

Differences in boron fertilizer sources

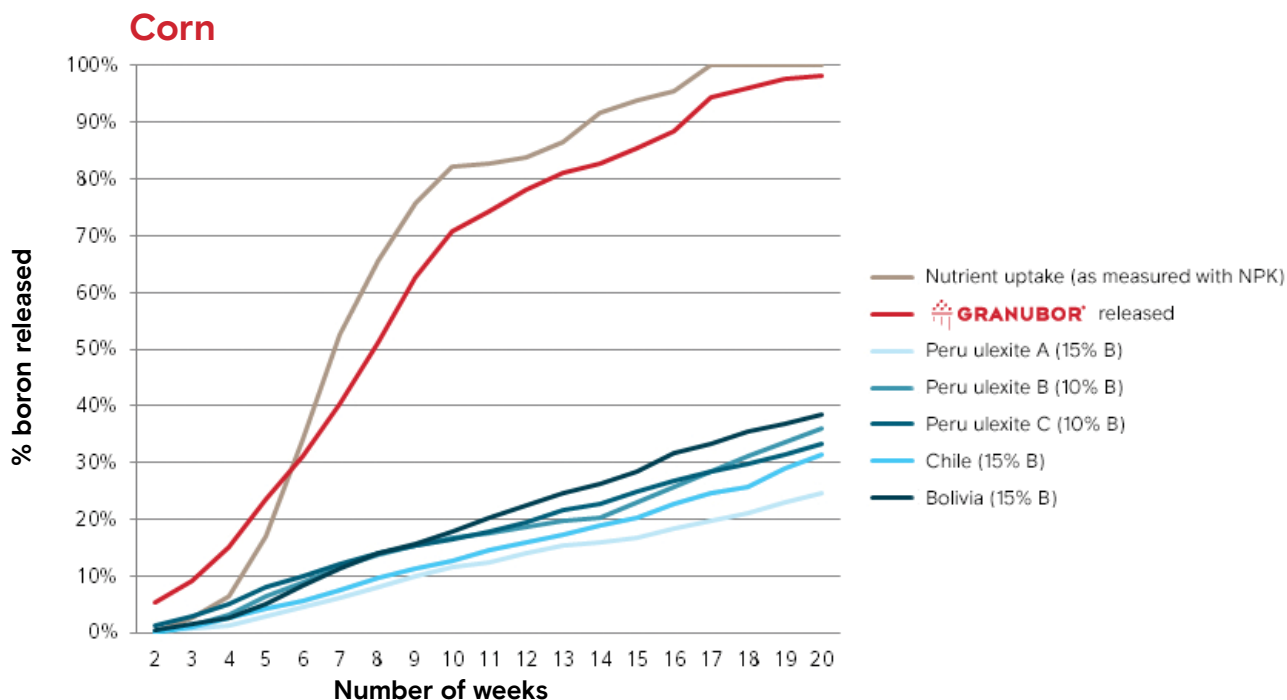
Boron was first shown to be an essential micronutrient for plant growth and development by Katherine Warington in 1923. Boron is essential for all plant growth—playing an important role in cell wall structure, plasma membrane stability, root growth, and pollination. Growers should know the relative boron needs for each specific crop, as well as the water soluble available boron supply in the soil, to determine the optimum rate and method of applying sufficient boron for optimum yields.

Plant uptake of boron is related to the boron concentration in the soil solution of the root zone.

Several boron fertilizers are available in the market, including some claimed to be “slow release,” but little is known about the relative release rates of the products under similar conditions. Knowledge about the relative rates is critical for maximizing the efficiency of the crop demands, and increases farmers’ profitability and improves sustainability. Results from soil experiments have shown that not all boron sources provide equivalent water soluble boron in the soil solution.

A wide disparity is seen between refined sodium borate products such as *Granubor*® and ulexite, a sodium-calcium borate product. Ulexite mineral consists of sodium-calcium borate which is classified as partially water soluble, whereas *Granubor* is a sodium borate classified as water soluble. Another key difference is the manufacture of the two products. *Granubor* is a refined product, which means the ore is dissolved in water and re-crystallized, removing any impurities and creating an extremely pure natural product. On the other hand, ulexite is not refined and tends to contain impurities such as arsenic.

Granubor is engineered to meet the crops’ boron demands during the growing season. Ulexite products cannot enter the same process due to the low water solubility. The graph shows the release rates over time of various borate fertilizers compared to NPK uptake of corn. *Granubor* is the right source of boron to meet the nutrient needs of the crop.



Broschat T. Horttechnology. Jul-Sept 2008. 18(3). U.S. Borax internal studies.
Campbell-Mathews M. 2010. University of California, Symposium CAS 10-30.