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## Controlling Brown-Heart in Rutabagas

Brown-heart in PEI rutabagas (turnips) is a reoccurring problem that has plagued the industry for some time. It is known that boron is the most effective way to cure this disorder; however, the method of applying boron has remained a problem. Boron toxicities are often more common in soils with low organic matter which may take many years to build up, however, a more timely method to supplying boron to rutabagas is through fertilizer application. There are three (3) general procedures which can be followed when applying boron to rutabagas.

### 1. Apply as foliar spray

Two applications required; one 4-6 weeks after seeding (when roots are approximately 1.5-2.5 cm in diameter), with another spray approximately 2 weeks after the initial spray. Each spray should supply 1.1 kg/ha (1 lb/ac) of actual boron.

#### Example:

Solubor (approx. 20% boron) is a common recommended material for spraying. To apply 1 lb/ac of boron to the crop, it is recommended to mix 5 lb (2.25 kg) of Solubor with 20 gallons (90 L) of water for spray preparation. Although Solubor® is one of the most common products used for boron application, there are other current products available that are similar in price and total boron percentage, including Microbor® and Spraybor®.

### 2. Apply in the fertilizer

As an additive to fertilizer, boron application should be 1.5 - 2.0 kg/ha if the pH is less than 6.0, and 2.0 - 3.0 kg/ha if the pH is 6.0 or greater. The efficiency of boron applied in dry fertilizer can vary based on fertilizer separation within the mix, soil conditions (less effective under dry conditions) and soil texture (light sandy soils often require more boron than heavier, loamy soils).

### 3. Apply in fertilizer and spray

Brown-heart control can be insured by applying boron in both the fertilizer and foliar spray. Boron applied in the fertilizer at planting (as described in #2), with an additional single foliar spray as described in #1, applied 4-6 weeks after seeding.

#### Notes

- For foliar applied boron to be effective, it is important that a surfactant/wetting agent be used in the spray tank. A number of commercial products are available and should be used according to label directions.
- It is generally not recommended to combine the foliar spray with pesticide sprays, unless labels indicate that they are compatible products for mixing.
- It is important to note that all boron applications should be applied **as uniformly as possible**, to ensure that some areas of the field are not supplied with excess boron, as this has shown to reduce rutabaga yields and may prove to affect other crops within the rotation that are sensitive to boron toxicities.

(Updated: April, 2014)