



# Information Sheet

## 2. DISEASES

### 2.8 Inspecting for disease and off-types

#### RSD

**R**atoon stunting disease (RSD), mosaic, smut and leaf scald are diseases of major concern to the South African sugarcane industry. Red rot is a problem in certain areas, whereas pokkah boeng, gumming, rust and various leaf spots are of lesser importance. Field surveys to determine the incidence of diseases are an important aid towards the successful management of these problems.

At present, RSD can be accurately identified only in the laboratory, by microscopically examining the sap from samples of cane stalks. A sample consists of the basal portions (1 m) of 20 stalks per field collected from stools which appear to be stunted. Make arrangements for this test with your Extension Officer or Local Pest and Disease Control officer. A small user-charge applies to RSD diagnosis.

#### Other diseases

All other diseases and off-type plants are detected by inspecting plants in the field. Off-type cane is any plant that is atypical of the variety planted. It may be an unwanted variety arising from volunteer regrowth or mixed seedcane, or it may be abnormal growth of the seedcane which was planted (the commonly used terms 'volunteer' and 'rogue' are both included in the category 'off-type').

#### How to inspect

Cane to be inspected should be between knee and head height, and two to nine months old. The inspection

is performed by walking between the cane lines through the field, carefully examining the plants. A line by line inspection must be made if every stool of unwanted cane needs to be marked, for example, for roguing. A more rapid survey of the degree of infection or varietal mixing can be made by inspecting 50 m lengths of line systematically in each field. The 50 m inspection sites must be located in a regular pattern so that they represent all parts of the field. The number of 50 m sites needed varies with field size, as shown in table on page 2.

You need to record the incidence of diseases and off-types so that you can monitor the progress of your control measures over the years. For this purpose it is accepted that there are two stools per metre of row, giving 100 stools in each 50 m inspection site; therefore the number of stools with disease or off-types represents the percentage. You can then calculate the



*Inspecting for off-types.*

Size of field (ha)	<1	1-2	2-4	4-6	6-10	10-20	>20
No. of 50 m sites	5	10	15	20	25	30	35

average per cent infection or off-types in the field from the number of 50 m lengths of line inspected:

$$\frac{\text{Total number of diseased or off-type cane stools}}{\text{Number of 50 m sites}} = \% \text{ infection or off-types}$$

## What to look for

When inspecting sugarcane look for abnormal features such as a cane stool or stalk that is stunted or taller than average, paler or darker in colour, leaves more spiky or drooping, etc. Specific features include the general appearance of the leaf canopy, colour differences towards the base of young leaves (where mosaic symptoms are best seen) and excessive tillering or side shooting. Disease symptoms and differences in varietal characteristics may be subtle and inconspicuous, and the recognition of these requires concentration.

## Characteristic features of the more important diseases

### RSD

- No specific external symptoms. Suspect RSD if growth is patchy or poor for no obvious reason.
- Stalks from poor stools may have internal red to brown marks at the nodes (not seen in NCo376).

### Smut

- Easy to recognise from the characteristic 'whips'.

- Infected plants tend to tiller profusely, giving a grass-like appearance - most obvious in young cane.
- Infected shoots are often thin and 'reedy', with elongated internodes.

### Mosaic

- Mottled colouration of infected shoots, seen as a subtle pattern of light and darker (normal) green.
- Symptoms are best seen towards the base of young leaves - difficult to recognise in older leaves.
- Young infected plants tend to be light-green or even yellowish in appearance.

### Leaf scald

- Older leaves dry off prematurely (scald) and may curl inwards.
- Stalks and shoots may die back.
- Side shoots develop at the base of infected stalks.
- Thin white 'pencil' lines or a blotchy chlorosis on young leaves.

## Further information

Assistance and training in the inspection of sugarcane can be arranged through your Extension Officer or Local Pest and Disease Control Committee.

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*Smut*



*Mosaic*



*Leaf scald*