ANIMAL SCIENCE PRODUCTS® INCORPORATED

MucuSol®

RECENT RESEARCH:

EVALUATION OF MUCUSOL® AGAINST E. COLI AIRSACCULITIS IN BROILER CHICKENS

By Ryan Izard, Animal Science Products, Inc.

A newly completed study, Evaluation of MucuSol® against E. coli Airsacculitis in Broiler Chickens, offers compelling new data for poultry health professionals. Escherichia coli airsacculitis is recognized as a leading cause of broiler chicken mortality (Hofacre, 2012), challenging flock performance in production settings. This research, conducted by the Southern Poultry Research Group, directly investigates the benefits of MucuSol® oral expectorant solution, when administered as a liquid concentrate in the drinking water of broiler chickens under optimal respiratory challenge conditions.

Study Design and Model for Commercial Application

1,250 day-of-hatch male Ross broiler chicks were distributed in floor pens using reused litter to create common conditions for respiratory challenge. All birds received a coccidiosis vaccine and, on day of test (DOT) 25, challenged groups were given a live Newcastle (LaSota) and Mass IBV vaccine, intended to induce a normal respiratory vaccine reaction and viral cycling, which in turn predisposed the birds to a secondary infection. At the peak of viral cycling (DOT 30), all challenge groups were then exposed to Avian Pathogenic E. coli (APEC X-7122) via coarse spray, establishing the disease challenge relevant to field conditions.

MucuSol was administered as a liquid concentrate in the drinking water in two regimens:

- **Prevention Group:** Beginning the day before vaccination from DOT 24–42 post-placement
- **Intervention Group:** Beginning during peak vaccine reaction from DOT 31–42 post-placement

Both treatment protocols used recommended dosages of 100 mL per 1000 kg body weight per day.

Table 1. Day 42 Mean Lesion Scores* (Lower is better) and Air Sacculitis Related Mortality

Treatment	Pericarditis score	Air Sacculitis score	Airsac Mortality, %
Challenge Control	0.563[A]	0.875	2.75[A]
MucuSol-Prevention	0.213[B]	0.600	1.00[B]
MucuSol-Intervention	0.413[AB]	0.788	1.25[AB]

*Lesion Scores (Scores and mortality with different superscripts differ P = 0.05).
0 = no gross lesions, 1 = opacity of one or more air sacs, 2 = multifocal white or yellow material on the air sacs, epi- or pericardium 3 = diffuse white or yellow material on the air sacs, epi- or pericardium.

Key Results: Statistically Significant Reduction in Pericarditis and Airsacculitis Lesions

The data were clear: using MucuSol® for prevention, beginning the day before vaccination, had significant advantages in both airsacculitis-related mortality as well as bacterial-related lesions on the heart at study termination. The challenge control group exhibited a pericarditis lesion score of 0.563, statistically more severe than MucuSol® Prevention at 0.213, while the MucuSol® Intervention was intermediate at 0.413 (P = 0.05). Airsacculitis lesion patterns numerically followed the pattern observed for pericarditis, confirming the relevance of the intervention for producers focused on flock mortality and heart health.

Mortality Impact and Product Safety

The prevention strategy with MucuSol® yielded a statistically significant decrease in airsacculitis-related mortality compared with untreated challenge controls, with intervention use also reducing total losses. Importantly, no adverse product reactions or unanticipated events were reported. This finding, coupled with practitioners following proper label dosing, further reinforces MucuSol's strong safety profile for use in commercial flocks.

Conclusions for Field Application

- **Significant reduction in respiratory and cardiac lesions** (pericarditis and airsacculitis morphology)
- **Lower mortality in challenged flocks**
- **Safety and ease of use:** Administered as a liquid concentrate in the drinking water, MucuSol can be delivered seamlessly within existing management systems

These findings build upon previous research reports addressing Avian Metapneumovirus and Swine Influenza Virus/Pasteurella multocida, confirming MucuSol's proven role in supporting respiratory health and productivity in production poultry and swine.

Animal Science Products, Inc.
PO Drawer 631408
Nacogdoches, TX 75963-1408

For more information:
(936) 560-0003 | info@asp-inc.com | asp-inc.com