

Beware of diseases that have an effect on plant emergence



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With the new planting season approaching, it is important that growers know about the soil-borne diseases that could affect the emergence of planted crops.

By understanding how to identify the diseases and the prevention and control methods that are available, growers can reduce the impact of the diseases and maximise emergence and crop yield.

Sett rot diseases

The main disease that affects the germination of the buds in planting material is Pineapple sett rot. Caused by a fungus (*Ceratocystis paradoxa*), Pineapple sett rot is often confused with Fusarium sett rot (*Fusarium moniliforme*) which is only a minor disease.

Both diseases are soil-borne and are favoured by cold wet soil conditions or excessively dry soil that slows the germination of the cane. The fungus is present in all sugarcane soils and it multiplies on any organic matter. It infects the sett through cut ends or damaged areas to the sett.

Differences

The two diseases differ in appearance and smell:

Pineapple sett rot has an over-ripe pineapple smell, hence its name, when the setts are freshly split. It can also be identified by the reddening and central blackening of the internal sett which is caused by the massive number of spores that are present.

Fusarium sett rot has a purple colouration and does not produce the distinctive pineapple smell.



Above: Cross-section view of pineapple sett rot. Note the central blackening.



Above: Fusarium sett rot. Note the purple colouration.

Prevention and control

- > Use a registered fungicide and ensure thorough coverage of the sett, particularly the cut ends.
- > If possible, plant when conditions favour rapid germination and soil temperatures are above 18°C.
- > Both diseases are soil-borne, therefore plough out replant should be avoided because it provides an ideal food for multiplication of the fungus, creating high numbers of spores in the soil. The use of some rotational crops or a fallow period between cane crops can reduce this spore load and the potential of the disease. If sorghum or maize are used as rotation crops and the fresh green stalks are ploughed into the soil, they can provide a food source

for the build-up of the Pineapple sett rot fungus.

- > The use of two or three bud setts will increase the chance of germination. The nodes act as a barrier which can slow the spread of the fungus in the sett and provide the buds sufficient protection until they germinate.
- > Ensure planting material is free of damage from stalk and bud borers, rats and stalk rots. Avoid lodged cane, if possible.
- > Seed cane should be sourced from the progeny of Approved Seed. Avoid plough out replant blocks because volunteer cane and cane trash carries and provides a food source for these diseases.
- > Ensure the harvester is optimised for cutting billets for planting—synchronising rollers and cutters is an important prevention practice to avoid damaging setts. Rubber-coating rollers also helps reduce damage. Ensure the harvester is set to cut billets long enough so that they have two to three nodes.
- > Ensure soil has a good tilth and moisture content and that there is good soil-sett contact—pressing rollers to compact the drill after planting can assist.

Registered fungicides for Pineapple sett rot

Trade name	Active ingredient	Rate	Remarks
Tilt® 250ec, Bumper® 250ec, Throttle®	250 g/L propiconazole	20 mL/100 L water	Ensure thorough coverage of the cut ends of sugarcane setts.
Tyrant® 500	500 g/L propiconazole	10 mL/100 L water	Ensure thorough coverage of the cut ends of sugarcane setts.
Bayfidan® 250ec	250 g/L triadimenol	20 mL/100 L water	Apply to setts by dipping or spraying. Ensure thorough wetting of cut ends.
Sportac®	450 g/L prochloraz	40 mL/200 L water	Apply as a dip or spray to setts at planting. Ensure thorough coverage of all cut ends.
Shirtan®	120 g/L mercury (Hg) present as methoxy ethyl mercuric chloride	250 mL/200 L water	<p>For dipping of small quantities: Use wire mesh baskets or crates to contain the cut setts and dip for approximately 30 seconds. Move the setts about in the solution to ensure thorough wetting. The solution should be discarded after completion of the dipping. If the solution changes in colour from red to black it should be discarded.</p> <p>For use in spray or dip planters: Ensure thorough wetting of cut ends or setts. If solution colour changes from red, or it becomes contaminated with soil, it should be discarded.</p>
Sinker®	500 g/L flutriafol	500 mL/ha or 7.5 mL/100 m row	<p>Spray application</p> <p>The spray should be applied with a minimum of four nozzles arranged in the planting chute to give thorough coverage of all surfaces of the setts before they are planted in the furrow. Apply in a minimum water volume of 350 L/ha and calibrate the planter prior to application and planting to give the correct rate of fungicide (500 mL/ha or 7.5 mL/100 m row).*</p> <p>The use of a non-ionic wetting agent at recommended rates will enhance coverage of the fungicide on the planting material.</p> <p><i>* The rate is based on single-row cane with a 1.5 m row spacing. If row spacing varies from 1.5 m then apply at the use rate according to mL/100 m of row.</i></p>

Fusarium sett rot

There are no registered fungicides for the control of Fusarium sett rot and the activity of chemicals is unknown. The broad spectrum fungicides used to control Pineapple sett rot may have some activity.



Pineapple sett rot is the main disease that affects sugarcane plant emergence but it can be controlled by treating setts with a registered fungicide and following a range of preventative measures:

- Plant when the soil temperature is at 18°C or above.
- Plant with two to three eye setts to reduce damage to the setts.
- Use a non-host rotational crop to reduce the spore population of the fungus in the soil.