

Boron in tree fruit and nut crops

Without enough boron, fruit and nut trees typically suffer dieback of branches, premature fruit drop, and poor nut or fruit development as well as cracked or misshapen fruit.

Consistent quality

Profitability is based on high yields of quality fruits and nuts that store and ship well. Nutrition plays a vital role. Boron is the key nutrient for flowering, fruiting, and internal and external fruit quality. Research has related boron concentration in leaves to fruit quality and fruit set. Fruit and nut crops need a constant supply of boron during all growth stages, especially during flowering, and nut and fruit development.

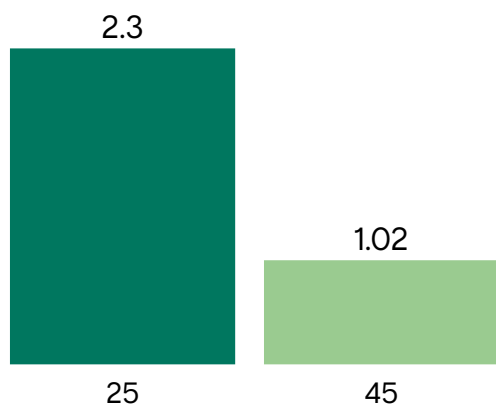
Boron supply

Making sure that the crop has adequate boron will:

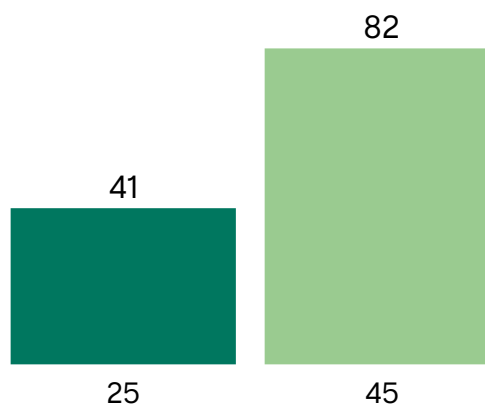
- Increase flowering, pollination, and fruit set
- Reduce losses from internal and external corking, fruit cracking, pitting, deformation, and discoloration
- Lessen bitter pit and gum spots
- Help move sugars and nutrients from the leaves to the fruit
- Ensure nut fill, and reduce premature nut and fruit drop

Key apple findings

Fruit cracking index*



Non-bitter pit %



Leaf boron concentration (ppm)

*Cracking Index: 0-normal, 1-light, 2-medium, 3-severe

BROCHURE: BORON IN TREE FRUIT AND NUT CROPS

The difference between borate sources



Unrefined borates (ulexites)

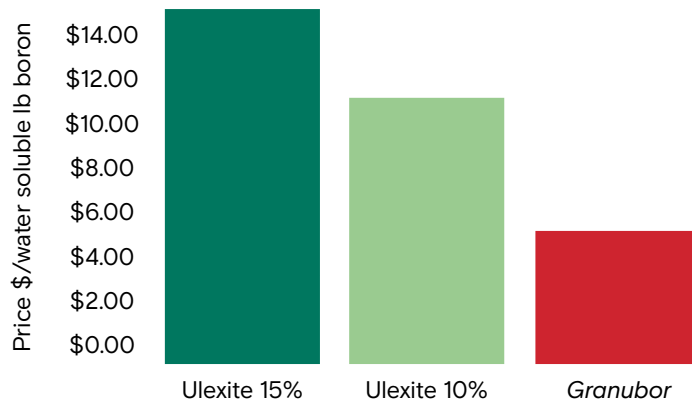
- Potentially high levels of impurities and arsenic, a heavy metal
- Generally irregular granulometry
- Incomplete dissolution in water
- High hygroscopicity
- Inconsistent release of boron over time
- High content of dust creating segregation and poor distribution of the product in the field
- Limited field tests and certifications



Refined borates (*Granubor*®)

- No impurities, dust, fillers, coatings, or added ingredients
- Average particle size 2.8 mm—perfect for blending with NPK fertilizers
- 100% water soluble
- Very low hygroscopicity for even blending in NPK fertilizers
- Gradual release of boron for consistent, long-lasting benefits
- Crush resistant, limited dust during transport, hauling, and spreading
- OMRI-listed and USDA-certified for use in organic food production, processing, and handling
- Mined and refined in the USA

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



About U.S. Borax

U.S. Borax, part of Rio Tinto, is a global leader in the supply and science of borates—naturally-occurring minerals containing boron and other elements. We are 1,000 people serving 650 customers with more than 1,800 delivery locations globally. We supply around 30% of the world's need for refined borates from our worldclass mine in Boron, California, about 100 miles northeast of Los Angeles.

Our local agriculture experts understand the uses and benefits of boron on crops. In addition to a global sales team, we have a number of agronomists on staff to help fertilizer distributors maximize the benefits of borates in agriculture applications. Our ag team can answer individual growers' questions and concerns about their particular crop.

High quality, high reliability, high performance borate products. It's what we're known for.