

PESTS



ALC: NO

Prepared for SASRI's Biosecurity Teams

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Major Pests of Sugarcane

1. Stalk Borers

- a. Eldana Eldana saccharina Walker
- b. Sesamia Sesamia calamistis Hampson
- c. Chilo or Spotted borer Chilo sacchariphagus Bojer

2. Sap Feeders

- a. Yellow sugarcane aphid Sipha flava Forbes
- b. Thrips Fulmekiola serrata Kobus
- c. Maize aphid Rhopalosiphum maidis

3. Leaf Feeders

- a. Trash caterpillars Mythimna spp.
- b. Fall armyworm Spodoptera frugiperda

4. Root Feeders (Soil pests)

- a. White grubs Coleoptera: Scarabaeid
- b. Longhorn beetle Cacosceles newmanii

5. Natural Predators that can be found in the field

a. African sugarcane borer: Eldana saccharina





← Damage caused to stalk

Eldana = Major Pest Status !

Very important because it damages the part of the stalk where sucrose is concentrated = 1 - 4% RV loss for every 1% internodes bored.

b. Pink stem borer: Sesamia calamistis



Stalk Borers	Sap feeders	Leaf feeders	Root feeders

c. Chilo or spotted borer: Chilo sacchariphagus



Typical symptoms:

- Damaged stalks with sour rot
- Shothole lesions on leaves

- Insect traps are placed along the Komati/Mozambique border to act as an early warning system.
- No moths caught so far.
- Threat Remains: monitoring is ongoing.

• Not found in South Africa.

- Present in Mozambique.
- Potential major pest in SA.
- Not to be confused with Chilo partellus found in SA, but Minor Status.

a. Yellow Sugarcane Aphid: Sipha flava



- Females can reproduce without males.
- Females produce live young.
- F1 produce live young in 22 days, for ~22 days after.
- 1 aphid \rightarrow ~8 nymphs per day = 176 offspring in 22 days.
- 176 x 176 = 30,976 in 22 days!!!
- Best practice: scouting and spot spraying before infestations cause damage.
- Treatments: Bandito at planting, Sprays on ratoons (Chess, Actara, Allice, Bandit, Chess)

!! MAJOR STATUS !!

- Appeared in 2013.
- Probably not SCMV vector.
- Up to 19% yield loss in USA. Patchy & unpredictable infestations.
- Prevalent in spring and summer.

b. Sugarcane thrips: Fulmekiola serrata



F. serrata infestation



Chlorosis on leaves



!! MAJOR STATUS !!

- Appeared in 2003.
- Lives in leaf spindle.
- Season influences population high in summer.
- Sucrose loss up to 24%.
- Controlled by predators to some extent.
- Damage recedes in older cane, young cane most susceptible.

- **c. Maize aphid** (*Rhopalosiphum maidis*)
- Carries Sugarcane mosaic virus (SCMV).
- May be a vector of SCMV = can spread the disease by feeding on sugarcane.





Virus under the microscope

Stalk Borers	Sap Feeders	Leaf feeders	Root feeders

a. Trash caterpillars: Mythimna spp.



Trash caterpillars generally controlled by natural enemies. Minor status, localised, sporadic pest.

b. Fall armyworm: Spodoptera frugiperda



Insects feed by chewing the leaves. Cane usually recovers from such damage. <u>Minor status</u> <u>on sugarcane</u>. Usually controlled by natural enemies, especially parasitic flies, and pathogens. Major pest on maize.

Stalk Borers	Sap feeders	Leaf feeders	Root feeders
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a. White Grubs



- About 7 species in cane.
- Root damage reduces nutrient uptake, and therefore plant vigour.
- Occasional pest.
- No registered insecticides; deep plough-out before replant best option.
- Fungal pathogens show promise.



White grub life cycle:

- Eggs laid in soil
- Eggs hatch and larvae feed on root material
- · Larvae pupate in soil
- · Adults beetles emerge from soil

Stalk Borers	Sap feeders	Leaf feeders	Root feeders
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b. Longhorn Beetle: Cacosceles newmannii



- Oct 2015: longhorn beetle found in the Entumeni region for the first time.
- Indigenous species South Africa, Mozambique and Swaziland.
- Natural hosts unknown.
- Way & others published first information its on biology in 2017.
- Major efforts to contain infestation, which so far appear to have been successful.

Natural Predators that can be found in the field:



Ladybird Eggs, larvae and adults that feed on Yellow Sugarcane Aphids.



Lacewing Eggs, larvae and adults that feed on Yellow Sugarcane Aphids.



Predators eg. Ants, scavenging on larvae

Entomopathogenic fungi parasitizing larvae (a, b) and adults (c, d, e)



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