

EFFECT OF VACCINATION WITH A MODIFIED-LIVE VACCINE (HIPRABOVIS IBR MARKER LIVE) ON ERADICATION OF BOHV-1 INFECTION ON A DAIRY FARM – ECONOMIC IMPACT ON PRODUCTION AND CLINICAL PROBLEMS

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OBJECTIVE

The incursion of bovine herpesvirus (BoHV-1) into a naïve population of young and adult dairy cows leads to a variety of clinical problems such as abortions, respiratory syndrome, ocular discharge and death of young calves. Of particular importance, however, are subclinical diseases in young and adult animals and insidious production losses such as reductions in milk yield (Statham et al., 2015). The aim of this study was therefore to investigate the effect of eradication of BoHV-1 in a dairy herd by means of vaccination and regular monitoring of the eradication process.

METHODS

The study was conducted on a large commercial dairy farm in the southern region of Poland (309 animals) with a history of clinical signs of BoHV-1, first reported in 2009. BoHV-1 seroprevalence was evaluated (Table 1) using a BoHV-1 gE protein IgG ELISA kit (HerdCheck BHV-1 gE-, IDEXX, Scandinavia AB, Sweden) and a BoHV-1 gB protein IgG ELISA kit (HerdCheck BHV-1 gB, IDEXX, Scandinavia AB, Sweden). The BTM (bulk tank milk) was monitored using SEROMILK MARKER® (HIPRA, Spain). After a new outbreak in 2011 (respiratory signs, “red nose”, abortions, reduction in milk yield and high mortality in calves occurred after the introduction of 60 purchased heifers), all animals were vaccinated with HIPRABOVIS IBR MARKER LIVE® (HIPRA, Spain), with two doses 21 days apart, from 3 months of age, with a booster dose every 6 months.

Table 1. Results of eradication of BoHV-1 on a dairy farm using a modified-live vaccine.

Test dates	10 2007	03 2010	04 2011	03 2013	04 2014**)	09 2015	03 2016	10 2016	02 2017
Type of samples	Serum	Serum	Serum	Milk	Serum	Milk	Milk	Milk	Serum
No. of samples	60 ¹⁾	60 ¹⁾	400 ²⁾	1	490 ²⁾	1	1	1	Total
Prevalence	16.6%	6.6%	65.7%	52%	39%	17%	26%	Less than 4%	3%
Vaccination status	No vaccination								
	Vaccination programme								
	Start	1 st year	2 nd year	3 rd year	4 th year	5 th year	6 th year		

RESULTS

The percentage of seropositive animals decreased in the first year of vaccination from 65.7% to 52%. Over the five-year eradication programme, the observed level of positive animals was lower than 4%. During this period, we observed (Table 2) an increasing number of milk days in lactation from 303 days in 2007 and 297 days in 2011 (start of vaccination programme) to 346 days in 2017. We also observed an increase in the milk yield from 7,758 (2007) and 7,817 (2011) to 12,509 (2016). Milk production increased by around 4,692 kg milk/cow.

CONCLUSIONS

The vaccination programme (DIVA) helped to maintain the farm’s status as “free of BoHV-1”. For success in the eradication of BoHV-1, the following conditions must be fulfilled: vaccination of all animals in a timely manner, constant animal movement control, no purchasing of new animals, continuous improvements in biosecurity, carrying out and collecting full animal documentation and employee commitment.

REFERENCES

Statham JME, Randall LV, Archer SC (2015) Reduction in daily milk yield associated with sub-clinical bovine herpes virus 1 infection. *Vet Rec* 13; 339-339.

Table 2. Results for milk production in herd before and during vaccination programme (for 305 days of lactation)

Year	Average days in lactation (days/cow)	Average milk yield (kg)	Fat in milk (%)	Protein in milk (%)	Average lactation (lactation/cow)
2009	303	7,558	4.24	3.38	2.6
2010	293	7,117	4.16	3.32	2.4
2011	297	7,817	3.84	3.29	2.7
2012	238	9,326	3.88	3.25	2.6
2013	319	9,673	4.22	3.32	2.5
2014	334	10,207	4.14	3.20	2.5
2015	338	10,300	4.15	3.19	2.5
2016	346	12,509	4.0	3.15	2.3