

Weed Management in Organic Alliums

About the crop:

- Allium crops may be grown from seed (onion, leek), transplanted from a seedbed (leek), raised as single (onion, leek) or multi-seeded (onion) modules for later field planting, grown from 'sets' (onions), or vegetatively propagated by division of bulbs (shallots, garlic)
- Sown onions may be harvested early as 'salad onions' or as small bulbs for pickling, while the main onion crop, whether grown from seed, modules or sets, is harvested as fully-grown bulbs
- Allium crops germinate and grow slowly, they generally have few leaves and for most of the growing season the soil is not fully covered
- Onions sown in March take 5-6 weeks to achieve 50% emergence and reach the 2-leaf stage in May. Weeds can therefore germinate over a long period unaffected by the crop
- Allium crops are very sensitive to weed competition, so weed control is of particular importance
- Weeds are more of a problem in crops grown from seed than in transplanted or vegetatively propagated crops. In general a drilled onion crop will produce no yield if it is left unweeded
- At crop harvest, weeds foul undercutting and lifting machinery and prevent onion bulbs drying in the windrow
- The basic strategy for weed control in Allium crops starts with the choice of the field. The structure of the soil is important, and so is the preceding crop. The preparation of the seedbed is also a very important part of any weed control strategy. The seedbed should be fine, crumbly and level
- Allium crops should not be sown or planted too early, otherwise the crop will grow slowly, giving the weeds the advantage of a longer germination period
- Because perennial weeds are very difficult to control in Allium crops, they have to be controlled in the preceding crop
- Crop establishment generally follows conventional primary and secondary cultivations. The main methods of weed control are mechanical and thermal
- Mechanical control includes harrowing and hoeing, while thermal control involves flame weeding to control small seedling weeds. The success of these methods depends on timing, on weather and soil conditions, and on the composition and density of the weed population
- Crop rotation is important for disease control but volunteer weeds can be a problem when Alliums follow crops such as potatoes, cereals and oil-seed rape



Gang weeding onions



Ridged leeks

How can weed problems be reduced?

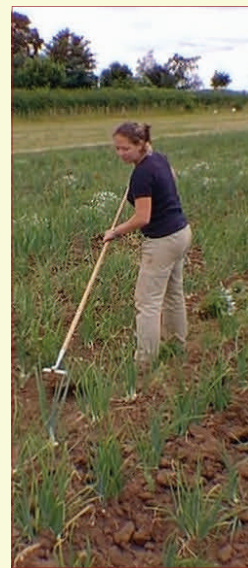
- Planning control measures before the season starts and being prepared with knowledge, machinery and time!
- Making good use of rotation and placing alliums in an appropriate position
- Alliums are very susceptible to weed competition, not using known 'weedy' fields is sensible
- Ensuring there are no volunteer problems from previous crops
- Using a stale seedbed and pre-emergence flaming
- Irrigating the stale seedbed to ensure the optimum weed flush prior to sowing the seed
- Growing a quick emerging, vigorous variety with good foliage growth (check the NIAB data)
- Plant through a mulch
- Weeding mechanically between the rows and thoroughly manually in the rows as soon as crop and soil conditions allow
- Hand roguing known problem weeds, e.g. fat-hen

Weed control options:

- If the timing and season are suitable prepare a stale seedbed
- In crops grown from seed, cultivate shallowly or flame before the crop emerges
- Use an inter-row weeding machine such as a brush weeder, finger tine weeder, harrows or tractor drawn hoe
- Number of passes will depend on the weed population
- Hand hoe or hand weed early in the season
- Some alliums will tolerate post emergence flaming burners are best angled to the base of the crop
- Leeks can be ridged which will throw soil in the crop row and smother small intra-row weeds



Machine hoeing organic leeks



Hand hoeing organic onions

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.



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'. 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.

