

CONVERSION TO ORGANIC FIELD VEGETABLE PRODUCTION DEFRA Project OF0191

Annual Report for 2000/2001 Cropping Season

Executive summary

This report summarises the findings from the fifth year of this DEFRA funded study to evaluate the agronomic and economic performance of farmers converting to organic field vegetable production. It is a collaborative project between HDRA, HRI, OAS at EFRC and IRS, Aberystwyth. Eleven sites are being monitored; two experimental ones - Hunts Mill (HRI Wellesbourne), HRI Kirton and nine reference farms (commercial units). 2000/01 was the third year of organic vegetable cropping at the Hunts Mill site and on the reference farms it was the second year for six of the farms. Three of the remaining farms were in their second year of conversion and one farm was fully organic but not growing field vegetables.

This year the extreme weather has been one of the biggest factors influencing weed levels, pest and disease problems, yields and ultimately the economics. However there have also been other trends. In this year there has been a greater area of vegetables grown (+30%), a larger number of different types of vegetable grown (19) and the also the growing season has been extended with more early and late planted crops. In general, yields have been higher than in 1999/2000, on average by 14%. Overall yields were some 29% below conventional levels. There was, however, considerable variation in yields; the crops that performed the best were those grown and harvested in the period from June to the middle of September, such as later plantings of calabrese on the reference farms and carrots and leeks at Hunts Mill. The main yield losses can be attributed to pest damage in the wet spring and disease in the autumn, together with crops that were not harvestable due to waterlogged fields. Some of the new crops (e.g. sweet corn) grown by farms, under pressure from the markets, were less successful.

Weed control techniques are improving, and total weed costs reducing, with more crops grown through to harvest without any hand labour and with low levels of weeds in many crops. Several farms have invested in weed control machinery, in particular finger weeders. Advice from the OAS and visits to on-farm demonstrations have helped farmers to decide on their most appropriate strategies. At Hunts Mill there have been some notable successes with improvements in weed control and yields in onion, carrot and leek crops. Although the wet weather has been a major factor for high levels of weeds being recorded in some crops, farm organisation (lack of time and labour) have also been a factor. There are also signs of increasing levels of perennial weeds on several of the farms. At Hunts Mill couch and black bent, have increased to problematic levels in some areas and may have contributed to the decreased yields observed in the potato crop. Hand weeding costs at the site have sometimes reflected the increased labour required to deal with these weeds.

There was a higher incidence of damage from pests and disease in 2000/2001 than in 1999/2000. The major pest problems were from slugs, pigeons and rabbits in the spring and from cabbage root fly in brassicas. Disease pressure was highest in late

summer and autumn. Late blight on potatoes, ring spot on Brussels sprouts and downy mildew on lettuce were the most significant problems. There were also site-specific problems such as white rot in onions and wireworm for leeks. At Hunts Mill the most serious problem was neck rot in the transplanted onion crop raised from organic seed. As with weed control strategies are developing on the farms for pest and disease control.

Soil structure, soil compaction and availability of nutrients have shown up on soil analysis to be a problem on 8 of the farms and these are likely to continue to be a problem after the harvesting of crops in the wet autumn in very wet conditions, using heavy machinery. The OAS has expressed concerns that some farms may be adopting a boom and bust approach to fertility management with little use of over-winter green manures (admittedly difficult in the wet autumn of 2000) and the exploitation of grass/clover leys for silage. There have also been some problems with trace elements; at Hunts Mill whiptail (molybdenum deficiency exacerbated by root fly damage) in Savoy cabbage significantly affected marketable yield.

Although there are now 26 different crop sequences at Hunts Mill it is not possible to see any significant effects of these on the soils parameters being measured - levels are more related to particular areas of the site than to the crops which have been grown and the varying periods of fertility building. Levels of P and K are low and further applications of green waste compost will be made in 2001 to help rectify this. The pH is generally satisfactory but in some strips it is low for certain crops (including barley). Levels of organic matter in all the plots have increased since last year but they are still well below the recommended values of 3.5% for this soil type. The field still suffers from compaction problems which are particularly noticeable in the spring barley crops.

Organic vegetable gross margins on the reference farms have ranged from £1882 to £6192/ha (net margins were between £1467 and £5607/ha). Gross margins were, on average, 35% higher than conventional standards, compared with 18% higher than in 1999/2000 season; these were still 5% below organic standards. The improvements in financial returns have been caused by increased yields and reduced fixed costs. Despite increased competition within the organic vegetable market, prices which the growers received have not declined significantly in comparison with the previous season. Variable costs ranged from £1379 to £3326/ha which are on a similar level to conventional vegetable crops. The overall level of variable costs increased in comparison with the previous season. This was related to the wet weather in the early season which led to higher weeding costs for spring planted crops and to the higher costs of harvesting the greater yield. Overall fixed costs were also reduced due to the increased efficiency of operations in the second year of production. As yet whole farm economic data has not been analysed.

At Hunts Mill the gross margins were lower, on average, than for the two previous years, with the exception of the carrot crop that performed significantly better. However average yield and financial data and direct comparison to previous years masks the variation in yields from the different areas or strips where the crops were grown; each strip having different fertility building and past cropping. The financial difficulties of the Organic Marketing Company (OMC) have led to the loss of a major marketing outlet for this site, and this affected the ability to wholesale large volumes,

especially in the case of cabbages. On the reference farms increased supply of organic vegetables and greater competition has led to more challenges in the marketing of organic vegetables. This has led to some of the reference farmers re-evaluating their marketing strategies and in the case of two of them starting vegetable box schemes, where before they had only marketed through packers.

Dissemination of the results of the project has continued through the production of articles in the farming press, attendance at scientific conferences and workshops/seminars for farmers. An important seminar on conversion to organic field vegetable production, attended by the Minister for Fisheries and Countryside Elliot Morley MP and 80 farmers, was held at HRI Wellesbourne in September 2000. For the first time data from the project has been included in the section on field vegetables in the 2001 edition of the Organic Farm Management Handbook. Unfortunately two events on the reference farms planned for the spring and summer of 2001 had to be postponed due to the foot and mouth crisis and will be rescheduled for 2002.