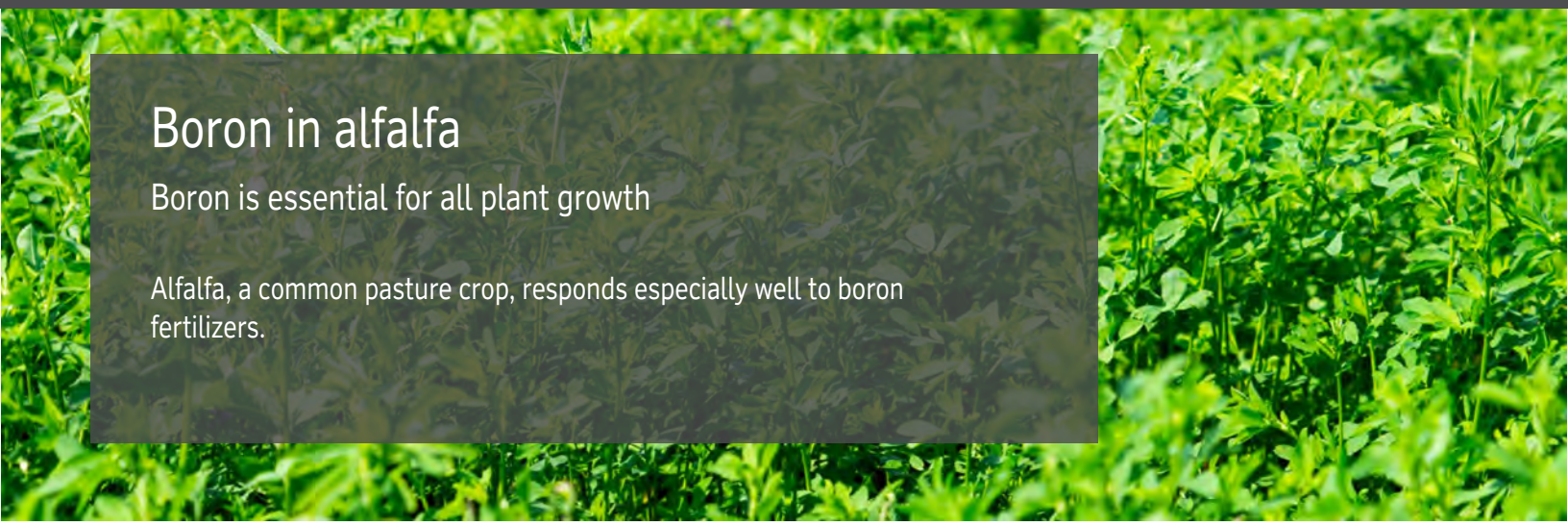
20 MULE TEAM BORAX™

RioTinto



Boron in alfalfa

Boron is essential for all plant growth

Alfalfa, a common pasture crop, responds especially well to boron fertilizers.

Boron supply

Providing alfalfa with adequate boron is necessary for:

- Greener, leafier plants with high protein
- Faster regrowth after each cutting
- Longer stand life
- Improved winter hardiness
- Enhanced root growth
- Better water use, efficiency, and drought tolerance
- Increased root nodule development for fixing nitrogen
- Thicker stands to suppress weed and grass growth

Boron deficiency symptoms

The main symptoms of boron deficiency in alfalfa are yellowing and reddening of the upper leaves. As the deficiency develops, the internodes of the top growth become progressively shorter and the short side branches give the plant a “rosetted” appearance. Boron deficiency is closely associated with moisture stress and drought. Alfalfa yellowing caused by boron deficiency is frequently mistaken for drought damage.

Alfalfa needs a relatively high rate of boron constantly over the entire growing season. Annual boron applications should be applied when other nutrients are topdressed, after cuttings.

Recommended Pounds of Boron per Acre per Year

** Foliar sprays should not exceed 0.5 lbs/acre boron per application.*

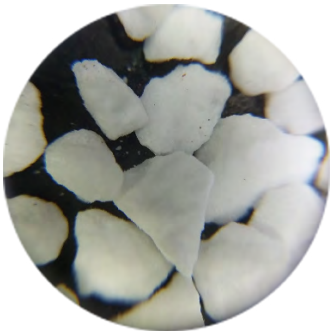
Potential Yield (tons/acre)	Application method	Boron soil test		
		Low	Medium	High
1 to 3	Prior to seeding	1	0	0
	Topdress	1	1	0
3 to 6	Prior to seeding	2	1.5	0
	Topdress	2.5	2	1
Plus 6	Prior to seeding	3*	2.5	1
	Topdress	4*	3*	1.5

The Difference Between Borate Sources

Unrefined borates
(ulexite, colemanite and hydroboracite)

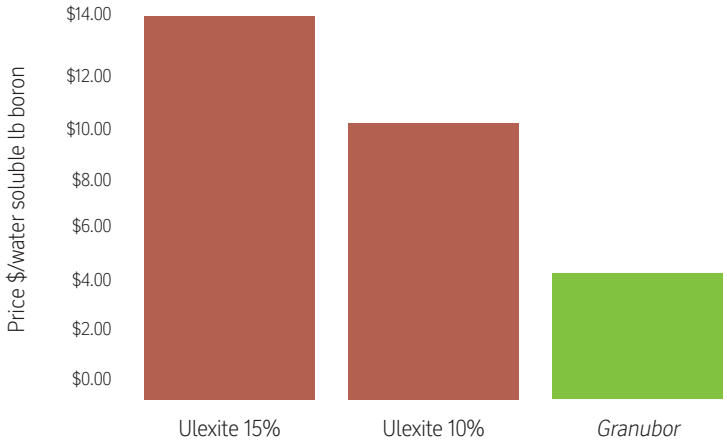
- High presence of impurities and arsenic (heavy metals)
- Irregular granulometry
- Incomplete solubility in water
- High hygroscopicity
- Inconsistent boron release
- High dust content, creating segregation and irregular distribution of the product in the field
- Limited field tests and certifications

Refined borates
(*Granubor*)



- No impurities, dust, fillers, coatings, or added ingredients
- 100% water soluble
- Average particle size (2.8 mm) is perfect for blending with NPK fertilizers
- Very low hygroscopicity, again, ideal for mixing with NPK fertilizers
- Gradual boron release for consistent and long-lasting benefits
- Hard granules decrease dust formation during handling, application, and transport
- OMRI-listed and USDA-certified for use as a fertilizer in organic agriculture
- Mined and refined in the USA

Granubor delivers more water soluble boron to plants at a more affordable price



20 MULE TEAM BORAX™

RioTinto agriculture.borax.com