

# Weed Management in Organic Potatoes

## About the crop:

- Potatoes require a high level of soil fertility and may be the first crop to follow a grass/legume ley in the rotation. Potatoes may also follow cereals or legumes but not other root crops. To avoid pest/disease problems potatoes should not be grown more than 1 year in 4
- Medium to deep ploughing should be carried out at least 6 weeks before planting followed by power-harrowing to produce a clod-free seedbed 20 cm deep. Composted or well-rotted manure can be applied prior to cultivation. Row width, plant spacing and time of planting will depend on whether the potatoes are earlies, second earlies or maincrops
- Potatoes are considered a cleaning crop for weeds and are often grown before or after weed susceptible crops. Alternatively, they may be followed by cereals or other crops that will benefit from the residues of the manure application
- There may be a volunteer potato problem in crops that follow potatoes. The volunteers result mainly from tubers left in the ground after harvest but can arise from seed if cultivars are grown that produce potato berries



Organic potatoes

## About the weeds:

- Potato yield reductions due to weeds of between 14 and 80% have been recorded
- Perennial grass and broad-leaved weeds are a particular problem in potato crops
- It is important to remove couch before or soon after crop emergence to minimise yield loss. Couch that regenerates after early removal will cause less damage
- Tall weeds such as fat-hen are the main annual species that affect potatoes
- A single weeding at between 3 and 6 weeks after crop planting has been shown to prevent yield losses due to annual weeds

## How can weed problems be reduced?

- Chitting the potato tubers aids early establishment
- Potato cultivars that emerge early, grow rapidly and develop a dense leaf canopy suppress weeds better

## Weed control options:

- The normal cultural practice is to ridge shortly after planting and let the ridges settle. Weed control is then applied ten days after planting using chain harrows, ridgers or purpose built weeders. The number of passes depends on weed density. Where a second harrowing is needed this may be carried out at or shortly before crop emergence. Thermal weed control can also be used to control seedling weeds prior to crop emergence. Inter-row cultivations between the ridges and re-ridging are carried out as needed post crop emergence. Cultivations are best done when weeds are small and unlikely to re-establish
- Rolling cultivators used by some growers have tines that weed between the rows and rolling star-shaped tines to cultivate the sides of the ridges. The ridges are then rebuilt by ridging bodies that follow the tines
- On clay and sandy clay soils in the Netherlands, an inter-row cultivator is used to ridge potatoes. Rotary cultivations are left until just prior to crop emergence. The need for subsequent repeat treatments depends on the timing of the first cultivation and the weed pressure
- A harrow can be used to dislodge weeds from the ridge tops unless soil capping is a problem. Later a ridger is used to return the soil to the ridges
- Cover-crops inter-seeded at ridging or 3, 4 or 5 weeks after crop planting have given good weed suppression but can reduce crop yield
- The application of green manure material from mustard and oil seed rape can result in weed suppression due to the release of allelochemicals as the mulch breaks down
- Mulches of paper, plastic and other materials have given good control of weeds but are economic only in high value early potato crops

For further information on weed management go to [www.gardenorganic.org.uk/weed-management](http://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](http://www.gardenorganic.org.uk/weeds-list)
- ◆ Advice on cultivation controls, such as crop rotation, tillage and hygiene [www.gardenorganic.org.uk/cultural-weed-controls](http://www.gardenorganic.org.uk/cultural-weed-controls)
- ◆ Direct control methods, such as mulching and mechanical control [www.gardenorganic.org.uk/direct-weed-controls](http://www.gardenorganic.org.uk/direct-weed-controls)
- ◆ Crop weeding strategies, in field vegetables, fruits and grasslands [www.gardenorganic.org.uk/crop-weed-management-strategies](http://www.gardenorganic.org.uk/crop-weed-management-strategies)
- ◆ Further reading in research papers.



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.

#### 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.

