

Small Fruit

Post Harvest Advisor

Post-Harvest

Fall Program for Small Fruit

Good post-harvest care of your fields, whether blueberries or raspberries, can have a positive effect on your yield and returns next year. The opposite is possible if you choose to do nothing. The buds for next year's flowers are formed in a period roughly September through October. This is one of the most important times in the growth cycle of berry plants in terms of determining your production for next year. The plant begins to store nutrients for next year's early season growth. Maximizing the number and nutritional content of the floral buds in this period is one of the best ways to ensure that your production for next year reaches its full potential.

- Do not apply nitrogen from this point on! Excess N may prevent plants from becoming dormant properly. If they don't, there is a higher risk to winter damage.
- A good way to determine fall nutritional requirements, in blueberries at least, is to submit leaves for a tissue test.
- Zinc and boron in particular must be at optimum levels in your plants.

Fall Nutrition

Boron & Zinc

BORON

Boron has many functions within the plant, including cell division, sugar transport, and fruit and seed development. It is the last item here that we are most concerned about at this time. It has been well

documented that boron is essential for proper pollen tube development as well as the germination of the pollen itself. Making sure that the pollen has enough boron is essential for maximizing your harvest. Now, all of this action of germinating pollen and pollen tube development happens in the spring. So why is it important to spray boron during the summer/fall? Studies have shown that fall applied boron is able to be stored by the plants for use in the springtime while the flowers are open and pollination is happening. Increased yield has been demonstrated in highbush blueberries with fall applied boron. Boron deficient plants can also have a reduced number of floral and leaf buds developing in the summer/fall.

ZINC

Zinc also has various functions within the plant. These include internode elongation as well as a role in production of key growth hormones and enzymes. Zinc also plays a role in the development of the fruit seeds. Therefore, it stands to reason the time of greatest demand for zinc would be in the early spring while the plants are undergoing aggressive growth. This has been demonstrated to be true by Oregon researchers. It has also been shown that the availability of zinc in the soil is greatly related to the soil temperature. Cold soils will inhibit the uptake of zinc by the plant. Since early spring is the time of highest plant demand, and also the time when it is hardest for the plant to take it up, it makes sense to foliar apply zinc at that time. While this is very true, however in the Fraser Valley many of the fields are inaccessible to spray equipment due to wet soil. The next best alternative is to do a fall/late summer application and let the plant store the zinc in the tissue to be used in the early spring.

Make sure any fall granular fertilizer applications contain both boron and zinc. All TerraLink fall blends do as a matter of course. Growers also typically apply micronutrients by foliar application. Foliage continues to

grow throughout September, and leaf tissue will absorb foliar micronutrients. Choose from these foliar products to apply B and Zn to your small fruit plants:

- Eco Boron 10% B
- TigerClaw Top-Set D.L. 9% B + 0.6% Mo
- BioFert Cal-O 0-0-0+6Ca+0.2B
- BioFert Crop Conditioner 1-0-4+0.1B
- TigerClaw Zinc 10% Zn

Plant Physiology

Word of the Day

Flower Bud Initiation: In the fall, the plant forms buds that will become flowers, eventually producing fruit, in the following year. This is a physiological reaction in the plant caused by short "photoperiods" (daylength). Excess nitrogen can delay flower bud initiation. Also, a deficiency of boron can reduce formation of flower buds.

Improving the Soil

Fall is a Good Time to Build Up Your Soil!

The post-harvest period is a very good time to bring up soil levels of nutrients that can be "stored" in the ground; those nutrients that don't easily leach into the groundwater during winter. If your levels of K or Mg are low, for example, now is a good time to apply those nutrients. The best way to determine fall nutritional requirements in blueberries is with a tissue test. For other small fruit, use a soil test.

RECOMMENDED FALL NUTRITIONAL CROP INPUTS:

- **Fall Berry Blend 0-11-22+10(S) +5Mg +.03Zn +5Ca:** A granular amendment to supply macro and micro nutrients that your blueberry plants may need in gross amounts.
- **Sulphate of Potash Magnesia 0-0-22+22(S) +11Mg:** Supplies potassium, sulphur and magnesium.
- **Potash:** if only potassium is required in the fall, we have many choices! We can supply it as granular potassium sulphate, liquid TigerClaw KDL 0-0-24, liquid TigerClaw Power-K 0-0-20 or liquid KTS 0-0-25+17(S).

SOIL SUPPLEMENTS AND pH:

- **Elemental Sulphur, granular (90% S):** If you need to lower your soil pH, elemental sulphur is an effective product to use.
- **Dolopril and Calpril lime:** Prilled form of lime. Raises pH.
- **Ag Grade Limestone:** Regular agricultural grade limestone is available for raising pH.
- **Novacal II** granular gypsum adds calcium but doesn't affect the acidity of your soil. This is a pH-neutral product.
- **BioFert Earth Boost 1-1-0:** A blend of leonardite, feather meal and guano soft rock phosphate. An ideal product for soil stewardship.

Pest Control

Post Harvest Disease Control

Picking machines in both blueberries and raspberries can cause damage to canes, allowing entry by pathogens. In raspberries, Spur Blight can be controlled by post-harvest sprays. In blueberries, the plants are susceptible to phomopsis and canker in the canes. Bacterial blight and botrytis cane blight can affect both blueberries and raspberries. Fungicides to use in the fall include:

- Serenade Opti
- Captan Supra 80 WDG
- Maestro 80DF
- Fixed Copper
- Cueva
- Bordeaux Mix

Soil Stewardship

Cover Crop Choices

In raspberries, directly following harvest is good time to sow barley or oats. These will produce a cover crop that will help remove excess nitrogen from being taken up by the raspberry plants – something you don't want at this time of year so you don't end up with soft growth that is more susceptible to foliar and cane diseases. If you are lucky, a nice freeze will come along and knock down that foliage of your cereal cover crop, just in time to make a nice, dry mat of dead grass leaves for the pruners to stand on instead of freezing mud that we sometimes get. If we don't get a freeze, then you can always use a contact herbicide in the spring to knock it down instead. For blueberries, fall is a good time to seed a permanent cover crop, something with slow, low-growing grasses that stand up well to machine operations, and has minimal water and nutrient needs. Such mixes are usually seeded about 50 lbs per acre and require mowing only every few weeks. In both cases,

cover crops compete with weeds nicely, and add organic matter back into the soil. This is important as regular farming and cultivation continually reduces organic matter and compacts the soil.

Plan Ahead

Soil Testing

Fall is the best time to soil test. Why? Several reasons: except for nitrogen and sulphur, the other nutrients don't leach over winter, so what is tested in the fall is what is present in the spring. Your recommended rates for nitrogen and sulphur are based more on crop removal than soil test levels, so unless you are engaging in a Nutrient Management Plan, part of an Environmental Farm Plan, don't worry about them. Second, both the labs and the folks who conduct soil testing are less busy than they are in the spring. Last, fall testing allows you more time to apply lime, should the soil test indicate your field has become too acidic. Soil conditions are always drier in the fall, so application is easier.

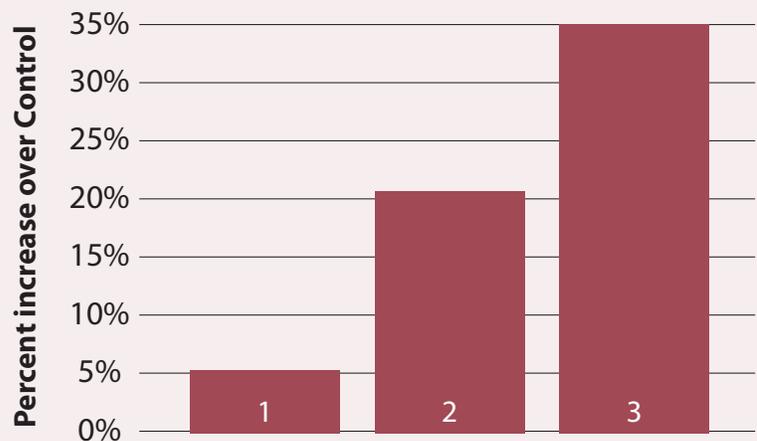
Maximize Your Revenue...

... with post-harvest applications of Stella Maris®!

Stella Maris® Aquatic Plant Extract

Increasing nutrient uptake post-harvest is critical as buds are developing for the next season. Numerous trials prove Stella Maris® increases quality yields and bud development.

Stella Maris® and Bud Development



Percentage Increase in Buds per Branch on Stella Maris® Treated Blueberries

In three different blueberry trials, the number of buds per branch was increased by an average of 18.8% using in-season Stella Maris® applications, indicating the potential for increasing yield the following year.