Common Couch Management in Organic Systems

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Where does it occur and why is it a problem?

- Common couch is a rhizomatous perennial grass
- It occurs on both heavy and light soils but spread more readily on lighter land
- Couch often occurs in patches that may require different treatment from the rest of a field
- It is found in most hedgerows and spreads out from the field margins into cultivated fields
- Couch seed as a contaminant of crop seed was a common source of infestations in the past

Infestation of Common Couch

Biology, persistence and spread

- Vegetative reproduction in couch is far more important than from seed. Rhizome growth is renewed annually from axilliary buds at the base of aerial stems
- Rhizomes grow horizontally in summer before turning erect in autumn ready to form aerial shoots
- When separated from the parent plant the axilliary buds develop into aerial shoots that grow vertically upwards. Cultivation displaces the seasonal growing cycle and after extensive rhizome fragmentation at least one bud per fragment develops a new shoot. Renewed tillering and rhizome production will follow soil disturbance at any time (except in mid winter)
- In dry soil conditions, buried pieces of rhizome cease active growth and have considerable resistance to drought

Rhizomes of Common Couch

- Couch flowers from June to September, the seed heads mature during August and September at the time of cereal harvest
- Some seeds are viable when green and immature around 10-18 days after flowering
- Seed can germinate anytime after shedding but mainly during the autumn in the UK
- Buried seeds can lie dormant for 2-3 years and remain viable for 4-5 years
- Seed retains viability after passage through horses, cows and sheep but not

How can it be prevented?

Weed management in an organic system should focus on as many preventative measures as possible. In the case of couch, prevention relies on preventing establishment of the weed in the first place. Once present an infestation should be prevented from spreading. Ultimately any infestation will probably need to be controlled directly using physical methods at an appropriate point in the weeds life cycle

In general:

- Sow only clean crop seed
- Retain all weed seeds collected during combine harvesting and dispose of off-farm
- Prevent spread from field margins either as seed or rhizome fragments
- Crop competition can reduce the growth of couch seedlings and plants regenerating from rhizome fragments

Direct control options

Direct control options aim to disrupt the plant growth at times when the plant is most sensitive to disturbance. Actively growing rhizomes are readily killed by desiccation when exposed to dry air for a few days (but not if covered with soil). Exposure to frost will also kill rhizomes left on the soil surface for several days

In fallows:

- Couch is controlled by cultivation, harrowing, raking and burning during fallow periods. It can be almost completely killed in one season by repeated cultivations that begin in spring
- Progressively deeper spring-tine cultivations aim to bring rhizomes to the soil surface to be desiccated
- The optimum time for repetition of tillage is when regrowth has reached the 3-4 leaf stage
- A bastard or half fallow can precede fodder or vegetable crops in the spring or follow a forage crop or early cereal harvest

Direct Control Options continued

Where a fallow cannot be practiced the main period for couch control is after crop harvest:

- In cereals, the first cultivation should cut rhizomes into 2.5-15 cm lengths as soon after crop harvest as possible. A further cultivation 2-3 weeks later will kill early regrowth and this is repeated when any survivors reach the 2-leaf stage. The number of cultivations needed to eradicate the weed depends on the cultivator used but varies between 2 on light friable soil to 6 on heavy clay
- Ploughing to 30 cm will bury foliage and rhizomes under 15-20 cm of soil. Rhizomes are cut into short lengths by cultivation, shoots allowed to regrow 5-8 cm then ploughed under. The aim is to cause activated buds to perish without establishing aerial shoots and exhaust the food reserves of the rhizome. Rhizomes exhibit the minimum regenerative capacity after deep burial in May

Other control methods:

There are a range of other methods that might help to control couch and these are listed below:

- It has been said that if land is laid down to grass, couch will be eradicated in 2-3 years. If a suitable mixture of grasses and white clover is sown and efficiently managed the weed will be gradually suppressed. Couch will not persist under a system of close grazing
- Lucerne or clover may be an effective smothering phase in the rotation
- A short rotation including extra root or hoed crops is useful
- Competition from the crop can enhance the control of couch weakened by burial or fragmentation
- Cutting the aerial shoots from regenerating rhizome pieces at weekly intervals may inhibit rhizome production and kill plants eventually
- Pigs in a moveable pen will root out and consume the rhizomes
- Horses and cattle are also said to relish the rhizomes
- CMN maskintec have developed a 'couch grass killer' which has two banks of rigid soil-loosening tines equipped with 48 cm wide wing-shares that rip up stubbles ahead of the main rotor unit. Working against the motion they flick the plant stems, roots and underground rhizomes out onto the surface of the ground. They can then be collected with a rake and baler for burning or left to wilt and die. It is possible to fit a seed sower onto the machine. Contact mail@cmn.dk or call +45 97 87 20 00

CMN couch grass killer

The information for this leaflet has been produced from a range of sources, including farmers, advisors and researchers, and we gratefully acknowledge their contributions. This information, and further details, are available on our website

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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Formerly HDRA.

This leaflet was produced as part of the 2006 DEFRA funded project 'Participatory Investigation of the Management of Weeds in Organic Production Systems'. Organisations involved included HDRA, The Organic Research Centre, Warwick Horticultural Research International, ADAS, and Rulivsys. The information has been produced from a range of sources, including farmers, advisors and researchers, and we gratefully acknowledge their contributions. It is one of a number of leaflets written to give an overview of non-chemical weed control opportunities and developments in the crops covered. They include historical information and summaries of more recent research.

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