

Physiological and Immunological Differences in Cattle under Grazing or Confinement Condition

著者	NAKAJIMA Noriaki, DOI Kazuya, TAMIYA Sae, YAYOTA Masato
journal or publication title	Journal of Integrated Field Science
volume	14
page range	106-106
year	2017-03
URL	http://hdl.handle.net/10097/00121241

Physiological and Immunological Differences in Cattle under Grazing or Confinement Condition

Noriaki NAKAJIMA¹, Kazuya DOI¹, Sae TAMIYA² and Masato YAYOTA²

¹The United Graduate School of Agricultural Science, Gifu University, Japan

²Faculty of Applied Biological Sciences, Gifu University, Japan

Grazing is assumed to have positive effects on the animal welfare of livestock; however, the underlying mechanism is still unclear. Physiological and immunological states reflect the level of animal welfare. However, little information is available for evaluating the physiological and immunological states of grazing animals to improve their welfare. The objective of the present study was to determine the physiological and immunological differences in cattle under grazing or confinement by using blood parameters. Ten Japanese black cows (337 ± 50 kg) were used in this experiment. All cows were kept confined for two weeks. Then, five of the ten cows were grazed for two months on a 1.8 ha field composed of sown pasture and forest land, and the remaining cows were fed under confinement. After two months, all cows were kept confined for two weeks. Blood samples were collected from the cows every two weeks, throughout the experiment. The number of blood cells was estimated by Celltac α (Nihon Kohden Co., Ltd.). The type of white blood cells was identified by May-Grunwald and Giemsa staining. Plasma biochemical parameters were analyzed using a dry-chemistry method (Fujifilm Co., Ltd.). The number of red blood cells in grazing cows was lower than that in confined cows. The number of neutrophils, monocytes, and platelets in grazing cows was higher than that in confined cows. Plasma phosphate and blood urea nitrogen concentrations fluctuated during grazing. These results suggest that phagocytosis and clotting ability improved under grazing condition.