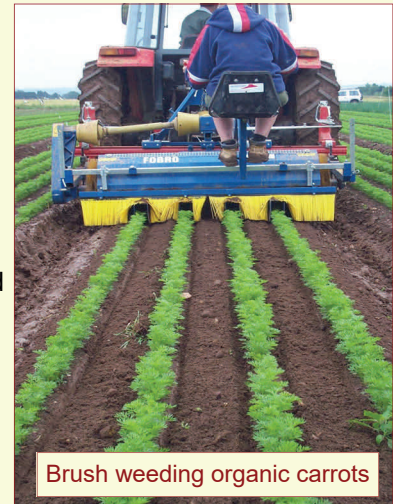


Weed Management in Organic Carrots

About the crop:

- Organic carrots are relatively difficult to grow compared with many other vegetables. Specialised machinery is required for sowing, weeding and harvesting. The crop will usually need some hand weeding to avoid yield losses due to competition from weeds
- Carrots tend to be grown towards the end of the organic rotation, preferring less nutrient rich soils. The organic maincrop is usually sown May-June, the later sowing date used to avoid the first generation of carrot-root fly
- Carrots are best suited to deep, well-drained soils high in organic matter and they tolerate moderately acidic to alkaline conditions. While carrots grow under a range of climatic conditions, they perform best under moderate temperatures. Seed germination occurs between 7 °C and 30 °C
- Row width, plant spacing and time of planting will depend on whether the carrots are early (e.g. to be marketed as bunching) or maincrop and also their target market, fresh, frozen or canned
- Growing systems vary between countries and farming method. For conventional carrots in the UK seed is sown in bands, other countries favour ridged systems but common organic practise is to drill a narrow row of seed to allow ease of hand weeding, the crop is usually grown on a bed system
- Irrigation is useful to flush out weeds, prevent capping at germination and also boost crop yields, but is not essential
- Harvest date will depend on market requirements, field and cold storage are options to extend the season



Brush weeding organic carrots

About the weeds:

- Common annual weeds that have their peak of germination around the same time as crop sowing are the major problem, e.g. field pansy. Weeds that are present at harvest will interfere with the machinery e.g. chickweed
- A single weeding at between 4 and 6 weeks after 50% crop emergence has been shown to prevent yield losses due to annual weeds on low-medium weed pressure sites
- The covering or fleecing of carrots to protect them against carrot fly can coincide with the optimum time for weeding the crop. Covers also increase weed growth up to four-fold and additional weeding may be needed under protected crops

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 carrots in an appropriate position
- Carrots are very susceptible to weed competition, not using known 'weedy' fields is sensible
- Ensuring there are no volunteer problems from previous crops e.g. potatoes
- 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)
- Weeding mechanically between the rows and manually within the rows as soon as crop and soil conditions allow
- Hand rogueing known problem weeds, e.g. fat-hen, to prevent seeding



Front and back bedweeder

Weed control options:

- Once the crop has emerged and the rows can be clearly seen, a mechanical weeding with crop protection tunnels can be undertaken
- Any type of inter-row cultivator can be used, this can be closely followed by a manual weed in the crop row with a flat bed weeder, the number of operatives corresponding to the number of carrot rows
- Steerage hoes, brush weeders or tine harrows are typically used
- An inter-row flame weeder could also be used post emergence, with the advantage of not stimulating a subsequent weed flush that may be seen following a mechanical operation
- Mechanical cultivations can be repeated as required over the season, bearing in mind that power driven implements can have a detrimental effect on soil quality
- One thorough early hand weed in the crop rows should be enough to give the carrots a good head start over the weeds
- If growing for the bunching market closer attention may be needed as there is little tolerance for weeds in the final product
- A later hand roguing may be required to remove any weeds which would interfere with harvesting

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'. 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.

