

SPG FUNDED RESEARCH PROJECTS

Enhancing the Nutritional Value of Saskatchewan Pulses

Through Improved Levels of Folate and Carotenoids

Pulse crop: Pea, chickpea, dry bean, lentil

Research category: Improving nutritional levels of the seed/development of new varieties

Researchers: Tom Warkentin, Ashokkumar Kaliyaperumal, Tina Thomas, Vincent See, Gene Arganosa, Bert Vandenberg, Bunyamin Taran, and Kirstin Bett



Presenter: Tom Warkentin

Tom is a professor in the Crop Development Centre (CDC)/ Department of Plant Sciences at the University of Saskatchewan. Previously he was a research scientist at Agriculture and Agri-Food Canada. His focus is pulse crop breeding and research, which enhances the pulse crop industry in Canada and internationally. Tom has

20 years of experience as a pulse crop breeder and has developed or co-developed many varieties of pea and chickpea, which have gained wide market acceptance. Tom's graduate students and post-doctoral fellows have published research in the areas of pulse crop visual seed quality, nutritional seed quality, disease resistance, and agronomic adaptation. Recent initiatives from Tom's program include expanded use of genomic techniques to facilitate plant breeding, and research in the area of pulse crop biofortification, particularly related to iron, zinc, selenium, carotenoids and folate.

The project:

Pulse seeds are already highly nutritious, but seeds with enhanced folate and carotenoid levels would then be even better! This project aims to improve the levels of folate and carotenoid concentration in whole seeds, seed coats, and cotyledons in selected genotypes of pea, lentil, chickpea and dry bean grown in Saskatchewan.

Folates, also known as vitamin B9, are essential to numerous bodily functions (including DNA synthesis and repair), biological reactions, aiding rapid cell growth in infants, and producing healthy red blood cells. Carotenoids are plant pigments that absorb light and protect chlorophyll from damage. In humans, carotenoids have vitamin A activity, which protects our eyes by absorbing ultraviolet light.

How this project will benefit pulse growers in Saskatchewan:

The broad goals of pulse crop breeding at the CDC are to improve yield and quality of Saskatchewan pulse crops. This project aims to determine the range of variability in pulse crops for carotenoids and folates. Knowing the range of variability will allow us to breed for enhanced levels of these key nutrients, which would in turn enhance demand for Saskatchewan pulses.

