Combining vaccinations

BOEHRINGER INGELHEIM SATELLITE SYMPOSIUM

At the recent IPVS Congress in Vancouver, Boehringer Ingelheim focused on their vaccine Ingelvac CircoFLEX.

Dr Miljenko Antonio Atlagich Izquierdo from the Chilean integrator, Agrosuper spoke first. His company has some 136,000 sows and some 3.22 million finishers a year and this equates to 60% of the Chilean pig production.

In 2009 they achieved 12.29 total born with 11.68 born alive and converted this into a weaned figure of 10.61 with weaning at 21 days and a weaning weight of 5.74kg.

Their sows are vaccinated against Mycoplasma hyopneumoniae, E. coli, leptospirosis, parvovirus and erysipelas. Acute PCVAD (porcine circovirus associated diseases) had never been seen at Agrosuper but there was a suspicion of the presence of a subclinical syndrome that impacted on performance so the situation was investigated.

The laboratory confirmed the presence of PCV2 and in March 2008 it was decided to run a field trial to assess the value of PCV2 vaccination under Agrosuper's conditions.

This trial involved some 66,000 piglets that were divided into a negative control group and a group that received 1ml of Ingelvac CircoFLEX at weaning (21 days of age).

The results of this trial are summarised in Table 1.

Vaccination programme

As a result of the favourable impact of vaccination, which showed a positive investment cost:benefit ratio, the company decided to start a massive vaccination programme. This programme is running well and to date some 5.4 million pigs have been vaccinated.

Next to speak was the American swine veterinarian, Thomas G. Gillespie, who is the American Association of Swine Veterinarians' '2010 Swine Practitioner of the Year'. Thomas considered the practitioner's view on modern vaccinology.

He views vaccination as a safe and highly efficacious method of preventing economic damage from an infectious disease. As more and more vaccines have to be administered in the same period, mixing vaccines for the control of mycoplasma and PCV2 has become a common practice in North America.

He highlighted the benefit of combining vaccines in reducing stress to the pigs, especially during the weaning process and the reduction in workload is appreciated by the farmer.

Table 2. The five mixing rules.

- Never mix vaccines unless mixing is supported by the vaccine manufacturer.
- Veterinarians are responsible for ensuring adherence to label claims.
- Do not mix vaccines with different adjuvants.
- Use sterile equipment for the preparation of the vaccine mix.
- Mix the entire contents and use the whole mix immediately.

However, he stressed that vaccines must not be combined unless mixing is supported by the manufacturer and appropriate mixing guidelines are given. The basic rule is do not mix vaccines that have different adjuvants as this can lead to severe efficacy and safety failures.

The five mixing rules are highlighted in Table 2 above.

Dr Michael B. Roof from Boehringer Ingelheim Vetmedica Inc highlighted how his company had recognised the importance of PCV2 as an important and emerging disease in the late 1990s and that while the control of PCV2 alone would provide some benefits the longer term goal was to develop flexible tools that worked globally but took into account local needs.

The cornerstone to this strategy is CircoFLEX vaccine that combines purified circovirus antigen and a highly effective aqueous polymer antigen, ImpranFLEX.

To control PVV2 it is clear that a vaccine needs to:

- Clearly target the key neutralising epitope – ORF 2.
- Be clean and have an extremely high safety profile.
- As most piglets receive maternal antibodies via the colostrum, the vaccine has to work in the face of maternal antibodies to ensure active immunisation at the time of maternal antibody decay.
- Be capable of being combined with other key respiratory antigens.

However, it is still necessary to vaccinate against M. hyopneumoniae and recent work has shown that vaccination against this respiratory pathogen on top of PCV2 vaccination reduces the time to market and gives a good return on investment.

Ingelvac MycoFLEX was introduced into North America in 2008 and into many European and Asian countries in 2009/10.

A combined use of Ingelvac MycoFLEX and Ingelvac CircoFLEX has been granted in several countries (such as, USA, Canada, the Philippines, South Korea and New Zealand and close to 150 million pigs have been vaccinated with Ingelvac MycoFLEX, the vast majority of them concurrently with Ingelvac CircoFLEX. The benefits of this are shown in Table 3.

Treatment	Number of animals	Average lung lesions score
Ingelvac MycoFLEX	18	5.5
Ingelvac MycoFLEX + CircoFLEX	19	3.9
Positive controls	19	14.3
Negative controls	6	0.0

Table 3. Efficacy of the FLEXcombo concept.

Immunology principles

Prof. James A. Roth then gave an overview on the principles of immunology and vaccination and concluded by considering the issue of mixing vaccines together so that they could be applied by a single syringe.

He stressed that this should never be done unless somebody had done the research to show that they were compatible and that there is no interference of one on the other.

There can be chemical incompatibilities between adjuvants and between antigenic formulations. Live vaccines should never be combined with killed vaccines that are not designed to be mixed together.

Bjarne Vest from Poldanor in Poland then rounded off the Symposium by giving a producer's view on modern swine production.

When Poldanor was created in 1994, when farms were leased from the state, production was around 13-14 weaned per sow per year and the health status was low.

Now the organisation has some 18,000 sows with pig production on some 30 farms.

In 2004 the company expanded into the Ukraine where it now has a further 8,000 sows. Today the company operates a vaccination programme incorporating Ingelvac CircoFLEX and since its introduction in late 2008, which was coupled with improvements to management, production has significantly improved. ■

Table 1. The trial at Agrosuper, Chile.

Group	Number	Culls (%)	Wean to finish mortality (%)	ADG (g)	FCR	First quality pigs (%)	Final weight (kg)
Control	33,147	2.11	4.47	775	2.587	93.41	133.4
Vaccinated	33,161	1.40	3.61	783	2.544	94.98	134.3