

Assessing Magnet performance

A product which attracted a lot of interest last season was the heliothis moth attractant, Magnet. By targeting the mobile moth stage of *Helicoverpa*, Magnet has the potential to affect pest numbers beyond a treated field. This is because Magnet treated fields act as a “sink” for moths, since the number of moths entering a field will be greater than the number leaving due to mortality caused by Magnet. The result is a decline in moth numbers and hence egg laying in the surrounding area, with the effect greatest nearer the treated field. This area wide impact will increase over time with multiple Magnet applications in the same field and/or a greater number of Magnet treated fields in the area.

Field trials have shown reductions in egg pressure three to six kilometres away from a single treated field (Figure 1). Reductions in egg pressure observed over these large areas approximately correlate to the number of moths killed in the treated field over the application period.

Magnet deposits on the crop will dry out during the heat of the day. But if the humidity is high and especially if there is dew, the deposits will absorb moisture and liquefy again at night, becoming available for ingestion by the moths.

In this way, Magnet will continue to kill moths for four to six days after which time the effects of the plant volatiles will begin to wear off. Following the first application,

FIGURE 1: Mean egg densities for a Magnet treated field and fields from three distance categories expressed as a proportion of the density prior to the first Magnet application

subsequent applications should be made at intervals of not less than seven days.

Magnet is highly water soluble and therefore not rain fast. Rainfall will wash the product from the plant surface and reapplication will be necessary to achieve maximum results.

Since Magnet works by attracting moths to treated rows it is most effective when

moth activity in the crop is highest. During the warmer summer months, peak moth activity is at nighttime, while at other times of the year moth activity can decline during cooler nights, with most activity occurring during the day.

To achieve the maximum result with Magnet, it is best applied in the late afternoon during warmer conditions. But when a minimum night temperature of 10°C or less is expected, moth activity may be reduced and it may be better to apply Magnet in the early morning.

Logically, the number of moths killed by Magnet will depend on the number of moths present in the environment during the period that Magnet is effective.

Where possible, Magnet should be applied just prior to an influx of moths. This can be determined by district monitoring using pheromone and light traps, or at the first sign of eggs being laid in the crop. Pheromone trap data should be treated with caution because pheromone trap peaks may indicate that laying has already occurred.

Where monitoring is difficult or impractical, applications of Magnet can be timed to coincide with a key crop stage, such as early squaring in cotton, tasselling in sweet corn or flowering in beans, and then applied on a seven-day schedule to provide ongoing control.