



# ORGANIC STUDIES CENTRE

## Technical Bulletin 2

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Organic Studies Initiative

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# The Organic Studies Centre

The **ORGANIC STUDIES CENTRE** is committed to the delivery of a high quality trials and demonstration programme for organic agriculture in Cornwall and Isles of Scilly. This will be achieved by working closely with organic producers, conducting sound scientific investigation and ensuring effective dissemination of information.

The Objective 1 funded Organic Studies Initiative (EAGGF and DEFRA) project has now been up and running for eighteen months. The end of December 2002 heralded the end of the first full farming year for the Project Team, based at the Organic Studies Centre, Duchy College, Rosewarne. During this time the Centre has become involved in a number of research and demonstration projects. Some of these have already been completed, whilst others are ongoing. Other work has included a series of on-farm demonstration events and technical courses. The results of studies, technical updates and a programme of events for the Centre are reported regularly in our Technical Bulletins. Information will also be made available on the website [www.OrganicStudiesCornwall.co.uk](http://www.OrganicStudiesCornwall.co.uk), which currently exists as a holding page, but will be fully functional in the very near future.

As well as technical reports, the bulletin also includes short articles of interest to producers in the region. In this edition, Christopher Stopes, a member of the Organic Studies Centre project steering group and member of the DEFRA Organic Action Plan Team, has provided his view on what the Government's Action Plan for Organic Farming is likely to mean for organic farming in Cornwall and the south west.

During 2002, a new Objective 1 funded Organic South West project has started in Cornwall, and although having a very different role, and not directly affiliated with the Organic Studies Centre, we hope to develop strong collaborative links with that project. Rob Moss, Project Co-ordinator of Organic

South West has written a brief overview of the role of that project.

Much of the trial and demonstration work of the Organic Studies Centre is increasingly being conducted on farms throughout the county. In order for the project to maintain both its farmer focus and cross-sector objectives, it remains very important that we continue to work in this manner. The recently completed survey of Cornish organic farmers is certainly helping us to understand the topics that require most attention, and which farmers and farms would provide the most effective means of studying these issues in more detail.

In addition, the centre is also able to rely on the resource at Coswinsawsin Farm. Many organic farmers in the region will be aware that Coswinsawsin is Duchy College's commercial organic demonstration farm. Although the farm is not directly supported by the Objective 1 project, and operates as a purely commercial unit, through commercial arrangements with the farms' manager, it has been possible for the Centre to conduct certain research activities which may not be as feasible or practical on other farms. For example, we have been conducting controlled trials examining the suitability to Cornish conditions of various cauliflower varieties. The farm also enables the Centre "*to demonstrate the opportunities and challenges of operating a commercial, stockless organic rotation producing field scale vegetables and other crops suitable for Cornish organic production systems*"

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# Organic Action Plan – Regional Opportunity

Christopher Stopes

Member of DEFRA Organic Action Plan Team  
Member of Organic Studies Initiative Steering Committee  
Member of Organic South West Steering Committee

The government's Organic Action Plan ([www.defra.gov.uk/farm/organic/actionplan/index.htm](http://www.defra.gov.uk/farm/organic/actionplan/index.htm)) was launched in July 2002, with 21 agreed Action Points and more than 100 detailed recommendations – all highly relevant to the development of the organic sector. The key objective is to promote the organic farming sector in England by encouraging our producers to supply a greater proportion of the organic primary produce consumed in the UK. The action points and recommendations are aimed to help organic producers achieve similar market shares to conventional producers.

Six months on, we can look forward to the Action Points being implemented during 2003. However, the new structures proposed to advise on the ongoing development of the organic sector, organic standards and certification have yet to be resolved. A key issue here is the need to harmonise the England Action Plan with developments in the devolved administrations of the UK in Wales, Northern Ireland and Scotland.

A key proposal is to introduce ongoing payments for organic farmers, initially in an interim five-year scheme. This will be included as a strand of the new agri-environment scheme. Although the payment rates proposed are modest (£30/Ha for arable land, £23/Ha for other improved land and £5/Ha for unimproved grassland), they will be available to all organic farmers and show that government recognises and is willing to reward the environmental goods and services that organic farmers contribute to society. These benefits are now clearly endorsed by government, with a section of the Plan devoted to explaining the environmental benefits of organic production in detail. Increased conversion aid has been targeted at organic top-fruit production (£600/Ha for years 1 to 3) with ongoing payments to fruit farmers for years 4 to 10 of £40/Ha.

Public procurement of organic food is highlighted, potentially enabling the health service, schools, local authorities, government offices and so on to purchase organic food – both to reflect consumer preferences and to drive the sustainable development agenda forward across the whole of the food chain. This provides a fantastic opportunity to increase the organic market, whilst also helping organic producers and processors to bring the benefits of organic food and farming to an even wider group of consumers.

The Plan states that the government supports high standards for organic production - welcome news since organic producers and processors must strive to meet the highest standards of sustainability in line with developing consumer expectations. To help achieve this, the Plan recognises the need for research – committing up to £5million over five years through the LINK programme and establishing appropriate benchmarking for organic production (including quality and environmental factors).

The Plan recognises the value and need of organic demonstration farms and is committed to improving the level of skill in small organic food processing and manufacturing businesses. Both these measures will help to communicate and inspire farmers and the wider public – our consumers.

The most important Action Point for Cornwall and the South West is a commitment from DEFRA to work with food chain stakeholders to develop a strategy for a healthy and buoyant regional organic food sector – including local food marketing. We are fortunate in Cornwall and the South West to have the highest proportion of organic producers, superb climate and growing conditions and farming systems well suited for organic conversion. A regional Action Plan, drawing on the opportunities presented by the English national plan, will give real scope for the whole organic sector in Cornwall and throughout the South West. With drive and imagination, and the support of the collaborative efforts of the Organic Studies Initiative and the Soil Association Organic South West programme, there is a great opportunity for Cornwall.

# Survey of Cornish Organic Farmers

During the latter half of 2002, the Organic Studies Centre undertook a survey of all registered organic producers in Cornwall. This involved lengthy interviews with farmers and the collection of farm data and personal opinions on many aspects of production. The intention of the survey was both to provide detailed information on the extent of organic farming in Cornwall and also to ensure that the activities of the Centre incorporated the issues of importance to producers in the region. The results of the survey will be used to inform the industry and will also form the basis of many of the demonstration, training and trials and development activities of the Organic Studies Centre.

The survey was started during August 2002, and by December 2002 a total of 114 or 95% of the 120 registered Cornish organic farmers had been interviewed. The data collection exercise took somewhat longer than anticipated because some farmers were unable to take part until after the summer tourist season. As a result data organisation and analysis is ongoing.

The survey has revealed that the vast majority of Cornish organic producers are relatively new to organic farming, with the majority having started conversion

during or after 1999. There is also a very wide diversity of producers, ranging from the very small scale to the large, with many enterprises represented. Whilst many felt that the lack of long term markets and the absence of a marketing infrastructure is a significant constraint, there are also success stories of farmers adding value to their produce, through innovative marketing, group ventures, processing and local sales.

The technical issues of concern tended to focus on problems associated with weeds and weed control, soil fertility building strategies, the production of sufficient home produced protein sources for animal feed and the availability and quality of organic seeds. With regard to the implementation of organic standards, the burden of form filling, record keeping and related paperwork were stated as a widespread problem area.

We would like to thank the many farmers who contributed to the study and the team of dedicated data collectors who conducted the interviews. Upon completion of the report, the full findings will be distributed to all participating farmers and widely within the industry.

## Dairy herd health and welfare

A welfare assessment protocol was developed by the University of Bristol (funded by RSPCA) to assess the impact of the Freedom Foods Scheme. The protocol enabled the concept of benchmarking to be applied to health and welfare. A study applying this development to the organic dairy sector in Cornwall has now been started. This study will use the protocol to carry out an animal based assessment and provide a health and welfare benchmarking service to participating organic farms. This will assist in the identification of strengths and weaknesses in herd health and welfare. The results of the assessment will be used to assist the farmers and their advisors to develop improved and effective herd health plans that address specific issues relating to each individual farm situation. The results of the benchmarking, understanding the assessment and how it might be used in the development of health plans will be the focus of an open meeting for farmers and their veterinary advisors. Farmers participating in the study will then have the opportunity to carry out a re-evaluation of their herd health plan in the light of their assessment with their vet and with guidance from the research team. The acceptability and uptake of this process will be monitored through farmer interviews and feedback.

The project began in November 2002 involving 15 Cornish organic dairy farmers. All have now received their on-farm assessment visit, which includes:

- a short interview with the farmer together with an examination of the medicine records, current health plan, somatic cell count data, lameness and mastitis records and herd fertility records;
- observation of the behaviour and physical condition of dairy cattle for approximately two hours prior to afternoon milking; and
- observation of the cows as they leave the parlour after milking.

This study is being carried out jointly by the Organic Studies Centre and the Department of Clinical Veterinary Science, University of Bristol. The project is funded by the Organic Studies Centre Objective 1 funded (EAGGF and DEFRA) Trials and Development Budget, the Organic Milk Suppliers Co-operative Ltd. and Mole Valley Farmers Ltd. We would like to express our thanks to the organic dairy farmers participating in this study and to the sponsors for their support. Further detail of progress and results from this study will be published in the next OSC Technical Bulletin.

# Organic Table Bird Production: a study of commercial flocks

The management and production of four commercial organic broiler flocks were studied by the Organic Studies Centre, with the aim of producing commercial and management information for those interested in diversifying into this enterprise. All of the systems involved growing birds from day old chicks to a minimum of 70 days slaughter weight in mobile houses. Most of the birds kept were of the slow-growing Hubbard J-Pac strain, although some Hubbard 657s were initially kept on some of the farms.

The system involves rearing chicks in brooder houses fitted with minimum-maximum temperature alarms from day old to approximately 24 days. Biosecurity and hygiene and ventilation and temperature control are critical at this time so as to minimise mortality. Chicks are fed on a starter ration containing 20.5% protein.

At about 24 days chicks are transferred to finisher houses, where, in order to comply with organic regulations, they are stocked at no more than 30 kg per m<sup>2</sup>. The type of house used included APS houses with floors, Mod-Arks built in sections with no floor and home-made arks. The houses differed in the area of pop-hole and the ease of mobility. Although houses with a large area of pop-hole allow good ventilation and encourage birds outside, control is important as in wet weather damp bedding can pose a health risk. A further factor related to house type is bedding. The cost of purchased wood chip for floored systems is significantly higher than the straw used in floorless systems. Manure from floorless systems is also easier to compost.

All birds in finisher houses have access to outdoors. Birds tend to "range" mostly in mornings and evenings. A number of different attempts to encourage ranging included using propped pallets and cut fir trees placed a distance from the house. All of the farms were keeping birds on temporary leys or permanent pasture, and all were grazing livestock on the same area. All houses are rested for at least a week and moved between batches.

From 24 days, birds are fed on a 17.0% protein compounded finisher feed. The mean feed intake per bird was 7.40 kg/bird sold. This figure ranged between 6.94kg and 7.65kg per bird as this very much depends on the number of bird deaths and when they occurred, as a bird that dies late in the cycle will have consumed a significant quantity of food, thereby decreasing the efficiency of the system. The food conversion ratio was 3.366 kg of feed per bird and ranged from 2.604 to 4.333. There was a seasonal difference in the efficiency that birds converted food, with the worst being achieved during the winter months. During the winter birds need to eat more to keep warm and also less of their diet is supplemented from what they get from the pasture. The mean live-weight of birds at slaughter was 2.332 kg, with a range between 2.173kg and 2.666kg.

Regarding the health of birds, approximately 1.2% died during the first week, although there was considerable variation between batches. Over the entire rearing period, approximately 6% of birds died. The period of stress following movement of birds from the brooding house to finishing house is also a critical period for mortality. Predators were the biggest problem, occasionally causing significant losses. Fencing and the use of fishing line to prevent wild bird predators was the main form of defence. Apart from an in-feed coccidiosis vaccination during the first week, no regular health treatments were required.

It is estimated that it takes 28 hours labour per week to manage a 750 birds/week enterprise, including feeding, water, moving houses, cleaning and catching. In order to manage an enterprise of this size, approximately 8 hectares of land is required. On such an enterprise, there would be 8,000 birds on the land at any one time, requiring 3.2 hectares (2500 birds/ha). There is a requirement to rest the land for two months in any calendar year, and so 4 hectares would be needed to provide the one year in three rest period stipulated by organic standards.

*We would like to thank those farmers who provided information for this study and to Bill Yeats at Lloyd Maunder's who provided the technical data and advice.*

## Technical Information and Resources

At the the Organic Studies Centre building at the Duchy College, Rosewarne campus we have a growing range of books, leaflets, reports, scientific papers, journals and CDs of relevance to farmers and growers interested in organic production. Whilst we do not have a formal library system, we do have a dedicated room that can be used for reading and study. Although we welcome visitors at any time, we would recommend that you ring in advance to check whether the room is vacant.

# Guidance on the use of Fertility Building Crops

Leguminous fertility building crops and green manure covers are key components of organic rotations and are the main source of nitrogen for optimal crop performance. It is important that rotations and management decisions are planned so as to optimise the capture and use of this nitrogen. Estimates are available of the nitrogen production from fertility building crops, but further research is required to produce a more comprehensive assessment of likely nitrogen fixation, release and availability over time and under different circumstances.

It was reported in the last Technical Bulletin that the Organic Studies Centre is collaborating with ADAS, IGER (North Wyke) and Abacus Organic Associates in a DEFRA-funded project aimed at providing guidelines for organic farmers to better estimate the nitrogen supply to crops in the rotation following fertility building legumes. The project is now well underway. Discussion meetings were held in Bodmin, ADAS High Mowthorpe and ADAS Terrington to discuss with organic farmers their needs, so as to ensure that the most relevant issues were addressed right from the start. It is expected that farmer innovation in developing novel and practical fertility building practices will provide an important contribution during the study and feedback from producers will be elicited throughout the project.

Some of the questions and issues raised at the various meetings are summarised below:

- How to sustain fertility beyond first cash cropping year of rotation and what are the optimum crop sequences for use of N after legume crops / cover crops?
- What is the optimum length of clover leys, what are the N fixation rates by different legumes, the optimum percentage of clover and best species mixture in a sward and the most efficient management procedures (e.g. timing, cutting, mulching) to make the best of clover?
- How to integrate fertility building crops with feeding livestock and how to manage FYM, compost or straw in a stockless system?
- What are the pest and disease interactions associated with growing legumes?

- What is the value of crop residues (eg brassica tops, pea haulm) to fertility building and N retention?
- What are the cost implications of growing fertility building crops?
- What part can bi-cropping play in fertility building?

Although not strictly a remit of this project, the effective management of animal manure was identified as a problem for livestock farmers. Permission was sought to reprint a DEFRA booklet on managing manure in organic farming, and these have been distributed to many producers in Cornwall. The project web-site [www.organicsoilfertility.co.uk](http://www.organicsoilfertility.co.uk) contains information on the project as well as a link to information about the MANNER manure management program.

Following on from the farmer meetings, a number of farms were selected as sites for monitoring N from fertility crops. Six sites have been selected in Cornwall. Three of these have had measurements of fertility building crops taken this autumn, before being ploughed prior to cereals. The contribution these play in supplying N to subsequent crops will be measured periodically over the next two years. A further three sites will be monitored before incorporation of legume crops in readiness for spring sowing and planting of brassica and root crops. Other sites in the east of the country will also be monitored. Data generated from these studies will be used to validate the models for N accumulation and release that are being developed.

The methods of imparting information to farmers was also discussed at the workshops, and meetings, a web-site, booklets and computer programmes were all viewed as preferred means of imparting guidance. Many farmers were keen to be involved in the next stage of the project. We thank them all for their enthusiasm and regret that we were not able to include everyone in the field studies. We hope that everyone will continue to be involved in the project by inputs through the website and through contact with the Organic Studies Centre. Regular updates will be included in future bulletins and a public farmer meeting will be held on 12<sup>th</sup> March.

## **Organic South West: Developing the organic sector in Cornwall and the Isles of Scilly**

By Rob Moss  
Project Co-ordinator, Organic South West

Organic South West (Cornwall and the Isles of Scilly) is a Soil Association managed project, mainly funded by Objective 1 (EAGGF and DEFRA). Organic South West's role is sustainable development of the organic sector. The project engages with all aspects of sector development; production, processing, retailing and providing information to consumers. A key theme within this is marketing and market development. Strategic market development is critical and OSW is currently involved in three elements of strategic work in the south west:

- A consumer study;
- A study on constraints within the red meat sector, and
- A review of opportunities with a cluster of key regionally active organic businesses.

While strategic programmes are essential, the bulk of activities are focused on direct support to individual businesses and business groups. This includes farmers, but OSW is increasingly working with processors and retailers. Although managed by the Soil Association, OSW events, activities and services are available to businesses registered with all certification bodies. As the project develops it is planned to promote organic food to the public and to local authorities, schools and hospitals.

For clients of all types support is provided through:

- *The information resource centre* for organic business advice and a point for business-to-business marketing, queries on certification and technical issues. A website ([www.organicsouthwest.org](http://www.organicsouthwest.org)) is in the process of development which will enable faster access for businesses buying or selling. The site will also be a source of information for consumers.
- *Grant- aided business advice:* for any business involved in the organic sector in Cornwall and the Isles of Scilly seeking to expand, to reduce costs and improve sustainability. This service uses specialist consultants who provide technical advice, business planning, training, marketing strategy development support to farmers, processors and retailers etc.
- *Producer groups:*  
OSW also manages a series of events for sector groups (currently: beef and sheep, horticulture, dairy, arable, pigs and poultry).
- *Representation:*  
OSW represents the organic sector both within the county, at regional events and also nationally.

The project is funded for three years to May 2005. During this time we expect to see the organic sector in Cornwall expand substantially and to be influencing sector development across the region. For more details please contact Sophie Forbes on 01579 371147 or e-mail [osw@soilassociation.org](mailto:osw@soilassociation.org).

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## **Coswinsawsin Farm Trials and Development Programme**

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Although many of the trials and development activities we are involved in are spread throughout farms in the region, we continue to utilise the resource at the Duchy College's Coswinsawsin Organic Demonstration Farm for a number of studies. These range from monitoring of the commercial activities of the farm to field scale crop variety and husbandry trials and the study of the wildlife and conservation aspects of organic farming.

### **The Commercial Potato Crop**

The 2002 commercial potato crop at Coswinsawsin Farm included varieties Premiere and Remarka. The Premiere crop was grown from purchased organically certified seed. The Remarka seed tubers

were also organically grown as home-saved seed. Tubers from four 3m lengths of the variety Premiere and from one 3m length of the variety Remarka were lifted by hand and assessed without washing on 10 August 2002, after 116 growing days. The results

of the assessments are given in the table. Wireworm damage had resulted in rotting in many tubers. The estimated total yield for Premiere was 14.96 tonnes/ha (6.19 tonnes/acre) and for Remarka was 19.24 tonnes/ha (7.96 tonnes/acre). Whereas all of the Remarka crop was actually lifted and sold, most

of the Premiere crop was ploughed back into the ground as there was not a profitable market available for the crop. Over 12% of the Premiere crop was affected with potato blackleg. There was no evidence of the disease in the variety Remarka.

	% of tubers per 3m length in each assessment category						Total Tubers	Weight (kg)
	V. small	Clean	Wireworm	Scab	Splits	Blight		
Premiere								
Sample								
1	13	33	38	3	6	9	80	6.3
2	20	45	33	2	0	0	85	4.34
3	7	54	26	4	1	7	69	3.97
4	13	43	41	0	1	3	112	6.48
Total	14	43	35	2	2	4	346	21.09
Remarka	5	74	17	3	2	0	65	6.79

Tuber quality assessment of the commercial potato crop at Coswainsin farm (Premiere and Remarka varieties)

## Variety Development Trial 2002

Potato variety development trials were carried out in collaboration with MBM Organic Produce Ltd. at Coswainsin Farm in order to identify those varieties that might be suitable for organic production in the region. The study included some commercially available and some numbered varieties not yet available to commercial growers.

Prior to planting the ground, which was previously in winter cauliflower, was ploughed, broken with spring tined harrows and de-stoned. The seed potatoes were hand planted 15cm deep at set spacings in plots of two rows each of 10 tubers on 16<sup>th</sup> April 2002 adjacent to the commercial potato

crop. Management of the trial plots was similar to that of the commercial crop, reported in the last technical bulletin.

The level of foliage blight present on the varieties tested was assessed on 8<sup>th</sup> July 2002. The varieties exhibiting the greatest resistance to foliar blight included Lady Balfour and the three numbered Sarpo varieties, all of which retained green, healthy foliage for the duration of the study. The plots were lifted by hand on 26<sup>th</sup> July 2002. The total and marketable yields, expressed as a percentage of the yield of the control variety Sante, are presented in the table below.

Variety	Breeder	Spacing (cm)	% foliage blight affected 8 <sup>th</sup> July	Estimated total yield (t/ha)	Estimated total yield as % of control	Estimated marketable yield (t/ha)	Estimated marketable yield as % of control
Sante (control)		30	5	28.2		19.0	
G92TT140-7	Germicopa	25	none	23.7	84.0	4.5	23.7
Tivoli	Danespo	25	20	27.5	97.5	8.7	45.8
Lady Balfour	GVAP	30	none	32.4	114.9	17.7	93.2*
Triplo	Stet	30	5	27.5	97.5	10.6	55.8
Orla	IPM	30	1	25.2	89.4	18.9	99.5*
Milva	Agrico	30	20	17.8	63.1	10.5	55.3
Recolta	Stet	30	1	22.4	79.4	8.1	42.6
HEG 93.3	HZPC	30	none	25.6	90.8	19.0	100.0*
SM92021002	Meijer	30	none	23.9	84.8	7.4	38.9
CMK94059005	Meijer	30	1	16.4	58.2	8.4	44.2
CMK95042001	Meijer	30	20	25.4	90.1	12.9	67.9
CMK93201011	Meijer	30	5	19.7	69.9	8.4	44.2
87-4-0133	Sarpo	30	none	1.9	70.6	11.5	60.5
87-4-18	Sarpo	30	none	22.0	78.0	6.0	31.6
87-4-120	Sarpo	30	none	20.0	70.9	6.5	34.2

Details of potato variety trial plots at Coswainsin 2002

\* best performing varieties

The best yielding varieties were HEG 93.3, Orla and Lady Balfour. HEG 93.3 is expected to be commercially available in two years time. Orla will be grown as the main commercial variety on the

farm during 2003. We also expect to undertake further trials, looking more closely at the best performers this year. We would welcome comments and suggestions regarding the focus of future trials.



In addition to the variety development study, we also grew small demonstration plots of five commercially available varieties: Sante, Recolta, Milva, Premiere and Exquisa. A summary of the estimated yield and quality monitoring is included in the table alongside.

The Organic Studies Centre joined forces with Elm Farm Research Centre during July and held a successful potato demonstration open-day at Coswinsawin. The event attracted more than 30 people.

Variety	Estimated yield (t/ha)	% foliar blight	% blighted tubers	% tubers <35mm	% tubers >45mm
Sante	23.54	5	7.6	51	26
Recolta	15.05	20	0	48	22
Milva	22.41	1	0.7	41	19
Premiere	22.01	5	8.1	54	19
Exquisa(s)	14.75	1	4.2	91	0

Monitoring of potato variety plots at Coswinsawin 2002 S = salad

*We would like to thank MBM Organic Produce Ltd for their support and technical input into the potato variety trials and demonstrations during 2002.*

## Potato Wireworm Risk Assessment

Wireworms are the larvae of click beetles and they cause damage to potato tubers resulting in reduced quality and marketable yield. Risk of wireworm infestation in fields is on the increase so control methods need to be improved. If the level of infestation in a field is known an informed decision can be made as to its suitability for growing potatoes. It is suggested that the size of the adult click beetle population present may aid the

decision making process.

Coswinsawin Farm is one of a number of field sites in the UK being used to investigate the relationship between beetle trap catches and subsequent wireworm populations in the soil. Pheromone traps specific to the three main species of click beetle (*Agriotes sputator*, *Agriotes lineatus*, *Agriotes obscurus*) were set in Town Field during May 2002 and checked weekly until the beginning of September.

Beetles were trapped on two occasions during June.

A number of fields nationally involved in this study have been sampled for wireworms during the autumn of 2002. The actual levels of wireworm damage occurring will be assessed in all of the fields that go into potatoes in 2003.

*This project is sponsored by the British Potato Council and co-ordinated by ADAS.*

## Winter Brassica variety trials

For a number of years Duchy College, funded by the HDC, have been conducting controlled testing of varieties of cauliflower. This has now expanded to the monitoring of organically grown varieties at Coswinsawin. During the 2001-2002 the commercial crop was monitored for a range of parameters, including marketable yield. All organic plants were transplanted on 24th July 2001 at a planting density of 18,500 plants per hectare (7,500 plants per acre). The findings of this monitoring are presented in the table below.

Variety	Cutting date (10% crop)	Marketable yield		Estimate of yield (Crates/acre)			
		Class 1 (%)	Class 2 (%)	Facepack (8 curds/crate)	Facepack (6 curds/ crate)	Class 2 (16 curds/crate)	Class 2 (12curds/ crate)
Valdis	11 Nov	51	15	457	32	60	16
Galiote	9 Nov	43	20	398	0	94	0
Memphis	22 Oct	65	3	563	63	12	0
Hermine	21 Dec	58	18	469	94	35	63
Cadal	4 March	65	13	422	250	47	16
Optimist	2 Nov	71	3	528	187	12	0
Regatta	2 Nov	45	3	398	31	35	31
Thallisa	2 Nov	53	3	328	219	12	0
Broden	11 Mar	63	17	375	281	23	78
Ourasis	12 Feb	48	13	422	31	59	0
Capella	25 Mar	58	12	422	156	35	63

Brassica variety testing at Coswinsawin Organic Demonstration Farm 2001 – 2002

During the 2002-2003 season, the monitoring was conducted in a more controlled manner, using a plot design that allowed comparison of two planting density treatments. This trial is ongoing and the results will be reported in the next technical bulletin. A joint winter brassica event with HDRA was held on February 11<sup>th</sup> which gave producers the opportunity to view the plot design and to see the results.

## Wildlife and Conservation at Coswinsawsin

**Small mammal** surveys have been carried out by the British Trust for Conservation Volunteers, the Cornwall Mammal Group and Duchy College student volunteers during autumn and spring of each year from November 1999, under a licence granted by the Nature Conservancy Council for England. A total of 50 Longworth live traps were filled with hay and baited with grain, apple slices and tinned dog food. The traps were set in pairs at 5 metre intervals in sheltered positions along the base of the same west facing Cornish hedgerow. They were checked in mornings and evenings for three consecutive days during each survey. With the exception of shrews, which were released immediately after weighing, trapped mammals were removed for identification, weighed, sexed and marked by a small fur clip before being released. The traps were re-baited and reset as necessary.

The wood mouse (*Apodemus sylvaticus*) was the most prevalent species trapped. Other species caught were the bank vole (*Clethrionomys glareolus*), the field vole (*Microtus agrestis*) and the common shrew (*Sorex araneus*). The greatest number of common shrews was caught during the April 2000 survey. However, as they were not clipped for identification, those revisiting traps could not be identified with certainty. The numbers of wood mice trapped and the numbers of small mammals revisiting the traps were greater during the November surveys than during the April surveys.

There is no evidence to date of change in species variety or numbers trapped and recorded during conversion to organic production on this farm. The survey will be continued in order to identify future

changes in small mammal populations and species diversity in relation to period under organic management and crop rotation within the system.

**Bird surveys** were carried out by a Royal Society for the Protection of Birds volunteer every month from September 1999 to January 2001 after which the foot and mouth disease outbreak prevented continuation of the study. The birds present at each visit to Coswinsawsin Farm were recorded using the Common Bird Census methodology. The perimeter of the farm and all field boundaries were walked on each occasion and all bird species, numbers, location and behaviour were recorded and mapped using BTO species and activity codes. Each visit therefore represents a snapshot of the birdlife on the farm.

The farm has wonderful mature hedgerows that provide shelter and a rich source of food to support many species of wildlife. The survey revealed that Phillips' Field, a 15 acre enclosure and the largest on the farm, attracted the greatest number of bird species including whinchats, redwing, fieldfare and snipe. Wheatear were recorded in the spring, whilst skylarks were present throughout the year.

Analysis of the species maps produced from this survey is ongoing. The results will be used for comparison with those of future surveys to identify any changes in the number of species present on the farm over time.

*Funding from the Cornwall College Research Committee for this project is gratefully acknowledged.*

**Coswinsawsin Farm: commercial update** 2002 was one of mixed fortune with regard to the profitability of the farm. Only a small proportion of the potato crop was marketed, and the yield was much lower than last year. The crop was affected by the collapse of the potato market, significant losses through blackleg (in the Premiere variety only) and a bad infestation of wireworm. The lupin crop was equally as poor, with a serious weed infestation (charlock and fat hen) resulting in the crop being ploughed in. Despite this failure, a second attempt will be made in 2003. The crop of culinary peas were sold to a vegetable box business, although there was some crop rejection as a consequence of pea midge damage.

The winter wheat (a Deban/Claire mixture) yielded 1.42 tonnes/acre and was sold as feed wheat at £145/tonne. A crop of vetch drilled after the wheat has suffered badly during the winter, possibly due to stem eelworm attack. The crop is currently seriously overrun with chickweed, grass and volunteer wheat. The sugar beet yield was down on last year, although it still yielded a respectable 16.5 tonnes/acre compared with the national average of 11 tonnes/acre. The autumn 2002 cauliflower varieties have yielded well, although a January frost may have affected the yield of the rest of the crop.

Details of the 2002 financial performance of the farm are available by request from the farm manager or through enquiry to the Organic Studies Centre. The Farm Plan Crop Manager software is now being used to record all crop activities and financial data. This is proving not only to be a very useful management tool, but will also enable a more effective means of demonstrating the commercial viability of the farm and to highlight the management issues associated with stockless organic farming in Cornwall. There will be a number of opportunities to visit the farm during the coming months. For details see the events pages.

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## An update on national events

The Organic Studies Centre staff recently attended a number of conferences and workshops on organic farming related topics. The main points covered at these events are summarised below.

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### ***HDRA Organic Weed Management Workshop***

3<sup>rd</sup> December 2002

DEFRA funded project (OF0315). The Organic Weeds Group includes representatives from the Henry Doubleday Research Association, Horticultural Research International, ADAS and Elm Farm Research Centre. The project aims are: to define weed problems together with organic farmers and growers; propose ways of addressing these problems; research solutions in order to arrive at the most appropriate for use in organic systems.

The aims of this workshop were to identify priority weed issues in organic systems, discuss research methods and establish research theme groups in order to start fulfilling project aims.

This very interactive meeting was attended by 72 participants, 51 of which were farmers and growers from throughout the UK. Open discussion groups and forums were held throughout the day. In addition, there were posters on display and spaces to write expectations and fears, specific weed problems and who were considered to be the stakeholders in the project.

Four main themes emerged from the morning sessions: access to knowledge/communication; docks (and other perennials); risk analysis (thresholds/finance/economics); systems issues including rotations and new techniques/technologies. Participants registered their interest in the theme groups to give an indication of the level of interest in the different topics. The risk analysis group was small, comprising mainly researchers who felt the main purpose of the theme was to compile information, possibly in the form of a decision support map, that would fit under the other theme of knowledge/communication. The project would therefore carry forward three theme groups; knowledge collation and dissemination; docks; system/rotations/new techniques.

Groups will be formed based around each theme to work on action plans and form the basis for core steering groups. The research team will present their ideas for action and suggested methodologies to farmers within each specific theme group. An open discussion forum on weed topics will be set up to aid information flow between participants and a wider audience.

A copy of the compilation of published literature on Organic Weed Management produced as part of this

project is available for reference in the Organic Studies Centre library. More information on this research project, including an opportunity for organic farmers to become involved, can be found at [www.hdra.org.uk/news/weed\\_management.htm](http://www.hdra.org.uk/news/weed_management.htm)

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### ***ADAS/RASE Organic Pig Production Conference,*** 23<sup>rd</sup> October 2002

This event was organised by the Royal Agricultural Society of England in collaboration with ADAS and Newcastle University to disseminate information arising from a three year project funded by DEFRA, Tesco and the Pig Improvement Company.

With the doubling of organic pig production each year since 1997, over 20,000 finished pigs were produced in 1999 with a value of nearly £3million. However, despite these figures only 2.5% of all registered organic producers have pigs, so there is much potential for growth of this sector.

This very interesting and informative conference covered topics including organic pig nutrition, organic pig welfare, the practicalities of organic pig farming and business implications. Talks were given by members of the project team including Professor Sandra Edwards and Professor Carlo Leifert (Newcastle University), Dr Jon Day (ADAS), Helen Browning (Eastbrook Farm), Sam Wade (an organic pig producer) and Christopher Stopes (Eco-stopes Consultancy). Two very useful publications '*Feeding Organic Pigs, a handbook of raw materials and recommendations for feeding practice*' by Professor Edwards, published by the University of Newcastle and '*Optimising Organic Pig Production, a guide to good practice*' edited by Dr Day, ADAS Terrington, have been produced based upon results from the project. Copies are available for reference at the OSC and can be obtained from Dr Jon Day, ADAS Terrington (tel 01553 825891).

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### ***HDRA Organic Vegetable Variety Open Day***

28<sup>th</sup> November 2002.

The main focus of the event was on the results of a DEFRA funded study presented by James Trounce, Shaun Coleman and Mike Day from the National Institute of Agricultural Botany. The project objectives were to test varieties promoted for organic growing, test varieties available as organic seed and to test the shelf life of organic produce. Speakers included Dr Chris Firth (HDRA), Roger Hitchins (Abacus), Geoff Mutton (Phoenix Organics), Dr Suzanne Padel (University of Wales), Professor David Hughes (Imperial College at Wye) and Rob Haward (Soil Association).

Vegetables covered by the trials were brussels sprouts, oriental vegetables, parsnips, swedes, bulb onions, outdoor lettuce, broccoli, carrots, celery,

leeks, cabbage, cauliflowers and potatoes. Results presented for the 2001 cropping year included:

- autumn cauliflower (Lincolnshire), 12 varieties grown under fleece. Most promising white curd varieties: Fremont, Fargo, Skywalker; most promising coloured curd varieties: Graffiti, Amfora, Trevi.
- spring heading cauliflower (Lincolnshire), 11 varieties under fleece. Most promising in their maturity slots: Renoir, Protector, Maverick, Ace High. Purple Cape was a good early product. Martian and Mayfair produce lesser quality backups.
- lettuce (Cambridgeshire and Warwickshire), grown under hooped fleece. summer and autumn cabbage (Lincolnshire), 16 varieties grown under fleece.
- winter cabbage (Lincolnshire), 10 varieties grown under fleece. Most promising varieties were Melissa for autumn savoy, Robin for niche/alternative product and Siberia for post Christmas.
- celery (Lancashire and Norfolk), 9 varieties. Most promising varieties were Granada, Monterey, Octavious, Victoria, Imperial and 49-02RZ.
- potatoes (Kirton, Lincolnshire and Epping, Essex). The Epping site was chosen to give information on susceptibility to slug damage. At this site no copper was applied for blight control and higher levels of blight infestation developed. At Kirton there was significant use of copper for blight control. The published results include emergence data, ground cover development, blight and foliage senescence, tuber yield, tuber out-grades, tuber characters, field growth and disease observations for 33 varieties.

Only a limited amount of information on the 2002 potato trials were available as harvesting had only just been completed. The trial crops were again grown at Kirton, Lincolnshire on fertile silt soil and at Epping, Essex on clay loam soil. 23 potato varieties including crusting varieties Hermes (standard), FL2006, Tay and Tivola were assessed for canopy cover, field diseases, yield and skin defects and flavour. Varieties used as a benchmark/control included Cara, Cosmos and Sante.

Enquiries regarding these trials should be made to Mike Day of NIAB (tel 01223 276381). A copy of all handout material from this event is available for reference purposes only at the OSC.

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#### *Soil Association Organic Horticulture Symposium, 17<sup>th</sup> September 2002.*

The event was held in conjunction with Rikj Zwaan, hosted by the Stockbridge Technology Institute and supported by DEFRA and Yorkshire Forward. Over 200 growers travelled from all over the UK to attend the Symposium. The plenary session entitled 'The future of organic horticulture – can principles be put into practice?' included presentations by Peter Segger (Organic Farm Foods), Andrew Perrins (DEFRA) and Steve Murrells (Tesco). Thereafter followed two workshop sessions.

#### Session 1 summaries:

- Making the best of on-farm composting. Included talks and discussion about composts and manures – more than just fertilisers, compost for yield and margin enhancement and making the most of on-farm composting – the Blaen Camel experience so far.
- Seed and plant raising. Included talks about the future of organic seeds and the Centre for Organic seed Information (COSI), producing healthy transplants for organic systems and achieving health in organic seeds.
- Marketing. Included talks and discussion about securing a positive future for direct sales, innovation for profit and working with the multiples and is supermarket and local possible?

#### Session 2 summaries:

- Managing nutrition in organic stockless horticulture systems. Talks included nutrient budgeting – making it add up without manure and developing vegetable inter-cropping systems.
- Biological diversity – irritation or implicit for technical and economic prosperity. Included talks about finding markets through crop diversification, biodiversity as a tool for pest and disease control and managing biodiversity on farm – Hardwick Estate case study.

A copy of the Symposium proceedings is available for reference at the OSC.

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# Organic Studies Centre Events Programme

A number of events have been planned for early 2003. Others are being arranged and notice of these will be given in due course. The subject areas covered by our events are based upon feedback from farmers and agricultural industry representatives, reflecting and meeting industry requirements. In addition, events are arranged for other interest groups, students and schools in order to raise awareness and educate a wider audience about food production and organic farming.

## *22<sup>nd</sup> January      **Organic dairy discussion group.***

This was the first of what is hoped will be a regular forum for farmers to discuss informally a common interest in organic milk production. If you are a Cornish organic dairy farmer and want to join in these discussions, please contact the Organic Studies Centre for further information.

## *11<sup>th</sup> February      **OSC/HDRA Organic Winter Brassica Production Day***

This meeting was run jointly with the Henry Doubleday Research Association. The meeting covered the various issues associated with organic winter brassica production, including pest and disease control, variety selection and marketing. It was a two-centre event: in the morning at the Duchy College Coswinsawsin Organic Demonstration Farm and in the afternoon at the farm of Mr Geoffrey Reynolds, Chywoone Farm, near Newlyn, Penzance. Minibus transport was provided between the venues. The event included a visit to the Duchy College conventional brassica variety trials at Gwithian. The event was supported by the Vocational Training Scheme and cost £12.50 per person.

## *12<sup>th</sup> March      **Farmer research meeting on Fertility Building Crops***

In collaboration with ADAS, IGER and Abacus Consulting, the Organic Studies Centre is participating in a DEFRA-funded study on fertility building crops in organic farming, the details of which are described in this bulletin. Farmer participation is an important component of the study. As part of this research, farmers are being asked to identify the constraints and priorities and to comment on the outputs from the study as they emerge. The venue for this event will be announced in due course.

## *13<sup>th</sup> March      **Public Open Day at Coswinsawsin Organic Demonstration Farm***

National Science Week 2003 starts on March 7<sup>th</sup>, and as part of the Duchy College activities to mark this event, the Organic Studies Centre will be holding a public open day at Coswinsawsin Demonstration Farm. The event will enable visitors to view commercial activities on the farm, to find out more about the environmental benefits of organic farming and also to learn more about the way our food is grown.

## *11<sup>th</sup> April      **Organic Dairy Discussion Group meeting***

We have organised a farm walk and discussion focusing on organic dairy costing and economic benchmarking. Guest speaker Sue Fowler from the Organic Centre Wales, Welsh Institute of Rural Studies, University of Wales, Aberystwyth. If you are a Cornish organic dairy farmer and wish to attend this event, please contact the Organic Studies Centre.

## *29<sup>th</sup> April      **Farmer research meeting on Dairy Health Plans and Welfare Benchmarking***

The OSC are collaborating with the Department of Clinical Veterinary Science, University of Bristol on a project aimed at utilising an animal welfare benchmarking tool as a means of developing animal health plans on organic dairy farms. This meeting has been organised so that the results of the study can be discussed with the participating farmers and vets. Others interested in this topic, but not directly involved, are welcome to attend. The study is part financed by the Organic Milk Suppliers Co-operative (OMSCO) and Mole Valley Farmers Ltd.

## *14<sup>th</sup> May      **OSC/EFRC Organic Potato Production seminar and farm walk.***

This event, part of the Elm Farm Research Centre Organic Demonstration Farm Network programme for 2003, will provide an opportunity to discuss problems and solutions for organic potato production including the results of the EU BlightMop project. "Blight mop" is a Europe-wide project, funded via the European Commission's Key Action Five programme, that seeks to develop new strategies for the long-term control of potato blight in organic agriculture, bringing together researchers from the across Europe. Three clear phases exist within this project: identification of current practice across Europe; research into the efficacy of new technologies and practices; and the development and testing of a strategy for blight control.

*All events are advertised in the local press and in industry newsletters. Details are distributed to all organic farmers and others interested in organic production. Please contact us if you do not currently receive this information and wish to be included on the Organic Studies Centre mailing list. Additionally, if you have a suggestion for a technical course/workshop, event or farm visit or wish to discuss your ideas for on-farm trials and development in organic production, please contact us. Contact details are on the back page of this bulletin.*

## Programme of National Events

The Soil Association and Elm Farm Research Centre have a full programme of events advertised for 2003. We have selected those within travelling distance or of particular interest to organic producers in the south-west.

### Soil Association events

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Wednesday 26 February	ORGANIC FEED REGULATIONS – PREPARING FOR 2005, Fingle Glen Hotel, Tedburn St Mary, Devon
Wednesday 5 March	THE USE OF HOMOEOPATHY IN ORGANIC SYSTEMS, The Farm, Longnor, Shrewsbury, Shropshire
Tuesday 11 March	STRATEGIES FOR MARKETING ORGANIC RED MEAT, Lakewood Conference Centre, Rhodygate, Blagdon, Somerset
Wednesday 19 March	GRANTS, ENVIRONMENTAL SCHEMES AND OTHER SOURCES OF FUNDING, Abbey Home Farm, Cirencester Gloucestershire
Thursday 27 March	PEST AND DISEASE CONTROL IN ORGANIC GLASSHOUSE CROPS, Cantelo Nurseries, Chilton Cantelo, Somerset
Wednesday 2 April	ORGANIC ARABLE PRODUCTION, Chapel Farm, Netherton, Worcestershire
Wednesday 9 April	DEVELOPING A LOCAL MARKET FOR PRODUCE, Royal Welsh Showground, Builth Wells, Powys
Wednesday 30 April and Thursday 1 May	CONFERENCE: COMPOST AND SOIL – THE FOUNDATIONS FOR HEALTH, Holme Lacey College, Hereford
Tuesday 6 May	FINISHING STRATEGIES FOR ORGANIC BEEF AND SHEEP, Sheepdrove Farm, Lambourn, Berkshire
Thursday 15 May	THE ART OF COMPOSTING – THE WAY FORWARD FOR ORGANIC GROWING, Blaen Camel Farm, Lampeter, Ceredigion
Tuesday 20 May	MECHANICAL WEED CONTROL FOR ORGANIC GROWERS, Russel Smith Farms, Duxford, Cambridgeshire
Tuesday 3 June	CROP AND LIVESTOCK DIVERSITY IN ORGANIC SYSTEMS, Pertwood Farm, Hindon, Wiltshire
Tuesday 17 June	PRODUCTION AND PROCESSING FOR LOCAL RETAIL, Radford Mill Farm, Timsbury, Near Bath
Wednesday 25 June	PARASITE CONTROL IN ORGANIC LIVESTOCK SYSTEMS, Churchtown Farm, Fowey, Cornwall

For booking or further details of these any of these Soil Association events, contact Angela Wescott at the Soil Association on 0117 914 2400

### Elm Farm Research Centre Events

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Wednesday 12 March	THE ORGANIC WHOLE FARM SYSTEM, Luddesdown Organic Farm, Kent
Wednesday 15 March	DIG YOURSELF OUT OF A HOLE (soils – analysis, fertility, etc), Harwick Organic Gardens, Berkshire
Wednesday 14 May	ORGANIC POTATO PRODUCTION, Coswinsawsin Farm, Barrigger, Cornwall
Thursday 9 May	WHEN IS A WEED A WEED? Manor Farm, Leicestershire
Wednesday 9 July	THE ROLE OF CEREAL MIXTURES IN MODERN ORGANIC SYSTEMS, Lower Pertwood Farm, Wiltshire
Thursday 17 July	WEED, PEST AND DISEASE CONTROL IN ORGANIC VEGETABLES, Flight Orchard Organics, Hereford

For booking or further details of any of these Elm Farm events, contact Judith Towers on 01488 658698

## ORGANIC STUDIES CENTRE: Contact details

If you require further information on any of the subjects covered in this bulletin or on other activities at the Organic Studies Centre, please contact us:

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