

Control of sugarcane smut

The Three R's

Resistant varieties

Regular approved seed

Remove heavily infested blocks

Resistant varieties

Resistant varieties are the key to controlling smut. Varieties are rated as Resistant, Intermediate-resistant, Intermediate, Intermediate-susceptible or Susceptible.

Resistant varieties – can be grown in all areas. These varieties may occasionally show some smut but should not suffer any yield loss.

Examples – Q99, Q133, Q146, Q149, Q151, Q171[Ⓛ], Q177[Ⓛ], Q199[Ⓛ], Q200[Ⓛ], Q212[Ⓛ], Q219[Ⓛ], KQ228[Ⓛ], Q232[Ⓛ], Q235[Ⓛ], KQ236[Ⓛ], Q238[Ⓛ], MQ239[Ⓛ], Q240[Ⓛ], Q241[Ⓛ], Q245[Ⓛ], Q246[Ⓛ], Q247[Ⓛ], BN73-3416, BN81-1394, Cassius, CP74-2005, Florida.

Intermediate-resistant varieties – can be grown in all areas. These varieties will show low levels of smut but generally will not suffer significant yield loss. It is essential to regularly obtain approved seed of these varieties to prevent smut build-up in plant sources.

Examples – Q172[Ⓛ], Q173[Ⓛ], Q183[Ⓛ], Q208[Ⓛ], Q226[Ⓛ], Q231[Ⓛ], Q243[Ⓛ], QC75-326.

Intermediate varieties – can be grown in most areas if care is taken to ensure plant sources have low levels of smut. May suffer yield loss in areas with very high smut disease pressure. It is essential to obtain approved seed of these varieties regularly to prevent build up of smut in plant sources.

Examples – Q96, Q135, Q155, Q175[Ⓛ], Q190[Ⓛ], Q203[Ⓛ], Q237[Ⓛ], Q242[Ⓛ], Q244[Ⓛ].

Intermediate-susceptible varieties – may suffer yield loss if planted in areas that have heavy smut disease pressure or in areas highly conducive to smut. These varieties will show some smut in most situations, but may be grown with minimal yield loss if care is taken with managing plant sources and the disease pressure from surrounding blocks is not too high. It is essential to obtain approved seed of these varieties regularly to prevent build-up of smut in plant sources.

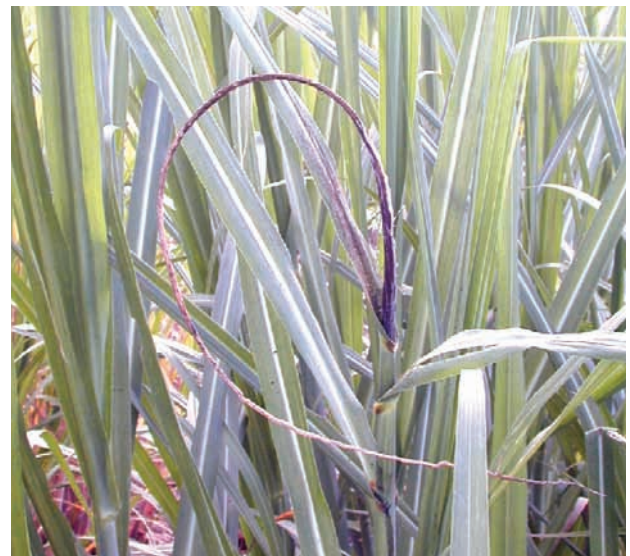
Plant sources should be inspected, smut-infected plants removed and/or the plant sources abandoned if smut levels exceed 1% infected plants (more than 1 plant in 50 m).

Examples – Arris, Q119, Q124, Q156, Q160, Q161, Q176[Ⓛ], Q213[Ⓛ], Q220[Ⓛ], Q227[Ⓛ], Q230[Ⓛ], Q233[Ⓛ], Q234[Ⓛ], Q248[Ⓛ].

Susceptible varieties – These varieties will suffer severe yield loss. Do not plant in any area where smut is present. Replace ratoon crops of these varieties in a normal crop rotation or earlier if smut levels exceed 5% infected plants (5 plants in 50 m). In New South Wales it may be possible to grow susceptible varieties but highly susceptible varieties are not recommended.

Examples – (Highly susceptible) Empire, Esk, Q117, Q127, Q157, Q158, Q166[Ⓛ], Q170[Ⓛ], Q174[Ⓛ], Q205[Ⓛ], Tellus[Ⓛ]. (Susceptible) Q138, Q188[Ⓛ], Q210[Ⓛ], Q211[Ⓛ], RB72-454.

For more smut resistance ratings visit the web-based variety information resource QCANSelect™ through the SRA website (sugarresearch.com.au).



Regular approved seed

All varieties will show some smut. It is imperative that heavily smut-infested cane is not used as planting material because this will lead to severe yield loss. To prevent build-up of smut in plant sources, growers should obtain approved seed every year. This is also a good control practice for other diseases such as Ratoon Stunting Disease (RSD).

Approved seed is planted from hot-water-treated cane and will be treated with fungicides. Hot water will kill any smut inside the cane and fungicides will reduce reinfection with smut. To be effective, fungicides have to be applied in a dip for 5 minutes or more, therefore, fungicide sprays or dips on planters are not effective for controlling smut.

Plant seed cane as far as possible from blocks of susceptible varieties. Planting a few rows of highly resistant varieties on either side of seed cane may reduce the risk of smut infection.

Plant sources should be inspected and any smut-infested plants destroyed. If the smut levels exceed 1% infected plants (more than 1 plant in 50 m), the plant source should be abandoned. When disease pressure is high this rule may have to be relaxed for intermediate-resistant varieties like Q208^{db}.

Approved seed and plant source inspections are particularly important for intermediate, intermediate-resistant, and intermediate-susceptible varieties. If these procedures are not followed, smut will build up in these plant sources and severe yield losses may result in subsequent crops.

Remove heavily infested blocks

Heavily smut-infested blocks act as a source of spores for spread to surrounding blocks. The more spores that are produced, the higher the disease pressure. If the disease pressure is too high, intermediate and intermediate-susceptible varieties may start to suffer yield losses.

Roguing (destroying) infected plants or ploughing-out heavily infested blocks will reduce the disease pressure on surrounding blocks. SRA recommends that growers inspect their blocks of intermediate-susceptible and susceptible varieties and plough-out blocks if they exceed the suggested thresholds.

Inspection procedure:

- Select a 50 m section of row within the block.
- Record the number of infected plants (assume 2 plants (stools) per metre).
- Repeat this 5 times in different parts of the block.
- Divide the total number of infected plants in the 5 sections of 50 m by 5 and this is your estimate of the percent infected plants in the block.

Recommended thresholds for plough-out:

- In young crops inspected during November to January, plough out any blocks with 5% infected plants immediately. If there is an average of 1-4% infected plants, inspect the crop again after March.
- In crops inspected after January, plough out the field after harvest if the percent infected plants exceed 5%.

These rules apply to susceptible and intermediate-susceptible varieties. Under severe disease pressure intermediate-resistant varieties like Q208^{db} may exceed this rule but experience from the Ord in Western Australia suggests that these varieties will continue to yield well in spite of low levels of smut infection.

