PRODUCTION GUIDELINE FOR CANOLA

agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

PRODUCTION GUIDELINE FOR CANOLA

General

CLASSIFICATION

Scientific name: *Brassica napus L.*

Common names: Canola; oilseed rape, rapeseed, rape, kanola (Afrikaans)

ORIGIN AND DISTRIBUTION

Canola is a special biotype of rapeseed. The word "canola" is derived from "Canadian oil, low acid". Rapeseed, is an oilseed plant originated from an ancient civilisation as far back as 3 000 years ago in India. Canola was developed through breeding from rapeseed. The word "rape" in rapeseed comes from the Latin word *"rapum"*, meaning turnip. Turnip, cabbage, brussel sprouts, mustard and many other vegetables are related to canola. The negative associations with the word "rape" in North America resulted in the more marketing-friendly name "canola".

Rapeseed had been grown in Canada (mainly Saskatchewan) since 1936. Canadian plant breeders improved the quality of the plant. In 1968, Dr. Baldur Stefansson of the University of Manitoba used selective breeding to develop a low erucic acid variety of rapeseed. In 1974, another variety was produced with low erucic acid content and a low level of glucosinolates, the two factors limiting its use as food.

PRODUCTION LEVELS IN SOUTH AFRICA

Canola is a relatively new crop in South Africa. In 1992/93, only 400 tones canola grain was produced, compared with 41 000 in 2003/2004, 38 150 in 2007/2008, 57 340 tones in 2011/12, 79 000 tones in 2013/2014 and 1690 375 tones in 2015. Currently, South Africa imports more than half its oil and oilcake requirements from other countries every year. Each year for the past six years, more than 70 % of the oilcake requirements have been imported. The production of canola in South Africa is usually lower than the demand and favourable prices could be achieved.

MAJOR PRODUCTION AREAS IN SOUTH AFRICA

Although canola is a summer crop in the temperate and cool areas of the world, it is mainly grown in the Western Cape Province as a winter crop. In the summer rainfall areas, canola can be produced under irrigation during winter period.

There are also farmers in other areas of South Africa, such as the Northern Cape, Free State, and Eastern Cape, KwaZulu-Natal, Limpopo and North West provinces, who plant canola in small quantities.

Description of the plant

ROOTS

Canola has a taproot system. Growth is rapid after establishment with 85% of the root dry matter in the top 25 cm of soil. Secondary roots grow laterally from the taproot.

STEMS

Stem height varies between 75 and 175 cm with five to seven branches per plant. Secondary branches can also develop in the axils of bracts on the primary branches and are important for photosynthesis. Widely spaced plants are usually extensively branched, which compensate for yield losses. Matured plants can reach 1,7 m in height, depending on the cultivar and growing conditions.

LEAVES

Plants produce up to six large, waxy, blue-green leaves per secondary branches. Leaf blades partially clasp the stem. After emergence, canola develops a thick rosette of leaves close to the ground before appearance of the flowering stem. The number of leaves that grow on each main stem is between nine and thirty.

FLOWERS

Canola has small yellow flowers. Flowering commences on the main stem, which becomes the terminal inflorescence or raceme and proceeds acropetally, i.e. from the base towards the tip of the raceme.

SEED AND PODS

Seeds are relatively small; matured pods contain about 23 seeds. It could take 280 000 to 340 000 round black, brown or yellow seeds to make a kilogram. Canola pods develop firstly on the lower stem, and consecutive pods will form towards the top of the plant. Pods on the lower parts of plants are about 30 cm from the soil surface. Pods are prone to shattering if the harvest process is delayed.

CULTIVARS

A large spectrum of cultivars is available in South Africa. Plant diseases, growing length, yield potential and problem weeds are important aspects to consider when selecting cultivars. Days to flowering vary between 70 days for late planted (middle to end of June) and 120 days for early (May) planted crops.

Canola cultivars are primarily classified according to their chilling requirements. There are the winter types, intermediate types and spring types.

WINTER TYPES

This type of cultivar has high chilling requirements that first need to be satisfied before it will progress from vegetative to the reproductive growth phase. In order to ensure that the chilling requirements are met, these cultivars must be cultivated as soon as the winter arrived. The drawback of this canola type is that if its chilling requirements are not met, it will remain in the vegetative stage, without any seed yield.

INTERMEDIARY TYPES

The chilling requirements of this type of cultivar are not as significant as those of the winter types, but it still requires low temperatures as a stimulus to switch to reproductive growth. In South Africa, these types will, for example, be planted in mid-winter in the cooler areas of the summer rainfall region.

SPRING TYPES

Spring-type canola change from vegetative to reproductive growth primarily based on day length as well as heat units (temperature). Canola is a long-day length plant that responds well to longer day length of between 12 and 16 hours. Therefore, at longer day lengths, it requires fewer days until flowering. However, even though it will take longer, it will eventually also flower at day lengths of 10 to 11 hours, such as during South African winter months. Canola plants are also very responsive to temperature heat units, which means fewer days until flowering and particularly also faster grain filling in warmer production areas.

The cultivars that are currently cultivated in South Africa are spring-types, which are planted in autumn and harvested in early summer.

Canola is a regulated kind of plant in terms of the Plant Improvement Act, 1976 (Act No. 53 of 1976), therefore it is required that cultivars (varieties) must be registered before seed may be sold on a commercial basis. Producers should ensure that they only buy registered cultivars, unless they are participating in evaluation trials.

Climatic requirements

TEMPERATURE

Canola is produced in cool weather conditions with an optimum temperature for growth and production of 21 °C. Soil temperatures ranges from 15 to 20 ^{0}C are optimal for germination. Although 0 °C is regarded as the minimum growth temperature for canola, germination is considerably delayed by low temperatures. Even though canola is fairly frost-hardy, temperatures below 3 to 4 $^{\circ}$C for the greater part of the night may cause damage during the seedling and flowering phase. Temperatures of greater than 30 °C may be detrimental to the pollination of the flowers, and will shorten the pod and seed development phase to such an extent that both yield and quality are impaired.

RAINFALL

In general, rainfall between April and October should be at least 300 mm for a yield of 2 ton per hectare. Rainfall distribution is very important, a long rainy season with sufficient rain and cooler climatic conditions during the pod and seed development stages is very important. Yields can drop lower than 1 ton per ha when rainfall is lower than 200 mm. The most sensitive stages to drought are flowering and grain filling.

SOIL REQUIREMENTS

Canola can be cultivated on a wide variety of soil types. It is best suited to clay-loam soils that do not crust and is not susceptible to wind erosion. Sandy soils should therefore be avoided, as it can also cause poor emergence. On soil with poor internal drainage, good surface drainage is essential, since canola cannot tolerate waterlogged soils. As canola has a taproot system that can reach lengths of over 100 cm, deep soils are beneficial. The ideal soil pH is between 5.5 and 7 (KCl) and acid saturation of not more than 10 % is ideal.

Cultivation Practices

SOIL PREPARATION

Canola seed is very small; therefore the seedbed should be fine without large clods to ensure an even planting depth. Emerging plants are very susceptible to soil crusting. Seed and soil moisture contact is critical for rapid emergence. Planting canola in dry soil is therefore not recommended, as emerging seedlings are susceptible to soil crusting and soil moisture contact is crucial for rapid emergence; seedlings are damaged easily by wind. If the soil is tilled in advance, the aim should be to create such a seed and root bed that is free of weeds. If the soil is compacted and plough pans had developed, these should be removed by deep tillage. If a ripple or wave effect is obtained with tine tillage, or when the seedbed is very loose, a drag bar, harrow or roller should be used to ensure a level, firm seedbed.

PLANTING

Owing to the small seed size, planting depth should be shallower than for most grain crops.

PLANTING DENSITY AND SPACING

Canola is typically seeded in 15 to 45 cm spaced rows under irrigation and 15 to 50 cm under dry land. Canola differs from most small grains because it cannot be planted when the top 5 to 7,5 cm of soil has dried out. Evenly spaced plants will help to optimise yields. The ideal planting density for canola is 50 to 80 plants per square metre or four to six kilograms of seed per ha. Three to four kilograms of seed per ha can be used if the intended field is:

- relatively free of weeds or treated with a herbicide,
- the seedbed is moist with little crusting potential,
- the seed lot is vigorous,
- Seed placement is accurate and shallow with good seed to soil contact and a mechanical planter is used.

In situations of poor seedbed conditions, the seeding rate should be increased to more than 6 kilograms per ha.

PLANTING DATE

Canola should be planted in April to early June to achieve the highest yields. Significant yield reduction can be expected if planting is delayed until after 15th June. Canola is very susceptible to temperatures higher than 27 °C and drought stress during the flowering period. Planting in May will reduce the risk of heat and drought stress of the crop. Canola seedlings are tolerant to both frost temperatures as low as – 4 °C.

PLANTING DEPTH

Canola seeds should not be planted deeper than 3 cm; provided adequate moisture is present. The quicker seedling emergence helps the crop get ahead of or keep up with the weeds. Deep seeding delays crop emergence, lead to a lower yield potential and results in weakened seedlings that are less competitive. The longer seedlings take to appear above the soil surface, the larger the risk for seedlings to die because of disease pathogens.

FERTILISATION

Canola is similar to small grains in its response to fertiliser and soil fertility. Nitrogen and sulphur are the key elements for canola yield improvement. Canola seed contains higher amounts of nitrogen, phosphorus, sulphur and potassium as compared with wheat. Nutrients removed per ton of grain are shown in the following table.

NUTRIENTS REMOVED PER KILOGRAM PER TON OF CANOLA GRAIN AND STUBBLE

Element	Nitrogen	Phosphorus	Sculpture	Potassium
	Kilograms per ton			
Seed Grain	15-40	4-7	2-10	8-10
Straw Stubble	4-10	2-4	3-12	25-31

NITROGEN

Canola has relatively high consumption of nitrogen and about 55 kilograms N per hectare is taken up by the crop to produce 1 ton of seed per ha. High N fertiliser rates stimulate larger leaves, increase transpiration and moisture use. Under irrigation, the recommended N fertiliser rate is 180 kilograms per hectare on clay soils and 200 kilograms per hectare on sandy soils. Under dry land conditions, recommendations are made according to the production area. See information compiled by the Western Cape Department of Agriculture in the following table.

NITROGEN RECOMMENDATIONS FOR CANOLA

District and rainfall	Yield potential ton per ha	Kilogram per ha		
		Lucerne	Legume crop or fallow	Grain stubble
Southern Cape (65% winter rains)				
<450 mm	1.0	10-20	10-35	45-50
450-500mm	1.5	20-30	40-45	55-60
>525mm	2.0	40-50	50-55	65-70
Swartlands (85% winter rains)				
<325 mm	1.0		50-60	60-70
350-425 mm	1.5		70-80	80-100
>450mm	2.0		90-100	100-120

For yields targets higher than 2 tons per ha, the maximum values in Table 3 should be increased with 30 kilograms N per ha.

Nitrogen is very mobile in the plant. During a period of deficiency, nitrogen is transferred from older leaves to the younger growing tissue. N deficiency symptoms first appear on the older leaves. With severe deficiency, the oldest leaves and young plants are pale, with pink coloured midribs and petioles. Later on, stems become dull-red to purple-red and the older leaves turn yellow to red-orange.

PHOSPHORUS

The optimal P content of the topsoil should be 20 mg / kg (Bray 1 method of analysis). For lower or higher values, adjustments as shown in Table 4 should be made.

PHOSPHORUS RECOMMENDATIONS FOR CANOLA

Soil P status (mg kg-1)		**Precommendation (kg ha-1)**
Citric acid	**Bray 1**	
10	6	30
20	14	24
30	20	18
40	28	15
50+	34+	0

During the early plant development, phosphorus deficiency will cause reduction in growth and dark green leaves. Later, a distinct pink-purple colour develops on the tips and margins of the older leaves and develops shades of orange and red. The first symptom of P deficiency is puckering of the oldest leaves that are wilted with a dull sheen. A dull, yellow or yellow-brown colour develops at the tips of these leaves and gradually spreads toward the midrib, which stays green, the longest. The condition progressively spreads to younger leaves.

POTASSIUM (K)

The optimum K content of the topsoil is 80 milligram / kilogram for clay soils and 60 milligram / kilogram for sandy soils. K applications are seldom recommended as most soils have a high K status. Low values can be restored following the guidelines in Table 5.

GUIDELINES FOR POTASSIUM (K) FERTILISATION

Soil K content (mg kg-1)	Recommended K rate kg ha-1
< 50	40
50 – 80	20
> 80	0 – 20

The first symptom of K deficiency is a puckering of the oldest leaves with a dull sheen. A dull yellow or yellow-brown colour develops at the tips of these leaves and gradually spreads towards the midrib, which stays green longer. As the severity of K deficiency increases, the next leaf is affected to the same degree as the oldest leaf.

SULPHUR

Canola has a relatively high sulphur demand, as many sulphur compounds are present in the vegetative parts and the seed. The sulphur requirement of Canola is 15-20 kilogram per ha. Sulphur recommendations are shown in Table 6.

SULFUR FERTILISATION GUIDELINES

Soil S content (mg kg-1)	Interpretation and recommendation
< 6	Insufficient: S application higher than specific plant need (> 15 - 20 kg S ha-1)
7 – 12	Sufficient: S application enough for maintenance (15 kg S ha-1)
> 12	More than sufficient: S application less than maintenance (10 kg S ha-1)

If deficiency symptoms are present before flowering, yield responses are possible by applying ammonium sulfate. The earlier the treatment is done, the greater the yield response. Severe sulphur deficiency causes a marked inward rolling of the leaves. In some cases, a pink-purple colour develops on the underside of the leaves. The most obvious symptom is severe mottling or chlorosis between the veins of the leaves. Symptoms vary with the degree of deficiency. High nitrogen availability can exacerbates S deficiency symptoms in canola.

OTHER NUTRIENTS

Canola is susceptible to boron and molybdenum deficiencies, especially when Mo deficiencies are accompanied with low soil pH. Guidelines for the interpretation of a soil analyses are shown in Table 7 and recommended application rates are shown in Table 8. Copper, zinc, and manganese needs are higher compared with maize.

GUIDELINES FOR APPLICATION OF MICRONUTRIENTS OF CANOLA (MG KG-1, EDTA SOLUBLE)

Nutrient	Insufficient	Marginal	Sufficient
Copper	0.3	0.3 - 0.5	> 0.5
Zinc pH < 5.5 pH > 5.5	 < 0.5 < 0.7	 0.5 - 0.7 0.7 - 1.0	 > 0.7 > 1.0
Manganese pH < 5.5 pH > 5.5	 < 5.0 < 10.0	 5 - 10 10 - 20	 > 10 > 20
Boron (warm water)	0.2 - 0.3	0.3 - 0.5	0.5

RECOMMENDATION FOR APPLICATION RATES OF MICRONUTRIENTS

Micronutrient	Foliar application 500 liter water ha-1	Soil application ha-1
Zinc	1 - 2 kg zinc oxide	3.5 - 7 kg zinc oxide
Manganese	2 - 4 kg manganese sulphate	Ineffective
Boron	1 - 2 kg borax or 0.5 - 1.0 kg sodium boraat (solubor)	Not recommended
Copper	1 - 1.5 kg copperoxichloride	2.5 - 5.0 kg Copperoxichloride
Molybdenum	100 - 150 g sodium or ammonium molybdate	250 - 500 g sodium or ammonium molybdate

METHOD AND TIME OF APPLICATION

Nitrogen and potassium should not be applied in direct contact with the seeds. It should be broadcast or applied in a band at least 5 cm away from the seed. Nitrogen fertilisation should be divided in 2 to 3 applications if possible. On heavier soils, 40 to 60 % can be applied during planting and the remainder six weeks after emergence (just before stem elongation). On sandier soils, 40 % should be applied during planting and 60 % in one or two equal applications. Sulphur should be applied with the nitrogen, especially on soils with a low pH. Other elements should be applied during or shortly before planting.

IRRIGATION

The majority of the world's canola is grown under dryland conditions. Canola will suffer if water supply is limited. Experience has shown that yield will increase dramatically by irrigating at critical times under moderately favourable conditions. The most critical time for irrigation is during flowering and early pod development. Maximum oil accumulation occurs during the pod stage until pod maturation. Irrigation during this stage will maximise oil content. Water-use efficiency of canola is influenced by management factors and cultivar.

WEED CONTROL

Young canola seedlings are sensitive to weed competition. An effective weed control programme should include crop rotation, mechanical and chemical control methods. However, once established, canola is a good competitor as its growth rate is higher than that of most weeds and weed control is seldom needed under irrigation in the summer rainfall area. If broad leaf weeds pose a problem, triazine resistant cultivars can be planted. Canola is extremely sensitive to chemical drift from most broadleaf herbicides such as 2, 4-D, MCPA, dicamba, glyphosate, and certain sulfonylureas. Precautions should be taken to avoid the drift of these herbicides to canola fields.

INSECTS CONTROL

Several insects can reach pest status on canola. The most important pests are Black sand mite/Red-legged earth mite (*Halotydeus destructor*), Blue oat mite (*Penthaleus major*), Cabbage aphid (*Brevicoryne brassicae*), Lucerne earth flea (*Sminthurus viridis*), Diamondback moth (*Plutella xylostella*) and Bollworm (*Helicoverpa spp*).

BLACK SAND MITE/RED-LEGGED EARTH MITE AND BLUE OAT MITE (APRIL/MAY/JUNE)

Adult black sand mites are about 1 mm long, with pear-shaped velvet-black bodies and red legs. Blue oat mites are about 1 mm long, dark green to black, with a red patch on the front and back, and red legs. Black sand mites feed on seedlings and cause silvery white spots, especially along the main veins of leaves, which eventually become withered and discoloured. Blue oat mite causes a scorched appearance of the leaves. High infestations can cause substantial damage within a few days. Both species are serious pests of canola seedlings. Heavy infestations can reduce stand, retard growth and reduce yield. Quick growing seedlings and adult plants can withstand moderate infestations.

LUCERNE EARTH FLEA

These insects are very small, 1-2 mm long, greyish white, soft-bodied, wingless, with a strong, forked springing organ attached to the underside of the abdomen. They characteristically jump into the air for considerable distances when disturbed. Lucerne fleas move up plants from ground level, eating tissue from the underside of foliage. This results in a finely speckled appearance of infested crops. Older nymphs feed through the leaves, creating typical windows in the leaves. Heavy infestations are common in fields where canola succeeds pastures.

CABBAGE APHID (APRIL – OCTOBER)

Aphids migrate from host plant species and populations can increase quickly as a result of high temperatures. Cold weather conditions or good rains can reduce populations. Heavy infestations during flowering can prevent development of flowers. Heavy infestations after flowering can influence seed fill of pods negatively. It is important to control aphids during periods of moisture stress.

DIAMONDBACK MOTH (JULY – SEPTEMBER)

Diamondback moth is a small moth with a diamond pattern on the closed wings. Light green larvae feed holes in the leaves. Feeding on pods causes damage to the surface only. Damaged pods tend to shatter easier. Moths occur from the end of the stem elongation period, onwards. Infestations could occur earlier during warmer spells.

BOLLWORM (AUGUST – SEPTEMBER)

The colour of the larvae varies from light green to dark brown. Small bollworm larvae are not injurious to canola, since they feed on the surface of pods and leaves only. Larger larvae (> 1 cm) tunnel into pods and cause yield loss. Canola should regularly be inspected from flowering stage onwards for infestations.

OTHER INSECTS

Several soil insects, for example, cutworm and false wireworm can reduce plant stand.

DISEASE CONTROL

Rotations must be planned carefully to keep disease incidence and levels low. The two diseases of major economic importance are blackleg and *Sclerotinia* wilt.

BLACKLEG (LEPTOSPHAERIA MACULANS / PHOMA LINGHAM)

The blackleg fungus is spread by rain-splashed spores, wind-borne spores, and by infected seed. Varieties that have good tolerance or resistance to this disease are available. Spores land on the leaf surface of seedlings and then penetrate the leaf causing lesions. Both the aggressive and non-aggressive form of the pathogen can cause lesions. The aggressive form of the blackleg pathogen travels through the leaf stem to the stem where it can cause lesions on- and in the stem. These lesions cause rotting of the stem near the ground and impair transportation of nutrients to the pods. This causes the plant to fall over and die. In areas where the virulent strain of blackleg is present, crop rotation (four year) and selection of resistant varieties are important to blackleg management. Ramenas and wild mustard are host plants of blackleg and should effectively be destroyed. If possible, plant as far as possible from old infected fields.

STEM ROT (*SCLEROTINIA SCLEROTIORUM*)

Sclerotinia stem rot or white mould can be very destructive during periods of wet weather. The *Sclerotinia* fungus can survive up to seven years in the soil and produces millions of airborne spores. Canola is primarily susceptible during all bloom stages and shortly after. Infections that start on the dead blossoms spread to adjacent tissues, resulting in dead branches or dead plants. The rotted stems usually have a bleached appearance. A minimum of a four-year rotation is recommended for fields that have a history of *Sclerotinia* infestations. During this rotation, it is necessary to avoid planting highly susceptible crops including sunflower, lupine and dry beans. Avoid contaminated seed, use certified seeds. *Sclerotinia* is not poisonous to people or animals.

SEEDLING DAMPING-OFF (*FUSARIUM SPP., PYTHIUM SPP., RHIZOCTONIA SOLANI*)

In South Africa, the most important pathogens have been identified as *Fusarium avenaceum, Pythium irregulare, Pythium mamillatum, Pythium ultimum* var. ultimum, *Pythium F* group and *Rhizoctonia solani* AG-2-1 en AG-4. Symptoms of this disease are sudden wilting and seedlings that lodge or dry out. Damping-off takes place as a result of rotting at the surface of the soil. The disease usually occurs in the first 4 to6 weeks after planting and seedlings that survive to the 3 to 4 leaf stage will usually continue growing.

The following practices can help to reduce loss as a result of seedling damping-off:

Avoid planting during cold, wet conditions, since these conditions promote disease infestations which hamper the germination of the seeds and seedling growth. Plant the seed at the recommended planting depth. Seeds that are planted too deep give rise to delayed seedling emergence and the seedlings are therefore exposed to pathogens for a longer period of time. Use good quality seed. Seedlings from poor quality seed are more susceptible to seedling damping-off.

Harvesting

MATURITY AND HARVESTING

Canola can be directly harvested with a combine harvester. Timing of this operation is of utmost importance to prevent losses and cutting the crop and placing it in rows directly on the cut stubble (swathing) to minimize seed shatter losses is therefore recommended as a safer option. When at least half of the seed coat has turned yellow, brown or black, the seed is considered to have changed colour. Select pods from the middle section of the primary branch of canola plants that are representative of the majority of the crop. Take at least 10 samples and four to five pods of each plant. Split the pods open and shell. Estimate the percentage colour change, when there is 40 % or more colour change the crop is ready to swath.

The moisture content of seed for direct harvesting is about 35 %. If timely direct harvesting is not possible, harvesting is done through swathing, left to dry before combining. Canola is easy to cut but makes a bulky, fluffy swath that can be scattered quite easily by the wind. Swathing should be done just below the lowest seedpods, leaving the stubble as high as possible. This will allow the windrow to settle into the stubble and reduce loss from wind movements. To reduce shattering, use a belt-type pick-up attachment on the combine harvester. Combine cylinder speed for canola is reduced to about 50 to 75 %of that for wheat.

Avoid excessive cylinder speed as it breaks up the straw, overloading the sieves and allows foreign material through with the seed. Canola straw and chaff should be spread behind the combine. Seal all openings off, since the canola seed is very small and round and it can flow like water through any opening. As soon as the moisture content of the seed drops below 8 % (5 to 14 days after swathing) it is ready for combining. Seed quality may decline if harvesting is delayed. If drying facilities are available, it can be harvested at higher moisture contents. The moisture content at harvesting has an important influence on the percentage loss during harvesting. Canola must preferably be harvested during the cooler time of the day, since it reduces shattering of the pods and therefore reduces seed loss. Avoid yielding during warm, dry periods of the day.

Post-Harvest Handling

SORTING

Prior to processing, canola proceeds through a number of operations, depending on the cleaning requirements of the crop and include: fanning and sieving mills, which remove dockage (foreign material such as pods, weed seeds, etc.); indent machines, which eliminate seeds that are longer/bigger than the canola seed; de-stoners which remove dirt balls and small stones; and gravity tables, which remove anything missed by other machines.

GRADING

The grading system allows canola shipments to be segregated into grades according to quality. Canola is being graded according to different grades which are: Grade 1; should be reasonably well matured, sweet, of good natural colour, grade 2; should be fairly well matured, sweet, of reasonably good natural colour, and grade 3; may have the natural odour associated with low quality seed, but not distinctly sour, musty, rancid, nor having any odour that would indicate serious deterioration.

PACKING

Canola is packed according to different grades in sacks or bins. Packaging in wooden granaries does not facilitate control of seed leakage and also provides access for the entrance of moisture, insects and rodents. Regardless of the construction material used, storage structures must be as weatherproof as possible, yet still allow easy access to the bin for sampling and monitoring. The weather proofing process must include the floors of bins that are set on concrete.

STORAGE

Stored canola differs from stored wheat because, unlike wheat, adverse changes can occur very rapidly. Canola seeds are more prone to deterioration in storage than cereal grains and must be stored at a lower moisture level to prevent molding. Canola goes through a period of active respiration after binning, and if the heat and moisture is not quickly removed, mold growth and increased respiration soon occurs. Seeds can be conditioned to avoid spoilage in storage, to extend the harvest season, and to reduce field losses. Conditioning systems using aeration, natural-air drying or heated-air drying or a combination of these can ensure safe storage. Going from cereal grains to canola during drying operations requires temperature readjustment because reduced airflow increase drying times and the possibility of unsafe temperature buildup. Canola can be stored readily for long periods of time at moisture levels of 8 to 9 % if seed temperatures are below 20 °C and insect and mite infestations are not present.

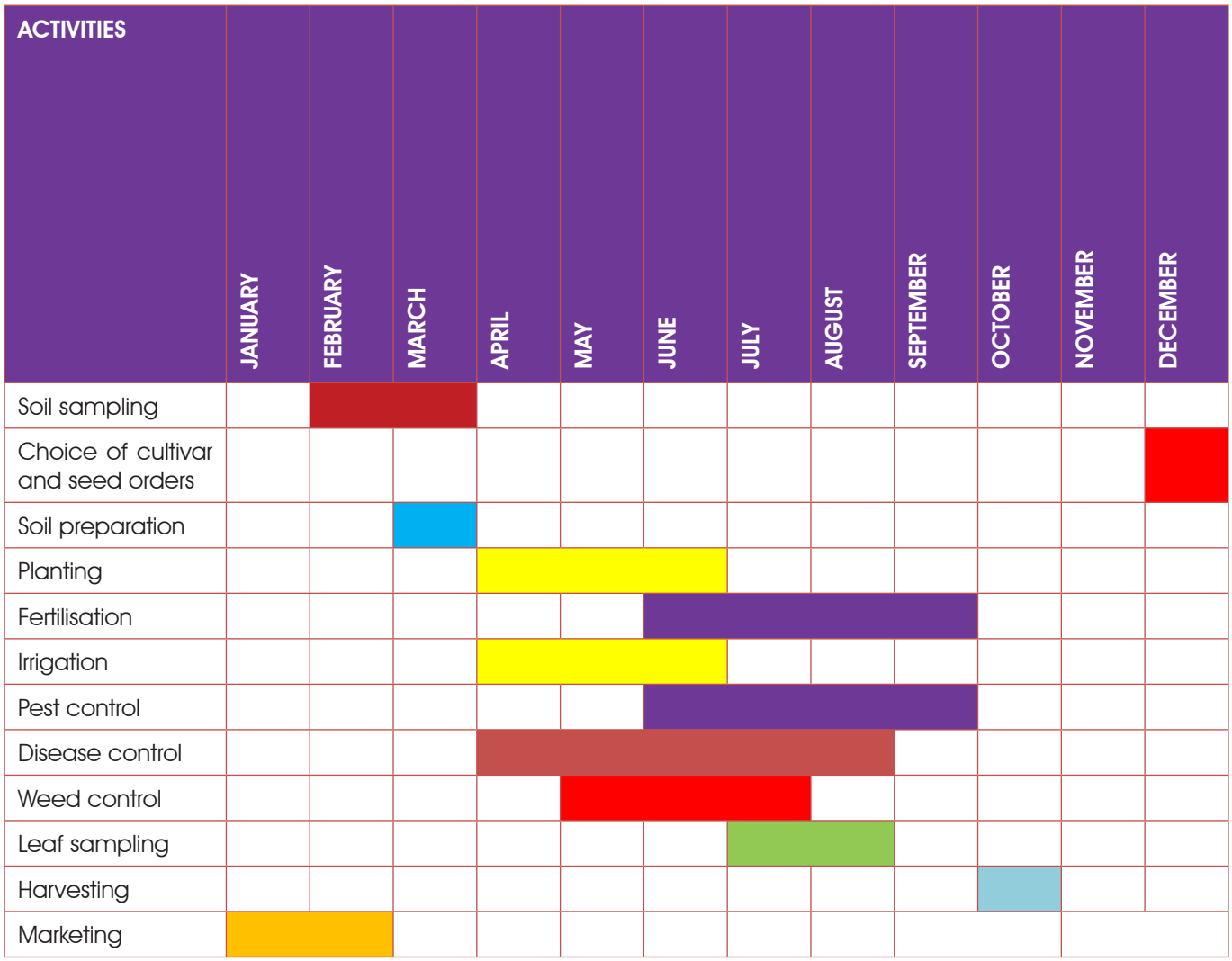
TRANSPORT

Canola can be transported by rail and road trucks, air flights as well as ships. During transportation, all cracks and holes in the truck and other equipments must be compactly sealed to prevent leakage and tightly covered to prevent canola seeds from being blown away.

MARKETING

Canola competes with other plant oils, mainly sunflower and soya oils, on the local market. South Africa is a net importer of plant oils. The domestic demand for plant oils is estimated at 720 000 tons per year. Approximately 300 000 to 350 000 tons of plant oils are produced in South Africa and the balance is imported, primarily as sunflower oil and soya oil. The biggest sales point for canola in the Western Cape is the industrial market because of its good emulsifying characteristics. The market for bottled canola oil has room for growth because it is not well known among consumers. It is also fairly unknown in the industrial deep-frying market.

PRODUCTION SCHEDULE



Utilisation

Canola has many uses, both edible and inedible. It can be utilised for human consumption as canola oil or can be blended with other vegetable oils for the production of various solid and liquid cooking oils and for salad dressings. Canola meal can be used in animal feeding; it is recommended for up to 10 to 20 % of the ration for chickens, turkeys and ducks; dairy and beef animals. The meal is a good source of protein in the animal feed and is also a high quality organic fertiliser which can be used by commercial organic farmers. Canola is also used in the industrial market because of its good emulsifying characteristics such as bio-diesel production. It is also an excellent insect repellent.

THE FOLLOWING ORGANISATIONS ARE ACKNOWLEDGED FOR THE INFORMATION PROVIDED:

ARC-Grain Crops Institute
Private Bag x 1251
Potchefstroom
2520
Tel: 018 299 6100
Fax: 018 294 7146
www.arc.agric.za

Department of Agriculture Western Cape
Private Bag x 1
Elsenburg
7607
Piet Lombard
Tel: 021 808 5321/5415
Fax: 021 808 5331
Email: pietl@elsenburg.com

Protein Research Foundation
P.O. Box 5562
Rivonia
2128
Tel: +27 11234 3400
Fax: +27 11234 3402
www.proteinresearch.net
Canola Focus (http;//newsletters.proteinresearch.net/) and Canola Production Calendar, April 2015.
Gerhard JHS, Canola production guideline

Sun Media Stellenbosch
Office 5: The Woodmill
Vredenburg Road
STELLENBOSCH

Sun Media Stellenbosch
P.O.BOX 3076
MATIELAND
7602
Tel: +27 212 010071
Fax: +27 218 832667
Email admin@sunmedia-wp.co.za

FURTHER INFORMATION CAN BE OBTAINED FROM:

Directorate Plant Production

Grain Division
Private Bag X250
PRETORIA 0001

Tel: +27 12 319 6072
Fax: +27 12 319 6372
E-mail: Thabo.Ramashala@daff.gov.za
Website: www.daff.gov.za

NOTES

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