

# Protected Cropping: where are we at?

The timing was ripe for the Organic Growers Alliance (OGA) event on protected cropping at Hankham Organics, near Eastbourne on the 17th October. These are interesting times for glasshouse and polytunnel growers with the Soil Association presently looking at refining the standards. More than 20 growers arrived at Hankham in glorious autumn sunshine to see an innovative box scheme run from a 1.5 acre glasshouse and to discuss the many issues and challenges of organic protected cropping.

## About Hankham

Miles Denyer gave a brief overview of Hankham Organics. They stumbled across the disused nursery in 2001, when it had been abandoned for 5 years. The nursery was only available to rent and was in a poor state as the previous occupier had run down the maintenance of the glasshouses. With more than 2 acres of glass it was a daunting prospect, but there were advantages of good fertile sandy clay loam soil and a sheltered site located away from main roads. It took four years to restore the 1.5 acres of glass, with a further half-acre block unrestored at present. There are also 2.5 acres of outdoor land. Miles came together with Peter Dollimore, who had also been looking for a glasshouse to grow organically, and found that they shared interests in environmental issues and food production and had complimentary skills. The aim was to establish a viable business growing organic vegetables and supplying customers within a 25-mile radius via vegetable boxes and local shops. They are now selling 5-600 boxes per week. Vegetable boxes range from £9.00 for 8-9 items up to £15 for 11-13 items. The emphasis is on variety of produce rather than volume with a strong bias towards leafy salads and herbs. More than 30 different salad leaves are grown. Rocket, spinach, coriander and chard are produced all year round and spring greens, lettuce and kale are produced almost all the year round. In the summer there is an abundance of typical glasshouse crops such as tomatoes, cucumbers, courgettes, peppers, beans and aubergines. Outside crops include lettuce, kale, leeks and squashes. All crops are grown from seed and propagated on site. Though every crop has to pay its way and they aim for £2500 return from each bay of the greenhouse, the challenge is to provide enough variety during the hungry gap period and asparagus and strawberries are grown for that purpose. The asparagus, which was planted under glass 5 years ago, cropped for four months from late February and is put in the boxes as a treat for their customers, rather than at its full potential value. They employ 12 permanent staff, mostly part-time and all of whom are local. Unlike many other organic box schemes they say that they have not seen a significant drop in demand.



Miles Denyer

## Soil fertility

"Soil fertility is the biggest single issue for organic protected cropping," says Peter Dollimore. "Our aim is to move towards increasingly sustainable fertility management without going bankrupt". At the start they imported lots of farmyard manure from local farms and stables. This was free fertility, bar the logistics of moving it. This was supplemented with pelleted organic fertilisers (Dingleys and Greenvale), with K for summer crops and N for leafy vegetables. The crops grew well but high yields were offset by high wastage due to pest problems and the labour needed to combat them. In 2003 they moved over to using green waste compost and also bought a compost tea brewer. The compost however contained high zinc levels and there were already high levels of zinc within the soils. The reduced fertility inputs led to less pests, but there was still more problems than they were comfortable with. Their bio-control bill was more than £3000 per year and one year they lost 60-70% of their lettuce crop due to aphids. In 2005 they changed to the Albrecht system of soil analysis, which looks at the balance of

different soil chemicals, including trace elements within the soil. "We followed the recommendations, wherever possible, though there were some restrictions due to standards and practicalities," said Peter. They stopped the compost use and changed the nitrogen source to a high N fertiliser, first Laws N and then soya meal (9%N), which they mixed with copper sulphate, iron sulphate and boron for ease of spreading. Within a year most of the problems disappeared, with less aphid, spider mites and cabbage root fly. There was still a problem with excessive sodium and zinc, which was locking up phosphate and it was concluded that they weren't using enough water of high enough quality to wash out the salts. Moving to a rainwater harvesting system, enabled water to be used more freely. Latest soil analyses suggest that sodium and zinc levels are dropping and that they could start using green waste compost again, though they are worried about herbicide contamination. Recommendations for nitrogen inputs are also going down from 6kg of soya meal to 2kg/50m<sup>2</sup>, despite lower organic matter levels. "I believe this can be attributed to improved soil life utilizing it more efficiently," said Peter. Trace element supplementation is no longer necessary. They have however seen potassium deficiency for the first time but compost use and Laws High K should address this.



Peter Dollimore in the propagation bay

## Cultivations

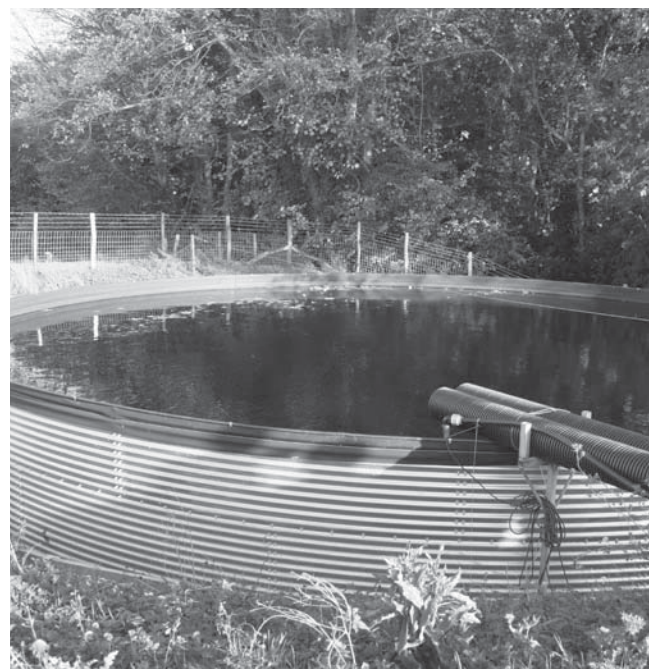
Initially cultivations were carried out using a Howard Gemrotavator but they found that it made the tilth too loose and they were losing too much water. In 2004 they purchased a 35HP compact tractor, Falc cam spader and rotavator. They have since stopped using the rotavator due to soil damage and are now using a power-harrow instead. This gives much better results and consolidates the soil. Supplementary fertiliser is then lightly raked into the soil surface before setting up and planting. They no longer need to subsoil and are not having to rake as much. Woodier plants such as tomatoes and peppers are removed and composted but other crops they run over with the flail mower prior to incorporation. Their compost, which is made in outdoor bays and turned with front-loader, is primarily used on their outdoor crops.

## Green manures

Many different crops have been tried including lucerne, field beans, mung beans, buckwheat, crimson clover, phacelia, vetch and fenugreek. Green manures at Hankham are used more in the summer than the winter as space is more valuable to them in the winter. They use one winter green manure (phacelia or vetch) and two summer green manures per 8-year rotation. Amaranth is used as the summer green manure, sowing from May onwards and growing to 6' high in 8 weeks with masses of deep fibrous roots. The advantage is that it is drought tolerant and doesn't need much water.

## Rainwater irrigation system

Water is a big input into glasshouse systems and water bills at Hankham of £6500 per year (almost £1.50/m<sup>3</sup>) concentrated the mind, said Miles Denyer. They installed drip irrigation under mypex to cut back on water consumption and also recorded their consumption on a daily watering schedule. Overhead sprinklers are used occasionally and sprinklers on the outside crops. They did extensive research into various options including abstraction and collection. There was some doubt from the geological survey they carried out as to whether a borehole would be successful and the landowner was not happy about them installing a reservoir. Eventually, they decided upon a rainwater harvesting system. The final cost of £26,000 was more than double the original budget but this year they only needed to rely on metered water for one week, so it should pay back in 6-7 years, depending on rainfall in future seasons. The system consists of a 300 m<sup>3</sup> tank in the field, which receives the run-off from the glasshouse. Water is then pumped back to a 30 m<sup>3</sup> tank in the glasshouse.



## Protected cropping standards

Ben Raskin, the Horticultural Development Manager at the Food and Farming Department of the Soil Association spoke of the need to develop specific standards for protected cropping to clear up some of the inconsistencies that exist between outdoor and indoor cropping, but at the same time to ensure that they reflect the practicalities so that organic protected cropping remains feasible. Iceland is about to produce standards for protected cropping and these could well be a blueprint that could be adapted for the UK. The consultation is at an early stage and a working group is yet to be set up, but there is likely to be a focus on energy, including use of renewable sources and waste heat. Other issues include - whether steam sterilisation should be allowed (currently 1 year in 6, under derogation), water use, fertility inputs including liquid feeding, container growing, rotation - should a fertility building break be insisted on? Should mono-cropping be permitted? Ben stressed the importance of the "unheated" sector and was particularly keen to get smaller growers involved in the consultation process. If you wish to be involved please contact Ben Raskin 0117 914 2400 [braskin@soilassociation.org](mailto:braskin@soilassociation.org)

## Key challenges facing cold season glasshouse growers

Adrian Izzard of Wild Country Organics, near Cambridge, is a small organic glasshouse grower supplying supermarkets and his own box scheme. Adrian identified a potential divergence between growers producing for supermarkets and intensive small-scale producers. He felt that large producers were pushing the standards to the limit and smaller growers were more attuned to the spirit of the standards. He doesn't use any liquid feeds, for example, relying on fertility inputs in place prior to planting, whereas many supermarket growers do. There are problems regarding use of manures, particularly in light of the aminopyralid contamination. There are also risks from green waste compost, with aminopyralid and clopyralid contamination. Kali vinasse can also concentrate herbicides and be a source of contamination. These issues highlight the difficulties of open rather than closed systems and the need for more control from individual growers over their fertility inputs, either through partnerships with other growers or by producing compost directly.

## An inspiring day

In conclusion, thanks to Hankham Organics for a truly inspirational day. After such a dismal summer it is great and heartening to see growers so enthusiastic and committed to their craft. The quality of the crops and the sheer diversity of cropping in the glasshouse was very impressive to see.

*Phil Sumption*



Photos: Phil Sumption