

Organic Arable Production – Pest & Disease Control

Organic pest and disease control is about growing strong healthy plants able to resist disease and pest attack. A healthy soil with good organic matter content and teeming with life is fundamental to growing healthy and robust plants. Plants stimulated to grow under high nitrogen regimes produce soft dark green growth that is more susceptible to fungal infection and is attractive to pests.

Organic farmers need to encourage a diverse ecology to support pest-predator populations within and adjacent to the crop. Hedges, uncultivated field margins and other 'wild areas' encourage predatory insects and birds which help maintain pest populations below damaging thresholds.

Crops sown into a well-prepared seedbed will be better able to establish and grow away from pest attack; some pests such as leatherjackets can be killed by seedbed cultivations and their movements restricted by good rolling of the seed bed.

Make use of plant breeding recommendations and choose varieties bred for resistance to pest and diseases. The HGCA recommended lists scores cereal varieties for disease resistance on a scale of 1 to 9 with the higher the number the better the resistance.

Diseases

Reduce soil-borne diseases such as bunt, fusarium and smut by sowing disease free seed; avoid continually saving your own seed and prepare a good quality seedbed. Farm-saved seed kept for longer than three generations should be considered high risk and should be tested before use. All seed sold by approved merchants will be tested and should be free of soil-borne disease.

Control foliar diseases such as Septoria in wheat, Rynchosporium in barley and the yellow and brown rusts by effective rotational breaks in cereals, growing resistant varieties, avoiding early sowing dates and practising good hygiene. Clear up crop debris and surface trash, or plough it under, and remove crop volunteers to prevent the carry-over of disease to the next crop.

Crop rotations will prevent the build-up of soil-borne spores of fungal root diseases. For instance "Take all", a root disease in wheat, only starts to appear in 2nd wheat so is best controlled by not growing continuous wheat. Drilling late can also help control it. Eyespot in barley, another root disease, needs a 2 year break in the rotation for effective control.

Good drainage also helps reduce root disease.

Using good compost will build diverse soil flora and fauna, and has been shown to be beneficial in suppressing fungal diseases. There is also increasing interest in using compost teas to keep fungal disease in check. Good general hygiene, such as using clean equipment and fast disposal of diseased plant material, is also important.

Factsheet



Pests

Pest control on organic farms is based on encouraging natural predators and parasites. This may need some long term planning to create extra infrastructure in amongst the crop fields to provide habitat for predators and parasites of crop pests.

Ground and rove beetles are good general predators of many pests including aphids, slugs and the eggs and larvae of fly, moth and butterfly pests. They can be encouraged by growing field margins with tussock forming grasses, creating beetle banks particularly in large fields, leaving some weeds within the crop, and reducing soil cultivations. Beetle banks can be formed on raised banks created using a plough. Growing cover crops will also protect these beetles and predators over winter before going into a spring crop.

Aphid predators such as lacewings, hoverflies, parasitic wasps and ladybirds can be encouraged by hedgerows and flower rich field margins. A diversity of flower types in these margins is important to encourage a range of predators. To protect such predators do not cut these margins over the summer months all in one go as you will remove their refuge and source of nectar.

Spiders are general predators and can catch aphids in webs. Encourage them by leaving seedbeds cloddy in autumn and by growing field margins with diverse plants and structure (mix of plant heights, some with strong stems). Leave some arable weeds for them to build webs on and by creating beetle banks to provide extra habitat.

Restricted products should only be used when absolutely necessary – such as when there is a major threat to your crops. Products such as natural pyrethrum can only be used on organic farms as a treatment of last resort and only with certifying body approval.

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