Crop specific guidance – Oilseed Rape

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 oilseed rape insect pests and diseases. For information on IPM interventions for weeds, refer to the separate IPM Weeds guidance document.

Insect Pests

Insects in oilseed rape cause damage to the crop either through direct feeding or through the transmission of viruses during feeding. Insect pest control has been highly dependent on using seed treatments and applications of insecticides, but reductions in available chemistry and increasing resistance issues have increased the need to make use of integrated management for control of insect pests.

Few of the non-chemical methods are likely to be 100% effective in arable crops (except for turnip yellows virus (TuYV) resistant OSR varieties). However, they do reduce the requirement for chemical control. Combinations of one or more techniques are likely to be most effective. Also, in some instances the presence of some insect damage will not necessarily impact on yield.

Spatial separation

Some pest species are poor fliers so do not travel long distances between host crops in a single season. Wide spatial separation between host crops in successive years can make it difficult for the pest to find them.

Seedbed quality

Poor seedbeds can have two effects on pest damage. Firstly, poor seed/soil contact can cause delays in germination, which can render oilseed rape plants more susceptible to pests such as slugs and CSFB. Secondly, rough, cobbly seedbeds allow slugs to access seeds underground. Firm, fine seedbeds avoid both problems and encourage rapid germination and crop establishment, thus decreasing susceptibility to pest attack. Dry conditions can result in oilseed rape emerging slowly and unevenly, making the crop highly vulnerable to CSFB damage.

Rolling soil post-planting

Rolling soil post-planting can improve the seedbed quality, resulting in more rapid germination of crops and reducing access to soil-borne pests, such as slugs, to seeds. Rolling may also kill some pests or reduce their mobility.

Varietal choice

Varieties are now available that are resistant to turnip yellows virus (TuYV).

Seed rate
Increasing seed rates can compensate for the loss of plants to pests such as cabbage stem flea beetle.

Trap crops
Trap cropping is a method of reducing pest damage by attracting pests away from a susceptible crop and toward a trap crop. The trap crop is usually a plant stand (sown or otherwise) that is more attractive to the pest than the susceptible crop. Volunteer oilseed rape can be utilised as a trap crop. Delaying its destruction until after the cabbage stem flea beetle (CSFB) migration is complete, has been shown to reduce pest damage in newly sown oilseed rape crops in the adjacent field.

Defoliation (incl. mowing and grazing)
Defoliation is a method that has been used to combat CSFB larvae in oilseed rape, and can reduce larval numbers to up 75%. Crops can be defoliated using a flail or by grazing with sheep. This approach is best suited to early drilled crops which will have the highest larval numbers but also be best able to recover from the defoliation. Do not defoliate after stem elongation.

In field non-cropped areas / Beetle banks / Diverse crop margins or strips
Beetle banks consist of stands of wildflowers and grasses and are designed to act as reservoirs of beneficial insects such as ground beetles and parasitoids, which help to provide natural biological control of insect pests.

Diverse crop margins and strips act in a similar way to beetle banks to increase natural enemies. However, some of the plant species could benefit pests. More diverse strips should harbour greater biodiversity and greater numbers of beneficials. Ladybirds, hoverflies and lacewings are natural enemies of aphids in oilseed rape.

Sowing Date / Delayed sowing
Delayed sowing, from mid-September onwards, can reduce the susceptibility of crops to cabbage stem flea beetle (CSFB) damage as the crop may emerge after the migration is complete. Also later sown oilseed rape crops usually show reduced levels of larval invasion from CSFB. However, late sown crops may be less robust due to smaller plant size and generally less tolerant of pests over winter.

Sowing Date / Early sowing
Early sowing or planting, from mid-July – mid August, can result in rapid plant establishment, which in turn can increase the tolerance of the crop to some types of pest damage. For example, the early sowing of winter oilseed rape can increase the tolerance of the cabbage stem flea beetle as the crop is well established and a larger size by the time the pest migration occurs. However these crops can be at greater risk from larval damage. Sowing oilseed rape early can also limit damage from pollen beetle in the spring as plants are often beyond the susceptible green/yellow bud stage before migration of the pest begins.

Decision Support Tools (including thresholds)
IPM decisions should be made based on the results of monitoring and forecasting combined with threshold information where available. Treatment thresholds are the population level or density that must be reached before intervention becomes economically beneficial. Thresholds enable growers to

make decisions based on the level at which pests will impact economic crop yield. They are essential in guiding pest control decisions and preventing the unnecessary use of pesticides.

Links are provided to appropriate decision support tools in the IPM Tool.

Planning pest management 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.

Decision Support / Monitoring techniques

Pest monitoring is an essential component of integrated pest management. This can involve visual inspection of the crop or some sort of trapping system (e.g. water traps, sticky traps, or pheromone traps). Pest numbers are related to thresholds and decisions on the need for treatment. Water traps are available for cabbage stem flea beetle.

Monitoring and forecasting of pest populations can ensure timely control interventions. Monitoring of pests can be divided into three main principles: observation, weather, and correct identification.

Observation includes regular crop walking, noting populations of insects, weeds, or disease severity, recording crop damage and numbers of beneficial species seen. Using traps can help monitor insect populations.

Weather is one of the main influences for pest development. Monitoring recent and forecasted weather can help predict the impact that pests may have on the crops and prepare for timely control measures.

Correct *identification* of pests can help prevent early outbreaks and is important for deciding on effective control measures. The use of pest ID information (see links in the tool) traps, local warnings, and professional advice from qualified agronomists can all help.

Diseases

Diseases impact on oilseed rape yield mainly through reducing green leaf area during seed filling or through whole plant death. Control of disease on leaf layers is critical.

Field History, Rotation & Break crops

Where oilseed rape is grown in short rotations (1 in 3 years), this is likely to increase the build up of soil borne pathogens such as sclerotinia spp., club root, verticillium spp., and pythium spp. Extending rotation to 1 in 5 years or longer is recommended.

Select low risk locations

Clubroot has a relatively broad range of hosts including oilseed rape, cabbage, cauliflower, swede, calabrese, mustard and weed species shepherds purse and charlock. Sclerotinia can also infect crops of potatoes, dwarf beans, carrots, celery, lettuce, peas and spring field beans. Fields with a previous history of these diseases in these hosts crops and a history of verticillium should be avoided for planting oilseed rape.

Spatial Separation

Spatial separation of new oilseed rape crops as far away as possible from previous fields is advised, as it reduces the risk of infection from diseases such as light leaf spot and phoma leaf spot which are initiated from air borne spores from the previous crops stubbles and plant debris.

Varietal choice / Resistant varieties

Resistant varieties are a key part of non-chemical disease control. There are good sources of information on disease resistance to many of the major pathogens in the Recommended List of oilseeds varieties published by AHDB. This information is updated annually to account for new pathogen strains which can infect previously resistant varieties.

Control volunteers & weeds

Oilseed volunteers carry a range of diseases and are most significant as a 'green bridge' for powdery mildew, downy mildew, botrytis and light leaf spot. Ideally volunteers should be destroyed prior to the emergence of new crops. Sclerotinia has a very wide host range and can affect common weeds such as sow-thistle, dandelion and shepherds' purse. Removal of such weed species can reduce the risk of infection.

Sowing Date / Early sowing

Early sown oilseed crops tend to suffer more damage from light leaf spot and phoma leaf spot than later sown crops, but although incidence of the disease may be more common on earlier sown crops it may have less impact due to larger plant size.

Sowing Date / Delayed sowing

Delaying sowing can reduce the severity of some diseases. For example, late drilling substantially reduces the risk from light leaf spot and phoma leaf spot, as later emerging crops have less time exposure to air spores, which initiate autumn infections, from previous crop residues. However later sown oilseed rape crops can be at greater risk from developing stem canker from autumn phoma leaf infections due to the smaller plant size. Later drilling can reduce the risk of autumn clubroot infections, as host infection is favoured by temperatures above 16^{o}C, but crops will need to be monitored as temperatures warm into the spring.

Primary Cultivations / Crop residue burial

Burial of crop debris by ploughing can reduce inoculum for some pathogens which produce inoculum on plant debris. This is most important for pathogens which are initiated from air borne spores, such as light leaf spot and phoma leaf spot, which can infect neighbouring crops. On the negative side the use of ploughing can reduce soil biodiversity. Sclerotia can be deeply buried by ploughing but can remain dormant for many years and will germinate if brought into the topsoil by future cultivations. Sclerotia left on the soil surface can lose viability and reduce the sclerotia bank in the soil, and can form part of a minimum tillage strategy for control.

Good drainage

Good drainage is effective for managing clubroot infection and the spread of clubroot in oilseed rape fields. Soils which are compacted, poorly drained or even prone to flooding will encourage proliferation of clubroot zoospores, especially in a warm autumn.

Hygiene and prevention

This is the first defence against the introduction of soil-borne diseases into clean land, particularly for soil borne diseases like clubroot and verticillium. Machinery used in infested fields should be power-washed before use 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.

Lime and nutrition

Crops which are nutrient deficient can be predisposed to disease infection. Ensure appropriate soil nutrient supply by regular soil sampling and testing and use of appropriate fertilisers. Soil pH maintained at 7.0-7.3 provide basic control of clubroot as acidic soils favour disease development. Liming can be beneficial on clubroot infected soils by raising the pH and the free calcium status.

Decision Support Tools (including thresholds)

IPM decisions should be made based on the results of monitoring and forecasting combined with threshold information where available. Treatment thresholds are the disease level or density that must be reached before intervention is required or economically beneficial. Thresholds enable growers to make decisions based on the level at which pests will impact economic crop yield. Decision support and disease monitoring tools are available for phoma leaf spot, light leaf spot and sclerotinia stem rot.

Links are provided to appropriate decision support tools in the IPM Tool.

How to quote this document: IPM Tool (2024). Crop specific guidance – Oilseed Rape. https://ipmtool.net/documents/guidance_oilseed_rape.pdf