Vaccination of Cattle Against Ringworm on a Farm in Slovenia

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Introduction

The dermathophyte *Trichopyton verrucosum* is the causative agent of cattle trichophytosis in 99.1% of cases and this disease may be transmitted to man by professional contact.[1,2] The classical way of treatment is time-consuming, costly as well as unreliable, therefore the prevention of the disease by vaccination is of great interest. Since 1974, specific vaccines are the most effective tool for monitoring ringworm in farm animals.[5] Compared to other measures the costs of vaccination, including labor, are considerably lower. Prophylactic vaccination induces immunity, protecting animals against ringworm for several years.[3,5]

The results obtained in field investigation suggest that specific prophylaxis is the most effective control of this disease in cattle. The introduction of the Russian vaccine TF-130 and LTF-130 into veterinary practice resulted in the elimination of this dermatophytosis within large areas in the former Soviet Union and eight years after vaccination, cattle morbidity in this country decreased more than 20 times.[3] The Russian vaccine achieved a great deal of success in most countries of Europe and Scandinavia.[6,7,10]

Similar results were achieved with the Czech preparation "Lyophylized vaccine against cattle trichophytosis" (Bioveta). When starting the regional vaccination of cattle against trichophytosis in Czechoslovakia in 1976, a total of 917 foci of cattle trichophytosis with 16,251 infected animals were reported; since 1983, trichophytosis in cattle has not posed an epidemiological problem in Czechoslovakia.[2,4]

In 1976, HAJSIG *et al.*[5] tested the vaccine (LTF-130) for the first time in former Yugoslavia and recommended it for therapy and prophylaxis on the basis of the obtained results. Since then the vaccine LTF-130 was successfully applied. In Slovenia, Zadnik *et al.*[8] reported several times on successful vaccination against trichophytosis in cattle with the Czech (Bioveta) live lyophylized and attenuated vaccine.

Material and Methods

In 1991, there was a repeated outbreak of trichophytosis in calves, young cattle for breeding and pregnant heifers on the dairy farm Psata with 705 animals at the time. Clinically apparent trichophytosis occurred in 40 calves, 25 heifers and 110 young breeding animals. Because of the lack of the vaccine on the market, the last systematic preventive vaccination of calves took place five years ago. Treatment with 1% $CuSO_4$ solution (spraying) proved unsuccessful. That's why we turned for professional advice to the experts at the Clinic of Ruminants in Ljubljana. For therapy and prophylaxis we were advised to use the Czech vaccine against trichophytosis having been already tested twice by Dr. Zadnik on two farms in Slovenia with most satisfactory results. Before vaccination of all animals, we decided to carry out the experiment on 20 clinically affected heifers. A double vaccination proved to be a very effective treatment, namely, the animals recovered almost fully 4 weeks after the vaccination. At the suggestion of the producer (Bioveta on Hana) we use live lyophylized vaccine. We now import it.

Table 1. Curative and preventive vaccination of animals on dairy farm Psata (1991)

Skin lesions before and after the application of the vaccine				
Category	Application	14th day	30th day	90th day
Curative				
Heifers (n=125)	+++	++	+	0
Calves (n=40)	+++	++	+	0
Bull (n=1)	+++	++	0	0
Prevention				
Heifers (n=120)	0	0	0	0
Calves (n=80)	0	0	0	0
Bull (n=1)	0	0	0	0

+++ = Characteristic skin lesions are spread over the skin of the head, neck and body
++ = Skin lesions are drying up
+ = Skin lesions are healing; growth of hair noticeable
0 = No apparent microscopic signs of infection

Paper presented at the XVIII World Buiatrics Congress, Bologna, Italy August 29 - September 2, 1994

Discussion and Conclusion

In Russia, an increasing attention has been given to the question of immunity against trichophytosis in cattle since 1963. On the basis of an extensive and detailed research, they have come to the conclusion that a four-year long immunity is induced through double application of the LTF-130 vaccine. The last systematic prophylactic vaccination of calves (LTF-130 vaccine) on our farm was carried out in 1987. Since then and until 1991 no clinical appearance of ringworm was observed. However, in 1991, there was a repeated mass outbreak among heifers and calves. There were no clinically apparent skin lesions in cows, vaccinated as calves, from 1982 to 1987. An effective immunity of the vaccine has thus been confirmed. The question why the outbreak did not occur among the unvaccinated cattle in spite of very favorable conditions (great agglomeration of animals, poor hygiene) for the spread of causative agent is still open, however, Ribnikar *et al.*[9] report on successful therapeutic, prophylactic and immunologic reaction of calves to the Czech live lyophylized vaccine. Good immunity was found to have developed within the period of 21 to 28 days after the administration of live vaccine against bovine trichophytosis.[9] By using the vaccine on our farm, very satisfying results have been accomplished within a short period of time. **We recommend the application of the Czech vaccine for curative and immunoprophylactic purposes for ringworm eradication in cattle. It is quick and simple to administer, requiring little workforce.**

Summary

On the basis of our own research carried out through three years on one of the biggest high-yielding dairy farms near Ljubljana, including the reports of the Czech authors and numerous other authors across the world on successful curative and immunoprophylactic effect of the vaccine against bovine ringworm (BIOVETA), we have come to the conclusion that treatment and immunoprofilaxis with lyophylized vaccine against bovine trichophytosis is very successful. Because of favorable clinical results we recommend the application of the vaccine for curative and immunoprophylaxis purposes for bovine ringworm eradication in Slovenia as well.

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Abstract

Johne's disease in alpacas (*Lama pacos*) in Australia

S.E. Ridge, J.T. Harkin, R.T. Badman, A.M. Mellor and J.W.A. Larsen
Australian Veterinary Record (1995) 72, 150-153

Johne's disease was diagnosed in 10 alpacas (Lama pacos) in Australia between February 1993 and May 1994. Eight of the animals were between 12 and 24 months of age, one was a 6-year-old female, and one was a 4-year-old male. Five, including the 6-year-old and the 4-year-old alpacas, showed weight loss and diarrhoea before death or slaughter. The other cases showed no clinical signs of Johne's disease but 4 gave a positive result on faecal culture and one gave a positive result on testing with the caprine AGID assay and had acid-fast organisms in its faeces. At necropsy, all cases had grossly enlarged mesenteric lymph nodes. Johne's disease was diagnosed after histological examination of the lymph nodes with conventional culture and polymerase chain reaction testing of tissue samples. This report outlines the clinical, epidemiological, and pathological findings in these cases.

Abstracts

Controlling microbial contamination on beef and lamb meat during processing

P.R. Widders, K.J. Coates, S. Warner, J.C. Beattie, I.R. Morgan, and **M.W. Hickey**
Aust Vet J **72**:208-211

The microbiological quality of carcases, meat and environmental surfaces was evaluated in commercial boning rooms processing beef and lamb. There was considerable variation in the level of microbial contamination on both carcases and meat, with counts ranging from less than 20 to 10^8/cm^2 on carcases and to 2 x 10^7/cm^2 on meat. The level of microbial contamination on meat was influenced by the level of carcase contamination at boning and by the boning process itself. Carcase contamination was the major determinant of microbiological quality, as more than 70% of carcases had microbial counts greater than 10^3/cm^2. Cutting boards were a major source for microbial dissemination during boning, particularly when carcase counts were less than 10^3/cm^2. If carcases were heavily contaminated, the contamination of processing surfaces was irrelevant in determining microbial loads on meat. Where carcase contamination was at low to moderate levels, the contribution of the boning process to the contamination on meat assumed increased significance. Under these conditions, improved sanitation of cutting surfaces in the boning room resulted in a significant reduction in microbial contamination on the surface of meat. These results can form the basis for ensuring that improvements made in carcase management before boning, to improve microbiological quality, will be preserved through attention to cutting board hygiene during boning.

A survey of the incidence of *Neospora caninum* infection in aborted and stillborn bovine fetuses in England and Wales

A. Otter, M. Jeffrey, I.B. Griffiths, J.P. Dubey
Veterinary Record (1995) **136,** 602-606

Selected brains and fetal viscera from 190 aborted or stillborn bovine fetuses submitted to Veterinary Investigation Centres in England and Wales between August 1992 and January 1993 were examined histologically. Non-suppurative inflammation of the brain and/or myocardium and placental cotyledons was identified by light microscopy in 20 (10·5 percent). An immunocytochemical examination of fixed tissue sections using antisera against *Neospora caninum*, *Toxoplasma gondii* and *Sarcocystis* species revealed positive immunolabelling for *N caninum* in the brains of eight (4·2 percent), but no labelling with anti-*T gondii* or anti-*Sarcocystis* species antisera was evident. These results suggest that *N caninum* may be an important cause of reproductive failure in cattle in England and Wales.

Oestrus detection techniques and insemination strategies in *Bos indicus* heifers synchronized with norgestomet-oestradiol

J. Cavalieri, L.A. Fitzpatrick
Aust Vet J **72**:177-182

Oestrus was synchronized in 57 *Bos indicus* heifers using norgestomet-oestradiol and pregnant mare serum gonadotrophin. Oestrus was detected by observations made at six-hourly intervals, using oestrogen-treated and chin-ball harnessed steers, heatmount detectors, tail-paint and visual observation. Heifers were inseminated once at either a fixed time of 49.2 ± 0.4 h (mean ± SE; n = 29) after implant removal or 12.6 ± 1.5 h (n = 28) after oestrus was detected. The mean (±SE) time to the onset of oestrus was 47.1 ± 1.9 h, while 90% of heifers recorded in oestrus were detected within 66 h of implant removal. Heatmount detectors were significantly more efficient at detecting oestrus than chin-ball harnessed steers, tail-paint or visual observation ($P < 0.001$). A higher pregnancy rate was obtained in heifers inseminated after oestrus detection compared with heifers inseminated at a fixed-time (57.1 *vs* 34.5%; $P = 0.043$) and a higher pregnancy rate was obtained in heifers classified as easy to inseminate compared with heifers classified as difficult to inseminate (57.8 *vs* 0%, $P < 0.001$). We conclude that heatmount detectors are an efficient means of detecting oestrus in synchronized *B indicus* heifers and that pregnancy rates can be increased when insemination follows oestrus detection compared with a fixed-time insemination regimen.

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