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In 2011, the CDC recorded an estimated one million people in the U.S. who became ill from the food-borne pathogen *Salmonella*, resulting in over 19,000 hospitalizations and nearly 400 deaths.¹

Although thorough cooking can kill *Salmonella* in meat and eggs, minimizing the incidence and delivering a safe food product is desirable, and should be a priority for poultry producers.

Historically, the primary means of reducing *Salmonella* in the U.S. has been through interventions at the processing plant.² However, on-farm live bird intervention can also be an effective means of significant reduction in the amount of *Salmonella* arriving to the plant.

In a recent presentation at the International Production and Processing Expo (IPPE, Atlanta, GA), Dr. Charles Hofacre, University of Georgia, pointed out that attempting to control *Salmonella* only at the processing plant has not been completely effective. He further discussed the efficacy of on-farm interventions.

“By reducing the level of *Salmonella* coming into the poultry slaughter plant,” Dr. Hofacre stated, “it is quite a bit more effective to reduce *Salmonella* there and in the final product.”³

Vertical transmission is a significant contributor to *Salmonella* incidence. Effective *Salmonella* intervention is a multi-step approach. Interventions should start with the breeder flock, and follow through the grow-out system, in order to significantly minimize contamination load coming into the plant.

Listed below are some measures that have been effective for live-bird and processing plant *Salmonella* intervention:

Salmonella intervention: a multi-step approach



Stephanie Frankenbach, Ph.D.
Poultry Specialist
Diamond V

1. Reduce *Salmonella* incidence in the breeder flock.
 - Be aware that *Salmonella* vaccination in breeders can reduce *Salmonella* colonization in the liver, spleen, and cecal contents of their progeny by as much as 99% based upon previous reports with SE challenges.⁴
2. Ensure hatchery sanitation and monitoring.
 - Clean and disinfect thoroughly.
 - Consider fumigating eggs and equipment, which has proved beneficial.
 - Monitor for *Salmonella* to confirm status.
3. Check source of chicks.
 - Obtain chicks from *Salmonella*-free flocks and hatcheries.
4. Implement feed interventions.
 - Source feed from a feed mill performing *Salmonella* monitoring.
 - Use heat-pelleted feed when applicable.
 - Consider feed sanitation measures (aldehydes).
5. Optimize the nutrition and immune status of birds.
 - A balanced immune system is vital for maintaining performance while protecting animals from intestinal bacteria challenges.⁵
6. Control coccidiosis.*
 - Maintain intestinal health, including control of cocci, to reduce *Salmonella* prevalence.³
7. Implement multi-tiered *Salmonella* monitoring programs.
 - Monitor hatcheries.
 - Check feed mills.
 - Evaluate flock status.
 - Measure birds at processing plant.
8. Raise birds with *Salmonella* reduction in mind.
 - Use all-in/all-out systems, which can reduce cross-contamination between flocks.
 - Provide adequate down time between flocks to reduce challenge load.
9. Use a proven *Salmonella* control feed ingredient.**
10. Develop and document a pest control system that prevents access to poultry houses by rodents, birds, and other animals.
11. Implement *Salmonella* control between flocks.³
 - Bait and control rodents – important first step.
 - Blow down dust.

- Remove all litter/manure and dispose properly.
- Wash equipment and facilities by applying hot water, then detergent, followed by thorough drying -- a critical step.
- Disinfect premises and equipment.
- Dispense insecticides – final step.

12. Initiate effective biosecurity measures.

- Restrict access, thereby reducing human traffic and poultry disease transmission.
- Allocate dedicated equipment for poultry houses.
- Ensure all visitors and workers have clean clothes and boots.

13. Thoroughly wash and sanitize transport crates.

14. Take appropriate action in cases of *Salmonella* outbreaks.

Research Notes

*Research has shown that Diamond V Original XPC™ significantly reduced intestinal lesions and deleterious effects caused by coccidiosis.

- Original XPC reduced intestinal lesions resulting from:
 - ✓ *E. acervulina*
 - ✓ *E. maxima*
 - ✓ *E. tenella*
- Original XPC increased body weight gain.
- Original XPC improved feed conversion.
- Additive performance benefits observed when Original XPC was combined with an ionophore.⁶

**Research has shown that Diamond V Original XPC can be an effective *Salmonella* control.

- Original XPC has been shown to reduce the prevalence and load of *Salmonella* with:
 - ✓ Proven efficacy in layers⁷
 - ✓ Proven efficacy in broilers⁸
 - ✓ Proven efficacy in turkeys⁹
 - ✓ Reduced positive *Salmonella* counts
 - ✓ Reduced *Salmonella* cecum counts
 - ✓ Reduced positive *Salmonella* environmental swabs¹⁰
- Studies indicate that Original XPC can help control the following *Salmonella* serotypes:

✓ <i>enteritidis</i>	✓ <i>typhimurium</i>
✓ <i>heidelberg</i>	✓ <i>arizonae</i>
✓ <i>kentucky</i>	

Note: Maximum benefits derive from feeding Original XPC to poultry (both breeders and progeny) from day-old chicks to slaughter. Original XPC balances the immune system, which helps minimize insult from *Salmonella* challenge.

References

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