Going Bigger - Berry Growers Perspectives on Increasing Acreage

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"Going Bigger" entails more than simply increasing acreage, although we have increased and are increasing our plantings of berries. To me it also means increasing market share, selling more berries over a longer period of time and selling a variety of berries. What a berry grower does not want to have (in my opinion) is a glut of berries followed by no berries. A spread out harvest over many months helps to gain loyal, long term customers. It spreads out the workload while increasing it to some extent. All of our red and yellow raspberries and some blackberries are produced in high tunnels so we are using season extending techniques to spread out our harvest.

We have 14 high tunnels on our six acre farm, ranging in size from 14 feet by 96 feet for the smallest high tunnels to 30 feet by 196 feet for the largest high tunnel. Six of our high tunnels are used for year around vegetable production; the rest for raspberry and blackberry production. We use no pesticides of any type, but we are not certified organic. When we constructed our first high tunnel, we used pressure treated lumber. Since we are growing in the soil, the pressure treated lumber prevents us from being certified organic. We use mushroom compost in our fertility program and weekly applications of a non OMRI approved fertilizer through the drip irrigation system. We use biological control for mites and thrips; both are problematic in high tunnel production. We have an excellent population of native bees for pollination and are participating in a USDA pollinator program for pollinator habitat improvement. We pick berries every day except Sunday. We use a 24,500 BTU air conditioner and Cool Bot to cool our berries in a 12 foot by 12 foot walk in cooler with the temperature set at 38ºF. We were one of the first adaptors of the Cool Bot technology and it has worked very well for us for many years.

To spread out the harvest, we grow early, mid-season, and late varieties of raspberries, blackberries and blueberries. With raspberries, we do selective pruning/pinching when the growth of the primocane (the current year's cane) starts to slow - usually the last week in June at our farm. The way to determine when this slowing in growth occurs for your area is to place a few measuring stakes next to a few new canes beginning when the cane has 2.5 to 3 feet in height. Every week, on the same week day, mark the height of the cane. When the growth starts to slow, begin the pruning/pinching process. Remove one inch of the tip of the new cane if a delay of one week in harvest is desired; remove two inches of the tip of the new cane if a delay of two to three weeks in harvest is desired. We prune an inch off the tip of about 1/3 of our raspberries, two inches off another 1/3 of our raspberries and the last third we allow to fruit without pruning. This also helps to spread out the harvest, avoiding those gluts and scarcities of berries that are a marketing nightmare. Keep in mind when frosts are likely to occur for your area when using this delaying tactic on late season berries if you are growing outdoors. A high tunnel with a single layer of plastic will protect the berries down to 28º F for a duration of six hours or less, in our experience. Double layer plastic with air inflation will provide more protection and row or crop covers will also give some additional protection. However we lost our late fall crop in mid November, 2014 when the overnight temperature fell to 21º F. Some years we have picked berries into December in our area.

We grow only primocane red and yellow raspberries, fruiting them in mid summer and through the fall and fruiting them a second time in May and June of the following year. One of my best varieties is Joan J. It is a vigorous, thornless (nice for pruning), early season variety that starts out the harvest season in late May or early June on second year canes. After fruiting on the second year cane has finished (usually about the first week of July), we prune out the old cane. This is a challenge because it is a summer pruning, adding to an already heavy workload incurred in the middle of the growing season. Care must be taken in this pruning because the primocanes (this year's emerging canes) are also present. About the first week in August, the Joan J canes start producing the fall crop. By mid September, most of those berries at the tip of the primocane have been harvested. If we prune the spent tip, a second flush of berries will set providing berries for November and December, if the weather allows. So we are obtaining three sets of berries on Joan J in Southern New Jersey.

We have tried Autumn Britten, another early season variety, but it produces more double berries which break apart during the harvest and become a cull berry. In 2014, we tore out the last of our Autumn Britten. I was happy to see this variety go because it has nasty prickers! Our mid season variety is Caroline, a very flavorful variety, but prone to late rust for the fall crop. Our late season varieties are Heritage (a wonderful old standby with great flavor) and Nantahala, a North Carolina State University release that has good size and flavor, but a more pinkish coloration to the berry than our other varieties. We have some Himbo Top which is a pretty berry of good size, but insipid flavor, in South Jersey heat.

Besides the varieties of differing maturities, we also grow yellow raspberries (primocanes) and black raspberries (floracanes). While we have early, mid-season and late varieties of black raspberries, it means little because all of them fruit within a relatively short period of time. In the spring of 2015, we will be planting the new primocane black raspberry, Niwot, which should open an additional marketing opportunity.

We also have some primocane blackberries as well as floracane blackberries. The floracane blackberries are all produced outdoors; the primocane varieties are grown in high tunnels. Like the raspberries, the primocane blackberries are fruited twice. While the primocane blackberries do not yield as much as the outdoor floracane berries, they offer blackberries to our customers when no one else in the area has them. The first primocane blackberries (Prime Jan) we planted had nasty thorns. Pruning and even harvesting these berries is a bloody experience! However we were able to get a few of the thornless primocane blackberry, Freedom, in 2014, and we are increasing our planting of this variety in 2015 with the plan of eventually eliminating the blood-letting thorny primocane blackberries in the future!

By growing our brambles in the high tunnel, we have a better quality that has a longer shelf life and we do all of this without the use of <u>any</u> pesticides. The reason why this works is simple. Most fungal pathogens (like Botrytis) require a free film of water for the spore to germinate and penetrate the cells of the raspberry or blackberry. By changing the environment to make it more favorable for the crop and less favorable for the fungal pathogen, we have almost no disease pressure. I don't want you to think that we have no disease pressure because we do have some late rust, especially on the variety, Caroline. It appears as a yellow powdery "dust" on the underside of the leaf and can be found on the fruit, sometimes. There are fungicides to control late summer rust. We have developed a market for people who prefer not to ingest pesticides so we religiously avoid the use of pesticides choosing to cull or destroy diseased fruit. We have a market for culled fruit. We freeze the fruit as soon as it has been graded and sell frozen fruit to a winemaker for raspberry wine.

The same protective nature of high tunnels is true of some insect pests such as the spotted wing drosophila (SWD). For some reason the insect prefers not to enter the high tunnels. We know there are SWD on our farm from some preliminary work done by the fruit entomologist at Rutgers Agricultural Research and Extension Center (RAREC), Bridgeton, NJ. We had one positive sample during the summer of 2013, however the sample was left by one of our workers under the shed roof for several hours until the technician came to pick up the sample. All other samples were promptly placed in refrigerated storage after harvest and were negative for SWD. We generally do not have problems with Japanese beetles or Oriental beetles. Again, these insects seem to prefer not to enter the tunnels and we are happy with this preference!

Besides the raspberries, blackberries and blueberries, we also grow some gooseberries and some day neutral strawberries in addition to the June bearing strawberries. I have tried almost all of the varieties of day neutral strawberries, but I have found Evie-2 to be the best variety under our hot humid summer conditions. It consistently fruits and has reasonably good flavor. There have not been problems with powdery mildew and it does not need special applications of nitrogen to keep it producing. I mention the day neutral strawberries because there is an item we offer in July and August which uses all of our berries, including the strawberries. We layer blackberries, blueberries, (sometimes gooseberries), red or yellow raspberries and day neutral strawberries in a pint clam shell as a **fruit medley mix**. The firmer fruit goes on the bottom with the red or yellow raspberries at the top. The layering helps to keep the softer berries at the top and protected from the pressure of firmer or larger berries. It also makes a very attractive package that can be sold at a premium price. It is great for fruit salads, especially for small households where four packages of the individual berries is too much for the consumer to use in a short period of time.

Market research has shown that total berry sales increase when a wide array of berries are offered. We sell our berries at a farmers market, to other farmers who have farm stands or go to farmers markets, and to a food cooperative in the Philadelphia area. We also offer a seasonal CSA with each season separate, ie. a spring and/or a summer and/or a fall CSA for Southern New Jersey residents and people living in the Philadelphia area (pickup at the food cooperative). Members enjoy having both fruit and vegetables in their CSA boxes. We do a seasonal CSA because we found many people go to the Jersey shore (or elsewhere) for the summer and do not want a summer CSA, however they are good customers for the spring and the fall CSA. Since we go to the farmers market in summer, this fits our marketing plan well.

Our customers want local. They accept pesticide free as a substitute for certified organic. They like a variety of berries of high quality with a good shelf life. That is what we offer them and it works for us.

One thing I have learned over the years that I have been growing raspberries and blackberries is that these crops perform differently in different areas of the country. What is true for Southern New Jersey may not be true for New York growers or New England growers or North Carolina growers. My advice is to test a new practice or a new variety before committing large acreages and money.