Agriculture Development Fund (ADF) Livestock & Forages Projects for 2025

- **30** livestock and forage projects were funded by ADF for a total of **$6,941,641.**
- **4** industry partners co-funded a total of **$216,055.**

Institution	Number of Approved Projects	Total Amount Funded
Agriculture and Agri-Food Canada	3	$725,906
Genome Prairie	1	$77,850
Prairie Diagnostic Services Inc.	2	$452,443
Prairie Swine Centre Inc.	3	$502,425
University of Saskatchewan	21	$5,183,017
Total Government Support	**30**	**$6,941,641**

Topic	Number of Approved Projects	Total Amount Funded
Beef	7	$1,555,781
Beef/Dairy	2	$550,500
Dairy	2	$334,237
Environment	1	$200,770
Forages	6	$1,229,911
Honeybees	1	$306,500
Poultry	2	$379,000
Swine	6	$1,017,425
Multiple Species	3	$1,367,517
Total Government Support	**30**	**$6,941,641**

Livestock and Forages Project Co-funders	Number of Approved Projects	Total Amount Funded
Saskatchewan Cattlemen's Association	5	$94,305
Saskatchewan Forage Seed Development Commission	2	$2,000
SaskPork	1	$25,000
Western Dairy Research Collaboration (BC Dairy, Alberta Milk, SaskMilk, and Dairy Farmers of Manitoba)	2	$94,750
Total Industry Support	**10**	**$216,055**

Agriculture and Agri-Food Canada

Preferentially-grazed perennial forages: improving on their establishment and lowering their deployment costs into marginal land. *(20240651)*

Principal Investigator: Francois Teste, Agriculture and Agri-Food Canada

- Optimize seed coating and flash-flaming to improve germination, flowability, and seedling emergence at deeper soil depths.
- Determine if the sequence of flash-flaming and microbial coatings can improve flowability of seed and establishment.
- Assess if greater establishment, yield, and profitability can be attained when winterfat is seeded with other preferentially grazed forage.

ADF Funding: $210,335

Climate Action Through Grazing - Grazing management effects cattle production traits, enteric methane and the fecal microbiome. *(20240659)*

Principal Investigator: Carolyn Fitzsimmons, Agriculture and Agri-Food Canada

- Quantify cow and calf growth during grazing, and reproduction rates at the end of grazing season, relative to grazing system (continuous vs rotational grazing systems).
- Measure enteric methane production of cattle relative to grazing system.
- Characterize the fecal microbiome of cattle and relate it to enteric CH_4 production and establish biomarkers of enteric CH_4.
- Enhance genomic prediction of genetic potential for enteric methane to select cattle for reduced emissions while grazing.
- Integrate the cattle-level data with soil, vegetation, GHG emission, and social-economic results.

ADF Funding: $314,801

Advancing climate change resilience in alfalfa to enhance the profitability and sustainability of beef and dairy production. *(20240701)*

Principal Investigator: Stacy Singer, Agriculture and Agri-Food Canada

- Assess the drought, salinity, and waterlogging response of edited *SPL8* and *WD40-2* alfalfa populations.
- Carry out in-depth physiological and transcriptomic evaluations of *SPL8* and *WD40-2* populations.
- Conduct a small-scale, contained field trial to assess the agronomic performance of edited genotypes compared to elite cultivars.

Co-funded by: Saskatchewan Cattlemen's Association
ADF Funding: $200,770

Genome Prairie

Identifying Drought-Adapted Native Forage Seed Sources for Promoting Range and Pasture Productivity and Environmental Health. *(20240827)*

Principal Investigator: Lester Young, Genome Prairie

- Develop Single Nucleotide Polymorphism (SNP) libraries of common grassland species.
- Evaluate drought tolerance of common grassland species and its impact on native forage productivity and C sequestration traits.
- Identify seed sources with greater drought resiliency that are better suited for seeding in different ecozones.

Co-funded by: Saskatchewan Forage Seed Development Commission
ADF Funding: $77,850

Prairie Diagnostic Services Inc.

Field screening test to differentiate risks of Anthrax and expedite diagnostic investigation of sudden deaths in livestock. *(20240722)*

Principal Investigator: Yanyun Huang, Prairie Diagnostic Services Inc.

- Design different potential field test assays for anthrax.
- Compare performances and costs of different potential field assays.

Co-funded by: Saskatchewan Cattlemen's Association
ADF Funding: $177,443

PanViroSeq, an improved and more affordable sequencing method for virus detection, and its application in swine abortions. *(20240806)*

Principal Investigator: Yanyun Huang, Prairie Diagnostic Services Inc.

- Design and characterization of PanViroSeq.
- Utilization of PanViroSeq as a robust tool in undiagnosed swine abortion cases.

ADF Funding: $275,000

Prairie Swine Centre Inc.

Evaluation of group precision feeding on performance, nutrient utilization, and health of growing pigs. *(20240585)*

Principal Investigator: Daniel Columbus, Prairie Swine Centre Inc.

- Evaluate potential and optimize implementation of group-precision feeding.
- Determine the impact of group precision feeding on the health status of growing pigs.
- Validate and update existing precision feeding models.

ADF Funding: $150,000

Investigation of risk factors for increased sow mortality in Canadian herds & identification of potential mitigation strategies. *(20240847)*

Principal Investigator: Yolande Seddon, Prairie Swine Centre Inc.

- Identify herds with high and low sow mortality. Invite those maintaining historical records on a software to participate.
- Identify herd-level risk factors for sow mortality across a sample of Canadian herds.
- Identify sow-level risk factors for mortality.
- Review and determine mitigation strategies to reduce sow mortality.

ADF Funding: $199,745

Integrating existing sow feeder technology with novel sensors to improve management of sow health and performance. *(20240933)*

Principal Investigator: Bernardo Predicala, Prairie Swine Centre Inc.

- To create a tool to capture integrated data on sow feed behavior and environmental parameters.
- Develop models based on integrated data sources to assess and improve sow health and productivity.
- Conduct cost analysis and develop recommendations on practical use of the developed models for improved barn management.

Co-funded by: SaskPork
ADF Funding: $152,680

University of Saskatchewan

Evaluation of hybrid drugs for resistant bacterial mastitis infections. *(20240591)*

Principal Investigator: Meena Sakharkar, University of Saskatchewan

- Evaluation of hybrid drugs for resistant bacterial mastitis infections.
    - In vitro screen for antimicrobial activity of 6 hybrid drugs (already designed and synthesized in drug-resistant mastitis causing bacteria (purchased from ATCC and isolated from Saskatchewan farms) with focus on Staphylococcus aureus, Staphylococcus epidermidis, Pseudomonas aeruginosa, Enterococcus faecalis and Enterococcus faecium.
    - The listed objectives, from in vitro screening of antimicrobial activity to the evaluation of drug safety and anti-inflammatory properties in heifers, follow a logical progression.
    - Each step builds on the previous one, creating a comprehensive pathway to developing novel antibiotic-phytochemical conjugates.

ADF Funding: $300,000

Impact of micronutrient supplementation on response to vaccination in feeder calves. *(20240620)*

Principal Investigator: Cheryl Waldner, University of Saskatchewan

- Examine trace mineral and vitamin (micronutrient) status in feedlot calves at arrival.
- Compare different supplement strategies on changes in micronutrient status early in feeding period.
- Examine the effect of different supplement strategies on response to Bovine Respiratory Disease (BRD) vaccines.
- Evaluate the impact of micronutrient concentration on response to BRD vaccination.
- Describe impacts on BRD risk, clinical signs, detection of BRD pathogens and ADG.

Co-funded by: Saskatchewan Cattlemen's Association

ADF Funding: $167,898

Effect of isoflavone supplementation on hemodynamic responses of ergot-exposed cattle. *(20240686)*

Principal Investigator: Vanessa Cowan, Western College of Veterinary Medicine

- Characterize the onset of vascular changes in the hoof during the first week of feeding ergot to cattle.
- Characterize vascular maladaptation caused by ergot following one month of feeding in cattle.
- Test for prolonged vascular effects after removal of ergot from feed.
- Determine if isoflavone supplementation attenuates vascular effects caused by ergot alkaloids after one week and one month of feeding.
- Characterize how ergot alkaloids and isoflavones interact with isolated blood vessels.

ADF Funding: $274,700

Safety and efficacy of overwinter miticide treatments for honey bee colonies in western Canada. *(20240703)*

Principal Investigator: Sarah Wood, University of Saskatchewan

- This project's main objective is to determine, the safety for worker honeybees and queens, as well as the anti-varroa efficacy of oxalic acid, formic acid, amitraz and their combinations applied during the midwinter brood break in both outdoor- and indoor-overwintered colonies in western Canada.
- The anticipated outcome is an enhancement of varroa control in the beekeeping industry thereby minimizing overwinter colony losses and improving the production and quality of honey and honeybee pollination services.

ADF Funding: $306,500

Enhancing Dairy and Egg Lipids: A Comparative Study on the Impact of Barley, Wheat, and Canola Phospholipids. *(20240678)*

Principal Investigator: Martin Reaney, University of Saskatchewan

- The project outcome is a phospholipid-rich dairy and poultry diet.
    - Analyze phospholipid precursors and formulate a diet.
    - Conduct feeding trials with dairy cows and laying hens.
    - Analyze the lipid content of milk and eggs.

Co-funded by: Western Dairy Research Collaboration, as represented by BC Dairy, Alberta Milk, SaskMilk, and Dairy Farmers of Manitoba
ADF Funding: $106,250

Increasing Livestock Operation Efficiency through automated Weight Estimation and Reporting via Computer Vision and Machine Lear. *(20240786)*

Principal Investigator: Tate Cao, University of Saskatchewan

- Develop a system that can estimate the weight of cattle from image data.
- Optimize the performance of an image-based cattle weighing system through improved image acquisition and preprocessing techniques.
- Verify and test the image-based cattle weighing system.

ADF Funding: $60,000

Towards controlling Ear-tip necrosis in pigs. *(20240798)*

Principal Investigator: Matheus Costa, University of Saskatchewan

- Fine-tune the infection model to be used in trials for intervention evaluation.
- Investigate the development and evaluate the efficacy of a vaccine in preventing ear tip necrosis.

ADF Funding: $120,000

Lab to farm: developing a Streptococcus zooepidemicus vaccine into a practical tool. *(20240800)*

Principal Investigator: Matheus Costa, University of Saskatchewan

- Explore the use of this vaccine in other species of veterinary interest.
- Explore different vaccines doses in a dose-titration study.

ADF Funding: $120,000

Closing Litter Gaps in Saskatchewan Rangeland Reference Data. *(20240801)*

Principal Investigator: Eric Lamb, University of Saskatchewan

- The objective of this project is to further develop the Saskatchewan Rangeland Reference Data.

Co-funded by: Saskatchewan Cattlemen's Association
ADF Funding: $23,470

Effects of Organic Acids on Mitigating Enteric Methane Emission by Improving Energy Efficiency in Lactating Dairy Cows. *(20240819)*

Principal Investigator: Peiqiang Yu, University of Saskatchewan

- Increase the current knowledge on the optimal ruminal fermentation and feed efficiency by using natural ingredients such as organic acids.
    - Evaluate the effects malate on lactating dairy cows' performance, ruminal degradation and kinetics.
    - Evaluate relationship between feed efficiency and methanogenesis and Methan production.
    - Evaluate economic basis for use of malate as feed additive.

ADF Funding: $250,500

Experiential discovery and learning through research in food animal veterinary medicine. *(20240826)*

Principal Investigator: Lynn Weber, University of Saskatchewan

- Overall, the program will provide experience to students in the research process including knowledge translation, enhance research capacity, enrich students' experiences, support pursuing joint degrees and exploit all the research facilities at U of S.
    - Encourage career interest with food animals.
    - Enhance the Western College of Veterinary Medicine's role as a leader in food animal health and welfare.
    - Improved veterinary student training.
    - Enhanced research capacity.

ADF Funding: $375,000

Roller Compacted Concrete as a Liner of Livestock Pens to Protect Groundwater. Phase 2: Effect of Construction. *(20240837)*

Principal Investigator: Terry Fonstad, University of Saskatchewan

- Research the effect of base materials, preparation, compaction, and time of curing on the achieved strength and permeability.
- Determine the effect of the design parameters on the permeability achieved at the feedlot pen scale.
- Assess the geographic consistency of the effect of the design factors on Roller Compacted Concrete (RCC) liners given regional differences.
- Assess the effect on RCC of regional differences in soil type, climate, and Sourced aggregates used in the RCC mixture

ADF Funding: $489,718

Application of Genomic Tools for Commercial Beef Cattle Producers. *(20240858)*

Principal Investigator: Bart Lardner, University of Saskatchewan

- Evaluate the impact of economically important multi-trait selection index (use genomic enhanced expected progeny difference (GEPD)).
- Evaluate whether GEPDs of traits in unproven bulls can be used to reduce the risk when purchasing low accuracy bulls.
- Evaluate whether GEPDs and actual progeny (phenotypic) performance of selected sires divergent in GEPD accuracy.
- Evaluate whether GEPDs for designed traits of unproven sires result in economic returns for the beef cattle operation.

ADF Funding: $326,000

Efficacy of fire and herbicide for woody plant control in rangelands. *(20240871)*

Principal Investigator: Eric Lamb, University of Saskatchewan

- Test the efficacy of combined prescribed fire, herbicide and mechanical control treatments for snowberry control in rangeland.

ADF Funding: $125,300

Advancing Research, Teaching and Outreach Capacity in Animal Agriculture. *(20240877)*

Principal Investigator: Angela Bedard-Haughn, University of Saskatchewan

- High-impact research activities to support a profitable livestock sector.
- High-impact teaching and training activities to support a profitable and sustainable livestock sector.
- High-impact outreach activities to support a profitable and sustainable livestock sector.

ADF Funding: $600,000

Characterization of behaviour and physiology traits related to chronicity and recovery of feedlot cattle with induced BRD. *(20240901)*

Principal Investigator: Diego Moya, University of Saskatchewan

- To determine the impact of BRD on the behavior, growth performance, rumen acidosis and carcass traits of feedlot cattle.

Co-funded by: Saskatchewan Cattlemen's Association
ADF Funding: $60,022

Testing E. coli virulence in chickens and development of an anti-E.coli vaccine. *(20240908)*

Principal Investigator: Aaron White, VIDO

- Test the virulence of selected *Escherichia coli* strains from Saskatchewan broiler farms.
- Examine the role of specific genes in the virulence of these strains.
- Develop and test a vaccine focused on conserved outer membrane proteins of *E. coli*.

ADF Funding: $123,000

Improving hen health, welfare and productivity through novel yeast prebiotics. *(20240917)*

Principal Investigator: Natacha Hogan, University of Saskatchewan

- Identification of yeast strains and culturing conditions maximizing prebiotic production.
- Determine the effects of feeding prebiotic yeast strains on laying hen health, gut microbial composition, and welfare.
- Evaluate the inclusion of novel yeast prebiotic sources on egg number and quality traits.

ADF Funding: $256,000

Resource development for a sustainable Timothy forage crop in Western Canada. *(20240920)*

Principal Investigator: Andrew Sharpe, Global Institute for Food Security

- Develop reference quality genomes of Timothy grass.
- Identify drought tolerant timothy grass lines utilizing phenotypic data.
- Integrate digital imaging for phenotyping to enhance the accuracy of drought tolerant line selection from the collection.
- Pre-breed drought tolerant timothy lines and test them in a field experiment.

Co-funded by: Saskatchewan Forage Seed Development Commission
ADF Funding: $478,155

Changes in weaning management of dairy calves: Are there benefits of weaning with high-quality forage? *(20240938)*

Principal Investigator: Gregory Penner, University of Saskatchewan

- Evaluate feed intake and growth performance responses for calves provided a high starch vs. alfalfa-based weaning strategies.
- Evaluate differences in gastrointestinal tract development for calves provided a high starch or alfalfa-based calf starters.
- Evaluate if the calf starter program affects age at first calving, milk and milk component in first lactation.

Co-funded by: Western Dairy Research Collaboration, as represented by BC Dairy, Alberta Milk, SaskMilk, and Dairy Farmers of Manitoba
ADF Funding: $227,987

Enhancing Emergency Preparedness Using Process Analytical Tools (PAT) for Vaccine Manufacturing. *(20240949)*

Principal Investigator: Volker Gerdts, VIDO

- Purchase and installation of key Process Analytical Tools (PAT) such as Raman spectroscopy and Fourier transform infrared spectroscopy equipment.
    - These are the latest types of PAT tools used at the beginning and end of the manufacturing process, respectively.
    - Spectrophotometric PAT will be applied to the process development, scale-up, and biomanufacturing components.
- Expanded capacity will enable VIDO to research pathogens and manufacture vaccines and therapeutics to help control infectious diseases, including those that cause pandemics.
- Enable VIDO to be part of Canada's new FMD Vaccine Bank. This will consist of concentrated FMD vaccines that can be rapidly transformed into usable vaccines in a timely and cost-effective manner.
    - This bank will be another tool for Canada to support animal disease prevention and management and help stop the spread of disease in an outbreak.

ADF Funding: $392,517