AGRONOMY NOTE

Boron applications for improved peanut quality and yields

20 MULE TEAM BORAX™
RioTinto

Overview

- Peanuts requires an available supply of boron, especially during the pod development stage, or “hollow heart” may occur, possibly reducing quality and yields
- One or more foliar sprays of *Solubor*® applied alone or with insecticides will help ensure an adequate supply of boron during flowering and pod development
- Preplant soil application of *Granubor*® plus foliar sprays of *Solubor* during the season are recommended for soils testing low in available boron

The nutrient requirements of peanuts are well known, and methods of fertilizer application and other cultural practices resulting in optimum production have been developed over the past 60 years.

Boron (B) has been universally recognized as the most important micronutrient for peanut production, but the boron requirement for peanuts is not as high as that for some other leguminous species.

While boron is essential for all stages of plant growth, an available supply is most important during flowering and pod development. This is especially true with today’s high-yielding varieties.

Cell wall strength, cell division, and fruit and seed development are plant functions related to boron. Improved nut quality has been reported with boron applications.

While boron requirements for optimum plant nutrition are low as compared with those of nitrogen, phosphorus and potassium, the need for boron is especially significant in flowering and pod development.

Deficiency symptoms

Symptoms include internal fruit damage termed “hollow heart.” The cotyledons are concave and discolored. This damage reduces the quality and value of the crop. Yields and oil content of peanuts also may be reduced.

Severe deficiencies of boron which result in visual symptoms are rarely found in peanut producing regions where boron has been previously applied.

Soil tests and plant analyses

Boron deficiency is likely on coarse-textured soils where organic matter content is low, on recently limed soils, and where delayed maturity has been reported in peanuts with recommended nitrogen rates. Soil testing and plant analyses are both helpful in assessing the potential boron supplying capacity of the soil and the current boron status of the growing plant.

The critical level of hot-water-soluble boron for peanuts in most soils ranges from 0.2 to 0.5 ppm, depending on the soil pH, organic matter content and texture. Soils which are below the critical level generally will respond to applied boron.

The critical level of boron in upper mature peanut leaves is about 25 ppm. Peanut plants with leaf boron contents below the critical level should be sprayed one or more times with *Solubor* after flower initiation and during pod development.

AGRONOMY NOTE: IMPROVED PEANUT QUALITY AND YIELDS

Boron recommendations for peanuts	
Marginal soil test boron and/or leaf analyses, or dry weather during critical stages	Low soil test boron and a prior history of boron response
SOLUBOR®	GRANUBOR® SOLUBOR®
Foliar sprays at a rate of 1.25 lbs of *Solubor*/acre (0.25 lbs of B/acre) before early bloom, followed in 2-4 weeks at early bloom.	A soil application of 3.5 lbs of *Granubor*/acre (0.5 lbs of B/acre) broadcast and incorporated prior to planting, plus one or more foliar sprays at 1.25 lbs of *Solubor*/acre per spray applied before or during the early bloom stage.

Boron applications should be made every year for peanuts because soluble boron can be easily leached from the root zone, especially in sandy soils in high rainfall regions, or with over-irrigation.

The availability of boron in acid soils generally decreases when these soils are limed, so boron is recommended on freshly limed soils. Response to applied boron generally is greatest when there are adequate supplies of other nutrients, especially nitrogen.

Data below show increased peanut yields with soil and foliar applications of boron. Soil applications of boron increased peanut yields about 300 lbs/acre in Georgia. Internal damage in peanuts on low-boron soils in Oklahoma was significantly reduced by foliar applications of *Solubor* to supply 0.4 and 0.8 lbs of B/acre.

Response of peanuts to soil and foliar boron applications		
B applied, lbs/acre	Yield, lbs/acre	Internal damage, %
0	851	N/A
0.3	1149	N/A
0	1510	11.1
0.4	1539	2.0
0.8	2062	0.8

Giddens. 1964. Ga Agr Ext Stn Bull. 126.
Morrill et al. 1977. Okla Agr Ext Stn. MP-99.

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.

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