

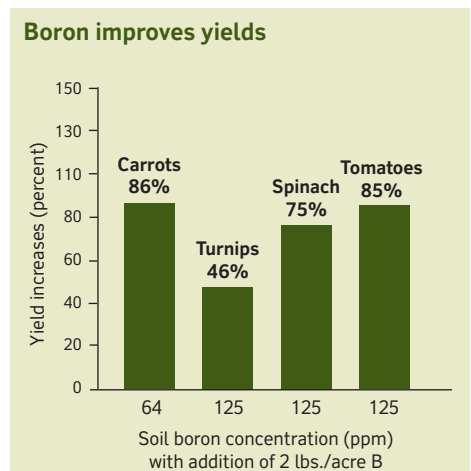
# Boron in vegetables

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

Boron in the fertilizer has dramatically reduced several common nutritional disorders such as brown-heart, canker, low fruit set, and other physiological diseases affecting marketability.

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



## 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*<sup>®</sup> 2 is an ideal material for dry blends applied broadcast preplant incorporated.
- *Fertibor*<sup>®</sup> works best in fertilizer suspensions for preplant broadcasts.
- *Solubor*<sup>®</sup> 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*<sup>®</sup> 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.

# Fertilization of vegetables

Typical recommended ranges for broadcast soil application

Vegetable crop	Lbs. of boron (B) per acre
Asparagus, Beets, Parsnips, Broccoli, Celery, Radishes, Brussels Sprouts, Collards, Rutabagas, Cabbage, Kale, Spinach, Cauliflower, Mustard, Turnips	2-3
Carrots, Lettuce, Rhubarb, Eggplant, Melon, Squash, Horseradish, Onions, Sweet Corn, Leeks, Pumpkins, Tomatoes	1-2
Potatoes, Peppers, Okra, Sweet Potatoes	0.5-1
Peas, Beans, Cucumbers	0-0.5
Normal plant analysis levels (ppm) For best quality and marketability	
Vegetable crop	Leaf boron levels
Sweet Corn	12-20
Sweet Potatoes, White Potatoes, Okra	20-40
Radishes	20-50
Broccoli, Cabbage, Celery, Lettuce, Onions, Peas, Snapbeans, Brussels Sprouts, Melons, Pumpkins, Rhubarb	25-50
Turnips, Rutabagas	25-60
Carrots, Parsnips	25-70
Squash	30-40
Cauliflower, Cucumbers, Collards, Kale, Mustard	30-60
Red Beets	30-70
Tomatoes	30-80
Eggplant, Horseradish, Leeks	40-50
Spinach	40-60
Asparagus	40-65
Peppers	40-100

Footnotes for chart on page 1:  
Reeve, E., A.L. Prince, and F.E. Bear. 1944. The boron needs of New Jersey soils. New Jersey Agricultural Experiment Station. Bull. 709. Rutgers University, New Brunswick, New Jersey.