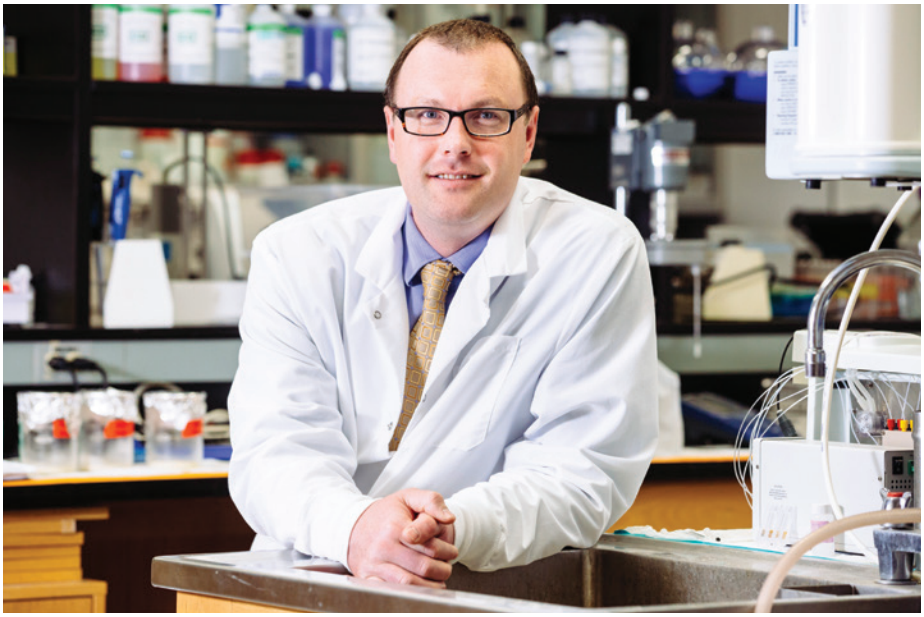
PROJECT TAKES WIDE VIEW OF PULSE PROCESSING INNOVATION

Four high-potential pulse crops are the focus of this five-year effort, with pulse flours getting the most detailed examination.



Dr. Mike Nickerson, Professor and Ministry of Agriculture Strategic Research Chair at the University of Saskatchewan.

As new pulse processing capacity moves closer, attention is focused on the construction of these new facilities and the day when the new processors first buy pulse crops from Prairie growers.

As Dr. Mike Nickerson observes the pace of development, he's looking beyond the day when these highly anticipated facilities open for business.

"The companies building infrastructure here on the Prairies, a lot of them are trying to get their plant up and running and get their first ingredient made," said Nickerson, Professor and Ministry of Agriculture Strategic Research Chair at the University of Saskatchewan. "Pretty soon after, they'll start looking to, *how can I add more value to my ingredients?* They'll be capitalizing on some of the work we're doing right now."

Nickerson is one-third of the way through a five-year project, funded by the Canadian Agricultural Partnership AgriScience Program and Prairie pulse growers, to find innovative ways to process yellow peas, red lentils, Kabuli chickpeas and navy beans. These processed pulses – most prominently, pulse flours – will be essential ingredients in a wide variety of new food products.

Particle size, new technology in pulse milling

Compared to flours milled from cereal grain, processing pulses into flour is newer territory, with much basic research work still to be done. Nickerson explained that between 80% and 90% of this project is concerned with pulse flour. Baked goods, beverages and binding agents are a few areas to watch.

"We've been doing a lot of work at CIGI, looking at how milling particle size and new milling technology can be used to modify the properties of the flour," Nickerson said. "So far, we're seeing big changes in the functionality of the flour based on particle size."

Germination and infrared heating before milling were the focus of the project's first phase. Roasting, fermentation and wet extraction are priorities for 2020. Portions of this work will be carried out by University of Saskatchewan students under Nickerson's direction, helping to train the pulse scientists and technicians of tomorrow.

While this work is innovative in terms of pulses, advanced processing techniques are long-established for soybeans. Nickerson wants to close the gap between now and 2023.

"That's where we want to get with the pulse proteins, to develop specialty fractions of the kind they have for soy," he said. "Whether it's modifying the wet extraction process, new dry extraction techniques or milling to certain particle sizes, we're using fermentation and enzymes to modify those ingredients to get almost an ingredient line extension for these pulse protein ingredients."

As new pulse processors prepare to open, the techniques they'll use first will ultimately be replaced by newer methods that capture more value from pulses. Nickerson is finding those methods today.

"The research that we're doing in the next five years," he said, "is about making pulse ingredients that are more functional and perform better."