



An interview with

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at Zoetis

“ Vaccination is and will continue to be an important tool for helping to reduce the foodborne *Salmonella* risk, but it can't do the job alone. ”

‘Take a holistic approach’ to get the most from *Salmonella* vaccination

Q: An FDA report shows the *Salmonella* prevalence in retail poultry dropped from 15% in 2008 to 9% in 2014.¹ That’s impressive, but USDA’s new standards for chicken parts and ground poultry have increased pressure to do more.

MQ: Yes, they have. And despite these numbers, we still have room for improvement. One incident of *Salmonella* in humans is one too many.

Q: Statistics show that as of 2015, 74% of commercial poultry producers vaccinated broiler-breeders for *Salmonella* at least twice — up from only 20% in 2010.² Many vaccinate three or four times, using a combination of live and inactivated vaccines. Is vaccination key to managing the pathogen load in live production?

MQ: Vaccination is and will continue to be an important tool for helping to reduce the foodborne *Salmonella* risk, but it can’t do the job alone. We need to look at *Salmonella* control with a holistic viewpoint and establish different pre- and post-harvest interventions for each segment of the industry including the feed mill, the breeder operation, the hatchery, growout and processing.

Q: Where is environmental *Salmonella* found?

MQ: Lots of places. It could be in the hatchery, in fomites or in litter. It can be found on rodents, flies, darkling beetles, wildlife, farm equipment and people, but it varies among farms. *Salmonella* can be found in poultry feed.³ I still see farm pets running around poultry farms, which shouldn’t be permitted because pets can carry *Salmonella*.

Q: Are there special biosecurity measures that can help prevent *Salmonella*?

MQ: A plan to minimize the *Salmonella* risk isn’t going to be any different from a plan targeting other infectious diseases. In fact, because of recent avian flu outbreaks, most farms have initiated strict biosecurity measures. This includes restricting traffic, mandating that anyone entering poultry houses use protective clothing and being more aggressive with wild-bird and rodent control.

Q: So what more can be done?

MQ: Good biosecurity includes cleaning and disinfecting equipment and poultry houses. Remember, all organic material — including feed, feces and feathers — must be removed

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and surfaces cleaned before disinfecting; otherwise disinfectants won't work. Make sure your disinfectant is effective against active *Salmonella* spp.

Equally important is an intensive *Salmonella*-surveillance program and maintaining good general bird health. For instance, a healthy gut and management of immunosuppressive diseases are critical to help reduce *Salmonella*.

Q: Once environmental sources of *Salmonella* are under control, how should producers go about selecting *Salmonella* vaccines?

MQ: You'll get better results with vaccines that are as close as possible to the serotypes of *Salmonella* affecting a farm. *Salmonella*-vaccination programs can consist of either inactivated or modified-live vaccines or both, depending on a farm's needs. Generally speaking though, using both vaccine types helps provide the best results.

Q: How do inactivated and modified-live *Salmonella* vaccines compare?

MQ: Live *Salmonella* vaccines prime the immune system by stimulating gut-associated lymphoid tissue and cellular immunity. They're thought to be fast-acting, help provide early protection and may provide cross-protection between serogroups. The inactivated vaccines help provide long-lasting serotype-specific immunity to hens and their progeny and may help reduce *Salmonella* transmission.⁴

Q: What else can producers do to get the best results with *Salmonella* vaccination?

MQ: They should rely on their veterinarians to determine the best vaccination program. Make sure vaccines are stored, handled and administered properly. Stick to the recommended protocol for dose rate and the number and timing of the doses.

Vaccine performance can be compromised if birds are stressed, so pay attention to good husbandry and provide the basics — a good diet, good hydration and adequate ventilation.

Q: With so many potential *Salmonella* sources on a poultry farm, is it really possible for the industry to make further significant reductions in its prevalence?

MQ: Yes — and there's demonstrable evidence. In the US, breeder vaccination has been shown to result in a lower prevalence in the ceca and reproductive tracts of hens, in environmental samples on broiler farms and in broilers entering processing plants.^{5,6} In the United Kingdom, a dramatic reduction in human *Salmonella* cases has been attributed in large part to vaccination of poultry against *Salmonella*.⁷

So you see, it really is possible to make significant reductions in the prevalence of *Salmonella* in poultry products using a holistic approach that incorporates vaccines with biosecurity, good husbandry and environmental *Salmonella* control.

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¹ Good and Bad News about *Salmonella* in Retail Meat, Poultry. Food Safety News. May 2, 2016.

² Source: Rennier Associates, Inc.

³ Jones FT. A review of practical *Salmonella* control measures in animal feed. J. Appl. Poult. Res. 2011;20:102-113.

⁴ Paiva JB, et al. Efficacy Of Several *Salmonella* Vaccination Programs Against Experimental Challenge With *Salmonella* Gallinarum In Commercial Brown Layer and Broiler Breeder Hens. Brazilian J Poul Sci. 2009;11(1):65-72.

⁵ Berghaus R, et al. Effect of Vaccinating Breeder Chickens with a Killed *Salmonella* Vaccine on *Salmonella* Prevalences and Loads in Breeder and Broiler Chicken Flocks. J Food Prod. 2011;74(5):727-734.

⁶ Inoue AY, et al. Passive Immunity of Progeny from Broiler Breeders Vaccinated with Oil-Emulsion Bacterin Against *Salmonella* Enteritidis. Avian Dis. 2008;52:567-571.

⁷ Poultry Vaccinations Credited for UK's Big Drop in *Salmonella*. Food Safety News. January 23, 2013.