Revised thresholds for economic cabbage stem flea beetle control

**Background**

Cabbage stem flea beetle (CSFB) continues to spread and is now found throughout most of England, Wales and southern Scotland. Beetles move in soon after oilseed rape crops emerge and chew holes in cotyledons and early true leaves. They then lay eggs in soil. On hatching, larvae bore into leaf petioles and later into main stems.

Water trapping was developed to provide an early indication of the need to spray. Spray timing in the autumn is not critical; pyrethroid sprays kill adults while residues on leaves kill larvae hatching after application. This allows for tank mixes as and when autumn treatments are applied, with little impact on efficacy.

An alternative is to assess larval numbers in late autumn and apply a specific treatment in late November or December, although there may be fewer suitable spray opportunities at this time of year.

**Water trapping**

Over three harvest years 2005 - 07, study sites were established covering the main cropping areas of central, eastern and northern England. At each of the 71 sites, four water traps were set out on the ground in winter oilseed rape in early September.

The traps, made of yellow plastic (insects are attracted to yellow) and 25cm in diameter, resemble plant pot saucers. When filling traps initially with water (or replenishing them), it is important to add a small drop of detergent to reduce surface tension which helps ensure that beetles drown in the water.

Two traps were sited on headlands 24m apart and 6m from the edge of the crop. Two traps were placed at convenient points in the field along a wheeling, 12m and 24m from the headland. Each of the 71 study sites was visited weekly; numbers of beetles in traps were recorded and traps were reset.

Traps were left in place until the end of October.

Beetle activity peaked in October 2004 and in late September 2005 and 06. Highest activity was recorded in 2006. From mid-October, catches at most sites declined slowly to a low incidence by the end of the month (Figure 1).

**Action**

If CSFB has been a problem on your farm in recent years, place yellow water traps on the ground in early September (two on headland, two in the field along a wheeling) to monitor likely risk to current crop.

Visit traps regularly, weekly if possible. Record beetle numbers. Reset traps with water and detergent weekly.

Remove traps at the end of October and record total beetle numbers.

1. If 35 or more beetles/trap - plan to apply a pyrethroid spray.
2. If fewer beetles/trap - do not apply insecticide specifically for CSFB control. Monitor for larval activity in late autumn.

Always consider your local conditions and consult a professional agronomist if necessary.

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**Figure 1. Activity of adult cabbage stem flea beetle**

![Graph showing activity of adult cabbage stem flea beetle.](image)
Larval damage predictions

Plant samples were collected in December each year and numbers of larvae feeding within leaf stalks were recorded.

Combined data from the 71 trials showed that crops at high risk could be identified before the main autumn spraying period. Numbers of larvae were significantly related to those of beetles caught in water traps.

An average catch of 35 beetles/trap equated to the revised treatment threshold (2 larvae/plant) in December (Figure 2). The same control threshold was also likely to be met from catches averaging 30 beetles in headland traps and 40 beetles in field-sited traps.

Low catches indicated a small risk of economic damage, so an insecticide spray was not likely to be needed. A specific pyrethroid insecticide spray may be applied if the control threshold is breached. For convenience, this can be tank-mixed with an autumn herbicide and/or fungicide, if these are required.

Figure 2. Predicting numbers of larvae from beetle counts

![Graph showing larval damage predictions](image)

- Control threshold: 2 larvae/plant
- 35 beetles/trap equivalent to larval control threshold
- Equation: \( y = 0.0501x + 0.1851 \)
- \( R^2 = 69.3\% \)
- \( P < 0.001 \)

Figure derived using data from all 71 sites studied in 2004-06.