

AVIAN VIRAL DISEASES IN MALAYSIA

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Poultry production is a very significant component of the livestock industry in Malaysia and the country is able to produce sufficient eggs and table birds to meet local demand with some exports. In the last decade the industry undertook a major change in production technology from the traditional small component of a farmer's activity to that of a highly capitalised enterprise involving large flocks kept under intensive system of housing, feeding and management. This was made possible by the importation of breeder birds of far better genetic potential than the locally available stock. Today most of the eggs and broilers produced are derived from parent stock imported from the advanced Western countries as day-old chicks. These breeder birds and their off-springs are reared intensively either in exclusive breeder, broiler and layer farms or more often in mixed poultry farms where the farmer has the opportunity of changing operations to place emphasis on one type of production or another according to the fluctuations in the market demands. Characteristically these farms have more than one flock of different ages kept either under one roof or in separate houses with less than adequate separation between them. The attitude of the farmers is underlined by the urge to keep as many birds as possible within a poultry house in order to minimize capital investment and to get the maximum output from the physical resources available. The tendency is to rely on vaccines as a prophylactic measure against major diseases and to treat clinical symptoms with drugs on an empirical basis. Veterinary advice is resorted to only when all other measures have failed. Very rarely are good husbandry measures recognized as an important part of disease prevention. Most poultry flocks are kept under conditions of inadequate light and ventilation with high moisture content prevalent as a consequence.

In the tropics with high annual rainfall, disease problems tend to be more prevalent during periods when there is a persistent wet weather that may last for a few weeks at a time. Under these circumstances viruses play a very significant role as a cause of diseases and ill health resulting in mortality directly or by initiating the respiratory disease complex, the most common ailment among poultry of all ages in Malaysia.

Newcastle disease

This disease is prevalent throughout the country. With rare exceptions limited to very well managed farms every farm has experienced outbreaks of the disease in various forms. In the unvaccinated flocks field virus causes the classical respiratory and neural signs with high mortality approaching 100%. More frequently though, the disease is seen in partially immune flocks kept under poor management system. The clinical signs are very atypical and diagnostic efforts do not always enable to differentiate between viral and bacterial infections. Layers that were not properly vaccinated with mesogenic vaccine as pullets often show a drop in egg production when they become infected at an older age as their immunity wanes and the only evidence of infection is a sharp rise in antibody levels in these flocks and a small percentage of chickens showing nervous signs. Attempts at virus isolation in such cases often fail.

The control of the disease is based on the use of two types of vaccines produced at the Veterinary Research Institute in Ipoh, Perak. The lentogenic "F" strain of the vaccine is used in day-old or 3-week-old chickens. The route of inoculation is intranasal and by eyedrop. This presented a certain amount of practical difficulty in 3-week-old chickens. Other routes of vaccination have been tried with limited success due to the various constraints. In recent years at-

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tempts have been made to use the drinking water technique at 3 weeks of age but the lack of good and uniform response has resulted in a breakdown in protection. It is felt that the highly pathogenic nature of the field strain requires a higher level of protection than that required in other countries. The use of aerosol spray technique is being investigated but the type of housing commonly available presents an initial difficulty in providing a still-air environment for such method to be effective. In view of the increasing size of the broiler flocks being reared an effective mass vaccination technique has to be developed in the next few years.

Chickens that are kept for breeding and table egg production are additionally give 2 vaccinations with the mesogenic Mukteswar strain intramuscularly at 6 and 18 weeks of age. These, when properly carried out provide a strong and uniform immune response and incidence of Newcastle disease among breeders and layers above 8 weeks of age is relatively low.

The control of the disease is hampered to a certain extent by various factors. Attempts are being made to supply vaccines in the freeze-dried form to ensure that deterioration of virus titres during transport and storage is reduced to the minimum. Attempts are being made also to educate the farmers to keep to the strict vaccination schedule and to adopt better management and husbandry techniques to reduce the carry-over of pathogens from one flock to the next. Vaccines are now made available to private veterinary practitioners who are able to supply the vaccines to poultry producers as part of their service activities. This has been beneficial in intensive poultry rearing areas where government veterinary services have been unable to cope with the demand for such services. The government has undertaken the development of a Biologics Unit under its Third and Fourth Development Plans so that better facilities for vaccine production, assay and research into various aspects of the control of viral diseases can be achieved.

Infectious bronchitis

This disease is known to occur in all parts of the country affecting every type of poultry operations irrespective of the standard of management. It is most commonly seen in broilers and pullets 3-to-7-week-old. It usually affects practically the whole flock with most chickens showing wet eyes and watery nasal discharge and mild bronchial rales with low mortality. Outbreaks of infectious bronchitis have also been associated with poor shell quality in layers. In recent weeks a strain that was shown to produce kidney lesions of urate nephritis has been isolated from clinically affected chickens in a farm near Kuala Lumpur.

The primary infection by the virus in a flock is usually of short duration rarely lasting more than one week but this is usually followed one to 2 weeks later by a serious outbreak of chronic respiratory disease caused by a combination of *Mycoplasma* and other more common bacterial species such as *E. coli* and *Pasteurella haemolytica*. In such cases therapeutic use of antibiotics seldom gives satisfactory results and affected flocks will go through the production period below their expected potential. Broilers are often very severely affected and low grade carcasses with caseated air sacs have to be disposed of at low prices.

Studies on strains submitted to the Southeast Poultry Research Laboratory of the United States Department of Agriculture, Athens, Georgia indicated that the strains that are causing respiratory problems in this country either cross react partially with the Massachusetts type or do not react at all to the known United States strains. As the country does not have the capacity to produce its own vaccine there has been considerable difficulty in making decisions on whether to allow the importation and usage of vaccines manufactured overseas. It was decided a few years ago that in view of the existence of some strains that partially cross react with the Massachusetts strains permission be granted for the use of the Massachusetts H120 strain of the vaccines in young chickens between 4 to 5 weeks of age. More recently permission was granted to use the H52 type in pullets at 14 weeks of age with the hope of getting a booster effect before breeders and layers come into production.

Due to the husbandry and housing designs used in the country the control of this disease is very difficult. The contagious nature of the virus and the practice of keeping flocks of various ages in

contact with each other render attempts at using sanitation measures impractical. Priority will be given in the future to develop facilities for more intensive studies on identification and serotyping of the local strains of the virus causing disease problems in the country and possible use of locally isolated and attenuated strains for vaccine production.

Fowl pox

This is a disease of sporadic incidence in localised areas of the country. Due to its obvious clinical signs the disease is rarely reported by farmers and the field staff. Prophylactic vaccination at 2 weeks of age with a mild strain of the virus prepared and supplied by the Veterinary Research Institute has helped to a large extent to reduce the incidence of the disease. Problems associated with outbreaks of the disease at an early age when vaccination was suggested to be carried out at 4 weeks of age were reduced by carrying out the vaccination at an earlier age without any negative effects on growth rate. The control would be more effective if farmers in affected areas were prepared to carry out vaccination regularly as new flocks are introduced. The absence of the disease from the farm often lulls them into a false sense of security and they gamble on not getting an outbreak in the future. Vaccination "breaks" that occur occasionally are associated with the use of vaccines that have been mishandled and the habit of some vaccinators who do not check for "takes" 4 to 6 days after vaccination.

Avian encephalomyelitis

This is a disease of relatively rare occurrence most often associated with newly open breeder farms or found in chicks that have been supplied by that farm during a clinical outbreak. In most cases a single such outbreak is rarely repeated for a number of years possibly because of infection of pullets having taken place during the growing period, this being greatly enhanced by the practice of keeping multiage flocks in close association. The use of an imported live vaccine in 14-week-old pullets is allowed but due to the rare occurrence of the disease its usage is not very widespread.

Infectious laryngotracheitis (ILT)

This is a disease that is occasionally seen in dense poultry areas around the major cities and mostly seen in flocks older than 6 weeks. The cases seen have not, in recent years, shown the typical haemorrhagic tracheitis as the disease was originally described. Most cases are manifested by mild respiratory forms with serous nasal discharge, conjunctivitis and respiratory distress. The disease is confirmed by virus isolation. No vaccine is officially allowed to be used but there had probably been illegal importation in the past that may have contributed to the mild outbreaks of the disease.

Marek's disease and avian leukosis complex

The incidence of the above group of diseases is relatively low except for Marek's disease which had caused some mortality in layer and breeder flocks. The incidence has declined drastically in recent years with the introduction and use of the FC126 strain of herpes virus of turkey given to day-old chicks. Occasionally a severe outbreak occurs in flocks of imported breeders which have an unclear vaccination history due to confusion between the overseas supplier and the purchaser as to which party is supposed to have carried out the vaccination.

In recent years "breaks" have occurred in some vaccinated flocks possibly due to the interference of vaccination by maternal antibodies transferred from vaccinated hens.

Diseases of the avian leukosis group are extremely rare and of no economic significance in the present state of the industry.

Other emerging viral diseases

Due to the nature of the industry being dependent on imported breeder stock certain viral diseases that were not recognized before have begun to show their existence. More intensive in-

investigation of these diseases in recent years may also reveal those that were not detected previously. In this category the serological surveys carried out by the regional laboratories have indicated the presence of antibodies to infectious bursal disease antigens to be widespread in 44 percent of the flocks tested even though no clinical outbreaks with clear pathological changes have been reported.

Attempts are also being made to determine the cause of sudden drop in egg production of laying flocks for the possibility of adenovirus being involved in the "egg drop syndrome" especially where Newcastle disease and infectious bronchitis could not be implicated under such circumstances.

There are currently three laboratories in Peninsular Malaysia where the examination and diagnosis of avian viral diseases can be carried out. These laboratories are located in the intensive poultry rearing areas and as experienced staff are becoming more available a more systematic approach to the recording of data and the development of new tests will give a clearer picture of the avian viral disease situation in the country in future.

References

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