

Poultry Diseases Caused by Mould and Yeast Infections

DURING the past two seasons several heavy mortalities in chicks have occurred which could be traced to the use of mouldy litter in hatcheries—losses which could have been avoided had only first-quality, clean material been used. As another chick-hatching season has passed, this article by R. M. Salisbury, Veterinary Research Officer, Department of Agriculture Animal Research Station, Wallaceville, draws the attention of poultry farmers to the dangers of the use of mouldy litter in chick boxes or brooder houses and the feeding of mouldy and fermented foodstuffs.

SUCH conditions may give rise to two diseases, referred to in the laboratory as aspergillosis and moniliasis. The first is caused by a mould known as *Aspergillus fumigatus* and is commonly called brooder pneumonia; the other condition is caused by a yeast called *Monilia albicans*.

Brooder Pneumonia

Aspergillosis usually occurs in one of two main forms—acute outbreaks in young chicks, affecting a large number and causing a high death-rate in the brooder, or as the cause of occasional deaths in adult birds, the rest of the flock remaining healthy. The first type is the main cause of concern.

As the name "brooder pneumonia" implies, the symptoms affect mainly the lungs. Diseased chicks stand around with drooped wings and mouths open, gasping for breath. Post-mortem examination shows abnormalities only in the lungs, which are markedly congested and show small yellowish nodules which to the untrained eye may resemble the abscesses occurring in pullorum disease. The disease closely resembles pullorum disease in several respects, particularly the age incidence and symptoms. It cannot be differentiated with accuracy without laboratory examination, when in the case of pullorum disease the causative bacteria *Salmonella pullorum* is isolated, and in the case of aspergillosis the mould can be grown in 48 hours, showing up as a greenish growth on a special growth medium.

Aspergillosis may also take another form in which the eyes are affected, showing a marked wateriness, with a tendency for the eyelids to be gummed together. On occasions a yellowish, cheesy material under the eyelids is also present.

The age at which chicks become affected varies from 4 days up to 4 weeks, or for the duration of the brooding period.

No drug is known to be effective against the mould concerned. The only recommendation which can be given for preventing the disease is to ensure

that only mould-free litter is used in chick boxes and brooder houses. In the event of a positive diagnosis being given, the litter should be replaced, at least ensuring that more cases will not occur. If dry mash is fed, the mash should be damped slightly to reduce dust to a minimum.

In one outbreak last season the mould was isolated from the chick-box litter, and tests at regular intervals showed that it was still infected 5 months afterward; this indicates how long contaminated litter can remain a source of infection.

The disease is of little consequence among adult stock, though mortality in racing pigeons as a result of *Aspergillus* infection has been recorded.

Moniliasis

Though it was diagnosed for the first time in New Zealand only last year, many confirmed cases of moniliasis are now on record. In the absence of full case histories, the importance of the disease to the poultry industry in New Zealand cannot be assessed. However, enough is known to indicate that it is the cause of some of the sporadic deaths which occur, and the fact that it has been diagnosed in conjunction with coccidiosis would indicate that it may at least reduce the resistance of birds to some extent and allow other diseases to obtain the upper hand.

Overseas experience shows that moniliasis alone can be the cause of serious mortalities, and as it is known to be present in New Zealand it must be regarded as a potential danger.

The disease affects young birds, particularly those between 2 and 6 months old, though occasionally younger and older birds are attacked. It is primarily a disease of the digestive tract, and the main sites of infection are the crop and fore-stomach (proventriculus), though the whole of the intestines may be affected. An affected chick shows unsatisfactory growth, a stunted appearance, listlessness, and roughness of the feathers. Birds which have died suddenly have been visibly affected for only 24 to 36 hours, when leg weakness was ob-



[Photo from the "Jen-Sai Journal," U.S.A.]
Portion of the lung of a bird afflicted with brooder pneumonia, showing the white nodules which are one of two types of lesions occurring in this disease.

served and death followed, accompanied by convulsions. Post-mortem examination shows that the crop is usually empty and the lining membrane is raised in ridges and shows small ulcerations; it is commonly referred to as having a "Turkish towel" appearance. The fore-stomach is often much thickened and ulcerated, and where the intestines are involved the mucous membrane shows small ulcers through practically its whole length. The causative yeast can be grown readily on special media, but a positive diagnosis can be given only after post-mortem examination.

Fortunately, the disease can be controlled readily and cheaply by substituting a dilute solution of copper sulphate (bluestone) for the drinking water for 3 days. Such a solution can be made by dissolving 1oz. of bluestone in 12½ gallons of water (1 level teaspoonful to 2 gallons).

To trace the source of contamination is not so easy, but as the presence of yeasts is related to generally unhygienic and insanitary conditions, corrective measures in this direction should be undertaken. Food containers should be cleaned regularly, particularly where wet mash is fed.

Free Diagnostic Service

If chick losses are experienced, all dead chicks should be sent to the Chief Diagnostic Officer, Animal Research Station, Wallaceville, for determination of the cause of death. The birds should be accompanied by a letter outlining the history of the affected birds. A number of chicks—between 3 and 6—is necessary for assessment of the most likely cause of mortality. Single birds can give no significant finding and may give a completely misleading picture. The diagnostic service is free, but the reporting of results of any treatment recommended is appreciated, as only by the accumulation of such data can the effectiveness of control measures recommended be determined.

Aspergillosis and moniliasis are not the only two known mould and yeast infections of poultry. Favus or white comb is another, but for practical purposes it is not of economic importance.