

PATTERNS OF DAMAGE FROM *ELDANA SACCHARINA* (LEPIDOPTERA: PYRALIDAE) IN THE SOUTH AFRICAN SUGAR INDUSTRY

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In the South African sugar industry, internal tissue of sugarcane stalks attacked by *Eldana saccharina* Walker (Lepidoptera: Pyralidae) often turns a red colour as a result of secondary infection by various organisms. In the factory, less sugar is extracted from these sections because sucrose is inverted to glucose. The length of stalk that is red thus provides an indication of the amount of sugar that will be lost as a result of damage by this pest. Loss estimates are important because they are used to calculate the cost:benefit ratios that are required to assess potential control options against *E. saccharina*.

Each season Local Pest, Disease and Variety Control (LPD&VC) teams conduct field surveys throughout the industry to determine the extent of red tissue. Stalk length red is expressed as a percentage of the total length of the stalk examined (% SLR). This short communication gives results from investigations into the patterns of this measure detected during the surveys. Data were collected from January to December 2002, from a range of geographical areas and varieties, in seasonal and older crops.

Damage levels differed between geographical localities as, shown in Table 1. Industry-wide, the level of damage ranged from 0.5 to 4.0 % SLR. In addition, the particular distribution of damage within each area was used to suggest a way of reducing loss from this pest. As an example, in areas such as Maidstone, where many fields had high levels of damage, it may be difficult to reduce the average level of damage. In contrast, in Pongola it may be easier to reduce the average because there are fewer fields with high levels of damage. A further advantage of this strategy is that it will eliminate fields from which the pest could spread. This illustrates the importance of assessing the distribution of damage as well as the larval populations in the fields within each area in terms of developing control strategies that will be effective over large areas.

From the database amassed, it was possible to extract detailed information on particular patterns of damage within each region. At Maidstone, for example, in 2002 the average level of damage was lower (1.3 % SLR) in the small scale grower fields than in commercial fields in this particular area.

Information on other aspects of the crop-eldana interaction can also be obtained from the database, which corroborated the well-documented link between *E. saccharina* damage and cane age. Higher levels of damage were found in older cane, as shown in Figure 1 for the Pongola and Maidstone mill areas. This association has led to the recommendation to harvest cane at an early age to help reduce *E. saccharina* damage and concomitant yield loss.

Table 1. *E. saccharina* damage in different Local Pest, Disease and Variety Control Committee (LPD&VCC) areas in 2002.

LPD&VCC mill area	No. of fields surveyed	Mean % SLR	Max % SLR	No. of fields with >5% SLR	% fields surveyed in mill area
Pongola	1361	1.6	12.8	72	5.3
Umfolozi	452	0.5	3.8	0	0
Felixton	853	0.8	6.3	4	0.5
Amatikulu	654	2.4	24.8	75	11.5
Entumeni	1132	2.2	34.1	112	9.9
Maidstone	1411	4.0	39.0	370	26.2
Gledhow	695	3.9	17.3	125	18.0
Darnall	1465	2.5	22.0	65	4.4
Glendale	377	2.6	5.7	5	1.3
Midlands South	1018	1.1	3.3	0	0
Sezela	1934	1.4	17.2	113	5.8
Umzimkulu	2726	2.1	35.6	327	12.0

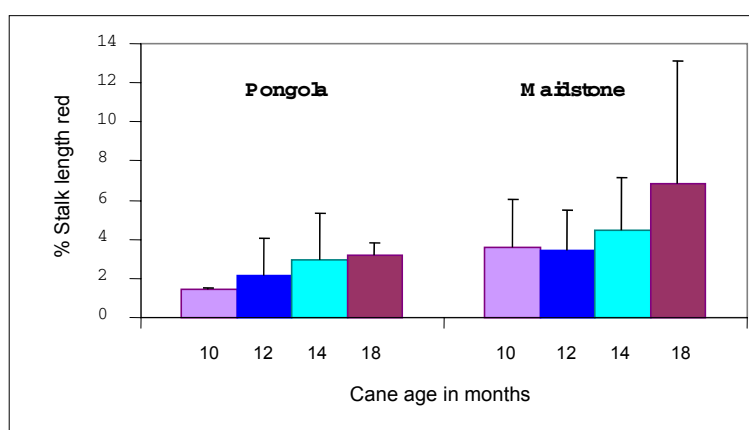


Figure 1. *E. saccharina* damage in 10, 12, 14 and 18 month old cane at Pongola and Maidstone in 2002.

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