

## Boron in Vegetables

Boron is essential for all plant growth

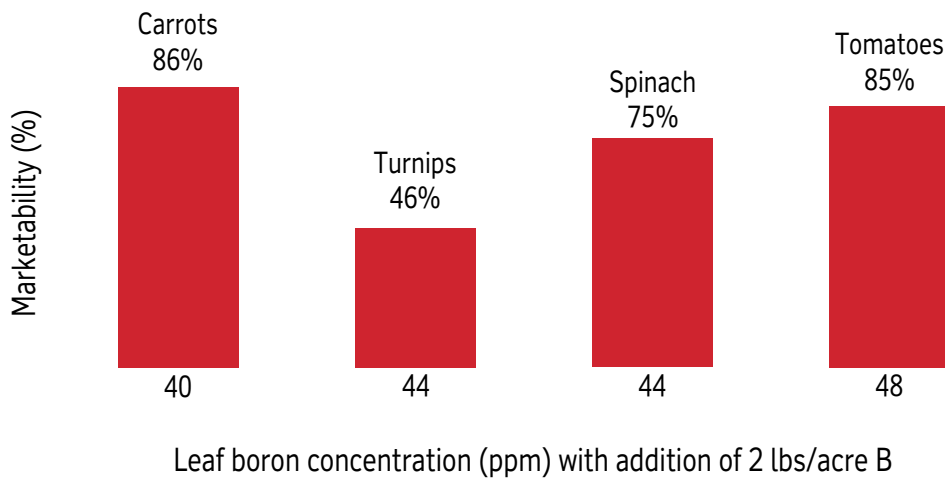
Research in vegetable nutrition and physiology has shown that boron is the key element in several plant growth processes affecting quality.

Boron (B) fertilization has dramatically reduced several common nutritional disorders such as brown-heart, canker, and low fruit set that affects quality and market value. Boron is essential for normal growth and production of sound, healthy vegetables.

Boron has been linked with:

- Initiation and development of growing points
- Movement of sugars and starches to developing parts
- Movement of nutrient elements within the plant
- Formation of plant hormones affecting growth
- Root growth and health of fleshy roots
- Flower and fruit set
- Vegetable quality and flavor

### Boron improves marketability



Source: Reeve, E, Prince, AL, and Bear FE. "The boron needs of New Jersey soils." New Jersey Agricultural Experiment Station. Bull: 709. 1944. Rutgers University, New Brunswick, New Jersey.



## Boron fertilization of vegetable crops

### Typical recommended ranges for broadcast soil application

| Vegetable crop   | Lbs of B/acre |
|--|---------------|
| Asparagus, beets, broccoli, Brussels sprouts, cabbage, cauliflower, celery, collards, kale, mustard, parsnips, radishes, rutabagas, spinach, turnips | 2-3           |
| Carrots, eggplant, horseradish, leeks, lettuce, melons, onions, pumpkins, rhubarb, squash, sweet corn, tomatoes                                      | 1-2           |
| Okra, peppers, potatoes, sweet potatoes  | 0.5-1         |
| Beans, cucumbers, peas   | 0-0.5         |

### Normal plant analysis levels (ppm) for best quality and marketability

| Vegetable crop   | Leaf B levels |
|--|---------------|
| Asparagus  | 40-65         |
| Broccoli, Brussels sprouts, cabbage, celery, lettuce, melons, onions, peas, pumpkins, snapbeans, rhubarb | 25-50         |
| Carrots, parsnips  | 25-70         |
| Cauliflower, collards, cucumbers, kale, mustard  | 30-60         |
| Eggplant, horseradish, leeks   | 40-50         |
| Okra, sweet potatoes, white potatoes   | 20-40         |
| Peppers  | 40-100        |
| Radishes   | 20-50         |
| Red beets  | 30-70         |
| Rutabagas, turnips   | 25-60         |
| Spinach  | 40-60         |
| Squash   | 30-40         |
| Sweet corn   | 12-20         |
| Tomatoes   | 30-80         |

### How much boron is enough?

- A wide range of vegetable crops responds to boron fertilization with increased yields and quality. Most universities recommend boron in vegetable fertilization programs to ensure that this essential element will not be a limiting factor.
- Boron demand is high in some vegetable crops and low in others. Standard ranges of boron fertilization are normally recommended to meet specific vegetable crop needs under average local conditions.
- Boron rates depend on soil test and/or plant analyses, field history, production goals, and application method.

### Your boron fertilizer options

- *Granubor*® is an ideal material for dry blends applied broadcast preplant incorporated.
- *Fertibor*® works best in fertilizer suspensions for preplant broadcasts.
- *Solubor*® allows you the best flexibility for applying boron. It can be dissolved alone in water or in liquid fertilizers, and/or along with pesticides and then applied to the soil or directly onto the crop. *Solubor* is ideal for use in fertigation.\*

\* Foliar sprays should not exceed 0.5 lbs/acre boron per application. Fertigation allows timely split applications of boron when it is needed by the crop and minimizes leaching. Drip-trickle fertigation allows incremental applications of 0.1 to 0.25 lbs/acre boron through the drip system. The total amount of boron added in foliar sprays or split applications should not exceed the total broadcast recommendations.

