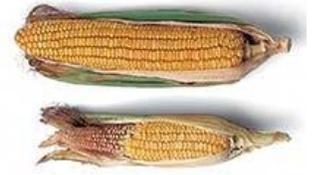


# Lakeside Late-May

GRAIN & FEED LIMITED



## Big corn yields with Boron

Dave Curry CCA

Boron is a micronutrient required in very small amounts by the corn plant but can pack a big punch. Farmers and agronomists are starting to see a solid yield response to boron applied during the growing season.

Over the last few years our soils tests in Southwestern Ontario are starting to trend downwards in Boron. Even though the crop removal in terms of lbs per/ac is low, we are slowly depleting boron soil levels. Most soil tests are coming in below 1.0 PPM. This is more evident in soils without a history of manure.

A 200 bu corn crop removes about 0.5 lb/ac of Boron from the soil each season. A small amount of fertility but potentially the missing piece of nutrition needed to consistently hit those top yields. Boron may be a nutrient that many cash crop farmers are overlooking when it comes to their corn's fertility program.

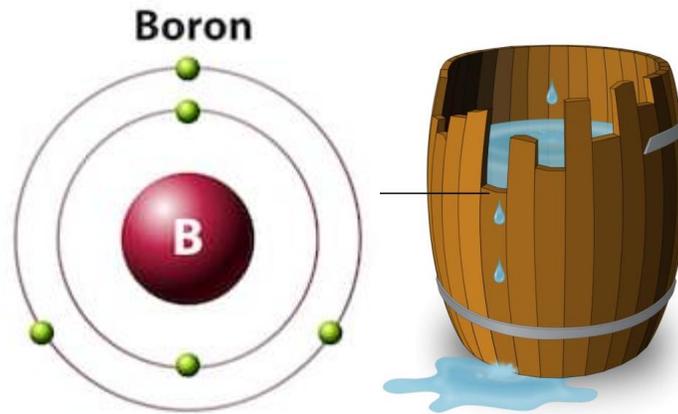


### Boron in the soil

Boron can be very mobile in soil solution because of its net negative charge ( $\text{BO}_3^{-3}$ ). That is one reason why we would typically not recommend fall applications of boron to “build” the soil test.

Lighter sandy soil types with low organic matter historically would see the greatest response to a boron application. However, there are now many trials and research results showing an economic response to boron across multiple soil types.

Note: soils with a strong history of manure likely will not show strong economic response to a boron application.



### **Boron's role in plants**

Boron is involved in many physiological processes within the corn plant and is required in small amounts throughout the entire growing season.

Boron is important in cell wall biosynthesis, membrane stability and structural integrity of the plant cell. As well it is a crucial micronutrient required for root elongation, pollen germination and pollen tube growth.

Boron is key in movement of nutrients, sugars and hormones throughout the plant. It is also a key nutrient required in nitrogen metabolism and protein formation.

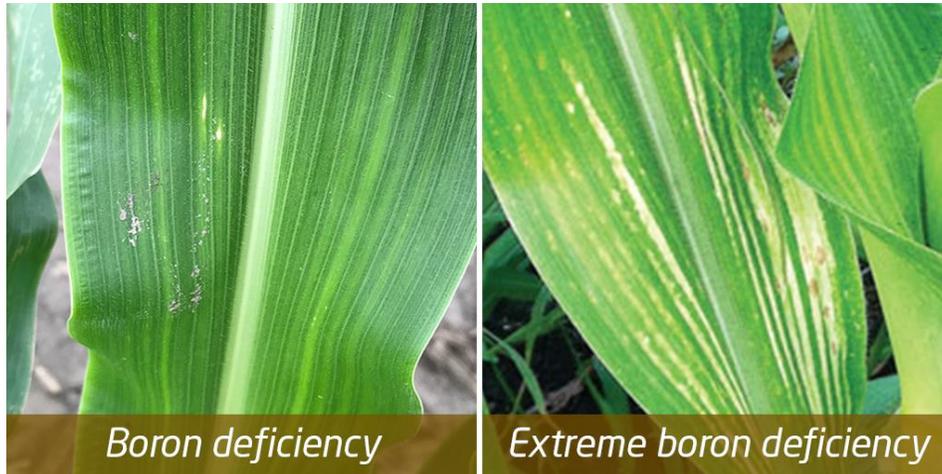
Boron is required in regulation of the plant's stomata. In turn, during periods of drought, plants with adequate boron supply may have better drought tolerance and overall increased water use efficiency.

### **Mobile in the soil but not in the plant.**

For the most part Boron is a non mobile nutrient in plant tissue. Boron will move through the plant mainly through the xylem with water. Uptake from the root to developing tissue is the main way boron is mobilized inside the plant. Boron will not be reallocated from old growth to the new growth. Typically, that is why boron deficiencies show up in the new growing tissue. Feeding the root is key early in the season to make sure that adequate boron is available for later use by the corn crop. However, in some cases foliar products have been shown to give a solid response later in the growing season.

## Boron Deficiency in Corn

Early season boron deficiency can be seen with corn plants looking stunted in their growth. The internode length tends to shorten. In some cases, the whorl of the plant will not completely unroll properly. White spots can sometimes be seen between the veins of the corn plant.



Boron deficiency can sometimes be linked to bent cobs, tip back or arrested development syndrome (beer can cob). Without adequate boron supply proper pollination might not occur.

Under drought conditions corn plants with limited boron may show these deficiencies to a higher degree.

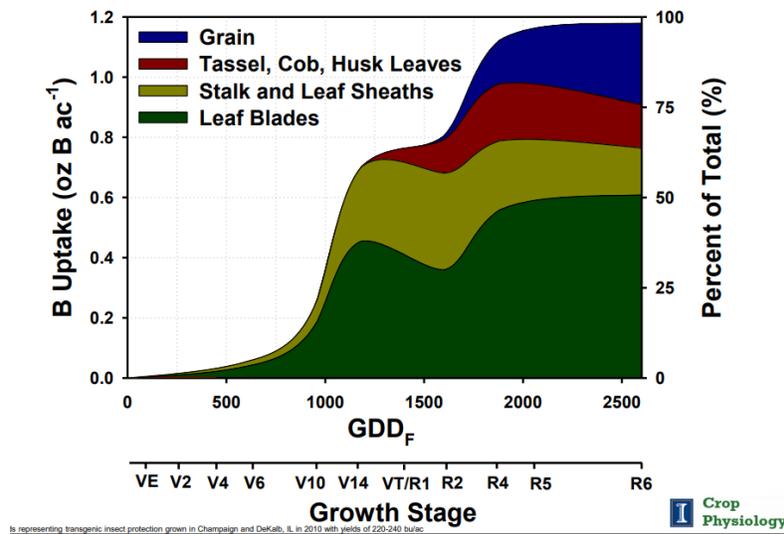


**K-State agronomy**

## Boron in the corn sidedress program

The corn crop sees a rapid uptake and requirement for boron after V10. In an ideal world, applying boron to the growing corn crop before that stage is key to have it available for root uptake. The V4-V6 timing shows some of the best responses for a boron application. There are some very solid options to apply boron in the side dress on corn. We have access to some very high-quality liquid boron products that can be tank mixed with UAN and ATS.

### Seasonal Boron Uptake



Give your corn crop the boost it needs this season. Let's try and push some big bushels with a shot of boron. Speak with one of our Lakeside team to dial in what boron product fits your operation.