

ASPERGILLUS

Pathology description

Aspergillus is a mould which requires only warmth, moisture and organic material to proliferate. Its requirements are so modest that these fungi can be found everywhere in the environment, and its spores may disseminate over a large distances.



Figure 1: *Aspergillus fumigatus*

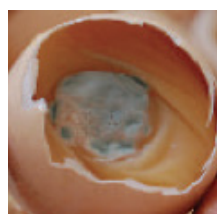


Figure 2: Contaminated egg

Aspergillosis is a disease of chickens, turkeys, and less frequently ducklings, pigeons, canaries, geese, and many other wild and pet birds. In chickens and turkeys, the disease may be endemic on some farms; in wild birds, it appears to be sporadic, frequently affecting only an individual bird. It is usually seen in birds 7-40 days old.

| Age | Symptoms |
|--------------------------------|--|
| Embryos | Decrease of egg hatchability. Mortality increase at about 16 days of incubation, as a result of spores entering the egg via pores or hairline cracks |
| Newly hatched chicks | Respiratory signs (dyspnoea, rapid breathing and stretched necks) and nervous signs (difficulty to walk); high mortality in the first ten days after hatching and for surviving chicks, growth is not optimal |
| Broilers from 4-5 weeks of age | Dyspnea, hyperpnea, somnolence, and other signs of nervous system involvement, inappetence, emaciation, and increased thirst may be seen. The encephalitic form is most common in turkeys. In chicks or poults up to 6 week, the lungs are most frequently involved. |
| Breeders | When feed is contaminated with aflatoxin, the mycotoxines produced by <i>Aspergillus</i> , this may lead to immunosuppression, a drop in egg production and reduced fertility/hatchability of the eggs |

Pulmonary lesions are characterized by cream-colored plaques. The plaques also may be found in the syrinx, air sacs, liver, intestines, and occasionally the brain. An ocular form has been seen in chickens and turkeys.

Aspergillus fumigatus is a common cause of the disease. However, several other *Aspergillus* spp may be incriminated.

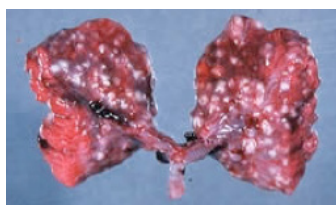


Figure 3: *Aspergillosis* Multifocal granulomas in the lungs of a chicken infected with *Aspergillus*. Courtesy of Dr. Jean Sander

Vectors

- **Environment**

Contaminated litter

- **Material**

Contaminated incubators, hatchery ventilation systems, evaporative coolers, extraction ducts

- **Animal**

Contaminated hatched chicks are the main disseminating factor

- **Transport**

Vehicles coming from contaminated breeder farms

- **Working methods**

Concentration of hatching eggs and chicks lead to a permanent exposure to significant numbers of fungal spores and recontamination. Poor hygiene or insufficient antifungal treatment will perpetuate an *Aspergillus* contamination in the hatchery. Hatcheries in turn are a potential source of aspergillosis problems at the broiler farm. Poor performance or even clinical signs and mortality may be seen in young broilers that were infected as chicks.

→ MAIN VECTOR: contaminated eggs from breeder farm

Preventive action

Hygienic measures and antifungal treatment at all levels are therefore essential.

On farm, good litter control, nest box, nest belt and egg table hygiene, more frequent egg collection (with disinfecting hands) and careful egg grading, removing all damaged and dirty eggs. Eggs should be stored under hygienic conditions and be transported to the hatchery in clean vehicles, driven with care.

Wash and disinfect vehicles at the entry of the hatchery.

At hatchery, for each possible vector, a hygiene protocol must be implemented. See the specific hatchery advised protocols.

Controlling action

Treatment of affected birds is considered useless. Strict adherence to sanitation procedures in the hatchery minimizes early outbreaks.

Grossly contaminated eggs should not be set for incubation because they may explode and disseminate spores throughout the incubator.

Avoiding moldy litter or ranges serves to prevent outbreaks in older birds. Pens should be sprayed with, and all equipment cleaned and disinfected.

Advised Protocols



PERSONAL
HYGIENE



TRANSPORT



HOUSING
HYGIENE