This month we take a revised look at Salmonella control. There’s good news from the Food Standards Agency, with their latest survey giving yet more confidence to consumers; an exciting new technical study which demonstrates the ability of Nobilis Salenvac T to prevent the growth of Salmonella enteritidis in eggs; and a report on the pneumatic syringe designed to make multiple injections in poultry easier. You’ll also find the second troubleshooting guide to help improve your injection technique.

FSA survey shows ‘very low level of salmonella contamination in eggs’

No doubt you will have read the good news surrounding UK-produced eggs, just published by the Food Standards Agency. The FSA has found that the level of Salmonella contamination is now only one third of what it was in 1996.

Just one in every 290 boxes of six eggs on sale has any evidence of Salmonella, compared with 1 in 100 in a 1995/96 survey.

Dr Judith Hilton, Head of Microbiological Safety Division at the FSA, said: ‘This is very reassuring and good news for the consumer.

‘Basically, if you’re buying UK-produced eggs from shops and markets, the possibility of any Salmonella contamination is very low indeed and significantly lower today than in the mid-1990s. The UK egg industry is to be congratulated on the excellent progress made.’

The number of reported Salmonella enteritidis cases is now at its lowest level since the late 1980s. In its 2001 report on Salmonella in eggs, the Government’s Advisory Committee on the Microbiological Safety of Food concluded that this success was due mainly to the impact of the vaccination programme.

The survey sampled over 28,000 UK-produced eggs on sale in shops and markets. By mid-summer 2004, UK eggs will have the letters ‘UK’ stamped on them. The FSA is also to undertake a survey looking at non-UK-produced eggs.
Nobilis Salenvac T actively stimulates immunity against Salmonella enteritidis and Salmonella typhimurium. However, one of the vaccine’s less well known benefits is its deposition of anti-Salmonella antibodies in the egg.

In this study, we found substantial quantities of anti-Salmonella antibodies in the eggs of hens vaccinated with Nobilis Salenvac T. By contrast, eggs from hens vaccinated with a commercial live attenuated S. enteritidis vaccine contained little anti-Salmonella antibody, indeed, antibody levels in these eggs were in essence indistinguishable from those in eggs from unvaccinated hens.

To determine if the presence of this egg antibody could provide additional consumer protection against Salmonella, we looked at the ability of a virulent S. enteritidis strain to grow in eggs from vaccinated and unvaccinated hens. We also investigated whether the type of vaccine used affected Salmonella growth.

Eggs were obtained from age-matched commercial laying flocks (24-25 weeks old) where hens had been vaccinated with either Nobilis Salenvac T or a live attenuated S. enteritidis vaccine. In addition, control eggs were obtained from an unvaccinated Salmonella-free SPF flock. As pooled eggs are frequently implicated in outbreaks of Salmonellosis, eggs from each vaccine group were pooled and homogenized to produce an even suspension of yolk and albumin. The homogenised eggs were then inoculated with low numbers of S. enteritidis cells (typically 10-100 cells per pool) and incubated at 37°C for up to 24 hours.

S. enteritidis growth was significantly impaired in the eggs from Nobilis Salenvac T vaccinated hens, whereas bacteria grew vigorously in the eggs from unvaccinated and from live attenuated vaccine-vaccinated hens.

Vaccination with Nobilis Salenvac T reduced bacterial growth in the homogenized egg contents by more than 99% compared to the unvaccinated or live attenuated-vaccinated groups.

There were no significant differences in bacterial growth between the unvaccinated and the live attenuated vaccine-vaccinated eggs.

‘VALERY’ REDUCES THE STRESS OF VACCINATION

Inactivated poultry vaccines such as Nobilis Salenvac T offer significant benefits over their live counterparts. But inactivated vaccines have to be administered by injection, which is time consuming and can be subject to error through variable dose rates.

The ‘Valery’ is a multiple, pneumatic-operated syringe, which claims to cut administration costs by up to 50%, improve dosing accuracy and reduce operator fatigue.

The ‘Valery’ is equipped with two independent syringes, each of which can be calibrated to deliver between 0.1 and 1.0ml. This means two mono- or polyvalent vaccines can be delivered at the same time. As well as saving labour costs, birds are less stressed due to reduced handling.

The distance between the two syringes can be adjusted to suit the growth phase of the treated birds.

With live vaccines, typically administered by mass application techniques, there’s a risk that not all birds receive an adequate dose to stimulate an immune response. There’s less risk of this with injectable vaccines, administered using manually-operated syringes, but operator fatigue can eventually lead to problems.

The Valery is designed to deliver exactly the same dose every time, with the minimum of effort from the operator: compressed air works the syringe rather than the hands of the operator.

Anthony Barron, MD of Animal Aids, believes that once a team of vaccinators have used the Valery it’s unlikely they’ll ever want to revert to a manually-operated syringe. Further information is available from Animal Aids Limited on 01963 33083, or email enquiries@animalaids.com.

The Valery delivers consistent doses of up to two vaccines simultaneously, with minimum operator effort.
COMMON ERRORS IN INJECTION TECHNIQUE ON REARING FARMS

By Dr. Tibor Cserep

In this article we share some common errors found during injection audit on farm, in the belief that much can be learnt from the mistakes of others!

Injection audits were generally requested to address the following issues:

- poor serological results
- production problems during lay with unidentified cause
- routine audits to identify areas for improvements

Problems found and our recommendations are shown below.

## ISSUES

### Preparation technique
- Most inactivated viral vaccines are based on oil emulsions. If this emulsion gets frozen in the fridge it breaks up and must be discarded.
- Vaccine is taken out of the fridge just before vaccination. Emulsion is thick when it’s cold, which makes it difficult to squeeze it through the gun and needle.
- If vaccinator guns are not calibrated accurately they deliver less or more vaccine than required.
- Some needles are too long for young breeders or pullets. Likewise, when using the pneumatic gun with three barrels, ¼ inch needles are too short.
- At penning up, too many birds are forced into a small catching pen and birds are stressed - or in the worst case, smothered.
- When vaccinating birds in cages or when putting them into transport cages, rough handling can cause serious wing or leg injuries.
- Dimming the light in sheds reduce flightiness of birds but also reduces visibility for vaccinators. This can lead to accidental self-injection or inaccurate injection of birds, into perhaps joints or abdomen.
- Birds caught by the wing for presentation to the vaccinator can get very stressed. By kicking they can cause injury to the vaccinator, the gun tubing. This can damage their feet and the contaminated needle may lead to injection site abscesses in subsequent birds.

### Vaccine administration
- Birds caught by the wing for presentation to the vaccinator can get very stressed. By kicking they can cause injury to the vaccinator, the gun tubing. This can damage their feet and the contaminated needle may lead to injection site abscesses in subsequent birds.
- Birds are dropped or thrown away after being vaccinated. They can land on hard objects, leading to injury.
- Use of excess force when inserting the needle can be painful. It can also lead to bone injuries or damage vital organs like the liver or gizzard.
- When injecting into the legs (particularly when two shots are used) hitting the bone, tendons or blood vessels of the drumstick is quite easy. This can lead to pain and lameness.
- If the needle is inserted into the breast muscles around the end of the keel or into the flank area it can reach vital organs and can cause lethal injuries.
- The head can swell up and the neck distort if inactivated vaccine is injected too near to the skull, or into the neck muscles.

### SOLUTIONS

### Preparation technique
- Do not allow the vaccine bottle to touch the coldest part (back) of fridge.
- Remove adequate amount of vaccine from the fridge the night before vaccination and store it at room temperature until used up.
- Always check calibration before start of vaccination. Use disposable syringes or a measuring cylinder to check volume delivered.
- Use appropriate size needle for the type of birds (e.g. 1/4 inch for young birds) and the gun you work with (e.g. 1/2 inch for pneumatic gun with three barrels).

### Vaccine administration
- Choose another technique to catch and present birds for vaccination; or hold a single bird by its wings with one hand and its feet with the other.
- Use lower partitions or put a bale of bedding material next to the partition and drop the birds onto the bales.
- Chicken skin is very soft. Use only moderate force when inserting the needle.
- Aim for the upper third area of the drumstick where the thickest muscles are, and hold the needle at a sharp angle pointing towards the knee joint.
- Use the tip of the keel bone for orientation and insert the needle about one inch lateral from it. The muscles in this area are thick enough to take the needle safely.
- Vaccinate in the lower part of the neck where skin is loose and can be pulled up into a flap. Avoid muscles and bones in this region.
- Avoid overcrowding in the catching pens and use partitions that are sufficiently high. Catch any birds that escape and vaccinate them.
- Avoid overcrowding in the catching pens and use partitions that are sufficiently high. Catch any birds that escape and vaccinate them.
- Ensure that methods of restraint, handling and administration minimize the risk of accidents (needle guards, special protective gloves etc).

## SOLUTIONS

### Preparation technique
- Intervet offers regular training and vaccination audits to ensure that the people involved in vaccination know exactly what to do. For further information, or to arrange an audit, please contact us on 01908 685249 or email poultry.uk@intervet.com.
Intervet’s Erysipelas vaccine, Eryvac is now available in convenient 1000-dose poultry packs (5x100ml). Eryvac is indicated for the immunisation of turkeys against disease caused by Erysipelothrix rhusiopathiae infections. However, erysipelas can affect several other species of birds, including chickens, ducks and geese. The disease is readily passed from bird to humans, can survive for long periods in soil and is carried by sheep, swine, rodents and red mites. Free range farms are, therefore, more likely to remain contaminated after an outbreak than a closed unit.

The indications that a flock might be infected include finding sick, depressed or dead birds. Typical symptoms include lack of appetite, listlessness and occasionally yellowish or greenish diarrhoea, or dark spots on the skin of the body and head. Because these symptoms are easily confused with those of other diseases, a definitive diagnosis can only be made through isolation and identification of the causative organism. Please consult your poultry veterinarian for details.

Good management practices, combined with the use of Eryvac, where necessary, can significantly reduce the chances of an erysipelas outbreak.

IB ROADSHOW: COME AND SEE US AT A VENUE NEAR YOU

Intervet are to stage a series of roadshows across the country to launch new Nobilis IBmulti+ND+EDS. Key speakers include Dick Jones and Janet Bradbury (Liverpool University), Steve Lister MRCVS and Jane Cook, together with local veterinarians. Many important practical issues will be discussed.

You can catch up with us on any of the following dates:

- Edinburgh 19th July 2004
- Newmarket 20th July 2004
- Cheltenham 1st September 2004
- Worksop 2nd September 2004

Those who register also have the chance to win one of five iPods, each worth £249.99, so call soon! Registration forms and further information can be obtained by emailing poultry.uk@Intervet.com, or calling 01908 685249.

NEW WEBSITE TO ADDRESS CONSUMER SAFETY ISSUES IN POULTRY

As food safety issues continue to concern consumers worldwide, a new website addresses production of safe egg and poultry meat products. www.safe-poultry.com provides information on issues at the forefront of poultry food safety.

The site focuses mainly on Salmonellosis, but is expected to expand to include other poultry diseases that impact food safety.

Currently the site includes an introduction to Salmonellosis. Areas of the site describe vaccines and treatments that can reduce the risks of infection and transmission.

Other preventive measures, such as biosecurity, are also covered. And the site views this public health issue from a global perspective with links to studies, statistics and other information from public health sources around the globe.

Access this site through www.intervet.co.uk, the new dedicated Intervet UK Ltd Website.

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