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A CLINICAL TRIAL TO EVALUATE TWO MANAGEMENT STRATEGIES FOR GRAZING HEIFERS.

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A clinical trial to evaluate the efficacy of two management strategies was performed at one grazing farm in central part of Japan. Fifty five animals were classified into 2 groups and flumethrin (1mg/kg; pour-on) and ivermectin (200ug/kg; id) treatments were applied to each of the 2 groups. Many of the parameters that reflect clinical conditions of the grazing heifers were not significantly different between these groups, however, higher daily body weight gain and lower nematode egg counts were observed in ivermectin treatment group. Therefore, ivermectin treatment may be a economically justifiable management for Japanese grazing heifers.

For grazing heifers in Japan, pour-on application of flumethrin (Bayticol) has been successfully used to control tick (*Haemaphysalis longicornis*) and tick-borne infections such as *Theileria sergenti*. In other countries, injection of ivermectin has been recognized as an important practice to control gastrointestinal parasite for grazing animals. Therefore, a clinical trial was conducted to evaluate the adequacy of these 2 different management practices for grazing heifers at one farm in central part of Japan. The farm was located at an altitude of 700m, an area of 0.18km^2, with an animal population of 120. The target animals were 55 heifers (270-544 days old), which did not show detectable parasitemia of *Theileria sergenti* and were entered for grazing in April 1995. They were classified into 3 age-block to control potential confounding effects by age and were randomly allocated into 2 groups. Flumethrin (1mg/kg; pour-on) was applied approximately once every 3 weeks in one group and ivermectin (200ug/kg; id) was injected approximately once every month in another. Blood, fecal and tick samples were collected approximately every 3 weeks from both groups. Blood samples were analyzed for parasitemia of *Theileria sergenti*, erythrocyte, leukocyte and hematocrit counts, total proteins, glucose, cholesterol, hemoglobin and BUN values. Fecal samples were used for nematode egg counts using Wisconsin method and tick species infested on the body were identified. Daily body weight gain, conception rates and morbidity rates were calculated using clinical records of the grazing animals. These parameters at each sampling day were analyzed, using standard t and chi-square tests.

No statistical differences were observed in parasitemia, hematocrit values, erythrocyte and leukocyte counts, cholesterol, hemoglobin, BUN values and conception and morbidity rates throughout the grazing season. In the fecal examinations conducted after May, lower nematode egg counts were observed in ivermectin treatment group. Higher blood glucose and serum protein levels were observed toward the end of the grazing season in animals with ivermectin treatment. Animals with ivermectin treatment had 0.12 kg/day higher daily body weight gain compared to those with flumethrin treatment. Ivermectin treatment may be a economically justifiable management for Japanese grazing heifers because animals had much higher daily body weight gain and many of the other parameters that reflect clinical conditions were not significantly different from animals with conventionally used flumethrin treatment.

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