

## **Nutrient Uptake and Removal in Prairie Crops**

Crop nutrient uptake and removal guidelines are a valuable resource for farmers and agronomists. The knowledge of actual yields, removal amounts and soil test levels can provide the basis for strategies to balance or maintain soil fertility, to rebuild depleted soils or even to drawdown levels in very high testing soils.

The last published Prairie guidelines in 2001 needed updating based on current genetics and crop production practices. Grain and biomass samples from 14 different Prairie crops were collected from hundreds of farm fields between 2020-2022. Crops included cereals (barley, corn, oats and durum, spring, winter wheats), pulses (peas, chick peas, dry beans, faba beans, lentils) and oilseeds (canola, soybeans, flax). The project was led by Drs. Walley, Farrell and Issah from University of Saskatchewan, and collaborators Lyle Cowell (Nutrien) and myself.

Compared to the original estimates, most macronutrients were removed at lower concentrations (lb per bu), especially P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O. This suggests that current production practices and varieties have resulted in improved nutrient use efficiency on a per bu basis, although higher yields remove more nutrients on a per acre basis.

A online calculator was developed to quickly estimate nutrient removal based on crop and yield.

<https://prairienutrientcalculator.info/>

The full research report is posted at:

<https://www.saskcanola.com/s/Final-Report-Revising-the-crop-nutrient-uptake.pdf>