# Small Fruit Advisor

TerraLink Horticulture Inc.

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Disease Control

## Managing Botrytis Fruit Rot Resistance to Fungicides

This article is primarily about managing resistance of botrytis fruit rot to fungicides. Before we get into it, please remember that chemicals to control diseases, or any pests, are just one of tools producers can and should use. Before spraying, make sure you make efforts to manage pathogens with cultural tools. For example, effective pruning strategies will help to improve air flow through the foliar canopy of your berry planting, (which will reduce the amount of time that the fruit and foliage are wet and potentially reducing the likelihood of a botrytis infection) (thereby reducing the level of botrytis spores and therefore damage from fruit rot). Similarly, dropping pruned branches into the alleys doesn't necessarily eliminate pathogen fungal spores, and discing the pruned material doesn't necessarily bury and kill spores either, but it may reduce the amount of spores present in the field. Although cultural methods won't by themselves control botrytis fruit rot, good cultural management does help, and should be used.

While some fungicides have post-infection activity, as a general rule, all fungicides should be applied prior to infection. Botrytis is a difficult disease to control and there are not a lot of new chemicals coming. So, we must manage the ones that are available well so that we do not lose the products that we have. Raspberry and strawberry growers have more products available for botrytis when compared to blueberry growers, but in general there are very few products available for botrytis control in berry crops.

What causes resistance to fungicides? The largest factor determining the presence of resistant fungal spores is the specific fungicide use history on your farm. To over-simplify it, the heavier the use of one or several fungicides, the higher risk of fungicide resistance. The only way to put off development of resistance is by rotating fungicides, between chemicals from different classes or groups (FRAC Groups). While using different, potentially more expensive products may cost more, loss of disease control will be more expensive in the long run.

Most of the products available for Botrytis management fall into 1 of a few groups of products, most of the new products that are being registered are within 1 of 2 groups either 7 or 9. Use this chart to help choose chemistries to rotate between and help postpone resistance. Note that some chemical brands contain ingredients from more than one group. This is intended to increase the product's activity and reduce development of resistance.

| FRAC Group* | Fungicide Brands |
|---|---|
| 1 | Senator |
| 2 | Rovral |
| 7 | Cantus, Pristine, Luna Tranquility, Kenja, Fontelis, Sercadis |
| 9 | Switch, Scala, Luna Tranquility, Inspire Super |
| 17 | Elevate |
| 19 | Diplomat |
| 27 | Tanos, Serenade, Timorex, Regalia |
| 46 | Timorex Gold |
| Unspecified | Serenade |
| M | Captan, Maestro, Bravo, Echo |
| P5 | Regalia |

**FRAC Group: Fungicide Resistance Action Committee chemical groups. Products within a group have similar chemistry and therefore mode of action. Rotate between products in different groups in order to postpone development of resistance. If you are interested in learning more about fungicide resistance please see the following web link: http://www.frac.info/home*

**Note:** Most of this material was provided by Mike Hanna, TerraLink Horticulture Inc.

New Team Member

## Our Newest Sales Manager

Mr. John Wilson has joined TerraLink as Sales Manager of Fruit & Vegetable Crop Inputs, replacing Brian Johnston who recently retired. John grew up on a dairy farm in Ontario, and attended Guelph University,

earning his agricultural credentials with a major in horticulture. He has worked for several firms in the agricultural and horticultural industries, and so comes to us with considerable experience with stabilized nitrogen, wetting agents, peat and other horticultural products. John and his family live in Langley.

### Growth Regulators

# A Review of Grospurt GS-4

Almost a year ago, in the April 2017 edition of TerraLink's Blueberry Advisor, we published an article discussing the logic of using Grospurt GS-4 ("A Logical Look at Grospurt GS-4"). In the article, we showed the economics of the use of Grospurt GS-4 were beneficial even in a year with low expected yields.

GroSpurt™ GS-4

First, let's review the science of Grospurt GS-4. Registered for use in highbush blueberries two years ago, Grospurt GS-4 is gibberellic acid, a plant growth hormone that is labeled to "…improve fruit set when natural fruit set is poor due to reduced honeybee activity, adverse weather conditions or physiological factors". Local scientific work has strongly suggested that application of gibberellic acid probably increases fruit size and yield under the right conditions. This isn't a guarantee, but it is likely.

Second, GroSpurt GS-4 induces parthenocarpy. Very simply, this is production of fruit without the seed (the production of fruit without fertilization). GroSpurt GS-4 induces parthenocarpy when applied during bloom. Under conditions of poor pollination, the parthenocarpic effect should be most effective. There should be increased retention of seedless (parthenocarpic) fruit that likely would have dropped, and there may be increase in size of berries without a full complement of seeds.

Now, let's review some math. Let's say you expect a normal yield of 12,000 pounds per acre. In the Fall 2017 Edition of the BC Blueberry Council Newsletter, in the Growers Notes article, it was estimated that production for 2017 "…dropped about 20 – 30% in some fields…". Let's say you lost 25% in your field. That leaves you with 9,000 pounds. If you got paid a fruit price of $1.00 a pound, that means you lost $3,000 an acre.

OK, now let's make an assumption that an application of Grospurt GS-4 would have resulted in a smaller loss. To be conservative, let's say one application of Grospurt GS-4 means you kept an extra 5% of the fruit you lost. Instead of a loss of 3,000 pounds, then, let's say you lost 2,500 pounds. An extra 500 pounds of fruit an acre means an extra $500 an acre, at a fruit price of $1.00 a pound.

*Who wouldn't spend $30 to gain $1200?*

One application of Grospurt GS-4 costs about $30 an acre. Who wouldn't spend $30 to gain $500?

Clearly, therefore the application of GroSpurt GS-4 is like a good insurance policy. Just like last year, this, again, is good logic.

### Pest Control

# New Registrations in Berry Crops

The following are new registrations, or have had additions made to existing labels.

**Authority 480 Herbicide**
A selective soil-applied herbicide from FMC Corporation, Authority 480 is in Group 14. Active ingredient is sulfentrazone. In the same chemical class as Chateau, Authority 480 has about the same effects, and will control a range of broadleaf weeds. The rate of application will depend on soil texture, organic matter content and pH. Registered for use in caneberries, bushberries and strawberries. Your plants should be well-established before making an application.

**Diplomat 5SC Fungicide**
The active ingredient for this new Group 19 fungicide is Polyoxin D Zinc Salt. It is registered for the suppression of botrytis (grey mold) in berries and small fruit. Begin applications as a preventative spray when disease conditions are favorable, and repeat every 7-10 days. The pre-harvest interval (PHI) is zero days.

### Improve Your Knowledge

# Word of the Day

**Parthenocarpy:** production of fruit without the seed (ie: without fertilization). After pollination (pollen from the male anther reaches the female stigma), a pollen tube grows down through the style to the ovary. Once the male and female cells get together, a seed develops. If no seed or very few develop, the fruit would typically abort. An application of gibberellic acid (for example, in Grospurt GS-4) under the right conditions can cause the fruit to be retained. This retention of seedless fruit is called parthenocarpy.

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