

Maintaining a good house environment

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The introduction of the enclosed drinking system in the 1970s resulted in substantially drier conditions in poultry houses. These conditions proved inhospitable to coccidiosis and suggested the possibility of eradicating the disease. But for a variety of reasons, the disease resurged and continues to be a serious threat to poultry farmers around the world.

Pharmaceutical companies have developed a variety of vaccines and anticoccidials that have proven effective in the fight against coccidiosis. However, the lessons of the 1970s teach that maintaining dry conditions in the poultry house remains one of the most effective weapons against the disease.

Coccidiosis is a disease affecting primarily young birds, mostly broilers, breeder pullets and turkeys. A protozoan-type parasite that lives in the intestinal tract of chickens causes the disease. The parasite can damage intestinal tissues, exposing the birds to bacterial infections, as well as interfering with food digestion and nutrient absorption. The result is depressed feed conversion and weight gain. In more severe cases, the birds can experience dehydration, blood loss and death.

The protozoa produce microscopic egg-shaped cysts, known as oocysts, which the birds shed in their droppings. The oocysts sporulate within 24-48 hours and enter their infective state. The birds can then ingest the oocyst as they peck infected litter, soil, water or feed. The severity of the infection depends on the number of oocysts a bird ingests.

Symptoms of coccidiosis include bloody droppings, watery diarrhoea, weight loss, and sick bird appearance, such as ruffled



feathers, huddling and depression. Sometimes, there are no real symptoms except for poor weight gains and feed conversion rates found at the end of grow-out.

Wet, warm conditions are most conducive to sporulation and a sporulated oocyst can exist in favourable conditions for up to four years. This explains why coccidiosis incidents are more frequent in winter and spring when farmers are more inclined to tolerate wet conditions to reduce heating and ventilating costs. During summer and fall, heat and better ventilation keep conditions in the poultry house drier. Coccidiosis oocysts cannot survive when the temperature rises above 35°C (95°F).

Ziggity Systems Inc pioneered the use of enclosed, low flow, nipple type drinking systems in the 1970s. Poultry farmers immediately saw the advantages of this type of a system over troughs or bells, which easily collect bacteria and contaminants. The enclosed system kept the water cleaner, reduced the amount of spillage and required less labour for cleaning.

Producers also noticed the drier litter conditions reduced the incidence of coccidiosis, but, many farmers sought to grow bigger birds by increasing water flow. They were willing to accept spillage in exchange for weight gains. Due to the proliferation of labour saving equipment, like the enclosed drinking system, farmers could also grow larger flocks in larger poultry houses. These conditions were ripe for the return of coccidiosis.

Producers turned to medications and vaccines to fight coccidiosis and as the frequency of infections increased so too did

the parasite's resistance to the anticoccidials. Farmers attempt to get around the resistance problem by using rotation programmes in which effective drugs are used for a while and then rested and replaced with another drug. While this can be an effective strategy, Ziggity recommends that the primary strategy should be to keep conditions in the poultry house dry.

Producers should strive for the same litter conditions that combat ammonia releases – friable litter. Friable litter has a moisture content of about 20-25%. A simple test to determine if litter is friable is to grab a handful of litter and squeeze. If the litter clumps briefly and then crumbles apart, it has the correct moisture content. If it will not clump at all, it is too dry and will create dusty conditions in the poultry house. If it remains clumped together, it is too wet.

Ziggity recommends taking the following steps to keep litter conditions optimal.

- Always use an enclosed type drinking system. This keeps the water cleaner and prevents the spread of disease through shared water.
- Filter the water before it enters the poultry house. This removes sediment and impurities that might lodge in the drinker mechanism and cause it to leak.
- Filtration may not remove all of the sediment and it cannot prevent biofilm, which can also clog drinkers and cause them to leak. A regular regimen of high pressure flushing will solve this problem.
- Walk the house on a regular basis, looking for leaks. You should repair any leaks immediately.
- Set the water line height so that the birds are drinking at a 50-55° angle (imagine a line drawn from the bird's feet to its beak.) At this angle, almost all of the water discharged by the drinkers as the birds peck at them goes into the birds and not onto the litter. The birds grow rapidly, so you must adjust the line height daily.
- Adjust the water pressure regularly to maintain friable litter.

Scientists continue to work to find new anticoccidials and vaccines for the battle against coccidiosis. Poultry producers, however, can wage their own war against this disease by depriving the parasite the conditions it needs to thrive. ■

