

- Makukhona okusha okuvelayo endaweni ekade kukhishwe izitshalo, phinda ukukhiphe nako
- Zonke izitshalo ezingangebanga lika 5m kumele zifuthwe ngekhemikhali
- Amazinga okwanda kwesifo angehliswa ngokuhlola njalo isimo nokususwa kwezitshalo ezinesifo, ukususa kwamagabunga awomile, ukusebenzisa kwamathuluzi ageziwe Kanye nokuvula amasimu akude kakhulu nalapho kunesifo khona
- Alikho ikhambi le BBTv. Ukuhlola amasimu, ukusiphula izitshalo ezinesifo Kanye nokusebenzisa izitshalo ezihloliwe elaborathi kwatholakala ukuthe azinagciwane izindlela zokulawula isifo
- Abalimi kanye nomphakathi jikelele kufuneka belandele uR.110 of 27 January 1984 we Agricultural Pests Act, 1983 (Act No.36 of 1983) onqaba ukusabalalisa kwezitshalo ezinesifo ngaphandle kwemvume

### Umthelelo wegciwane kwezomnotho

I BBTv isifo esibi kakhulu emhlabeni jikelele esihlasela u bhanana.Izitshalo ezisulelekile azitheli qobo nje,nxa kwenzekile sathela isithelosiba sifishane sigobe.

Njengalokhu abalimi besizakala kangaka ngokondla imindeni yabo bazitholele nemali,lokhu kuyabaphazamisa balimi.Nxa sesitholakele lesifo kunzima ukusinqoba nokusilawula.Lokhu kubangwayizizathu ezilandelayo:

- Isifo sibangwa igciwane elithuthwa izinambuzane
- Lonke uhlobo luka bhanana lusengcupheni yokutheleleka
- Izindlela zokulawula ziyaphoqa,esingabala amachemicals okwelapha izinambuzane,ukususa ubhanana osuhlaselekile kanye nokuwubeka endaweni evalelekile ubhanana ohlaselekile

### Imithetho nemigomo

Ngoko mthetho iAgricultural Pests Act, 1983 (Act No.36 of 1983) akekho ovunyelwe ukuletha izitshalo nemikhiqizo yezitshalo ngaphandle kwemvume.

I BBTv igciwane eligadwe ngeso lokhozi eNingizimu South Afrima ngomthetho i Agricultural Pests Act 1983 (Act No. 36 of 1983).Loku kubalwa ne Control Measures R.110 of 27 January 1984

Ngokwe APA and R.110, kubalulekile ukuthe kubikwe kwa DALRRD uma sivela lesifo noma sisolakala ukuba khona.Unobhala we APA kumele akhiphe imthetho okumele ilandelwe umnini wendawo.Indawo kufanele ivaleleke,kungangenwa noma kanjani kuyona ngokwe section 7 ye APA

### Okuthathelwe khona:

Banana industry biosecurity guideline. Department of Agriculture and Fisheries, Biosecurity Queensland. [https://www.daf.qld.gov.au/data/assets/pdf\\_file/0003/378471/Banana\\_Industry\\_Biosecurity\\_Guideline.pdf](https://www.daf.qld.gov.au/data/assets/pdf_file/0003/378471/Banana_Industry_Biosecurity_Guideline.pdf) accessed on 25 July 2016.

Ferreira, Stephen A., Eduardo E. Trujillo, and Desmond Y. Ogata. Banana Bunchy Top Virus. N.p.: College of Tropical Agriculture and Human Resources, 1997. N. pag. University of Hawaii at Manoa.

Harish, S., M. Kavino, N. Kumar, D. Saravanakumar, and K. Soorianathasundaram, R. Samiyappan. "Biohardening with Plant Growth Promoting Rhizosphere and Endophytic bacteria induces systemic resistance against Banana Bunchy Top Virus." Applied Soil Ecology 39 (2008): 187-200. University of Hawaii at Manoa

Jooste, A.E.C., Wessels, N. and van der Merwe, M., 2016. First Report of Banana bunchy top virus in Banana (Musa spp.) from South Africa. Plant Disease 100, 1251.

CABI 2016, Banana bunchy top virus. Available online at <http://www.cabi.org/isc/datasheet/8161> accessed on 25 June 2016.

Banana bunchy top diseases in Hawaii, College of Tropical Agriculture and Human Resources. Available online at [http://www.ctahr.hawaii.edu/bbtd/aphid\\_control.asp](http://www.ctahr.hawaii.edu/bbtd/aphid_control.asp) accessed on 25 June 2016.

Harding, Robert M., Thomas M. Burns, and James L. Dale. "Virus-like Particles Associated with Banana Bunchy Top Disease Contain Small Single-stranded DNA." Journal of General Virology (1991): 225-30. Print.

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## iBanana bunchy top virus (BBTV)



agriculture, land reform  
& rural development

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## Yini I Banana Bunchy Top Virus (BBTV)?

I Banana bunchy top virus (BBTV) igciwane lezitshalo emndenini iNanoviridae elihlasela ubhanana. Lesifo esibizwa nge Banana bunchy top disease (BBTD), sithola igama laso ngenxa yezimpawu ezibonakalayo uma isitshalo sihlaselekile. Uma isitshalo sesingenwe ilelgiwane kufanele sibulawe ngoba ukuhlala kwaso kuzobangela ukuthe kutheleleke ezinye izitshalo. Isifo lesi sithuthwa inambuzane ebizwa ngokuthi i*Pentalonia nigronervosa*.

## Ukusabala kwe BBTV e SA nasemhlabeni jikelele

Igciwane lisabalele kakhulu e Southeast Asia nase South Pacific, kwezinye izingxenye zaseNdiya nase Africa. Ibikwe okokuqala eNingizimu Afrika ngenyanga ka July 2015 emasimini ka bhanana aseduze kwase Hibberdene ogwini oluseningizimu nesifundazwe KwaZulu-Natal (Jooste et al., 2016).

## Zibonakala kanjan izimpawu ze BBTV

Leligama elithi Banana bunchy top disease (BBTD) liqanjwe ngenxa yophawu olubonakala kunazo zonke uma isitshalo sesinegciwane. Amaqabunga ayancipha, aqonde abheke phezulu abe yisixheke phezulu kwesitshalo agcine esomile (bona umfanekiso ngezansi).



Isitshalo esinezimpawu zegciwane (Isthombe: E. Jooste)

Izimpawu zegciwane zibonakala kakhulu lapho ukuthathelana kusuka esitshalweni esinegciwane kuya kulezo ezingabantwana baso. Lezitshalo zivame ukuba mfishane kakhulu (ngaphansi kwa 1m) futhi azivamile ukukhiqiza izithelo. Izitshalo zika bhanana ezinegciwane zikhiqiza izigaxa ezincane noma zingabi bikho sdalo

Ezitshalweni ezithelelwe isinambuzane, izimpawu zivame ukuvela eqabungeni lesibili elimila emva kokuthelelwa igciwane. Izimpawu ezibonakalayo kuba imigqa eluhlaza okugqamile noma amachashaza maphakathi neqabunga. Lemigqa ihlangana izenze ama "huku" futhi ibonakala kahle ngaphansi uma uzobhekisa iqabunga ngaselangeni

Izimpawu kuyenzeka zibonakale nalapho kuhlanguka amaqabunga. Iqabunga elivelayo kuyenzeka libe nemigqa emhlophe lisagoqene. Lemigqa ishintsha ibeluhlaza okugqamile ngenkathi iqabunga livuleka.



Imigqa eluhlaza okugqamile kanye nokoma (Photo: E. Jooste)

Amaqabunga alandelayo ayangokuba mancane ngobude nobubanzi. Amaqabunga ayoma, ame aqonde okungajwayelekile abe yisixheke phezulu.

## Igciwane lihlasele ziphi izitshalo

I BBTV yigciwane elihlasela umndeni i *Musaceae* (ubhanana nezihlobo zawo)

## Igciwane libanjwa kanjan?

I Banana bunchy top disease ibonakala ngezimpawu ezichaziwe ngenhla. Amaqabunga asolakala ukuba nesifo angathunyelwa e laborathi e ARC-PPR ukuze kubhekwe igciwane (bona imniningwane ngezansi). Uma uzokhetha amaqabunga azoyohlelwa leligciwane, khetha iqabunga lesithathu ungalibali iqabunga elincane kunawo wonke elisagoqene. Sika maphakathi neqabunga nalapho lihlanganga khona iqabunga bese uthumele ukuthe kuyohlolwa.

## I BBTV isuka kanjan esitshalweni esisodwa iye kwesilandelayo?

- Isinambuzane i*Pentalonia nigronervosa* sithutha igciwane emva kokuhlala esitshalweni amahora awu 4 kuya kwawu 18, igciwane lingahlala amaviki amabili emzimbeni waso. Kulesikhathi, isinambuzane singadlulisela igciwane kwesinye isithelo emuva kokuhlala kusona amahora ayi-2. Igciwane lihlala emzimbeni wesinambuzane impilo yaso yonke.



Isidleke sezinambuzane ekhasini lika bhanana esinxeleni (Isthombe: E. Jooste) kanye nesinambuzane i *Pentalonia nigronervosa* (kwesokudla) (Isthombe: N. Wessels)

- Izinambuzane ezinegciwane ziyakwazi ukusuka ku bhanana ziye ku jinja nakwi 'heliconia' njengoba zisemndenini owodwa. Ngaleyondlela kufanele kuqikelelwe uma kuthuthwa lezitshalo ukuthi asikho lesinambuzane
- Igciwane lingathutheka phakathi kwezitshalo ezinesifo

## Izindlela zokulawula iBBTV

- Tshala izitshalo ezinempilo kuphela
- Gwema ukusabalalisa kwezitshalo lapho sibikwe khona isifo
- Hlola amasimu njalo ukubheka izimpawu. Ukubanjwa kwesifo ngokuphuthuma kusiza ekuvimbeni ukwanda kwe BBTV
- Bulala izinambuzane ngemithi esemthethweni ukuze zingazokwazi ukusabalalisa igciwane, maqede ukhiphe izitshalo ezinesifo. Ungaqali ngokukhipha isitshalo esinesifo ngoba loko kuzodala ukuth izinambuzane zisuke kuleso zitshalo ziye kwezinye, ngaloko ziqhubeke zisabalalise igciwane.