

University of Guelph / OMAFRA Partnership Pork Research Program Projects

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The University of Guelph/OMAF Pork Research Program currently supports 47 research projects. These projects are organized by objectives, which are established based on industry wide consultation and under the direction of the Agricultural Research Institute of Ontario (ARIO). New research proposals and research progress are reviewed annually. Current projects and lead researchers for each project are listed below.

For more information on individual projects visit the OMAF website (www.uoguelph.ca/research/omaf/animals/pork.shtml) or contact the lead researcher.

OBJECTIVE 1: STRATEGIES TO ADDRESS ENVIRONMENTAL ISSUES

Goal 1.1. Manure handling, including dead stock disposal

025983 – Emissions from cremation of dead stock – B. van Heyst, School of engineering

Goal 1.2. Reduction of nitrogen and phosphorus excretion

026015 - The Enviropig: from the research lab to the market place - J. Phillips, Department of Molecular Biology and Genetics.

026082 - Modulation of intestinal fermentation and nutrient utilization for reducing detrimental effects on the environment from swine production– M. Fan, Department of Animal and Poultry Science.

026276 - Determining sow performance and mineral requirements with phytase supplementation of the lactating sow ration – P. Luimes, Ridgetown College.

026317 - Quantitative representation of nutrient utilization in the growing pig – C. de Lange, Department of Animal and Poultry Science.

026319 - Determination of dietary true digestible calcium to phosphorus ratio and requirements in weanling piglets (10-20 kg) fed corn and soybean meal-based diets – M. Fan, Department of Animal and Poultry Science.

Goal 1.3. Reducing Odour

026001 - Biofiltration as a means of odour and dust control in animal housing facilities – M. Dixon, Department of Environmental Biology.

026177 - Development of a pork farm odour expert system and studying the feed effects on odour – S. Yang, School of Engineering.

OBJECTIVE 2: PORK QUALITY AND SAFETY

Goal 2.1. Food safety

026207 - The natural transmission of Salmonella typhimurium in swine with and without antimicrobial selective pressure – J. Gray, Department of Pathobiology.

026273 - Evaluating effectiveness of interventions against Salmonella in swine using a novel evidence-based tool – S. McEwen, Department of Population Medicine.

026282 - Effect of bacteriophage on the population dynamics of Salmonella within Ontario pig herds – K. Warriner, Department of Food Science.

Goal 2.2 Reducing antibiotic use

026180 - Molecular analysis of important bacterial pathogens of swine– J. MacInnes, Department of Pathobiology.

026083 - Efficacy of alternative growth promoters for weanling piglets as assessed by visceral organ protein turnover rate – M. Fan, Department of Animal and Poultry Science.

026173 – Dietary means to enhance gut health of newly-weaned piglets – C. de Lange, Department of Animal and Poultry Science.

026272 - Spatial patterns of antimicrobial resistance among pig farms in southern Ontario. – O. Berke, Department of Population Medicine.

026282 - Effect of bacteriophage on the population dynamics of Salmonella within Ontario pig herds – K. Warriner, Department of Food Science.

026291 - Genetic markers of infectious disease resistance in Ontario swine- A. Brooks, Department of Pathobiology.

026316 - Production of transgenic pigs that are more resistant to diseases- J. Li. Department of Animal and Poultry Science.

Goals 2.3 and 2.4. Improving pork quality and uniformity of carcass

025981 - The effects of feeding high protein corn to pigs based on performance and carcass quality – P. McEwen, Ridgetown College.

026038 - Grow-finish pigs - Improving carcass quality through barn-level parameters analyses – C. Dewey, Department of Department of Population Medicine.

026059 - Quantitative and molecular genetic improvement of swine – A. Robinson, Department of Animal and Poultry Science.

026174 - Development of genetic markers for boar taint – J. Squires, Department of Animal and Poultry Science.

026176 - Development of nutritional strategies to improve the processing and eating quality of pork – I. Mandell, Department of Animal and Poultry Science.

026278 - The effects of gender and feeding strategy on pig growth performance and feed digestibility – P. McEwen, Ridgetown College.

026314 - On-farm management strategies to improve handling, reduce stress and enhance meat quality – T. Widowski, Department of Animal and Poultry Science.

OBJECTIVE 3: TO IMPROVE PRODUCTION EFFICIENCY

Goal 3.1. Feeds, feeding and mycotoxins

025997 - Liquid feeding of swine: gut health, food safety, environmental impact and growth performance – C. de Lange, Department of Animal and Poultry Science.

026083 - Efficacy of alternative growth promoters for weanling piglets as assessed by visceral organ protein turnover rate – M. Fan, Department of Animal and Poultry Science.

- 026171 - The use of byproducts from dry mill ethanol production as a feed ingredient in swine diets – P. McEwen, Ridgetown College.
- 026276 - Determining sow performance and mineral requirements with phytase supplementation of the lactating sow ration – P. Luimes, Ridgetown College.
- 026277 - Improving piglet survival by development of a hormone model of lactation – P. Luimes, Ridgetown College.
- 026278 - The effects of gender and feeding strategy on pig growth performance and feed digestibility - P. McEwen, Ridgetown College.
- 026317 - Quantitative representation of nutrient utilization in the growing pig- C. de Lange, Department of Animal and Poultry Science.
- 026323 - Effect of Fusarium mycotoxins on performance and metabolism of gestating and lactating sows – T. Smith, Department of Animal and Poultry Science.

Goal 3.2. Improving pig health

- 026005 - Enteric disease control in post-weaned pigs – R. Friendship, Department of Population Medicine.
- 026068 - Modulation of host cell responses by porcine reproductive and respiratory syndrome (PRRS) virus – D. Yoo, Department of Pathobiology.
- 026170 - Phenotypic immunological imprinting by the neonatal environment in pigs – B. Wilkie, Department of Pathobiology.
- 026175 - Tetracycline use and selection of virulent enterotoxigenic Escherichiacoli (ETEC) – P. Boerlin, Department of Population Medicine.
- 026277 - Improving piglet survival by development of a hormone model of lactation – P. Luimes, Ridgetown College.
- 026291 - Genetic markers of infectious disease resistance in Ontario swine- A. Brooks, Department of Pathobiology.
- 026316 - Production of transgenic pigs that are more resistant to diseases- J. Li, Department of Animal and Poultry Science.

Goal 3.3. Improving reproductive performance

- 025670 - PRRS virus: the implications for the breeding herd – C. Dewey, Department of Population Medicine.
- 026013 - A Study of oxytocin-producing reproductive centres in the hypothalamus of the pig brain – G. Partlow, Department of Biomedical Science.
- 026179 - Analysis of transient lymphocyte functions in implantation sites during early pregnancy – A. Croy, Department of Biomedical Science.
- 026277 - Improving piglet survival by development of a hormone model of lactation – P. Luimes, Ridgetown College.
- 026289 - Improving swine reproductive performance through improved semen quality and better methods of insemination – R. Friendship, Department of Population Medicine.
- 026294 - Use of soy liposomes for cryopreservation of boar semen – M. Buhr, Department of Animal and Poultry Science.

026318 - Sexing of boar sperm using single stranded DNA aptamers – S. Golovan, Department of Animal and Poultry Science.

026323 - Effect of Fusarium mycotoxins on performance and metabolism of gestating and lactating sows – T. Smith, Department of Animal and Poultry Science.

Goal 3.4. Transgenics

026036 - Artificial Insemination Mediated Modification of Pig Genome – S. Golovan, Department of Animal and Poultry Science.

026316 - Production of transgenic pigs that are more resistant to diseases - J. Li, Department of Animal and Poultry Science.

OBJECTIVE 4: TO IMPROVE ANIMAL WELL-BEING

026069 - Meeting the needs of ill swine to improve well-being and decrease reliance on antimicrobials - S. Millman, Department of Population Medicine.

026081 - Developing a comprehensive framework to assess farm animal welfare – S. Henson, Department of Agriculture Economics & Business.

026181 - Strategies for reducing aggression in loose housed sows – T. Widowski, Department of Animal and Poultry Science.

026182 - Management practices affecting the behaviour and welfare of piglets - T. Widowski, Department of Animal and Poultry Science.

026277 - Improving piglet survival by development of a hormone model of lactation – P. Luimes, Ridgetown College.

026304 - Factors associated with transport losses in market weight finisher pigs- C. Dewey, Department of Population Medicine.

026305 - How to sample pig farms to be confident the results are correct when testing for toxoplasma, salmonella, influenza and yersinia – C. Dewey, Department of Population Medicine.

026314 - On-farm management strategies to improve handling, reduce stress and enhance meat quality – T. Widowski, Department of Animal and Poultry Science.