

SECOND ATTEMPT TO ERADICATE SWINE DYSENTERY ON THE BIG PIG UNIT
M. JANC¹, D. ŠABEC², VOJKA BOLE^{2,*}, A. PLANTARIČ³, M. SKUBIC³, J. RAC⁴

INSTITUTE OF MICROBIOLOGY, MEDICAL FACULTY¹, VETERINARY DEPARTMENT,
BIOTECHNICAL FACULTY², KIT LJUBLJANA³, LEK⁴, 61000 LJUBLJANA

Swine dysentery (SD) can persist for many years in big pig units with their own reproduction. On such infected farms incidence of SD, lower weight gain and excessive mortality can be kept within economically acceptable limits only with permanent prophylactic and/or therapeutic medication.

Immunization confers partial protection against infection with primary etiological agent of SD, *Trepnema hyodysenteriae* (Glock et al., 1978). The depopulation is the safest method for the eradication of the disease but is economically unfeasible for big populations. Thus, the only acceptable method, although risky, that could be used on big farms is a long term treatment of the whole herd combined with the destruction of *T. hyodysenteriae* in the immediate environment of pigs.

Our first attempt to eradicate SD on the reproductive and fattening pig unit producing 10,500 slaughter pigs per year failed in 1979 (Janc et al., 1980). The second eradication program was launched on the same farm in 1980.

Before the initiation of the second eradication program minimal inhibitory and minimal bactericidal concentrations were determined for strains of *T. hyodysenteriae* isolated from swine with acute SD six months after the first attempted eradication failed. Clinical effectiveness of ronidazole (5 mg/1 kg body weight) was tested on pigs sick with SD on the farm and in controlled experiment in the isolation unit. Methods used for isolation of *T. hyodysenteriae* and in sensitivity studies were described by Kynion et al., 1976. Some of the procedures used during the eradication (Janc et al., 1980) were modified as follows:

All 51 batches of medicated feed-stuffs used during the eradication program were quantitatively analysed for nitroimidazoles at the Veterinary Institute, Zagreb.

The whole infected population was fed medicated diet containing ronidazole (5 mg of active substance per 1 kg body weight) for 43 to 46 successive days. Slaughter pigs were fed nonmedicated feeds for 3 days before slaughter.

Suckling piglets and weaners were fed medicated feeds for 10 additional days.

Pigs sick with SD were treated with 10 % water solution of ronidazole (5mg/1kg body weight). Suckling piglets younger than 15 days at the end of the eradication were treated the same way as sick pigs for 4 successive days.

Losses due to SD were calculated by comparing the cost of treatment, feeding, and housing of pigs before the eradication of the disease to the expenses after the eradication.

The results of in vitro and in vivo sensitivity studies indicated that sensitivity of *T. hyodysenteriae* to ronidazole was not considerably changed during the first mass treatment with this drug nor was 6 months later. This data were estimated as a sound basis for the second eradication program on the same farm with the same drug.

Samples of feed-stuffs used during the second eradication contained 34 to 216 ppm of nitroimidazoles, the mean value being 153 ppm. Nitroimidazole content was dangerously low in only one sample. This was not due to inadequate mixing of feeds but rather to a mistake made on the farm.

Within sixteen days of May and June 1980, prior to the second eradication, between 11 and 90 fattening pigs with signs of SD were found daily. From the first day of mass medication no signs of SD were seen although some pigs have had diarrhoea. Within 4 months after the withdrawal of medicated feeds three cases of diarrhoea suggestive of SD were seen. All pigs in the two suspicious pig houses were fed medicated diet for 7 days. In none of the above cases was SD proven with laboratory findings. Until now SD did not reappear on this farm.

While infected with SD this particular farm did not experience significant mortality caused by SD. Economic losses were due rather to expensive individual treatment of sick pigs and to 10 days longer fattening time. Expenses due to SD represented at least 5 % on the top of a pork price. Estimated cost-benefit ratio showed that that investment into the eradication of SD became remunerative one year from the beginning of the eradication program.

Selected references: Glock, R. D., K. J. Schwartz, D. L. Harris: *Am. J. Vet. Res.* 39 (1978), 639-642. Kynion, M. Joan, J. G. Songer, M. Janc, D. L. Harris: *Proc. Am. Assoc. Vet. Lab. Diag.* (1976), 65-74. Janc, M., D. Šabec, Vojislava Bole, J. Mehle: *Proc. IPVS Congress, Copenhagen 1980*, p. 254.