

Weed Management in Organic Peas and Lupins

Peas

- Combining peas are harvested dry for human consumption or as an ingredient in animal feeding stuffs
- Peas are associated with high fertility loams and should not be grown more than once in 6 or 7 years
- Land should be ploughed overwinter and natural weathering allowed to produce a fine tilth with the minimum of spring cultivations
- Early sowing is the key to high yield
- If drilling is delayed beyond the 1st week of March yield is reduced
- Cultivar choice and seeding rate are important aspects of weed control in organic pea production
- Seeding rate should be as high as economically possible, 120 plants per m² being seen as the minimum
- Vigorous cultivars that grow fast and have a high biomass accumulation are needed to achieve the greatest competitive ability
- Larger-seeded cultivars tend to be more competitive than the smaller petit pois types
- Zelda and Ambassador are good quality high yielding varieties
- The semi-leafless nature of many modern cultivars allows greater light penetration through to the weeds
- Seed should be sown 3 cm deep and the seedbed rolled afterwards
- Narrow rows, 20 cm apart, give the best yield, provide the maximum competition against weeds and make cutting at harvest easier
- Avoid sowing peas on land infested with couch (at densities of 50-100 shoots m² couch is likely to reduce yield by 19-35%)
- Inter-row cultivations are seldom possible in rows narrower than 30 cm but light harrows can be used until the peas are about 10 cm high
- Crops may be sown in wider rows to facilitate mechanical weeding
- The first hoeing should be carried out as soon as the rows are visible
- If a light harrow harrow is attached, this will drag out some weeds in the crop rows
- The second hoeing should be left as late as possible to remove later germinating weeds
- Chain harrows can be used pre-and post-emergence of the crop if compensated for by higher seed rates
- In vining peas a single, relatively late inter-row hoeing when peas had 4-9 nodes and weeds were 5-10 cm tall, generally controlled weeds better than an earlier treatment. A sequence of an early followed by a later cultivation did not give any better weed control. Additional treatment with a torsion weeder gave only slightly improved weed control

Lupins

- For the organic livestock producer, the lupin offers potential as a source of protein
- They can be grown on all land including relatively poor soils but they thrive better on good land
- Lupins do best with a fine, uncompacted seedbed
- Soil pH is important in the choice of variety, blue types prefer a range between 5 and 6.8, as do yellow lupin but these are also okay below 5. White varieties will tolerate a pH of up to 7.8. Also, in general, in the UK white lupins are grown in the south and blue lupins in the north. Yellow lupins are grown in areas of very low pH where blues would otherwise be grown. Blue varieties are determinate and will mature throughout the UK. The yellow and white types are indeterminate and require warmer conditions to mature
- White lupins are drilled from mid-March to mid-April, blue and yellow lupins between late-March and late-April

Weed control options:

- Dwarf, determinate, autumn-sown, sweet white lupins are sown in mid-September to achieve the 5-6 leaf stage before the severe frosts arrive
- Narrow-leaved lupin (*Lupinus angustifolius*) emerges earlier than yellow lupin (*L. luteus*) and formed a dense canopy in the early growth stages that reduces weed biomass, however, at later stages the crop becomes more open and sensitive to weed competition
- Row spacing is fairly flexible and may be 12 cm to 30 cm depending on the weed control requirements
- Many growers use comb harrows, others use inter-row cultivation
- Field studies of post-emergence harrowing within the growth stages from cotyledon to 7-8 leaf have shown that lupin is fairly tolerant to soil covering
- In field studies and pot tests, white lupin has shown strong suppression of weeds in particular of corn spurrey (*Spergula arvensis*), fat-hen (*Chenopodium album*) and broad-leaved dock (*Rumex obtusifolius*), both the growing crop and residues incorporated into the surface 2 cm of soil inhibited weed growth.
- Lupins may be combine harvested for seed or cut for silage, where weeds are a particular problem the crop can be harvested as wholecrop silage before weed seed set occurs. This may give a weed control benefit in subsequent crops.
- Lupins have been grown in mixtures with triticale as wholecrop silage for harvesting in August
- Lupins should have a 5 year interval between crops

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.

