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Growing soybeans on the northern edge

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Sometimes it snows during harvest when you are growing soybeans in the Canadian Prairie province of Manitoba. What agronomic factors need to change for new short-season cultivars? A recent publication in Agronomy Journal asks this question and looks at the impact of starter nitrogen fertilizer on soybean yield, quality, and nitrogen fixation. Photo by Virginia Janzen.

The soybean production area in North America has expanded north to include areas of the Canadian Prairies. Plant breeders have been working hard to develop new short-season soybean cultivars that will mature in record time. But farmers and processors are concerned about lower seed protein and yield compared with areas with longer growing seasons. Can better agronomy help as breeders work on this next challenge?

In an article recently published in *Agronomy Journal*, researchers from the University of Manitoba found no increase in soybean biomass, yield, or grain protein and oil in response to starter nitrogen (N) fertilizer for a short-season Maturity Group 00 soybean cultivar. Nitrogen balance was evaluated from biological N fixation (BNF), soil, and fertilizer sources of N to total crop N uptake. Soybean fertilized with starter N fertilizer increased early crop N uptake in a year with favorable growing conditions and suppressed BNF in a dry year. However, the contribution of fertilizer N did not increase soybean yield.

These results do not support the use of starter N fertilizer to increase soybean yield and grain protein content in the short-season growing area of the Canadian Prairies. That means there is more work to be done for plant breeders and agronomists to adapt soybeans to this new northern edge.

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Brar, N., & Lawley, Y. (2020). Short-season soybean yield and protein unresponsive to starter nitrogen fertilizer. *Agronomy Journal*, *112*.
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