



Comparison of Commercial Infectious Bronchitis Vaccines Shows Superiority of Schering-Plough Animal Health Massachusetts Connaught Strain (Broilerbron® B1 and Twinvax®)

A study was conducted by Dr. Gary Butcher, University of Florida College of Veterinary Medicine, comparing the vaccination reaction profiles of 3 Massachusetts type infectious bronchitis vaccines. The trials were conducted in SPF leghorn chickens and commercial broiler

chickens, and were based upon a full dose of each vaccine given via eyedrop to birds at 21 days of age.

Key Points

- **Broiler-type chickens had more severe reactions than their leghorn counterparts.**
- **Mass Connaught strain (Schering-Plough Animal Health) produced the mildest reaction in both broiler and leghorn breeds, even though it had the highest titer of the three vaccines tested.**
- **The Mass strain from Merial had the most severe reaction profile in both broilers and leghorns.**
- **The Ma5 strain from Intervet had a moderate reaction profile in broilers, and a mild reaction profile in SPF leghorns.**
- **Broilers recovered from vaccine reactions as follows: SPAH Mass Connaught – day 9, Merial Mass – day 11, Intervet Ma5 – did not clear in the 12-day study.**
- **SPF leghorns recovered from vaccine reactions as follows: SPAH Mass Connaught – day 10, Merial Mass - day 10, Intervet Ma5 - did not clear in the 12-day study.**

Materials and Methods

This experiment used SPF leghorn chickens hatched from SPF eggs at the University of Florida, Poultry Medicine Laboratory and commercial broiler chickens hatched from eggs provided by a local broiler integrator from a single breeder flock.

Trials were conducted in battery units, with each vaccinated group in a separate room. The facilities and procedures were designed to ensure that no cross-contamination of the IBV vaccines occurred among the groups. Serum was collected from 20 leghorns and 20 broilers at 21 days of age, and ELISA testing conducted to confirm that no transmission of IBV vaccine or field virus had occurred during the first weeks in isolation.

Chickens were individually identified at hatch by neck banding using the Swiftack System.

The birds were provided unrestricted access to water and feed for the duration

of the trial. Temperatures were managed according to standard recommendations for brooding and growing of commercial poultry. Chickens were provided with natural photoperiods.

Experimental Design

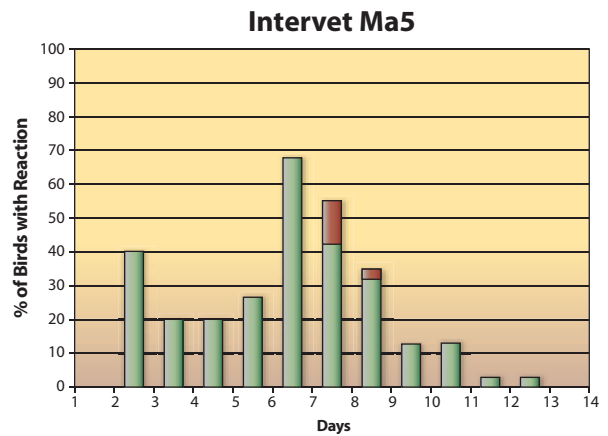
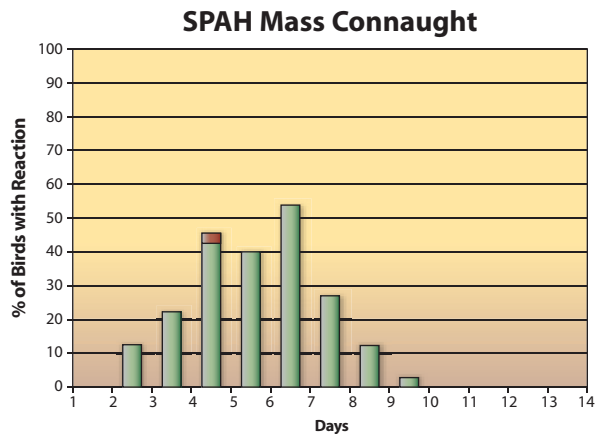
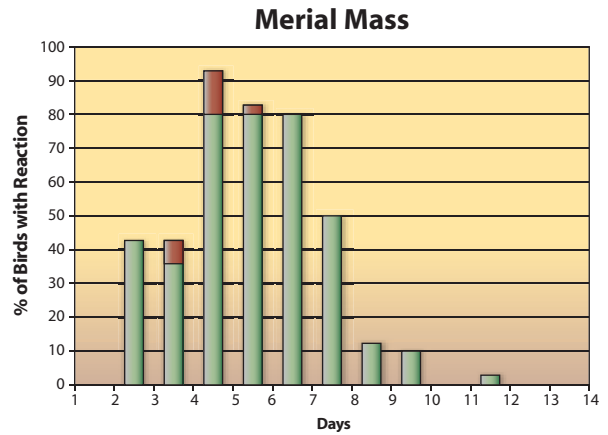
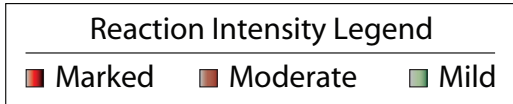
Type of Chicken	Number of birds	Vaccine	Age/Route of Vaccination
SPF leghorn	50	SPAH Mass Connaught	21 days - eyedrop
SPF leghorn	50	Intervet Ma5	21 days - eyedrop
SPF leghorn	50	Merial Mass	21 days - eyedrop
SPF leghorn	50	Controls	21 days - eyedrop
Broilers	30	SPAH Mass Connaught	21 days - eyedrop
Broilers	30	Intervet Ma5	21 days - eyedrop
Broilers	30	Merial Mass	21 days - eyedrop
Broilers	30	Controls	21 days - eyedrop

Chickens were vaccinated at 21 days of age via the eyedrop method with one of 3 vaccines, or a sham control diluent. The 3 commercially available vaccines were:

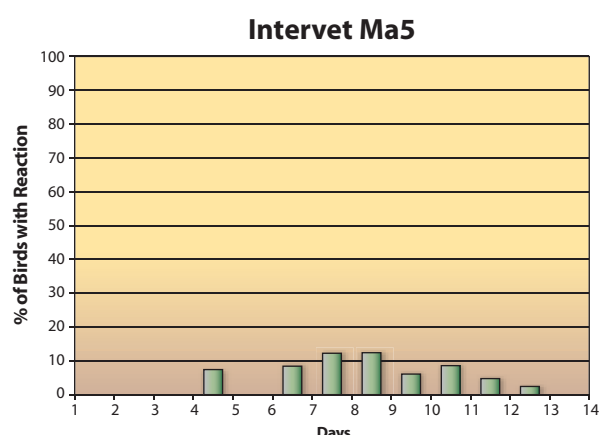
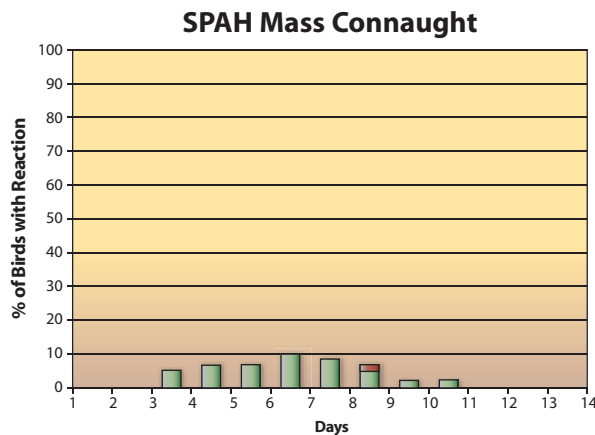
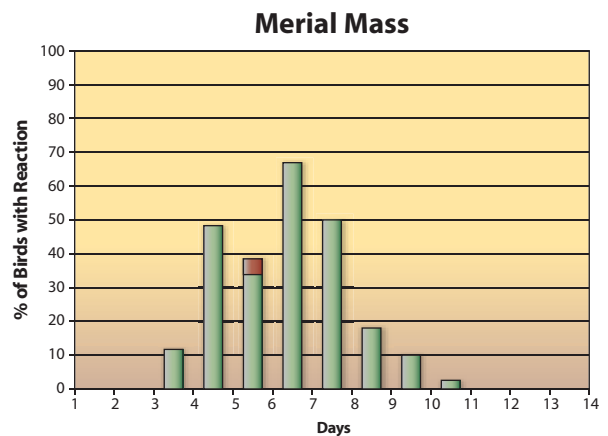
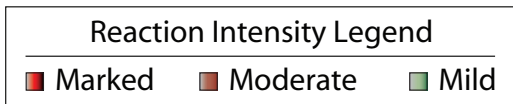
Vaccine	IBV Titer*
SPAH Mass Connaught	$10^{5.0}$ EID ₅₀ per dose
Intervet Ma5	$10^{4.5}$ EID ₅₀ per dose
Merial Mass	$10^{4.7}$ EID ₅₀ per dose

*Titers are based upon blind, simultaneous titration of all vaccines used in this test.

Broiler Reaction Profiles



SPF Leghorn Reaction Profiles



Results

The reaction profiles in broilers and leghorns are represented in the graphs on page 3.

Reactions were generally mild. Peak reaction included some rales and serous or purulent sinus exudates, which were much more common in broilers than in their leghorn counterparts.

Reactions uniformly began on day 2 in broilers and day 3 in SPF leghorns.

Discussion

- The reaction profiles of broilers vs. leghorns in this laboratory experiment match field observation of the sensitivity of broiler breeds to IBV vaccination when compared to commercial leghorns.
- The differences in reaction profiles demonstrate that IBV vaccines are not all the same: the intensity of reaction and the duration of the reaction appear to be product-specific.
- Many companies believe that excessive or lingering vaccination reactions contribute to poor respiratory health. Where this is a problem, the vaccine of choice would have a mild-to-moderate reaction profile with the characteristic of rapid reaction clearance.

**Broilerbron® B1 and Twinvax®
match this profile!**

