

BOHV-1 NEUTRALIZING ANTIBODY RESPONSE OF CALVES VACCINATED WITH LICENSED IBR MODIFIED LIVE VIRUS VACCINES IN FIELD

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OBJECTIVE

Infectious Bovine Rhinotracheitis (IBR) is a worldwide endemic viral disease (BoHV-1) of cattle. Various vaccination plans against IBR are implemented in field; however, little is known about their ability to induce neutralizing antibody immune responses. HIPRABOVIS® IBR MARKER LIVE is a modified live vaccine (MLV) against Infectious Bovine Rhinotracheitis (IBR). The objective of this study was to compare the BoHV-1 neutralizing antibody response induced by this vaccine when administered with a 2-shots programme compared with the 1-shot programme of two other commercial MLVs.

MATERIALS AND METHODS

BoHV-1 gE/gB seronegative calves of 6-7 months of age were selected from a fattening farm. Animals were randomly allocated into groups and vaccinated with 2 doses of HIPRABOVIS® IBR MARKER LIVE (G1, n=15) or 1 dose of two other licensed gE- MLVs (G2, n=15; G3, n=14). G4 (n=12) was not vaccinated. Sera were collected before and 42 days post vaccination (dpv). Those were tested by a virus neutralization assay against the “Los Angeles” BoHV-1 strain. Titres superior to 1/2.5 were considered positive. Statistical comparisons were performed by Mann-Whitney U test.

RESULTS

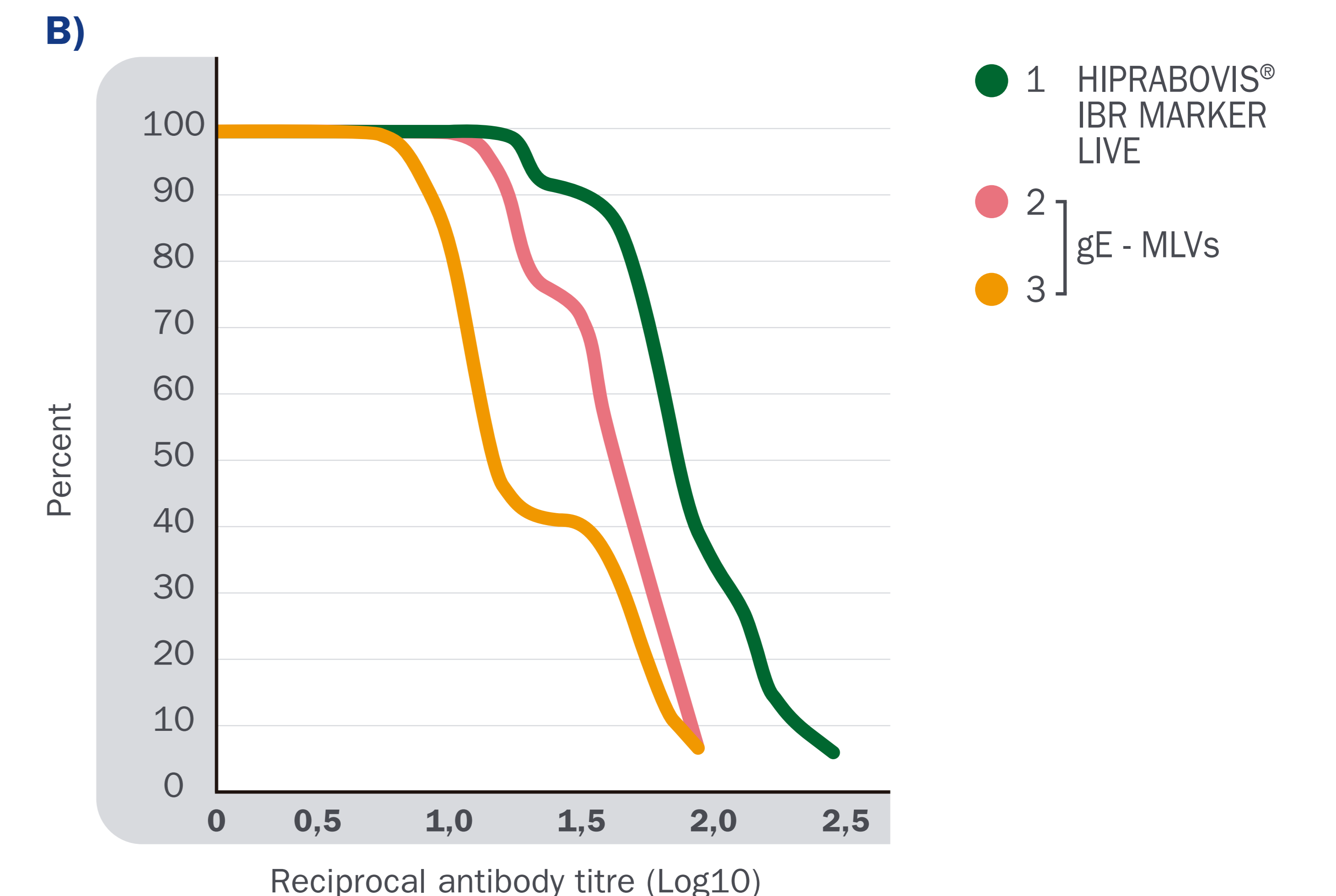
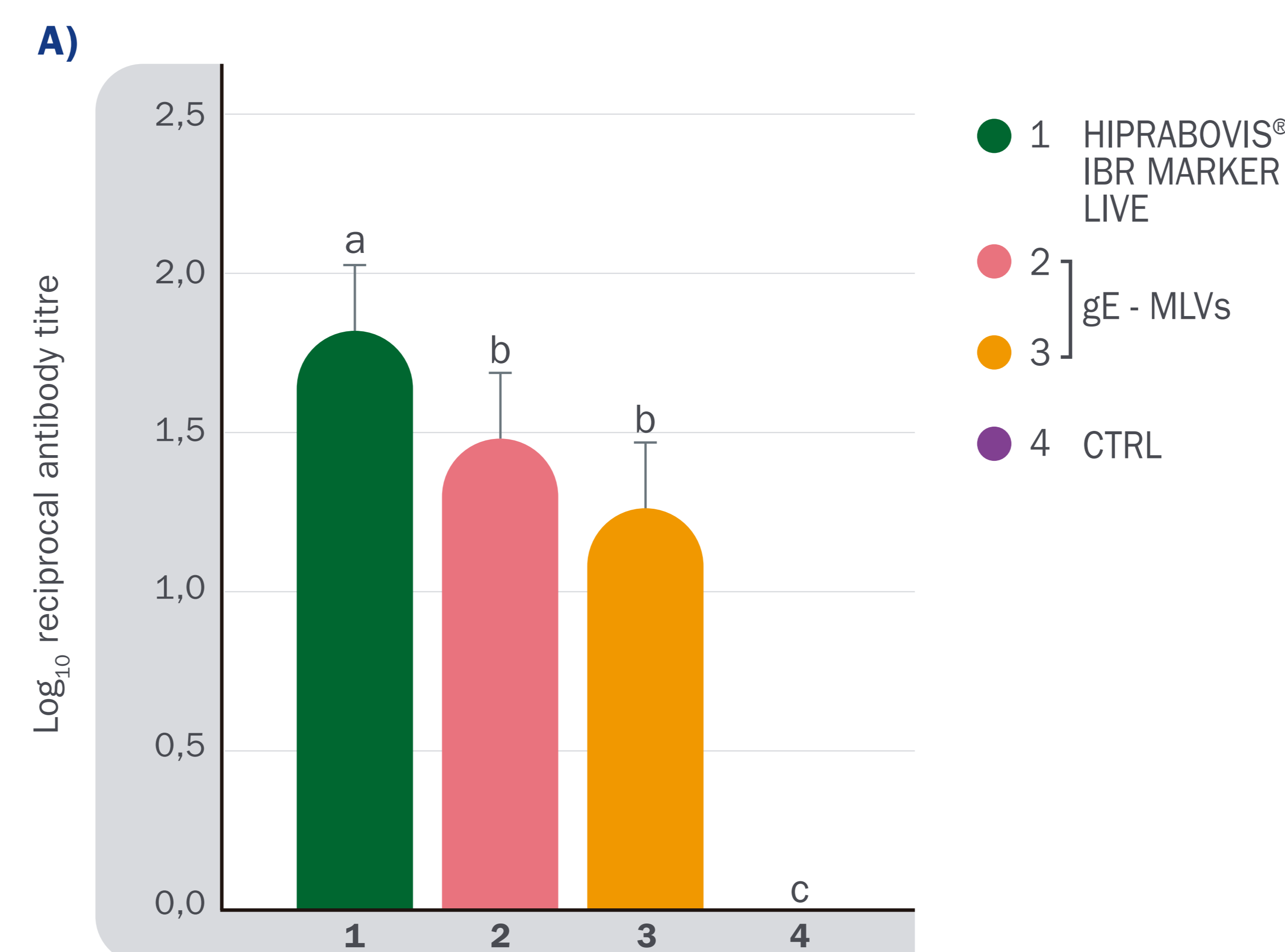
Neutralizing antibody responses against BoHV-1 were detected at 42 dpv in all vaccinated calves and titres ranged from 1/5 to 1/240. The highest titres were observed in G1 compared to the other groups and differences were statistically significant. In particular, a subpopulation of animals (25%) with titres greater than 1/120 was uniquely detected in G1.

Table 1. Neutralizing antibody responses against BoHV-1 at 42 dpv. Statistically significant difference between groups are identified by different letters $p < 0.05$.

Group	Arithmetic Mean	Standard deviation	Geometric Mean
1	78,33 ^a	60,11	60,89
2	33,57 ^b	17,26	29,61
3	25,00 ^b	22,66	17,35
4	0,00 ^c	0,00	0,00

Figure 1. BHV-1 neutralizing antibody response at 42 dpv.

A) Average and standard deviation of the reciprocal of antibody titre at 42 dpv. Mann-Whitney U test; group 1 - 2, n=15; group 3, n=14; group 4, n=12; statistically significant difference between groups are identified by different letters $p < 0.05$. **B)** Reverse cumulative distribution plot; cumulative percentage of animals having at least a specific antibody titre.



CONCLUSION

The licensed MLV marker vaccines studied were able to induce a neutralizing antibody immune response against BoHV-1. Strength of the responses varied based on the type of vaccine used, although results showed that HIPRABOVIS® IBR MARKER LIVE was the one conferring the highest protection level.