Studies on integration systems in Japan

In rural areas of Japan, cattle production is still tightly integrated with crop production. Rice straw and wild grass are given to cattle as feed and excretion from cattle is applied to crop fields as manure. In Okinawa island, integration systems between sugarcane and beef cattle are popular.

Studies on animal and feed resources

There are still valuable genetic resources of domestic animals all over the world, but most of them are endangered. We are studying specific traits and nutritional characteristics in such animal resources utilizing non-conventional feed resources and carrying out conservation programs to determine optimum budget distributions of each breed.

Nitrogen flow (N kg/year) in the mixed farming system of beef fattening and rice production

Behavior analysis of grazing cattle introduced in set aside paddy fields with GPS

Studies on mixed farming systems in developing countries in Asia

Cattle and water buffalo are used for meat, milk and draft and sheep and goats are kept for milk, meat and ‘livestock’ in the backyard. We are investigating nutrient cycling within the system.
**Key words**

cattle, buffalo, sheep, goats, mixed farming, local breed, nutrient cycling, environmentally sound animal production, grazing, animal nutrition, grassland science, animal breeding, systems analysis, informatics, meat science, milk science

**Recent publications**

Effects of adding food by-products mainly including noodle waste to total mixed ration silage on fermentation quality, feed intake, digestibility, nitrogen utilization and ruminal fermentation in wethers.
Animal Science Journal (in press)

Effects of sex control and twinning on economic optimization of culling cows in Japanese Black cow-calf production systems.

Stable carbon and nitrogen isotope analysis as a tool for inferring beef cattle feeding systems in Japan.
Food Chemistry 134: 502-506.

Development and application of a crossbreeding simulation model for goat production systems in tropical regions.
Animal Science 89: 3890-3907.

Effects of plane of nutrition on slaughtering traits and meat characteristics in Murrah graded male buffalo (Bubalus bubalis) calves in Nepal.

Optimal culling strategy in relation to biological and economic efficiency and annualized net revenue in the Japanese Black cow-calf production system.

Effects of plane of nutrition on growth feed intake, digestibility and nitrogen balance in Murrah graded male buffalo (Bubalus bubalis) calves in Nepal.
Animal Science Journal 83: 50-54.

Application of the modified feed formulation to optimize economic and environmental criteria in beef cattle fattening systems with food by-products.
Animal Feed Science and Technology 165: 38-50.
Genetic parameters of serum vitamin A and total cholesterol concentrations and the genetic relationships with carcass traits in F1 cross between Japanese Black steers and Holstein dams.  

Systems approaches to beef cattle production systems using modeling and simulation.  

An evaluation of β-hydroxybutyrate in milk and blood for prediction of subclinical ketosis in dairy cows.  

Optimization of mate selection based on genotypic information with overlapping generations.  

Nitrogen, phosphorus and potassium utilization and their cycling in a beef-forage production system.  

Application of cycling index and input-output environs for interpretation of nutrient flows in mixed rice-beef production systems in Japan.  

Effects of supplementary inosine on nutrient digestibility, ruminal fermentation and nitrogen balance in goats fed high amount of concentrate.  
Animal Feed Science and Technology 152: 12-20.

Fit of Wood's function to daily milk records and estimation of environmental and additive and non-additive genetic effects on lactation curve and lactation parameters of crossbred dual purpose cattle.  

Development and evaluation of a simulation model for dairy cattle production systems integrated with Forage crop production.  

Application of a simulation model for dairy cattle production systems integrated with forage crop production: the effects of whole crop rice silage utilization on nutrient balances and profitability.  