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## **Efficacy of *Salmonella cholerasuis* Vaccine, Avirulent Live Culture, SC-54, Using Spraying as an Alternative Method of Vaccine Delivery**

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Boehringer Ingelheim Vetmedica, Inc.

Introduction: Salmonellosis is a disease that can have a significant economic impact on pork production in the United States. Salmonella infections result in fever, watery diarrhea, poor growth, and mortality in pigs four months old or younger.

Objective: The purpose of this study was to determine the efficacy of spraying Enterisol<sup>TM</sup> SC-54, Avirulent Live Culture Salmonella vaccine on the underline (udders and teats) of sows as an alternative method of vaccine delivery to provide protection against a virulent challenge.

Methods: At 1-3 days of age, piglets in three litters were vaccinated intranasally with Enterisol<sup>TM</sup> SC-54, and piglets from three litters were vaccinated by spraying Enterisol<sup>TM</sup> SC-54 on the underline of the sow and allowing them to suckle. Piglets from four other litters were used as non-vaccinated controls. At three weeks of age, the pigs were challenged with a virulent strain of *S. cholerasuis* and monitored for fourteen days. Fecal shedding was monitored daily following challenge.

Results: Both groups of vaccinated pigs showed a significant decrease in clinical scores. The intranasal and spray groups had lower rectal temperatures and higher daily weight gains as compared to the challenge control group. The intranasal and the spray groups had moderate to high amounts of shedding for the first five days post-challenge, which gradually diminished. The challenge control group had high amounts of shedding for the duration of the study. Mortality was high in the challenge control group, which lost 5/10 (50%), while the

intranasal and the spray groups lost 1/20 (5%) and 0/20 (0%), respectively.

Conclusions: These findings suggest that spraying Enterisol<sup>TM</sup> SC-54 vaccine on the teats of sows is effective in providing protection, and can be easier and faster alternative for vaccine delivery. Vaccination of pigs pre-weaning and using a mass vaccination (spray) system may play a significant role in the control of salmonellosis clinically and should be evaluated for its potential benefits for the reduction of Salmonella serotypes of food safety importance.