Crop specific guidance – Improved Grassland

The IPM Tool allows you to prioritise pests that are important on your farm. This helps guide decisions on which IPM measures are appropriate. Implementing IPM can result in 'trade-offs' where methods to control one pest may increase another. Some of these trade-offs are included in the notes below and in the Tool. Prioritising pests will help decide which pests are most important where there are trade-offs. This guidance documents provides advice on IPM measures for improved grassland insect pests and diseases. For information on IPM interventions for weeds, refer to the separate IPM Weeds guidance document.

Insect Pests

The key insect pests in grassland are frit fly, leatherjackets, wireworm and slugs, and these cause crop damage through direct feeding. Clover weevil and clover stem nematode can also cause problems where clover is included in grass leys. Permanent grassland and established leys are more tolerant of insect pests, and so most problems tend to arise with reseeds, particularly after long-term grass leys.

Field history, rotation & break crops

Where grass leys are being reseeded, the inclusion of a break crop such as a brassica before reseeding can help control frit fly, wireworm and leatherjackets. For red clover, stem nematodes are best avoided by rotation and a break of at least 3 years. Different strains of stem nematode effect white and red clover, so white clover can be sown between red clover crops to break the pest cycle.

Avoid Following Long Term Leys

Populations of some pests can build up under long-term leys such as wireworms and leatherjackets. These will potentially feed on any crop following a grass ley, including a grass reseed.

Sowing Date

Autumn reseeds are the most susceptible to frit fly infestation as this is the main egg laying period for frit fly. Moving the sowing date to spring instead of autumn or delaying sowing for at least six weeks after ploughing are effective ways of reducing damage.

Extra Cultivations

The mechanical action of cultivations can reduce soil populations of pests such including wireworms, leatherjackets and slugs. This can occur as the pests are killed or pests are brought to the surface and eaten by birds. On the negative side increased cultivations increase carbon footprint and can reduce soil biodiversity.

Planning Pest Control Strategy

Planning the optimum non-chemical strategy for managing each pest can help to avoid 'fire engine' use of pesticides. Previous records of pest damage are very useful to help predict the likely timing of pest attack. Records should also be kept of the success of non-chemical pest control strategies.

Larvae counts in soil

It is possible to take soil samples to estimate pest numbers and assess the risk of economic damage to the following crop. Examples are wireworms and leatherjackets.

Pest Monitoring

Pest monitoring is an essential component of pest management. This can involve visual inspection of the crop or some sort of trapping system.

Rolling soil post drilling

Rolling soil post-planting can improve the seedbed quality, resulting in more rapid germination of crops. Rolling may also kill some pests or reduce their mobility.

Narrow stemmed grasses

Clover, timothy and cocksfoot are not affected by frit fly, as they have a narrower stem compared to perennial and Italian ryegrass.

Hygiene and prevention

Proper sanitation in fields and of equipment is essential in preventing and controlling the spread of stem nematode, because they can survive and reproduce in infected plants and residues. Machinery used in infested fields should be power-washed before entering uninfected fields, and soil should at least be knocked off from boots and tools. Where possible, all infected plant tissues should be removed from growing sites and destroyed to control populations.

Nutrient Management / Avoid Excessive N Application

Excessive nitrogen will exacerbate insect pests which thrive in a dense lush canopy. Avoid excessive nitrogen application whilst ensuring the correct phosphorous, potash and pH status to stimulate vigorous growth.

Diseases

Diseases impact on grass yields through reducing green leaf area. Grassland diseases can reduce not only yield, but also palatability and quality, and can affect sward composition.

Ploughing in crop residue

Burial of crop debris by ploughing can reduce inoculum for some pathogens which produce inoculum on plant debris. Many pathogens survive over the winter and produce air-borne spores that are dispersed to new crops. However, if the preceding crop is a non-host, tillage may increase disease by bringing older infected residue back to the surface. Also on the negative side the use of ploughing can reduce soil biodiversity.

Resistant Varieties

Resistant varieties are an important part of non-chemical disease control. There are good sources of information on disease resistance to many of the major pathogens in the AHDB England and Wales Recommended Grass and Clover Lists (RGCL).

Control Volunteers and Weeds

Volunteers often carry a range of diseases. Ideally the volunteers should be destroyed prior to the emergence of new crops.

Nutrient Management / Avoid Excessive N Application

Excessive nitrogen will exacerbate diseases which thrive in a dense lush canopy ie crown rust and mildew. Avoid excessive nitrogen application whilst ensuring the correct phosphorous, potash and pH status to stimulate vigorous growth.

Regular Grazing of young material

Regular grazing keeps grass swards open and avoids dense lush swards which encourage disease.

Harvest at first sign / early to reduce loss and disease spread

A crown rust attack in the autumn can be dealt with by immediate grazing or cutting to remove the leaf food supply for the fungus. For grassland intended for silage or hay production, cutting and baling early at the first signs of a disease outbreak will help to prevent losses and disease spread.

Hygiene and prevention

This is the first defence against the introduction of soil-borne diseases into clean land. Machinery used in infested fields should be power-washed before entering in uninfected fields, and soil should at least be knocked off from boots and tools. Clean fields should be visited first in the sequence of crops so that cleaning down equipment can be done at the end of the day.

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