# FACTS FOR FANCY FRUIT

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### **Crop Conditions**

(Peter M Hirst, hirst@purdue.edu, (765) 494-1323)



Grape – bunch closure, berry touch



Apple - Pristine harvest underway



Blackberry – Apache harvest beginning



Peach - harvest beginning

# Evaluation of Strawberry Varieties for High Tunnel Production

(Wenjing Guan, guan40@purdue.edu)



Figure 1. Strawberries grown inside a high tunnel at Southwest Purdue Agricultural Center. Photo was taken on April 16 2016.

We are familiar with strawberries grown as a perennial crop in Indiana. Bare root strawberry plants are set in the spring. Fruit is first harvested in the second year and the planting is renovated annually. Using this system, strawberry seasons last for three to four weeks from middle May through June. The traditional system has been replaced with an annual plasticulture system in the southern United States ever since the 1980s. In the annual plasticulture system, strawberry plugs (rooted runner tips) are transplanted in plastic covered beds in late summer or fall. Fruit are harvested in spring in the next year. After the fruiting season, the plants are removed. The annual plasticulture system is favored in

the south because it has a longer harvest period and produces strawberries with better quality. In Indiana, trials established to test the annual plasticulture system had limited success because of short fall season and harsh winter. However, this impression might be changed with the use of high tunnels. Studies have shown that high tunnels extended strawberry season, increased yield and improved berry quality. To test feasibility of growing strawberries in high tunnels with the annual production system, a trial was conducted at Southwest Purdue Agricultural Center from August 27, 2015 to May 31, 2016 to test yield, quality and harvest period of ten strawberry varieties (Figure 1). In this article, we will discuss findings of the trial.

#### Varieties tested in the trial include:

Albion Festival Benicia Radiance San Andreas Camino Real Sweet Ann Sweet Charlie Overall, the trial achieved great success. A total of 1,295 lbs of strawberries were harvested from 660 plants (66 plants of each variety) in a 30 × 96 high tunnel. For most of the varieties, peak harvest season started in middle April and lasted till the end of May. 'Albion', 'San Andreas' and 'Sweet Ann' are day-neutral varieties, they started to produce berries in middle October. Although the yield in fall can hardly justify commercial production. The only exception might be 'Albion' that produced the most berries in October, November and December (0.17 lb/plant).

The top yielding variety in this trial was Radiance that produced 2.86 lb berries per plant, following by San Andreas (2.37 lb/plant), Chandler (2.17 lb/plant) and Benicia (2.08 lb/plant). 'Camarosa', 'Sweet Ann' and 'Sweet Charlie' had the lowest marketable yield (1.42 lb/plant, 1.62 lb/plant, and 1.69 lb/plant, respectively). 'Radiance' produced the most strawberries, it was also the variety that had the longest harvest period. A few 'Radiance' strawberry ripened in November, December and during the coldest period in January and February. Primary harvest took off in end April. In the spring, harvest of 'Sweet Charlie' and 'Benicia' started in early April, about 10 days earlier than other varieties.

We harvested some very large berries with individual berry reached 2.7 ounces. Average weight of berries ranged from 0.54 to 0.97 ounces according to varieties. 'Sweet Ann' produced the largest berries, followed by 'Albion' and 'Radiance'. 'Chandler' and 'Camarosa' had the smallest-sized berries. During the peak harvest, 'Festival' and 'Camarosa' were the sweetest. 'San

Andreas', 'Radiance' and 'Festival' had relatively firmer berries while fruit of 'Chandler' were much softer, easily being damaged through handling.

Unmarketable fruit of most of the varieties were less than 15% of the total yield except 'Sweet Ann' (21%) and 'Camarosa' (18%) in this trial. Most of the cull fruit were caused by gray mold. Other disease and pest problems we have encountered include powdery mildew, yellow stripped armyworms and two-spotted spider mites. In winter, we used row covers for frost protection. Pollination was carried out by wind.

The 2015/2016 season was featured by warm fall and mild winter that was favorable for strawberry production. In the 2016/2017 season, we will continue to test the strawberry production system with the focus on developing ideal fertility plans.

For more information regarding production practices of the trial, please contact Wenjing Guan at guan40@purdue.edu or 812-886-0198.

We acknowledge McNitt Growers for donating strawberry plugs for the trial.

#### Sooty Blotch and Flyspeck

(Janna L Beckerman, jbeckerm@purdue.edu, (765) 494-4628)



Flyspeck and Sooty Blotch

At midseason, scout fruit (20-30 apples or pear) in the interior canopy of sample trees. Signs of this disease are more obvious on light colored fruit, like Golden Delicious, Pristine, or Yellow Transparent. The disease is worse in poorly pruned trees in the wetter, foggy, slowdrying areas of the orchard. This year, in some parts of the state, it might be the entire orchard, we've been so soggy lately!

Signs of this disease would be showing up about now

(mid-July), particularly on fruit where protection was lacking or washed off due to consistently heavy rains. Continue to observe 25 fruit in the interior canopy of sample trees. Fungicides containing strobilurins (Compass, Flint) or strobilurins + SDHIs (Pristine, Merivon, LunaSensation) should be applied to fresh fruit showing any infections. Presence of these diseases is a good indicator that fungicide surface residues are lacking or very low, and signals potential need for treatment to control these diseases, other summer rots, and post-harvest rots.

Next year, be sure to prune trees to improve air circulation. With the Olympics fast approaching, you should be able to kick a soccer ball through the tree. We will leave that proverbial cat to the voles below!

Remove any nearby wild or neglected apple or pear trees. Use this as an excuse to get rid of any flowering (aka 'Bradford') pears, too!

Backyard growers, remember: This disease looks a little nasty but rarely affects the quality of the fruit. You can eliminate any signs of the disease by vigorous washing, scrubbing, or peeling the fruit.

For more info, see:

http://www.caf.wvu.edu/Kearneysville/disease\_descriptions/omsooty.html

### Codling Moth

(Ricky E Foster, fosterre@purdue.edu)

I continue to catch low numbers of codling moths in my pheromone traps. As I explained in a previous FFF article, in the lower Midwest, we don't have distinct generations. Out moth catches seldom go down to zero, so there is always a threat for codling moth. Apple growers should be sure that they are including an insecticide in their cover sprays that will control codling moth, as well as any other pests that may be causing a problem.

#### **European Red Mites**

(Ricky E Foster, fosterre@purdue.edu)

Mites continue to be a concern for both fruit and vegetable growers. We are just now at the historical peak population time for European red mites. Fruit

growers should be scouting their more susceptible blocks regularly for the next few weeks. The thresholds for treatment increase as we get later in the season. See https://extension.entm.purdue.edu/publications/E-258/E-258.html for more details.

#### Japanese Beetles

(Ricky E Foster, fosterre@purdue.edu)

This pest has been extremely common in many locations this year. They can cause defoliation of a number of fruit crops and can be especially devastating to young trees, so they need to be controlled to prevent losses. They also like to feed on most of the small fruits, early maturing varieties of apples, and stone fruits. Growers who are on a regular spray program will usually not need to add any additional insecticide products to the spray tank for control of Japanese beetles. Be sure to watch pre-harvest intervals with all your sprays.

## Spotted Wing Drosophila

(Ricky E Foster, fosterre@purdue.edu)

Populations of spotted wing drosophila continue to increase. As best I can tell, numbers are not at the devastating levels that they were a couple of years ago, but there are still plenty around to cause very serious injury to small fruit. Raspberry, blackberry, and blueberry growers should be on a regular spray program at this point. Grape growers who have varieties that are at veraison or later should also be spraying regularly.

#### Early season apples

(Peter M Hirst, hirst@purdue.edu, (765) 494-1323)

Harvest of early season apples has begun in many places around the state. Many of these early apples can suffer from extreme pre-harvest drop. Pristine is certainly in this category, so be careful not to allow fruit to become too ripe on the tree. This risks a large proportion of the crop falling on the ground. So either use one of the materials that reduce pre-harvest drop (see the last issue of FFF) or harvest fruit a little less ripe and before significant drop has occurred.

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