International Poultry Production

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Avian influenza XXXVII

Field vaccination

AI vaccines principally provide immunity via mucosal and systemic humoral immunity against the viral HA protein, which is viral subtype specific. In addition, cell mediated immunity can play a role in protection as can antibodies to NA. Immunity can be assessed by prevention of death and clinical signs.

Protection can also be assessed by measuring the level of protective antibodies in birds.

AI vaccines are based on four technologies. These are inactivated whole virus AI vaccines, in vitro expressed AI virus proteins (mainly HA), in vivo expressed AI virus protein in vectored systems (mainly HA) and HA based DNA vaccines.

There are several matters that are important with the issue of AI vaccines and their use in the field. These are:

- The vaccine should be used as part of a comprehensive AI control programme.
- The vaccine strain must be of the same HA subtype and should be protective in the target species.
- The vaccine should have an adequate HA content (inactivated) or live virus titer to produce a protective immune response.
- Inactivated vaccines should be emulsified with a good oil adjuvant system.
- Production of vaccines must be standardised in order to produce consistent and efficacious vaccine batches.
- There must be proper storage, distribution and administration of the vaccine.
- Good biosecurity systems must be established to prevent vaccination crews and others from accidentally spreading field virus.
- Proper serological or virological surveillance systems must operate to confirm vaccination has produced adequate protective immunity and monitor field poultry populations for possible field virus circulation (DIVA).
- An exit strategy from emergency vaccine use should be developed to prevent vaccination from becoming the norm with associated AI virus endemic.