

B

Boron applications for improved peanut quality and yields

- Boron is essential for all plant growth. It aids in the transfer of sugars and nutrients from leaves to fruit, and increases pollination and seed development.
- 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*[®] 2 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 50 years.

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

While B 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, fruit and seed development and sugar transport are plant functions related to B. Improved nut quality has been reported with B applications.

While B requirements for optimum plant nutrition are low as compared with those of nitrogen, phosphorus and potassium, the need for B 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 B which result in visual symptoms are rarely found in peanut producing regions where B has been previously applied.

Soil tests and plant analyses

Boron deficiencies may suspected 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 N rates. 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 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 B.

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

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

Recommendations for peanuts

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

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

Data below show increased peanut yields with soil and foliar applications of B. Soil applications of B increased peanut yields about 300 lbs./acre in Georgia. Internal damage in peanuts on low-B 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, %	References
0	851	—	Giddens, 1964. Ga. Agr. Ext. Stn. Bull. 126
0.3	1149	—	
0	1510	11.1	Morrill, et al., 1977. Okla. Agr. Ext. Stn. MP-99
0.4	1539	2.0	
0.8	2062	0.8	

For more information

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