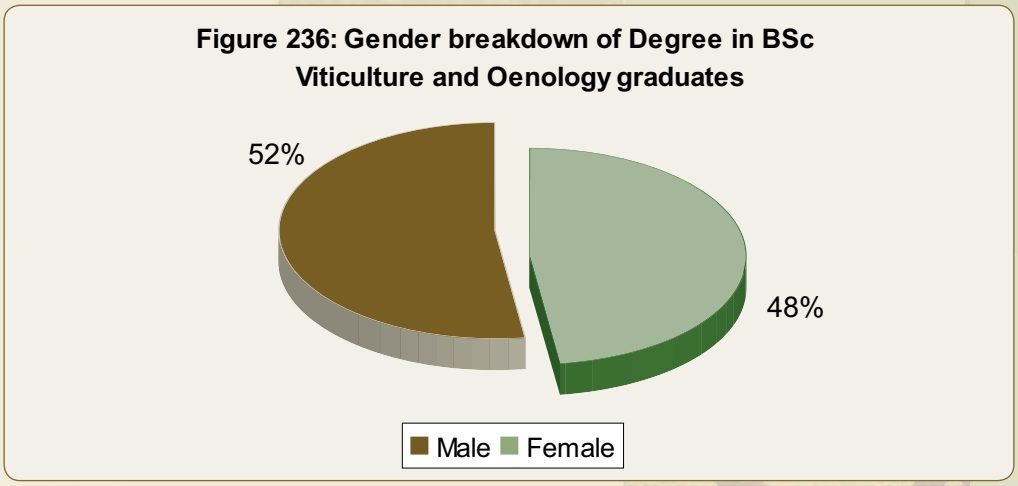


Figure 236 above indicates that male graduates dominate the Degree graduates in BSc Viticulture and Oenology in the 2006 academic year with 52% and female graduates account for 48%. Male graduates are largely dominated by White males with 88%, followed by Coloured male graduates with 9% and African graduates with 3%. Only White female graduates were produced in this programme at Degree level in the 2006 academic year.

One (1) White male graduate was produced in this programme at Honours level in the 2006 academic year. Two (2) White graduates were produced in this programme at Masters level: 1 was female and 1 was male.

5.10 Enrolments and Graduate outputs in Food Science and Technology in 2006

5.10.1 Enrolments in Food Science and Technology in 2006

Food Science and Technology programmes in the scarce skills category are offered by Cape Peninsula University of Technology, the Universities of KwaZulu-Natal, Johannesburg, Pretoria and Stellenbosch. Information was only received from the Universities of Johannesburg, Pretoria and Stellenbosch. Table 147 below presents a demographic breakdown of Food Science and Technology enrolments in the 2006 academic year.

Table 147: Demographic breakdown of Food Science and Technology enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	31	84	115	0	0	0	1	0	1	1	4	5	121	29
Degree	8	24	32	6	10	16	21	148	169	2	4	6	223	54
Honours	0	2	2	0	0	0	1	10	11	0	1	1	14	3
Masters	11	7	18	1	1	2	4	12	16	0	0	0	36	9
PhD	2	6	8	1	0	1	1	10	11	0	0	0	20	5
TOTAL	52	123	175	8	11	19	28	180	208	3	9	12	414	
%	12	30	42	2	3	5	7	43	50	1	2	3		100

Four hundred and fourteen (414) students were enrolled at Food Science and Technology in the 2006 academic year. Fifty four percent (54%) of the total number of Food Science and Technology students are Degree students, 29% are Diploma students, 9% are Masters students, 5% are PhD students and 3% are Honours students.

White students dominate the overall Food Science and Technology students in the 2006 academic year with 50%, followed by African students with 42%. Coloured and Asian students jointly account for less than 10% of the overall students in this CESM in the 2006 academic year.

Figure 237: Racial breakdown of Diploma in Food Science & Technology enrolments

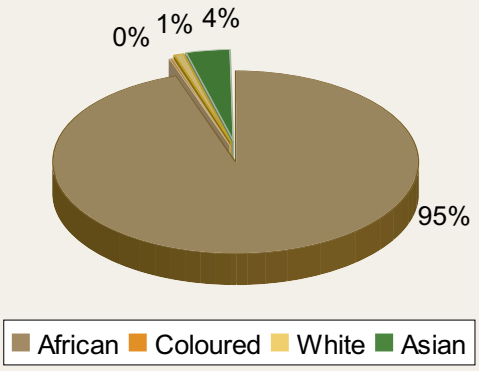


Figure 237 above indicates that African students dominate the Diploma in Food Science and Technology enrolments with 95% followed by Asian students with 4% and White students with 1%. No Coloured students enrolled for the Diploma in Food Science and Technology in the 2006 academic year.

Figure 238: Gender breakdown of Diploma in Food Science & Technology enrolments

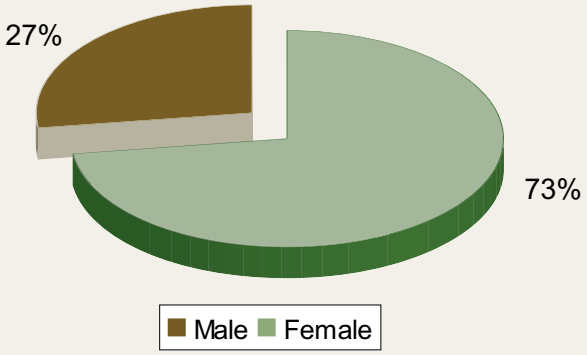


Figure 238 above depicts that female students account for 73% of the Diploma: Food Science and Technology enrolments and male students account for 27%. African female students dominate the female students in this CESM with 95%, followed by Asian female students with 5%. No White females were enrolled this CESM in the 2006 academic year. African male students also dominate the male students in this CESM with 94%, followed by White and Asian males with 3% each.

Figure 239: Racial breakdown of Degree in Food Science & Technology enrolments

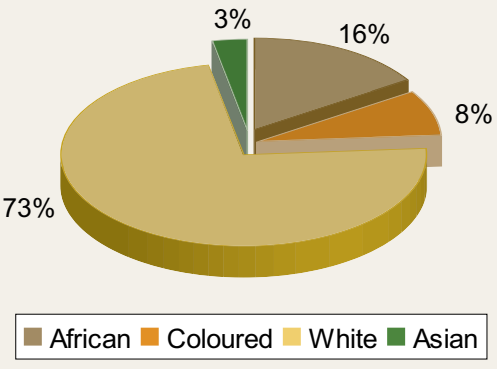


Figure 239 above illustrates that White students dominate the Degree in Food Science and Technology enrolments in the 2006 academic year with 73%, followed by African students with 16%, Coloured students with 8% and Asian students with 3%.

Figure 240: Gender breakdown of Degree in Food Science & Technology enrolments

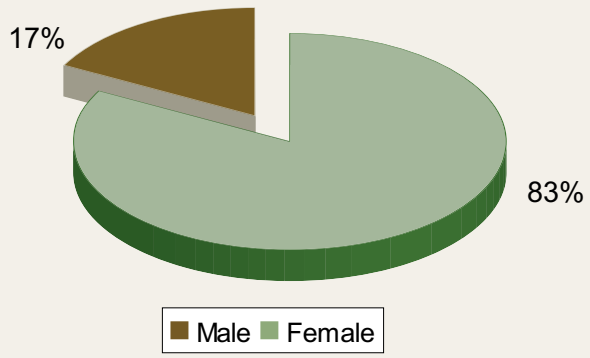


Figure 240 above shows that female students dominate the Degree in Food Science and Technology enrolments with 83% and male students constitute 17%. White males constitute 57% of the total male students for the Degree in Food Science and Technology, followed by African males with 22%, Coloured males with 16% and Asian males with 5%. White females dominate the female students in this CESM with 80%, followed by African females with 13%, Coloured females with 5% and Asian females with 2%.

Fourteen (14) students enrolled for Food Science and Technology at Honours level in the 2006 academic year. Eleven (11) were Whites with 1 male and 10 females; 2 were African females and 1 was an Asian female.

Figure 241: Racial breakdown of Masters in Food Science & Technology enrolments

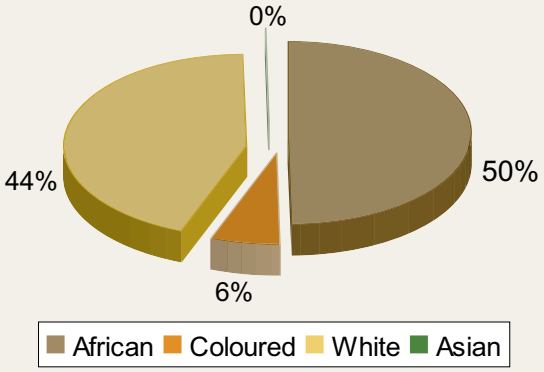


Figure 241 above depicts that Africans account for 50% of the Food Science and Technology enrolments at Masters level. Whites constitute 44% and Coloureds 6%. No Asians enrolled at Masters level in this CESM in the 2006 academic year.

Figure 242: Gender breakdown of Masters in Food Science & Technology enrolments

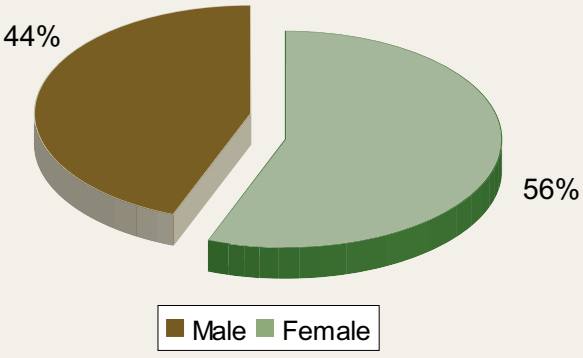


Figure 242 above indicates that female students account for 56% of the Masters students in Food Science and Technology and males constitute 44%. White female students dominate the female students in this CESM with 60%, followed by African female students with 35% and Coloured female students with 5%. Male students were dominated by African males with 69%, followed by White male students with 25% and Coloureds with 6%.

Figure 243: Racial Breakdown of PhD in Food Science & Technology enrolments

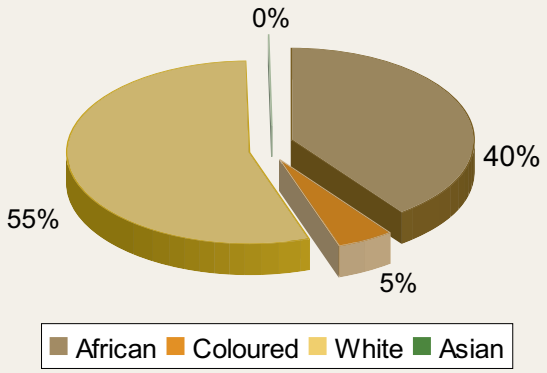


Figure 243 above indicates that White students dominate the PhD in Food Science and Technology enrolments with 55%, followed by African students with 40% and Coloured students with 5%. No Asian students enrolled for the PhD in Food Science and Technology in the 2006 academic year.

Figure 244: Gender breakdown of PhD in Food Science & Technology enrolments

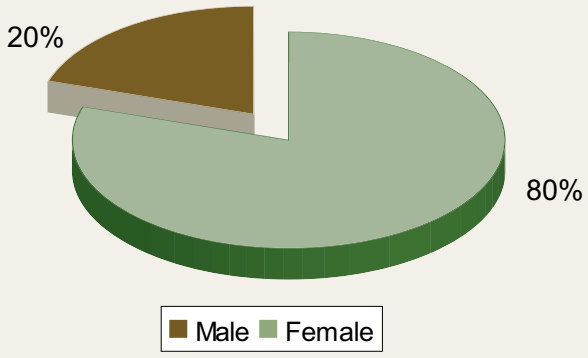


Figure 244 above shows that female students dominate the PhD enrolments in Food Science and Technology with 80% and male students constitute 20%. African males constitute 50% of the total male students for PhD in Food Science and Technology, followed by African males and Coloured males with 25% each. White females dominate the female students in this CESM with 62%, followed by African females 38%.

5.10.2 Graduate Output in Food Science and Technology in 2006

One hundred and four (104) graduates were awarded in Food Science and Technology in the 2006 academic year. Table 148 below illustrates the demographic breakdown of Food Science and Technology graduates in the 2006 academic year.

Table 148: Demographic breakdown of Food Science and Technology graduates in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Diploma	19	12	31	0	0	0	0	1	1	0	1	1	33	32
Degree	0	1	1	1	2	3	5	39	44	0	0	0	48	46
Honours	0	2	2	0	0	0	1	10	11	0	1	1	14	13
Masters	1	1	2	0	0	0	0	3	3	0	0	0	5	5
PhD	0	2	2	0	0	0	0	2	2	0	0	0	4	4
TOTAL	20	18	38	1	2	3	6	55	61	0	2	2	104	
%	19	17	36	1	2	3	6	53	59	0	2	2		100

Table 148 above illustrates that 46% of the total number of Food Science and Technology graduates are Degree graduates, 32% are Diploma graduates, 13% are Honours graduates, 5% are Masters graduates and 4% are PhD graduates.

Figure 245: Racial breakdown of Diploma in Food Science & Technology graduates

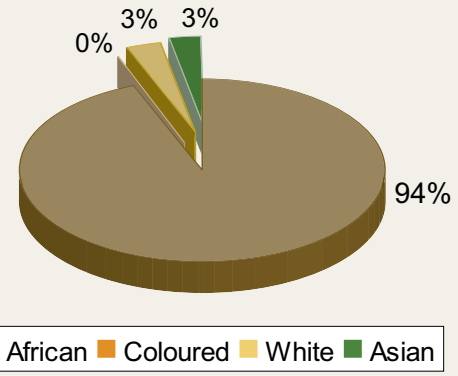


Figure 245 above indicates that African graduates dominate the Diploma in Food Science and Technology graduates with 94%, followed by White graduates and Asian graduates with 3% each. No Coloured graduates were produced at Diploma level in Food Science and Technology in the 2006 academic year.

Figure 246: Gender breakdown of Diploma in Food Science & Technology graduates

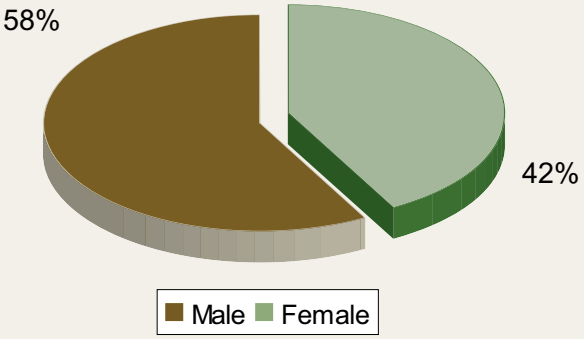


Figure 246 above depicts that male graduates account for 58% of the Diploma Food Science and Technology graduates and female graduates constitute for 42%. African female graduates dominate the female graduates in this CESM with 86%, followed by White female graduates and Asian female graduates with 7% each. Only African male graduates were produced in this CESM at Diploma level.

Figure 247: Racial breakdown of Degree in Food Science & Technology graduates

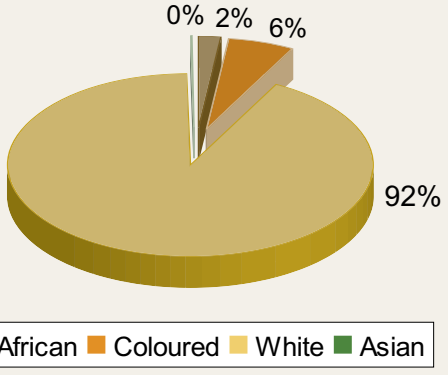


Figure 247 above illustrates that White graduates dominate the Degree in Food Science and Technology graduates in the 2006 academic year with 92%, followed by Coloured graduates with 6% and African students with 2%. No Asian at Degree level in Food Science and Technology in the 2006 academic year.

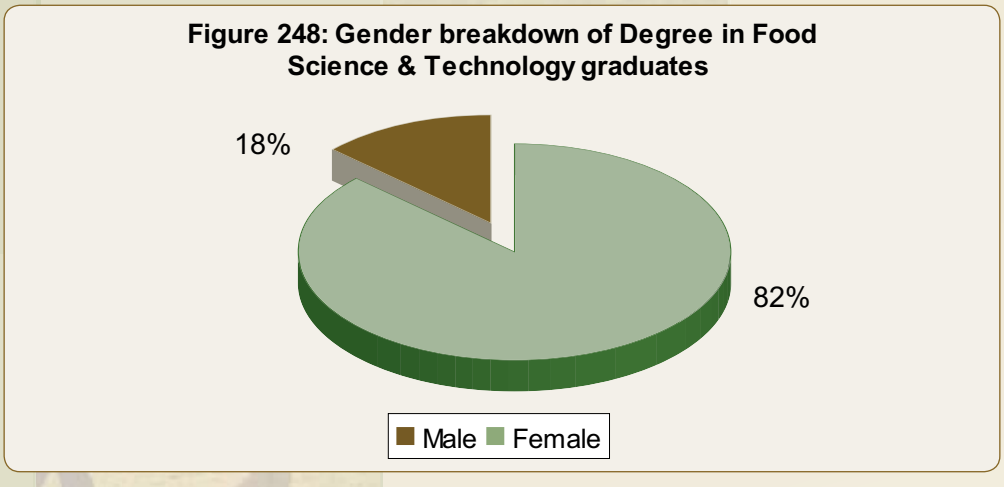


Figure 248 above shows that female graduates dominate the Degree in Food Science and Technology graduates with 87% and male graduates constitute 13%. White males constitute 83% of the total number of male graduates for the Degree in Food Science and Technology, followed by Coloured males with 22%. No Asian or African males were produced in this CESM at Degree level. White females dominate the female graduates in this CESM with 93%, followed by Coloured females with 5% and African females with 2%.

Fourteen (14) graduates were produced in Food Science and Technology at Honours level in the 2006 academic year. Eleven (11) were Whites, with 1 male and 10 females; 2 were African females and 1 was Asian female.

Five (5) graduates were awarded the Masters in Food Science and Technology in the 2006 academic year: 3 were White females, 1 was African male and 1 was African female.

Four (4) graduates were produced in Food Science and Technology at PhD level in the 2006 academic year: 2 were African females and 2 were White females.

5.11 Enrolments and Graduate outputs for Food Science and Technology (InstAgrar) in 2006

5.11.1 Enrolments in Food Science and Technology (InstAgrar) in 2006

Food Science and Technology (InstAgrar) programme in the scarce skills category are offered by the University of Pretoria only. Table 149 below presents a demographic breakdown of Food Science and Technology (InstAgrar) enrolments in the 2006 academic year.

Table 149: Demographic breakdown of Food Science and Technology (BInstAgrar) enrolments in 2006

LEVEL	African			Coloured			White			Asian			Total	%
	M	F	T	M	F	T	M	F	T	M	F	T		
Degree	3	13	16	0	0	0	0	1	1	0	0	0	17	74
Honours	1	0	1	0	1	1	0	0	0	0	1	1	3	13
Masters	0	3	3	0	0	0	0	0	0	0	0	0	3	13
TOTAL	4	16	20	0	1	1	0	1	1	0	1	1	23	100
	18	70	88	0	4	4	0	4	4	0	4	4		

Twenty three (23) students enrolled at Food Science and Technology (InstAgrar) in the 2006 academic year. Seventy four percent (74%) of the total number of students are Degree students. Honours students and Masters students each constitute 13% of the overall number of students.

African students dominate the overall Food Science and Technology (InstAgrar) students in the 2006 academic year with 88%. The other race groups contributed 4% of the overall students in this CESM in the 2006 academic year each.

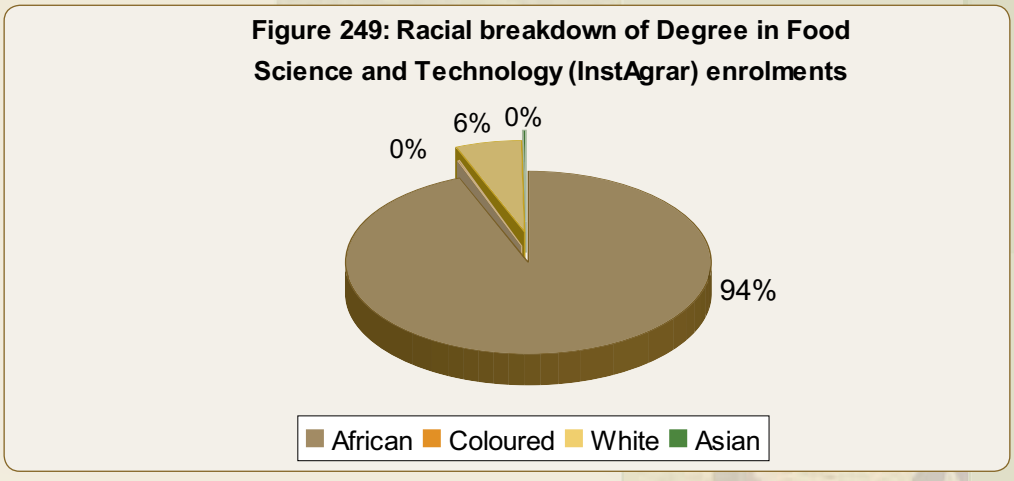


Figure 249 above illustrates that African students dominate the Degree in Food Science and Technology (InstAgrar) enrolments in the 2006 academic year with 94%, followed by White students with 6%. No Coloured or Asian students enrolled in this CESM at Degree level.

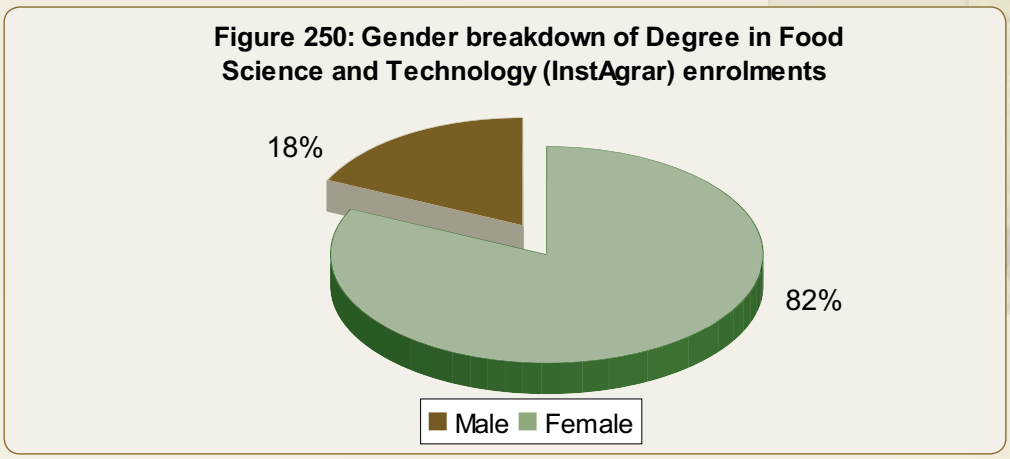


Figure 250 above shows that female students dominate the Degree in Food Science and Technology enrolments with 82% and male students constitute 18%. Only African males enrolled for this CESM at Degree level in the 2006 academic year. African females dominate the female students in this CESM with 93%, followed by White females with 7%. No Coloured or Asian female students registered in this CESM at Degree level.

Three (3) students enrolled for Food Science and Technology (InstAgrar) at Honours level in the 2006 academic year. One (1) was an African male, 1 was a Coloured female and 1 was an Asian female.

Three (3) African female students enrolled at Masters level in Food Science and Technology (InstAgrar) in the 2006 academic year.

5.11.2 Graduates in Food Science and Technology (InstAgrar) in 2006

Six (6) graduates graduated in Food Science and Technology in the 2006 academic year. Table 150 below illustrates demographic breakdown of Food Science and Technology (BInstAgrar) graduates in the 2006 academic year.

Table 150: Demographic breakdown of Food Science and Technology (BInstAgrar) graduates in 2006

LEVEL	African			Coloured			White			Asian			Total
	M	F	T	M	F	T	M	F	T	M	F	T	
Degree	1	2	3	0	0	0	0	0	0	0	0	0	3
Honours	1	0	1	0	0	0	0	0	0	0	0	0	1
Masters	0	2	2	0	0	0	0	0	0	0	0	0	2
TOTAL	2	4	6	0	0	0	0	0	0	0	0	0	6

Three (3) graduates were awarded at Degree level, 1 gradusted Honours degree and 2 qualified for at Masters degree.

5.12 CONCLUSION

Generally, White males dominate both the enrolments and graduate figures in the scarce skills programmes in agriculture. One thousand two hundred and forty four (1 244) students enrolled in the scarce skills categories: indicating an increase of 517, compared with 727 students who enrolled in 2005.. Whites still account for the highest enrolment figures compared to other race groups, with 53% of all the enrolments in scarce skills. Four hundred and three (403) graduates were awarded in the scarce skills programmes in the 2006 academic year, compared to just 210 in 2005, increasing by 193 graduates: 67% were White with other race groups constituting the remaining 33%. In the 2005 academic year, 727 students enrolled in scarce skills programmes, improving by 517 students from 2005.

Of the 1 244 students enrolled in these programmes during the 2006 academic yearin the 2006 academic year, 30% (377) were White females followed by White males with 23% (282) and African females with 21% (251). Likewise, White females who graduated in scarce skills programmes constitute 43% (171), followed by White males with 24% (98) and African males with 9% (36).

One would expect that Africans would dominate in all the programmes, including scarce skills categories as they are the majority in terms of the country's demographics. But it needs to be emphasised that Africans and Coloureds have shown a great improvement in terms of enrolments and graduates in the scarce skills programmes compared to the previous years. This may be because more scarce skills programmes have been included in the 2006 report than in the previous years. Asians continue to attract fewer students in agricultural programmes.

Very low numbers of Blacks (Africans, Coloureds and Asians) in all the scarce skills categories might be attributed to several factors, which may include, among others, the lack of interest by Blacks in the agricultural scarce skills programmes and or admission requirements for pursuing studies in the scarce skills categories which the majority of Blacks might not meet. The contribution of the Universities offering scarce skills programmes with regard to their efforts in attracting Black students in these programmes could also be a contributing factor.

The highest enrolment figures were recorded in Food Science and Technology- an enrolment of 437 students, followed by BSc Biotechnology with 257. Food Science and Technology also dominate the figures in terms of graduates compared to other Degree programmes, with a total of 110 graduates, followed by BVSc Veterinary Science with 92 graduates. The lowest number of enrolments and graduates were recorded by Agricultural Engineering with only 76 students enrolling in the programme in the 2006 academic year and only 4 eventually graduating.

BVSc Veterinary Science continued to be dominated by Whites: for instance 119 students were enrolled in the 2006 academic year and 90% (107) were Whites, while the other race groups contributed only 10%. Factors contributing to most Africans not progressing to the BVSc level need to be investigated, and interventions to address the problem must be implemented.

There are still very low numbers of graduates in Agricultural Engineering across all race groups. Many African females registered for BSc Agricultural Engineering: compared to other race groups, but the graduate output is very low. From the trends, it indicates that although enrolments figures for Africans are increasing every year from 2003, the graduate figures decline every year. In the cases of BVSc and BSc Agricultural Engineering, although there is an increase in the number of Black enrolments, the number of Blacks graduating in the two programmes is very insignificant and the figures continue to plummet every year. However, it is evident from the data collected in 2003, 2004, 2005 and 2006 that, in the case of BSc Agricultural Engineering, the number of Black graduates is almost equal to that of White graduates.

This situation has a negative impact on employment equity in the sector, and it is therefore essential that interventions aimed at marketing scarce skills in agriculture be focused primarily on schools which are predominantly African, Coloured and Asian. It is also crucial that all the factors influencing this situation be investigated in order to make evidence-based decisions which will eliminate the skewed participation of Blacks and ensure equity in the agriculture sector.

ANALYSIS AND RECOMMENDATIONS

Chapter 6

academic year. African and White students dominate graduation figures at both Universities of Technology and Universities, with male students constituting the majority of graduates and enrolments.

At Agricultural Management, Animal Science and Agricultural Science (Science Stream) 1 460, 1 318 and 1 076 students enrolled in the 2006 academic year. Pretoria, South Africa, Stellenbosch and Free State had the highest enrolments in the 2006 academic year. African and White students are the only students who recorded significant enrolment figures with male students dominating the enrolments.

As is the case with enrolments, many graduates at Universities in the 2006 academic year were awarded with Animal Science, Agricultural Science (Science Stream) and Environmental Management qualifications. Most graduates came from the Universities of Pretoria, Limpopo, Stellenbosch and Free State. The majority of graduates were African and White students, and males dominate the agricultural graduates produced during 2006.

An observable trend is that enrolments at both Universities and Universities of Technology from 2004 to 2006 far outweigh the number of graduates produced in these years.

In 2005 Universities enrolled 7 914 students in AET in 2006, and 1406 graduates were produced, which constitutes 18% of the enrolment figures. At Universities of Technology 3 599 students enrolled for AET programmes and 959 graduated during 2006. It is therefore critical to track the enrolment figures after 3 and 4 years, depending on the duration of the programme, to establish trends in terms of throughput, failure and dropout rates. However, it should be noted that in the case of the scarce skills, the situation is different, with the enrolment figures and graduate figures being almost equal. Nonetheless, the concerning factor is that scarce skills racial composition is inconsistent with the larger population demographic structure.

The overall number of enrolments and graduates on scarce skills has been largely dominated by Whites, followed by Africans and Coloureds, whilst Asians were a minority. Scarce skills coverage in 2006 included BSc Biotechnology and Food Science and Technology and these programmes were dominated equally by Africans and Whites on both enrolments and graduate output. However, there is a significant representation of Coloureds. Contrary to the 2005 findings, in 2006 the BSc Agricultural Engineering enrolments were largely dominated by Africans, followed by both Whites and Asians, with a major setback being that Coloureds were not represented in this career path. The changing picture and the rise in the number of Africans and Asians who enrolled in Agricultural Engineering can be attributed to the effort of career information awareness and bursary schemes by the Department of Agriculture. Agricultural Engineering graduate outputs in the 2006 academic year have been disappointingly low: only 4 graduates were produced this has been the case since 2004 and across all race groups. Vitiulture and Oenology graduate outputs are hugely dominated by Whites, with relatively very low representation from other race groups and this is a continuing trend from the 2004 and 2005 academic years.

Little has improved in the BVSc Veterinary Science in 2006, as was the case in 2004 and 2005. BVSc enrolments and graduates are dominated by Whites, particularly females. Of the 119 students enrolled in BVSc Veterinary Science in 2006, 107 were White and the remaining 12 students came from the other race groups. The same applies to graduates where, of 92 graduates, only 11 were Non–White, suggesting the urgency of addressing the skewed racial representation in this career field.

Generally, there has been an increase in enrolments in Agricultural Engineering, and Veterinary Science, with the exception of Viticulture that has decreased, compared to the 2005 academic year. Agricultural Engineering graduates were the least amongst the scarce skills programmes throughout the years since 2004. There has been a steady marginal increase in the BVSc Veterinary Science graduates from 83 graduates in 2004, 87 in 2005 and 92 in 2006.

There is a slight increase in the number of post graduate students registered for scarce skills programmes in the 2006 academic year, particularly at Masters Degree level. This is more prevalent when taking into consideration the other scarce skills that were not included in both 2004 and 2005. As was the case in the rest of scarce skills enrolments, these are dominated by Whites with very few Africans, Asians and Coloureds. Low representation of Blacks in these scarce skills programmes can be attributed to, among other factors, the lack of knowledge due to poor career counselling services in historically disadvantaged schools, lack of interest by Blacks in the agricultural scarce skills programmes, admission requirements for pursuing studies in the scarce skills categories which the majority of Blacks might not meet and inadequate financial resources. The ineffectiveness of interventions by Universities offering scarce skills programmes with regard to their efforts in attracting Black (African, Coloured and Asian) students in these programmes could also be a factor that contributes to the poor representation of Blacks.

The findings of this study indicate that, although a considerable number of students enrolled at Masters and PhD levels, a very low percentage of graduates were produced at these levels during 2006. If this situation continues, it will imply that there will be a very low base of research scientists for the agriculture sector in the future.

The participation of black students in the categories of scarce skills is still very minimal, particularly when taking into consideration the larger population racial representation by all racial groups. However, these improvements were significant in 2006 and 2005 when compared with the situation in 2004. For example, Agricultural Engineering enrolments improved from 26 students in 2004 to 41 and 57 students in 2005 and 2006 respectively. However, enrolments in both Coloured and Asian students are still showing

no improvements, particularly Coloureds who were not represented in 2006. This critical skill is sponsored by the Department of Agriculture from a four-year period as part of scarce skills development in the agriculture sector. The shortage of graduates in Agricultural Engineering leaves a lot to be desired. There were only 2 African graduates awarded with BSc Agricultural Engineering in 2006 from just 7 graduates in 2004 and 4 graduates in 2005. There were 4 Asians in 2004, one (1) in 2005 and none in 2006.

Whilst 9 Africans, seven (7) Asians and 1 Coloured enrolled for BVSc Veterinary Science Degree in 2004, only 6 Africans and 2 Asians enrolled in 2005. Coloured enrolments in this field remained unchanged. In comparison to the 2006 academic year, six (6) Asians,4 Africans and 1 Coloured enrolled. In terms of graduates in Veterinary Science (BVSc) only 4 graduates were non-White in 2004 as was the case in 2005. Six (6) Asians, four (4) Africans and 1 Coloured graduated in 2006, totalling 11 non-White graduates in BVSc Veterinary Science in 2006. Enrolments in Viticulture were consistent with 28 Black students in 2004 and 2005, whilst 35 Black students were enrolled in 2006.

There has been a steady increase in the number of Black graduates in Viticulture: 2 graduates in 2004, five (5) in 2005 and 14 in 2006. Food Science and Technology as well as BSc Biotechnology enrolments constitute a significant number of non-White students with 244 and 228 students in 2006 respectively. Graduates in Food Science and Technology and BSc Biotechnology account for 58 and 49 students in 2006 respectively. It is, however, impossible to arrive to any informed conclusion as to whether there is any improvement in terms of Blacks' participation in these two programmes since the two previous reports were silent in these programmes. Both of the programmes are among the programmes sponsored by the Department of Agriculture with a full scholarship to matriculants who perform well, particularly in Mathematics and Science.

6.2. RECOMMENDATIONS

6.2.1. Reducing over production of graduates in programmes which are not in demand in the agriculture sector.

From the findings, it is evident that some institutions produce many graduates and enroll more students in programmes which are not in demand in the agriculture sector. This over production and over enrolment in certain programmes is attributed to the fact that institutions do not have information about market demands and the rate of employment for their graduates. It is also a known fact that graduates in certain programmes and from certain institutions have high employment rates than others. It is therefore necessary to investigate the reasons for these trends. To curb this problem, it is crucial that all the institutions develop systems which will track the employability of their graduates in the various programmes in order to decrease over production of skills, which are not in demand in the agriculture sector. The funding formula for Universities should also be done in terms of the relevance and type of programmes offered as well as the employment rate of graduate in those programmes.

6.2.2. Effective participation of the agriculture sector in agricultural curriculum reviews and development of higher and further education institutions

The National Agricultural Education and Training Forum established in terms of the Agricultural Education and Training Strategy (2005) should play a major role in curriculum review meetings of higher education institutions as well as during the development and reviews of the agricultural curriculum for General Education and Training and Further Education and Training bands by the Department of Education. This will ensure that agricultural curricula at all levels of the education system address the needs of the agriculture sector.

This study also recommends that DoA Directorates should play a major role in determining the agricultural curricula, i.e. directly influence the curricula for respective departments at Universities e.g. Directorate Veterinary Services should liaise with Animal Health departments at different Universities for them to know what the labour market requires in terms of skills required e.g. Animal Health Technicians.

6.2.3. Quality benchmarking of same agricultural programmes in all the higher education institutions

The perception that the quality of programmes varies in terms of content from one institution to the other is also cause for concern. For instance, BSc in Agriculture does not offer the same content in all the institutions offering the programme and admission requirements for the same programme vary. It is therefore necessary that the Department of Agriculture, in collaboration with the Department of Education, investigate the quality of programmes in each institution and to establish quality benchmarks for same programmes in higher education institutions.

6.2.4. Encouraging undergraduates to pursue post graduate studies in specialised fields in agriculture to increase the pool of agricultural scientists

From the findings, the general trend is that there is an increasing number of entrants into agriculture at junior Degree level. For instance, a high number of Africans are enrolling for agricultural programmes at junior Degree level. However, this is not addressing the needs of the rapidly changing landscape as well as the skills demands in the sector. It is also evident from the findings that there is a limited number of agricultural enrolments and graduates at post graduate level, particularly at Masters and PhD levels. It is therefore recommended that graduates with undergraduate qualifications outside of the identified scarce skills programmes, including those with undergraduate qualifications in agricultural economics, should pursue higher education programmes and specialise in certain fields of agriculture. This will establish a strong scientific research base for the sector.

6.2.5. Marketing agricultural careers to Indians and Coloureds

From the findings, there is an insignificant number of Indians and Coloureds graduating in and enrolling for agricultural programmes. It is necessary to target Indian and Coloured dominated schools to market agriculture as a career to the Indian and Coloured youth.

6.2.6. Recruiting girl learners to register for scarce skills programmes in agriculture

The general trend is that there is a lower number of Black (Coloured, Indian and African) female enrolments and graduates in scarce skills categories. In order to recruit females into the agricultural scarce skills professions, it is necessary to work in collaboration with the Provincial Departments of Education and to liaise with Girl- Learner coordinators to market agricultural scarce skills careers to girl learners. Girl-Learner Coordinators in the various PDEs can also provide a platform for providing guidance to girls in terms of the correct subject combinations at the General Education and Training levels to pursue scarce skills in agriculture.

6.2.7. Increasing the number of black students enrolling for and graduating in scarce skills programmes in agriculture

Massive career awareness campaigns are needed at schools, targeting learners before entry into the FET (Grade 10) phase. This will enable them to choose the appropriate subject combinations which are required to pursue studies in agricultural scarce skills earlier in the FET phase. The target group will be learners from the African, Coloured and Indian communities. White females should also be targeted for agricultural engineering and other scarce skills, except for BVSc where they form the majority. This will be a collaborative venture with Public Relations Departments of the Universities and managers of girl learner educational programmes from the Provinces.

It is necessary that agricultural engineering courses are offered in the agricultural colleges and produce agricultural engineering technicians. This will provide basic skills and knowledge of agricultural engineering for those with Mathematics and Science at senior Certificate level, but do not meet the admission requirements for a Degree in agricultural engineering. The engineering technician qualification obtained from agricultural colleges might provide the skills and knowledge required to pursue an agricultural engineering Degree at University level. This will then require systems which will allow easy progression and mobility from the agricultural college sector to the University or University of Technology, as well as effective Recognition of Prior Learning (RPL) systems.

6.2.8. Introduction of Veterinary Science Studies by Another University

Given the failure of the University of Pretoria to produce African, Coloured and Asian veterinarians to meet the labour market demand, this study highly recommends that other Universities introduce veterinary science studies as part of its agricultural curricula. Secondly, a variety in this field of study is highly envisaged as it is impossible for one institution to successfully and sustainable provide the whole country's labour market with sufficient veterinarians. Moreover, this veterinarian's shortage is exacerbated by the fact that a significant number of veterinarians leave the country though brain drain, preferring oversees countries like the United Kingdom.

6.2.9 Partnership between the Department of Agriculture and Faculties of Agriculture at HET and Colleges of Agriculture.

The Department of Agriculture should develop relations with all the faculties of agriculture in Higher Education Institutions, whereby the DoA officials will get a platform to communicate the type of people the agricultural labour market is looking for in terms of skills, knowledge and behaviour. Secondly, elites in the agricultural business such as CEOs and other senior managers of private companies should be invited for lectures on an ongoing basis as it is being done by institutions like the University of Johannesburg.

An indication will be given as to what exactly should be the focus of the curricula in the institutions of higher learning with regard

to AET. This will not only give confidence to the students completing their qualifications, but will ensure that, by the time graduates get to the labour market, they are ready to assume the tasks assigned to them and can understand the skills that are currently required in the labour market.

6.2.10 Task team formulation to look at the progression of Black individuals in scarce skills programmes, particularly the BVSc Veterinary Science

Factors contributing to Blacks not progressing in the scarce skills need to be investigated, especially in the wake of the fact that for 2004, 2005 and 2006 there has not been significant representation of Blacks in these programmes. The skills shortage impact is two-fold: firstly, it cripples the economic growth due to poor contribution to the GDP by the agriculture sector and secondly, political interventions aimed at fair distribution of opportunities in the agricultural economic division, such as employment equity, experience a setback as there are relatively very few professionals in these fields of study.

LIST OF TABLES

LIST OF FIGURES