Action:

- Assess risk on the basis of previous farm experience.
- If there is a risk of cabbage stem flea beetle damage, consider applying imidacloprid plus beta-cyfluthrin ('Chinook') seed dressing at 2 litres of product/100 kg seed.
- Always drill treated seed - do not broadcast.
- Assess attack as the crop grows by looking for scarring due to the larvae on leaf petioles.
- Apply a follow-up pyrethroid spray in October/November if damage is seen on more than 70% of the petioles.

Seed treatments for pest control in winter oilseed rape

Pests causing poor establishment

Cabbage stem flea beetle, the most important insect pest of autumn-sown oilseed rape, can significantly reduce establishment and yields. Its range now covers most of the U.K. Adult beetles emerge from late August onwards. Peak adult activity at trial sites in both years occurred during September (Figure 1).

After grazing on cotyledons and the emerging crop, eggs are laid in soil. Typically during October and November, larvae emerge to burrow into plants, feeding within leaf stalks and stems during autumn and winter.

Another flea beetle, Psylliodes luteola, found in southern England, damages cereals and oilseed rape. High numbers were found at ADAS Bridgets in autumn 1999 and 2000.

Yellow-striped flea beetles, Phyllotreta spp., can affect spring oilseed rape establishment by reducing crop stand. Slugs are major pests in wet conditions at crop establishment. Damage can be sufficiently severe to justify re-drilling.

Screening of chemicals

Approval for use of gamma-HCH seed treatment to control cabbage stem flea beetle was revoked in July 1999. Then, around 80% of the oilseed rape crop area received insecticidal seed treatment. HGCA-funded work was carried out on winter oilseed rape hybrid Pronto to find a replacement active against cabbage stem flea beetle and other pests.

In 1999/2000 three chemicals were tested for activity against cabbage stem flea beetle.
Seed treatments for pest control in winter oilseed rape

Assessments were carried out of emergence, plant vigour, % leaf area damaged on cotyledons and first true leaves and numbers of larvae in petioles in late autumn.

A coded chemical from Bayer plc containing imidacloprid and beta-cyfluthrin significantly reduced cabbage stem flea beetle damage. In one trial, seed treatment also reduced aphid infestation by 90%.

In 2000/01, imidacloprid plus beta-cyfluthrin at the rate used in first year’s trials and the rate available in ‘Chinook’, and four other seed treatments, were tested. Although activity of adult cabbage stem flea beetles was lower than in the first year, treatment with imidacloprid plus beta-cyfluthrin reduced larval damage by 52%. Other results were: coded product reduced damage by 58%, carbofuran by 65% and methiocarb by 11%. A pyrethroid spray at egg hatch reduced larval numbers by 78%. ‘Chinook’ seed treatment followed by the spray reduced numbers by 86%. As in the first year, significant reductions in % plants infested with aphids were also obtained at one site. Results were similar to those from an autumn-applied pyrethroid spray.

Imidacloprid plus beta-cyfluthrin and methiocarb seed treatment gave significant reductions of around half of plants damaged by slugs at the site with a moderate level of slug activity.

Assessing cabbage stem flea beetle attack

A new technique for assessing damage has been developed in a MAFF-funded project led by CSL, York. This depends on a highly significant relationship between percentage of leaves showing feeding scars and the mean number of larvae/plant during autumn. About 70% leaves scarred is considered equivalent to the current published action threshold of 5 larvae/plant. Expected avoidable yield reduction at this level of attack is around 0.35 t/ha.

A new seed treatment

The seed treatment ‘Chinook’ based on imidacloprid plus beta-cyfluthrin has now been registered in the UK for use on winter oilseed rape. It protects cotyledons and first true leaves. It may also reduce subsequent larval damage, aphid infestations and slug damage.

Although current trials did not test product efficacy against other flea beetles, evidence from non HGCA-funded trials shows that ‘Chinook’ and some other insecticidal seed treatments provide useful reductions in flea beetle damage in spring oilseed rape.

Summary

HGCA recently funded ADAS to investigate control of pests, which can seriously reduce establishment of autumn-sown oilseed rape. An insecticidal seed treatment comprising imidacloprid plus beta-cyfluthrin was identified as effective against cabbage stem flea beetle. It also has some activity against aphids and reduces slug damage. ‘Chinook’ will be available from autumn 2001.

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Project Report OS43
Ongoing project 2364

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