Boron applications for Coastal bermudagrass

- Boron is essential for all plant growth. It aids in the transfer of sugars and nutrients from leaves to reproductive organs, and increases pollination and seed development.
- Coastal bermudagrass requires a supply of available boron, especially during rapid vegetative growth.
- Some Coastal bermudagrass varieties may respond to applied boron, especially on sandy soils in high rainfall regions, or with adverse weather conditions during the growing season.
- Where needed, a preplant application of *Granubor® 2* with the early-season top-dressed NPK fertilizer generally will ensure an adequate supply of boron.

Coastal bermudagrass requires a high fertility soil for optimum production. Well-drained soils with a good supply of organic matter which have been well fertilized and limed over several years will generally produce the highest forage yields.

Cell wall strength, cell division, seed development and sugar transport are related to boron (B) nutrition. While B requirements for optimum plant nutrition are low compared with those of the primary nutrients, the need for B is especially significant if maximum forage yields are desired.

Deficiency symptoms

Boron-deficiency symptoms are rare in most Coastal bermudagrass varieties. The most common symptom of possible B deficiency is decreased forage yields, especially during late spring and early summer cuttings with adverse (hot, dry) weather conditions.

Soil test and plant analysis

Boron deficiencies may occur on coarse-textured soils where organic matter content is low, on soils with a pH above 6.0, and on recently limed soils. Soil testing and plant analyses are both helpful in assessing the potential B-supplying capacity of the soil and the current B status of the growing plant.

The critical level of hot-water-soluble B for Coastal bermudagrass in most soils is not well established but it ranges from 0.1-0.4 ppm, depending on the soil pH, organic matter content and texture.

Coastal bermudagrass grown on soils below the critical level may respond to applied B, depending on the variety and the weather conditions during the growing season.

The critical level of B in the upper Coastal bermudagrass leaves is about 4 ppm, and the usual leaf-B range is 5-15 ppm.

Recommendations for Coastal bermudagrass

Forage yield responses to applied B are often inconsistent and seasonal, probably due to environmental effects on crop growth. However, forage yields of some varieties may be improved with B fertilization, especially on sandy soils in high rainfall regions, or with over-irrigation because soluble B can be easily leached from the root zone. Adverse weather conditions also can decrease the supply of available B in soil and/or B uptake by the plant during the growing season.

Response to applied B generally is greatest when there are adequate supplies of other nutrients.

Coastal bermudagrass plants with leaf B contents below the critical level may be sprayed with *Solubor®* during the growing season.

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To ensure a constant supply of available B throughout the growing season, *Granubor® 2* may be bulk blended with the N fertilizer which is topdressed after each harvest. *Solubor* can be included with fluid N fertilizers for such topdressings.

The suggested rate of B for each of multiple applications during the growing season is 0.1-0.25 lbs. of B/acre, with a total annual application rate of 0.5-1.0 lbs. of B/acre.

Boron recommendations for Coastal bermudagrass	
Marginal soil test B or dry weather during the growing season: A soil application of 7 lbs. of *Granubor® 2*/acre (1 lb. of B/acre) top-dressed with bulk blended NPK fertilizer in the early spring.	Low soil test B and a prior history of B response: A soil application of 7 -14 lbs. of *Granubor® 2*/acre (1-2 lbs. of B/acre) topdressed with bulk blended NPK fertilizer in the early spring. Some of the B also may be included in the N topdressing after some harvests during the growing season.

Data below show increased forage yields of Coastal bermudagrass under the following conditions: *Granubor® 2* bulk blended with an NPK blend, topdressed in the early spring on a sandy soil in Arkansas. The B rate ranged up to 3 lbs./acre. Five cuttings of B were made at 5-6 week intervals. Highest forage yields resulted with the 2-lb. rate of B. Hay quality was not affected by B applications.

Other studies also have reported forage yield increases with early-season B applications under high-yield management, especially with favorable growing conditions.

Coastal bermudagrass apparently is quite tolerant to B. In a Louisiana test on a sandy soil, Coastal bermudagrass was fertilized with rates up to 8 lbs. of B/acre annually for 3 years with no detrimental effects on forage yields.

Response of Coastal bermudagrass to pre-season boron applications

B applied, lbs./acre	Dry forage yield (tons/acre) with harvest date					
	5/21	6/18	7/24	9/1	10/5	Total
0	2.10	0.82	1.59	1.42	0.64	6.57
1	1.80	0.85	1.81	1.58	0.69	6.73
2	2.37	0.90	2.25	1.88	0.83	8.23
3	1.90	0.86	2.14	1.53	0.69	7.12
L.S.D (0.05)						0.42

Effects of boron on Coastal bermudagrass. Ark. Farm Res. Vol. 32 (4):2.

For more information

- Call US Borax at 1 (800) 699 9005
- Visit our website at www.borax.com/agriculture