

Research and Development

Final Project Report

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Project title

Knowledge transfer to organic fruit industry

MAFF project code

OF0311

Contractor organisation
and locationThe Henry Doubleday Research Association, Ryton Organic Gardens,
Ryton-on-Dunsmore, Coventry, CV8 3LG

Total MAFF project costs

£ 8,795.00

Project start date

01/04/01

Project end date

31/12/01

Executive summary (maximum 2 sides A4)

Although consumer demand for organic fruit is strong, it is currently the least developed sector of the UK organic industry, represented by only a small number of commercial growers. One of the main constraints preventing growers becoming more involved in this sector has been the lack of technical information and guidance, resulting in very few growers having the knowhow and confidence to convert. The aim of this project was to produce technical guides for growers on two of the more important commercial fruit crops in the UK, one entitled 'Organic Apple Production – pest and disease management' and the other, 'Organic Strawberry Production – a grower's guide.' These have now been published and the information contained within the two booklets should go a long way to meet the current lack of information on organic fruit growing for apple and strawberry crops. The guides will provide valuable information and advice for current and potential growers, researchers, advisors and colleges.

The two guides are based on previous DEFRA funded studies, 'Organic Fruit Production; a review of current practice and knowledge' (OF0150) and 'Economics of Organic Fruit Production in the UK' (OF0151). During these studies, advisory material published by the Swiss Organic Agriculture Research Institute (FiBL) was identified as a useful source of information and extensively revised and updated with relevance to UK conditions. Much additional information for this project was obtained through discussion with growers, advisors and researchers. These included fruit researchers at HRI East Malling, ADAS Fruit Team, Farm Advisory Services Team (FAST Ltd), The Soil Association, The Organic Advisory Service at Elm Farm and The Organic Soft Fruit Working Group. Upon completion, the guides were extensively peer reviewed by organic growers, researchers and advisors both in the UK and abroad.

The booklets have now been published as full colour, user-friendly guides (36 pages per guide) priced £8 each. The information contained in the booklets will also become accessible over the internet on the HDRA website. The booklets themselves will be publicised through relevant trade press and horticultural magazines together with relevant forthcoming horticultural / fruit shows.

Through the production of these fruit booklets, HDRA has established good contacts and expertise within the organic fruit industry and is well placed to continue to provide growers with further information on organic fruit crops through future collaborative projects. Following successful collaboration with the Organic Soft Fruit Working Group on the strawberry technical guide, the opportunity exists to do similar information provision for other soft fruit crops and a proposal for a further booklet on organic cane and bush fruit production has now been accepted by DEFRA (OF0311).

Scientific report (maximum 20 sides A4)

Background

Despite a strong consumer demand for UK grown organic fruit and the high prices achievable for this commodity, the organic fruit sector is still underdeveloped in the UK. One of the major barriers to investment in this sector has been the lack of technical knowledge and information available to growers seeking to convert their land to the production of organic top and soft fruit. Two recently completed projects by HDRA; 'Organic fruit production – a review of current practice and knowledge' (OF0150) and 'Economics of organic fruit production in the UK' (OF0151) had drawn together some information on organic apple and strawberry crops, and literature on the same topic was available from the Swiss Institute of Organic Agriculture in the form of technical notes. It was anticipated that this information could provide the basis for fully revised and updated guides with relevance to UK conditions.

The objective of this project was to produce two technical grower-friendly booklets on organic apple and strawberry production, thereby addressing the problem of lack of information for these two main fruit crops in the UK.

Scientific Objectives

- 1) Production of a booklet entitled 'Organic Strawberry Production – a grower's guide.'
- 2) Production of a booklet entitled 'Organic Apple Production – pest and disease management.'

Extent to which objectives were met

The objectives for both booklets were met and both guides have now been published.

Primary Milestones

Milestone	Target Date	Milestone Title	Milestones met?
1	01/05/01*	Preliminary setting of booklets	Yes
2	01/07/01*	Grower / advisor comments	Yes
3	01/10/01*	Final setting of booklets	Yes
4	31/12/01	Published booklets	Yes

*NB – An error in the original contract refers to the year 2000 instead of 2001.

Methods, Approaches and Reliability of Results

Permission and the full co-operation from the Swiss Institute of Organic Agriculture (FiBL) was obtained for the translation of their technical guides on organic apple and strawberry production '*Maitrise des maladies et ravageurs du pommier en production biologique*' (1996) and '*Biologischer Erdbeeranbau*' (1998). FiBL also supplied many of the colour photographs and illustrations used in the guide, although many more were taken from the authors' own prints or supplied by HDRA's library, HRI East Malling and Search Press. The information from the FiBL booklets was successfully translated into English before being researched and revised in order to ensure its relevance to UK conditions. This involved visits to and consultation with existing organic growers, database and literature searches and contact with UK certifying bodies such as the Soil Association and other relevant organisations. Contributions to the Strawberry grower's guide were also made by the newly formed Organic Soft Fruit Working Group and from individuals connected with the fruit industry. Updated information on chemicals and SOLAS approved for commercial organic production was obtained direct from the Pesticide Safety Directorate where necessary.

In the case of the strawberry guide, the Nuclear Stock Association was also directly contacted where it was necessary to check on the notifiable status of several diseases.

Although the style of both booklets is very similar, the 'Organic Apple Production' guide is specifically geared towards 'pest and disease management,' with a comprehensive 16 page section on specific pests and disease problems, their management and approved control products. This approach was thought to be more suitable for such a guide since orchard pest and disease management is the most challenging aspect for the organic top fruit grower and is often an area which is poorly understood. The strawberry booklet is a more generalised guide for the grower, covering all aspects of organic strawberry production but also including a detailed pest and disease section.

Summary of contents: Apple Booklet:

- Foreword by Dr Margi Lennartsson
- Organic principles:
An outline of the most important aspects of organic production including maintenance of a healthy soil, habitat, grower's ability to identify beneficial organisms and the use of approved plant protection products.
- Planning the organic apple orchard (for pest and disease management):
A comprehensive section detailing orchard management and design (converting an existing orchard or starting from scratch), suitable varieties for organic growing, choice of rootstocks and nursery trees, tree spacing and pruning and training.
- Soil management, fertility and weed control:
This section offers advice on what to look for when selecting a new orchard site, drainage problems and fertility management including application of manures and compost. Options for weed control within the tree strip are also discussed.
- Habitat management for pest and disease control:
This section highlights many of the more important aspects of providing habitats for beneficial insects, birds and animals through the use of wildflowers strips, hedgerows and other refugia for wildlife. Advice on the use of floral strips and their management is given, together with suggestions for suitable wildflower seed mixes.
- Pest and disease management:
This is the largest section in the booklet (20 pages) detailing management recommendations for common pests and disease problems on apple in the UK. The importance of sampling to monitor levels of pests, diseases and beneficial organisms in the orchard is highlighted. Where it is necessary to resort to the use of approved plant protection products, suggestions are given for reducing their impact to the environment by using them at the most effective times. The management of each individual pest and disease is set out in clear, easy-to-read fashion. The booklet has not been designed for use as an identification guide to pests and diseases but, where it is important for the grower to recognise problems at key stages relevant to the control strategy, details of the lifecycle of the pest or disease have been given. The section also includes an 'at a glance' chart for pest and disease management showing the more important cultural, chemical and biological controls that can be used to combat pest and diseases at key stages through the year (see page 17). Pages 33-35 of the booklet give details of pest and disease control products approved for use in organic production in the UK and clarifies the use of 'permitted' and 'restricted' products together with manufacturers details.
- Further reading and useful addresses:
Details are provided for sources of further information and advice.

Summary of contents: Strawberry booklet

- Foreword by Dr Margi Lennartsson
- Organic principles
Summarising the important aspects of organic production.
- Planning organic strawberry production
This section gives details of the types of farm enterprise suitable for organic strawberry production and specific site / location requirements of the crop (suitable sites, soils and rotations). The section also discusses the conversion process for organic production.
- Cropping systems:
The use of outdoor production systems for flat beds, ridges, polythene mulches and raised beds are discussed in addition to growing under protected production (fleece, polytunnels and cloches). Timing the crop to advance or delay harvest in order to extend the season and the number of crops achievable from one planting are some of the options discussed, also outlining the advantages and disadvantages of cropping for one year or more.
- Practical aspects of production:
A large section of the booklet is devoted to this topic, offering advice on soil preparation and crop nutrition before and after planting. The types of strawberry planting material are discussed in detail (fresh dug, cold-stored, waiting bed, crown plants, misted tip / tray plants and everbearers), outlining the various options available to the grower. Suggestions on suitable planting densities, planting methods and the use of polythene mulches are also included and a comprehensive section on irrigation and weed management also highlights the choices available for the grower.
- Varieties:
Although information on the choice of strawberry varieties for organic growing to date has been limited, a list of varieties thought to be suitable is presented in this chapter, with details of varietal characteristics and disease resistance.
- Habitat management:
In a similar fashion to the organic apple production booklet, this chapter highlights the importance of encouraging and maintaining a healthy and diverse environment with positive benefits to crop pollination and pest and disease control. The section is largely devoted to encouraging beneficial insects, birds and animals through the management of wildflower strips, hedgerows and the surrounding environment.
- Pests and diseases:
A large section of the booklet is devoted to the management of some of the more common pests and diseases in strawberry production. As with the organic apple booklet, each problem is dealt with on an individual basis listing the choices of cultural, biological and permitted chemical controls available to the organic grower. Again, where recognition of the different lifecycle stages of certain pest organisms are an important part of the control strategy, this information is provided in order for the grower to act at the most appropriate time. Managing strawberry diseases in an organic system is particularly challenging for the grower since there are no approved chemical controls available and preventive measures are therefore essential.
- Economics and marketing:
Although more information on this topic is available from the HDRA publication 'Economics of fruit production' (Firth, 1999), DEFRA project OF0151, it was felt that a small section specific to strawberry crops could be included within the booklet to provide useful information to growers. This section (page 31) therefore outlines the costs associated with establishing an organic strawberry enterprise in addition to market opportunities.
- Useful addresses:
Sources of information and advice.

Main implications of the findings

The information contained within the two booklets should go a long way to meet the current lack of information on organic fruit growing for apple and strawberry crops. The guides will provide valuable information and advice for current and potential growers, researchers, advisors and colleges.

Possible future work

The Organic Soft Fruit Working Group (formed during the HRI/EMRA/ADAS Organic Fruit Conference, Ashford, 17/18th October 2000) were very keen to offer their contributions for the strawberry booklet and to peer review the publication prior to publishing. The group had initially agreed to produce its own, similar publication using the combined expertise of growers, researchers, advisors and supplier members of the group. Having had the chance to look at the booklet, the group made the unanimous decision that the HDRA guide was sufficient to provide the industry with all the technical information it required and that the group should concentrate on ensuring the strawberry booklet was of the best possible standard. The group spent a great deal of time reviewing the guide and adding suggestions and corrections to the text, design and layout.

Following the success of collaboration with the OSFWG on the strawberry technical guide, the opportunity exists to produce further booklets on soft fruit such as raspberries, currants and gooseberries and a proposal with DEFRA has now been accepted to undertake production of a further booklet on organic soft fruit production (OF0306). An agreement with FiBL has also been made to translate other existing guides on fruit crops and adapt and review these for UK conditions in a similar fashion. This will capitalise on HDRA's experience with the production of such booklets and utilise the existing links and knowledge within growers groups and industry.

Dissemination of information:

Following their recent publication, the guides will be publicised through articles in the horticultural press e.g. 'The Grower,' 'Fruit Grower,' 'Organic Farming,' 'Fresh Produce Journal,' 'Farmer's Weekly,' 'Farmer's Guardian,' and other relevant trade magazines. Publicity will also take place through horticultural shows (e.g.s Fruit Focus, National Fruit Show) and conferences both in the UK and abroad, in addition to promotion on HDRA's website. The information contained within the booklets will also become available on the internet. The guides have already been publicised in HDRA's quarterly magazine 'The Organic Way,' and attracted considerable interest from HDRA members. This has shown that although designed primarily for commercial growers, the booklets may also benefit from publicity in the domestic gardening / smallholder magazine sector.

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