



Central Alberta Co-op Ltd.

PRIORITIZING POTASH

It is well documented that Nitrogen is the nutrient required in the highest amount to grow a great crop. It is the engine powering your yield, but what if that car engine didn't have a driver behind the wheel or gas in the tank? I want to shed some light on the unsung hero – potassium. Known in the fertilizer business as Potash 0-0-60 (KCl). Just one of the *other* essential nutrients responsible for optimizing your crop's horsepower.

Prairie soils are known to be naturally rich with potassium. Alberta Agriculture cites natural soil levels as high as 36000 lbs/ac in the top 6" of the soil profile! However, the number one thing producers need to realize is only 1% or 360 lbs of that 36000 lbs/ac is actually plant available. This is in part because potassium is not the only thing our soils are rich with. Here in Western Canada we also have deep reserves of magnesium and calcium. This matters because calcium and magnesium molecules attach themselves to potassium ions, tying up its ability to be used by the crop. Research conducted by the International Plant Nutrition Institute (IPNI) across Western Canada has highlighted several areas of potential potassium concern including one pocket just northeast of Red Deer.

To measure crop specific needs for potassium throughout a growing season nutrient uptake and removal charts are a great tool. For example, a Wheat crop requires 2 lbs of potassium for every bushel produced, Barley 1.35 lbs/bu, Canola 2.3 lbs/bu and Peas are actually the highest users of potassium per bushel of grain produced at 2.75 lbs. Now yes, I know what you are thinking, the majority of that nutrition gets returned back to the soil when spreading straw behind the combine right? Yes, about 80% of the potash gets returned back to the soil while the other 20% gets removed with the grain. Another benefit of potash is that unlike nitrogen and phosphorus which need to decompose back into mineral form to become plant available, the recycled potash straw is ready immediately for the following crop to access. Now having said that, fields with a history of removing straw, hay or silage will show decline much quicker. As will coarse textured sandy soils, which are more prone to leaching. So, is there cause for concern?

Over the years of examining soil tests from across the province, potassium levels have been in gradual, but steady decline. Have they reached the tipping point? Well, average soil tests locally are around 950 lbs of potassium, with lows of 400 lbs and highs of 2100 lbs in the top 6" of the soil profile. Do the math with the uptake and removal rates multiplied by your farms average yields and ask the question; how much will it cost to maintain the "vehicle" versus fix the "vehicle" down the road?

Lab results aren't the only place we have seen evidence of decline. Deficiencies are starting to show up visually in the field as well. Because potassium is mobile within the plant, look for symptoms of chlorosis or bleaching on older leaf tips and margins.

Potassium's role within the plant is to transport sugars to new leaves, regulate water use (drought resistance), aid against lodging and diseases, as well as protein synthesis and grain head filling. Options for in-crop treatments include various foliar products that can tank mix with either an herbicide or a fungicide, but granular options are best applied in the fall or spring. And of course, I can't stress enough the importance of scouting. You don't know what's out there unless you look!

Nitrogen may be the engine of the crop, but potash is the gas pedal. Keep soil testing annually, providing a balanced diet for your crops, and we'll have another successful growing season ahead.

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