



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 sense of public duty

Very early the other morning I took my dog, in the bracing April air, for a stroll around the market town where I live. Alarming, the fresh air was soon tainted by the smell of gas, which both dog and I found choking – a serious leak lay somewhere under our feet.

Returning home I looked up the emergency GAS number in the phonebook, dialled in and reported the problem. I was quizzed at length about where the escaping gas was coming from, had to give my full contact details and was read endless disclaimers about not switching on switches or lighting naked lights. No thanks for calling, no bunch of flowers or box of chocolates for my trouble, no discount on my gas bill...

And that is how it should be. I was merely being a good citizen, doing my public duty. What a contrast then to the “public duty” of Bernard Matthews in culling his sick, dying and other turkeys in the Suffolk H5N1 avian flu outbreak of last February. This was a public duty for which the “Turkey Twizzler” received nearly £600,000 of taxpayers’ money – clearing up a mess of his own making.

The rationale for the payout – from both the company and Defra – is that such money “is provided under the Animal Health Act 1981 to encourage early reporting of bird flu, to minimise the spread of the disease”.

So there you have it, one man’s selfless public duty set against another man’s implied threat that if there’s no cash on the table there can be no promise of “doing the right thing”.

Beware though, the big issue with the Bernard Matthews case is not just the outrageous waste of public money. The UK Government currently has an agenda of pushing through cost-sharing for future serious livestock disease outbreaks here. It wants farmers to self insure.

When Jack Straw stands up in the House of Commons and voices his disquiet at this Suffolk payout, all reasonable folk would agree. But very soon this case will be used to whip up public and political support for slashing payments to all farmers.

Animal health policy deserves a greater level of thought and finesse than that. As we know from the tragedy of FMD in 2001, real victims of livestock epidemics deserve the full support of Government and of society.

Richard Sanders

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Sheep scab defeats organic production?

Richard Sanders

An animal health crisis is threatening the future viability of organic sheep production in the UK. The villains of the story are the tiny mite *Psoroptes ovis var. ovis* which causes sheep scab along with the small minority of farmers who seem unable or unwilling to do their bit in controlling it. The question has to be asked - In our high tech society how have we got into such an apparently intractable animal health problem?

Sheep scab was recognised as a serious problem of sheep farming as early as the 10th century. With the help of legislation - enshrined in the Sheep Scab Order - it was effectively eradicated from England, Wales and Scotland by 1952. It re-emerged in 1973, probably through imports of infected live sheep. Up until July 1992 Sheep Scab was a notifiable disease. But, within a year of deregulation every county in Britain was reckoned to contain infected sheep. By January of 1994 the Sheep Veterinary Society calculated that over 3000 flocks were infected and similar levels of flock infection persist today.

This crisis of sheep scab out of control is a particularly thorny issue for organic producers as many of the treatments – once the disease is present – are unacceptable or impractical in organic systems. Far better are regimes of prevention which require the highest levels of biosecurity, which for most organic sheep farmers requires a high degree of isolation and co-operation with neighbours, conventional or otherwise.

Last year the crisis of sheep scab control was compounded by the decision of the Government in Spring 2006 to suspend the marketing authorisation of cypermethrin (synthetic pyrethroid or SP) sheep dips. These had arrived on the market in 1995 as a replacement to the notorious organophosphate (nerve poison) dips. The new products themselves were known to have serious limitations, especially their environmental impacts, particularly on the aquatic environment.

Alongside the use of cypermethrin (and its approval in organic standards) farmers were required to follow risk management guidelines. But by 2005 the Environment Agent had identified serious pollution problems in water courses and it pursued 10 prosecutions. In the process of this crackdown it soon became apparent that the risk management procedures were inadequate for the cypermethrin dips and the marketing suspension of last year followed.

An empty armoury

For organic producers this has left the sheep scab control armoury remarkably bare. The instant fix might well, in the near future, be the simple lifting of the cypermethrin marketing suspension, but this is looking increasingly unlikely. From an organic perspective such a move would be questionable given the devastating environmental impacts of this active ingredient. So, could the product

come back with tighter controls or might it be allowed as part of an official scab eradication programme?

At the moment cypermethrin manufacturers are appealing against the marketing suspension, but the date for hearing their arguments is to be November 2007 at the earliest. It is quite possible that these dips might be allowed back on farms, but if the restrictions on use and disposal are too draconian, farmers won't use them, little volume will be used making their licensing and manufacture economically unviable for the chemical companies. Scab is a particular UK problem, so there are no volume sales of cypermethrin dips across the EU and wider afield.

Other weapons in the chemical armoury against scab are known as macrocyclic lactones which act against both internal and external parasites of sheep. Two of this family of chemicals – doramectin and moxidectin – are practical to use and effective against the sheep scab mites. The major disadvantage is the long withholding period after treatment – up to 70 days for conventional farming, a period which is doubled to 140 days for organic sheep. Not then much use for the organic lamb trade. Discussions are taking place at EU level to determine if these long withdrawal periods might be reduced.

The “nuclear” option ticking quietly away in some organic quarters is to use organophosphates (OPs) in organic sheep flocks. Already, as a result of the cypermethrin marketing suspension, the Advisory Committee on Organic Standards (ACOS) has changed the UK's organic compendium to allow OP dipping use. But neither the Soil Association (SA) nor the Scottish Organic Producers Association (SOPA) have amended their standards to permit OP dips. As most organic abattoirs are certified to SA standards this effectively ensures that any OP treated stock will not achieve organic premiums. All stock coming forward for slaughter must have an accompanying declaration on any animal health treatments.

Far more important though is the totemic role of OPs in providing a marker between what is organic and what is conventional. Despite the ignorance of many consumers about most matters agricultural, the one group of chemicals they may well have heard about is OPs. Any linkage of OP use in organic products is destined to undermine consumer confidence and the very credibility of what “organic” stands for, and rightly so.

Scotland leads the way?

It could be that Scotland is leading the way in resolving some of these sheep scab issues where there is growing support for a compulsory control programme. Under the umbrella of the Scottish Executive, the Scottish Animal Health and Welfare Strategy has identified scab as one of the top ten livestock diseases. It has also assessed that there is a good precedent for industry co-operation - and therefore control - building on existing voluntary programmes.



SOPA is keen to see the SP dips back in use north of the border. However, the Veterinary Medicines Directorate (VMD) can only agree on the future approval, licensing and use of these products on a UK basis and not country by country or regionally. So Scotland must throw in its lot with the rest of the UK.

In England and Wales there is no appetite for a compulsory scheme amongst politicians who see scab as simply an "industry problem". The National Sheep Association (NSA) would like to see a national voluntary scheme for control, but as one observer has commented – voluntary schemes only appeal to those farmers who are doing the job properly in the first place, the rest ignore them.

The scab argument does though add some urgency to the debate on issuing a "licence to farm" or a "livestock licence" which would allow a process of weeding out those sheep farmers who neglect their scab and other disease control responsibilities.

The focus of attention is now switching to the crucial role of biosecurity. Already in Scotland "sheep hunting", the shooting of feral sheep, has been carried out in an organised way. Farmers are being advised to lock gates and other

access points to their farms to prevent neighbours and helpful passers-by from herding stray sheep on to their land.

In Wales and elsewhere there is talk of organic sheep producers having to abandon their use of common land and other common grazings, so important is it to isolate stock from sources of sheep scab infection. Separate flocks of sheep must be isolated completely to stop mites spreading – that could well mean using a separate quad bike, separate fodder, even separate overalls.

In the past, organic sheep farmers have been cited as not playing an active enough role in sheep scab control. In this new world, of a cupboard bare of usable dip active ingredients, the tables are being turned. It is the organic methods of biosecurity and disease prevention which may well save the day.

As North Wales vet Iwan Parry recently wrote – "Only by working closely and openly as an industry can we achieve our goal of eradicating sheep scab from this country. This is an immense challenge, requiring total commitment and dedication from organic and non-organic sheep producers alike. We cannot afford for anyone to be the weakest link in the battle against *Psoroptes ovis*."

Evidence base of organic food quality

The results of three new European research projects show conclusively that organic tomatoes, peaches and processed apples do have higher nutritional quality than non-organic equivalents. These studies support the results of recent research from the United States on kiwi fruit reported earlier this year.

In these latest studies, researchers found that organic tomatoes "contained more dry matter, total and reducing sugars, vitamin C, B-carotene and flavonoids in comparison to the conventional ones". In contrast conventional tomatoes in this study were richer in lycopene and organic acids.

Previous research has found organic tomatoes to have higher levels of vitamin C, vitamin A and lycopene. As a result, the scientists conclude that - "organic cherry and

standard tomatoes can be recommended as part of a healthy diet including plant products which have shown to be of value in cancer prevention".

In France, a new study has found that organic peaches "have higher polyphenol content at harvest" and concludes that organic production has "positive effects ... on nutritional quality and taste".

In the third study, just published, organic apple puree was found to contain "more bioactive substances - total phenols, flavonoids and vitamin C - in comparison to conventional apple preserves" and the researchers concluded that organic apple preserves can be recommended as valuable fruit products, which can contribute to a healthy diet.

Organic Fortnight, across the UK, 1st-16th September 2007

Organic Fortnight is the time of the year for everyone to celebrate all things organic. This year the main theme is to be 'Wake up to an Organic Breakfast'. Brands and retailers across the UK are currently preparing to promote their organic breakfast items, with many companies joining forces to challenge office staff, hotels, cafes and caterers to get involved and exhort everyone at work or at home to try an organic breakfast over the two

weeks. If you are not producing organic breakfast items don't despair, the aim of this theme is to make people think about how and why they should start buying or increasing their organic shopping habits.

For more information or if you are planning any events or promotions in your farm - you can fill in the online form - www.soilassociation.org/organicfortnight



Wheat Quality – unravelling agronomic complexity

Zoe Haigh

The latest quality data from the Defra Sustainable Arable LINK funded 'WheatLINK' project (LK 0970) are just in. This project aimed to analyse, in depth, the interaction of a number of agronomic factors crucial to good winter wheat development and production:

1. **Varieties** (Hereward, and Aristos);
2. **Seed rate** (at 250 kg/ha, 200 kg/ha and 150 kg/ha; ranging from a mean of 35 to 50 seeds per square meter);
3. **Drilling arrangement** (with coulter widths of either 12 or 24 cm; a 10 cm Claydon strip drill; and broadcast); and
4. **Undersowing** (with a white clover mixture).

As we reported earlier, Aristos consistently out-yielded Hereward (*Bulletin 85*: Farmers keep agronomy trials on the straight and narrow). We now see that Hereward had significantly higher grain protein than Aristos (11.92 % compared with 11.16 %). N.B. All data presented are from one site only (Wakelyns).

The data points on Figure 1 represent the yield and protein achieved in all combinations of agronomic variables in the trial. The ideal combination of agronomic variables would produce an above average yield of high quality grain.

However, the normal trend for a trade off between yield and protein was seen (Figure 1).

The horizontal and vertical lines on the chart represent the means (protein and yield respectively). Hereward had significantly higher protein than Aristos, but was lower yielding (Hereward data points tend to be found within circle a).

Aristos yielded significantly more than Hereward, but had lower protein (Aristos data points tend to be found within circle d).

Of most interest are the data points in circle b, as they represent high yield and quality, and result from interactions between certain agronomic practises. The combination which produced the highest protein was Hereward grown in the strip drill arrangement, and the highest yielding was Aristos in the narrow row arrangement. However, these are results from only one year at one site, data from this season will help to confirm or refute these findings.

The least effective combination was Aristos grown in broadcast drill arrangement, shown in circle c; this resulted in the lowest yield and protein. The particularly low yields obtained from broadcasting seed resulted in the trend line

Yield and Protein

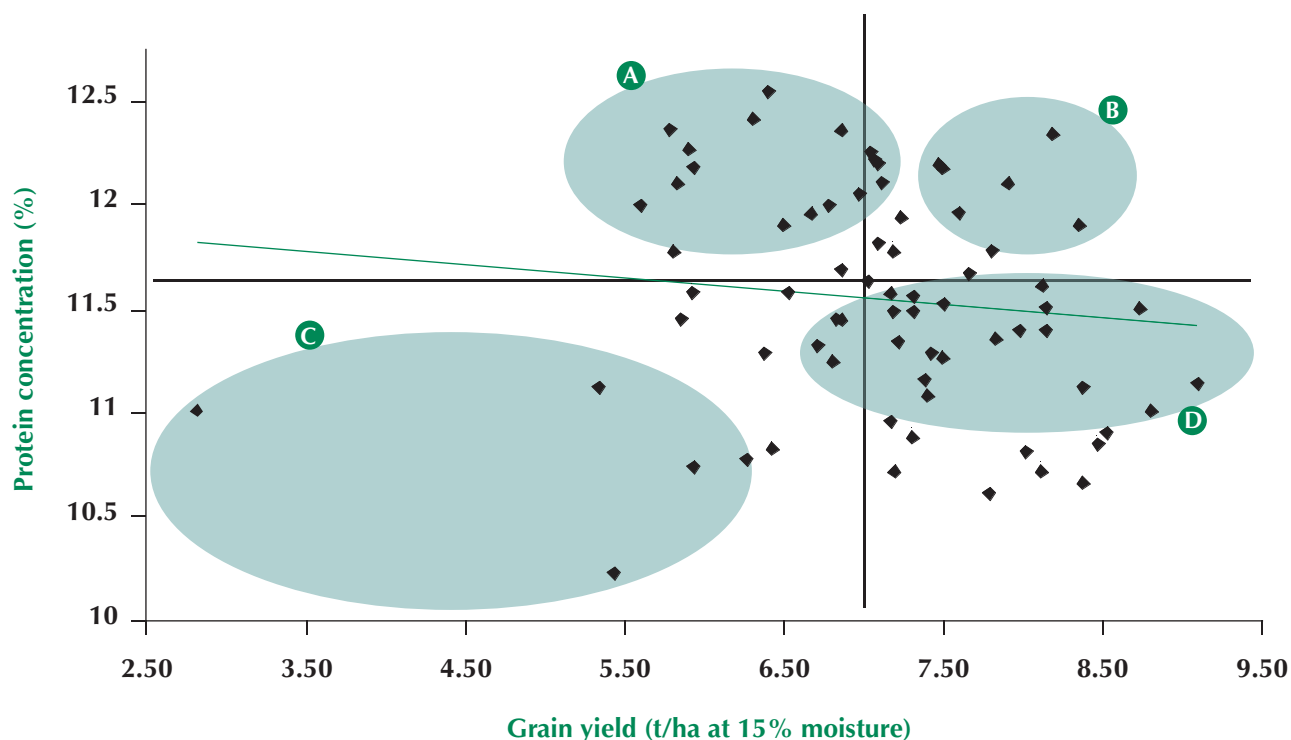


Figure 1: Yield (t/ha at 15%mc) and grain protein (%) for Wakelyns. Trend line (green line) and mean lines for yield and protein (vertical and horizontal black lines) are shown. Hereward data points tend to be found within circle a; Aristos data points tend to be found within circle d; Hereward grown in strips and Aristos grown in narrow row data points tend to be found within circle b; Aristos grown in the broadcast arrangement data points tend to be found within circle c.



appearing shallower than it would otherwise have been. Seed rate was not found to be a significant factor in either protein or yield at Wakelyns.

Hagberg falling number, Specific weight and Thousand grain weight

In the other important quality parameters, specific weight and thousand grain weight, Aristos was found to be significantly higher than Hereward (Table 1). Although there was no significant difference in Hagberg falling number at Wakelyns, at Sheepdrove, Hagberg falling number was also significantly higher for Aristos than Hereward (data not shown).

Quality parameter	Aristos	Hereward
Thousand Grain Weight (g@15% moisture concentration)	49.67a	37.83b
Specific weight (kg/hl@15% moisture concentration)	75.9a	72.7b

Table 1: Thousand grain weight (TGW, g @15%mc) and Specific weight (kg/hl @15% moisture concentration) for varieties Aristos and Hereward at Wakelyns. Figures on the same row with different letters are significantly different ($P < 0.001$). TGW I.s.d. = 0.70, Specific weight I.s.d. = 0.47.

Specific weight and Hagberg falling number were also significantly affected by the drill arrangement, whereby the narrow rows produced grain with the highest specific weight, and broadcasting produced the highest Hagberg falling numbers (Table 2).

Drill arrangement	Specific weight (kg/hl@15% moisture concentration)	Hagberg falling number (s)
Strip	74.19	370.7
Narrow row	74.64	383.1
Wide row	74.63	395.9
Broadcast	73.75	402.5

Table 2: Hagberg falling number (HFN, s) and specific weight (kg/hl @15% moisture concentration) for drilling arrangements (strip, narrow row, wide row and broadcast) at Wakelyns. HFN: $P < 0.001$, I.s.d. = 12.28, Specific weight $P = 0.027$, I.s.d. = 0.667.

Seed rate was not found to be a significant factor contributing to either protein or yield at Wakelyns. However, it did affect specific weight (Table 3).

Seed rate	Specific weight (kg/ha @ 15% moisture concentration)
High	74.91
Medium	74.26
Low	73.73

Table 3: Specific weight (kg/hl @ 15% mc), at Wakelyns for high, medium and low seed rates (250kg/ha; 200kg/ha; 150kg/ha). $P < 0.001$, I.s.d. = 0.667.

Undersowing with a white clover mix was unsuccessful at Wakelyns, and therefore had no significant effects on any quality parameters. Where clover did establish at Sheepdrove, it still did not affect quality parameters significantly this season.

This season's trial

During meetings last year, many farmers commented that they only use broadcasting as a last resort when weather conditions prohibit other drilling methods. This, combined with our own difficulties in successfully establishing a broadcast drilled crop, has led us to drop this variable from the current season's trial.

We have also excluded the medium seed rate, as it has consistently performed intermediately between the high and the low. An extra site has been added (in North Berwick) and a Yield-Quality Cross Composite Population (See *Bulletin 87: Populations performing 2005/6 trial update*) has been added to the varieties under trial. This season we will be focusing on the effects of seed spacing and root development under different drill arrangements to crop performance, and the interactions between the different variables.

Arable know-how at June events

There's still time to book a place at one of The Organic Research Centre – Elm Farm's two arable events in June. These wide ranging, but focused open days, will cover organic markets, local food chains and suppliers, as well as giving you a chance to tour the innovative organic research trials on farm.

Places are priced at £25 +VAT for farmers (free to OAMG members) and can either be booked using the form on the events section of www.organicresearchcentre.com or by contacting Pam Tibbatts on 01488 658298.

The events will be held on:

20th June at Wakelyns Agroforestry, Suffolk.
10am – 4pm

27th June at Sheepdrove Organic Farm, Berkshire.
10am – 4pm

Spaces are limited, so early booking is advised.



UK Cereal Diseases – a snapshot of the 2006 survey

Kay Hinchliffe

Why monitor diseases?

Good rotational management and varietal choice (and indeed the use of variety mixtures and populations) are key methods of controlling cereal diseases for the organic farmer. It is therefore important to monitor the ever changing races and virulence of pathogens that infect crops annually and the susceptibility of both old and new varieties of cereals to these pathogens in order to make sound management decisions.

Successful monitoring will protect growers from unexpected epidemics; support plant breeding for improved and more durable resistance; and underpin cultivar evaluation and recommendation schemes. Pathogen data is also used to compile 'Variety Diversification Schemes' for farmers: these are currently available for wheat yellow rust and barley mildew can be found on the NIAB and HGCA web sites and in the UKCPVS annual reports.

How are diseases monitored?

The UK Cereal Pathogen Virulence Survey (UKCPVS, jointly funded by Defra and HGCA) monitors changes in pathogen virulence. A stakeholder meeting, held at NIAB last month, revealed the findings of the 39th year of cereal disease surveys.

To detect new, virulent strains of pathogens samples are tested from varieties with high resistance ratings. Samples from susceptible varieties are assessed to monitor background levels. Importantly, sampling strategies remain flexible depending on the level and type of infection.

The diseases shown below have been considered in 2006, and will continue to be monitored until 2010:

What has 2006 monitoring revealed?

Mildew of wheat

- The specific resistances of the majority of RL varieties are overcome by the vast majority of mildew isolates, leaving them susceptible to the disease. However, many of these varieties have additional partial resistance, so do not become severely infected in the field. This type of resistance tends to be durable, meaning that it is unlikely to be overcome by future changes in the pathogen.

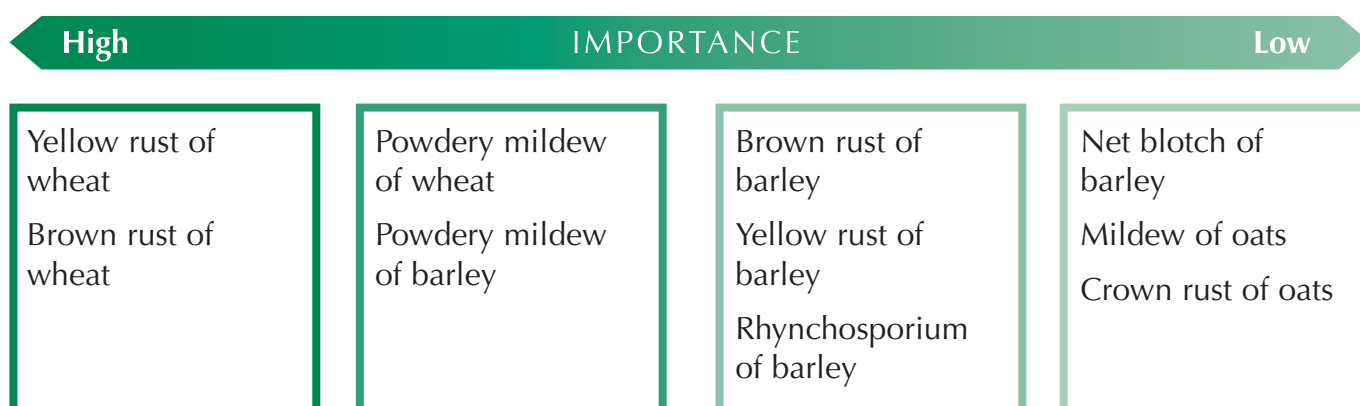
- A few varieties, including Robigus, Glasgow, Gatsby, Hyperion and Xi19, carry specific resistances that are matched by fewer isolates and so are less susceptible. However, there is always the risk that these varieties may become more susceptible if the proportion of matching isolates increases.
- Virulence for the currently resistant variety Timber was detected for the first time in a few isolates.

Yellow rust of wheat

- Isolates virulent on Robigus dominated the yellow rust population.
- Virulence for the currently resistant variety Timber was detected in an inoculated adult plant test.

Brown rust of wheat

- Samples were received from a number of resistant varieties, including the popular variety Robigus.
- Virulence was confirmed in seedling tests for Robigus and Hyperion, but further tests are required to assess the implications for their adult plant resistance.
- Glasgow is highly susceptible to isolates carrying corresponding virulence.



SAMPLES ARE ALWAYS WELCOME

If you would like to send any samples of diseased foliage, please visit www.niab.com or contact contact Amy Skellern 01223 342253, amy.skellern@niab.com The full UKCPVS report for 2006 will soon be available on the HGCA website www.hgca.com It's also available in hard copy from NIAB.



Black stem rust of wheat: a re-awakening nightmare?

A global problem requiring global solutions

Back in eighteenth century Europe, a man called Tozzetti noted that black stem rust disease of wheat was worse in fields where barberry was used to restrain cattle. Later, pathologists found that this was because barberry is the 'alternate host' for *Puccinia graminis* f.sp. *tritici*, the fungus that causes the awful disease. This fungus has a two-stage life cycle, including asexual reproduction on wheat with massive dispersal of spores from crop to crop.

The 'alternate' stage is sexual reproduction on the barberry, which is crucial for rapid development of new forms of the pathogen which may infect resistant wheat varieties.

Chain across the Prairies

This discovery led to a remarkable example of human involvement in plant disease control. Early in the twentieth century, a human chain was formed across the wheat belt in the American prairies, whose purpose was to remove every single barberry bush. This had a direct impact on disease spread. More importantly, it ensured success for plant breeders who introduced resistance genes into their wheat varieties over the next decades. By the 1950's, the disease was well in retreat and effectively disappeared for half a century.

One country that benefited was the UK where stem rust had also been common. This was found to be due to common wind patterns which brought the stem rust spores initially from North Africa, across the Iberian peninsula, over France and then to the UK. In some years, the pathogen reached as far as Norway.

All of this stopped with the introduction of resistant varieties, particularly in North Africa and Spain. Not surprisingly, this meant that stem rust resistance declined in priority in breeding programmes.

Then, suddenly, in 1999 in Uganda and Kenya, a new race of the fungal pathogen, Ug99, was found which is able to overcome more or less all of the resistance genes in use around the world. Ug99 is now spreading rapidly – my guess is that it could be back in the UK in less than five years. And our current mild winters and hot dry summers will favour epidemic development and winter survival of the pathogen.

What can we do?

This really is a global problem and depends on global solutions. Fortunately, the Global Rust Initiative has been actively checking through varieties and resistances for use as parental material for breeding into current modern varieties, which UK breeders can also use.

For our part at The Organic Research Centre, we're looking at the possibility of introducing resistant material into our wheat populations (see 'Populations performing' *Bulletin* 87) – which could be a rapid way of developing resistant stocks for field use, while demonstrating further the exciting potential for wheat populations.

Professor Martin Wolfe

Partners to build soil fertility

The Organic Research Centre – Elm Farm is one of the key partners in a new Defra - funded project to help growers improve the ways in which they build soil fertility.

The project, which will look at fertility management strategies in organic arable and vegetable production, will be run in collaboration with HDRA/Garden Organic, Warwick HRI, ABACUS Organic Associates and the Institute of Grassland and Environmental Research. It aims to look at different techniques and fill in some of the knowledge gaps in this area so the range of options for fertility building can be expanded.

Francis Rayns, soil scientist at HDRA/Garden Organic says - *"Fertility building crops have always been a crucial part of organic rotations but, with the rising costs of nitrogen fertilizer, they are now attracting growing interest from conventional farmers too.*

"However, the current range used in the UK is very limited; it is unusual to see anything other than red or white clover used. We have preliminary evidence that other, less-known species such as fenugreek, trefoil, medic, lupins and lucerne may perform well, but more research needs to be done."

As part of the project, farmers and growers will have the opportunity to trial some of the novel fertility building crops in simple on farm trials in real farm situations. The project will also continue an existing trial that is comparing a number of contrasting fertility building strategies over ten years.

If you would like to be part of the project process, perhaps by trying out novel legumes on your farm, please contact Anton Rosenfeld at HDRA/Garden Organic on 02476 303517.



The world wakes up – a growing role for bird flu vaccination

The crucial role of poultry vaccination as an essential tool in the worldwide battle against the H5N1 avian flu virus has at last been recognized by a major international scientific conference.

Held in Verona, Italy, the conference was titled – Vaccination, a tool for the control of Avian Influenza. Some 400 experts reviewed the recent experiences of vaccination programmes carried out in countries worldwide. The conference was organised by the World Organisation for Animal Health (OIE) and the UN Food and Agriculture Organization (FAO) with the support of the European Commission.

Among the many clear messages emanating from the conference, the OIE confirmed – *“There are no elements indicating human health implications related to the vaccination of poultry and to the consumption of poultry products from vaccinated animals”*.

Richard Sanders of The Organic Research Centre – Elm Farm attended as a UK delegate and says it is encouraging that support for the sophisticated, vaccination option for control is growing. Real vaccination successes have now been logged in countries such as Vietnam, Hong Kong and China. Why then do the developed economies of the EU, North America and elsewhere thumb their noses at vaccination? The answer continues to lie in that complex mixture of national pride, trade vested interests and perceived consumer resistance.

The Verona gathering agreed that there is still much work to be done in developing efficient vaccines for application in industrial poultry by routes other than injection.

- Development of new and improved vaccines.
- Development of new vaccines that combine protection against H5N1 with the control of other poultry diseases particularly Newcastle disease.
- Design of cost-effective delivery systems particularly for small-holders and backyard farmers.
- Development of a vaccination decision - making tree.
- Data sharing of vaccination programs conducted under field conditions (as opposed to laboratory).
- Assessing impact of vaccination on production, consumption and trade.
- Assessing impact of mass culling programs on valuable poultry genetic material.

The conference called upon the world’s commercial poultry industry to reinforce its engagement in the control of avian influenza under the supervision of national veterinary authorities. It also urged international donors to speed the funding of vaccination in H5N1 endemic countries, with a particular focus on backyard poultry.

Says director Lawrence Woodward - *“At The Organic Research Centre – Elm Farm we continue to work hard with like-minded organisations and individuals, campaigning to persuade the UK Government and EU neighbours to deploy preventative vaccination against H5N1 avian flu. Without such an available technique we continue to face the prospect of an end to all organic and free-range poultry in this country once the virus is endemic here or has escaped Defra’s stamping out.”*

Don’t blame migratory birds

The cloud of suspicion over wild birds as primary vectors of the H5N1 virus is being lifted. A review recently published in the British Ornithologists’ Union journal, *Ibis*, critically examines the arguments concerning the role of migratory birds in the global dispersal of the highly pathogenic avian influenza virus H5N1.

Ecologists of the Station Biologique de la Tour du Valat and of the GEMI-CNRS in the Camargue (France), Michel Gauthier-Clerc, Camille Lebarbenchon and Frédéric Thomas conclude that human commercial activities, particularly those associated with poultry, are the major factors that have determined the global dispersal of the virus.

Highly pathogenic avian influenza virus subtype H5N1 was first detected in poultry in November 1996 in south-east China. The virus subsequently dispersed throughout most of Asia, and also to Africa and Europe. From mid-2005, migratory wild birds have been widely considered to be the primary source of the dispersal of H5N1 outside Asia.

This claim was based on the discovery in May 2005 that hundreds of wild birds had died on Lake Qinghaihu, on the high Asian plateau in China. It is however clear that the trajectory of the virus does not correspond with the main migration routes of wild birds. The global network of migration routes seemed to hide the globalised - without strict health control - exchange of poultry as the more likely mechanism for disease spread.

During the previous epizootics of highly pathogenic subtypes of H5 and H7, it was shown that the expansion of these viruses was due to human activities, in particular, movements of poultry or their products. This commercial scenario is the one that explained the expansion and the maintenance of the H5N1 virus in south-east Asia until 2004, via the legal and illegal trade in poultry. The cases in Western Europe in February 2006 after a cold spell on the Black Sea showed that virus can spread through infected wild birds travelling short distances, but no evidence for long distance transmission during seasonal migration has yet been found.

The evidence overwhelmingly supports the hypothesis that human movements of domestic poultry have been the main agent of global dispersal of the virus to date. The occurrence of the outbreak at the Bernard Matthews turkey factory/farm in Suffolk, England, in February 2007 fits this wider pattern.



Comment – A sense of proportion on animal disease

Georgina Smith

On the Bernard Matthews website, your questions are answered on avian flu. Question: "Should I stop buying your products?" Assuming that you have started, the answer is: "No, not at all - the Food Standards Agency says that people who eat properly cooked poultry are not at risk of catching the disease." Apart from raising more questions than it answers - is the poultry properly cooked? Is it poultry? The answer evades any responsibility that the factory might have for the cause of the outbreak.

But the media is not so keen to avoid controversy, and the debate is once again up and running, ammunition fired: is the virus introduced through trade or migration? Are factory farms a major factor in the spread of H5N1 and other types of avian flu because they encourage weaker immune systems? Is the virus best controlled by vaccination or culling? And in the most recent debate launched by the BBC, is bird flu still a threat to the nation?

Reeling with the task of juggling all the issues - pondering, weighing up the possibilities - there is one thing for sure: avian influenza H5N1 is firmly placed in the smouldering international spotlights. There is no doubt that it is a potentially threatening virus for both humans and animals. It has already killed millions of poultry and 172 people world wide, since the first recent outbreak in 2003 alerted media attention. It has affected much of the developing world in particular, sweeping through Asia, and into parts of Africa, *"unprecedented in scale and geographical spread"*, to quote the World Health Organisation.

Grabbing headlines

But why is the issue making so many headlines, when other viral diseases, such as Rift Valley Fever, have gone virtually unnoticed by the international community? It cannot be that Rift Valley Fever only affects animals. Spread by mosquitoes, RVF is a zoonotic viral disease affecting domestic livestock and in some cases humans. In livestock the first signs of the disease are high abortion levels: FAO statistics estimate that between 60 and 80 percent of sheep, goats or cattle at all stages of pregnancy will abort over two to three weeks. Young animals are also susceptible. In humans the symptoms are a sudden onset of fever, from which most people recover, though severe complications and death can occur in one to four per cent of cases.

Epidemics in humans are not unheard of - in 1997, Egypt reported 600 human deaths and more than 60000 severe clinical cases from RVF. This year, Kenya has reported over 150 deaths in its northern region. Humans can contract the disease from mosquitoes, and like avian influenza, through close contact with infected animals. Vaccinations are not available for humans - for livestock they are expensive and not suitable for widespread use. The live vaccine induces long-lived immunity, but it also causes high levels of abortion in pregnant animals.

There are parallels between Avian Influenza and Rift Valley Fever, with one striking exception: that unlike avian influenza, there have been no animal or human epidemics of Rift Valley Fever recorded outside Africa. Yet the economic impacts from RVF in livestock alone are dramatic. For those in the developing world who rely on their animals to provide an income or ready cash, there are no economic alternatives. For nomadic, landless communities in particular, like the Masaai, the loss of animals is devastating.

Real economic loss

For the time being, the RVF virus is confined to Africa, though in 2000 it was reported for the first time outside the continent in Saudi Arabia and Yemen. Indeed climate change is likely to spread the disease - many different species of mosquitoes are vectors for the RVF virus, sparking concern for the economy. The Food and Agriculture Organisation has reported massive economic losses for the population in the Horn of Africa. The recent RVF outbreak there, which was followed by a trade ban in small ruminants, has resulted in the loss of up to US\$ 75 million dollars each year, for people totally dependent on this income.

In Kenya, consumers fearful of contracting RVF have avoided buying meat, with a knock-on effect for the local economy - the country's beef market alone is valued at over US\$ 500 million. As with avian influenza, meat is safe to eat if it is properly cooked. But where zoonotic disease is concerned, try telling that to consumers. After the outbreak at Bernard Matthews, turkey sales slumped by 40 per cent - consumers giving its 'Bootiful family food,' a very firm boot indeed.

Organic Poultry Production – doing the job properly?

Wednesday 23rd May 2007
Abbey Home Farm, Cirencester

A one day conference organised by Organic Inform and The Organic Research Centre, Elm Farm.

Highlights of the day to include policy discussions, poultry producer case studies, retailer and certifier perspectives and a discussion on the future of organic poultry production.

Further details available from:
www.efrc.com and 01488 658298



Learning on the land - strong links to schools

Organised by the West Berkshire Business Partnership, groups of pupils from secondary schools in the region collected on 26th March at Sheepdrove Organic Farm for the climax of the Farming, Environment and Sustainability Challenge. The Kindersley Centre was the venue for presentations of the results of science projects which pupils had been working on at different farms in the area for several weeks. In the morning the results of the projects were displayed for the 4 judges from Newbury and District Agricultural Society. After an excellent organic lunch, pupils gave their verbal presentations to the judges and a large audience.

The subjects of the projects ranged from marketing opportunities, energy conservation, soil biodiversity and the bacterial degradation of compost. Three of these projects made comparisons between organic and non-organic farms, including the project by year 9 pupils from Trinity School, Newbury, who compared bacterial cultures taken from compost at Elm Farm with similar compost from a nearby conventional farm. The cultures on agar gel in Petri-dishes showed strikingly different types and quantities of bacteria between the two sources of composts. These are interesting results which ought to be followed up.

The standards of work by the school groups were very high and the Trinity School / Elm Farm team were proud to have done such an excellent project, but still did not win. The prize for verbal presentation went to Kennet School and overall winners were the pupils from The Downs School at Compton. We congratulate all of the pupils that took part in the event.

Year of Food and Farming 2007-08

The school academic year 2007—2008 is designated the “Year of Food and Farming” in a joint initiative by Defra,

DfES, and DoH. It is proposed that, as far as possible, every school pupil in the country should visit a farm at least once during the year. It is an important opportunity to stimulate interest in how food is produced, what happens to it between the field and the kitchen, what constitutes a healthy diet and how food affects our general wellbeing.

The Organic Research Centre - Elm Farm is working with Farming and Countryside Education (www.face-online.org) who are coordinating the events nationwide. We are expecting to have a substantial number of visits to Elm Farm, and are currently seeking sponsorship from local businesses and organisations to help with the cost of visits.

Care farms

The second National Care Farms Conference was held at Harper Adams University College on 27th March. The initiative is gathering strength based on the accumulating evidence that working in farming, tending crops and livestock, and experiencing the countryside environment is significantly therapeutic for many people. A programme of regular visits to farms has been shown clearly to help people with a wide range of conditions, disabilities and behaviour problems. Statistical data presented at the conference showed that a Care Farm needs only to have long term success for even a very small proportion of clients to be cost effective.

Our work at Elm Farm for the last 5 years with Thrive (formerly ‘Horticultural Therapy’), has given exactly the benefits that were described by delegates to the conference, and we are currently working to develop funding for a further project to start early in 2008.

Bob Winfield



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Organic milk – managing boom and bust

How to keep up with demand whilst avoiding another cycle of boom and bust? That is the knotty problem facing the managers of OMSCo, the organic milk marketing co-op which published its annual report last month.

“Breaking this cycle requires accurate predictions of future demand and sufficient confidence at producer level to convert to organic production. This confidence will prevail only if producers believe that the market works, that they have long term customer commitment and that new supplies are efficiently integrated into existing supply chains,” says OMSCo.

According to the report, the UK market for raw organic milk grew by 45% in 2005 and a return to the long term, underlying growth rate of +25% was expected in 2006/7. Liquid market growth has slowed in the light of reduced marketing activity by retailers, but full year growth of +20% is still anticipated in the period to April 2007.

The cautiously optimistic tone of the OMSCo report points out that organic milk is still a small part of overall supermarket sales, though at organic leader Waitrose it accounts, by value, for 19% of total liquid milk sales. (Tesco – 6.3%...J. Sainsbury - 10.6%)

But, new product opportunities and distribution channels remain untapped and regional sales initiatives have begun to develop during the past year. These initiatives will continue to grow and, as new supplies come on stream, OMSCo says prospects for development in areas such as cheese and dairy desserts will be improved.

Price increases have resulted in a significant rise in farm gate returns and an increase in farmer confidence which, despite the difficult summer, led directly to an increase in UK supplies.

As a result the market has continued to grow whilst imports were lower than expected – they will disappear altogether by 2008/9 says OMSCo’s Huw Bowles.

One key issue highlighted in the report is the crucial matter of maintaining integrity and ethics in organic milk production. “Issues such as environmental impact and animal welfare are going to become increasingly important factors in consumer purchasing decisions.”

Following the Organic Milk Summit of September 2006 and the Cirencester Producer Conference organised by Organic Inform and The Organic Research Centre – Elm Farm, OMSCo has re-appraised its whole operations to ensure it is not following a quasi-conventional, “industrialised” model.

“Organic standards must continue to be monitored and ways identified to continue to raise the bar where appropriate, through improving on-farm practices, technical developments and animal welfare,” says the report. All OMSCo supplying farmers are soon to receive a detailed blueprint, reminding them of the core values and consumer expectations attached to true organic milk production.

** More details on the OMSCo report and other organic market data can be found at Organic Inform www.organicinform.org*

Honesty call for info on GM potato trials

The campaign group GM Freeze (The Organic Research Centre is a member) has called for Defra and the life science company BASF to be open with local people in East Yorkshire and Cambridgeshire about both the details and purpose of the GM potato trials planned in each county. Defra must delay any decision on trials until the safety of the potatoes has been established, it says.

At a recent meeting BASF officials confirmed to GM Freeze that the genes used in the GM potatoes came from a Mexican wild relative of the potato and not, as previously stated by BASF, a “wild potato”.

While the wild relative, *Solanum bulbocastanum*, is found in Mexico and cannot naturally cross breed with potatoes, potatoes are members of the nightshade family - a group of plants known to naturally produce toxins. There are concerns that such toxins from the wild relative may be carried into the GM potatoes inadvertently and thus enter the food chain.

Pete Riley of GM Freeze says - *“BASF has confirmed to me that their previous greenhouse and outdoor trials in Europe have already convinced them that GM blight resistance is effective. It is now clear that the Cambridgeshire and East Yorkshire trials are about the commercial development of GM potatoes and not merely to test if the resistance is effective.*

The use of genes from a wild relative of potatoes, and not wild potatoes, raise additional safety concerns that need to be cleared up before outdoor trials commence. We need to be sure that none of the 80 GM lines are producing unexpected toxins.

The company and Defra are guilty of putting out misleading information. It’s time BASF came clean and made a clear, honest statement about the true purpose behind these risky trials and present clear evidence that the GM spuds are safe. Defra should not approve the trial until the safety has been established.”



Organic Inform is here

Organic Inform is the new information service for organic producers and farmers. Comprising a website, newsletters and events, the service collates information, providing a concise digest of the latest news and research in the organic sector, along with appropriate commentary.

Information is sourced first from The Organic Research Centre, Elm Farm; from our project partners – HDRA, Institute of Organic Training and Advice, OMSCo, Soil Association, Organic Arable Marketing Group, Organic Centre Wales, Organic Farmers and Growers, Organic Farm Foods and Organic Grain Link - as well as from Defra and other news sources. Information includes -

- **Market data and insights**
- **Quality issues**
- **Research and development**
- **The regulatory environment**
- **Policy**

The benefit of such a service is that busy farmers and producers have easier access to the latest news and research. Rather than being faced with “information overload”, readers will be able to decide how much

information is required, reading the headline and summary before accessing further detail from the original source (which will always be signposted) to learn more.

Visitors to the website have free access to information and can register to receive a regular newsletter. Registration, which is also free, will also enable users to comment and discuss stories on the website. Premium content will be available in the future for those who choose to subscribe to the service.

An exciting advance in the Organic Inform project is the development of a new website. The new site is interactive and enables visitors to view the information most relevant to them through category homepages and RSS feeds which magically allows you to see when new content is added to the site, without actually visiting it...

The new site will be live later this month – to see what it’s all about, visit www.organicinform.org



A last thought on Bernard Matthews...

Letter reproduced from *The Independent* – Monday April 23rd 2007

Sir: As a child, I searched high and low for a Colorado Beetle in order to gain praise and possibly a reward at the police station. I never found one. Now I know what I should have done: import one or two, let them breed, report the situation and destroy them for a reward - £600,000 or so should suffice.

Pat Ruaune, Stockport

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