

Adding Boron to Greenhouse Soils

Apparent boron hunger signs have been observed in several Colorado greenhouses during the past year. Most of the symptoms observed affected the petals either in appearance or in numbers. A slight water-soaked appearance of the petals of Miller's Yellow was noted in two cases. In these same places and in others, crippled petals and calyxes were found. A few carnation flowers have been found in these same benches with only two or three rows of petals. In severe cases of boron hunger, the petals do not form, there being an empty calyx. With extreme hunger, the bud blasts and excess branching occurs high on the stem.

The Florists' Review for July 12 had an excellent report by Mastalerz, Drake, and Steckel on boron hunger work which they have been doing in Massachusetts. Previous work by the authors on tobacco showed that high calcium was antagonistic to boron utilization. They used the calcium-boron ratio in plants as a better indicator of boron hunger than if total boron only was tested. If you missed this excellent report, take time out to look it up. It's well illustrated with hunger symptoms.

With the use of soils low in boron, and water, fertilizers and peat moss lacking in boron, we can expect boron hunger to occur. With higher calcium levels the trouble would occur sooner.

We can avoid boron hunger by applying boric acid or borax in minute amounts. **CAUTION*--A very little is needed.** Borax (Sodium borate) at 1/2 to 1 ounce per 100 square feet should last for a year. Boric acid has about 1 and 1/2 times as much B₂O₃ so should be used at 0.3 to 0.7 ounces per 100 square feet.

For those who liquid feed each time they irrigate, 1/2 ounce of boric acid per 1000 gallons of irrigation water should supply adequate boron. This amount should be used year around. If borax is used, 3/4 ounce per 1000 gallons would suffice.

Boric acid in the technical grade can be obtained from chemical supply houses. Neither boric acid or borax are very soluble in water. If they are in powder form, make a smooth paste with a small amount of water before adding it to the nutrient tank. About 3 ounces of either boron compound will dissolve in a gallon of cold water.

Your editor,
W. D. Holley