

Sett rot diseases

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

Both diseases are soil-borne and are favoured by conditions that slow the germination of the cane – such as cold, wet soil or excessively dry soil. The fungus is present in all sugarcane soils. It multiplies on any organic matter such as stubble and billets left over from the previous crop. The fungus can enter through the end of the sett or damaged parts of the sett.

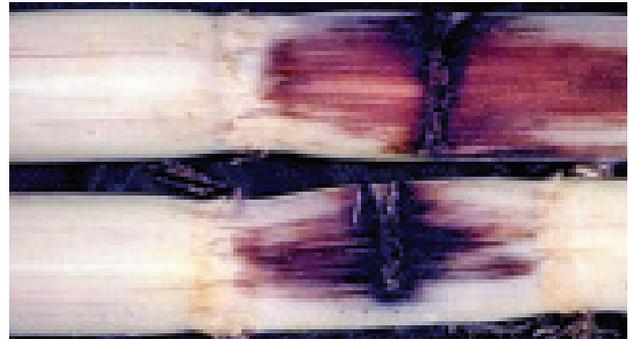
The two diseases differ in appearance and smell:

- Pineapple sett rot – when the setts are freshly split, they smell like an over-ripe pineapple (hence its name). You can also identify it by the reddening and central blackening of the internal sett. This is caused by the massive number of spores present.
- Fusarium sett rot – does not smell like a pineapple, and it has a purple colouration.

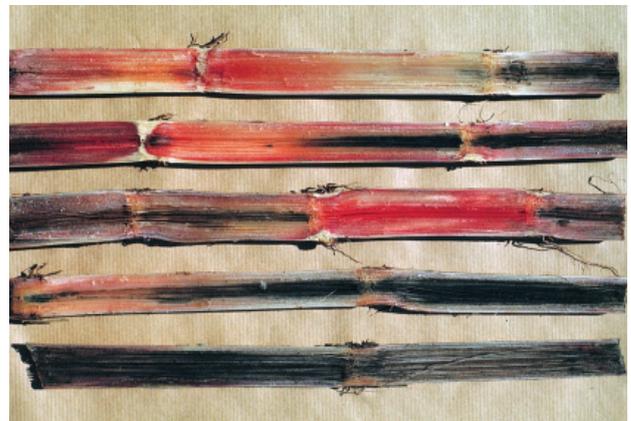
Prevention and control

- Use a registered fungicide to thoroughly cover the sett, particularly the cut ends.
- If possible, plant when weather conditions favour rapid germination and soil temperatures are above 18°C.
- Because both diseases are carried in the soil, you should try to reduce the number of spores to limit the potential for the disease. You can do this by using a rotational crop or fallow period between cane crops. Don't plough out replant because it is an ideal food for the fungus which would only create high numbers of spores in the soil.
- You will increase the chance of germination if you use two or three bud setts. The nodes act as a barrier which can slow the spread of the fungus in the sett. They also protect the buds sufficiently until they germinate.

- Ensure that base-cutter and chopper box blades on harvesters cutting billets are sharp to give a clean cut and prevent cracking of setts. Rubber coated and synchronising feed-rollers will reduce damage to the rind of setts which can provide entry points for the fungi.
- Ensure soil has a good tilth and that there is good soil-sett contact – try pressing the rollers to compact the drill after planting.
- If using fungicide dip type planters, ensure the dip tank is cleaned regularly to reduce contamination of the fungicide with dirt.



Fusarium sett rot. Note the purple colouration.



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

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 taking these preventative measures:

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



Above: A rotation crop of legumes can reduce sett rot levels.

Registered fungicides for pineapple sett rot:

Trade name	Active ingredient	Rate	Remarks
Sinker®	500 g/L flutriafol	500 mL/ha or 7.5 mL/100 m row	<p>For the prevention of primary infection of sugarcane smut and pineapple disease in sugarcane.</p> <p>Apply as a spray onto setts in the planting chute. The spray should be applied with a minimum of 4 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>* 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.</p>
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	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. 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.



Fusarium sett rot:

There are no registered fungicides for 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.