

Fat-hen Management in Organic Systems

Where does it occur and why is it a problem?

- Fat-hen is an annual weed that occurs on most soils but grows best on fertile land.
- It is more of a problem in potatoes and other broad-leaved crops than cereals.
- It hinders harvesting and reduces the yield of any crop in which it occurs.
- The seed has been a common contaminant of crop seed.



Fat-hen seedlings

Biology, persistence and spread

- Fat-hen seedlings emerge from May to September but the main flush is in spring.
- Seedlings are frost sensitive and do not overwinter.
- Most seedlings emerge from the top 3 cm of soil, a few from as deep as 6 cm.
- Flowering occurs from July to September in response to daylength.
- Earlier emerging plants grow bigger before flowering and have more seeds.
- Later emerging plants are smaller having less time to grow before flowering.
- Seed production varies with plant size, around 3000 seeds on an average plant.
- Plants produce seeds with different germination strategies. Most are black, shiny and persistent, up to 5% are brown and germinate more readily.
- The time to 95% loss for seed in cultivated soil is around 6 years but seeds can persist for over 40 years in soil.
- Seeds can occur in manure and a few may remain viable even after composting.
- Most seeds are killed by a combination of ensilage and rumen digestion.

How can it be prevented?

- As an annual weed, seed production is the key to Fat-hen's success.
- Sow only pure crop seed, check farmer-saved seed is clean.
- Avoid seed shedding in the crop.
- Set the combine harvester to retain weed seeds for disposal off farm. The scarification of seed during combining can significantly increase the level of germination.
- Keep soil disturbance to a minimum during seedbed preparation, seedling numbers are related to the number of cultivations.

Direct control options

- Delay sowing and use a stale seedbed to kill weed seedlings before cropping.
- Apply shallow surface cultivations while weeds are small and before the taproot becomes established
- Use inter-row cultivation in row crops.
- Flame weed while seedlings are at the susceptible 2-6 leaf stage.

By hand

- Hoeing and hand weeding in high value crops.
- Hand pulling of mature plants present in low numbers will prevent seed shedding.

Biological control

- In tests, applications of the fungus *Ascochyta caulina* as a post emergence mycoherbicide have resulted in necrosis and mortality of fat-hen. Trials are continuing but to be effective the fat-hen must be at the seedling stage and a period of high humidity is needed after treatment.
- Fat-hen seeds are eaten by birds and by ground beetles

More information and notes:

- Fat hen has been used as forage for stock but it can contain potentially dangerous levels of nitrates and also contains oxalic acid which can be harmful to sheep and pigs, although poisoning is rare.
- It was eaten as a vegetable from Neolithic times till the 16th century when it was replaced by spinach and cabbage.
- Fat-hen may act as a host to the mangold fly and the black bean aphid

If you have any observations or experiences with Fat-hen management please let us know by contacting us directly or through the website.

The information for this leaflet has been produced from a range of sources, including farmers, advisors and researchers, and we gratefully acknowledge their contributions. Most of this information, and further details, are available on our website at <http://www.organicweeds.org.uk>.

Disclaimer

The information contained in this leaflet has been compiled from a range of sources. It is accurate to the best of our knowledge. Authors are not responsible for outcomes of any actions taken based on this information.

Project information

This leaflet has been produced as part of the DEFRA funded project 'Participatory Investigation of the Management of Weeds in Organic Production Systems'. The project aims to involve farmers and growers in all levels of research and is driven by their requirements. The project is led by IOR-HDRA in collaboration with IOR-EFRC, Warwick-HRI, ADAS and RULIVSYS. To date the project is funded until July 2006. The project website holds all information gathered on weeds and their management, including literature from science, the farming press and practical strategies from organic farmers. It can be found at:



www.organicweeds.org.uk



How can I get involved?

There are many ways to get involved:

- Send us your name and address and we will add you on to the database so you are kept informed about the project
- Offer to provide information about weed management on your farm, see 'Case studies' on the website
- Become a 'focus group' member (the farmer groups who steer the project direction)
- Take part in the farmer trials and surveys (see above or see website)
- Tell us what you want from the project by attending meetings, open days and joining discussions on the website

Contact

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