# Information Sheet

8. PESTS

## 8.6 Eldana control measures

Recommended control measures for eldana are based on an Integrated Pest Management approach (IPM) and comprises the use of a number of crop management practices. Each practice is outlined below but further details are given in the booklet "Guidelines and Recommendations for Eldana Control in the South African Sugar Industry" available from SASRI.

### CROP MANAGEMENT PRACTICES

**Insecticide use**

The insecticide Fastac (SC) can be used to treat selected carryover crops to reduce the impact eldana can have on such crops. Fastac should be applied eight times, once every two weeks at a rate of 200 ml product in 350 litres of water, per hectare, per application over the period August to November.

Generally if the value for % Internodes Bored or % Stalk Length Red is above 3, the use of Fastac can be economically justified (refer to the section on farm surveys).

Fastac is registered for both ground and aerial application. The recommendation calls for mistblowers to be used but it can be applied by air as well as by knapsacks with good effect. Be aware that aerial application has an inherent problem of drift and the implications of this on your farm must be considered.

Be aware that not every carryover field will benefit from the use of Fastac – an eldana resistant variety, grown in a good soil will be unlikely to develop a serious eldana infestation and the use of Fastac under such, or similar circumstances would not be justified.

**Harvest age**

A most important factor is the age of the crop as borer populations increase as the crop matures. Eldana populations, and therefore crop damage, may escalate rapidly once the crop age exceeds 12 months. In endemic areas, careful decisions must be made before the crop is carried over. Where the hazard levels and maximum age limit (as determined by the Local Pest, Disease and Variety Control Committees (LPD&VCC) are exceeded, prompt action to harvest is necessary. Cut the prescribed percentage area of the farm to avoid carrying over excessive areas of cane. Out of season, Committees may require growers to destroy the crop where levels are excessive. Different LPD&VCC have set different threshold levels for action. Contact your local Extension Specialist or LPD&VCC Inspector for thresholds used in your region.

**Field hygiene**

Field hygiene is important because sugarcane stalks that remain in the field after harvest can habour eldana and so serve as a source of infestation of the ratooning crop. Whole stalks must be removed from the field and no stubble should remain. This is particularly important in situations where the previous crop was heavily infested with eldana.

**Several eldana larvae can feed within one stalk, causing serious damage as shown.**

### Crop burning at harvest

At harvest, burn cane which is heavily infested, drought-stressed, or both, as this reduces the chances of ratoon crop infestations. Otherwise, as trashing is beneficial, avoid indiscriminate burning. Always leave tops scattered.

### Soil type

Poor soils induce stress, which encourages eldana. Cut stressed fields early and avoid carrying over cane on poor soils. Reduce other stress factors such as poor drainage and weed competition, which can also aggravate eldana infestations

### Pre-trashing

Consider pre-trashing cane fields that will be carried over. The optimum time is before or at the summer moth peak, during the period August to October. A task of about 25 units per hectare, using the blunt edge of a cane knife or a heavy stick, is sufficient. The trash should be moved back from the base of the stools.

### Crop nutrition

Apply only the amount of nitrogen recommended by the Fertiliser Advisory Service at SASRI. In areas with a history of eldana, reduce the amount applied by 20 to 30 kg N/ha (see Table 1).

**Table 1. Possible reductions in levels of N related to soil mineralizing capacity.**

| Graded reduction in applied N | | | |
|---|---|---|---|
| Soil N mineralisation category | 1 | 2 | 3&4 |
| Reduction in Applied N (Kg/ha) | 10 | 20 | 30 |

Trials have shown that where silicon has been used, damage caused by eldana was reduced. Further trials have shown that the N:Si ratio is better correlated with potential damage than N alone and where this value is greater than 2 there is an increased risk of eldana damage. A guide is summarised in the table below.

**Table 2. N:Si ratio and eldana risk.**

| N:Si Ratio | Risk Category |
|---|---|
| ≤ 2 | Low |
| 2-4 | Medium |
| 4-6 | High |
| >6 | Very high |

### Variety choice

Plant those varieties that have been proved less susceptible to eldana, e.g. N21. Where cane is carried over, only the more resistant varieties should be considered. Table 3 shows the current ratings of varieties.

**Table 3. Eldana risk categories of commercial sugarcane varieties.**

| VARIETY | ELDANA RISK CATEGORY |
|---|---|
| N21, N33, N39, N42 | LOW RISK of economically damaging infestations, provided cane is not stressed. May be aged or carried over. |
| N12, N17, N18, N19, N22, N23, N24, N25, N28, N29, N31, N32, N36, N37, N40, N41, CP66/1043, N43, N44, N45, N46, N47, N48 | MODERATE RISK of economically damaging infestations, provided cane is not stressed. May be aged slightly, but carry-over with caution. Carry-over in coastal region not recommended. |
| N11, N14, N16, N26, N27, N30, N35, N38, NCo376 | HIGH RISK of economically damaging infestations. Do not carry-over. |

### Seedcane

Eldana can spread in infested seedcane, therefore, ideally, sugarcane must not be used for seed if eldana is present. If the use of infested seed is unavoidable, follow one of the procedures below.

- Treat the seedcane in a hot water tank at 50°C for 30 minutes.
- Select stalks that show no sign of borer attack. If necessary, bored sections of stalk can be cut out and the uninfested portions used as seedcane.

## SURVEYS

### LPD&VCC surveys

Your local LPD&VCC conducts eldana surveys according to their specific survey programme. These surveys are intended to provide you with an estimate of the eldana infestation in selected fields. In addition the information is used to indicate to your committee the extent and intensity of infestation in your region.

Because their survey teams cannot survey all fields in their region, it is important that growers conduct their own surveys.

### Farm surveys

Conduct your own farm surveys to supplement LPD&VCC team surveys. (Farm labour can be trained by your local

LPD&VCC team supervisor.) It is important to monitor Eldana populations in older cane on a monthly basis, as this will enable prompt decisions.

A survey does not need to be detailed. A regular sampling of a few stalks per field is of more value than infrequent detailed surveys. By recording levels of stalk damage, either % Internodes Bored (%IB) or Stalk Length Red (%SLR) as well as eldana numbers, you will build up a picture of eldana levels on your farm which, over time can become a useful management tool.

The checklist for rating eldana hazard in potential carry-over cane (Table 4) can help in assessing the Eldana risk in a particular field. The checklist with scoring values takes all the influencing factors into consideration and enables a more objective decision to be made regarding the hazard in a particular field. This exercise should be carried out in all potential carry-over fields two to three months before the milling season ends.

*If you are unsure about the control measures mentioned in this information sheet, discuss this with your LPD&VCC Officer or Extension Specialist.*

**Table 4. Checklist for rating eldana hazard in potential carry-over cane.**

| FACTOR | RATING | | DATE OR FIELD NUMBER | | | | |
|---|---|---|---|---|---|---|---|
| **CROP/ENVIRONMENT FACTORS** | | | | | | | |
| | Category | Score | | | | | |
| **Varietal susceptibility** | Resistant | 5 | | | | | |
| | Intermediate | 10 | | | | | |
| | Susceptible | 20 | | | | | |
| **Soil factor** | Good | 5 | | | | | |
| | Poor | 10 | | | | | |
| **Water factor** | Good | 10 | | | | | |
| | Poor | 20 | | | | | |
| **Crop age** | < 5 months | 5 | | | | | |
| | 6-10 months | 10 | | | | | |
| | > 11 months | 20 | | | | | |
| **Nitrogen application** | Low | 2 | | | | | |
| | Standard | 4 | | | | | |
| | High | 8 | | | | | |
| **SUB-TOTAL** | | | | | | | |
| **ELDANA FACTORS** | | | | | | | |
| **Eldana numbers** | 5 Low (<15/100) | | | | | | |
| | 10 Intermed (16-25/100) | | | | | | |
| | 20 High (>30/100) | | | | | | |
| **Eldana damage (A)** | 5 Low (<2% IB) | | | | | | |
| | 10 Intermed (3-5% IB) | | | | | | |
| | 20 High (>10% IB) | | | | | | |
| **Eldana damage (B)** | 5 Low (<30% SB) | | | | | | |
| | 10 Intermed (31-70% SB) | | | | | | |
| | 20 High (>70% SB) | | | | | | |
| **SUB-TOTAL** | | | | | | | |
| **GRAND TOTAL** (Both factors combined) | | | | | | | |

*Updated by Graeme Leslie (Principal Entomologist) January 2010*