



Bulletin

with technical updates from The Organic Advisory Service

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THE ORGANIC RESEARCH CENTRE

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

The business of The Organic 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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A scorched earth policy

It had a worthy title – Arable Cropping in a Changing Climate – and no doubt it had a worthy aim too, in looking at the potential impacts of climate change on UK agriculture and at how farmers can adapt.

But below the title (and below the aims) there was little of worthy interest for organic farmers at the recent research and development conference of the Home Grown Cereals Authority (HGCA).

This should have been a key gathering of arable minds to discuss true sustainability for UK crop production. It should have had organic systems at its heart. Instead organic farming received barely a mention.

So as the world hurtles towards an ever warmer future, delegates to the conference busied themselves with debate on the business opportunities that climate change presents. Let's make some money, they said, before it's too late.

As the conference reached its climax, Monsanto stepped forward to talk on UK biodiesel. ADAS spoke on the development of wheat for the biofuels market while another session studied the opportunities for growing crops for biopolymers. Delegates voted 67 to 41 in favour of a motion suggesting that climate change delivers more opportunities than threats to UK agriculture. One has to ask, just what planet these farmers/delegates are living on – Scorched Earth perhaps?

Our new world of global warming, end of oil, huge population growth and general diminishing natural resources is not a vision of the future. It is the reality of today. All these issues are now driving the natural and business climate for farming.

With organic agriculture's lack of reliance on fossil fuels; its strength in diversity; its ability to be at the heart of local food economies and its positive health qualities, it should be at the top of the agenda of R and D conferences and first in the queue for research funding.

Let's hope the HGCA sees the organic light soon. To steal a verse from the great Tom Lehrer –

Oh we will all fry together when we fry.

We'll be french fried potatoes by and by.

There will be no more misery

When the world is our rotisserie,

Yes, we will all fry together when we fry.

Richard Sanders

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Doing it right, doing it better – producers have their say

Roger Hitchings

The hot debate on defining degrees of “organicness” continues and is, if anything, intensifying with increasing levels of media attention. Producers themselves are under growing pressure to maximise output, especially when dealing with customers in the wider market place. With such commercial pressures it can be difficult to stay focused on what organic production is all about.

It was in this context that The Organic Research Centre – Elm Farm (with Organic Inform) organised a second producer conference at the Royal Agricultural College, Cirencester in December 2007. The theme was “Doing it right, Doing it better” and it followed on from the successful conference of a year earlier – “Organic producers: in principle and in practice”.

The whole programme was very much producer – focused and it was to four producers that we turned (Tim Downes from a dairy farm in Shropshire; John Newman from Abbey Home Farm, near Cirencester; Scott Sneddon, a grower from near Durham; Chris Blunt, arable manager of Lower Pertwood Farm, Wiltshire) to open the conference and to deliver their take on how they do it right and do it better.

All four presentations were inspirational in their different ways but common themes emerged such as the importance of good animal health, strong standards and long term sustainability.

They all took a generally holistic approach to their respective production systems and all four were very clear about the importance of community involvement.

In many respects this introductory session encapsulated the purpose and the vision of the conference.

Many technical and legislative issues were tackled in the producer workshops where stimulating and lively discussion was the order of the day. The Defra presentation on the new EU Organic Regulation caused some consternation but not necessarily for the right reasons – delegates’ criticisms were focused on the compulsory use of the EU organic logo that will actually carry the term BIO as opposed to organic. There are arguably more pressing issues such as the management of derogations under the new regulation that will have far greater and more fundamental effects on producers.

Such issues will be very much to the fore when we hold our next producer conference on 6th and 7th January 2009 as the new regulation will by then have come into force.

The theme of “Doing it right, Doing it better” resonated with the great majority of conference delegates but it is also important to realise that we must do it together if the vision of genuinely holistic and sustainable organic systems is to be realised and maintained.

Organic farming, CAP reform and the looming resource crisis



Professor Hardy Vogtmann,
President of the
Organic Research Centre

In his closing speech to the conference, ORC President, Professor Hardy Vogtmann carved a new niche for organic farming in the increasingly tightly funded world of EU agriculture. Organic farming, he said, delivers so much more than food and deserves enhanced funding as a result.

“Ecological health equals economic welfare,” says Professor Vogtmann. And he went on to assert that future design of the CAP must have social and ecological benefits as key drivers.

He is calling for 20 per cent of all EU agricultural funds to be dedicated to organic production. In addition he would like to see extra funds for organic

breeding (plants and livestock), a ban on genetic modification (GM), support for organic marketing and an abandonment of funding support for maize (corn).

Too many politicians see organic agriculture as merely delivering an absence of pesticides, says Professor Vogtmann. Alongside healthy wholesome food, he listed conservation, recreation, amenity, landscape, education, higher employment and clean water as key, multi-functional organic outputs. And Professor Vogtmann argued that only organic farming fulfils international commitments to the Rio Convention on biodiversity.



Fresh and local on the menu

The organisation of the Producer Conference posed some interesting questions, not just on how to take the movement forward, but also on how, sustainably, to feed everyone that attended. A couple of lunches, breakfast and a silver service dinner for 170 delegates over two days don't quite reach the dizzying scale of the London Olympic games in 2012, when 1.3 million meals will be served over 60 days. But some of the key questions about planning and sourcing local and organic produce are relevant on whatever the scale.

Our conference venue – The Royal Agricultural College (Cirencester) – has its own regular suppliers, which are generally not organic. When catering for an organic event, the college would normally contact its wholesaler, who would deliver all its needs in one order.

Organic Inform facilitated a "Meet the Producer" event at which the college catering manager, Richard Collishaw met with a number of producers. Suppliers were assessed on whether they could supply enough food for 170 people over two days and in sufficient variety to provide an interesting menu. Aiming to achieve a local, seasonal menu (in December) meant that variety was already limited and both volume and variety were further constrained by the fact that many suppliers had already committed their stock to other outlets including farmers' markets and box schemes.

Perhaps the most positive outcome of this meeting was that producers and buyers were brought together in one room, allowing the college's catering manager to see what was available to him locally. We are not denying that we could do better – we can still improve. But this was a useful exercise in helping to develop supplier relationships

and overcome constraints. Events like this create tough decisions to make, for and on behalf of delegates. For example, should we supply imported organic orange juice or local non-organic apple juice?

We would like to thank the producers who did supply the college – Duchy Home Farm, Sheepdrove Organic Farm, Sunshine Bakery and the Royal Agricultural College itself for trying out our ideas and helping to demonstrate that local, organic supply is possible.

Many of the issues discussed here have resonance throughout the food procurement industry, including public sector procurement. The public sector as a whole spends £3.2 billion a year on food and, in line with the Public Sector food Procurement Initiative (PSFPI), should be spending an increasing proportion of this budget on organic, fairly traded and farm assured ingredients. However, the Country Land and Business Association (CLA) recently claimed that *"locally produced food accounts for only 2% of all the food purchased by public sector organisations"*.

Recent research from the Centre for Research in Strategic Purchasing and Supply, based at the University of Bath, suggests that sustainable procurement is more important amongst UK organisations than in other countries. Eighty percent of UK organisations buy from small companies and 70% buy from local companies. These figures look at purchasing decisions, not just food – but they show cause for optimism. We can, and should do better and should aim to do this more rapidly.

Climate change on the cheap

Three euros a week (£2.10) for every citizen of the European Union – that's the cost of the new climate change action plan launched by European Commission President Jose Manuel Barroso.

The plan is labelled as an historic document designed to make Europe the first economy for the low-carbon age, says Mr Barroso. The aim is a 20% cut in EU greenhouse gas emissions by 2020, a figure which could rise to 30% if a global deal with other key economic Blocs is agreed. By 2050 Mr Barroso wants to see global emissions cut by half from their present level – Europe must lead the way, he says.

The proposed measures for EU member states include –

- An improved emissions trading system (ETS) covering more emissions and allowing firms in one EU country to buy allowances from any other
- An emission reduction target for industries not covered by the ETS (e.g. buildings, transport, waste) so that everyone is contributing

- Legally enforceable targets for increasing the share of renewables in the energy mix – the targets will reflect each country's individual needs and its potential

The European Commission hopes to see this full policy package adopted by Member States by the end of 2008.

At The Organic Research Centre – Elm Farm we agree with other environment groups that the Commission should be planning for tougher and higher targets.

"The worthy words of EU President Barroso will not do enough to prevent climate catastrophe," says director Lawrence Woodward. *"Sustainable solutions are available in organic agriculture, local economies, properly renewable fuels, clean industry and in transport reform. What we see here is a lack of ambition and courage from Europe's leaders. They must do better."*



Research into practice – mind the gap

Mark Measures, Director, Institute of Organic Training and Advice (IOTA)

For nearly 30 years I have worked with organic farming – heading the Organic Advisory Service (OAS) from 1985 until 2001 and the Institute of Organic Training and Advice (IOTA) since 2003. I have worked alongside researchers and witnessed a modest expansion of organic farming in the UK. During this period I have often reflected on the role and on the effectiveness of research and advice on organic farming.

In 1985, at the Cirencester Organic Conference there was an audacious proposition that one of the ADAS Experimental Husbandry Farms (EHF) should be converted to organic farming. At the time that proposal seemed to be an impertinence, with only around 300 organic farms in the UK and the importance and sensitivity of land management still not widely recognised.

Yet some 15 years later there were four EHF's with organic units, no less than nine research institutions with organic sites, to say nothing of the five organic dedicated research sites linked to The Organic Research Centre and the Henry Doubleday Research Association (Garden Organic). Until recently annual spending on organic research was over £4 million a year – half of which was funded by Defra. Wow – that should revolutionise organic farming...

Better understanding

During this time organic research has undoubtedly contributed to a better understanding of the farming system, of nutrient flows and the potential for more effective management to minimise pollution and improve productivity. It has provided some hard science on the positive impact of organic farming on the environment and biodiversity; much needed information for determining policy and support, but this has not been of much help to farmers.

A great deal of work has been done on farming techniques; varieties, feeding trials, green manures, blight control, parasite control, weed control, mastitis management and other health issues. There have been valiant efforts at farmer engagement, such as the on-farm ORC cereal trials and the much-valued GO participative knowledge exchange in weed control. However there remain many intractable problems for farmers and many unanswered questions. And I am left feeling that the revolution in organic farming has not quite happened.

Not only has the uptake of organic farming been slow, but the organic farming which I see around me – with some notable exceptions – does not reflect the results of the considerable research effort of the last 20 years. Manure is still being applied to ploughed-in leys, antibiotics are now more widely used than 10 years ago, cereal mixtures are the exception, livestock breeding and feeding is largely focused on production rather than health and soil management is even less focused on promoting biological activity.

This may be because of the research itself; is it simply that it is not focused on the primary issues and concerns of farmers,

so that even if the issue is of importance the uptake is inevitably slow? Is the research only confirming what commercial farmers have already discovered for themselves, though the validation of a practice can itself be very valuable? Is it that we have false expectations of research? For example the value of research may be that a new concept or technique, such as stockless systems, is more widely understood, rather than resolving a particular problem.

Underlying all this is the fact that there is so often a gap between the publication of research and the findings getting out onto farms. Sometimes the block is the real financial pressure on farmers, sometimes market intransigence and in some cases failure of the organic certification process, but it is frequently also about communication.

As advisers, we must take some responsibility. We play a crucial role in engaging with research and ensuring that it gets put into practice. Reference books, press articles and research-focused farm walks and seminars all provide invaluable means of disseminating research. One to one, on-farm advice given by experienced organic advisers still provides the most effective means of communicating new ideas and techniques. However it has become clear, in the consultation process which I have recently been through, that many advisers are not aware of some of the research that has been done.

In order to facilitate access to research IOTA has been running the Defra-funded PACA Research project: Providing Access, Collation and Analysis of Defra Research for the Organic Sector. This has included establishing the UK arm of Organic E Prints, www.orgprints.org a user-friendly and fully searchable web-based archive, which provides anyone with free access to the majority of organic research papers in Europe.

Organic archive

An archive of over 10,000 papers, it includes the results of the excellent organic research programmes of Denmark, Germany and Switzerland, ranging from feeding pigs a forage based diet to demonstrating some of the long term benefits of organic farming in a 20-year comparative trial. We have uploaded 200 or so research papers during the last 2 years, including all the Defra-funded work since 2000. We will be continuing to edit the site for anyone interested in uploading papers or accessing research results. Advisers, farmers and researchers now have a single point of access for all organic research.

To support advisers in the time consuming task of pulling together the results of research from a number of sources, IOTA has also been commissioning Research Reviews. Undertaken by experienced advisers we have now completed reviews of several topics including Dairy Cow Nutrition and Nitrogen Supply/Management which are available to anyone on the IOTA website www.organicadvice.org.uk.



More of these reviews are in final draft form and are now available for comment by IOTA members and more than 20 will be complete by summer 2008. These Reviews have been further backed up Organic Research Workshops providing opportunity for real discussion and development of the results between advisers and researchers.

So far we have held three workshops and plan two more during the next few months including one on soil analysis and management.

Common sense analysis

These reviews are not rocket science but common-sense analysis of the research on critically important topics such as the benefits of composting, protein crops, stockless systems, poultry nutrition, energy management and non-inversion arable cropping. The work has really put research results into a practical context to help in our work in advising farmers.

For example, while the compost Review and the associated IOTA workshop did not definitively provide evidence of the widely experienced positive effect of compost on plant health, it did reconfirm the value and use of properly made compost in specific situations. The Dairy Nutrition Review and workshop came out with some very clear new guidance on utilising forage and the importance of the use of whole-crop silage to aid rumen function and cow health.

And somewhat to my surprise the Review on Non-Inversion Organic Arable Cropping came out with some really positive experiences which will lead to a farm workshop in the spring.

The UK organic research world is changing rapidly with closure of many of the established centres and associated loss of facilities and expertise, and Defra has moved from funding a ring-fenced organic research programme to one where organic research is included under the "sustainable agriculture research programme" and some other environment programmes. At the same time industry funding will become more important.

While the full implications of these changes are not yet clear it is undoubtedly the case that as farmers and advisers we need to make better use of the work that has been done and ensure that we have good access to the results of future research. The PACA Research project has established a freely accessible mechanism for getting better access to results through the establishment of Organic Eprints, commissioning Organic Research Reviews and running Research Workshops. Perhaps that will help in the "organic revolution".

IOTA gratefully acknowledges the funding from Defra for the PACA Research project, which is disseminating the results of organic research.



Chicken dinners fly off shelf...

Enduring impact from Jamie's Fowl Dinners

The "Jamie Oliver" effect, resulting from the screening of the TV show Jamie's Fowl Dinners, is seeing supermarkets suffering shortages of free range and organic chicken.

Industry figures show sales of organic chicken are up by nearly 40 per cent in the last few weeks with an even bigger boost reported in sales of free range birds and so-called "high-welfare" chicken. The RSPCA claims that sales of all the various types of chicken raised in more animal-friendly conditions, including its own Freedom Foods label, are up by about 50 per cent.

A crunch point has arrived in the market, say analysts, where there are now not enough free range and organic producers in the UK to meet this enhanced demand. As a result there have been reports of empty shelves at leading supermarkets across the country over recent weekends. Direct farm sales and farmer markets have also seen big rises in demand and sales, typically showing an increase of 30 per cent.

Retail analysts AC Nielsen confirmed sales of organic birds have been boosted. They previously reported that sales rose by 36 per cent during the two weeks in January that Channel 4 was screening the programmes Jamie's Fowl Dinners and Hugh's Chicken Run, presented by Hugh Fearnley-Whittingstall.

But, despite these seemingly encouraging figures, there is a longer term danger for organic poultry in this apparent consumer shift.

"If the public is now convinced that the process of paying £5.00 or so for a table bird (instead of £2.50 or less) delivers a truly welfare-friendly and sustainable bird then there is little incentive for many of them to move that stage further to a £10.00 or £12.00 organic bird," says ORC policy researcher Richard Sanders.

As a result some real differentiation between truly organic poultry and the rest of the sector remains a target priority for The Organic Research Centre and its poultry research/policy partners.

A second meeting of BBOP – Better British Organic Poultry is being held on March 13th at Coleshill near Faringdon, Oxon looking at organic feed and poultry health issues. A third meeting is planned for May – details to follow.

Details from Organic Inform 01488 657600
organicinform@organicresearchcentre.com



Hot from the oven – population baking test results

Sarah Clarke



Initial results from test baking of the composite cross wheat populations show that the populations perform consistently between organic and conventional systems, unlike a mixture and a conventionally-bred variety which do well in non-organic but not organic systems.

Origins of the populations

Composite Cross Populations (CCPs) are the collective, segregating progeny of multiple crosses of pure line cultivars. These populations can be adaptable to different and changing environments.

Three CCPs were created by crossing:

- 1) 12 parent varieties selected for good milling potential (quality): Q CCP;
- 2) 9 parent varieties selected for high yield: Y CCP; and
- 3) both sets of parent varieties: YQ CCP

Populations for baking

As previously reported (Top of the Pops - Bulletin 91), the populations are producing promising, stable yields with evidence that they are adapting to environments.

As part of the final year of tests we sent a selection of the populations with bread-making potential (Q CCP and YQ CCP) to CCFRA Technology Ltd for baking tests. The physical mixture of all the parents (YQ mix) was also tested, as was a known breadmaking variety, Hereward. Grain of the Q and YQ populations, the YQ mix and Hereward from the two organic and two conventional sites, harvested in 2007, were bulked separately, so that we could look at the differences between the systems. These samples were milled to create white flour, and were then baked using a standard Chorleywood bread-making process. Measures of bread quality included Specific Loaf Volume, calculated as the volume of the loaf over its weight.

Populations perform consistently

Grain protein concentration

As you would probably expect, the average grain protein concentrations of the samples grown under organic (org) conditions were lower than those grown under conventional (conv) conditions (Figure 1). Encouragingly, however, the

populations tended to slightly higher grain protein than the mixture and Hereward under both org and conv conditions. Between the two populations, the Q CCP protein was higher than the YQ under conv but not org conditions.

Specific loaf volume

However, the grain protein trends were not reflected in the specific loaf volume results (Figure 1). The Q CCP, which has been formed purely from parents with good bread-making quality attributes, has produced loaves with higher specific loaf volumes than the YQ CCP, which contains other genotypes. Encouragingly, this trend is seen in both systems, with the specific loaf volumes of the CCPs being slightly higher at the conventional sites due to the higher grain protein concentrations.

The results of the YQ mixture are less clear. Despite a slightly lower grain protein concentration than the YQ CCP in both systems, in the conventional system it produces better specific loaf volume than its CCP equivalent, whereas in the organic system the loaves are much worse.

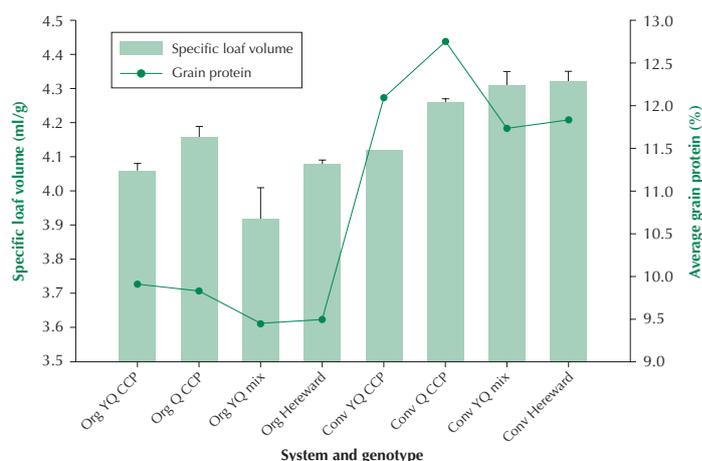


Figure 1. Specific loaf volume (ml/g; bars) and grain protein concentration (%; points) of organic (org) and conventional (conv) YQ and Q composite cross populations (CCP), a physical mixture of the parents (YQ mix) and the variety Hereward. Error bars = standard deviation.

Similarly, the Hereward at conventional sites does better than the CCPs in terms of specific loaf volume, but less well at organic sites. Since the protein concentration trend is similar between systems, this may be because Hereward, being a conventionally bred variety, requires a higher nitrogen input for both types of proteins important for bread-making quality, the gliadins and the glutenins, to be laid down in the right proportions.

These results could suggest that the populations grown organically may provide a better potential for bread-making than modern quality varieties bred for conventional conditions but grown under organic conditions. Moreover, under conventional conditions, such populations may



provide a potential for producing bread from crops with a lower nitrogen input.

Further tests

These baking test results have only been received in the last few weeks so we are reporting initial findings; further

analysis of the data is required to make firm conclusions. However, artisan bakers who were given 2006 CCP flour to try, have been very happy with the bread-making results. We will continue to carry out bread-making tests on the populations with the milling and baking partners involved in the new Wheat Breeding Sustainable Arable LINK project.

Winter wheat populations – a springboard?

Zoë Haigh

The Organic Research Centre's Wheat Breeding project has produced winter wheat populations which are made up of a hugely diverse set of genotypes. This wide genetic base enables the populations to perform stably by buffering fluctuating environmental conditions (e.g. different farms, and years), and to increase in performance over time through a process of natural selection. That is the theory, and it is being borne out in the preliminary analysis of three years of trial data (see Top of the Pops – Bulletin 91). But to what extent, and how rapidly could a population modify its vernalization requirement, if it was spring sown rather than autumn sown?

Our theory indicates that if we sow our populations this spring they will look very odd; having not had the cold winter to trigger flowering, many plants may not set seed by August. But, if we do harvest the viable heads and re-sow them the following spring, the crop should perform much better, and should continue to improve over time. In other words, the great array of genotypes in the population includes many that are unable to flower without vernalization, but, with no, or few, viable seed produced, they will quickly die out of the population. But there should also be some genotypes that can

flower without the cold stimulus, and these will go on to produce the seed that forms the basis for the subsequent year's crop – simple survival of the fittest. Mixtures cannot adapt in this way. Since they are simple physical mixtures of parental seed (rather than the offspring of crosses between the parents), they contain a limited number of genotypes. Two of these are spring varieties, so, theoretically, we should end up with a two variety spring mixture, unless there has been out-crossing during the time the mixture was grown.

So, we have decided to investigate the population's potential for adaptation of vernalization requirement in a two year pilot trial beginning in March. We will drill replicated plots of our Yield, Quality, and Yield-Quality populations and equivalent mixtures and compare their performance to the same populations and mixtures that were drilled in October. Comparison with two widely grown spring wheat varieties that did not form part of the populations or mixtures will allow us to benchmark their performance.

This trial will provide important data on the adaptability of populations, and if they perform well, the development of a novel and valuable genetic resource will have begun.

Know your fields, know your weeds

A new, long-term study from Sweden – soon to be published in the European Journal of Agronomy – says organic weed control regimes need to be tailor-made, down to the farm – if not field – level.

The study monitored weed amount and diversity over a fifteen year period following the organic conversion of the Ekhaga Experimental Farm near Uppsala.

Researchers investigated arable rotations with livestock and without. Key findings include –

- a) no significant increase in numbers of weed plants in spring.
- b) no change in amount of weed dry matter at harvest.
- c) no increase in the diversity of weed species during the study period.

Whilst there were changes in the variety and number of weeds year to year there was apparently no cumulative increase or long term trend. The researchers consider that temperature and precipitation are the principal drivers for

variable germination and growth of weeds, along with crop type, tillage and soil fertility.

In comparing crops their competitive ability showed to be important in weed regulation. Peas, a weak competitor, had significantly higher weed biomass at harvest compared with oats and winter wheat, say the researchers.

For these reasons, the researchers suggest that in order to solve weed problems in organic farming, advisers and farmers must work together to "improve individual farm analyses to design site-specific crop rotations and management practices". By combining biological knowledge of weeds with farmers' practical experience, they say that crop rotation designs can be improved alongside better weed control technique.

Effects of organic farming on weed flora composition in a long-term perspective. Anneli Lundkvist, Lennart Salomonsson, Lennart Karlsson and Ann-Marie Gustavsson. European Journal of Agronomy (Article in press).



Fuelling the debate – energy to burn, a planet to save

A blizzard of reports and studies on climate change, the carbon economy and agriculture's role as both the planet's saviour and arch villain has been raging in recent weeks.

Top of the list of reports is one from the influential Joint Research Centre (JRC) of the European Union (EU). It set out to assess the positive and negative effects of the EU's biofuels programme on the environment, economy and wider society. Its provisional findings are that when it comes to greenhouse gas effects there is no clear evidence to be gathered that the effects of a European biofuels programme are positive because so many indirect greenhouse gas effects occur outside the EU.

A huge cost

The JRC says the cost disadvantage of biofuels in the EU is so great with respect to conventional fuels (at least in the mix foreseen in the scenarios analysed), that even in the best of cases, they exceed the value of the external benefits that can be achieved. The report calculates additional costs to EU taxpayers from the adoption of the biofuels programme at up to 65 billion euros between now and 2020.

However, the report is not all doom and gloom. It says the EU should concentrate its efforts on biofuel reforms on biomass use outside the transport sector.

"The efficiency of modern biomass burners is nearly as high as fossil fuel burners, so in heating and electricity production, 1MJ biomass replaces about 0.95 MJ fossil fuel. However, transforming biomass into liquid fuel for transport is typically only 30-40% efficient in energy terms. This compares with an average 93% efficiency in oil refineries. Thus 1 MJ biomass replaces only around 0.35-0.45MJ crude oil in the transport sector. Using biomass to make construction materials generally saves more greenhouse gas emission than when used in biofuels," says the report.

Its key conclusions are that the decision by the European Commission to specifically target greenhouse gas reductions in the transport sector reduces the benefits which could be achieved in other ways with the same EU resources.

"Biomass is a very important resource that should be put to the best use that local economic circumstances justify," say the JRC report authors.

Cool Farming

Meanwhile, environment campaign group Greenpeace published a new report on agriculture and climate change. Cool Farming says agriculture is part of the problem and part of the solution.

Its call to action focuses on soil care, meat consumption and fertiliser use – *"By applying only the amount of fertiliser that the crop needs, precisely and at the right time, a tremendous amount of greenhouse gas releases can be prevented. At the same time, it would also reduce other environmental disasters such as dangerous algal blooms in our lakes and oceans worldwide"*.

Cool Farming says soil is literally at the root of our current problems in agriculture. If we continue to treat our soil like dirt, one of the most precious resources of humankind is under serious threat, it says.

On global meat consumption Greenpeace says that cutting demand, especially in developed countries, would reduce the damaging levels of methane produced by animals. It would also diminish the environmental damage caused as a result of increased demand for feed, fuel for related transport and land (such as the Brazilian rainforest) that is cleared to make way for cattle.

Cool Farming warmly endorses organic agriculture –

"All too often, chemical-intensive farming results in a downward spiral of soil and water depletion, decreasing yields, environmental destruction, poverty and hunger. Food security will not be achieved through outdated, expensive technical fixes such as ever increasing amounts of chemical fertilisers or pesticides, or genetically engineered crops. The future of farming lies in an agriculture that works with nature and with people – not against them. Millions of farms on all continents already prove that organic and sustainable farming can provide sufficient food, increase food security, replenish natural resources and provide a better livelihood for farmers and local communities."

Organic carbon levels

New research published in the journal Waste Management and Research, claims that applications of organic matter can lead either to a build-up of soil organic carbon over time, or to a reduction in the rate at which organic matter is depleted from soils.

The researchers who led the study suggest that where manure was added over a 50 year period, soils have organic carbon levels higher than un-amended soils and higher carbon levels than soils amended with chemical fertilisers, *"What organic fertilizers can do is reverse the decline in soil organic matter that has occurred in relatively recent decades by contributing to the build-up in the stable organic fraction in soils, and having the effect, in any given year, of ensuring that more carbon is held within the soil."*

Their research also considers the other potential benefits of organic fertilisers on agricultural soil, including:

- replacement of chemical fertilisers (implying avoidance of greenhouse gases related to their production)
- reduced use of pesticides (avoiding emissions associated with their production)
- improved tilth and workability (less consumption of fuels)

The report comes hot on the heels of Defra's climate change, critical review which claimed that there is limited scope for additional soil carbon storage/accumulation from zero/reduced tillage practices and organic material applications (other than from sewage sludge) over and above present day normal farm practice.



In search of good news for UK animal health

Richard Sanders

A serious – unprecedented – livestock health crisis is looming for the UK. With Bluetongue, H5N1 avian flu, foot and mouth disease (Pirbright 2007) along with TB in cattle heading a long list of UK animal health challenges, some observers could be forgiven for thinking that the crisis is already here. But there are growing indications that this desperate situation is about to get even worse as we head for the summer of 2008 and beyond.

Top of the list of current, unfolding threats is Bluetongue. This disease (BTV-8) first arrived in Northern Europe in August 2006 (near Maastricht, The Netherlands) and spread steadily. Case numbers rose markedly through 2007 and by September of that year BTV-8 had reached the UK (Suffolk). Data from the UK Institute for Animal Health (IAH) shows well over 45,000 farm holdings across the EU so far infected (nearly 20,000 of those holdings are in Germany).

The take-home message from this is that the Bluetongue infection in the European livestock sector appears to “explode” in the second and subsequent years of infection, says Chris Oura, Bluetongue expert at IAH.

A voluntary route

Whilst the rest of the EU’s northern member states are working with the European Commission on an EU-funded compulsory vaccination regime, the UK (for reasons of cost saving and “cost sharing” dogma with farmers) is pursuing a voluntary route with full cost recovery from farmers. Observers say this is a recipe for disaster as without at least 80 per cent vaccination coverage (officially monitored) the virus will continue to circulate in the midge population and spread in livestock.

Bluetongue has the ability to wipe cattle and sheep off the face of much of the UK’s countryside. In January this year there were reports of Defra’s vision of the UK as a “post-agricultural economy”. Is a livestock free nation part of this policy?

One of the great medical advances of our age has been the effectiveness and sophistication of vaccination against disease in both animals and man. In human health, through vaccination, we have eradicated smallpox and plan to do the same with polio.

But there remains one corner of the world where vaccination for serious animal diseases is still viewed with great suspicion and caution – Defra in Whitehall.

During the debacle of foot and mouth disease in Surrey last summer, Defra declared that vaccination was an unnecessary disease control tool as it had “certainty” about the disease’s origin and spread. It preferred to use slaughter (stamping out) and thereby avoid the longer period of isolation from international trade that vaccination use would bring. In fact it was only on February 22nd this year that the world animal organisation the OIE declared the UK to be FMD free following a three-month, disease free period.

And then we were told vaccination was not considered to help control the avian flu H5N1 outbreak in Suffolk/Norfolk of November last year because of “uncertainty” surrounding its epidemiology. Defra’s handling of avian flu is totally lacking in resolution and full of confusion from the on-going outbreak at the Abbotsbury swannery in Dorset, to the Bernard Matthews turkey factory outbreak of spring 2007.

According to Defra all of these have indications of wild bird spread (indeed the Abbotsbury swans are wild birds) and yet the sensible official response of making preventive vaccination available for all outdoor poultry is not forthcoming.

Are wild birds then not the vector or the virus pool? Is the real villain intensive poultry production and international trade and product/people movement?

Even with the serious zoonotic threat of H5N1 and the possibility of mutation of this virus to threaten human to human transmission (and a global flu pandemic) Defra (and the wider UK Government) appears to be still sitting on its hands.

Throwing everything at TB

The Government’s current method of controlling cattle TB – surveillance, testing and slaughter – is not working effectively. That is the conclusion of the Environment, Food and Rural Affairs (EFRA) select committee in its report Badgers and cattle TB, published on February 27th.

The Committee’s view is that there is no simple solution that will control cattle TB. It says the Government must adopt a multi-faceted approach to tackling the disease, using all methods available including –

- more frequent cattle testing, with more frequent and targeted combined use of the tuberculin skin test and the gamma interferon test
- the evaluation of post-movement cattle testing
- greater communication with farmers on the benefits of biosecurity measures
- the deployment of badger and cattle vaccines when they become available in the future
- continued work on the epidemiology of the disease

The MP’s say that if Defra is to save expenditure in the long run it must continue to fund work to fill the gaps in the knowledge about cattle TB and the way it spreads. Central to this work must be an answer to the question of what is the precise mechanism of the infection between badger and cattle.

At The Organic Research Centre – Elm Farm we applaud the diligent work of the EFRA committee but would urge MP’s and Defra to also add natural immunity in cattle and positive health approaches such as mineral supplementation to their multi-faceted list.



I have a dream – hot chips and cold air

Martin Wolfe

At long last, we've realised the first of two dreams – closing the cycle on our house heating at Wakelyns. For years, I've been showing visitors our willow agroforestry system, and the embarrassingly large mountain of drying willow. "Yes," I say, "one day, all of this willow will be chipped to provide fuel for a boiler to heat us and our hot water back in the house." Well now, it really is happening.

A little while before Christmas, a local renewable energy company (Energy Innovations) installed an Austrian (Gilles) wood-chip fired boiler in the barn. This is some distance from the house but allowed us to install a 20cu.m. fuel hopper in a new 'room' behind the boiler. The boiler connects to the house central heating and hot water via a highly insulated underground pipe. For the first month, we were snug, using commercially sourced chip of excellent quality – which gave us a warm inner glow.

During that month, we decided to buy a 1987 precision-chop forage harvester (JF Warrior 180) as the best compromise for our own chipping. The header was removed and quickly replaced by a feed tray for the willow stems. Great jubilation as the machine crackled into action, sounding like the entire fire power of an infantry platoon, and the first chips were delivered into our hopper.

The jubilation vanished like lightning as I spent from midnight to 2am at -5°C trying to clear blockages and re-start the groaning boiler which had choked on our home-made chips. Several lessons about quality control were learnt very quickly. We're now starting to enjoy (almost) free fuel and carbon neutrality. Inevitably, some electricity is needed – but that relates to part of dream two.

Enough for our own needs

Initial estimates suggest that we should have enough fuel for our own needs, provided by a series of 200m mixed willow hedges (two rows of closely spaced plants) giving a total area of 7000 sq.m. We cut alternate hedges each year, so the annual fuel is coming from 3500 sq.m. which is less than an acre.

Even so, I hear the topical question coming – is it sensible to grow fuel on an area of land where we could be growing food? The answer is yes, for several integrated reasons. Unlike the current fashion for biofuels, we're not burning the food crop itself – we've only reduced its area. But that reduction is offset by numerous advantages of the crop/tree layout with the narrow, north-south aligned willow hedges separated by wide alleys in which the crops are grown in an organic rotation.

The advantages for the crop include shelter, which means higher annual temperatures than in open fields, free leaf mould generated by the trees (nutrient cycling) and the availability of beneficial insects and other organisms from the protected habitat around the trees.

We also believe that the willows release volatile methylsalicylate which can be effective against pests and diseases. Ser against these advantages, there is some competition against the crop from the trees, but this is very limited in both degree and extent.

The advantage for the willows is that, because they are not growing in a plantation, the yield per unit area is high. This is because, in effect, each side of the hedge is a woodland edge with little competition for light, water and nutrients, but maximum biological activity. The trees suffer some competition from the crops, but we believe this to be slight.

For the area overall, there is also a significant gain in biodiversity (e.g. willow warbler, meadow pipit and grass snake). And there is also a financial gain. The yield loss from the reduced crop area is small and offset to a considerable extent by the sale of a small proportion of the willow each year for basket-making, school activities etc. That leaves us with a bulk of about five or six tonnes of dried willow chip, whose current market price is around £75 per tonne, to go with the crop, whose value per hectare is considerably less. Organic agroforestry can work – and well.

Cold Air – a second dream

Those of you who have been reading the Bulletin for some years, may remember a couple of enthusiastic articles that I wrote in 2002, when I became hugely excited by the vision of a compressed air car from MDI in France – which I promptly ordered. The basic idea is simple – compress a large amount of air (90 cu.m in this case), store it in special tanks under the car – then release it into the engine, using the stored energy to drive the vehicle. To me, the really attractive extension of this concept – closing another cycle – is to use a wind turbine on the farm to power a large storage compressor, which could then be used to 'fuel' the air tanks in the car. This would also deflate the criticism against wind turbines – that they only work when the wind is blowing. It doesn't matter if you can store the energy in such air "batteries".

But then all went quiet, and no car. Increasing amounts of negative press followed – the prototypes couldn't deliver their promise. And now there are commercial ructions – if you try to go to the original aircar website – you get another company, Aircar factories who've fallen out with MDI.

However, huge amounts of background R&D have been going on and the first cars may now roll out at the end of this summer in France (MDI), India (Tata) and possibly elsewhere too. And there are competing developments, including an attractive rotary air engine being developed in Melbourne, Australia and an air-electric hybrid in Korea. For agriculture, there are thoughts about compressed air tractors – maximum torque at very low engine speeds...a dream for another day, perhaps.



Cauliflower demise – end of a British staple?

Catherine Phillips

Has last year's dismal summer and the buying power of big retail chains rubbed out the last of the UK's home-grown cauliflowers? Are changing consumer habits removing this historic staple from our diets?

Conventional cauliflower demise

Reports, from the National Farmers' Union and widely reported in the media, suggest that wet weather last summer has led to farmers struggling this year. Severe flooding in July 2007 delayed planting for many farmers, leading to shortages in December, followed by bumper crops in early 2008.

Consequently, the value of crops has fallen, widening the gap between prices and costs of production. Farmers are now saying it is no longer a viable crop. Major supermarket chains pay on average 18p per head of cauliflower, while they cost up to 35p a head to produce. Such shortfalls are obviously unsustainable.

Richard Hirst, chairman of the National Farmers' Union's horticulture board says – *"I sincerely hope this doesn't mark the end of the British cauliflower, because there's a demand for home-grown locally produced food. But growers simply can't continue if they won't make any money from it."*

Organic cauliflower rise

Market comment from organic growers, box schemes and wholesalers suggests a different story in the organic sector. Whilst the weather last year did pose planting difficulties, a bigger issue in the sector was the availability of untreated seeds. Lack of organic and untreated seeds meant that some growers were left without the different varieties to "head" throughout the year.

Wet weather last year does seem to have delayed some crops a little, but equally, mild weather early this year has resulted in some crops moving forward. Ultimately, the changeable weather over the last few months may have helped to close the gap in UK production, creating continuity of supply when many wholesalers would normally be buying from abroad, according to Marshalls, a leading supplier of fresh fruit and vegetables.

Continued growth in the organic market as a whole has also helped to prevent a situation of surpluses in the market. Any excesses have been eagerly consumed by the market to fulfil rising demand in box schemes, direct farm sales and farmers' markets.

On using organic feed – clarification

In Bulletin 91 (December 2007) we discussed the likely rollercoaster ride for price and availability of the organic feed market through this winter. We also reported on the new regulations – introduced by Defra – on the requirements for organic feed use. We apologise that some confusion crept into this report and are grateful to the Soil Association for the following clarification. The crucial differentiation is between ruminants and non-ruminants.

Ruminants

On 1 January 2008 Defra introduced new feed regulations requiring organic farmers to feed ruminants 100% organic feed. Organic or converted breeding ruminants fed non-organic feed after this date will lose their status and the status of their products, for example milk.

All non-organic ruminant feeds, including partial organic compounds, blends, feed blocks and complementary and supplementary feeds containing any non-organic ingredients, should have been used by now and should no longer be stored on organic farms.

To support farmers in this change, the allowance of second year in-conversion home-produced forage in ruminant diets has been increased from 60% to a maximum of 80%, reverting back to 60% after 31 December 2008, while second year in-conversion bought-in forage allowance will remain at a maximum of 30%.

Feed regulations for non-ruminants

Farmers who cannot source 100% organic feed for pigs and poultry may use up to the following percentages of non-organic feed on an annual dry matter basis –

- 10% from 1 January 2008 to 31 December 2009
- 5% from 1 January 2010 to 31 December 2011.

Farmers can apply these percentages to individual animals, or to a group that have the same ration.

Full details at Soil Association, Certification News 61 Winter 2007/08.

www.soilassociation.org



World market keeps growing

The world's retail organic agriculture market is worth nearly US\$40 billion a year and is now produced from over 30 million hectares of land. Australia has by far the largest organic production area (12.3 million hectares).

So says the latest global statistics report from the International Federation of Organic Agriculture Movements (IFOAM), the Research Institute of Organic Agriculture (FiBL) and the Foundation Ecology and Agriculture (SÖL). It was launched at Biofach 2008 in Nuremberg, billed as Europe's largest organic trade show.

The results of the study are taken from a snapshot of 135 countries, and they illustrate how organic agriculture is developing rapidly worldwide. Of the 30.4 million hectares in total managed organically across the world Australia has 12.3 million hectares; China: 2.3 million hectares; Argentina: 2.2 million hectares and the USA: 1.6 million hectares.

In terms of global organic surface area the greatest share is Oceania/Australia: 42%; Europe: 24% and Latin America: 16%. The global organic area grew by approximately 1.8 million hectares in 2006, with the largest growth in Oceania/Australia (more than 600,000 hectares) and Europe (more than 500,000 hectares).

Global market for organic products

- Global turnover reached US\$38.6 billion in 2006
- This represents an annual growth of US\$5 billion
- North America and Europe represent 97% of global organic revenues

Helga Willer, Minou Yussefi-Menzler, Neil Sorensen (Eds.) (2008): The World of Organic Agriculture. Statistics and Emerging Trends 2008. IFOAM and FiBL; DE-Bonn and CH-Frick

Organic Advisers Directory – IOTA Accredited

Do you need to find an adviser who really knows the business of organic farming?

The Institute of Organic Training and Advice (IOTA) has developed a unique, independent accreditation scheme for organic advisers and trainers. Working with the Organic Research Centre at Elm Farm and other independent advisers, advisory organisations and organic groups and certification bodies throughout the UK, it is able to offer advisers access to the latest research results, training in organic farming and growing and farm business planning and budgeting services.

Following a period of development of advisor standards – involving Defra and Organic Centre Wales which ensures that standards for Government funded work are met – it now provides a rigorous accreditation scheme involving an interview and work assessment. This ensures that advisers can meet the high standard of expertise in organic farming that is rightly expected by farmers.

IOTA has a new on-line register with a directory of accredited organic advisers, including advisers working with the Organic Advisory Service (OAS). It provides an easy means of matching an adviser with the expertise to meet your needs. If you are looking for an organic adviser to provide information on conversion planning, grant application, technical information such as soil, crop and animal management or business planning, phone (01547) 528546 or check the IOTA Accredited Organic Advisers Directory on the web – www.organicadvice.org.uk/directory.htm



Diary date – ORC Producer Conference Tuesday 6th to Wednesday 7th January 2009



Following the success of the last two years (Cirencester 2006 and 2007) – look out for our third Producer Conference in January 2009. This will be a collaborative event, involving organic producers and producer groups, The Organic Research Centre – Elm Farm, Organic Inform and the Organic Advisory Service. Full details available shortly at www.organicresearchcentre.com www.organicinform.org

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