MERCK ANIMAL HEALTH

TECHNICAL SERVICES BULLETIN

BRON-NEWCAVAC™-SE:

Low Reactivity Enhances Body Weight and Uniformity vs. Competitor

Introduction

It is often difficult to induce a strong serological response to an inactivated bacterial vaccine (bacterin) like Salmonella enteritidis (SE). As a result, some inactivated SE vaccines are prepared with strong adjuvants that are designed to induce good immune response, but that may also induce severe tissue reaction. Severe tissue reaction causes birds to back off feed, resulting in a loss of body weight and a loss of flock uniformity post-vaccination[1].

Bron-Newcavac-SE is formulated with a very mild-reacting water-in-oil GNE adjuvant. The mild reaction becomes evident when the weight gain and the flock uniformity of Bron-Newcavac-SE vaccinates are compared to the weight gain and uniformity of flocks vaccinated with a competitor using a more reactive adjuvant.

Good pullet weight and uniformity can translate into a better onset of lay and earlier peak of production[2].

Conclusions

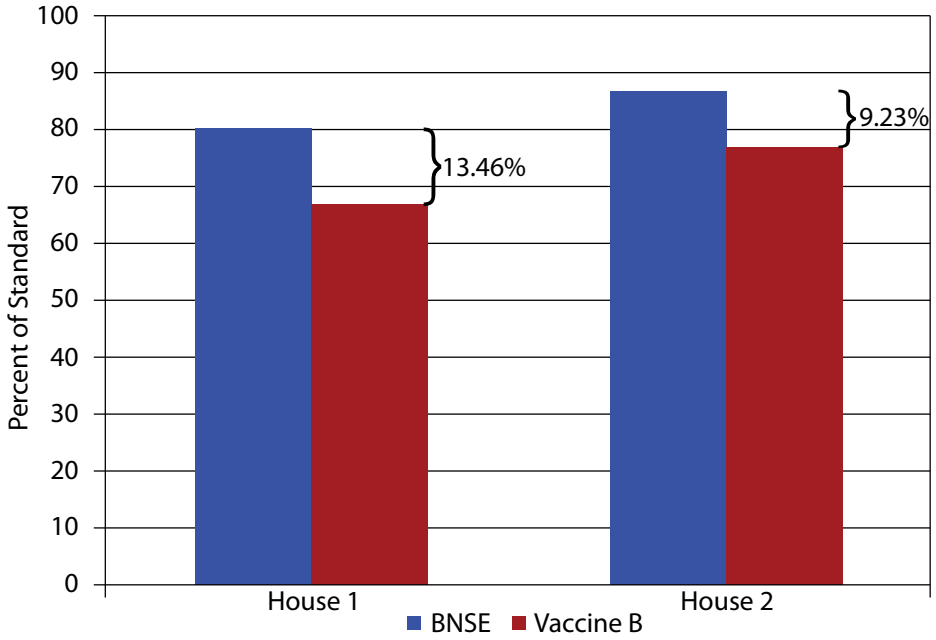
- Bron-Newcavac-SE pullets had better weight gain compared to competitor ND-IB-SE inactivated vaccine during the first four weeks post-vaccination.
- All of the vaccinated pullets had a loss in uniformity during the first four weeks post-vaccination, but the pullets vaccinated with the competitor product were severely affected, with uniformity dropping from 92% to 78% over four weeks.
- The onset of lay and the peak of production reflected pullet uniformity: Bron-Newcavac-SE pullets reached peak 2 to 3 weeks before the pullets vaccinated with the competitor vaccine.
- The mild reaction post-vaccination with Bron-Newcavac-SE helps to improve growth and uniftemplatermity relative to competitor vaccines, and the improvement in growth and uniformity can translate into improved onset of lay and earlier production peak.

Study Design

Sister flocks of commercial Hyline W36 pullets were vaccinated with either Bron-Newcavac-SE or a competitor inactivated Newcastle Disease-infectious bronchitis-SE vaccine at 12 weeks of age. Bird weights were observed at the time of vaccination and again at 16 weeks of age, after four weeks' growth under the influence of vaccination reaction. Rate of gain was compared to the goal for the breed standard (goal = 100%), and uniformity was compared before and after vaccination.

Vaccination with an inactivated vaccine, especially with an inactivated bacterial vaccine (bacterin) often reduces growth compared to the standard. Although both vaccines showed reduced growth compared to the unvaccinated standard, Bron-Newcavac-SE weights were substantially closer to the standard target weight. Results are summarized in Table 1.

Table 1
Pullet body weight gain vs. published breed gain goals (100%) at four weeks post-vaccination (16 weeks of age) for Bron-Newcavac-SE compared to a competitor



Pullet uniformity was also examined at 12 weeks of age (the time of vaccination) and again at 16 weeks of age, after four weeks' growth under the influence of vaccination reaction. Results are summarized in Table 2.

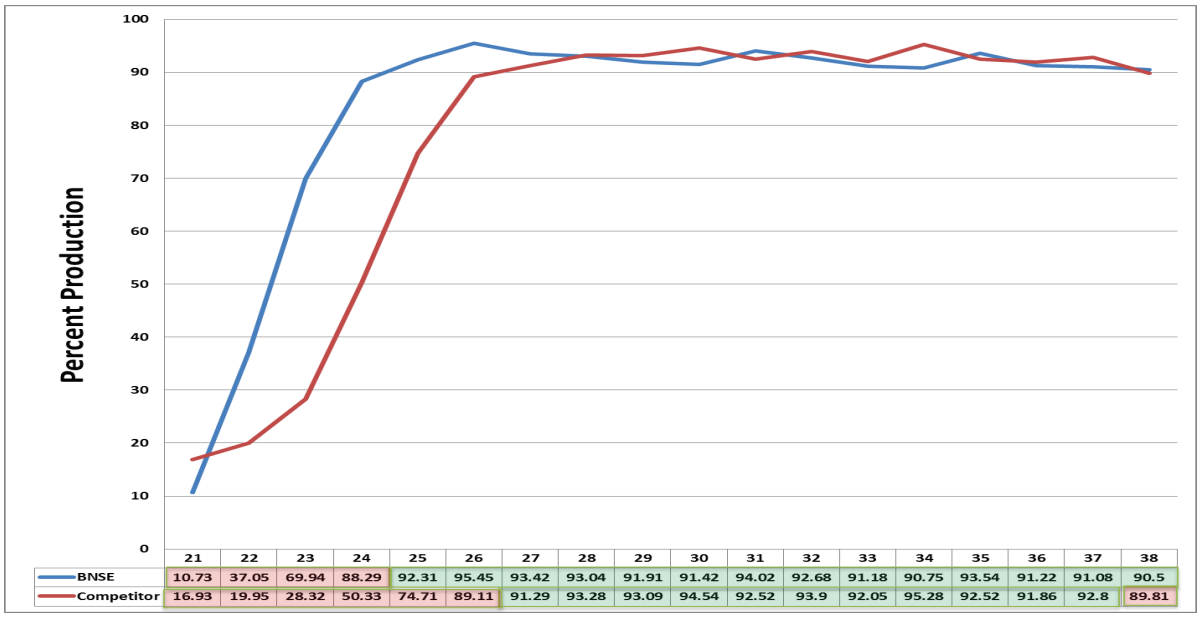
Table 2
Pullet uniformity at vaccination (12 weeks) compared to body weight four weeks post-vaccination (16 weeks) for Bron-Newcavac-SE compared to a competitor

Age (wks)	BNSE	Competitor
12	87.8	91.8
16	82.4	77.8

Pullet uniformity at the time of vaccination was slightly worse in the pullet group that would be vaccinated with Bron-Newcavac-SE. At four weeks post-vaccination, the pullets receiving Bron-Newcavac-SE had better uniformity than the group vaccinated with the competitor vaccine.

Better pullet uniformity translated into a faster onset of production for the Bron-Newcavac-SE pullets after housing (Figure 1).

Figure 1
Onset of egg production and rate of lay for pullets vaccinated with Bron-Newcavac-SE vs. pullets vaccinated with a competitor vaccine.



	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
BNSE	10.73	37.05	69.94	88.29	92.31	95.45	93.42	93.04	91.91	91.42	94.02	92.68	91.18	90.75	93.54	91.22	91.08	90.5
Competitor	16.93	19.95	28.32	50.33	74.71	89.11	91.29	93.28	93.09	94.54	92.52	93.9	92.05	95.28	92.52	91.86	92.8	89.81

REFERENCES

[1] R. Droual, A.A. Bickford, B.R. Charlton and D.R. Kuney. 1990. Investigation of Problems Associated with Intramuscular Breast Injection of Oil-Adjuvanted Killed Vaccines in Chickens. Avian Diseases, Vol. 34, No. 2 (Apr. - Jun., 1990), pp. 473-478

[2] M. North. Body Weight at Sexual Maturity, Section 16G, Commercial Chicken Production Manual, 3rd Edition, pp. 256-258

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