

**STRATEGIC RESEARCH PROGRAM
PROTEIN QUALITY AND UTILIZATION
2018-2023**

Introduction

Saskatchewan has a major cereal, pulse, oilseed, and special crops industry, producing high quality grains mainly for export as primary commodities. Significant potential exists for developing a value-added processing industry utilizing plant proteins for food (including functional foods and nutraceuticals), feed, and industrial bioproducts. Research and development in protein quality and utilization will make a significant contribution to this effort and assist in developing improved cultivars for future markets. This program will also develop methodologies for assessing quality and assist crop breeders to increase crop quality. The program will focus on current and future crops of economic interest to Saskatchewan – for example, protein fractions from pulse and cereal crops and from oilseed meal.

Goal

To enhance value-added processing of crops grown in Saskatchewan, by developing innovative knowledge and technologies in protein quality and utilization that lead to new and expanded market opportunities for food, feed, industrial, and bio-based products.

Research and Program Activities

The research focus of SRP Chair-PQU will be on proteins from Saskatchewan crops. In achieving the program goals, the chair will use a collaborative approach with food and bioproduct industry, plant breeders, and other researchers with relevant expertise as necessary. The Chair's major focus will be on the following:

- Investigate the isolation, purification, and characterization of plant proteins
- Assessment of the rheology and material properties of plant proteins
- Utilization of plant proteins for food, functional foods, and nutraceuticals
- Utilization of plant proteins in novel pet food, livestock and aquaculture feeds
- Utilization of plant proteins in bio-products and industrial applications (e.g., as rheology modifiers, biopolymers, adhesives, and composites)
- Investigate the quality analysis and profiles of plant proteins to assist plant breeders
- Collaborate with other researchers and disciplines to explore opportunities in plant protein utilization
- Teach graduate and undergraduate classes while not exceeding 10% of this time commitment
- Supervise graduate students
- Interact with the industry to address emerging needs and opportunities in plant protein quality and utilization
- Identify technologies with possible commercialization potential and advantageous applications for Saskatchewan processors.

Program Outputs

- Proprietary technology and knowledge in novel applications for plant proteins derived from Saskatchewan crops
- Novel plant protein applications and utilization in the food, feed, industrial and bio-product industries
- Scientific knowledge and understanding of factors affecting plant protein quality and utilization
- Scientific and peer reviewed manuscripts on plant protein quality and utilization
- Undergraduate and graduate level classes in protein quality and utilization
- Building stronger industry collaborations and integrating companies into projects
- Delivery of industry focused workshops

Desired Outcomes

- More diverse utilization of plant based proteins derived from Saskatchewan commodities
- Innovative protein fractionation and processing technologies to increase industry competitiveness
- Increased value and viability of the Saskatchewan food, feed, and bioproduct industries
- Build knowledge capacity by training highly qualified people in protein quality and utilization