



Gourmet Berry News

August 2014

Catching Up

It has been sometime since our last newsletter. It has been busy here during our transition to seed production. Plant growing systems that we built and that had evolved over a number of years were either modified or eliminated. The planning process has been the most difficult. It became old hat to plan a crop for growing and shipping. It's quite another undertaking to plan crops for seed saving. We have limited space to isolate the varieties that are being saved. The next crops have to be started and kept away from crops already flowering and fruiting. We think we now have a handle on this. Our success during the spring of 2014 attests to this. We just released *Fragaria vesca* 'Bolenzauber' and *F. vesca* 'Pineapple Crush' seed which are now available online.

We won't spend much time talking about our plant business. The transition is complete and we are now offering plugs, 51 per tray. This is a custom plug growing product where we sow the seed when we receive the order. Using this system we have all but eliminated having extra trays on hand that have to be discarded if not sold.

Vermicompost

For a number of years we have been using vermicompost from our worm farm. In many ways it changed the way we grow plants. We are still finding new ways to use it and to benefit from the wealth of beneficial microorganisms. We have used it as a soil additive and have brewed a tea with it.

Since switching to plug growing we have modified how we use vermicompost with plugs. In the past we added it to the soilless mix along with kelp and green sand. The high nutrient levels encourages algal growth. In some cases it can become a heavy growth of algae on the surface of the plugs. In most instances it does not cause a problem for the plants but does attract fungus gnats. After dealing with this annoyance for a while we decided to test the use of vermicompost tea in our plug production system. Switching to tea has all but eliminated the algae problem which has reduced fungus gnat populations. Since switching to tea we have seen no negative effects on the quality of the plugs nor have we noticed any nutrient deficiencies. It's a little more trouble brewing the tea and screening it for use during irrigation but we have quickly adjusted.

Vertical Farming

We continue to expand our vertical farm. If you don't know what this is, it's the newest innovation in plant and food production. Plants can be grown in an insulated building with LED lights. Several years ago we were faced with a decision whether to build a new greenhouse when we decided to move plant production indoors. Calculations showed that it was much more economical to buy LED lights and pay the electrical bill than to build a greenhouse and pay for heat. We now believe that we made the right decision.

We have had to add some T5's with far red bulbs to the system to promote bloom at the right time. The red/blue LED's didn't provide a critical wavelength needed to promote blooming. Bloom was significantly delayed in mature plants without this wavelength.



Two Tiers of LED/T5 Lights in Vertical Farm

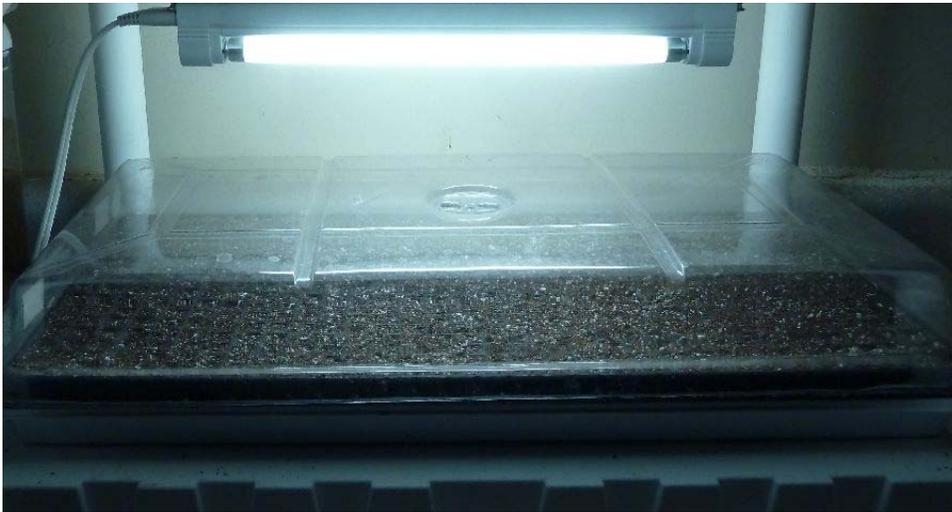
The vertical farm concept has many advantages over growing outdoors or even in a greenhouse. We now have an indoor screened facility that is certified by our state department of agriculture which allows us to ship plugs to all U.S. states rather than have to bare root the plants. Bare rooting plants can add additional stress to the plants and make it more challenging for customers to start the plants, especially in warmer weather. The warmer weather is an additional stress to the plants. As a bonus we have less pest problems in this system. There is more certainty about when the plants will be ready because we don't have to deal with huge swings in temperature and

lighting. These factors are controlled much more easily and more economically than when growing in a greenhouse or when growing outdoors.

Light as a Germination Aid.

We have known for years that light aids germination of strawberry seeds. When we started using artificial light sources we had to learn how to best use this light to germinate seeds. The main finding is that wavelength is critical. One can get germination when using red/blue light or 6500k T5's. Germination is more uniform and more condensed time wise when using far red bulbs like 4100k T5's. Germination that took up to 30 days can now be accomplished in 2 weeks or less.

This is important for several reasons. In plug production when there is an extended germination period the seeds that germinate last tend to get shaded out by the seeds that germinated quickly. This can result in skips – cells without any plants. The younger plants that do survive in cells can become spindly and may lack a strong root system. When extracted for transplanting the soil may not be held together by the roots and the plug has no value.



4100K T5 Under Cabinet Light to Aid Germination

Uniform plugs are ready to ship quicker which results in faster turnover of space. Using the proper light to germinate strawberry seeds has benefits.

Container Growing

We have been growing strawberries in containers for many years. We have been faced with poor soil at several of the locations where we have lived. Making our own soil mix and growing in containers has been the best option for us.

The added benefit is that containers can be moved to shady areas during the heat of the summer.

Through the years we have found that aeration is an important factor in long term crops like strawberries. Without getting into a lot of detail I'll summarize what we've found.

First, soilless mixes that are available either for home gardeners or those for commercial growers are not well suited for long term growth. They are designed for short term growth which is a couple of months. They do well for this period of time. The buffering materials that moderate pH are also designed for short term growth. When growing in these mixes long term strawberries tend to experience a slow death. And in some instances a rapid decline when the weather gets hot.

In the last year we have been testing pine bark mixes. These mixes are used by southern growers in for nursery crops like trees. The large particle size and additional wetting agent in these types of mixes is better suited for long term production. The formulation we have tested is Metro Mix PX3. We are pleased with the results we are obtaining in our seed production using this formulation.

A second aspect of container growing is the proper container. We have known for a long time that black plastic pots get too hot in the spring and summer for strawberry growing. Even white plastic pots are not the best choice for this crop. We have tested a number of aeration containers including Smartpots, Root Pots, and the aeration containers from www.rootmaker.com. The Roottrapper II from Root Maker seems to be the best overall container of this type. The micro holes conserve moisture so they don't have to be watered every day like the other containers tested. They are like an "insurance policy". There is less likelihood that plants will dry out to the point where the plant might die. We have found this to be the best overall container for our seed production. I will add that we have had Root Maker custom produce shallower Roottrapper II's than are their standard. Strawberry roots usually occupy the upper 6" of soil. Containers that are 6 to 8" deep are better than taller containers. In addition, there is less likelihood that the shorter stockier containers will be tipped over in the wind as well.



BowlENZAuber in Roottrapper II

Because we are interested in hydroponics, we have tested a number of hydroponic systems and containers. We have used Bato Buckets (also known as Dutch buckets) for a couple of years now. Overall, we have found them to be a good choice of container for growing strawberries. We use the beige/tan colored bato rather than the black ones because of the heating issue. The negative aspects are that young transplants that are not using a lot of water can be exposed to high moisture conditions for a long period of time with batos. The buckets provide a reservoir to keep the soil moist and to reduce the risk of drying out. Strawberry roots do need to be kept moist, but sometimes with batos the moisture level is too high for too long. This is especially true when growing outdoors. Heavy rains over extended periods of time can result in the soil staying wet.



BowlENZAuber in Bato Bucket

Container size must also be considered. Bato buckets are nearly 12" square. There is only one size of this type of container. With the Roottrapper II's as 12" by 7" deep seems to be comparable to the Bato. A 14" by 8" deep Roottrapper II has an edge over a Bato and this is the size we prefer to use. It gives ample space for the clumping alpine strawberries which results in a potentially higher yield than in a Bato. We do not yet have numbers to support this but observations when harvesting indicate higher production with the 14" Roottrapper II.

Superfruit Seeds

Our new supply of seeds of what we call Other Berries is here and ready to be shipped for the 2015 season. We have the same varieties as last season and are looking at some new species for possible future addition to our catalog.

Pollination

This past spring we used mason bees in an unheated high tunnel for seed production of *F. vesca* 'Bowlenzauber'. When the mason bees were finished in early June we thought seed production of this variety was also finished because the daytime temperatures exceeded 100 degrees almost every day even with ventilation fans running. The plants continued to bloom so we ordered some Alfalfa leafcutter bees from www.crownbees.com. We are rearing both of these bees on our property as general pollinators. We released some of the leafcutter bees into the high tunnel and extended seed production for more than an additional month. These bees thrived in the high temperatures. Even with high temperatures we did not see very many berries that were not properly pollinated or deformed. We are very impressed with both of these bees. Each does their job well, one in early spring and the other in the summer. They have allowed us to extend our seed saving season.

Wrap Up

Our new direction into seed production is going well. And, we are settling in with plug production using a vertical farm system. As we go in both directions we are still learning and are fine tuning our methods. We hope that these innovations will help to make gourmet strawberries more widely available for all to enjoy.

Enjoy the rest of your summer. See you next time!!!

References

eCommerce Sites at:

[The Strawberry Store](#) | [Strawberry Seed Store](#)

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