

## Nutrient Uptake in Buckwheat

Réjean Picard, P.Ag. Manitoba Buckwheat Growers Association Inc.

### Abstract:

Buckwheat is grown in many parts of the world and has long been consumed as human food and as livestock feed. Manitoba has the most acres of tame buckwheat (*Fagopyrum esculentum* Moench) produced in Canada annually.

Tame buckwheat is a warm season broadleaf plant with indeterminate flowering pattern. To better understand the nutrient uptake of buckwheat, a study was undertaken to develop nutrient uptake curves. This study is unique in measuring buckwheat growth and nutrient uptake at various stages of development during a whole season.

This replicated and randomized trial was established at the Carberry Crop Diversification Center in 2021. The variety Mancan was used for the trial. 2021 was a dryer and warmer than normal season however the subsoil moisture reserves along with moderate regular rainfall events provided good growing conditions for the crop.

As expected, buckwheat biomass accumulates rapidly in its early development stages. For the most part, nutrient accumulation follows biomass accumulation. In this study, dry matter yield of vegetative plant parts, stems and leaves, is optimized at the begin seed set to the begin seed fill stage.

Macronutrients accumulated rapidly as the plants grew. A large proportion of nitrogen, phosphorus and sulphur end up in the seed. Buckwheat is considered a good scavenger of soil phosphorus and this study shows that with very low starting phosphorus levels (2. ppm in top 15 cm), the crop was able to yield well and accumulate much of the phosphorus taken up by the plant into the seed.

Potassium and intermediate elements like calcium and magnesium tend to remain in the vegetative parts of the plants while micronutrients like zinc and copper accumulate in the seed.

See full report at:

[https://mbdiversificationcentres.ca/wp-content/uploads/2022/04/2021\\_CMCDC-Annual-Report.pdf](https://mbdiversificationcentres.ca/wp-content/uploads/2022/04/2021_CMCDC-Annual-Report.pdf)