



# ELM FARM RESEARCH CENTRE

# Bulletin

*with Technical Updates from  
The Organic Advisory Service*

No. 76

January 2005

## ELM FARM RESEARCH CENTRE

is an international research, advisory and educational organisation based in the UK.

The business of Elm Farm Research Centre is to develop and support sustainable land-use, agriculture and food systems, primarily within local economies, which build on organic principles to ensure the health and wellbeing of soil, plant, animal, man and the environment.

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Reg. Charity No: 281276

ISSN 1367-6970

## NEW COMMISSIONER ATTACKS DEROGATIONS

The EU derogation allowing organic livestock producers to feed their animals with conventionally produced animal feed should be phased out "in the interests of the integrity of organic agriculture," according to the new EU Agriculture Commissioner Mariann Fischer Boel. "Consumers do not expect animals designated as 'organically reared' to be fed with non-organic feed," she said at a recent conference held in Germany. "We must ensure that our standards do not fall behind either public expectations or international standards."

What a refreshing voice of uncommon sense! Hopefully, the wailing of so-called industry experts and the standard "we agree with you but not yet" incantation that vested interests in organic agri-business and their associates in the certification business have developed to an "unfine" art won't drown it out.

It is clear that Ms Fischer Boel has understood that public expectations of organic agriculture must be met and that the gaps between reality and expectation must be closed urgently to maintain integrity. She may have also realized that there is a potential legal issue both for the Commission and member states in the way that derogations have been handled and the adverse effect that extending them could have on businesses that have made financial investments on the basis that the regulation has set clear dates for ending them.

It seems to have been forgotten that all the derogations are on the basis that conventional material can be used only when organic is not available. Clearly this has not been the practice. Derogations have been given for feed cereals, for seeds and for chicks when organic product has been available at equivalent quality and fair prices. It is surprising that affected producers have not yet sought compensation or legal redress. They certainly have a case, as the issuing of derogations has hardly been transparent, proportional and rational. The latest example of this is the failure of Defra and some certification bodies to make available to organic seed producers information regarding derogations given to use conventional cereal seed this last autumn. Instead they play a high-handed game of "buckpassing" that is shoddy, unfair and poor governance.

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Such games clearly fall outside Commissioner Fischer Boel's vision. In the speech given to an Organic Farming Congress in Berlin in December she outlined her view that organic farming was not just a production system aimed at a particular niche of the consumer market, but a phenomenon which promised to deliver major benefits in the arenas of animal welfare and the environment.

Whilst praising the role that the EU regulation governing organic agriculture had played in developing the sector,

she said the basic principles of organic production should be better and more clearly defined, in the interests of improving transparency and cultivating consumer confidence.

And in what might hopefully be taken as an optimistic New Year message, she declared, "that the development of organic farming should be regarded as an issue of general concern for the whole of society".

*Lawrence Woodward*

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## GM SEED CONTAMINATION - THE FIGHT STARTS AGAIN

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Now that the new Commission is in place, the fight to keep GM contamination out of seeds starts all over again. Although there is some hope that the number of individual Commissioners favourable to our position has increased, the opposition within their technical and support staff remains unchanged. It is expected that early in the New Year the Joint Research Centre will produce a new report endorsing the old position of allowing between 3 and 7% GM contamination of seed. This will kick off a new round of discussion, lobbying and argument at EU and Member State level. To a large extent this will follow the old pattern but there is now a short amount of time to win over some Euro organisations.

One of these is the European Consumer Organisation (BEUC), which has so far not taken a clear position on the seed issue. It seems that, at this moment, only BEUC member organisations in Germany, Austria, Denmark and Slovenia are clearly supportive of the lowest detectable level (0.1%) proposal. If BEUC could be won over, it would be a great boost. Which and the National Consumers Council are the UK members of BEUC, so any readers who are members, have contacts or can influence these two organisations should do so.

Meanwhile better news from the European Economic and Social Committee (EESC) which has issued a report on "Co-existence between genetically modified crops,

and conventional and organic crops" saying that contamination levels of non-GMO seeds by GMOs must be kept at the absolute minimum detection level. This is in line with the position taken by the European Parliament.

Significant conclusions that emerge from the report include:

- 1) Contamination levels of non-GMO seeds with GMOs must be kept at the absolute minimum detection level.
- 2) Coexistence will cause substantial additional costs along the entire food production chain. These costs must be borne by those who wish to plant GMOs.
- 3) Under certain botanical (e.g. oilseed rape) and agronomic (small scale farming) conditions, co-existence will clearly be impossible. In these cases growing of GMOs should be prohibited.
- 4) A coherent and EU-wide set of minimum standards of precaution, liability and protection of non-GMO agriculture is required and the report asks the Commission to prepare and propose such legislation.

One might reasonably suppose that such conclusions would be enough to win the day. But not in the bizarre decision making process of the EU. So, back to the lobbying!

### **Dutch ministry 50% organic!**

The Dutch ministry of agriculture is planning to spend nearly 61 million on promoting organic farming in the next three years. The government aims to increase the organic share of the country's agricultural area from 2.1% at present to 10% by 2010. About half the budget is to be spent on research and information campaigns, the ministry of agriculture says. Regional initiatives and rewards for organic farmers' contribution to the environment will also be funded. As a symbolic gesture to show its commitment to growing the organic sector, the ministry of agriculture has promised to offer only organic food in its canteens from 2007 onwards. At present, 50% of canteen food is organic!

- *AgraEurope* 26.11.2004



## Defra development of proposals on the Co-existence of commercial GM crop cultivation and non-GM production

Defra is employing a two phase consultation process. A short series of workshops has been held in the first phase of the consultation process. Each workshop addressed a particular aspect of the co-existence issue, or the interests of particular groupings, and a variety of stakeholders representing a diverse range of views were involved. A short summary of some of the key points arising from each workshop is available on their website at

<http://www.defra.gov.uk/environment/gm/crops/index.htm#Policy>

The second phase of the consultation involves the publication of a package of specific proposals and options to be issued, expected sometime in 2005. There will be the chance to contribute to and comment on the proposals.

Defra states that it is the Government's clear intention to introduce co-existence measures before any commercial cultivation takes place in the UK. No further commercial cultivation is expected here before 2008 at the earliest.

### **Congratulations to Defra for their swift action.**

It's not often Defra receives plaudits for its swift action - but praise where it's due.

You may have heard Farming Today on 30th November during which East Sussex farmer, Jonathon Howard said *"the apples are organically grown, I'm not certified because of the loopholes and the cost of doing that so I call them organically grown and they receive no fertilisers or sprays"*. Such action is illegal and obviously undermines the market for registered organic top fruit producers.

Defra has written to Mr Howard to inform him of his error and that they expect him to cease selling his apples as "organically grown".

Such mis-selling, through ignorance, needs to be addressed and EFRC is glad to thank Defra for its swift response in dealing with this matter once we had notified them of our concerns.

If you wish to contact officials on this issue contact *GM crops policy team, Defra, 3/F8 Ashdown House, 123 Victoria Street, London SW1E 6DE* or email [gmcoexistence@defra.gsi.gov.uk](mailto:gmcoexistence@defra.gsi.gov.uk)

## Where America is today... the world will be tomorrow!

*Or so it used to be said. We include two articles about where that might be. Or are we already there? The articles have been taken from Ag News You Can Use an occasional free source of agricultural news collected from and distributed via Internet by Amigo Cantisano. We are grateful to Mark Measures for pointing them out.*

## Major study of organic farming in California yields surprises

**The first comprehensive study of organic agriculture in California challenges the popular notion that organic farming is dominated by small family-owned farms and shows how the industry's regulatory structure has thwarted the very benefits that have generated strong public support for organic agriculture** writes Jennifer McNulty.

"Organic farming is seen as an answer to the crisis in our food system, but organic agriculture in California has evolved in some peculiar ways that effectively limit the number of acres that are in organic cultivation," said Julie Guthman, author of the new book, *Agrarian Dreams: The Paradox of Organic Farming in California* (Berkeley: University of California Press, 2004).

In her analysis, Guthman, an assistant professor of community studies at UCSC, also reconsiders "roads not taken" to a more socially just and ecologically sustainable agriculture. A strong proponent of many of the ideals associated with organic agriculture, Guthman nevertheless believes the fastest-growing segment of farming today warrants scrutiny.

Many experts expect as much as 20 percent of California cropland will be in organic production by 2024.

Major misconceptions concern the "who and why" of organic farming and the impact of industry regulation. Among Guthman's findings:

- ◆ Contrary to the popular image of farmers who embraced a "live gently on the land" philosophy, many growers switched to higher-value organic commodities to increase earnings.
- ◆ Rather than corporate takeovers, much of the growth of organic agriculture has come from growers who made the switch from conventional farming to organic, met with success, and recruited other experienced conventional farmers to join them.
- ◆ Many growers went organic out of fear that the pesticides they relied on would be banned, while others were concerned about their personal exposure to pesticides or the risks associated with exposing others to pesticides.



"There were very compelling economic and regulatory reasons for conventional growers to enter into organics," said Guthman. "As they went organic, they brought along their technical competence, their marketing relationships, and their labor practices. As a result, organic farming in California today looks a lot more like the agribusiness model than the pastoral family-farm model most people think of." Today's tight price competition affects all organic growers, even those who would like to farm less intensively, she noted.

The second major force that shaped the organic industry--and ultimately limited its reach, argues Guthman--was the movement's decision to self-regulate through the establishment of independent organic standards and third-party certification programs to verify those standards.

Like the leaders of many social movements of the 1960s, the pioneers of organic agriculture had to decide whether to operate within the system or not. "They chose to use the market but not the state in developing organic's regulatory structure," said Guthman. "In establishing regulations for their industry, organic growers exhibited a certain self-interest and arbitrariness that created some perverse incentives and outcomes, albeit usually unintentionally."

For example:

- ◆ The focus on materials rather than processes - soil inputs rather than cover cropping, for example - fostered an idea that input substitution was good enough, allowing many growers to be organic without fundamentally altering their growing practices.
- ◆ Grower-designed and -enforced standards paved the way for the organic industry's failure to address social-justice aspects of sustainability, including farmworker wages and working conditions, and hunger and food distribution issues.
- ◆ Organic certification generates a price-premium that creates an incentive to restrict entry because reducing competition keeps the price-premium high.

"The paradox of incentive-based regulation is that it generates a motive to limit participation, when the whole purpose is supposed to encourage more sustainable production," said Guthman, noting that despite the growth of organic farming, it still accounts for only 1 percent of U.S. agricultural output.

Finally, Guthman paints an unromantic picture of agriculture in California. "Historically, small-scale family farms have never been the norm in California," she said. California's agrarian tradition has been shaped by land values that reflect and support a form of high-intensity, specialty-crop, year-round farming unlike anything else in the United States, said Guthman, who describes it as a "treadmill running on overdrive."

"Land values in California correlate to the value of crops that are grown and the intensification of farming practices, so farmers are under incredible pressure to get more crop value per acre," said Guthman. "Because organic adds value, it has the potential to further inflate land costs, which ironically undermines the goal of growing in less-intensive ways."

Guthman's prescription for addressing the shortcomings of the current system starts with "revisiting the roads less traveled," including banning pesticides, creating government subsidies for sustainable farming, eliminating subsidies for conventional agriculture, and revising immigration policies to support farmworkers.

"One percent of U.S. agricultural acreage is organic, compared to nearly 30 percent in Australia," said Guthman. "We have 2,000 organic farms in California, but Italy has 45,000. There's been much more widespread transformation in different political environments. We really have to ask ourselves how successful our approach has been."

## Small Brands, Big Owners And Certified Organic

What have organic brands Health Valley (cereals), Bearitos (corn chips), Bread Shop (granola) and Celestial Seasonings (tea) have in common? These apparently independent companies are all owned by the Hain Celestial Group

Even though Hain Celestial is an organic giant in its own right, it has even bigger owners. According to research by Paul Glover and Carole Resnick of the Greenstar Food Coop (Ithaca, New York) the company's investors include Philip Morris, Monsanto, Citigroup, Exxon-Mobil, Wal-Mart and aerospace military contractor Lockheed Martin. And in September 1999 the H. J. Heinz food conglomerate bought a 20% stake in Hain Celestial.

Hain Celestial is by no means a unique case:

- Cascadian Farms is a subsidiary of Small Planet Foods, which is a division of agribusiness colossus General Mills. And General Mill's main shareholders include Philip Morris, Exxon-Mobil, General Electric, Chevron, Nike, McDonald's, Monsanto, Dupont, Dow Chemical and PepsiCo.
- Silk Soy Drink is part of the White Wave corporation, itself a Dean Foods subsidiary. And according to Glover and Resnick, Dean Foods' main investors include Microsoft, General Electric, Citigroup, Pfizer, Philip Morris, Exxon-Mobil, Coca Cola, Wal-Mart, PepsiCo and Home Depot.
- Odwalla, makers of organic orange juice, is owned by Minute Maid, which is in turn a division of Coca Cola.
- Boca Burger is owned by Kraft, which is part of Philip Morris.
- Arrowhead Water and Poland Spring Water, are Nestle subsidiaries.
- Organic Cow, founded by small New England organic dairy farmers, is now part of the Colorado-based Horizon, whose sales just topped \$200 million annually and which controls 70% of the American organic milk market . Horizon Holding company was itself was acquired by the Dean Foods conglomerate in 2003.

*Carmelo Ruiz-Marrero*

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## 2004 CEREALS REVEAL AN INTRIGUING SURPRISE.

The great variability in the performance of cereals on organic farms that we have highlighted from past research trials has been confirmed in a new and more widely based trial. Participation from 20 producers gives the results a robust character and has enabled us to spot something we had not previously noted. EFRC researchers Prof Martin Wolfe and Kay Hinchliffe set out the results.

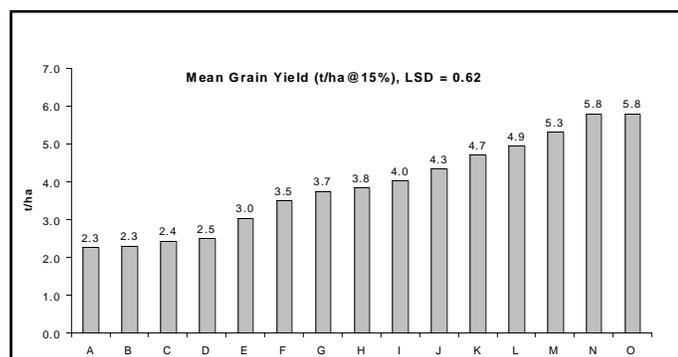
### Introduction

EFRC is currently working on a Defra-funded project designed to use participatory research and development methodology, and is conducted on sites across the country with the participation of 20 farmers, seed producers and more than 10 researchers (EFRC, NIAB, Middlesex University, University of Kingston & HDRA). The idea is to integrate the contributions of different stakeholders into developing a robust system for identifying, testing, multiplying and marketing cereal varieties, lines, mixtures, and populations best suited to organic production in different parts of the country (DEFRA funded, OF0330).

Three high quality winter wheat varieties, Hereward, Solstice and Xi 19 and their mixture, were selected for the trial based on their performance in previous years' replicated variety trials. Participating farmers drilled each variety in strips (total area of 1/10 ha) surrounded by their own winter wheat crop. This article summarises data from the first year of field trials (2003-4); since this is the first year they should be treated with caution. The trial is being repeated and has already been planted by essentially the same group of participating farmers.

### Yield Survey

Yield data in Figure 1 shows the overall variability in yields from 15 sites with a 2.5 fold spread, from the least to highest; this variability is a result of variety, system and site level interactions. System differences can include resource availability, weed species and prevalence, sowing date, rate and method. Site differences include for example, soil type, climate and landscape.



### Variety variation:

#### a. Yield

Table 1. shows the variability and unpredictability of ranking of the varieties within and among sites. Most important, it also shows that the range of yields among varieties is considerably less than the range of yields among sites.

Site	Yield range	Rank 1	Rank 2	Rank 3	Rank 4
A	0.77625	S	H	M	X
B	0.713	M	S	H	X
C	0.99245	H	S	X	M
D	0.9292	X	S	M	H
E*	*	*	*	*	*
F	1.16955	X	H	M	S
G	2.51965	H	S	X	M
H	0.5543	M	S	X	H
I	1.0925	M	H	S	X
J	1.03615	X	S	H	M
K	2.5829	M	H	X	S
L	1.18105	X	M	S	H
M	2.6404	X	S	H	M
N	2.139	H	M	S	X
O	1.55825	H	S	X	M
All Sites	3.490825				

Table 1.

Yield range of the three varieties and their mixture at each site together with their rank order. The yield range for all sites is also given. H= Hereward, M= Mixture, S= Solstice and X= Xi 19 (\* data missing for one variety).

Despite such variability in yield there is an indication that Hereward may be higher yielding than Xi 19 (average yield for Hereward was 4.2 t/ha and Xi 19 was 3.8 t/ha), although this was not statistically significant. This contrasts with data from conventional trials in which Xi 19 consistently outyields Hereward. However, more comprehensive analysis of the yield data shows that average yield for all varieties and the mixture at all sites was 4 t/ha and that there was 95 per cent probability that all varieties would achieve this average. In other words, on statistical grounds, there was no clear advantage for choosing any one of the varieties at any one site.

#### b. Quality

Analysis of quality data revealed, similarly to yield, considerable variability in the data, in this case for Hagberg Falling Number (HFN) and protein content. For example the range of mean HFNs across sites was 169-328s, and the range for protein was 7.6 to 11.1 per cent dry matter. Among the varieties, the ranges of mean values were 212 to 245s and 8.5 to 9.1 per cent dry

Figure 1.

Mean grain yield from successful harvests from 15 trial sites.



matter. These generally low HFNs could have been due to the wet summer and delayed harvest. However, the data did show that Hereward had a significantly higher HFN than the other varieties ( $p < 0.005$ ), and that Xi 19 was the most variable, although this was not statistically significant. Differences in protein content among varieties were small, particularly in relation to the differences among sites.

### c. Variety mixture

Perhaps unexpectedly, the most variable yields were from the mixture. From past experience mixtures have often out yielded most or all of their components and given a stable, high yield over many sites, particularly under conventional conditions. Under such conditions, disease is often a limiting factor so that the ability of mixtures to restrict diseases has a clear advantage. However, under organic conditions, with no synthetic inputs, all biotic and abiotic aspects of the environment are variable and it appears that the three variety components within the mixture interacted differently at each trial site.

One major factor was probably that Hereward, as the potentially highest yielding variety, was also the shortest. From Figure 5, the mixture had a greater cumulative straw length than the three component varieties indicating that Hereward may have been suffering from competition from both Solstice and Xi 19.

### Site variation: short/tall straw

A closer look at the yield data revealed that the sites fell into two distinct categories, those with "short" plants (<40cm) and those with "tall" plants (>50cm) (Figure 2). It is also apparent that "short" plants were on average higher yielding relative to "tall" plants (Figure 3.). At the "tall" sites there appeared to be a positive correlation between height and yield. This was not evident at the "short" sites.

Interestingly, all "tall" sites were in the East of England, whereas all "short" sites were in the West, suggesting that climate differences between East and West might be important in determining height.

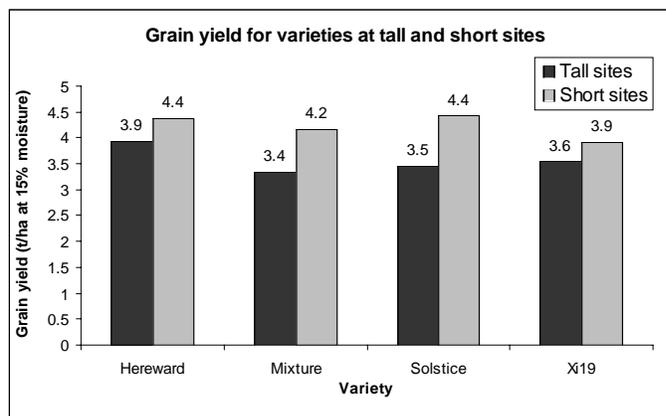
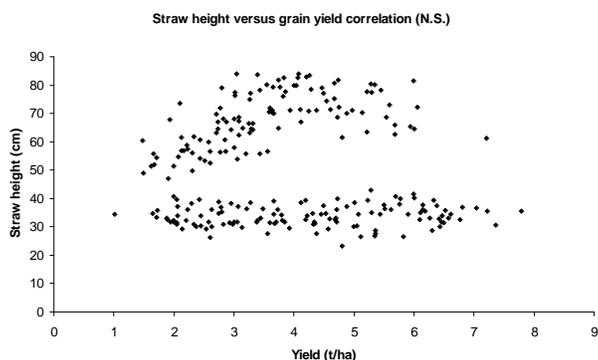


Figure 3. Grain yield for varieties at "tall" and "short" sites.

The average yield of all varieties at "tall" sites varied between 2.5 and 3.74 t/ha (mean of 3.58 t/ha), whereas at the "short" sites it lay between 2.3 and 5.3t/ha (mean of 4.18 t/ha).

Higher mean yields at "short" sites could be attributed to a greater number of heads per unit area than at "tall" sites (Figure 4). However, the number of heads/m<sup>2</sup> at "short" sites is one third to one half more than that at "tall" sites, whilst the difference in yield among the sites was not so pronounced. This implies either fewer grain per ear or a lower thousand-grain weight at the "short" sites, which we will report on at a later date.

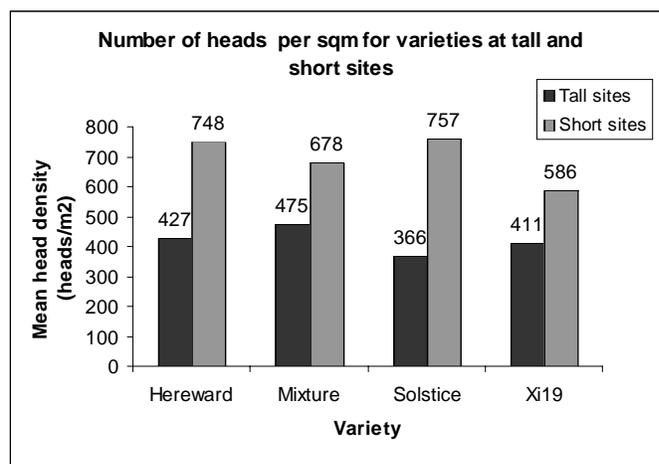


Figure 4. Average number of heads per unit area for varieties at "tall" and "short" sites

Comparing the "tall" and "short" sites for total straw production showed that the "tall" sites produced more straw than the "short" sites. In other words, the greater number of heads per unit area at the "short" sites was insufficient to compensate for the height of the straw at the "tall" sites (Figure 5).

Figure 2. Straw height against grain yield for all varieties at all sites

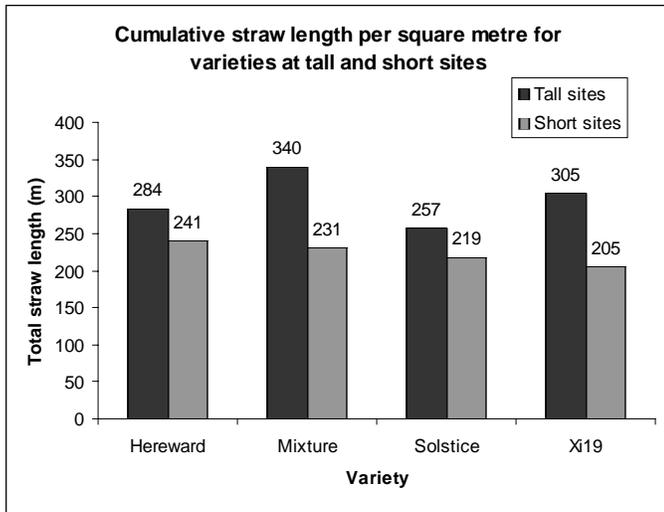


Figure 5. Cumulative straw length for varieties at "tall" and "short" sites.

**Site variation: Interpretation**

Organic systems are characterised by the non-use of synthetic inputs. A major consequence is that the crops being grown are exposed to a wide range of environmental variables both biotic and abiotic. As a consequence we expect yield and quality to vary among sites. What we did not expect in this set of trials was that the variation would show a strict East/West divide. It is difficult to explain the reasons for this division except to say that it probably derives from interactions among system, local climate and soil type affecting crop growth.

What is important to point out is that the yield and quality variation among the varieties used in this experiment was considerably less than the site and system variation.

Data provided by farmers allowed us to explore whether straw height was related to soil type. Light soils produced greater yield (5.1 t/ha) on average than heavy soils (3.3 t/ha). From heavy to light soils there is a decreasing proportion of "tall" sites and an increasing proportion of "short" sites (Figure 6.). It remains to be seen whether this can be confirmed in 2005. Whether or not this is so, we still are unable to explain the relationship between soil type and growth pattern.

The trend for higher yield on light soils compared with heavy was consistent for all varieties. However, the ranking of varieties differed on soil types. Hereward performed best on medium and heavy soils, whilst the mixture performed better on light soils.

**System variation**

In order to assess the effects of variation among systems, we looked at previous crop, sowing date and seed rate. Previous cropping was similar at most sites comprising of a two-year ley with usually red, or white clover. There was no obvious correlation with yield or crop height. Seed rate was variable again with no obvious correlation with yield or height. There was a slight positive correlation between seed rate and lateness of sowing, as expected, but this explained less than 10 per cent of the variation.

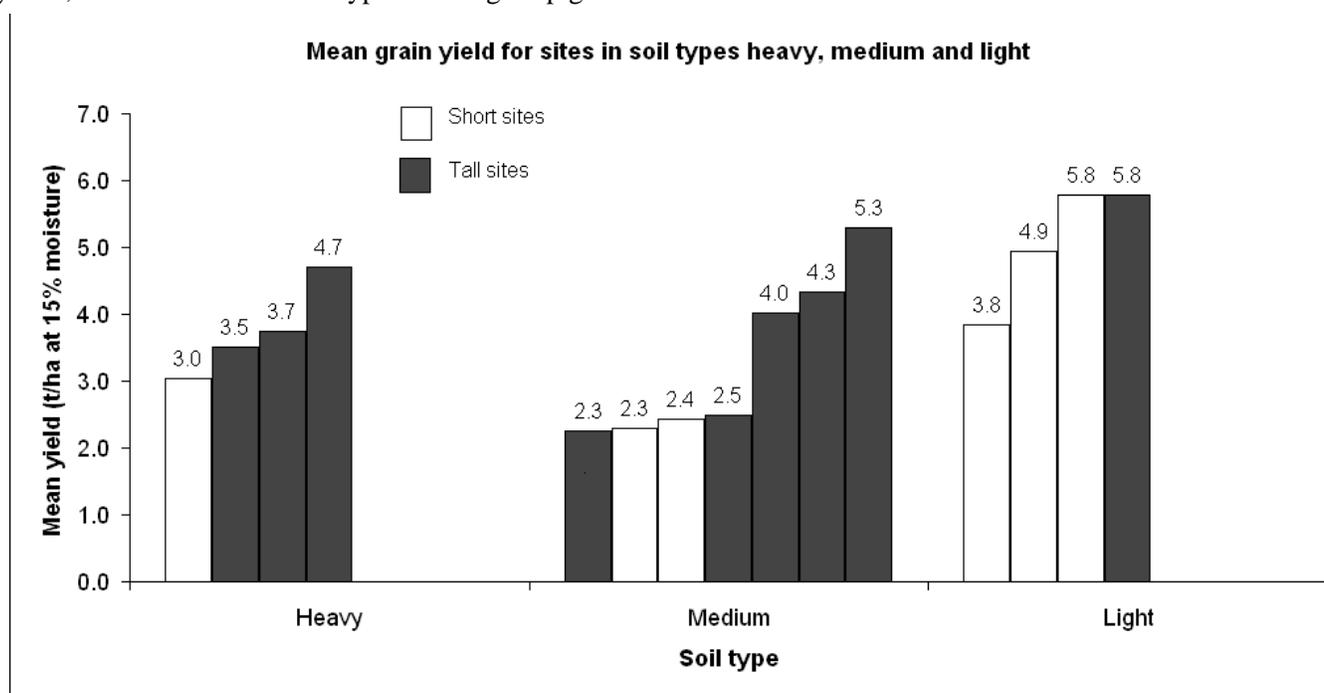


Figure 6. Mean grain yield for sites on heavy, medium and light soil types.



The only factor that appeared to have an effect was sowing date. At both "tall" and "short" sites crops sown later tended to produce a greater yield than those sown earlier (although this was not significant). It may be that lighter soils (which tended to have higher yields) provide an easier opportunity for late sowing.

## Conclusions

- This participatory trial has provided us with a unique opportunity to analyse the performance of leading wheat varieties on a wide range of organic farms. Such an approach benefits the whole community of farmers.
- Yield and quality were highly variable among both sites and varieties, with many changes in rank at different sites. Statistical analysis suggests that it would have been reasonable to grow any one of the three varieties or the mixture at any site.
- Curiously, the fifteen sites divided into two major clusters either with "short" straw or "tall" straw. These clusters were related to geographical position ("short" in the West, "tall" in the East). This major effect common to crops of all three varieties used may have been due therefore to interactions among crops, systems, soil types and climatic factors.
- Plots at the "short" sites had more stems per unit area than those at the "tall", but the numbers of

stems did not compensate totally for straw height in terms of total straw length per unit area.

- The major finding of the trials was that environmental variation (climate, soil and system) was probably far more important as a determinant of wheat yield and plant form than was either farming system or plant variety. We are checking for confirmation of this conclusion by repeating the same trial in 2005.
- Research and development is urgently needed to develop major changes in both systems and genetic variation; these play a central role in the EFRC programme.
- In the meantime, a practical way forward would be for farmers and researchers to collaborate in following the performance of specific varieties and mixtures on a wide range of farms.
- In relation to genetic variation, we are optimistic about potential gains to be made from our project on the development of composite cross populations in wheat; it is important that this should proceed as a form of participatory plant breeding.

## Acknowledgements

*Elm Farm Research Centre would like to take this opportunity to thank the farmers and researchers participating in the project and DEFRA for funding.*

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## 100% Organic Ration Works For Organic Table Birds

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*Poultry researcher Josie O'Brien and Lawrence Woodward present some results from a series of EFRC trials that are questioning the need for the conventional feed derogation in organic poultry production.*

Currently the use of up to twenty percent of non-organic components is allowed in the feed ration of organically certified table birds. Although this derogation is supposed to be removed in August 2005, there is mounting pressure to allow it to continue in some form. The derogation was introduced due to concerns that, without it, the bird's nutritional needs could not be met by certified organic sources alone and therefore their health, welfare and growth would be compromised.

The primary concern relates to amino acid levels and in particular methionine. There was, and still remains, a perception that the ingredients generally used by the sector to supply methionine do not have a suitable organic substitute; or at least one that is easily accessible at a reasonable price.

In fact none of these concerns had been adequately tested prior to the issuing of the derogation and even as

we approach August 2005, the assumptions on which they are based have not been thoroughly scientifically examined. To address this EFRC has established a series of trials using a commercial organic table bird enterprise.

The trial reported here compared a one hundred percent organic ration with a commercially available ration using eighty percent organic ingredients and the twenty percent conventional allowance. Two strains of birds were used - ISA 257 and Colourpac - in a commercial operation supplying supermarkets. 2000 birds were used in the trial and we studied a range of agronomic and economic factors including bird weight, dressed weight, carcass downgrading conditions, feed consumption and costing, and the impact on the bird's health, welfare and behaviour. Data was collected on two batches of birds over the periods March to May and April to June 2004. The birds were housed in two identical brooder houses in batches of 500.

The bird's live weights can be seen in table 1 and the population distribution in Figure 1.



Age	Weekly Average Weight (g)			
	80% ration		100% ration	
	ISA 257	Colourpac	ISA 257	Colourpac
Day Old	45.82	44.79	45.91	44.80
Wk 1	117.89	122.84	103.90	109.87
Wk 2	264.99	271.75	215.87	240.34
Wk 3	438.99	443.20	356.81	392.67
Wk 4	630.08	645.29	512.77	583.33
Wk 5	907.72	960.63	780.14	861.73
Wk 6	1240.31	1276.25	1064.22	1140.24
Wk 7	1431.49	1552.05	1314.42	1423.85
Wk 8	1872.39	1910.03	1758.76	1817.69
Wk 9	2186.24	2225.54	2048.13	2104.10
Wk 10	2483.66	2460.98	2339.91	2375.45

Table 1: Weekly average weights (g) of ISA 257 and Colourpac birds on 80 percent and 100 percent organic rations.

A hierarchical model was used to test for significant differences in final live weights. There was no significant difference between the two genotypes. There was however, a statistically significant difference between the two ration types ( $p < 0.05$ ) with a significantly lower average weight for the birds on one hundred percent ration; with an average difference 114 grams.

However, in production terms this difference is very small. The similarities in the population distributions and ranges of weights for the two genotypes and two ration types (see figure 1) are more striking.

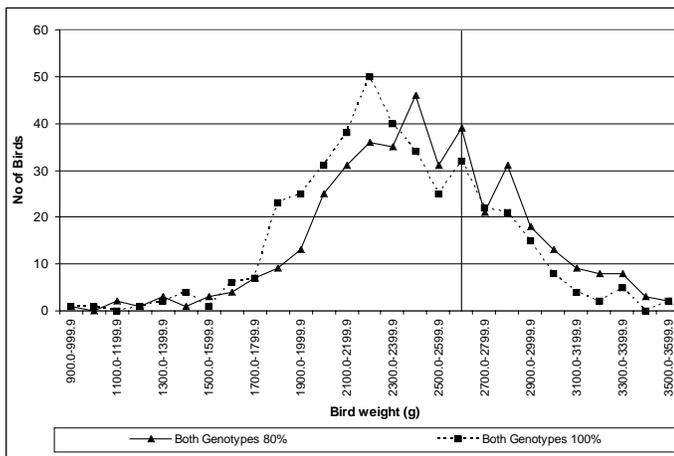


Figure 1: Population distribution, day 69/70 and 72, both genotypes on 80 percent and 100 percent organic rations.

Turning to dressed carcass weights; there was a statistically significant difference between the two genotypes ( $p < 0.05$ ) with a significantly higher average weight for Colourpac birds, (an average difference of 37 grams). There was also a statistically significant difference between the two ration types ( $p < 0.05$ ) with a significantly lower average weight for the birds on one hundred percent ration (an average difference 65 grams). As with live weight, these differences are small and in the context of considering the validity of derogation the

similarity of the performance of the ration types is more notable than the differences.

However, there was a difference in feed consumption, between the two rations with a clear trend for a lower consumption on the one hundred percent organic ration (see figure 2).

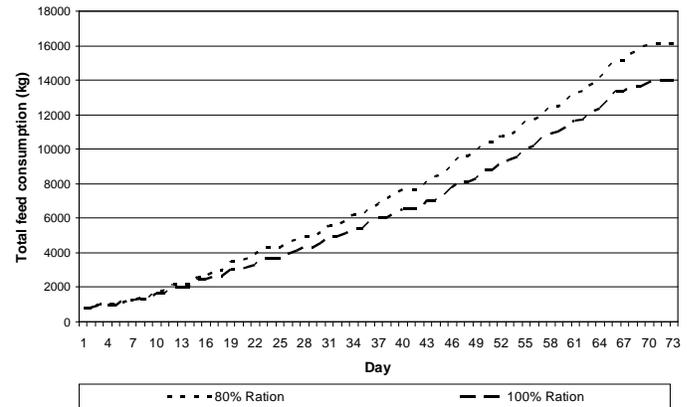


Figure 2: Comparisons of cumulative feed consumption (kg) for the trial birds on the 80 percent and 100 percent organic rations in the two sheds.

Table 4 shows the cost (£/kg) of the trial rations and the estimated cost that would have been incurred if the feed had been bought in 'bulk' production amounts.

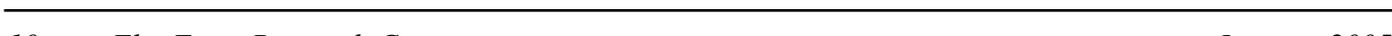
		Estimated cost £/kg dressed carcass wgt	
		Trial Costing	Bulk Costing
Trial 1a	80% Ration	0.90	0.84
	100% Ration	0.87	0.81
Trial 1b	80% Ration	1.04	0.97
	100% Ration	1.03	0.96

Table 4

Taking all these factors into account it is clear that in terms of £/kg of dressed carcass weight the birds on the one hundred percent ration were actually cheaper to produce primarily due to the lower feed consumption. This trial revealed no overall health or growth or welfare issues when comparing the two rations, contrary to suggestions that there might be due to the assumed nutritional inadequacy of the one hundred percent organic ration.

Since the end of this trial we have undertaken further work that is confirming these findings. That work will be reported in future *Bulletins* and scientific journals. We will also be completing a full report considering whether there is any justification in allowing an extension to the derogation in this area. At present it is hard to see more than the flimsiest.

**We would like to acknowledge the support of Sheepdrove Organic Farm and its staff and the Sheepdrove Trust for supporting this work.**





## Pondering the animal feed market, the feed derogation and all that

**An Organic Centre Wales report put the total concentrate usage in 2002 at 150,000 tonnes of which approximately 57,000 tonnes was approved non-organic, with partially organic feeds at 98,000 tonnes. The Soil Association in the latest Food and Farming Report tells us that the UK is only 40% self sufficient in cereals and with the impending end of the feed derogation demand this seems likely to increase. By how much?? is the \$64,000 question.**

At the Organic Arable Marketing Group (OAMG) conference in 2003, BOCM projected demand for animal rations across all sectors to be approximately 170,000 tonnes for 2004/05 and indicated a further 50,000 tonnes of straights use. BOCM indicate that the monogastric sector account for half of total feed requirements whilst dairy sector accounts for 40%, with beef & sheep making up the balance. Given the growth in the poultry sector this proportion has probably changed and so a 60% monogastric, 30% dairy and 10% beef and sheep proportion is assumed

Therefore assuming the 170,000 tonnes shown by BOCM as the total feed market is sold in these proportions the demand would be:

- dairy 51,000 tonnes,
- beef and sheep 17,000 tonnes
- monogastrics 102,000 tonnes

The monogastric sector has a linear relationship between the organic feed used and the non-organic allowance which is not so for the ruminant sector.

For ruminants, the derogation is based upon dry matter intake (DMI) for the whole ration including the forage. This means that a dairy cow consuming 20kg of DMI can be fed 10% (2kg dry matter) of conventional dry matter for each day of the year or 730 kg dry matter per annum can be conventional. This is an annual "quota" with up to 25% of the DMI being conventional in any one day.

Making a few assumptions - a dairy cow is dry for 60 days per annum and is not fed in her late lactation this means 90 days per annum she may not be given any concentrate ration. The 730 kg is then spread over 270 days allowing 2.7kg DM per day. Feed is approx 85% dry matter and so 3.1 kg freshweight could be fed per day under the derogation all from conventional sources.

Assuming the linear relation for monogastrics non-organic use this could be put at 20,000 tonnes. The non-linear use of non-organic ingredients in the ruminant sector makes such a prediction more problematic.

The calculation indicates the organic element of a ration for a dairy cow based upon a 20kg DMI per day could be as low as 25 - 30% and therefore the figure of 51,000 tonnes of feed used may include only 17,000 tonnes of organic ingredients. The ending of the feed derogation would therefore require an additional 20,000 tonnes of ingredients for the monogastric sector and 34,000 tonnes of ingredients for the dairy sector and total 54,000 tonnes of additional material required.

How many organic dairy farmers are currently operating to such a system is unknown. But we do know that most organic dairy farmers are making best use of their non-organic allowance.

Just to remind you. Ruminant rations contain approximately 30 - 40% cereals so before you go out and plough up every square inch you can get away with I would first suggest you buy some shipping shares. The majority of the demand is for proteins and a significant proportion of these are imported e.g. soya expeller, lucerne, sunflower expeller etc. This will have formed a large majority of the non-organic allowance permitted under the derogation and so more of these will need to be imported. Of the cereals the major demand is for wheat.

And don't think that the increase in demand will see prices rocketing because as previously outlined in *Bulletin 74* there are large areas of Eastern Europe currently finishing the conversion period and so a ready source of grain is available and so imported crop price will set the feed wheat price.

There is some good news as the Soil Association Food and Farming Report 2004 shows wheat output increasing by 11%. This will be heralded as a response to the demand of the market. However look further into those figures.

The organic arable area has increased from 26400 ha in 2002 to 48494 ha in 2004 but those entering conversion during the same period has declined from 271 (158200 ha) to 58 (21596 ha). Such a decline does not support a continued growth of organic arable production. The other interesting indication is the major increase in the production of oats, up by 20% which (along with the export of processing) depressed the oat market for the last 12 or so months. And the plateauing in the use of barley and Triticale as the market for these crops is perceived as weak. Doubtless oat production will now fall with little being grown for 2005 harvest.



The production of wheat from an arable rotation is finite as too great an inclusion will be unsustainable in terms of fertility, weed control and disease build up. The logical conclusion if we seek to increase the proportion of home grown cereals is that additional land needs to be converted. It can be seen this isn't happening and even if it were to happen where do the secondary cereals produced get used? The answer is to influence the demand in the feed market.

OAMG has been flagging this problem up for the last couple of years including the conference held in Spring 2003. They and Organic Milk Suppliers Co-operative (OMSCO) are collaborating with a feed compounder to address this problem by producing a ration using cereals other than wheat and maximising the use of home produced proteins. It is anticipated that OMSCO

members will be assured a supply of feed and OAMG members will have a ready outlet for the cereals they produce.

*Andrew Trump*

*Andrew has been at EFRC for 3 years and for much of that time he has been responsible for developing the membership and communication services for OAMG. As OAMG has grown this has taken an increasing amount of his time and interest. Due in part to this and also developments at Grainfarmers, Andrew is leaving EFRC and from the 4th January will be joining Grainfarmers to work fulltime on OAMG business. Andrew can be contacted on 01242 890003 or 07752 668193. The existing OAMG line at EFRC, 01488 657600 is also operable.*

### Dioxin in eggs

From the 1st January a new EU standard regulating Dioxin levels in eggs came into force. From then dioxin levels in eggs must not exceed 3 pg TEQ / gramm egg fat (pg = pico gramm, TEQ = Toxic Equivalent). Ahead of this the Dutch authorities have been monitoring organic and free-range eggs. They have found that some 20% do not meet this requirement. Consequently there is a formal recommendation not to eat more than 2 organic eggs a week.

Research indicates that this is a background pollution problem and may well be found in other countries where intensive monitoring has not taken place. The Dutch egg producer's board is now asking the European Food and Safety Authority to ensure that more rigorous monitoring happens throughout Europe.

We have no idea what the situation is in the UK nor whether the new standard is justified and appropriate for outdoor systems. However, we will investigate this further.

## Institute of Organic Training and Advice (IOTA) launched

IOTA has been formally launched.

Initiated by Elm Farm Research Centre, Organic Centre Wales, ADAS and the Soil Association and progressed by Mark Measures, Head of EFRC's Organic Systems Development Programme, it is expected that IOTA will become the standard reference point for all farmers and government agencies seeking experienced organic advisers and trainers in England and Wales.

The Institute will be run by organic advisers and trainers for organic advisers and trainers. It is independent and is a registered company which will be managed by a board of IOTA members. It will build links between those in the profession and provide a voice in the organic world; it will help keep all up to date by providing good access to information. Most importantly it can take the lead in setting professional standards for advisers and trainers, offer an accreditation scheme and facilitate CPD training.

Not only will it be a cost effective way of improving access to information but it will also help in securing new business.

Improved access to research is a priority for those working with farmers and IOTA will facilitate this.

### Congratulations!

EFRC would like to congratulate all those who were successful in the recent Organic Food Awards especially Sheepdrove Organic Farm; Higher Hacknell Farm (both EFRC Demonstration Network Farms and closely associated with our Research and Advisory Departments) and Alan and Debbie Schofield.

Congratulations also to Patrick Holden who was awarded a C.B.E. in the New Years Honours List. It is a well deserved recognition of his work and dedication to the organic cause.



## Organic Vegetable Market Study

We last reported on this project in October 2003 when the collected data was provisional and awaiting processing. Data has now been processed and the report for the 2002-03 season is about to be published. At the same time much of the data for the 2003-04 season has been collected and is in the process of being collated and checked.

This article will focus mainly on a review of the 2002-03 report as it would not be appropriate to quote from the unchecked 2003-04. Some very general conclusions will be drawn concerning the overall development of the organic vegetable market as it moves into what could be described as a phase of consolidation.

The overall organic market has been tracked for a number of years and it has also been possible to determine the relative importance of the different sectors. The market experienced a period of rapid growth during the late 1990s with much of this demand being met by imports. Although precise information was not available, imports were reckoned to account for 70% of sales. The area of home-grown organic vegetables expanded to the extent that some vegetables were in oversupply in 2001 - this coincided with a slowing down in the rate of market expansion. Despite these developments there was both a lack of communication in the supply chain and a lack of information on individual vegetables.

The first year of this market study project was the first to throw light on the details of the market. This has been reported in some detail in past editions of the *Bulletin* and it showed for the first time comparative figures for imports and home production by both volume and value. The process of detailed data collection from a comprehensive range of packers, wholesalers and other traders has continued and it is now possible to get a feel for year on year changes in the organic vegetable market.

The total market for organic vegetables increased by 20% from 103,000 tonnes in 2001-02 to 124,000 tonnes in 2002-03. The UK proportion of this market increased from 57% to 59% over the same period - this means that imports of organic vegetables were running at just over 40% in volume terms. The farmgate value i.e. the return to growers increased by 8% (from £37m up to £40m) while the retail value increased by 18% over the same period (from £143m up to £169m).

There were increases in the total organic vegetable market for all crop types with the exception of lettuce, other green vegetables (minority types) and cucumbers.

The biggest increases were seen for leeks (60.2%), swedes (58.1%), beetroot (32.3%), broccoli (33.6%), other salads i.e. not lettuce (120.2%), peppers (188.3%) and aubergines (35.6%). Although UK tonnages showed significant increases across most crop types, the market share only increased significantly for parsnips (28.1%), fresh peas (28.8%), beans (61.3%), peppers (24.3%), aubergines (114.3%), courgettes (20%), carrots (13.2%) and onions (12.1%). This suggests that growers are making some progress in overcoming the technical problems outlined in the first year project report. Market share slipped back for seven crop types though not by large margins.

Feedback from suppliers and producers for the 2002-03 season confirmed downward price pressure as a significant factor though there was agreement that, overall, the continuity of UK supply had improved from the 2001-02 season. There were some minor examples of imbalance between supply and demand but the position had improved from the serious problems seen in the previous season. The process of rationalisation and increased specialisation continued in the pre-pack market as growers focused on their strengths. This has manifested itself in the achievement of higher yields per hectare - UK production has increased by 13,000 tonnes from the same land area.

The relative amount of vegetables sold through direct channels increased (12%) and the volume sold through supermarkets (67%) has fallen over the same time. Overall growth in the organic vegetable market was shown to be slowing, though packers and wholesalers think there is still potential to increase the market by 10-15% in the 2003-04 season. It was not expected that this would occur so much in the supermarket sector. The development of outlets supplying the catering and the embryonic public procurement sectors is seen as important for future growth.

The annual reports in this study take the market data as the main theme but other issues are also covered. In the first year (2001-02) the technical problems relating to the extension of the growing season were covered in some detail while the 2003-04 report will focus on strengthening our knowledge of the direct sales market. The current report has focused on market development and consumer attitudes.

Soil Association colleagues undertook a wide-ranging DEFRA funded consultation of the organic horticulture sector that took in the views of nearly 300 organic



producers, processors and retailers. The key objectives were to identify market intelligence and marketing support needs, and to use an assessment of these needs to develop a programme to support the sustainable development of organic food and farming in England. A summary of this work is included in the market study report. It identified five main challenges specific to the organic horticulture market and businesses:

1. Declining returns to the producer and rationalisation of the supply base
2. Limited consumer awareness about food production, and the benefits of buying organic food
3. The current lack of new and alternative high-volume markets
4. The lack of producer co-operation
5. The lack of recognition by policy makers of specific benefits which horticulture offers.

A number of strategies are recommended to address these challenges that include the development of consumer awareness. There should also be increased security for growers through an enforced supermarket code of conduct, the encouragement of producer co-operation, and the development of local and regional supply chains. These strategies should be accompanied by policy support to recognise the wider benefits of organic horticulture.

The issue of consumer awareness was further developed in a section contributed by the Institute of Rural Studies, University of Wales, Aberystwyth using results from studies carried out as part of the EU funded Organic Marketing Initiatives and Rural Development (OMIaRD). Full details can be found at [www.irs.aber.ac.uk/omiard](http://www.irs.aber.ac.uk/omiard). Some interesting responses were obtained as part of a series of detailed interviews with consumers. Vegetables tend to have a positive image for both urban and rural consumers though this image can be coloured for conventional produce by association with agro-chemical use in a way that is not as apparent for meat and dairy products. Organic vegetables are the main point of entry to the organic market for most consumers and for some consumers the only products they associate with the term 'organic' are vegetables.

The high price relative to income is unsurprisingly the main barrier for many consumers in purchasing more organic produce though willingness to pay is greater for organic vegetables than for organic convenience products. 'Old purchase habits' and 'convenience' were also cited by some as greater barriers than price. It was

also felt that occasional or non-consumers had low levels of awareness about the benefits of organic production and this is hampering an increase in organic turnover.

The understanding of what is 'local' varies - most consumers in this study defined it as food from the UK though others see it on a more regional basis. The detailed interviews showed that for some consumers the organic implies locality i.e. a product must be produced locally to be organic. Consumers who bought locally wanted to support the local economy and protect the local environment though this was not necessarily at the expense of values such as health and taste. Interestingly the consumption of local food emerged as a strong motivator only for organic fruit and vegetables though this conflicted somewhat with a preference from mainly rural areas for local conventional over organic produced out of the area.

As noted in the introduction, the figures for the 2003-04 season are too raw at this stage for publication even as provisional. It is possible to draw some tentative, if relatively unsurprising, initial conclusions on market trends. The squeeze on farm-gate prices continues for the supermarket suppliers and there is a suggestion that a degree of balance is being reached in the demand/supply equation. Local sales continue to increase and the national box scheme is becoming a more prominent feature in the 'local' market. Public procurement is very much in its infancy but there are a number of promising developments.

*Roger Hitchings  
Head of Advisory Services who has been  
working on this project*

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**For more information on all of our advisory services, contact us on 01488 658279.**



## Renewal Energy Event

**An EFRC event on 3rd November at Colham Mill, Wiltshire investigated the potential for, and drawbacks of, on-farm energy generation. The two technologies which were the primary focus of the day were wind energy and biomass production.** However Paul and Karen Lysley's interests are much broader and the small patch of miscanthus and the restoration of the old mill leat and installation of a new hydro-electric project at Colham Mill was of considerable interest.

**Biomass production for organic systems is a challenge both technically and philosophically.**

Firstly, should productive land area be used for energy production which could be used for food production when energy could be generated from other renewable sources such as wind, water or biogas?

Secondly, conventional biomass production relies on the use of sewage sludge as a form of fertility which would not be applicable in an organic system.

Finally, the economics of biomass production are marginal when the producer simply supplies a commodity product onto the market. The benefits are greater when the system is fueling a system on the farm to give energy security or a local facility for whom security of supply is important and so prices can be fixed.

There is an interesting possible solution to these dilemmas which inevitably lies with the use of a diverse system rather than a monoculture. Interesting systems are being implemented which combine willow biomass production with poultry production. The poultry enterprise subsidises the costs of the willow during the unproductive years between harvest and will help with weed control while the willows provide a beneficial woodland habitat for the chickens who in turn supply nutrient to the willow as they forage.

Innovative use of land to provide both energy and food output hold potential benefits for producers seeking to move away from commodity production systems as Mid Term Review is implemented.

*Andrew Trump*

*EFRC would like to thank Paul & Karen Lysley for hosting the event and showing us the various projects in which they are involved.*

### BioFach 2005

#### The World Organic Trade Fair

24th to 27th February 2005 Nuremberg, Germany  
For more information on events [www.biofach.de](http://www.biofach.de)

## Towards Sustainability

### The Need for a Balanced Approach to Onshore Wind Power Generation

The real issues surrounding onshore wind farms seem to be very simple. Do large developer-owned installations offer the most equitable and sustainable means of developing local onshore wind resources? Are wind farms, as one particular model for the development of onshore wind resources, part of a well-planned, well-integrated and sustainable national energy policy? Do they promote widely distributed local ownership of renewables technologies? Do they bring the financial benefits of resource utilisation directly back into local communities? Are they sensitive to local socio-economic and local environmental constraints? And does this developer-led model of wind resource development bring local ecological enrichment?

The answer to most of these questions, if not all of them, seems to be "No".

As a model of renewable resource development, it is rapidly being exposed for what it is - a highly inequitable and appropriative approach to local resources, with medium-to-high socio-economic and environmental costs, little long term strategic planning and major benefits foregone, for both landowners and local communities. This may explain why so many individuals and communities around the UK, and particularly in England, are objecting to onshore wind farms in rural areas. Quite simply, they know a bad deal when they see one. These events and realities open the door to a very important debate - how can the use and benefits of local onshore wind resources be brought into a framework of genuine community-based sustainable development?

*Jason Gathorne Hardy*

**We wish you all a Happy and Prosperous New Year.**



### Colloquium of Organic Researchers (COR) Workshop

The Colloquium of Organic Researchers (COR) conference held in 2004 presented the latest research being undertaken in the organic sector and provided excellent technical information for farmers to use. Currently this is not open to producers but perhaps COR could reconsider this stance and allow producers to gather at this event?

The next workshop deals with the role of participatory processes in organic research programmes to be held at HDRA, Ryton Organic Gardens, Coventry, CV8 3LG on 25th January 2005.

The aim of the workshop is to invite researchers to discuss on-going organic research programmes, and in particular to reflect on:

- 1) who is setting the research agenda and how?
- 2) are current organic research programmes addressing the needs of farmers, growers and advisors, researchers and policy makers?
- 3) is research addressing the needs of the wider organic movement?
- 4) how can wider stakeholder engagement with research be encouraged?

During the day summaries of the research from three or more contrasting 'participatory research' projects will be presented and the audience invited to compare their approaches with traditional research projects. Material on participatory approaches will be available. Some time will be spent discussing and identifying research projects that might benefit from a more 'participatory approach' and how best to secure funding for this type of work. Analysis and presentation of qualitative data will be discussed. Participatory methods will be used during the day.

Facilitators: Gareth Davies (HDRA), Bruce Pearce (EFRC)

All participants are invited to bring a summary of their project/research interests (one side A4) for distribution. Posters or other materials that might be of interest to delegates are also welcome.

Contact Gareth Davies, HDRA, Ryton Organic Gardens, Coventry, CV8 3LG. You may also book by phone (024 7630 8200) by fax (024 7663 9229) or by email (gdavies@hdra.org.uk). It is essential to book in advance, as **numbers are limited**, and no later than **20th January**.

#### HDRA's Potato Day

supported by Waitrose

Ryton Organic Gardens

Sunday, January 30

HDRA's Potato Day supported by Waitrose will leave visitors spoilt for choice with more than 100 different types of tubers on offer.

This superb selection of seed potatoes from the UK & Ireland will be on sale at Ryton Organic Gardens, near Coventry - HDRA, the organic organisation's headquarters - on Sunday, January 30, from 9.30am to 5pm. More than 1,000 people flocked to this event last year to snap up nearly 50,000 tubers!

Dr Susan Kay-Williams, HDRA Chief Executive, says: "This will be the 12th year we have held our national Potato Day and it has become a 'must-do' for many gardeners from all over the UK. But as well as giving experienced growers access to rare and interesting varieties, we want to encourage everyone to discover the benefits of being a bit more adventurous when they choose potatoes."

To find out more visit [www.hdra.org.uk](http://www.hdra.org.uk), email [enquiry@hdra.org.uk](mailto:enquiry@hdra.org.uk) or call 024 7630 3517.

#### EFRC's Local Environment Group News

At the meeting on 17th November Karen Davies, Biodiversity Project Officer for the Pang and Kennet Valleys Countryside Project gave a most interesting presentation on her work. The landscapes and habitats of these valleys are an important asset to the area, and we were pleased to hear that there is a proposal to extend the project into the Lambourne valley. Karen and her colleagues help farmers and other landowners to maintain the character and quality of the landscapes, and most importantly they involve young people in their work, so that the decision-makers of the future will give higher priority to conservation.

Elm Farm provided the venue for the lunch stop on **Kintbury's Orienteering Fun Day** held in October. With 19 teams taking part the day was successful raising funds for the Scout Group and charities.