

What is Cross-Protection? The current State of IBV Control in the US.

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Brian grew up in a small, agriculture focused community in South Georgia where he was surrounded by row crops and livestock. His family did not farm for a living, but they raised horses as a hobby. He attended the University of Georgia beginning in 2001, and graduated with a Bachelor's of Science in Agriculture (B.S.A.) degree in 2005. One of his more significant achievements during this time was playing football (American) for the University of Georgia Bulldogs, lettering for four years as a long snapper. This activity also influenced his next few years as he tried to play football professionally, playing in the NFL Europa league in 2007 while living in Dusseldorf, Germany.

In the fall of 2007 Brian accepted a job in a small biochemistry laboratory in Athens, Georgia. This job taught him all the basic laboratory techniques necessary for a career in science, but was not research oriented. He realized during this time that he was most interested in research and decided to begin a PhD program in Poultry Science at the University of Georgia in 2008. His dissertation focused on the development of transgenic chickens using the piggybac transposable element, including developing novel methods of introducing the transposon to germ cells within the developing chicken embryo. He graduate for his PhD in 2012.

After graduation, he began a Research Scientist post-doctoral position in the laboratory of Dr. Mark Jackwood at the Poultry Diagnostic and Research Center (PDRC) at the University of Georgia. In his two years of post-doctoral training, he and Dr. Jackwood conducted many vaccine/challenge experiments, evaluating both homologous and heterologous protection. Their experiments were the first to truly evaluate cross-protection using US licensed vaccines, and then compare those experiments to the traditional European protectotype program with Mass and 793/B type vaccines. He also began investigating IBV vaccine application and the inefficiencies associated with hatchery application of vaccines.

In August 2014 he accepted an Assistant Professor position at the University of Georgia with a split appointment in the Departments of Poultry Science and Population Health (PDRC). His focus is very much applied research, with a small amount of basic research when the need arises to support our poultry industry. In his time as an Assistant Professor, he has continued evaluating the spray application of IBV vaccines, and developed SOPs and checklists for companies to make that process more efficient and effective. He and Dr. Jackwood also developed a new spray cabinet that is currently being used in ~30 hatcheries in the US. From this work, his laboratory works with many integrators in the US and Canada to monitor vaccine "takes" and troubleshoot application issues with hatcheries. He has also continued to evaluate US vaccines and vaccine programs against new variants that have emerged in the last several

years. The US sees more “local” variants emerge and has more licensed IBV vaccine types than most other poultry producing places in the world, so evaluating vaccines can be complicated. Most recently, with a rise in the cross-protection concept in the US, he has begun researching the effects of cross protection on IB viruses, and the role it plays in viral evolution, if any. In conjunction to this line research, his laboratory has also begun an IBV surveillance program in the US, to test flocks that are not showing clinical signs of disease. With this program, they hope to become more predictive than reactive in IBV control programs, and simplify the IBV vaccine usage so that clear delineations can be made.

With his split appointment in departments focused on disease prevention and performance maximization, He often gets included on other projects that run at the interface of these two concepts. He is involved with varied projects investigating *Eimeria* oocyst destruction in litter, viral transmission through aerosolization after composting, hatchery sanitation, and fenbendazole resistance in worms of poultry. He currently has two PhD graduate students, one working on molecular characterization of *Eimeria* spp. (coccidia) and one focusing on developing a model for false layer syndrome caused by IBV infection. He also has several undergraduate students performing research in his lab, as well as veterinary students doing internships and rotations.