

## Herd immunity in buffaloes after intranasal live *gdhA* derivative *P. multocida* B:2 vaccine

### ABSTRACT

The results of a live attenuated *gdhA* derivative *P. multocida* B:2 vaccine on immunity in buffalo herds is described. Three groups of 30 to 50 buffaloes selected from a haemorrhagic septicaemia-endemic and non-endemic area were used. Thirty percent of animals in each group were given intranasal 5 ml inoculum 106 cfu/mL live attenuated *gdhA* derivative *P. multocida* B:2. After exposure, vaccinated buffaloes were mingled with non-vaccinated animals of the same group. A booster dose was given 10 months after the first exposure. Serum samples were randomly collected from 30% of each group before vaccination and at 2-month intervals for 22 months to determine herd immune status by ELISA. Endemic or non-endemic herd status was compared with 15 non-vaccinated controls. Results revealed high herd antibody levels in endemic and non-endemic areas before vaccination. After vaccination, herd antibody levels in both areas gradually increased to peak values by the 6th month and then started to gradually decline until month 10. Following booster dose at 10th month, antibodies declined to levels similar to those in unvaccinated animal at 12 to 14 months. Antibody levels then recovered at 22-months (end of study). It was concluded that field vaccination using *gdhA* derivative *P. multocida* B:2 increased herd immunity for 8 to 10 months before a booster dose was required.

**Keyword:** *gdhA* derivative *Pasteurella multocida* B:2; immune response; field buffalo