Livestock and Forage Research Funding

24 livestock and forage-related research projects	**$3,453,280**

Breakdown by Commodity

Beef and Dairy	$1,633,792
Swine	$897,444
Poultry	$115,000
Other Species	$115,000
Miscellaneous	$55,447
Forages	$636,597

Breakdown by Organization

University of Saskatchewan	$2,461,663
Western Beef Development Centre - Prairie Agricultural Machinery Institute	$482,527
Agriculture & Agri-Food Canada	$186,000
Prairie Diagnostic Services Inc.	$123,500
Prairie Swine Centre Inc.	$144,590
Royal Saskatchewan Museum	$55,000

Beef and Dairy

Field Comparison of Intranasal and Injectable Bovine Respiratory Disease (BRD) Vaccination on Beef Calf Titres, ADG, Morbidity and Mortality (20160055)

Objectives: This project will examine the effect of vaccination from the neonatal period to the end of the highest risk period of BRD for calves on feed.
Specifically, the project will look at the effectiveness of intra-nasal vaccination of calves for respiratory disease and whether or not it better primes a calf's immune system than injectable vaccines.

ADF Funding: $111,415
Sask Cattlemen's Association: $15,000

Organization: Western College of Veterinary Medicine

Contact: Dr. Nathan Erickson, Large Animal Clinical Sciences, (306) 966-7179

Treatment of Mastitis Infections in Dairy Cattle (20160091)

Objectives: This proposal aims at developing novel phytochemical based antimicrobial agents that can be safely administered to dairy cattle for treating mastitis. The interest in phytochemicals as antimicrobial agents is based on the premise that phytochemicals are relatively safe to use as compared to purely synthetic drugs due to their natural origin.

ADF Funding: $91,000
SaskMilk: $30,000

Organization: University of Saskatchewan

Contact: Dr. Meena Sakharkar, Pharmacy and Nutrition, (306) 966-7660

Towards Reduction of Antimicrobial Use in Bovine Respiratory Disease (BRD): The Combined Effects of Viruses and Bacteria (20160092)

Objectives: The proposed research will investigate the combined effect of viruses and bacteria on the development of BRD. They will:
Identify the total respiratory virus population in feedlot cattle and evaluate their prevalence in BRD and non-BRD cattle. This will help to develop more efficacious health protocols to prevent BRD with reduced use of antimicrobials.

ADF Funding: $123,500
Sask Cattlemen's Association: $40,000

Organization: Prairie Diagnostic Services Inc.

Contact: Dr. Yanyun Huang, (306) 966-7297

Ergot Pharmacokinetics and Effects on Beef Bull Fertility (20160104)

Objectives: The primary focus of this study is to examine the effect of ergot on reproductive performance. They will test reproductive health of bulls using very broad measures including breeding soundness examination of bulls, industry-standard semen evaluations, and in vitro sperm function tests.

ADF Funding: $112,262

Organization: Western College of Veterinary Medicine

Contact: Dr. Jaswant Singh, Veterinary Biomedical Sciences, (306) 966-7410

The Economics of Forage-Based Backgrounding Programs in Conventional and Non-Conventional Beef Production Systems (20160140)

Objectives: This project will use a systems approach to examine production performance differences at each stage of the beef production chain (cow-calf to finishing), estimate the economic value of these differences and provide beef producers with information to make informed decisions about their production system.
The research will also evaluate the role that expanded forage use can play in back grounding cattle over the winter and for grass in reducing costs and meeting production targets.

ADF Funding: $300,500

Organization: University of Saskatchewan

Contact: Dr. John McKinnon, Animal and Poultry Science, (306) 966-4137

Optimizing Ruminal Fermentation Using Silage and Cereal Grain Inclusion Strategies for Backgrounding and Finishing Steers (20160165)

Objectives: To evaluate the effects of silage type and cereal grain type for backgrounding and finishing cattle.

ADF Funding: $165,115
Sask Cattlemen's Association: $81,714
Sask Barley: $21,000

Organization: University of Saskatchewan

Contact: Dr. Gregory Penner, Animal and Poultry Science, (306) 966-4219

Research Opportunities Presented by the Beef Cattle Research and Teaching Unit (BCRTU) (20160166)

Objectives: This project seeks to improve our understanding of the impact that the construction of a beef cattle feedlot, and the activities of cattle within the feedlot, have on their surrounding environment. Factors to be assessed include impact on hydrogeology and soil properties influencing nutrient transport and runoff water quality.
This project presents the unique opportunity to measure environmental impact prior to construction, through construction, as well as through a life cycle of cattle in the facility. Project outcomes will result in the formation of Beneficial Management Practices that will guide future developers in choosing sites for beef cattle feedlots that will result in minimal environmental impact.

ADF Funding: $418,000

Organization: University of Saskatchewan

Contact: Dr. Terry Fonstad, Agricultural & Bioresource Engineering, (306) 966-7860

Bison and Cattle Fertility Following Artificial Insemination with "Neat" Semen (20160177)

Objectives: To improve the fertility potential of bison and bull semen treated with cholesterol loaded cyclodextrins (CLC).
To produce bison embryos from CLC semen and in vivo matured neat oocytes.
To reduce the reactive oxygen species generation in post-thaw bison semen and embryos.
To test fertility of CLC bison and beef semen following fixed-time artificial insemination.

ADF Funding: $186,000

Organization: Agriculture & Agri-Food Canada

Contact: Dr. Muhammad Anzar, Saskatoon Research Centre, (306) 956-2900

The Use of Two-stage Weaning on Farm to Improve Health in Feedlot Calves and Reduce Antibiotic Use (20160194)

Objectives: Determine if weaning protocol (abrupt vs two-stage) influences health in feedlot cattle.
Determine if feedlot performance of calves is influenced by weaning protocol that was applied on-farm.
Determine economic value of abrupt vs two-stage weaning protocols from producer and feedlot operator's view.

ADF Funding: $49,000

Organization: Western College of Veterinary Medicine

Contact: Dr. Joseph Stookey, Large Animal Clinical Sciences, (306) 966-7154

Use of Whole Genome Sequencing as a Tool to Study Mycoplasma bovis (M. bovis) in Feedlot Cattle (20160253)

Objectives: Use whole genome sequencing to differentiate strains of Mycoplasma bovis infecting feedlot cattle and to identify virulence markers.
Compare in-vitro antimicrobial sensitivity profiles (phenotype) to resistance factors found in the genome (genotype).
Assess whether certain strains of M. bovis have a specific predilection (tropism) for certain tissues.

ADF Funding: $77,000

Organization: University of Saskatchewan

Contact: Dr. Murray Jelinski, Large Animal Clinic Sciences, (306) 966-7166

Swine

Examination of the Interaction of Dietary Fibre and Immune Challenge on Threonine Requirements and Pig Robustness (20160002)

Objectives: Overall objective of the proposed project is to address the need to more fully understand the interaction between dietary feedstuffs and immune status on nutrient requirements and utilization for body protein deposition
1.To determine the effect of dietary fibre and immune challenge on threonine requirement for optimal nitrogen retention.
2. To determine the effect of dietary fibre and immune challenge on threonine requirement for optimal immune status.
3. To determine the effect of increased dietary threonine content in high-fibre diets on response to enteric pathogen challenge.
4. To determine the effect of dietary fibre and fermentable protein on threonine requirement for optimal nitrogen retention.
5. To determine the impact of dietary fibre and threonine content and immune challenge on gut integrity and health.

ADF Funding: $144,590

Organization: Prairie Swine Centre, Inc.

Contact: Dr. Daniel Columbus, (306) 667-7432

Motivated for Movement? Exercise and the Gestation Environment on Sow Performance and Welfare (20160021)

Objectives: Determine the motivation of sows to exit stalls.
Determine the effects of exercise during gestation on sow reproductive performance, stress physiology and welfare.
Determine if exercise during gestation influences placental development and piglet quality.
Review of current literature on the effects of exercise on sows.
Determine if sow motivation to leave the stall is influenced by hunger.

ADF Funding: $115,404

Organization: Western College of Veterinary Medicine

Contact: Dr. Yolande Seddon, Large Animal Clinical Sciences, (306) 966-7151

Universal Vaccine Development for Influenza A Virus in Swine (20160175)

Objectives: To improve the yield of the vaccine and to reduce the cost of vaccine production.
To broaden the protection spectrum of the existing swine influenza vaccine by targeting Saskatchewan circulating strains.

ADF Funding: $180,000

Organization: Vaccine & Infectious Disease Organization

Contact: Dr. Yan Zhou, (306) 966-7716

The Effects of Long Distance Transport on the Welfare of Weaned Piglets (20160301)

Objectives: Review of literature related to transport of weaner pigs.
Determine key factors influencing morbidity and mortality of weaned piglets during transport.
Determine the effect of transport duration on the behaviour, welfare and productivity of weaned piglets.
Determine the effects of transport on morbidity and mortality rates in weaned piglets.

ADF Funding: $146,320

Organization: Western College of Veterinary Medicine

Contact: Dr. Yolande Seddon, Large Animal Clinical Sciences, (306) 966-7151

Mitigating Saskatchewan Greenhouse Gas (GHG) Emissions by Modifying Swine Diets (20160113)

Objectives: Determine if improving nutrient digestibility with dietary enzymes reduces the carbon footprint of pork production.
Determine if knowledge of fibre and protein digestibility can be used to estimate GHG emissions.
Use life-cycle analysis to calculate environmental impact of pork production when alternate ingredients are used.
Calculate the economics of using alternate ingredients in pork production when environmental impact is considered.
Optimize swine diets to minimize GHG emissions.

ADF Funding: $241,130

Organization: University of Saskatchewan

Contact: Dr. Denise Beaulieu, Animal and Poultry Science, (306) 966-4104

Mitigation of Antimicrobial Resistance Risk by Removal of Antibiotics from Waste Stream of Animal Production Facilities (20160186)

Objectives: Identify the best adsorbents using simulated wastewater.
Optimize the adsorption process.
Conduct field tests for removal of antibiotics.
Conduct technical and economic feasibility study and make recommendations on potential for commercialization.

ADF Funding: $70,000

Organization: University of Saskatchewan

Contact: Dr. Jafar Soltan, Chemical and Biological Engineering, (306) 966-5449

Poultry

Optimization of Proven In Ovo Effective Non-antibiotic Agents for Control of Bacterial Infection and Mortality in Young Broilers (20160052)

Objectives: The studies will be looking into the optimization and further characterization of proven in ovo safe and effective non antibiotics agents as alternatives to antibiotics in young chicks
Introduction of proven in ovo safe and effective non antibiotic agents as replacement to antibiotics in young chicks.

ADF Funding: $115,000

Organization: Vaccine & Infectious Disease Organization

Contact: Dr. Mohammed Arshud Dar, (306) 966-1532

Other Species

Toxicopathological Determination of Safe Dose Ranges of Neonicotinoids for Honey Bee Colonies (20160157)

Objectives: Reproductive fitness and pathology.
Overwinter survival.
Adaptation of mammalian safety tests to honey bees.
Teratogenicity and neurotoxicity.

ADF Funding: $60,000

Organization: University of Saskatchewan

Contact: Dr. Elemir Simko, Veterinary Pathology, (306) 966-7307

Conservation of Saskatchewan Bumble Bees for Pollination (20160180)

Objectives: Evaluate population trends (i.e., relative abundance) of bumble bees in selected landscapes in Saskatchewan.
Develop schemes to increase and conserve bumble bees that are compatible with agriculture in Saskatchewan.
Educate growers and others in the agriculture industry on bumble bee encouragement and conservation
Determine the relative importance of bumble bees for crop pollination in Saskatchewan.
Evaluate the current status of bumble bee health in Saskatchewan.

ADF Funding: $55,000

Organization: Royal Saskatchewan Museum

Contact: Dr. Cory Sheffield, (306) 787-2850

Miscellaneous

Developing Simple Tools and Equipment Compatible with an ATV and Trailer for Efficient Temporary Fencing of Fields for Ruminants (20160272)

Objectives: Develop simple tools and equipment compatible with an ATV and trailer (or snowmobile and sled) for efficient temporary fencing.
Create user-friendly guidelines to allow producers to build and adopt applicable tools and equipment for temporary fencing.

ADF Funding: $55,447
Organization: Prairie Agricultural Machinery Institute
Contact: Mr. James Wassermann, (306) 682-5033

Forages

Evaluation of Polycrop Mixtures for Soil Health, Grazing Capacity and Economics (20160116)

Objectives: Evaluate pre- and post-poly crop mixtures compared to conventional annual forage on grazing system economics.
Evaluate pre- and post-poly crop mixtures compared to conventional annual forage on soil health parameters.
Evaluate pre- and post-poly crop mixtures compared to conventional annual forage on beef performance and grazing capacity.

ADF Funding: $233,560
Organization: Western Beef Development Centre - PAMI
Contact: Dr. Bart Lardner, (306) 682-3139

Performance and Characterization of Low-Lignin Alfalfa in Monoculture and Binary Mixtures (20160161)

Objectives: Determine biomass potential of new forage legume (low-lignin alfalfa) in monoculture and binary mixtures.
Determine changes in nutritive value of new legume forage in monoculture and mixtures at differing maturity stages.
Predict economic returns of new forages for beef production.
Use results to make recommendations to Saskatchewan producers and industry as to the economic potential for these new forage legumes.

ADF Funding: $193,520
Organization: Western Beef Development Centre - PAMI
Contact: Dr. Bart Lardner, (306) 682-3139

Selection of Clonal Propagated Alfalfa and Sainfoin Plants Under Grass or Legume Competition (20160235)

Objectives: To evaluate and select sainfoin clones growing in alfalfa stands at Saskatoon and Lethbridge.
To develop and evaluate forage yield and quality of new breeding lines of alfalfa and sainfoin at the two locations.
To evaluate and select alfalfa clones growing in grass stands at Saskatoon and Lethbridge.

ADF Funding: $85,117
Western Grains Research Foundation: $85,117
SaskMilk: $5,000

Organization: University of Saskatchewan

Contact: Dr. Bill Biligetu, Plant Sciences, (306) 966-4007

Development of Near Infrared Reflectance Spectroscopy (NIRs) Database and Prediction Equations for Use in Forage Breeding, Agronomy, and Rangeland Research (20160249)

Objectives: To develop a NIRs database for use in quality analysis of grass and legume monocultures.
To develop a NIR database for use in forage quality determination of grass-legume mixtures and native plant communities.

ADF Funding: $124,400
SaskMilk: $5,000

Organization: University of Saskatchewan

Contact: Dr. Bill Biligetu, Plant Sciences, (306) 966-4007