The Organic Research Centre

ELM FARM
RESEARCH CENTRE

Vaccination nation?

Civilised strategies for protecting outdoor poultry from Avian Flu H5N1

“Vaccines are crucial to the development of sustainable disease control methods for livestock farming.”

This statement from the UK’s Institute for Animal Health 2005 Annual Report is the underpinning message of the following pages.

As global trade increases and brings about greater movement of goods, services, people and livestock, it also brings about the globalisation of disease. The old methods of disease control in livestock – isolation and slaughter to maintain disease free trade areas – are inadequate and unacceptable. Vaccination - which is safe, scientific and effective – must become the central strategy of global disease control in livestock.

After the slaughter of millions of animals in the 2001 Foot and Mouth (FMD) outbreak many people thought that the UK Government had learnt the lesson and vaccination would be employed in any other global outbreak of an “A list” livestock disease.

Yet here we are in 2006 facing the prospect of Avian Influenza in the UK with few stocks of vaccine available, no approved plans for widespread vaccination and with significant opposition to preventive vaccination within Government circles. There is an apparent willingness amongst politicians and officials to ignore animal welfare by permanently housing outdoor birds thereby destroying the free range and organic markets in an attempt to maintain an outmoded disease free status for the nation.

There are plans and preparations to gas millions of birds or smother them with foam (no doubt well away from the television cameras this time). No plans to vaccinate but we are ready to slaughter.

The facts as set out in this report are clear –

- *Avian Influenza has spread around the world and is likely to become endemic in wild birds in the UK*
- *There are multiple transmission routes and it is possible that wild birds are not the most potent one but they probably pose some degree, as yet unascertained, of threat to outdoor poultry*
- *The Government’s Chief Scientific Advisor has unequivocally stated that when AI becomes endemic in the UK all free range and organic flocks will have to be housed for the duration of the epidemic, which could be five years or more. To date there has been no other policy statement from government*
- *Housing outdoor flocks will inevitably cause serious animal welfare problems as has been experienced in Holland and Germany*
- *It will also mean the end of the growing market for free-range and organic poultry*
- *Preventive vaccination is an alternative strategy which has worked successfully against AI in other countries as part of an integrated approach with biosecurity*
- *There are no credible scientific arguments against the use of preventive vaccination but there are strong arguments in favour*
- *At the very least – as AI seems likely to become established in the UK during 2007 – the Government should be drawing up plans and obtaining the necessary approvals and stocks of vaccines to ensure the UK has the option to use vaccination*
- *A truly rational government would acknowledge that preventive vaccination is the most effective method of combating AI in the modern world and would now be preparing to vaccinate all outdoor and organic flocks*

If vaccination is scientifically based; if large amounts of money have been spent developing, testing and storing vaccines; if vaccination works as it demonstrably does, why is the government so reluctant to use it? As with FMD, it seems that the answer lies in the less than transparent, some might say murky waters of trade regulation.

The whole concept of trade in livestock products based on disease - free zones, maintained by the traditional methods of isolation and slaughter, is outdated and barbaric. A whole mindset change on the prevention and control of serious trans-boundary disease is required. We aspire to live in a modern, enlightened world. Let’s allow our livestock to do the same.

Lawrence Woodward O.B.E.
Elm Farm Research Centre
The Organic Research Centre
July 2006

Cover image:
Organic broilers leading an outdoor life at Sheepdrove Organic Farm, Berkshire.

H5N1 avian influenza (AI) is poised to become endemic across Europe and within the UK. It is a disease we will all have to learn to live with. This spring it has swept westwards from S E Asia through Turkey and across the EU to surface in Fife and Norfolk. By whatever mechanisms it is transported (wild birds, poultry products, human travel), it will be back.

An endemic disease

The UK Government's chief scientific adviser, Professor Sir David King says we must plan for H5N1 to be in this country for five years or more.

We are talking about the possibility of this disease becoming endemic here in the UK... it is a long-term factor, Sir David told BBC News in February 2006.

This long-term threat though is not being matched by long-term solutions. The UK Government, and Defra in particular, appears permanently wedded to outdated, barbaric policies of culling and destruction without proper investigation of alternative, vaccination options.

All poultry will have to be kept indoors for the duration (five years or more…) is Dr. King's analysis; regardless of the fact that people increasingly want outdoor poultry products; regardless of the fact that indoor, industrialised systems seem to be closely implicated in the genesis and spread of this virus; regardless of the evidence that the transmission of the virus from wild birds to extensive, outdoor poultry systems is much less likely than was initially feared; and regardless of the fact that preventive vaccination provides a sure and scientifically robust way of protecting outdoor poultry from the virus.

The end of organic and free-range poultry

Without the use of vaccination and with all UK poultry locked up inside, the Government and Dr. King are consigning organic and free-range poultry to oblivion. There has to be a better way…and preventive vaccination is it.

In 2001 Elm Farm Research Centre (EFRC) spearheaded efforts to persuade the UK Government to adopt vaccination as part of its control programme against the catastrophic foot and mouth outbreak. We failed.

Official ruminations (and loud arguments against vaccination from the intensive livestock sector) kept vaccination in 2001 out of the UK's chosen armoury of controls against OIE (Office International des Epizooties, World Organisation for Animal Health) List A of highly contagious, trans-boundary diseases. That list contains foot and mouth disease (FMD) classical swine fever (CSF) and avian influenza (AI).

Without a planned vaccination strategy in place, the 2001 FMD outbreak directly cost the lives of 6.47 million UK farm animals (Defra figs) along with many others in the European Union. The European Food Safety Authority (EFSA) says the stark financial cost of the 2001 outbreak ran to some 12 billion Euros (£8.6 billion) across the European Union.

Such huge costs in livestock lives and national exchequer expenditure could have been minimized by the modern application of vaccination alongside such techniques as DIVA (Differentiate Infected from Vaccinated Animals) techniques in turn allied to rapid in-field diagnostics.

These techniques, developed in Italy, allow scientists and governments to separate those animals that have been vaccinated from animals which have been exposed to and infected by "field strains" of disease.

Lessons learned?

Fast forward to 2006 and the threat of avian influenza. After a multitude of "Lessons Learned" enquiries and the passing of five years of scientific and research endeavour do we now have detailed vaccination plans/ strategies in place in the UK to help control FMD, avian influenza and other OIE List A diseases? The simple answer is no.

Whole armies of scientists are employed across the world to develop vaccines and the systems with which to deliver and monitor them. The UK's Institute for Animal Health at Pirbright and Compton, which is at the forefront of this work, says the pinnacle of its research effort is the production of vaccines. But what use is scientific advance and high tech vaccine without the political and trade structures within which to use it?

Millions of doses of vaccines are stocked at great expense on chilled shelves waiting for a political decision to use them. The goal of all those involved in the animal health sector has to be a move away from barbaric slaughter and isolationism to the new realities of world trade and global travel, utilising new technological approaches to trans-boundary diseases.

It is alarming, that once again (following the debacle of FMD in 2001) the "stakeholder" voices being selected in the formulation of UK policy have not been truly representative. That must change. The need to end the historic and disproportionate focus of attention on the needs of large-scale, industrial agriculture was one of the reasons that Defra was created five years ago. It must now prove that the transition from MAFF to Defra has more substance than a simple name-change.

Defra must commit itself to draw up, at the very least, a draft AI preventive vaccination campaign ready for Autumn 2006. Alongside such a plan it must ensure that the UK has access to sufficient stocks of suitable AI vaccines.

When representatives from the small, organic and free-range poultry keepers and producers finally made it through Defra's doors to a stakeholder meeting on June 2nd 2006, they forced debate on preventive vaccination on to the agenda, driving home key vaccination messages (right).

At the meeting, Defra listened politely and attentively. The danger is that listening is all that the officials are minded to do. Not a single voice was raised at the June 2nd meeting against the principle of Defra assembling a preventive vaccination strategy to present to the EU for approval.

But still the declared public position of Defra (www.defra.gov.uk) and the leaders of the industrial British poultry industry is that they cannot support a policy of preventive vaccination. Ministers, it appears, lack engagement with the issue.

As one official puts it – in "peacetime" when the avian flu is absent from the UK, Ministers ask what is the problem – why debate vaccination? When the disease is present such as in Fife and in Norfolk, then it's all hands to the pump and another exercise in fire-fighting – no time for debating vaccination...

The continuing antipathy of Defra and the UK Government to well planned preventive vaccination as a precaution against the spread of H5N1 AI is outdated and misguided. Like many (but not all) Governments across the EU, the UK claims to be confident that slaughter and ring vaccination around any focus of infection will stamp out the disease.

Such a policy is flawed in at least two ways. It relies on **rapid** and **accurate** identification of infected holdings. This in turn relies on extensive, active surveillance using on-site diagnostics and epidemiological predictions of the onward spread of the virus – not an easy job when wild bird and extensive poultry and product movements are involved.

Once unprotected flocks are infected, huge amounts of virus are shed by infected birds, putting people as well as other poultry and livestock at risk. In the face of this, vaccination – where two doses of vaccine are needed over a four week period before birds are fully protected – used in a ring fence strategy will have an impact but it is less effective than if it was used ahead of any emergency in a preventive programme.

True preventive vaccination, targeted in intensive poultry areas and in organic and outdoor flocks is the only logical defence against H5N1. Vaccinated birds display far greater resistance to infection and if they are infected they produce and shed significantly reduced levels of virus.

Avian Influenza: The urgent establishment of a policy for preventive vaccination for hobby birds and free-range birds

We urge Defra to act now to –

i/ agree a preventive vaccination plan for free-range and organic poultry, hobby birds and pure breeds

ii/ submit the plan to Brussels for approval in time for autumn 2006; there should not be months of delay in putting a policy in place

iii/ ensure there is sufficient vaccine available to stock a preventive vaccination campaign

What bird keepers want is a policy. This is not vaccination now. These keepers have so far been poorly represented at meetings with Defra, and not in significant force when faced with the demands of the industrial poultry sectoy.

Stakeholders who have agreed a non-vaccination policy with Defra are from the "industrial" poultry industry: they prefer to use biosecurity. Keepers of cage and aviary birds are also happy to follow this policy. What they each have in common is that their birds are normally kept indoors.

Organic, free range and many hobby birds are kept outdoors. The birds are not normally housed except in overnight accommodation. In some cases, the birds live outside 24 hours a day. Welfare is severely compromised if the birds are to be 'brought indoors' for 30 days. In the case of an incidence of H5N1 there is no guarantee that 30 days is sufficient confinement.

As of now in Germany, confinement continues to extend beyond three months and is planned to continue over the whole summer season.

Misunderstanding at Defra?

Arguments against preventive vaccination focus on “spread by stealth” allowing the virus to circulate undetected in treated birds which display no outward symptoms. There are also fears that virus circulating in vaccinated birds can mutate into potentially more lethal forms.

Such views are well illustrated in this letter to EFRC in February 2006 from the office of the then Defra Secretary of State, Margaret Beckett. But they are views that have little basis in the latest science.

We do have a sophisticated animal health network in the EU which can tackle both these perceived problems. The OIE supports preventive vaccination when it is monitored by testing and the use of sentinel birds. Vaccination would be with a marker vaccine -such as H5N2 – or with the latest bivalent Newcastle Disease/AI vaccines, both of which allow DIVA and subsequent antibody tests to distinguish clearly between naturally infected birds and treated birds.

defra
Department for Environment Food and Rural Affairs

AVIAN INFLUENZA

Thank you for your email of 24 February to Margaret Beckett regarding avian influenza (AI) vaccine. I have been asked to reply.

Vaccination does offer potential benefits in disease control, but currently available vaccines are too limited to provide a general solution. There is provision in the Diseases of Poultry (England) Order 2003 for the imposition of a compulsory vaccination zone.

Crucially, although these vaccines protect against disease, they will not prevent birds from becoming infected and shedding virus, hiding the symptoms of disease. Although vaccination will reduce the amount of virus shed by birds and hence the viral load, this reduced amount may be still significant and could cause infection in other birds.

The vaccines that are currently available to protect against AI disease are inactivated types and need to be delivered by injecting birds individually. It can take up to three weeks for birds to develop optimum protective immunity and some poultry require two doses. Delivering such a vaccine, as an emergency measure, to large numbers of birds can raise significant logistical difficulties.

There may be circumstances during an outbreak when emergency vaccination would be appropriate but this would be subject to a risk assessment at the time and emergency use of vaccine also requires approval by the EU.

Although there are strategies to differentiate vaccinated birds from infected birds, such as the use of distinguishing infected from vaccinated animals (DIVA) strategies and unvaccinated sentinel birds, vaccination may lead to difficulties in identifying birds that are carrying the virus; this can be a problem for control.

Despite these limitations Defra is urgently considering all aspects of vaccination and the options for using them to control disease. The review is taking account of the vaccination programmes used in other countries. There may be a role for vaccination in the protection of zoological collections of rare breeds or endangered species. Subject to risk assessment on the possible introduction of avian influenza by wild birds, the AI Directive allows birds to be vaccinated subject to Defra submitting a plan to the Commission for its approval.

I hope this letter goes some way towards addressing your concerns.

Yours sincerely
Central Communications Unit
Defra
LONDON

Vaccination success stories

There are Avian Influenza preventive vaccination success stories elsewhere in the world, and they are well reviewed in the scientific literature.

In Northern Italy, vaccination programmes against H5 and H7 have worked in an area that was suffering repeated AI outbreaks. Hong Kong has been successfully protected by vaccination against the threat of infection by H5N1 from mainland China.

The Italian scientist Ilaria Capua is a world expert in AI, its spread and its control. She runs the OIE world reference laboratory for the disease and published the following summary paper on vaccination in May 2003. It reviewed possible strategies for the control of AI infections and included an overview of the advantages and disadvantages of using conventional, inactivated vaccines and recombinant (genetically modified) vaccines.

Ilaria Capua concluded that if vaccination is accepted as an option for the control of AI, vaccine banks, including companion diagnostic tests, must be established and made available for immediate use.

The use of vaccination as an option for the control of Avian Influenza

May 2003

Ilaria Capua & Stefano Marangon
Istituto Zoprofilattico Sperimentale delle Venezie, Via Romea 14/A 35020, Legnaro (PD), Italy

Summary: Recent epizootics of highly contagious OIE List A diseases, such as foot and mouth disease, classical swine fever and avian influenza (AI), led to the implementation of stamping-out policies resulting in the depopulation of millions of animals.

The enforcement of a control strategy that is based only on the application of sanitary restrictions on farms and that involves the culling of animals that are infected, suspected of being infected or suspected of being contaminated, may not be sufficient to avoid the spread of infection, particularly in areas that have high animal densities, and thus results in mass depopulation.

In the European Union, the directive that imposes the enforcement of a stamping-out policy (92/40/EC) for AI was adopted in 1992, although it was drafted in the 1980s. The poultry industry has undergone substantial changes in the past 20 years, mainly resulting in shorter production cycles and in greater animal densities per territorial unit.

Due to these changes, infectious animal diseases are significantly more difficult to control because of the greater number of susceptible animals reared per given unit of time and to the difficulties in applying adequate biosecurity measures.

The slaughter and destruction of large numbers of animals is also questionable from an ethical point of view, particularly when the human health implications are negligible. Mass depopulation has raised serious ethical concerns among the general public, and has recently given rise to high costs and serious economic losses for governments, stakeholders and, ultimately, for consumers.

In the past, the use of vaccines in such emergencies was limited by the inability to differentiate vaccinated/infected from vaccinated/non-infected animals.

The major concern was that the disease could spread further through trade or movement of apparently uninfected animals or products of animal origin, or that the disease might be exported to other countries. For this reason export bans have been imposed on countries enforcing a vaccination policy.

Vaccination works for Hong Kong

The Hong Kong vaccination experience is just as convincing. Research and practice in Hong Kong demonstrates that the Defra argument of uninfected birds which are vaccinated preventively, going on to subsequently shed the virus and propagate the epidemic is just not the case.

From 2003 all Hong Kong commercial birds have been vaccinated, and there has been no avian influenza case in those treated birds, or in sentinel birds, since vaccination began. A research paper in Avian Pathology (2004) shows complete efficacy.

(Ellis TM et al. Vaccination of chickens against H5N1 avian influenza in the face of an outbreak interrupts virus transmission. Avian Pathology, 2004, 33(4): 405–412)

Even without 100 per cent coverage, vaccines are still effective as David Swayne et al of the United States Department of Agriculture reported in his 2006 research paper.

The take home message from Swayne is that the vaccines do protect completely against mortality and morbidity. While all non-vaccinated birds excreted large amounts of virus, the majority of vaccinated birds did not excrete any virus. The minority excreted 10,000 to 100,000 times less virus than the controls.

Similar results were obtained in a Dutch study - the 2004 Animal Sciences Group, Wageningen University experiment with wild ducks and H7N7 avian influenza. If the vaccine did not give complete protection, virus shedding was at such low levels that infection of other birds did not take place.

Quite simply, on the real science of AI vaccination, Defra is being obtuse. The argument to vaccinate - or not vaccinate - is about risk. Which risk is more serious - to leave birds unprotected to infect other birds and humans, or to reduce risk and infection?

Inactivated North American and European H5N2 avian influenza virus vaccines protect chickens from Asian H5N1 high pathogenicity avian influenza virus

David E. Swayne, Chang-Won Lee and Erica Spackman
Southeast Poultry Research Laboratory, Agricultural Research Service, United States Department of Agriculture,934 College Station Road, Athens, GA 30605, USA

"High-pathogenicity (HP) avian influenza (AI) virus of the H5N1 subtype has caused an unprecedented epizootic in birds within nine Asian countries/regions since it was first reported in 1996. Vaccination has emerged as a tool for use in managing the infection in view of future eradication. This study was undertaken to determine whether two divergent H5N2 commercial vaccine strains, one based on a European and the other a North American low-pathogenicity AI virus, could protect chickens against a recent Asian H5N1 HPAI virus.

The North American and European vaccine viruses had 84 and 91% deduced amino acid sequence similarity to the HA1 segment of haemagglutinin protein of Indonesia H5N1 HPAI challenge virus, respectively. Both vaccine strains provided complete protection from clinical signs and death.

The vaccines reduced the number of chickens infected and shedding virus from the respiratory and intestinal tracts at the peak of virus replication. In addition, the quantity of virus shed was reduced by 104 to 105 median embryo infectious doses. The use of specific neuraminidase inhibition tests allowed identification of infected chickens within the vaccinated groups.

These data indicate that the currently available H5 vaccines of European and North American lineages will protect chickens against the Asian H5N1 HPAI virus and reduce environmental contamination by the H5N1 HPAI virus. They will be an adjunct to biosecurity measures to reduce virus transmission."

A double vaccine

Vaccine research efforts are now focussed on the production of cheap, easy to apply and attractive vaccines for the poultry industry. The most recent advance has been the production of dual vaccines. These can be applied without the requirement for injection to protect birds against both Newcastle Disease (NCD) and avian influenza (H5N1). NCD, an economically important viral disease of poultry, is currently controlled by routine vaccination.

The researchers say they have produced this combination vaccine by inserting a bird flu gene into the NCD genome. The resulting recombinant virus induced antibody production against both NCD and avian influenza and protected chickens against these diseases after exposure to lethal doses of both viruses. This study demonstrates the possibility of designing affordable and effective vaccines against multiple poultry diseases

The vaccine is administered as a droplet and can be used in day-old chicks.

Experimentally, vaccinated chickens challenged with H5N1 showed complete immunity and no viral shedding. The vaccine also allows discrimination between vaccinated birds and field virus-infected birds, based on antibodies (ie, it is a DIVA vaccine). The bad news, of course, is that the vaccine will not be ready for use in the field until it has been thoroughly tested. Optimistically the vaccine may be ready in 2007 whilst pessimists say it may take five years or longer to develop commercially.

Of course this is a vaccine that is produced using genetic modification techniques which some producers might find unacceptable. Vaccines made in this way are permitted under the EU Organic Regulation.

Below is a précis of the US team's work from the Proceedings of the National Academy of Sciences (PNAS) of the US.

So, if vaccination is scientifically based; if large amounts of money have been spent developing, testing and storing vaccines, if vaccination works as it demonstrably does, why is Defra so reluctant to use it? As with FMD, it seems the answer lies in the murky waters of trade regulation.

Engineered viral vaccine constructs with dual specificity: Avian influenza and Newcastle disease

Man-Seong Park*, John Steel*, Adolfo García-Sastre*, David Swayne†, and Peter Palese

Avian influenza viruses of the H5 and H7 hemagglutinin subtypes, and Newcastle disease virus (NDV), are important pathogens in poultry worldwide. Specifically, the highly pathogenic H5N1 avian influenza virus is a particular threat because it has now occurred in more than 40 countries on several continents. Inasmuch as most chickens worldwide are vaccinated with a live NDV vaccine, we embarked on the development of vaccine prototypes that would have dual specificity and would allow a single immunization against both avian influenza and Newcastle disease. Using reverse genetics, we constructed a chimeric avian influenza virus that expressed the ectodomain of the hemagglutinin-neuraminidase gene of NDV instead of the neuraminidase protein of the H5N1 avian influenza virus. Our second approach to creating a bivalent vaccine was based on expressing the ectodomain of an H7 avian influenza virus hemagglutinin in a fusogenic and attenuated NDV background. The insertion into the NDV genome of the foreign gene (containing only its ectodomain, with the transmembrane and cytoplasmic domains derived from the F protein of NDV) resulted in a chimeric virus with enhanced incorporation of the foreign protein into virus particles.

A single immunization of chickens with this improved vaccine prototype virus induced not only a 90% protection against an H7N7 highly pathogenic avian influenza virus, but also complete immunity against a highly virulent NDV. We propose that chimeric constructs should be developed for convenient, affordable, and effective vaccination against avian influenza and Newcastle disease in chickens and other poultry.

*Department of Microbiology, Mount Sinai School of Medicine, New York, NY 10029; and †Southeast Poultry Research Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Athens, GA 30605-2195

Trade issues and the wrong conclusion

Governments across the world have also (on the basis of little or no evidence) jumped to the conclusion that H5N1 has been spread around the globe by wild birds and migration. They have overlooked the huge global trade in poultry and poultry products as a vector and have sought to downplay the role of the illegal trade in birds and other wildlife, much to the concern of conservation charities such as Birdlife International.

"There are several ways in which H5N1 can be spread within and between countries. It is therefore essential to monitor and control those activities which are known or strongly suspected to spread H5N1. These include the movements of untreated poultry and poultry products, the re-use of inadequately cleansed transportation crates, and the trade in wild birds. Further investigation is also needed of the use of potentially infected poultry manure as fertiliser in agriculture and as feed in fish-farms and pig farms, described by the UN Food and Agriculture organisation as a high-risk activity," says Birdlife.[1]

A recent paper (Chen et al., "Establishment of multiple sublineages of H5N1 influenza virus in Asia: Implications for pandemic control", Proceedings of the National Academy of Sciences, 21 February 2006) analyses the viral lineages of AI and concludes that poultry movements were responsible for multiple reintroductions in south-east Asia, both within and between countries.

There is also a huge international trade in poultry—both legal and illegal. The legal trade involves millions of hatching eggs and poultry shipped to destinations world-wide. For example, prior to the outbreaks in Egypt, the country was reported to export 180 million day-old-chicks plus 500,000 mature fowl a year. Almost 12 million live chickens were officially imported into the Ukraine in 2004 and more than 16 million into Romania.

In Turkey, one factory has the capacity to produce over 100 million hatching eggs per year, many of them exported to Eastern Europe and the Middle East. Recent outbreaks in India, Nigeria and Egypt originated within the poultry industry, and there is strong circumstantial evidence that movements of poultry and poultry products are responsible elsewhere.[2]

But it is trade regulation which lies at the heart of many government's obduracy against the use of vaccination. It is a condition that reaches elevated proportions in the UK. There is the historic legacy of the UK as an island nation at the heart of its Empire – in other words national pride and a wish to be dominant in world trade. As a mechanism for protectionism and trade dominance the UK and others devised the notion of disease free zones along with a select club of "disease-free" trading nations. Not in the club? Then you can't trade. This issue was discussed in some depth at the time of the FMD disaster in 2001. Abigail Woods' 2001 analysis of national thinking regarding serious animal contagion is as true for AI in 2006 as it was for FMD then.[3]

"Britain has always been intensely proud of her ability to abolish disease. Our island status has meant that several diseases, once eliminated by stamping out have been permanently kept out of the country eg cattle plague, sheep pox, rabies. This geographical 'difference' has been continually emphasised as reason why disease elimination is achievable in Britain but rather more difficult elsewhere, and has been used by Government to justify the rejection of preferred continental means of disease control in favour of a stamping out policy.

However, this 'island' status has been increasingly undermined by the expansion of free European and world trade and widespread tourism. This encourages the introduction of 'foreign' substances into Britain. Powers to restrict such moves are extremely limited and inspection as a means of control can never approach 100% efficacy. The confidence in British isolation and its implications for disease control measures is therefore less justified than in the past.

In addition the conditions within the nation have undergone profound changes. Farm size and livestock holdings have vastly increased throughout the 20th Century whilst the numbers of people involved in agriculture has plummeted. Agri-business has forced smaller producers out of the market while economies of scale and marketing practices have encouraged the nationwide movement of livestock."

In other words, large-scale agribusiness is a generator and disseminator of serious, trans-boundary diseases. Nonetheless, stamping out (slaughter) alongside bio-security measures remains at the heart of the regulation of trade in livestock and products whenever an OIE A list disease breaks out. Bio-security measures are an essential element of any strategy, but the slaughter element is as outdated as British imperialism. The OIE accepts that vaccination can be used against A list diseases, including AI, but it enforces such draconian measures to keep vaccinated and non-vaccinated apart that there is extreme reluctance on the part of individual countries to follow the vaccination path.

No justification

There is no human health justification for this, no veterinary justification and no consumer justification as vaccinated livestock products are bought and sold without a second thought everywhere in the world. The only rationale that is offered is that the disease might spread "by stealth" through vaccinated birds catching AI but not showing clinical symptoms. The use of sentinel birds and the DIVA testing techniques offer real protection against any "stealth" spread and between them they highlight the nonsense of the anti-vaccination arguments.

When vaccination is used – as in Holland during 2006, then other nations and individual commercial enterprises cry with horror and invoke protectionist rules, refusing to import vaccinated poultry and poultry produce. Or simply they make a commercial decision which discriminates against vaccinated products.

In the UK one of the great hangovers from the FMD disaster of 2001 is the questionable attitude of food processors and large retailers to the hypothetical question – would they deal in AI vaccinated birds and produce or would they refuse on the basis that consumers are fearful of vaccinated poultry and won't buy it? In fact, all poultry is routinely vaccinated against a range of diseases. Treatments against AI present no additional consumer risks.

In the view of the RSPCA the vaccination debate in the UK has now polarised between those who see it as a barrier to trade and those who view it as an animal welfare matter. From an organic perspective the argument is between the end of organic poultry production as we know it traded against the theoretical loss of UK exports in poultry and poultry products from third party countries who might refuse to buy from a vaccinating nation.

1,2 www.birdlife.org/action/species/avian_flu/

3 Woods. A. (2001) FMD Technical Update/Historical Perspectives, EFRC

Pioneering EU vaccination – The Dutch experience

The Dutch Government requested permission for limited use of preventive vaccination against AI in February 2006.This followed the discovery of H5N1 in birds just ten miles into Germany from the Dutch border – no cases have yet been confirmed in Holland. Permission was granted by the European Commission (Commission Decision 2000/14/EC of 24 February 2006), under strict conditions, to vaccinate all hobby poultry, organic hens and free-range laying hens as a preventive measure.

This is how the Dutch Agriculture Minister Cees Veerman communicated the plan and EC permission to the upper house of the Netherlands Parliament. **Note well the complex and nightmarish bureaucracy.**

"The scheme is an important step towards ending the EU's non-vaccination policy for a number of major animal diseases. I myself welcome the fact that the Netherlands can now start preventive vaccination against the highly pathogenic H5N1 virus. Vaccination is an alternative to the requirement that these birds be kept indoors. In the event of an outbreak, culling may include vaccinated birds but culling will only be carried out if this is absolutely necessary from a veterinary point of view.

The vaccination plan applies to the period from March to June 2006 for hobby poultry and from March 2006 to June 2007 for organic layers and free-range hens (this in connection with vaccination during rearing).

The Food and Consumer Product Safety Authority supervises the vaccination plan. The plan provides for the manner and the conditions under which vaccination is to take place. The plan includes registration, monitoring and the transport of vaccinated and non-vaccinated birds. The General Inspection Service enforces the vaccination plan. The Animal Health Service is in charge of distributing the vaccines and leg rings.

The costs of vaccination are to be borne by the poultry keeper.

It is important to carry out intensive monitoring in the flocks where preventive vaccination is carried out, as it is very difficult to detect infection with the AI virus in vaccinated birds. The European Commission considers the Dutch vaccination plan as a pilot, as little practical experience has so far been gained with preventive vaccination of poultry against H5N1. This is why the Netherlands is to submit an evaluation on the implementation and effectiveness of the vaccination by the end of June 2006. Sufficient monitoring data should therefore be available. The monitoring costs are borne by the Government to keep participation thresholds as low as possible.

For commercial poultry producers, the monitoring practically coincides with the required three-monthly AI monitoring of their flocks. Only the introduction of sentinel birds in their flocks is an additional measure, which will be funded by the Government.

The trade of vaccinated and non-vaccinated birds and products must be strictly separated to prevent any negative impact on the trade in non-vaccinated animals. Consignments of non-vaccinated poultry, day-old chicks and hatching eggs must be accompanied by a health certificate stating that the poultry, day-old chicks and hatching eggs originate from a holding where no vaccination has been carried out. This is why in the Netherlands holdings with vaccinated birds and holdings with non-vaccinated birds must be strictly separated. A stringent trading regime applies to all vaccinated poultry and the products derived from them. The normal trading regime applies to holdings with non-vaccinated flocks.

No poultry, day-old chicks and hatching eggs originating from holdings where vaccinated birds are kept, may be moved without authorisation. The main condition of this authorisation is, that the animals or products are moved to a slaughterhouse in the Netherlands or to another vaccinated holding in the Netherlands. Reception of such animals or products affects the status of the holding where the vaccinated animals or products are received.

Eggs, other than hatching eggs, and poultry meat from vaccinated holdings may be traded freely in the Netherlands. Their transport to other Member States is subject to certain conditions. Manure from vaccinated holdings may not be moved abroad.

The transport of vaccinated hobby poultry and their products are also subject to conditions. In principle, no vaccinated hobby poultry, day-old chicks and hatching eggs may be moved. Transport may only take place under certain conditions, one of these being that they be moved to another vaccinated holding in the Netherlands. This prevents vaccinated birds or products from being mixed with commercial birds or birds in other Member States."

What better endorsement of the ludicrous nature of current trade policies (even within the boundaries of the EU) can there be than this Dutch testament? The bureaucracy, complication and expense of voluntary vaccination in Holland has meant that, by May 2006 less than 2 per cent of hobby birds had been treated. One EFRC contact in Holland tested the regime on three of her valuable rare breed laying hens. The process took many days of paperwork and veterinary supervision/ treatment and it cost 50 Euros per bird.

A Mark 2 Dutch vaccination programme with simpler rules and regulation was approved by the European Commission on 4 July 2006.

The lack of a unified EU-wide approach has produced extremely worrying – if understandable – reactions in some poultry keepers.

Anecdotal evidence from Germany (where vaccination is not an option) shows hobby and rare breeds keepers of waterfowl and other birds, covertly moving stock into Holland to make use of the vaccination facilities there. Desperate times make for desperate measures and what better route of potential transmission is there than such birds moving from a country with recent confirmed cases of H5N1 (Germany) to one with none so far (Holland).

There have also been serious animal welfare implications for hobby, free-range and organic birds well used to extensive freedom being shut up in unsuitable accommodation. This has been a particular problem for waterfowl such as geese, which are particularly averse to enclosure. Graphic details of bloodied, severely injured and dead birds have been recorded by desperate breeders and keepers.

In Germany it is reckoned that 50 per cent of all geese breeders have given up keeping geese since the lock up began.

A vigorous campaign is running there to save outdoor poultry.
www.gegen-stallpflicht.de

In the UK there is growing evidence that organic turkey and geese producers are planning ahead and assuming the worst for H5N1 to arrive in the UK this autumn. They are choosing to go out of business in a planned way and abandon the sector rather than face ruin by investing heavily in birds and feed, only to find in the months to come that their outdoor production systems are forbidden or their consumers frightened off by "bird flu fears".

This is a diary log from the Dutch Hobby Farmer's organisations – the NBvH and Aviornis

"3 April '06 - Vaccination of hobby poultry is still going very slowly. Logistics and organizing seem to be very complicated. Besides, a lot of species are not included in the programme at all. It is taking too long for our birds.

Aviornis and NBvH receive more and more reports of dead birds, because of their locked up conditions. Geese just stop eating and crawl into a corner to die; others have suffocated because their provisionary roofs collapsed in the storm and rain. And then one has not even counted the hundreds of wild waterfowl in distress.

Most ponds are too small to cover with red and white ribbons, and the surrounding fields are too big to cover with plastic (which is obligatory). Aviornis and NBvH advise all who struggle with welfare problems, bordering on ill-treatment, to stretch ribbons over the outside fields and ponds and let the birds out.

After all, there is no bird flu in Holland. Anyone getting into trouble with the authority should notify us. We will do anything within our power to change the conditions."

CONCLUSION

As the agenda item tabled for the Defra AI stakeholders meeting in London on June 2nd 2006 so succinctly said, for the UK the time has come to plan carefully for the arrival and likely endemic nature of H5N1 in birds.

Defra must act now to –

i/ **agree a preventive vaccination plan for free-range and organic poultry, hobby birds and pure breeds**

ii/ **submit the plan to Brussels for approval in time for autumn 2006 and prevent months of delay in putting a policy in place**

iii/ **ensure there is sufficient vaccine available to stock a preventive vaccination campaign**

The ideal solution, as the UK anxiously waits for H5N1 AI to visit us again, is then to roll out in the field a programme of preventive vaccination to build immunity in the nation's outdoor poultry flock well before the disease becomes endemic.

Once the immediate matter of preventive vaccination for AI is effectively dealt with Defra must move on to change its whole mindset on the prevention and control of serious trans-boundary disease.

We live in a modern, enlightened world. Let's allow our livestock to do the same.

The Organic Research Centre

"The ideal solution, as the UK anxiously waits for H5N1 AI to visit us again, is to roll out in the field a programme of preventive vaccination to build immunity in the nation's outdoor poultry flock well before the disease becomes endemic."

ELM FARM
RESEARCH CENTRE

Hamstead Marshall, Newbury, Berkshire RG20 0HR
Telephone: +44 (0)1488 658298
Facsimile: +44 (0)1488 658503
Email: elmfarm@efrc.com
Website: www.organicresearchcentre.com
www.efrc.com

To download a PDF of this document visit: www.efrc.com/vacnat
ISBN 1 872064 40 X

Registered charity number 281276

Printed on Cyclus 100% recycled paper.

Designed and produced by OLIVE - www.olivecreative.com