PURDUE UNIVERSITY

PURDUE EXTENSION

FACTS FOR Fancy Fruit

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In This Issue

Crop conditions: Isolated hail earlier this week may have caused a little damage here and there but I have not heard of widespread problems.

Spring temperatures: Early season temperatures are tracking pretty much the same as 2011 and 2013 but still slightly ahead of the long term average (Figure 1).

Hail is a 4 letter word: Not only did parts of Indiana get stuck by hail earlier this week, there are also reports from as far away as Pennsylvania. Dr Tara Baugher, fruit specialist at Penn. State University, reported golf ball sized hail in Pennsylvania. She wrote the following in the Penn. State fruit Times Disease Update:

Not only did we have perfect conditions for fire blight this year, particularly with two major infection periods during bloom, hail has been thrown into the mix – all within two weeks. Talk about a cosmic kick to the shins. Fire blight bacteria need an entry point into the plant to cause infection. During bloom, the flower's nectaries provide the open door; after a hail event, the wounded areas are the open door into the plant tissues. For those who experienced hail on their farms yesterday, application of a streptomycin spray within 24 hours of the hail event is important to protect damaged areas of the trees from bacteria entering, especially if you meet the following criteria Cornell Plant Pathologist Dr. David Rosenberger outlined in his latest blog post about the hail – fire

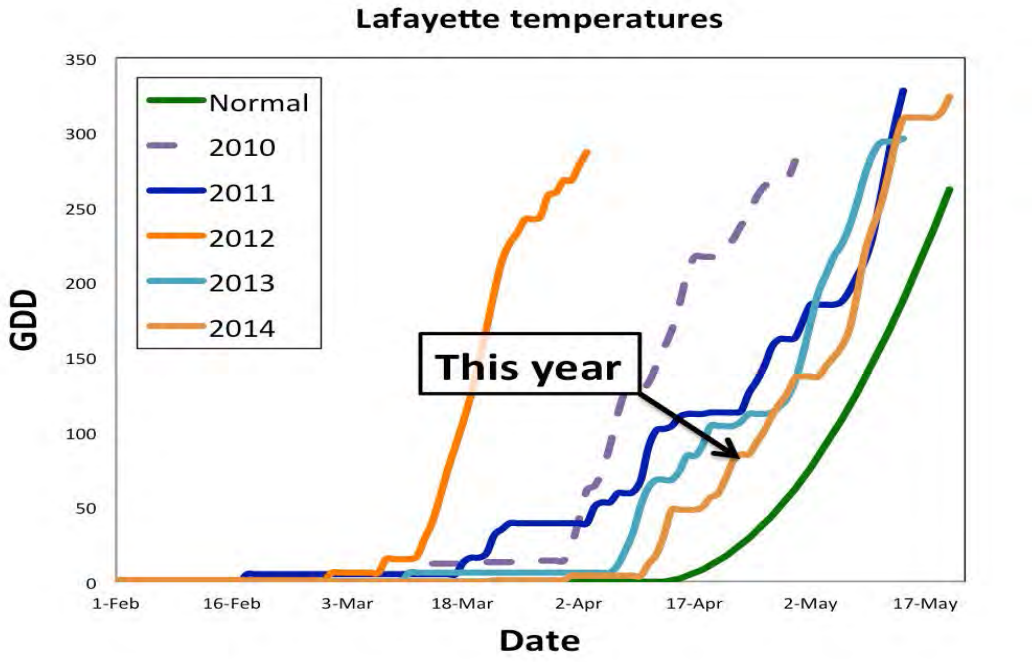

Figure 1. Growing degree days in Lafayette, IN showing year to year variation.

blight situation:

If you know that you have (i) blight-susceptible cultivars (ii) that have a lot of recently opened flowers, (iii) that are less than six years old, (iv) that were not treated with Apogee, (v) that have not received any strep since May 15 or 16, and (vi) that have an inoculum source nearby (i.e, orchard with blight last year), then you may want to attempt treating those blocks with strep if you get a decent treatment window in the next 24 hours. Do NOT include Regulaid at this time as it may impact activity of plant growth regulators applied within the next few days.

We experienced infection periods May 9 – 11 and May 14 – 16. Consequently, growers will want to start scouting their orchards for possible fire blight infection starting this weekend and into next week to see how they fared with their protective measures.

When controlling for disease, weather and tree growth conditions need to be monitored at a local level within one's own orchard. Before chemical products are applied, be sure to be in compliance by obtaining the current usage regulations and examining the product label. Product information can be easily obtained fromCDMS (Dr Tara Baugher, Penn. State University Fruit Times)

Apple crop loads: Every year presents its challenges for setting appropriate crop loads and this year is sure no different. First we had a very cold winter with cold damage to flowers so that flowering was not as strong as we would like. Then we had changeable and cooler weather for pollination. To top if off, temperatures during the prime chemical thinning window were often too cool or too hot.

As many experienced growers know, natural fruit drop occurs in two waves. The first wave is where unfertilized flowers drop, and this has already happened. The second wave happens a little later and is caused by a shortfall in available carbohydrates. Leaf area is still developing so the supply of carbohydrates from photosynthesis is limited. At the same time, many developing fruit require carbohydrates to grow, so demand exceeds supply. This shortfall in carbohydrates is responsible for this second wave of fruit drop. Conditions that extend this shortfall tend to increase fruit drop. For example, an extended period of cloudy weather means less photosynthesis, less carbohydrate and more fruit drop. For many of us in the state, we saw more cloudy weather than normal during early fruit development. The combined effect of reduced bee movement and limited pollination, slow pollen tube growth so less fertilization, and reduced photosynthesis all resulted in above average fruit drop. (Hirst)

Is GoldRush cold tender? Earlier I said that I didn't expect the cold winter to have too much effect on apple flowering. However now it seems a few people are seeing reduced flowering on GoldRush. I doubt this is due to biennial bearing since we have enough experience with GoldRush to know it's an annual bearer. Also we looked at GoldRush buds last fall and over 90% had flowers. This spring those same trees had very sparse flowering and will likely carry only 20% of a crop. The conclusion is that the buds initiated flowers last fall but many of these flowers were killed by cold winter temperatures. We didn't see this reduction to this extent in other cultivars.

Hopefully it will be another 30 years before we experience another winter as cold as this last one. If and when we do, we'll know what to expect and prune GoldRush trees more lightly to leave more fruiting wood. (Hirst)

New Apple Crop Insurance Pricing Program Proposal from RMA: USApple is working closely with USDA's Risk Management Agency(RMA) on a new methodology for the apple crop insurance policy that will provide growers more flexibility in selecting a level of protection that better suits their particular operation. RMA is working on the creation of a methodology for how apple variety groups for crop insurance purposes should be determined, including the threshold for making changes to the varietal groups and how often changes should be made.

USApple's Risk Management Task Force is providing industry expertise. Under the current fresh apple crop insurance policy, there are only two apple varietal groups, Groups A and B. Group A includes apple varieties such as Braeburn, Cameo, Crispin, Fuji, Gala, Honeycrisp, Jonagold, Macoun, Cripps Pink (Pink Lady), and Sommerfeld. Group B includes all

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other varieties. To qualify as fresh production for insurance purposes, at least 50 percent of the production must be sold fresh in one or more of the four most recent crop years. Price elections (the price per bushel of protection that can be chosen by the grower) are set each year.

Crop Insurance Premiums are subsidized by the federal government. Table 1 illustrates the federal subsidy as a percentage of the total premium at various levels of coverage. Apple growers can elect to receive the minimum, referred to as "catastrophic" or "CAT" coverage that covers 50 percent of the crop at 55 percent of the price elective and the federal government will pay 100 percent of the premium – all the grower has to do is sign up for the CAT level of coverage and pay a $300 administrative fee. As the coverage election increases, the percentage of federal subsidy decreases. For example, the highest coverage available is 75/100, or a guarantee of 75 percent of the grower's crop at 100 percent of the price election. At that level, the federal premium subsidy amounts to 55 percent of the total premium and the grower's share becomes 45 percent of the total premium.

The 2014 Farm Bill does not make changes to apple crop insurance programs for 2014. The same programs, specifications, and rates existed before passage exist after passage of the 2014 Farm Bill. Hence, passage of the 2014 Farm Bill will not impact 2014 crop insurance decisions. Furthermore, the 2014 Farm Bill did not change the products or subsidy levels that currently exist. The same Combo and the Area Risk Protection Insurance (ARPI) policies that exist in 2014 will exist in 2015 and onward.

The apple crop insurance policy has been widely accepted by apple growers. In the 2013 crop year there were 3,292 individual policies in force covering 238,674 acres of production. According to USDA's National Agricultural Statistics Service (NASS), in 2012 the total number of bearing acres in apple production was 328,000, indicating that 73 percent of U.S. apple production was covered by crop insurance.

USApple's Risk Management Task Force is working with RMA on the development of a wider range of variety and price options so that growers can better tailor the apple crop insurance coverage to the needs of their individual operations. As noted earlier, currently, there are only two apple varietal groups from which growers can choose price protection. As the RMA has noted, with only two groups, there are likely some varieties in certain locations that may not be receiving a price that appropriately reflects their value to the individual grower. The RMA is looking at creating regional price groups, and adding up to three additional tiers of groups to better reflect the wide range of apple variety values. It will be important under this new system for growers to keep records of production of individual varieties to be able to obtain appropriate coverage for the individual varieties.

The RMA has a website that makes it easy for growers to obtain information on the apple policy that is specific to their location. A producer can go to http://www.rma.usda.gov/aboutrma/fields/rsos.html and click on the state where his operation is located to obtain a policy fact sheet.

Table 1:

Federal Subsidy of Crop Insurance Premiums

COVERAGE LEVEL	FEDERAL SUBSIDY	GROWER PORTION OF PREMIUM
50/50	100%	0%
50/100	67%	33%
55/100	64%	36%
60/100	64%	36%
65/100	59%	41%
70/100	59%	41%
75/100	55%	45%

A $300 administrative fee is charged for CAT coverage. A $30 administrative fee is charged for buy up coverage.

•Source: Federal Crop Insurance Commission

(Source: Mark Seetin, USApple Association: http://usapple.org/PDF/Membership/AppleNewsSpring2014.pdf)

Disease control: Our relatively dry spring throughout Indiana has resulted in laxer coverage with fungicides than in previous years. This is just a reminder that the spores are still out there, and if the Meig's orchard is any indication, the spores are ready to shoot with the next rain event!

Any spores that are released can infect those leaves that have outgrown the fungicide coverage during active growth. Other possible avenues of scab infection include cut rates of fungicide or poor coverage (due to windy days or poorly calibrated sprayers). Furthermore, the lack of rainfall will have prevented the redistribution of fungicides we've come to rely on (but don't always acknowledge!), particularly with fungicides like captan.

So, what do you do when you are out there scouting and notice scab on your terminals? Regardless of the calendar date this year, things are moving more slowly after the hard winter. And although long-term forecasts predict a dry summer, any active scab provides inoculum for fruit infections when (not if this is Indiana) rains eventually move in.

Keep in mind (at least for next year it is too late for this year), that there is no way to completely eradicate scab that has already occurred as primary infections. The SI fungicides (Rally, Indar, Inspire or dodine) will reduce sporulation and may provide some pre-symptom kickback activity against incubating lesions that have not developed, if applied within 24-48(?) hr of infection. This assumes that resistance is not an issue in your orchard—which is a bad assumption for any orchard that has used these fungicides for the past decade. In the event scab goes epidemic,

using an SI fungicide with dodine has proven very effective for arresting scab so long as fungicide resistance to either product isn't an issue. This is not a preferred strategy, but a high-risk one! It may work once, or twice, but if relied upon over time, it will fail—with catastrophic consequences!

A more conservative, but labor intensive course would involve the regular application with cover sprays of captan at 10—14-day intervals, assuming good spray coverage. Captan 80W should be used at a 2.5 to 5.0 lb/A. The warmer forecasted weather (in the mid 80 degree range) will improve the effectiveness of the captan while discouraging conidia production of the scab pathogen. If the summer weather pattern remains hot and dry, reduce captan rates after trees stop growing and terminal buds are set.

Finally, keep in mind that as great as captan is for scab, it doesn't do anything to control rust or powdery mildew. Rust has a finite infection period that ends by the beginning of summer, but powdery mildew can infect all summer long. Hot and dry weather is a recipe for powdery mildew. Our cold winter should have really knocked the powdery mildew back, but the disease could come back with a vengeance if captan is your primary disease control strategy. If powdery mildew start showing up (scout the really susceptible varieties like Jonathan, Ginger Gold, Ida Red where it will show up first), you might consider including a strobilurin (Pristine, Flint, Sovran) or SI (Topguard, or Rally) that is more effective against powdery mildew. Do not use sulfur for powdery mildew control if using captan. Injury and/or defoliation can occur if using captan in combination with, in alternation with, or closely following wettable sulfur products, particularly on sulfur-sensitive cultivars like Red Delicious, Stayman, Baldwin, or King. (Beckerman)

Figure 2. Apple scab.

Figure 3. Powdery mildew.

Spotted Wing Drosophila – A number of growers and others have traps up and running and, so far, I have no reports of SWD being caught in traps. I encourage strawberry growers especially to have traps in place at this time. For the other fruits, the important time to get traps active is before fruit start to ripen. Remember that the female flies will lay their eggs in fruit when it just starts to turn, so have your traps in place before that time. See the May 5 edition of Facts for Fancy Fruit for details about how to build the traps. It would be a good idea to have several traps located in different parts of the planting. If you have woods nearby, locating a trap near the woods may help detect any flies that are coming from wild hosts in the woods. Traps can be located within the planting and should be shaded if possible, although that is not mandatory. Suggested spray programs for each of the small fruits is also included in the May 5 edition of FFF. (Foster)

Codling Moth – I hope everyone has their codling moth pheromone traps in place by now because we are seeing historically high catches of codling moths this year. Catches of 60 moths per night are not uncommon. As you make your codling moth spray decisions, here are several points to keep in mind.

1. Be sure you understand the mode of action of the insecticide you are using. Rimon, for example, is primarily active against the eggs, so it should be applied earlier than other insecticides, at 100 degree days after biofix (first sustained moth catch). See the chart on page 23 of the Midwest Tree Fruit Spray Guide for the proper timing of each of the codling moth insecticide.

2. When moth populations are very high, we often would like to use a product that will control the larvae but also provide some control of the adults. The products with the most adult activity are the organophosphates (such as Imidan) and the pyrethroids. The pyrethroids provide excellent larval control as well as adult control, but using those products will result in the death of most of your predator mites and may result in a severe mite outbreak. Therefore, I don't recommend that you use the pyrethroids. Altacor, Delegate, and Assail may have some activity against adults as well, but it will most likely be fairly minor.

3. Remember that no insecticide ever provides 100% control. Therefore, pest management is always a numbers game. If you codling moth insecticide kills 99% of 100 larvae per tree, you may have an acceptable level of damaged fruit. If it kills 99% of 1000 larvae per tree, the

level of damage may not be acceptable. The point is that when populations are extremely high, you may need to shorten your spray intervals somewhat. Immediately after you spray, the residue will be at its maximum level and will immediately start to diminish. At some point the amount of residue will reach the point where some, and later many, larvae will not be killed. That's the point at which a reapplication is needed, provided the moths have continued to lay eggs. Most of our insecticides have an effective residual activity of 10-14 days. If you are catching large numbers of moths in your traps, you should be closer to the 10 days interval between sprays. (Foster)

Eastern Flower Thrips – I have received reports of the arrival of eastern flower thrips, which feed on the flowers and small fruit of strawberries, resulting in seedy fruit with a rubbery texture and poor color. Strawberry growers should be inspecting their blossom for the presence of these very tiny, slender insects. If you exceed 2-10 thrips per blossom, a spray is justified. Entrust and Radiant are labelled specifically for thrips and will provide excellent control. You will also get control with Lorsban, Brigade, and Danitol. (Foster)

Upcoming meetings:

Aug. 21-24, 2104. Apple Crop Outlook and Marketing Conference, US Apple Association. The Ritz Carlton, Chicago. Register at www.usapple.org

Jan. 20-22, 2015. Indiana Horticultural Congress. Wyndham Hotel, Indianapolis, IN. http://www.inhortcongress.org

Current bud stages West Lafayette, IN	
Apple	*Grape*
	
King flowers around 10mm	*Bloom*
Strawberry	*Raspberry*
	
Just past full bloom	*Tight Cluster*

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