Action:

- Assess slug activity with traps set out before cultivating.
- Assess damage risk on the basis of trap catches plus weather and soil information as shown in Figure 2 (4 or more slugs/trap = possible risk).
- Cultivate to reduce risk by producing a fine, consolidated seedbed.
- Sow to 3cm in a fine seedbed; to 4-5cm in a cloddy seedbed.
- If risk is high, broadcast slug pellets as soon as possible after drilling.
- Trap again to assess risk if wet weather continues after drilling.
- Monitor crops throughout early susceptible growth stages, especially to GS21.

Slug damage risk

From autumn 2001 to spring 2005, laboratory and field trials were carried out to assess effects of environmental factors on slug populations and damage. The aim was to reliably predict slug damage and hence the need for, and timing of, slug pellets within an integrated control strategy.

Slugs (especially Deroceras reticulatum, but also Arion, Milax and Tandonia spp.) are most damaging when they feed on wheat seeds. Each slug can kill up to 50 seeds in the first week after sowing (Figure 1).

Weight-for-weight, smaller slugs kill more seeds than larger slugs. Feeding on shoots and leaves can also be important.

Assessing slug risk

Put slug traps out before cultivation, when the soil surface is visibly moist and the weather mild (5-25°C). Traps consist of a cover about 25cm across, with a small heap (20ml or 2 heaped teaspoonfuls) of chicken layers’ mash (NOT slug pellets) beneath.

In each field, nine traps (13 in fields larger than 20ha) should be set out in a ‘W’ pattern. Also concentrate on areas known to suffer damage. Leave traps overnight and examine early the following morning. A catch of 4 or more slugs/trap indicates a possible risk, where soil and weather conditions favour slug activity (Figure 2).
### Reducing risk

A fine and consolidated seedbed protects seeds. Shallow cultivation to incorporate crop residues after harvest reduces slug numbers, especially in dry conditions. Slugs are denied access to seeds and pre-emergence damage is reduced if seeds are drilled at 3cm depth in a fine consolidated seedbed. In cloddy seedbeds, increase sowing depth to 4-5cm.

Monitor crops regularly for slug damage from sowing to first tillering (GS21). Damage after this stage is less likely to result in further plant loss, but monitoring should continue through the winter.

### Applying slug pellets

The greatest benefit is generally achieved from an application immediately after drilling. Later treatment may be justified under the conditions outlined in Figure 2.

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### Figure 2. Decision tree on slug control in winter wheat

- **Are the conditions suitable for trapping?**
  - Yes: **Wait for suitable weather conditions**
  - No: **Continue to monitor field with traps when weather suitable**

- **Has trapping before cultivation produced four or more slugs/trap?**
  - Yes: **Treat with slug pellets. Apply immediately for best effect**
  - No: **Apply slug pellets as soon as possible, provided that soil surface is moist and suitable for slug activity**

- **Was the field drilled during a period of generally wet weather?**
  - Yes: **Apply slug pellets as soon as possible, provided that soil surface is moist and suitable for slug activity**
  - No: **No treatment required**

- **Has wet weather delayed sowing in a prepared seedbed?**
  - Yes: **Waiting for suitable weather conditions**
  - No: **No treatment required**

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### Summary

This Topic Sheet resulted from a Defra-sponsored Sustainable Arable Link Project. Partners are ADAS Consulting, Bayer Cropscience, CropTech, De Sangosse UK, Godfrey Farms, HGCA, Rothamsted Research, Lonza, and University of Newcastle.

The overall aim is to devise a rational risk assessment system for integrated slug control in arable crops. Using the text and decision tree, growers can assess risk and achieve effective slug control, whilst reducing unnecessary molluscicide use.

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Ongoing project 2436