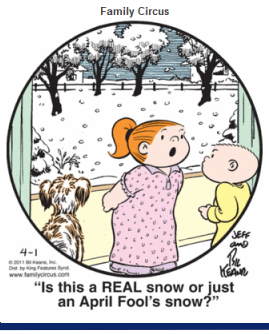
Lakeside GRAIN & FEED LIMITED

PRECISION AGRICULTURE COMPLIANCE EXCELLENCE

THE Agromart GROUP

April Newsletter



By: Anita Speers

Investing in K for 2019

When you think crop nutrition, the "big three" that immediately come to mind are nitrogen (N), phosphorous (P) and potassium (K). Of these three, potassium is called the "quality" nutrient because it helps your crop to manage stress and improve its resistance to diseases. It's also a nutrient that can be found not only in products like Muriate of Potash, but Aspire (0-0-58-0.5B), NK21 (21-0-21) and KMag (0-0-22-11Mg-22S).

Within the plant, potassium plays a role in regulating the opening and closure of stomates. What is a stomate you ask? It is a small pore found on the underside of the leaf that facilitates photosynthesis, water vapour and gas exchange. Having optimum levels of potassium mean that stomates can readily open and close to maintain turgor pressure, which results in decreased water loss and wilting. A crop that is low in potassium has sluggish stomates – consequently, this means the stomates will not close as easily, which allows water to be lost and the crop to become stressed.

Setting your crop up for success begins with setting up your K levels. In the early stages of development, K deficient crops have poorly developed root systems and grow very slowly. This leads to a crop that is stunted, has lodging problems and often results in poor grain development. It is important to include some amount of K in your starter fertilizer to help your crop fight against early season stressors like cold and wet soils – think of it like a little insurance policy for your crop. K deficiency begins on lower leaves due to potassium's mobility in the crop. When identifying K deficiency, look for chlorotic leaf margins on the lower portion of the crop canopy. As this deficiency progresses, the leaf tissue will eventually turn necrotic, and in severe situations the entire leaf may fall off entirely resulting in early defoliation of the crop.

Understanding K Uptake Patterns

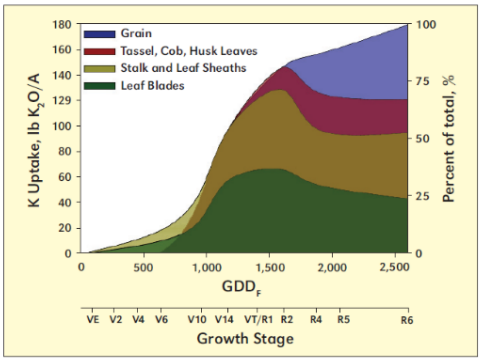


Figure 1: Uptake curve of K in corn. This nutrient is important late season for vegetative structures and grain.

Below are two graphs taken from research conducted by the University of Illinois that focused on understanding a crop's ability to partition nutrients. Figure 1 demonstrates the uptake pattern of K in corn and Figure 2 is the uptake curve of K in soybeans. Between these two crops, the biggest similarity is the importance of having K available late season. Both graphs show an increase in K uptake well into the reproductive stages of crop development (R1 and beyond). There is a large portion of K that goes into the leaf blades, leaf sheaths and stalks of each crop. Interestingly, where these two crops differ are on the uptake of K that is partitioned to grain. Corn shows a steady increase of K uptake from approximately R2 (blister) through to R6 (maturity). Soybean uptake of K increases steadily from R4 (full pod) then drops off after R6 (full seed development). This shows how important K is to the grain fill portion of a soybean crop. It is critical to ensure that enough K is available to the crop prior to R6, as after the seed has fully developed K uptake begins to decline.

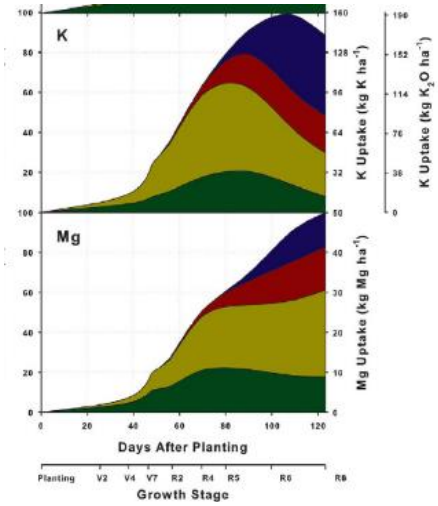


Figure 2: Uptake curve of K in soybeans. Similar to corn, late season availability of K is crucial to this crop.