Fat-hen Management in Organic Systems

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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 mainly a problem of spring sown crops such as potatoes, sugar beet and vegetables
- 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 can 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
- Earlier emerging plants grow bigger before flowering and have more seeds
- Plants can reach up to 3 m in height
- Flowering occurs from July to September in response to day length
- 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

Fat-hen seeding

How can it be prevented?

- As an annual weed, seed production is the key to fat-hen's success
- Avoid contaminated seed, particularly of home saved seed
- Avoid mature 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
- Sow a spring crop early e.g. February to avoid the peak germination period of fat-hen
- Select winter sown crops and more competitive varieties where possible
- Apply shallow surface cultivations while weeds are small and before the taproot becomes established
- In a young grass/clover ley allow stock to trample whilst in the seedling stage or top later
- Use inter-row cultivation in row crops
- Flame weed while seedlings are at the susceptible 2-6 leaf stage
- Cut and if possible catch flowering seed heads which have emerged above the crop e.g. in kale or beet

Hand hoeing in onions

Tractor hoeing in cereals

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 research trials, 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:

- 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
- Fat-hen is a very important food source for many bird species and biodiversity studies have suggested it is a weed which should be encouraged in arable systems

- See the leaflet in this series on 'Annual Weed Management in Organic Systems' for more control ideas

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

Notes:

For further information on weed management go to www.gardenorganic.org.uk/weed-management. There you will find the following:

- Advice on over 130 individual weeds, from Black Grass to Yarrow www.gardenorganic.org.uk/weeds-list
- Advice on cultivation controls, such as crop rotation, tillage and hygiene www.gardenorganic.org.uk/cultural-weed-controls
- Direct control methods, such as mulching and mechanical control www.gardenorganic.org.uk/direct-weed-controls
- Crop weeding strategies, in field vegetables, fruits and grasslands www.gardenorganic.org.uk/crop-weed-management-strategies
- Further reading in research papers.

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the national charity for organic growing

Formerly HDRA.

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