

The National Centre for Livestock and the Environment

environmental stewardship food quality & safety
 farm productivity & viability
 animal health & welfare
 efficient energy & water use

National Centre for Livestock and the Environment

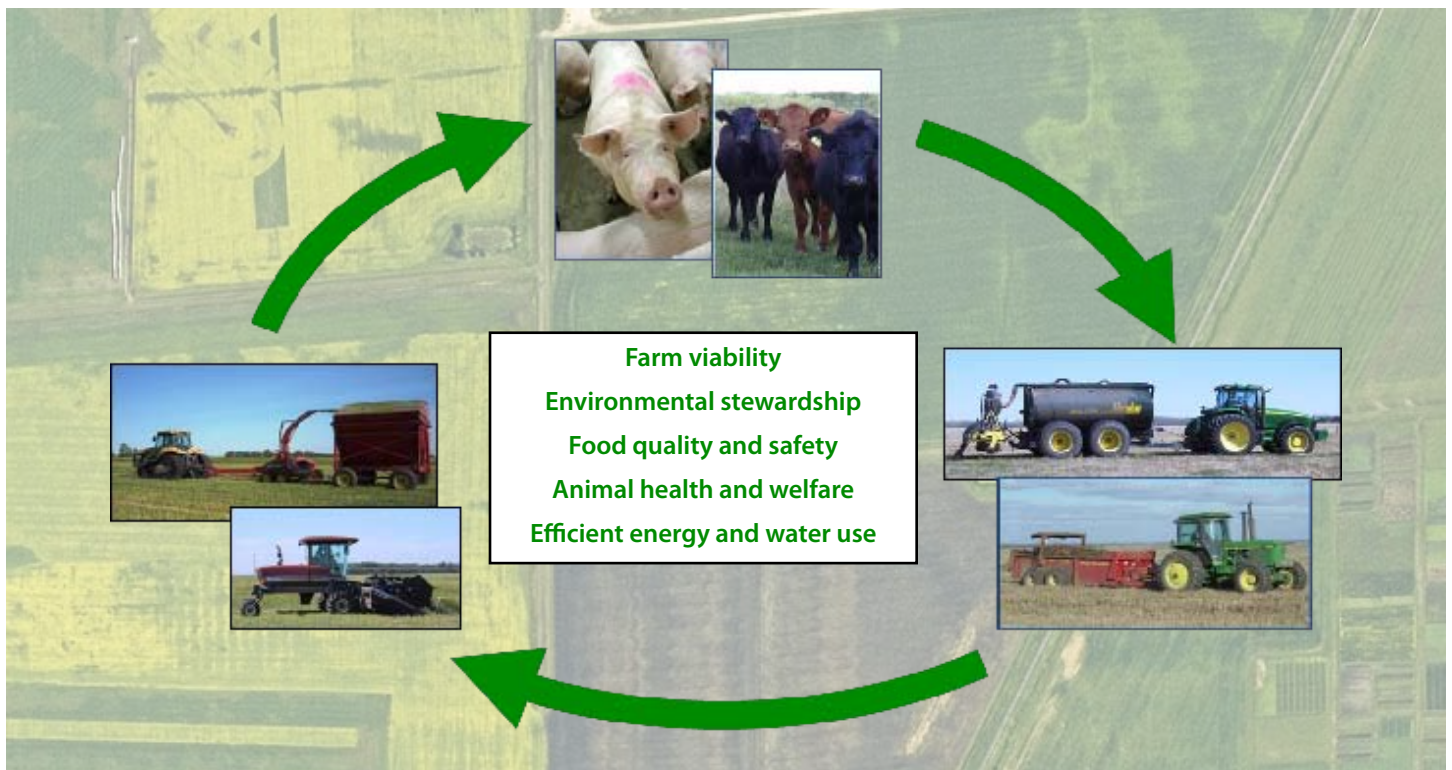


The National Centre for Livestock and the Environment (NCLE) is a team of scientists that engage in multidisciplinary research partnerships to further the economic and environmental sustainability of integrated livestock and crop production systems. We explore opportunities to strengthen the connections between beef cattle, dairy cattle, pig and poultry production systems and plant production for food, feed, fuel and fibre. Along this pathway we attempt to improve multiple aspects of farm productivity and viability, environmental stewardship, human and animal health, and efficient use of our resources in agricultural production. This integrated, multi-disciplinary approach to research facilitates the development of comprehensive solutions to the complex challenges facing animal agriculture.



NCLE Operating Structure – Fueling Partnerships Towards a Sustainable Livestock Industry

NCLE operates as a “virtual centre” with access to multiple facilities, multiple physical research locations as well as a diversity of research partners in the public and private sectors. The open and dynamic structure of NCLE research partnerships means individuals can define their level of involvement on a per project basis while the NCLE team continues to drive fundamental and applied research. NCLE works closely with industry and government organizations to ensure timeliness and applicability of research endeavors.



Examples of NCLE Research

- Whole-farm system analysis to improve animal and plant productivity as well as environmental stewardship through improved feeding, animal handling and manure management
- Use of long-term crop rotations to optimize fertility value of manure, nutrient recycling and soil health benefits
- Greenhouse gas life cycle analysis for integrated animal and plant production systems
- Understanding of the linkage between agricultural practices and risk of pathogen transfer to humans and animals
- Addressing animal health and welfare as well as whole-farm productivity through evaluation of conventional and alternative housing and management systems for poultry and swine
- Developing innovative manure storage, processing/treatment and handling practices with respect to odour emissions, pathogen transfer, nutrient management and value-added co-products
- Characterizing and optimization of the carbon, nutrient and pathogen cycles for dry lot and pasture-based wintering systems for beef cows



NCLE: More than Research – Student Training & Education and Public Extension & Outreach

NCLE recognizes students of today are our industry and research leaders of tomorrow. NCLE's direct student involvement approach to education and training fosters relationship-building between Manitoba companies, NCLE researchers and graduate students and prepares students for real-world application of acquired skills.

NCLE actively shares research findings with producers, industry, government and the general public through tours, field days, seminars and workshops. The NCLE Platform for Partnerships approach facilitates communication from the R&D phase through to extension & tech transfer. Sharing knowledge is fundamental for fostering a long term sustainable livestock industry.

NCLE Facilities, Equipment and Research Capabilities

The majority of NCLE facilities and equipment are located at the University of Manitoba Glenlea Research Station:

- ❖ Three swine research units – an off-site all-in-all-out research barn plus two 130-sow farrow-finish barns featuring group housing for all phases of production except farrowing: a conventional barn and a naturally ventilated alternative barn with straw-covered solid concrete flooring and solid manure system.
- ❖ Confined and extensive cattle research facility – pasture environment in addition to small scale research pens equipped with the GrowSafe System for individual feed intake monitoring; suitable for comparative systems research
- ❖ Feed processing facility – capacity for custom on-site blending and processing of feedstuffs to investigate novel feed ingredients and diet formulation studies
- ❖ Agricultural By-products Processing Research and Demonstration Facility - includes anaerobic digestion, manure separation and composting technologies
- ❖ Continuous in-field electronic environmental monitoring – featuring the only site in western Canada with continuous year-round measurement of nitrous oxide, methane and carbon dioxide emissions from agricultural fields
- ❖ Laboratories - biological waste treatment, odour, soil ecology and long term field
- ❖ Long term sample and data archive – long term storage of feed, soil, manure, water and crop samples, weather and management data, other research data

