Coccidiosis – countering the export obstacle

by the technical team, Novartis Animal Health Inc, Basel, Switzerland.

Even after the effects of avian flu in Asia, Europe and the Americas, in 2004 global trade in poultry meat and products rose compared to 2003.

Brazil's biosafe production has enabled the country to be the world's leading exporter of chicken meat in 2004.

Last year 2.42 million tons of meat, reflecting a 26.1% increase over 2003 was exported.

In the first two months of 2005, chicken meat exports reached a new record – 15% higher than for the same period in 2004. With the increase in housing for broilers in January 2005 at 5.7% above the same period for 2004, new records can be expected for the remainder of 2005 and for next year.

Although the export market is more profitable because of the high demand for products with greater added value, it puts intense pressure on suppliers to supply meat of the highest quality.

	CoxAbic	Vaccinated control	Difference
Mortality (%)	4.48	5.14	- 0.66
Daily weight gain (g)	49.2	49.1	+0.10
Feed conversion	2.02	2.02	-
Slaughter weight (kg)	2.285	2.287	-2.0
Efficiency index	233.5	231.4	+2.1
Slaughter age (days)	46.37	46.54	0.17

Table 1. Brazilian field trial data.

The driving issues

Meat quality is the driving issue and the absence of chemical and antibiotic residues in the meat has become the main focus of attention, along with the absence of micro-organisms that are potentially pathogenic to man.

Coccidiosis, an infection caused by parasitic protozoa the genus Eimeria, continues to be the most reported disease in Brazilian broiler production, causing significant economic damage to poultry operations. The subclinical form is often the subject of misdiagnoses as it is often confused with other forms of enteritis. Coccidiosis, although without effecting economic damage, occurs on all poultry farms, demonstrating the total impossibility of eradicating this agent.

The control of damage caused by coccidiosis in chickens, primarily based on the addition of anticoccidial products to feed rations, is constantly undergoing restrictions for the purpose of eliminating any residue from carcases that could potentially harm, or be perceived by the consumer to harm human health.

The first viable alternative was the use of live vaccines, attentuated or virulent, in the field.

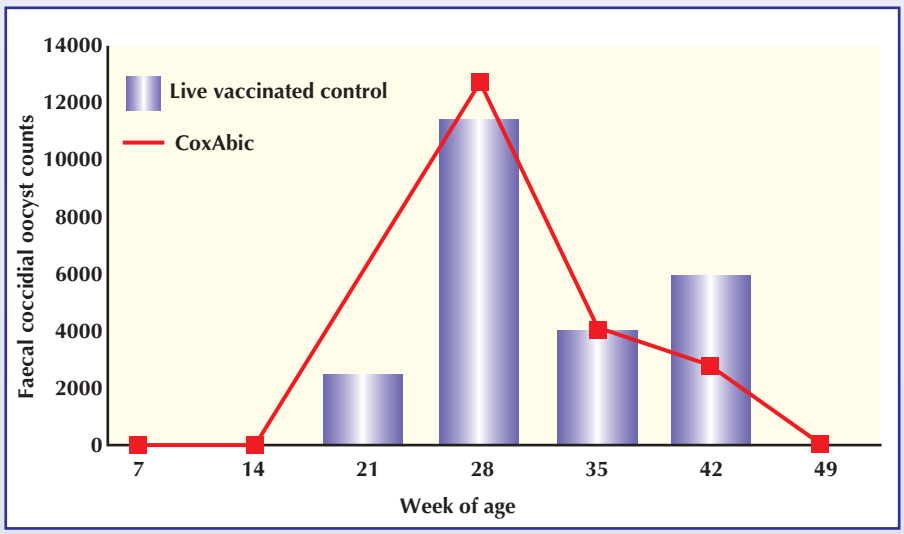
Although already established commercially, the use of vaccines encounters some producer resistance. This is primarily due to the high cost, the need to handle the birds, the likelihood of some degree of injury, and the need to use Eimeria strains that are prevalent in the region (species-specific immunity). This is no longer the case. The use of a vaccine that promotes protection of the chickens by transferring maternal immunity (CoxAbic) has been shown to be safe and proven to be an economically viable alternative in the control of coccidiosis coupled to the production of chicken meat without anticoccidial drug residue.

The stimulation of breeders with the specific antigen (APGA – purified antigens isolated from the gametocyte stage of Eimeria maxima) induces the production of high concentrations of protective antibodies which are then transferred by the egg yolk to the offspring.

This provides protection of the intestinal mucosa of the progeny chicks from extensive penetration by and replication of the coccidial parasites Eimeria acervulina, E. maxima and E. tenella, which occurs in the initial rearing stages when the birds are placed in the house.

This protection, which is sufficient to inhibit elevated coccidial replication and intestinal damage, allows some coccidia to be shed. This is essential for establishing active and lasting immunity against coccidiosis in the birds at a cellular and general level.

Fig. 1. Faecal coccidial oocyst counts from CoxAbic protected chicks and chicks conventionally vaccinated against coccidiosis.



Advantages of vaccine use

The mechanism of action – to establish active immunity – is similar to that of the ionophorous anticoccidials.

However, there are certain advantages in using the vaccine. These are that resistance cannot be established because of the immunological mechanism, no withdrawal period is required and there is no risk of damage to performance by over and under dosing.

In addition, there is no interference with routine production practices and

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there is no risk of giving the wrong (medicated) ration to a flock since no anticoccidials are used and no additional medications are required.

This technology is already commonly used in Israel and South Africa. An efficacy test conducted under field conditions using an integrated, vertical, export company with exceptional management and performance records in the Brazilian market, was started in 2004 with the vaccination of 20,000 breeders in April.

Results of trial

The results of the offspring of vaccinated breeder hens were compared with the results of control offspring of non-vaccinated breeder hens, which received a live vaccine against coccidiosis.

The results (see Table 1) involving over 2.25 million day old chicks, housed in various seasons and rearing conditions, confirmed the previously mentioned performances that were seen in Europe and South Africa. The data also emphasises the clinical manifestations of illness in the field by comparing faecal coccidial oocyst counts and lesion score data (Johnson and Reid) between batches of vaccinated breeder hens and batches

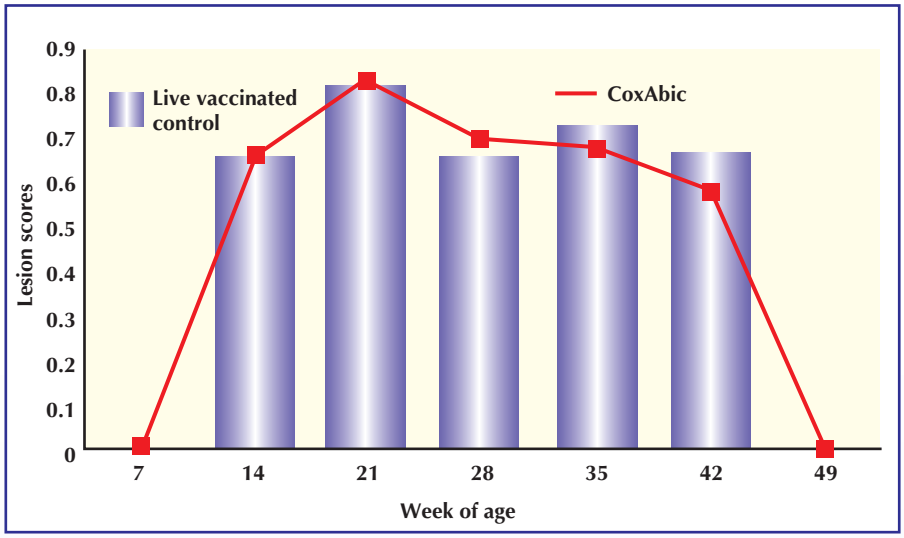

Fig. 2. Lesion scores in CoxAbic protected chicks and conventionally coccidiosis vaccinated chicks.

vaccinated on the first day with live vaccines (see Figs. 1 and 2).

The faecal coccidial oocyst count results and lesion scores are similar. This reinforces the view that coccidial oocyst numbers and/or degree of lesions have no impact on final bird performance.

On this occasion and on other occasions in Brazil, CoxAbic has not only been shown to be safe in breeders by the absence of negative effects, but a tendency towards improved reproductive performance of vaccinated hens compared to control hens on account of a marked reduction in mortality during the production cycle has been seen.

This data shows that even in the challenging environment of commercial production in one of the world's most progressive broiler markets that CoxAbic really does perform and can give benefits on a whole host of fronts. ■