

# SLUGS, CEREALS AND SLUG PELLETS



## *Introduction*

Slugs are a major pest of winter wheat and other cereals. Slug pellets are not wholly effective and may have harmful environmental effects. By understanding more about the conditions in which slugs thrive, it may be possible for farmers to minimise slug damage, save money and benefit the environment.

## *Facts about slugs*

There are 23 different species of slug in Britain. Farmers do not need to identify different species - any slug found in a cereal field might damage the crop and damage will be in proportion to the weight of the slug.

Slugs will eat cereals by hollowing out the seed or eating the emerging shoot - thereby killing the plant. They will also graze the leaves above ground, but this is less damaging than what happens below ground.

Slugs cannot tunnel through soil but can only move about through existing cracks and holes so the physical condition of a seedbed can greatly affect a slug's mobility and access to seeds and shoots. Also slugs cannot move easily in well consolidated soils.

Slugs struggle to survive in dry conditions. Some cultivations may enhance the dryness of the soil and reduce slug numbers. Ploughing can

kill large numbers of slugs, but also other soil invertebrates such as beetle and earthworms.

## *Why is concern over slug damage increasing?*

**Improved husbandry.** Farmers are very aware of the importance of plant populations. They are keen to plant as much seed as is necessary for a full stand.

**Changes in rotation.** The introduction of oilseed rape onto many farms has led to increased slug populations.

**Straw incorporation.** The straw burning ban and an increase in straw incorporation may create conditions better suited to slugs.

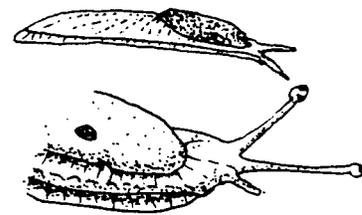
**Direct drilling / minimal cultivations.** The physical process of ploughing can greatly reduce slug numbers as well as removing plant debris from the critical top 50mm of soil. Minimal cultivations / direct drilling does not do this and might also result in seed being shallow-drilled or even uncovered in places.

## *Slug pellets*

There are three main types of pellet, based on the chemicals methiocarb, thiodicarb and metaldehyde. They are similar to apply, but have slightly

different effects in the field. **Methiocarb** and **thiodicarb** may be more likely to kill earth worms and beetles than metaldehyde, but are probably more effective than **metaldehyde** at lower temperatures and effective for longer. All types of pellet kill only a small proportion of slugs but the narcotic effect makes the slugs more vulnerable to predators, wind and sun.

At present there appear to be no alternatives to these chemicals for use on a farm scale. Some biological control methods and repellants are as yet too costly for use on large areas. Work on putting slug deterrents into seed dressings offers possibilities for the future.



## *Effects on wildlife*

Effects on worms and beetles have been mentioned above. The RSPB is currently carrying out research into the decline of the song thrush, it is felt that increasing use of slug

pellets might be a factor, but there appears to be no evidence as yet. Hedgehogs are probably affected by eating poisoned slugs and various small mammals probably die from eating the pellets themselves. It may be that effects on wildlife are worse around field boundaries than out in the field because wildlife tend to stick to field margins.

### ***Factors affecting slug damage in the field***

**Amount of slugs.** The number is not so important as the combined weight of slugs in a given area - big slugs do more damage than small ones.

**Fineness of seedbed.** Slugs are less able to move about in a fine firm seedbed and therefore less able to reach the seed and the shoot.

**Depth of sowing.** Drilling seed at 40mm depth rather than 20mm will significantly reduce slug damage. The reduction in damage will be similar to that achieved by an application of slug pellets.

### ***What the farmer can do***

**Trap slugs to assess potential damage.** The best time to trap is from July up to the time of ploughing, but the soil must be moist. Traps of a roofing slate or similar are adequate, baited or not baited with pellets. Five traps per 10ha, checked after 48 hours will give a picture of slug populations. A rough guide is that an average of 4 slugs per trap requires pellets, but this figure must be adjusted to allow for weather, time of year, soil conditions, etc.

**Seedbed preparation.** As mentioned above, a fine, firm seedbed will reduce slug activity. Unburied trash and minimal cultivations can create conditions that will encourage slug activity.

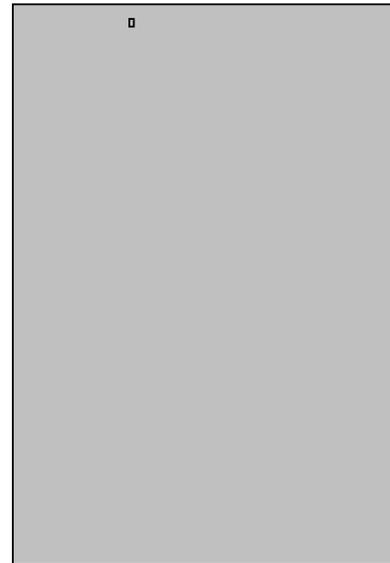
**Drilling depth.** Aim to drill at about 40mm depth. This has no significant adverse effect on yield.

**Timing of slug pellet application.** If pellets are to be used the optimum time to apply them is immediately after drilling and they should be broadcast onto the seedbed. Pellets drilled into the soil with the seed are not very accessible to slugs.

**Avoid spreading pellets into the hedge.** If the pellet applicator has no mechanism for preventing pellets being thrown into the hedge, a simple deflector plate can be constructed along the lines of those used on some fertiliser spreaders.

**Develop grass margins and beetle banks** to encourage predatory beetles and spiders. These eat some slugs.

**Avoid spillages** and clear up if they happen. Frogs, deer and other wildlife have been killed following ingestion of pellets left in heaps.



### ***Further Information***

For details of your local FWAG Group, please contact FWAG at the National Agricultural Centre, Stoneleigh, Kenilworth, Warwickshire CV8 2RX

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