



Boron-rich alfalfa provides more protein to hungry dairy cows.

Got alfalfa?

Alfalfa is the world's oldest forage crop. Not very interesting unless you're a cow. But healthy alfalfa makes for healthy people when you connect the dots: alfalfa feeds cows, cows make milk, milk - and other dairy products - are a primary source of essential nutrients in humans, such as calcium.

In short, even if you're not a farmer, you should care about alfalfa.

Here is the basic information. Alfalfa is grown throughout the world, but it wasn't always that way. The first attempts to grow alfalfa in the United States in the 1700s failed miserably. Although the crop grows in a wide range of conditions, it does best in deep, loamy, well-drained soil. Advances in irrigation and fertilization have made it possible to grow good crops in a greater variety of settings. Today, the United States produces 73,000 tonnes of alfalfa each year.

What makes a good crop? Alfalfa quality is determined by the amount of naturally-occurring protein in the crop. More protein in the alfalfa will maximize farmers' milk production. The greener and leafier the alfalfa, the better its protein content.

One of the ways to get green and leafy alfalfa is to ensure that the soil contains adequate boron, an essential micronutrient for all plants and particularly important for thriving alfalfa crops. Beyond being integral to many of the plant's metabolic processes, boron improves leaf retention and growth in alfalfa plants. In fact, boron deficiency can be fatal to developing alfalfa plants, and inhibit production in plants grown for seed.

Field studies show a 25 percent yield increase in alfalfa crops with the simple addition of boron to other fertilizer components, including lime, phosphate, potassium and sulfur. Bill Griffith of the Potash & Phosphorus Institute (PPI) calls boron "the most critical nutrient" in alfalfa production. The need is largely due to the fact that growing alfalfa plants remove relatively large amounts of boron from the soil each year.

A recent Texas A&M (Agriculture and Mechanical) University study confirms the significance of boron fertilization. Results from this study show the importance of maintaining an adequate level of boron in acid, sandy soils that have been limed for alfalfa production. The research indicates that alfalfa yields rise rapidly as the soil boron level increases.

Supplying boron-containing agricultural products for decades, Borax bases its crop recommendations on detailed research. This year, Borax sponsored an alfalfa-boron study at Michigan State University, Kellogg Research Center. The University's team is researching the impact of boron on new strains of alfalfa crops, including multi-leaf types and those more resistant to insect attacks.

Alfalfa cultivation is said to have started before recorded history. As the world's most valuable forage crop, it's safe to predict that it will continue into the future as an agricultural heavyweight. Borax remains committed to working with farmers to improve on cultivation and fertilization techniques, making for better alfalfa for cows and better dairy products for people. Which gives us all something to smile about.



The Lima, Ohio warehouse serves Borax's agricultural distributors in the midwest and eastern parts of the U.S.

Moving Borax products closer to the user

New U.S. warehouses in Ohio and Georgia bring Borax's *Granubor*® and *Solubor*® fertilizer products closer to where they're needed most. These warehouses, along with two in Illinois and Tennessee, serve markets from the Mississippi River to the East Coast. The stockpoints were set up to ensure distributor convenience, dependable supply, timely deliveries and pickups. Fertilizer products are manufactured and shipped from U.S. Borax's plant in Wilmington, California, and are delivered to the warehouses by truck and rail.



Borax's agricultural regional warehouses

- 1 Wilmington, CA
- 2 Rockford, IL
- 3 Lima, OH
- 4 Memphis, TN
- 5 Albany, GA