

B-1. Heterogeneous impacts of grazing animals and vegetational change in Japanese native pastures (Abstracts of the International Symposium on Recent Advances in Animal Science (IS-RAAS), Joint meeting of 2nd IS-AS and 3rd IS-IFS)

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Selective grazing, defecation and trampling are the major impacts of grazing animals on vegetation. Due to their spatial heterogeneity, these impacts can give profound effects on vegetation. In extensive grazing systems in native pastures, understandings of the plant-animal interactions are vital for adequate control of vegetation and animal conditions and sustainable use of the natural resources. In this presentation, recent studies of the grazing impacts on vegetation in Japanese native pastures were reviewed. Most of the studies were carried out in Kawatabi Field Science Center (KFSC), Tohoku University.

1. Native pastures in KFSC are composed of 61–155 plant species, of which cattle graze upon 26–76 species. Among these species, Japanese plume-grass (*Miscanthus sinensis*) was most frequently grazed by cattle. Spatial distribution of available forage was one of the major factors affecting ingestive behavior and selectivity of cattle. This heterogeneous grazing can decline *M. sinensis* pasture if strongly defoliated by animals.
2. Seed dispersal of plants by defecation of grazing animals also exerts significant effects on vegetational change. Recent studies showed that *Carex* spp. is the major plant whose seeds are dispersed by grazing animals. The mechanisms of the seed dispersal and its possible effects on vegetational succession are discussed.
3. It is generally known that severe animal trampling deteriorates vegetation. Our researches showed that trampling of cattle accelerated invasion of a shrub, *Weigela hortensis* into a *Miscanthus*-dominated pasture. It was indicated that trampling contributed to germination of the seeds by removing of litter on the ground, because it was light sensitive germinator.

These findings provide new perspectives on plant-animal interactions in Japanese native pastures and will help estimate the impact of animals on plant succession, and contribute to sustainable grazing use of the pastures.