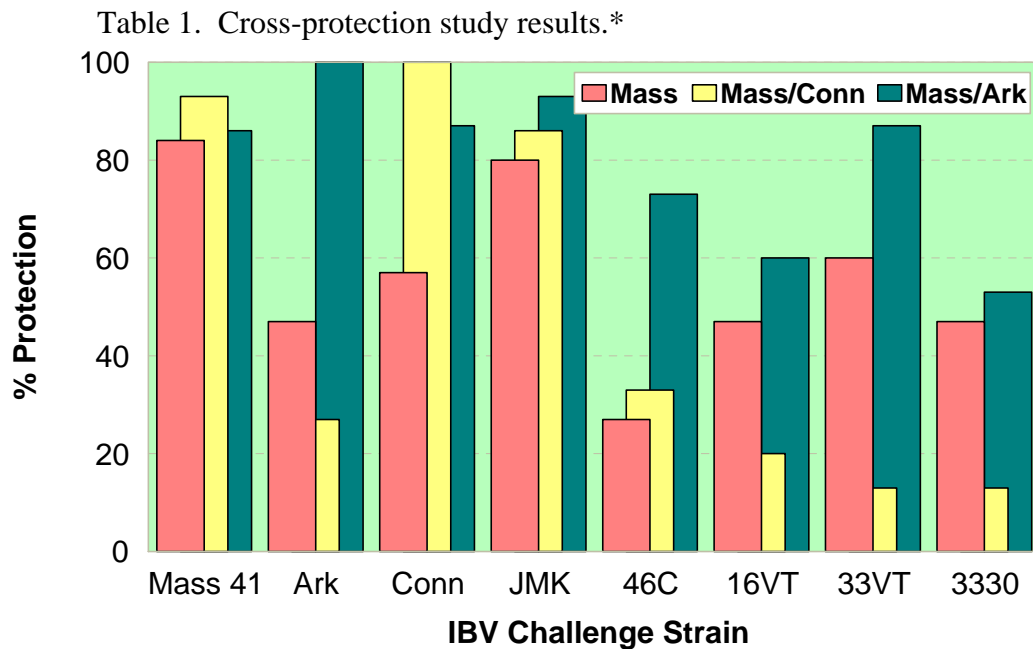


THE IB2 FRACTION OF INACTIVATED PRODUCTS

The IB2 fraction has been developed for use in breeder hens and commercial layers to give broad protection against different strains of infectious bronchitis virus (IBV). Infection with bronchitis during the egg production cycle causes loss of egg production and decreases the profitability of the flock. Several LAHI combination breeder and layer vaccines are produced with two strains of infectious bronchitis virus - Massachusetts and Arkansas strains. Whereas there is very poor cross protection between the different bronchitis strains, this combination of IBV has been chosen to offer broader protection than Massachusetts strain alone. Research with live vaccines has shown the best cross protection to the most common IBV strains and variants occurs by vaccinating with this combination. Use of IB2 has proved invaluable in some cases where traditional Massachusetts vaccines were not protecting against production losses.

A review of research conducted by Dr. Jack Gelb et.al. of the University of Delaware helps demonstrate the cross protection provided by the combination of Massachusetts and Arkansas strains. Cross protection studies were conducted using specific pathogen free chickens. Groups of birds were immunized with Massachusetts, Massachusetts/Arkansas and Massachusetts/Connecticut attenuated vaccines. Groups were challenged with known serotypes and variants from field cases. Massachusetts in combination with Arkansas gave the best over all protection. Representative results are shown in Table 1.



Challenge strains 46C, 16VT, 33VT and 3330 are variant IBV strains isolated from field cases.

* Data from "Variant Serotypes of Infectious Bronchitis Virus Isolated from Commercial Layers and Broiler Chickens" Dr. Jack Gelb, et. al.; Avian Diseases 35:82-87, 1991.

In the challenge studies conducted by Dr. Gelb, groups vaccinated with Massachusetts in combination with Arkansas strain had similar or better protection to known IBV serotypes. Furthermore, this combination gave the best protection from challenge with variant strains.

IB2 provides a broader range of protection than other commercial vaccines with only the Massachusetts serotype. Since it is an inactivated vaccine it is completely safe because it contains no living virus. It can be safely administered at any age and will not be spread from vaccinated to susceptible flocks. The quality of our emulsion helps ensure antigen will be slowly released over a long period of time. When injected, the vaccine produces a high level of circulating antibody, which is maintained throughout the production cycle.

Massachusetts and Arkansas strains of IBV are available in the following Inacti/Vac combination products**:

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|------------------------------|-----------------------------|
| • Inacti/Vac BTO2-ND-IB2-REO | • Inacti/Vac BD3-ND-IB2 |
| • Inacti/Vac SE4-ND-IB2 | |
| • Inacti/Vac ND-IB2 | • Inacti/Vac BD3-ND-IB2-REO |
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