CHARACTERISTICS OF SUGARCANE BORED BY *ELDANA SACCHARINA* (LEPIDOPTERA: PYRALIDAE)

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Damage to sugarcane caused by lepidopteran borers often affects a number of stalk characteristics. This poster investigates the effects that *E. saccharina* Walker has on sucrose, fibre and stalk mass, and examines whether any useful seasonal trends can be detected in these effects.

In 1996/97 field trials at Mount Edgecombe in NCo376, N11and N19, (intermediate, susceptible and moderately susceptible to eldana, respectively) were conducted to survey for damage and corresponding stalk characteristics. Monthly surveys were taken from July 1996 (14 months) to February 1997 (20 months). Surveys comprised randomly selecting 50 stalks to assess damage. From these stalks bundles of six undamaged, and stalks with between 1-6% internode damage, were analysed for sucrose content, fibre, and stalk mass for each variety. These data were used to calculate the percentage difference in bored stalks each month as (bored stalks – unbored stalks) ÷ unbored stalks x 100.

As expected, sucrose levels were consistently lower in bored stalks; 14 of 17 surveys recorded lower sucrose content in bored stalks. Average sucrose reductions of 24.1%, 10.5% and 10.9% for NCo376, N11 and N19 respectively were recorded. The overall mean reduction was 16.3%. In NCo376, from 17 to 20 months, the difference declined from 31.1 to 18.5%.

Fibre was consistently higher in bored stalks. A positive difference was recorded in 71% (12) of the surveys. Fibre increased on average by 9.8% and 11.3% in NCo376 and N11, respectively. In N19 a possibly useful trend was detected, i.e. the difference was negative in the first three surveys, and positive in the last three surveys.

There was less consistency in the results of the effect on cane mass. In half the surveys, cane mass in bored stalks exceeded the mass of unbored stalks. NCo376 and N11 were the most consistent varieties with an average 31.1% and 16.0% reduction, respectively. In N19, cane mass was higher (rather than lower as expected) in bored compared with unbored stalks.

The trends detected in these data generally concur with published data. Stalks bored by *E. saccharina* are usually inferior due to the combined effects of a reduction in sucrose, and an increase in fibre content, while any effects on stalk mass are less clear. This trend is different to that shown for the spotted sugarcane borer (*Chilo sacchariphagus*), which causes a significant reduction in cane mass, while fibre and sucrose are affected to a lesser extent.

Seasonal trends in these characteristics may be useful in helping to decide on optimum harvest age. A progressive decline in differences between unbored and bored stalks would show when this difference reaches its lowest value. Since this difference represents the potential yield decline this would be the optimum harvest age. For example, based on seasonal fibre trends in N19 in this trial, the ideal harvest age was any month before the crop was 16 months old, provided other factors that affect yield were also considered. The trend in sucrose between 17 and 20 months mitigated for a later harvest, provided *E. saccharina* levels were not too high.

The large variability in the data from all the characteristics in different months was attributed partly to stalk variability. Therefore in the next trial, sugarcane plots, as opposed to single stalks, will be surveyed. This may help to reduce stalk variability.

In conclusion, confirmation that stalks bored by *E. saccharina* typically have a lower sucrose content, and a higher fibre level, while any effects on cane mass are inconsistent, is provided. In addition, some potentially useful seasonal trends in stalk characteristics were detected in this trial.