

7. SUMMARY

Sero-epidemiological investigations on the prevalence of *Trypanosoma equiperdum* (Doflein, 1901) in horses in Mongolia.

The objective of the investigation was to generate data for the prevalence-estimation of dourine in horses in the central province (Tuv-aimag) of Mongolia. The field investigations were carried out from May 2000 until July 2000. At least four herds of horses were chosen by random selection from each of the 26 central aimag subdivisions (= total 119 herds). 10 horses per herd, stratified for age and sex within the herds were sampled and examined (= total 1190 horses).

Herd sizes varied between 10 and 280 animals, the median was 33 animals. In 17.6% of the herds the condition of the animals was assessed as bad, in 51.3% as medium and in 31.3% as good. Particularly herds in Mungunmorit, in the northeast of the central aimag and in Buren, in the southwest of the aimag, were in very bad condition at the time of examination. The horses were cachectic and emaciated. According to owner information an increased number of abortions in these herds was observed. Owners of 54 herds (45.4%) reported such increased abortions. Furthermore, owners' reports frequently contained nasal discharge, cough and infestation of ticks. By individual examination, the nutritional status of 14.2% of animals was classified as bad, 74.2% as medium and 11.2% as good. The herd owners held the hard winter 1999/2000 responsible for the high number of animal losses, the bad nutrition of their herds and the increased occurrences of abortions.

From the total of 1190 horses blood samples were taken. All serum samples were examined for antibodies against *T. equiperdum* by CFT and by indirect ELISA. From the eventually 1122 tested serum samples 85 (7.6%) were positive in the CFT and 75 (6.7%) in the ELISA. CFT and ELISA results showed good (96%) diagnostic agreement. 1017 negative and 55 positive CFT reactors were confirmed by ELISA. 30 positive and 20 negative CFT reactors, however, did not agree with the ELISA results. These differences may have been due to the use of different antigen

preparations for both tests or by partly different immunoglobulin isotypes targeted by either test.

The majority of herds (65% in CFT, 66.7% in ELISA) was sero-negative. The CFT revealed one positive reactor in 16 herds (1/10), two positive reactors in another 16 herds (2/10), three positives in two herds (3/10), four positives in five herds (4/10) and 5 (5/10) resp. 6 (6/10) positive reactors each in one herd.

The ELISA revealed one positive reactor in 21 herds (1/10), two positive reactors in eight herds (2/10), three positive reactors in four herds (3/10) and four positives in five herds (4/10). In one herd six animals reacted positively in the ELISA. One herd in Mungunmorit soum had the highest number of sero-positive animals (CFT and/or ELISA), followed by herds in Bayandelger soum and Bajanzagaan soum, Zeel soum and Argalant soum.

Herds with at least three (3/10) sero-positive animals (CFT and/or ELISA) were examined by PCR using a Trypanozoon-specific primer pair. From 130 whole blood samples eight samples were positive in the PCR. Five of the eight PCR-positive animals responded positively in both tests (CFT and ELISA). Two PCR-positive samples were either positive in CFT or ELISA. One sample which reacted positively in the PCR was sero-negative (CFT and ELISA).

The clinical examination of the horses identified one stallion with a oedematous skin plaque and scrotal and preputial oedema. The sample of this stallion was negative in the CFT but positive in ELISA and PCR. Three mares with vaginal discharge were sero-positive, but negative in the PCR. Four horses with skin nodes presumably caused by horse-flies, reacted positively in all tests.

Blood smears were prepared from three animals per herd. The smears of those horses positive for dourine in CFT and/or ELISA were Giemsa stained and examined by microscopy. None of these blood smears showed any trypanosomes.

The serological CFT and ELISA results and the detection of trypanosomal DNA in the PCR confirm the prevalence of trypanosome infections in some herds of horses in the central aimag of Mongolia. Since at present neither the two serological tests nor the PCR permit to differentiate between the two subspecies *Trypanosoma*

equiperdum (causative agent of dourine) and *Trypanosoma evansi* (causative agent of surra) a final diagnosis cannot be made. On the basis of the clinical findings, the negative parasitological results and the concentration of conspicuous seroprevalences in single herds, the existence of infections with the causative agent of dourine are hypothesized. Longitudinal studies in high prevalence herds aimed at identification of trypanosome parasites are needed.