



Information Sheet

2. DISEASES

2.5 Roguing

The removal of diseased plants from the field (roguing) is a highly recommended measure for the management of smut in commercial fields in most situations. Roguing is also an essential, routine requirement for the elimination of diseases such as smut and mosaic, as well as off-types from seedcane nurseries.

Roguing in relation to the spread of smut

The fungal disease smut is spread mainly by wind-borne spores that are produced on the 'whips' of infected plants. The purpose of roguing is to remove the smut whips and eradicate infected plants before the whips mature, in order to minimise the dispersal of spores and slow down the infection.

Because infected cane produces whips over an extended period, several roguing operations are required in each crop. Mature whips are easily recognised. However, labour must be trained to identify young infected shoots (incipient whips) before the whips are fully developed. Roguing operations must be timed so that most infected plants or shoots are removed before spores are dispersed from mature whips (see 'Timing and frequency of roguing').



- 1) Smut whips emerging from the top of infected stalks (left).
- 2) Incipient whips: infected shoots with small, erect spindle leaves, thin stalks and elongated internodes (right).

Methods of roguing

Stool roguing

Mature whips are first cut from infected plants and placed in bags so that the spores are not spread while the whips are being collected and removed from the field. The bags of whips should be taken as far from the sugarcane fields as possible for burning. Whips should not be left in or beside the field. The infected stools (clumps of infected shoots) are then dug out. This material can be left in the field.

The main advantage of stool roguing is that the infected base of the plant is removed, so that no further whips are produced from it during the current or following seasons.

Stool roguing is the most effective method of roguing and is the preferred method for seedcane nurseries and for low to moderate levels of infection in commercial fields. However, stool roguing is usually not feasible if there are high levels of smut. Such crops should be ploughed out.

Herbicide roguing

Mature whips are first removed and burned, away from the field. About 10 ml of a 10% solution of Roundup (glyphosate) is then sprayed over the infected clump of shoots, taking care not to contaminate adjacent healthy plants. The effects are the same as that of stool roguing.

Whip roguing (not recommended)

Infected shoots (i.e. whips and incipient whips) are plucked from the row at soil level and removed from the field in bags for burning. Whip roguing is less labour-demanding per operation than stool roguing,

but has the disadvantage that the infected base of the plant remains to produce new whips in the current and subsequent seasons.

Timing and frequency of roguing

Roguing is most effective, easier to perform and has a less detrimental effect on productivity when carried out early in the development of the crop, i.e. when the majority of whips first appear.

First roguing operation

This should be done when infected plants first become apparent and before many whips open. This will usually be four to eight weeks after planting or cutting, depending on growing conditions (i.e. about four weeks in the warmer areas and in summer).

Subsequent roguing operations

Roguing is necessary every four to six weeks and should continue until the canopy is about two metres in height.

A minimum of four roguing operations is recommended for each crop. Note that the main benefit is obtained from the early operations.

Labour requirements for stool roguing

This will vary with the intensity of smut infection and the condition of the crop. The table gives approximate guidelines, based on large scale commercial roguing.

Level of smut (Infected stools)	Labour (man-days/ha)	
	Per operation	Per crop
Light smut (up to 1%)	0.5 to 1	2 to 3
Moderate smut (5%)	2	8 to 10

Benefits from roguing

There is ample evidence that when conducted efficiently and carried out by all the growers in an area, roguing can substantially reduce levels of smut and maintain the disease at a low incidence. This may allow the continued production of a susceptible variety, such as NCo376, which would otherwise become severely infected and suffer declining yields. There is also evidence that roguing can result in direct increases in yield because of compensatory growth (Anon, 1990) which may cover the cost of roguing.



Growers being trained by a Pest and Disease Inspector in the identification and removal of smut-infected stools.

Updated by Sharon McFarlane (Pathologist) September 2011