ELENBAAS COMPANY
AGRONOMY DIVISION
421 Birch Bay-Lynden Road
Lynden, WA 98264
(360)354-3577-office
(360)354-1917-fax
www.elenbaasco.com

The Berry Good News

Volume 1, Issue 5 June, 2009

Our "Berry" Field Staff:

Gary Hertel
Manager/Field Representative
(360)815-4853

Steve Groen
Field Representative.
(360)815-4328

Jerel Kratt
Contracted Agronomist
(360)410-9125

On the Horizon:

- **Remove bees after bloom**
- **Weed control**
- **Actagro drip program on blues for fruit sizing**
- **Scout for weevils, mites, and rust in rasp's**
- **Bloom sprays in rasp's: Fungicide, Monarch, Resist, and micro's**
- **Leaf feeds (Monarch, Resist, and micro's) and clean-up sprays in blues**
- **Apply Resist through drip or basal spray for root rot**
- **Prepare for harvest**

(Please see your crop advisor for specific recommendations for your situation. No guarantee is written or implied in this newsletter. Always follow manufacturer's label.)

Focus on Fruit Quality

June is the time when the crop is being set in raspberries, and has already set in most blueberries. What is now on most growers minds is fruit quality. A grower's perspective on fruit quality may vary from one farmer to the next. One farmer wants the highest quality fruit for fresh pack or export or IQF, while another may just pick for juice. And, crop price has a big influence on how much a grower wants to spend for fruit quality. There are three primary practices that are important for fruit quality that can be "controlled" during this month: irrigation, foliar feeding, and fungicides.

Last month we talked about foliar feeding. The message we preach is not loading up raspberries with a lot of nitrogen during fruit sizing and maturation. Most of the high nitrogen needs for fruit should already be met by now and foliar-feeding excessive amounts of urea or 20-20-20 can cause soft fruit in our opinion. This is based on grower input on several hundred acres on our foliar program who noticed improvements in firmness at harvest.

Another important practice for fruit quality is irrigation management. Most of the time we are worried about too much rain or oversaturated soils. Working the ground properly at planting and using various amendments like gypsum can improve drainage, along with surfactants (which we talk about in this issue). It is also very important to make sure the field doesn't go from excessively wet to excessively dry, especially at harvest. This draws water and calcium out of the fruit and into the plant (kind of a "survival" mechanism). Keep checking your moisture during harvest and don't forget to irrigate.

Finally, fungicide use is of utmost importance for fruit quality. Properly timed fungicide sprays, and proper rotation of different chemistries are extremely important for controlling various fruit diseases, such as botrytis, anthracnose, alternaria, mummy-berry, and mildew. We can help you decide which sprays are needed based on the quality you need.

Two Important Fruit Diseases

Botrytis fruit rot (*Botrytis cinerea)* is a very common fruit disease in raspberries. Typical fungicides are Pristine, Switch, Captan, and Elevate. Rotate chemistries and spray during bloom. UC Davis recommends reducing nitrogen applications and providing good air circulation as cultural preventatives.

Botrytis. *Photo by Tom Peerbolt*

Mummy berry during bloom. *Photo by Jay W. Pscheidt, courtesy of Oregon State University*

Mummy berry (*Monilinia vaccinii-corymbosi)* is probably the most important and destructive of blueberry fruit diseases. Infected flowers turn brown and wither, much as if they had been frosted. Leaf and shoot growth expanding from newly opened leaf buds is blackened in the center and eventually wilts and dies. About 3 weeks after primary infection, a brownish gray mass of spores develops on blighted flower stalks and leaves. Typical fungicides include Indar (pre-bloom), Pristine, Captan, and Abound.

Mummy berry infected fruit. *Photo by Tom Peerbolt*

421 Birch-Bay Lynden Rd.
Lynden, WA 98237

ELENBAAS COMPANY AGRONOMY DIVISION

Focus on Fertility: Manganese (Mn)

Manganese has many different roles in crop nutrition. It works as an activator for enzymes in various growth processes. It helps iron in the formation of chlorophyll. Manganese also participates in the system of photosynthesis. Of all the elements essential for crop production, Manganese has one of the heaviest atomic weights, which means it has more electromagnetic power than most other nutrients in the soil. Because of this, it has an important role to electromagnetically draw other nutrients to the roots. Although this doesn't directly relate to berries, it's interesting to note that if any seed does not have manganese in it, it will not sprout; it will just rot and die. But a seed with a lot of manganese in it will initiate excellent sprouting and rooting. In **raspberries**, we tend to see manganese deficiency where heavy lime applications have been made. This can be corrected with foliar sprays of manganese and/or by including chelated manganese in drip fertigation. In **blueberries**, we rarely see manganese deficiency at pH lower than 5, but in very high-iron or high-calcium soils, or at pH higher than 5.5, manganese uptake can be suppressed. *(Sources: "Fertilizers and Amendments", 1981; "Mainline Farming for Century 21", 1991)*

Solving Water Penetration Problems

Many growers have fields with areas of poor water penetration. In berry crops, especially raspberries, poor drainage and standing water can cause root rot. Also, university research has shown that any sort of excessively wet or dry soil at the time of fruit maturation and harvest will reduce fruit firmness and quality.

There are several different methods of fixing water penetration problems. One thing you can do is deep rip the ground before planting or rip down the rows next to the hills after planting. Many times in very problematic soils, the soil will seal over again in time and ripping will be needed again.

Another tool that has become popular in the last 10-20 years is the use of certain surfactants through drip irrigation to release water tension and allow for standing water to drain. I (Jerel) have used several different "penetrants" in California on a variety of crops including blueberries. Water is a precious commodity in California and to have run-off is costly and wasteful, not to mention you can't grow a good crop if you have an over-saturated root zone.

Many surfactants are just glorified versions of shampoos. They work great at first but then you have to use more and more of them to get them to keep working. That's why it's important to learn what the different products are made of and what their track-record is for long-term performance.

There are a couple of products in the market that have unique, advanced chemistries that give long-term performance. These products contain "block co-polymer chemistry". The product Elenbaas highly recommends is Aqua-Drive. Aqua-Drive changes the physical properties of the irrigation water, speeding wetting time which results in improved infiltration, literally driving the water into the soil. Once in the soil, Aqua-Drive is attracted to naturally occurring hydrophobic ("water-hating") soil particles that impede irrigation efficiency and help improve distribution and retention of water into these difficult-to-wet profiles. Aqua-Drive also helps keep drip lines clean, and will reduce soil crusting. One thing I like about Aqua-Drive is that it can be an important tool if you already have root rot issues. I worked with an entomologist in California who demonstrated that surfactants along with a fungicide like Ridomyl or Resist phosphite will actually penetrate the membrane of phytophthora spores, allowing for enhanced operation of the fungicide. In this case, Aqua-Drive has a dual function: draining the standing water, and penetrating the fungal spores.

Using Aqua-Drive can result in less irrigation time and frequency, which will surely save money in energy costs!

A raspberry field in Whatcom County, with standing water in early June, after nearly two weeks of no rain and very warm weather.