

Granubor distribution field tests



Boron application

As with other nutrients, farmers can apply boron to plants through different methods depending on the crop, time of application, and cultural practices. The methods of application can be direct soil application, foliar application, and fertigation. Because boron application rates are quite low compared to macronutrients, farmers and agronomists must consider how best to achieve uniform field application. Doing so can help to decrease application costs and provide more even coverage.

When using direct application, boron can be bulk blended with other nutrients (such as NPK blends) to provide specific boron rates, depending on crop needs. *Granubor*® is a compacted refined boron fertilizer engineered specifically for fertilizer blends. With an average particle size of 2.8 mm, *Granubor* perfectly matches the size of the other fertilizers in the blend. Its consistent weight and particle size distribution provides a minimum amount of segregation in bagging, transport, and application.

In addition, the product is highly crush resistant—limiting dust during transport, hauling, and spreading.

Even size leads to even distribution

Superior borate distribution depends upon consistent, even sizing. To help guarantee its optimal average particle size distribution, *Granubor* is screened between -4 and +14 mesh. With very few particles falling outside these values, the product has a uniform size distribution, similar to popular blends of prilled, granulated, and compacted fertilizers. Having even nutrient distribution, including boron, ensures that all plants in the field receive a uniform supply—avoiding boron deficiency in plants.

Consistency and effectiveness

After dissolving, boron moves freely in the soil through the mass flow mechanism to reach the plant's root system. *Granubor* is 100% water soluble and designed to gradually release boron into the soil solution to match crop demand. It supplies more plant-available boron than unrefined borates which are only partially water-soluble.

Granubor test parameters

When tested for spreadability, *Granubor* was consistent in every fertilizer spread tested. Tests were conducted by New Leader Manufacturing using spreader model NL5000G5, conveyor type #4 in August 2019.

Seven different blends were tested using *Granubor* as the boron source:

- The first four fertilizer blends are commonly used in Brazil
- The last three fertilizer blends are commonly used in three major U.S. field crops

The results show that *Granubor* was evenly spread in the field for all tested blends—giving farmers the assurance of proper boron spread in their bulk fertilizer blends.

Granubor distribution field tests



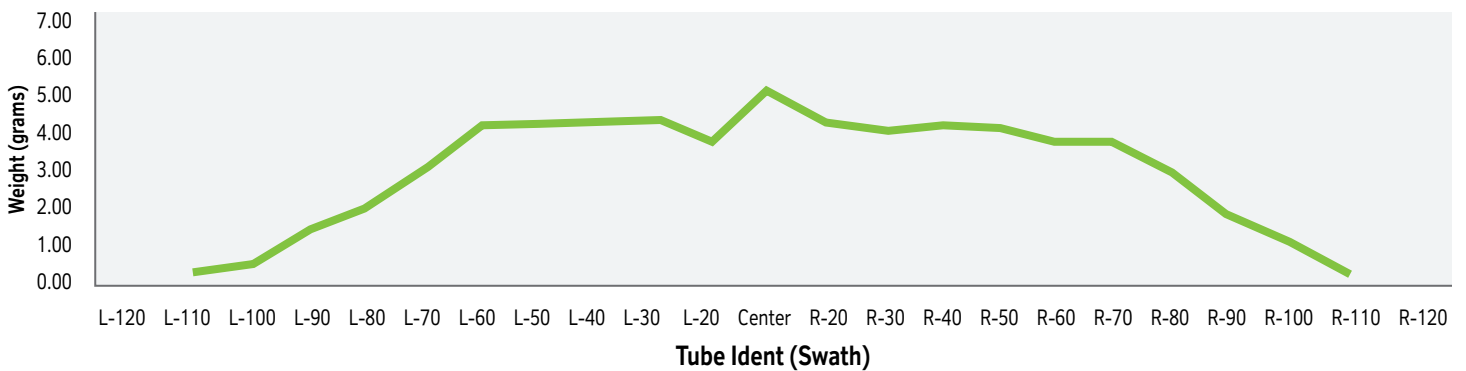
Brazil Blends

Brazil blend #1

96.5% MOP + 3.5% Granubor | Product Characteristics

Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -348	120	170	240 10%	340 60%	400 30%
Crush strength: 8.5					

Spread Pattern



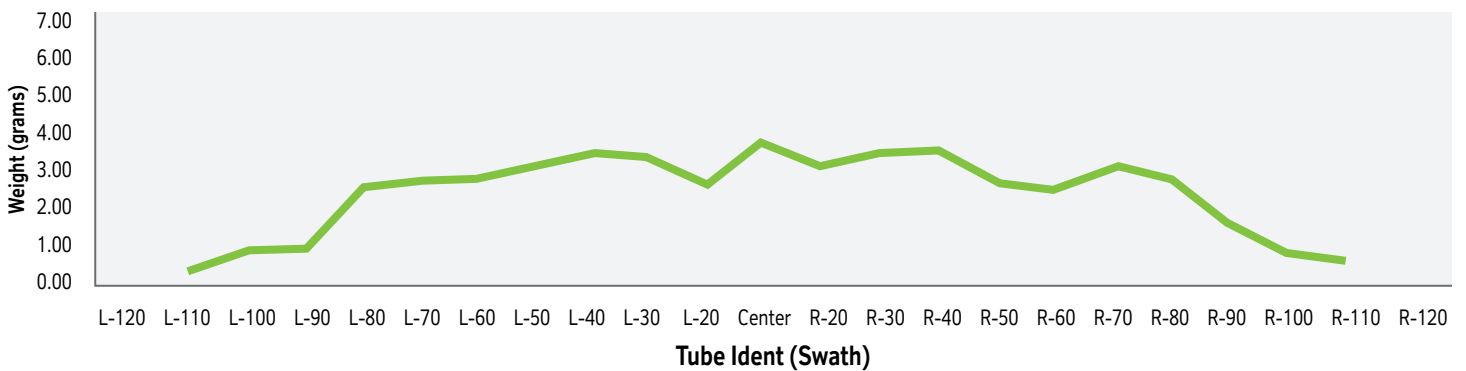
Granubor distribution field tests



Brazil Blends

Brazil blend #2					
95% MOP + 5% Granubor Product Characteristics					
Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -348	120	170	240 10%	340 60%	400 30%
Crush strength: 8.5					

Spread Pattern



Granubor distribution field tests



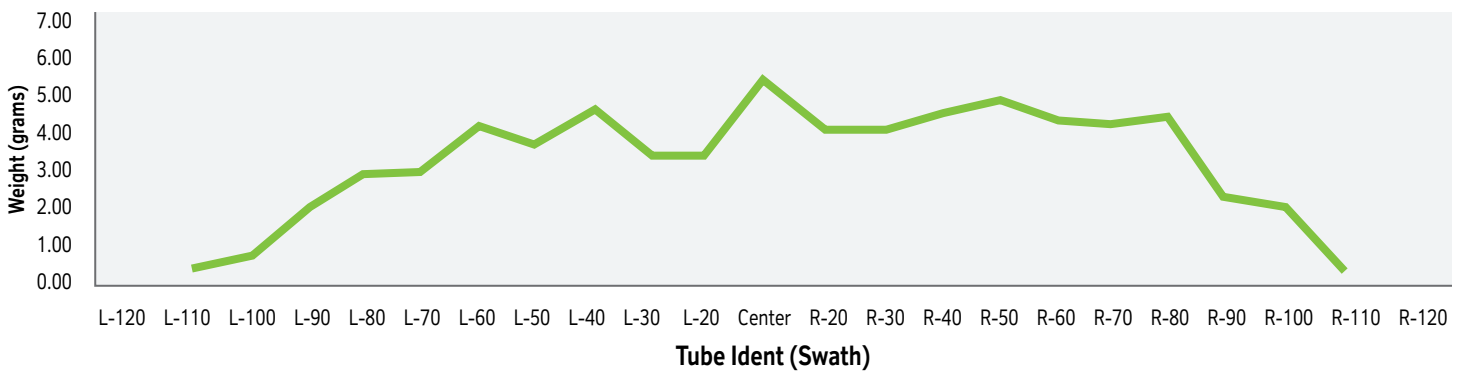
Brazil Blends

Brazil blend #3

25.7% urea + 28.8% MAP + 25% MOP + 3.5% Granubor | Product Characteristics

Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -342	120	170	240 10%	340 70%	400 20%
Crush strength: 5.6					

Spread Pattern



Granubor distribution field tests



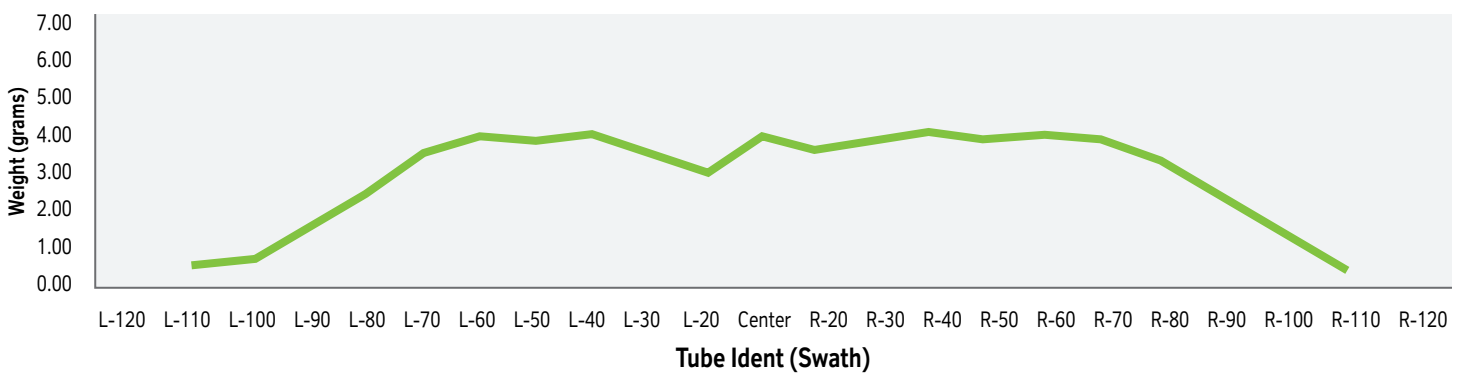
Brazil Blends

Brazil blend #4

25.7% urea + 28.8% MAP + 25% MOP + 5% Granubor | Product Characteristics

Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -336	120	170	240 10%	340 80%	400 10%
Crush strength: 5.6					

Spread Pattern



Granubor distribution field tests



U.S. Blends

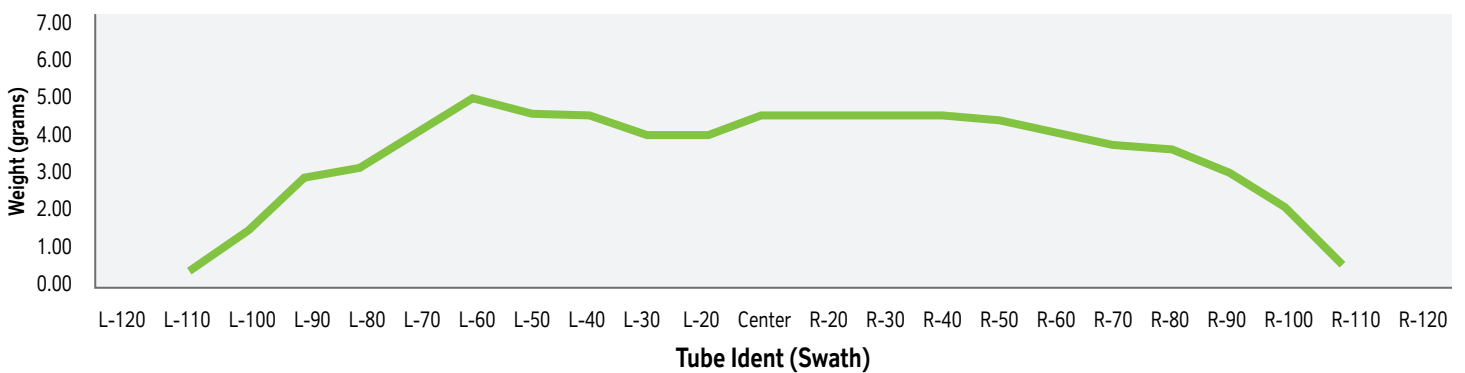
U.S. blend #5 (corn)

54.6% urea + 27.3% MOP + 17.2% AMS + 0.9% *Granubor* | Product Characteristics

Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -337	120	170	240 10%	340 80%	400 10%

Crush strength: 5.4

Spread Pattern



Granubor distribution field tests



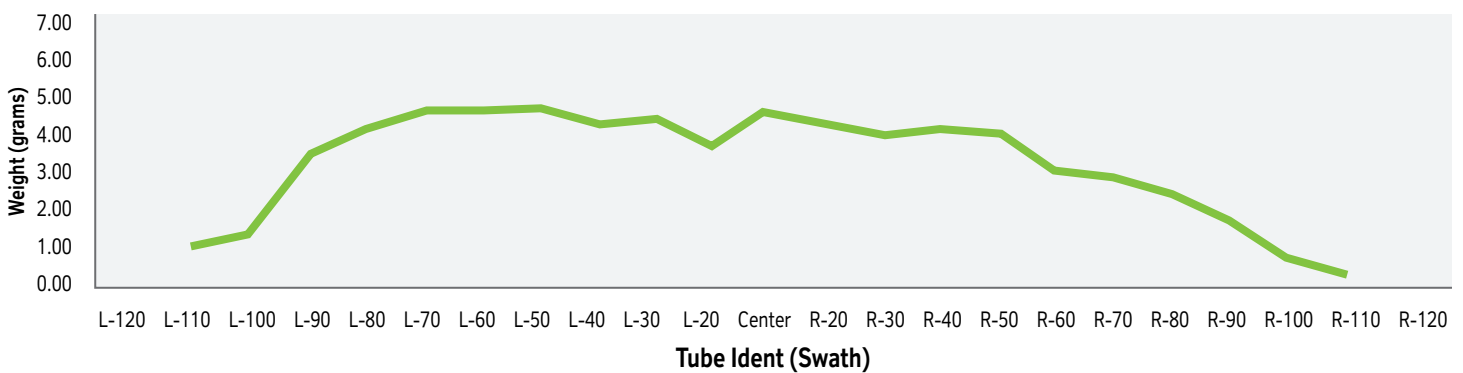
U.S. Blends

U.S. blend #6 (soybean)

39.3% MOP + 58.9% AMS + 1.8% Granubor | Product Characteristics

Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -348	120	170	240 10%	340 60%	400 30%
Crush strength: 8.5					
Humidity: 84%					

Spread Pattern



Granubor distribution field tests



U.S. Blends

U.S. blend #7 (alfalfa)

84.8% MOP + 14.0% AMS + 1.2% Granubor | Product Characteristics

Type	Granule Fine	Granule Rough	Prilled	Crushed	Crystal
SGN% -348	120	170	240 10%	340 60%	400 30%
Crush strength: 8.5					

Spread Pattern

