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Poultry Diagnostic and Research Center
College of Veterinary Medicine
UNIVERSITY OF GEORGIA

▶ Exit Interview with Dr. Mark Jackwood

Interviewed by Reece Bowers

- **Tell us about your background and how you got into poultry research**
  - Dr. Jackwood's interest in the poultry industry began at the University of Delaware where he was surrounded by like-minded poultry researchers near the Delmarva shore.

- **How long have you been a researcher at UGA? How long have you been in your role as Department Head for Population Health?**
  - Dr. Jackwood started his career at the University of Georgia in the fall of 1989 as a research virologist at the Poultry Diagnostic and Research Center. He worked as a researcher and taught for 22 years before serving as the 7th department head for Population Health. He has been in his current role as department head for 11 years.

- **What will you miss most about UGA?**
  - He will miss interacting with the students the most. Prior to taking on the role of department head, Dr. Jackwood taught and mentored many students. As department head, he continued to have a meaningful impact on students. Dozens of graduate students have completed their degrees in his lab and many of these graduates are leading innovators in the poultry industry today.

- **What are you looking forward to the most in your new position?**
  - Dr. Jackwood will be taking his wealth of experience and knowledge to CEVA Animal Health, as a Senior Technical Advisor. While he enjoyed his 33-year tenure at UGA, he is looking forward to stepping out of an administrative role with no employees directly underneath him. He is eager to continue to partner with and support the poultry industry in respiratory disease control.

- **What is your fondest memory from your time spent at UGA?**
  - With a total of 33 years spent at UGA, Dr. Jackwood reflects on many special moments and memories. The memory that stands out the most is when his graduate students and fellow colleagues threw him a surprise 30-year anniversary party at the AAAP.

- **What do you think will be your most longest lasting impact on UGA Department of Population Health/PDRC?**
  - He said he doesn't know: "Only time will tell."

- **What do you think has been your largest contribution to the poultry industry?**
  - Dr. Jackwood's research has been directed towards poultry respiratory viruses, with a primary focus on Infectious Bronchitis Virus. His lab has been instrumental in creating several commonly used vaccines for IBV. More important than the vaccines, he says, is the implementation of new diagnostic and characterization methods for IBV. Dr. Jackwood has been a key player in advancing IBV isolate detection by RT-PCR. What used to take months can now be performed in a

single day with the use of the many molecular diagnostic tests for IBV types created at the PDRC.

- **What advice do you have for the incoming department head?**
  - Different department heads will have different leadership strategies, so it is difficult to provide specific advice. The faculty members and students that comprise the department will no doubt be extremely helpful in assisting the new department head during the transition. Although Dr. Jackwood is not involved in the decision for his replacement, he is certain that the College of Veterinary Medicine will select an excellent candidate for the position. He wishes the incoming department head good luck in all of their endeavors. Population Health is a large department with 34 faculty members that includes the Poultry Diagnostic and Research Center (PDRC), Southeastern Cooperative Wildlife Disease Study (SCWDS), Lab Animal Medicine, and Food Animal Medicine.

- **Who has had the biggest impact on your career while at UGA?**
  - Of all the people that have impacted his career, Dr. Jackwood credits his wife as having the largest influence. She encouraged him throughout all the decisions in his career, including his advancement to department head and transition to CEVA. Working as department head involves a lot of time and devotion outside of the normal 8-5 business hours and she has been supportive during this demanding role.

- **Any advice to others on making decisions for career changes later in their careers?**
  - "Do not be afraid, take a chance. Nothing ventured nothing gained." Having the support from his family has made the decision easier.

- **What are your hobbies outside of the PDRC?**
  - In his free time, Dr. Jackwood enjoys restoring MG cars. He bought and restored his first MG while in college and has since restored a second which his son currently drives. He is working toward restoring his third MG and looking forward to completing the rebuild in his retirement.

Dr. Mark W. Jackwood was the J. R. Glisson Professor of Avian Medicine and Head of the Department of Population Health in the College of Veterinary Medicine, at the Poultry Diagnostic and Research Center, University of Georgia, Athens GA (retired September 2022) and is now a Senior Technical Advisor for CEVA Animal Health. He earned his B.S. and M.S. degrees at the University of Delaware, and his Ph.D. degree in the Department of Poultry Science at The Ohio State University. Dr. Jackwood is a molecular virologist and his primary areas of expertise are poultry respiratory viruses particularly avian coronavirus infectious bronchitis virus (IBV).

▶ Interesting Topics at AAAP 2022

New Developments in Mass Vaccine Application - Dr. Brian Jordan

The aim of this presentation was to analyze methods of mass applying vaccines to large populations of chickens and provide recommendations for improving efficiency. The research presented was aimed at in-field boosting but also included opportunities to improve hatchery vaccination application and takes. The target of spray vaccination with respiratory vaccines is to stimulate the Harderian gland for a more localized immune response. The end goal of any vaccination program should be to adequately provide coverage to all individuals being vaccinated so that they will mount an immune response with the goal of protection against future disease challenges.

In hatcheries, respiratory and coccidia vaccines are often applied as a spray with chicks in baskets passing through a spray cabinet. Many factors contribute to providing optimal coverage and later protection to the birds. Vaccine storage, mixing, and handling all play crucial roles in applying a viable vaccine. Once the vaccine has been mixed, other factors such as spray pattern, volume, and droplet size all play important roles in the vaccination process. Research on appropriate thawing temperatures, time, and droplet size have been performed by previous MAM students and graduate students under Dr. Jordan. Some of this research from the hatchery has been applied to field spraying vaccines to pullets (vaccine handling and droplet size) but has not been fully investigated.

The size of the droplets formed by the nozzles has a bell-shaped distribution. Smaller droplets will be less stable and are less likely to reach the chick before evaporating. As droplet size increases, the total amount of water used in the vaccination also increases in order to administer an appropriate vaccine dose to each chick. In addition to appropriate spray patterns, water temperature used to dilute the vaccine is important and needs to be carefully monitored. Previous studies performed in a hatchery setting have shown that the water used should not exceed 70F, this also applies to vaccines applied in the field. The temperature of water used to mix with vaccine should be routinely monitored, especially on hot days. One suggested way to achieve a temperature below 70F is to keep half of the water needed refrigerated and mix with water that is room temperature.

In a hatchery setting, chick baskets allow for an easier, more congregated target. However, when applying a field spray vaccine boost, applicators are vaccinating a more dispersed population. One way of achieving a more congregated population is to apply spray vaccinations when birds are receiving in-water vaccinations. Once the water lines are lowered, birds will congregate along the water lines providing an easier target for vaccination and are less likely to flee from the vaccine applicators. Ongoing research directed at how best to congregate birds for spray vaccination is still being performed, but this early research looks promising.

Summary Provided by: Reece Bowers

▶ Results of Association of Veterinarians in Broiler Production (AVBP) Autogenous Adenovirus Vaccination Survey

Completed by: Drs. Holly Sellers and Reece Bowers

Over the past 5 years, there has been a significant increase in the number of cases of Inclusion Body Hepatitis (IBH). The causative agent of IBH is a Fowl Aviadenovirus. Multiple species of Aviadenoviruses have been reported to cause IBH, including Fowl Adenovirus D11, E8a, and E8b. Previous PIP newsletters have reported Fowl Adenovirus E8b as the most prevalent serotype/genotype isolated or detected in samples submitted to the Poultry Diagnostic and Research Center at the University of Georgia. As a result, many companies are opting to include an E8b and/or D11 isolate in their autogenous vaccines.

To gain a better understanding of the use of adenoviruses in autogenous vaccines for IBH, a survey was sent to members of the Association of Veterinarians in Broiler Production (AVBP). We had 23 respondents out of 42 members who received the survey. Since both veterinarian and company identity remained anonymous, we do not know how many companies are represented within the data.

We were also interested in determining companies use, if any, of serology-based diagnostic tools to determine antibody titer response to vaccination. The graphs below highlight the major findings from the survey:

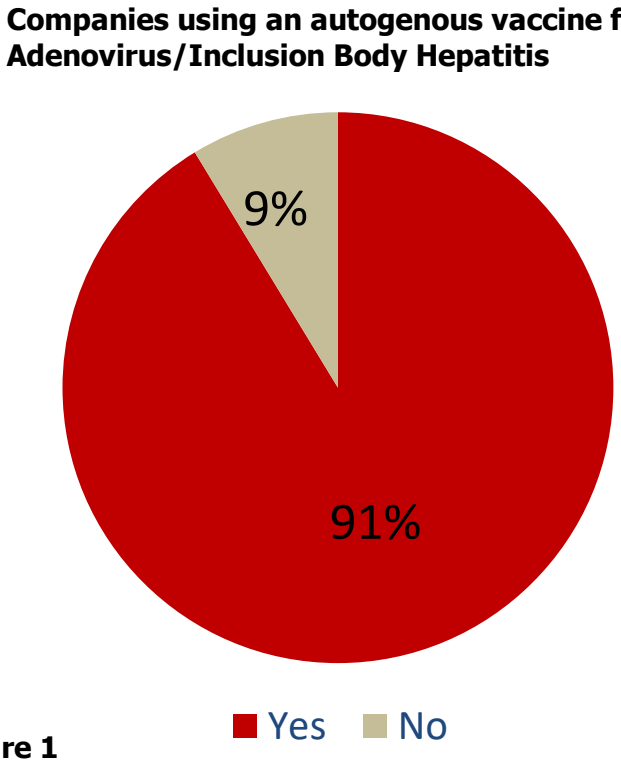

Figure 1

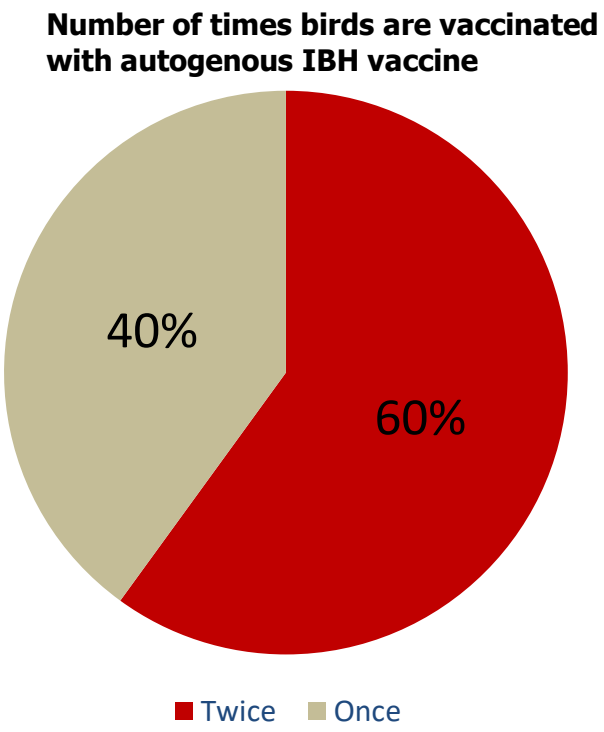

Figure 2

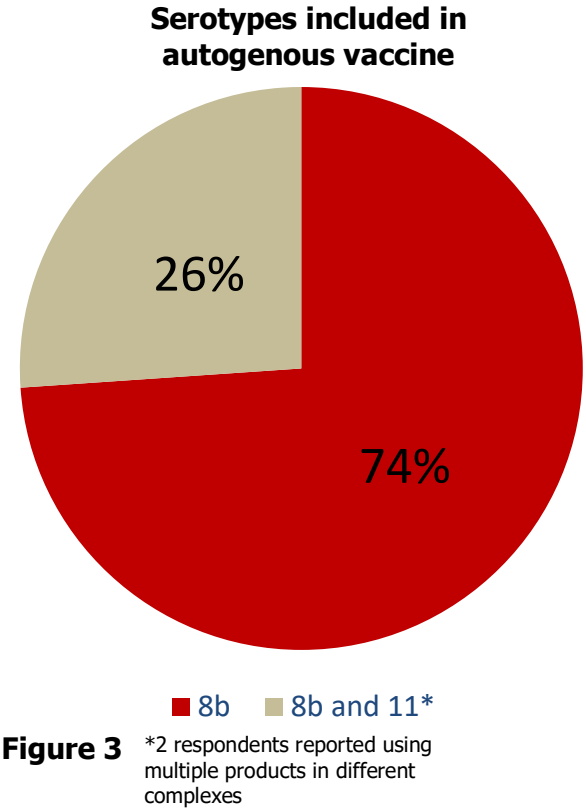

Figure 3 *2 respondents reported using multiple products in different complexes

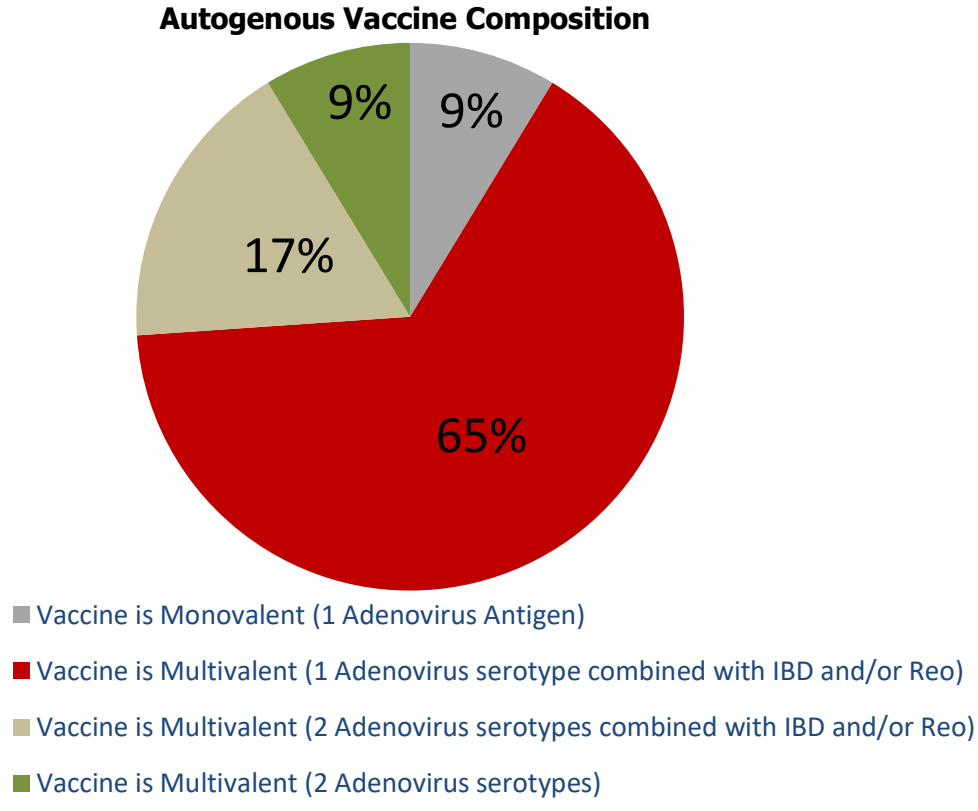

Figure 4

Use of adenovirus serology (in-house or through outside diagnostic lab)

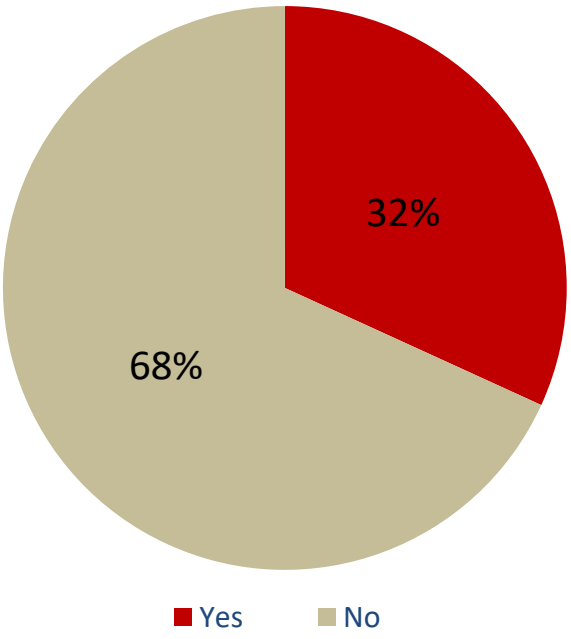

Figure 5

Type of adenovirus serology

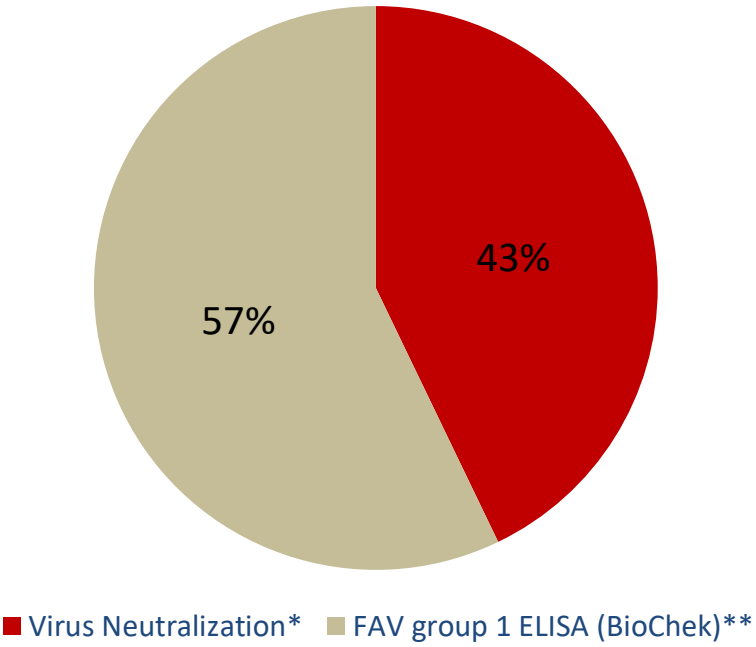

Figure 6

* 2/3 submissions only use VN if severe IBH problem
** 1/4- not routine, only problem based

Our survey indicates that there has been an increase in the use of autogenous vaccination for IBH when compared to the most recent Georgia Poultry Lab Network (GPLN) vaccine survey, conducted in spring 2021. The GPLN survey indicated that 12% of broiler integrator complexes in Georgia were vaccinating with an autogenous adenovirus vaccine. This survey indicates that 91% of respondents are including an adenovirus isolate in their vaccination program (Figure 1). Every company that vaccinates for IBH includes an E8b serotype in their vaccine with 26% of respondents including both E8b and D11 (Figure 3). Majority of adenovirus isolates are included in existing autogenous products containing Infectious Bursal Disease virus and/or Reovirus isolates (Figure 4).

This survey also included information regarding serology testing to monitor antibody response. The majority of respondents, 68%, report not utilizing serology to measure antibody titer (Figure 5). Those that did indicate serology usage were split in which diagnostic tool utilized (Figure 6). Three respondents use virus neutralizations and four utilize ELISA. For those that used ELISA, 1 out of 4 indicated that ELISA was only used if there was an IBH problem and is not utilized routinely. Likewise, there were 2/3 submission in which virus neutralization was only used during IBH outbreaks.

One reason for the low rate at which serology is used to detect seroconversion for adenoviruses is likely that there is no commercial ELISA kit available to detect serotype specific antibodies. The commercially available ELISA kits in the United States detect group specific antibodies.

Since adenoviruses are ubiquitous in the environment, antibodies to any and all adenoviruses are detected with the group specific ELISA and may or may not represent serotypes included in autogenous vaccines. The only way to detect serotype specific antibodies is by virus neutralization. While appropriate and accurate for use in this manner, they are far more time consuming and often cost prohibitive for routine monitoring. With the prevalent use of multiple viruses (adenovirus, reovirus, infectious bursal disease virus) in autogenous vaccines, it is important to monitor seroconversion to the isolates used in the vaccines to ensure proper vaccination and know duration of immunity provided by use of the vaccines.

We hope that this survey sheds light on the broiler industry's strategy on using autogenous vaccination and serology-based diagnostic tools in the control of IBH.

▶ Useful Links:

PDRC Diagnostic Services Homepage

PDRC Diagnostic Lab Test & Fee Catalog

PDRC Diagnostic Lab - Domestic Submission Form