Here in western Pennsylvania apples are in full bloom on April 14. It is hard to say with accuracy what percentage of the crop is left after five nights below 28 degrees. Some days I feel good about what I see and other days I don’t. What is certain is that we have spent a lot of money on oil for the orchard heaters, gas for the wind machines, and time preparing for and fighting the frost. Frost is a yearly event where my farm is located, fifty miles north of Pittsburgh, near the Ohio line. There have been many years in my memory, although none recently, that cold winter temperatures have taken out the peach crop entirely, so I am happy to have blossoms to keep warm!

Since many of you may not know me, I suppose it’s time that I explain how I became president of SHAP. A series of saying ‘yes’ when I didn’t know better is what happened. The board strives to have representation from all areas of the state and there aren’t many other growers around Pittsburgh so soon the bottom of the bucket was reached. Election of nominees in no way resembles the current national election-everyone makes it in here! Then, almost casually, they ask if you will take notes at the meeting...forgetting to mention it is normally the second vice-president’s job. After that shoe-in election, it is a few short years to the president’s seat. Do I tell you this to keep you from serving? Definitely not! It has been a privilege to serve and I have gotten far more out of it than I have contributed.

Our farm is 45 acres consisting of apples, peaches, nectarines, prune plums and berries. The fruit is sold through a few farmers’ markets, a CSA, retail at the farm and wholesale. I am the youngest of four but the only one that remained on the farm. After graduating from Penn State in Horticulture, my husband and I came back to the farm in 1981 and had many enjoyable years working with my parents and raising three children. In 1994 my father, George Dawson, died and in 2000 my husband, Kevin Cowher died. By the grace of God we kept the farm together and I was blessed to remarry in 2008. My husband, Scott, has joined me in farming. His background in industry is useful in keeping up with government regulations and freeing me to work outside. Between us we have five children in college so it is essential we stay profitable!

As the next generation begins to work into the farm, I am grateful for the Young Growers Alliance. On April 10 they met at Ridgetop Orchards in Fishertown which put it in driving range for my daughter. She appreciated getting to meet people her own age with the same interests and renewing friendships...
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PRESIDENT’S MESSAGE continued from page 1

with those she already knew. It is always good to talk to others who understand your language. I sent my 4-year-old granddaughter along, hoping she might get to know some members of the “YoungEST Growers Alliance” but none were there that day. Thank you to the Boyers for hosting the meeting!

Remember to check the dates for your regional twilight meeting— a great way to stay on top of things and visit with fellow growers. Email updates can be subscribed to at http://extension.psu.edu/fruit-times.

Good growing,
Carolyn McQuiston

Editorial Views
By Dr. Rob Crassweller

The Future of Extension?

This past month I had the honor of hosting a visit from Dr. Peter Gregory. He is the new Chief Executive of the East Malling Research station. He made a whirlwind tour of Universities and research stations in the U.S. He visited the USDA station at Kearneysville, FREC, University Park, Cornell and then flew out to Wenatchee. East Malling had fallen on hard times beginning in the 1990’s, and they went from a staff of 400 scientists and technical support down to 45. England’s government finally realized that unless they had a viable research program, that they would soon be a technically poorer nation in agricultural production. Their solution is to gradually privatize the research station to make it run on outside funds rather than government aid. However, before they can do this they need to hire new staff that are capable of garnering outside contracts. Peter will be hiring four new scientists, one of which will work exclusively in rootstocks. It was ironic that England was planning to privatize their research station at the same time as with shrinking state subsidies PSU is talking about going to a private model for the University.

England no longer has a government funded Extension program. Now all the “extension” work is performed by private consultants. In agronomic crops, this is mainly provided by cooperatives or crop marketing organizations. For Horticultural crops, the education is still mostly provided by private individuals on an individual fee basis. Some of the research stations may still provide three yearly meetings to update growers based upon a subscription fee. The fee is such that it can support projects and personnel on a yearly basis. Other countries that have dumped government supported extension include the Netherlands and New Zealand. As many of you know Mike Orzolek will be retiring come June 30 and at present there is no talk about trying to replace him. We also lost an ornamental professor to retirement in December and his replacement will be our current Extension Christmas Tree Specialist. With the public’s increasing desire to cut government budgets, it is likely we could see a similar system.

How can you not talk about the weather this spring? Surprisingly, I still have some peaches and pears on the trees. In apples, all king bloom on Delicious are gone as well as in Empire and Idared. Thinning will be quite a challenge this year. As I write this we certainly could use some rain in central Pennsylvania.

The YGA group had a great tour down to the Chestnut ridge orchards of the Boyer families. While it was sunny, the cold wind was pretty ferocious. If you have never been down to this area, it is well worth the trip. Ridgetop Orchards and Boyer’s Orchard are doing some pretty amazing things. The next generation at both farms are hard at work assisting in the operation of the orchards.

We had our program planning meeting to begin to outline the program for next January’s Hershey meeting. There were a lot of good ideas and I hope to have a preliminary program by the next Board of Directors meeting towards the end of May.

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U.S. SENATE INTRODUCES COMPANION BILL TO PREVENT YOUTH FARM LABOR RULES

Senators John Thune, (R-South Dakota), and Jerry Moran, (R-Kansas), have introduced legislation that would prevent the U.S. Department of Labor from enacting new regulations on the types of jobs that youth can perform on farms. The bill, Senate Bill 2221, is a companion to the Preserving America’s Family Farm Act, which was introduced earlier in the House. The house bill was referred to the House Committee on Education.

The legislation was also co-signed by Pennsylvania Senator Pat Toomey. “Ninety-nine percent of Pennsylvania’s farms are family owned and operated, and this new rule will impede their ability to operate,” Sen. Toomey said. “I am proud to sponsor this bipartisan bill to start rolling back some of the most egregious regulations hurting our farmers and our economy.”

Officials within the Department of Labor have attempted to enact new regulations to restrict the types of work that youth are able to undertake on farms. The restrictions would include most power equipment, farm machinery over 20 horsepower, and working with animals more than six months old.

“The Department of Labor has proposed 85 pages of unreasonable and overreaching rules that would unnecessarily restrict the participation of young people in agriculture related activities,” Thune said in a prepared statement. “Family farms and farming communities teach young people responsible work ethics and these proposed rules would change that by severely limiting the commonplace activities in which young people can learn about agriculture.”

The proposed regulations could shrink the rural workforce and would prevent youth from gaining valuable career training. Moran said. “This proposal should alarm more than just rural America,” Moran said in a prepared statement. “If the federal government can regulate the relationship between parents and their children on their own family’s farm, there is virtually nothing off limits when it comes to government intrusion into our lives.”

DEATH TAX REPEAL PERMANENCY ACT INTRODUCED

Senator John Thune (R-South Dakota) recently introduced Senate Bill 2221, the Death Tax Repeal Permanency Act. Representative Kevin Brady (R-Texas) introduced identical legislation in the House; the bill has more than 200 bipartisan co-sponsors.

“The death of a loved one should not be a taxable event,” said Thune. “The federal government has no place being in the business of forcing grieving families to pay a tax on their loved one’s life savings that has been built from income already taxed when originally earned. Sadly, this tax is often paid by selling the family farm or life-long business. Other times, employees of the family business must be laid off and payrolls are slashed in order to pay the burdensome death tax. Let’s permanently repeal this punitive tax once and for all.”

Not only would Thune’s bill repeal the federal estate tax, but it would also repeal the generation skipping transfer tax, make permanent the maximum 35 percent gift tax rate and a $5 million lifetime gift tax exemption, and maintain the stepped-up basis provisions important to family farms and businesses. According to a recent study by Douglas Holtz-Eakin, the former director of the non-partisan Congressional Budget Office, repealing the death tax would create 1.5 million additional small business jobs and would decrease the national unemployment rate by nearly 1 percent.

U.S. SENATE ADOPTS AMENDMENT HELPING FARM VEHICLE OPERATORS

The United States Senate recently passed an amendment to the pending highway authorization bill that would fully allow states to exempt farmers from requirements intended for long-haul drivers traveling cross-country. Lead by the efforts of U.S. Sen. Pat Toomey (R-Pennsylvania), the amendment prevents the U.S. Department of Transportation from imposing requirements for medical cards, driver hour logs, and daily vehicle safety inspections on drivers of farm trucks.

That includes farm vehicles, and truck-trailer combinations, used in carrying the farm’s supplies, products and machinery for trips operated entirely within the farmer’s home state and for trips within a 150-mile radius of the farm (if the vehicle crosses state lines). “Farmers who work in the fields or haul their products to markets should not be subject to the same regulations as a truck driver traveling across the country. The adopted language would prevent federal agencies from forcing our state to impose requirements that are not necessary for farm trucks traveling a short distance to deliver goods or transport supplies,” said Pennsylvania Farm Bureau President Carl T. Shaffer.

The amendment forbids the federal government from withholding funding from states that allow farm vehicle exemptions. The U.S. House of Representatives continues to work on its version of the legislation.

PENNSYLVANIA CONGRESSMAN INTRODUCES BILL TO PROTECT FARM RESOURCES

U.S. Representative Jason Altmire, (D-Pennsylvania), has introduced legislation that will reinforce agriculture exemptions that are currently granted to farmers in the continued on page 6
Clean Water Act. The move is in response to actions taken by the Environmental Protection Agency to redefine what waters are governed under the Clean Water Act. The bill, co-sponsored by U.S. Representative Robert Hurt, (R-Virginia), will protect the property rights of farmers and forest land owners during their normal agriculture activities.

Without these types of exemptions in place, farmers, ranchers and forest owners will face increased federal regulations and compliance costs, along with restrictions on land use for the production of food, fiber and fuel.

**USDA WARNS OF FRAUDULENT LETTERS**
The U.S. Department of Agriculture has learned that fraudulent letters are being sent by FAX to individuals and businesses in Pennsylvania and three other states. The letters purportedly come from a USDA procurement officer and seek personal information. Those letters are false and recipients should not respond with personal information.

The letters feature the USDA logo and seal and are signed by an individual identified as “Frank Rutenberg,” using the title of Senior Procurement Officer. The Office of the Inspector General is investigating. If you have received such a letter, of have questions, contact the USDA at: procurement.policy@dm.usda.gov or call 202-720-9448.

**FAIR DEALER BILL PASSES SENATE**
The Pennsylvania Senate has passed legislation that amends the Pennsylvania Fair Dealership Law, allowing independent farm equipment dealers to become more competitive by permitting them to sell multiple product lines. Senate Bill 1169 ensures that farm equipment dealers are treated more equitably by equipment manufacturers in dealership agreements and provides farm equipment dealers the same protection given to auto dealers.

“Pennsylvania farm families will have better access to farm equipment sales and service if the legislation becomes a law. Disparities in bargaining power between farm equipment dealers and manufacturers can make it difficult for dealers to operate profitably,” said Pennsylvania Farm Bureau President Carl T. Shaffer.

Farm Bureau noted that farmers are concerned about the declining number of Pennsylvania equipment dealers, which are an essential part of the infrastructure necessary for competitive agricultural production in the state. “Rural communities suffer when local farm equipment dealers go out of business, while farmers lose out because they are forced to spend more time and money traveling longer distances for purchases. Not having access to local repair service and parts can also be critical for farmers during harvest seasons,” concluded Shaffer. The bill now moves to the House of Representatives for consideration.

**STINK BUG INVASION ADVANCES**
The brown marmorated stink bug and the kudzu bug continue to invade the South in huge numbers. The pests have the potential to destroy millions of dollars of crops, according to an Ag Professional article. Marmorated stink bugs have been previously found in Florida and the potential damage the bugs could do to the state’s diverse agriculture is tremendous.

Brown marmorated stink bugs are native to China and were first reported in Allentown, Pennsylvania in 1998. The pests hitched a ride to the U.S. on foreign cargo and seem to prefer warm weather. Another Asian stink bug, referred to as the kudzu bug, was unknown in the U.S. until its discovery in Georgia in 2009. Although known for eating kudzu, this also bug eats soybeans and other legume crops. According to published reports, it migrates from kudzu in the spring to soybeans in July.

To date, kudzu bugs have been found in 143 Georgia counties, 42 North Carolina counties and five Alabama counties, according to the University of Georgia’s College of Agricultural and Environmental Sciences. Legume/soybean crop yields have been reduced by about 20 percent due to pest damage in these states.

In 2010, $37 million in apple damage by stink bugs was reported in the Mid-Atlantic region. In 2011, about one-third of Maryland’s peach crop and half of the state’s raspberries were destroyed by the insect.

**LANDOWNER LIABILITY LAW INTRODUCED**
A bipartisan group of Pennsylvania Senators have introduced a bill intended to reduce landowner liability for people who commit a Game Code violation while hunting on private property. Senate Bill 1403 was recently introduced by Senator Richard Alloway, (R-Franklin County) in the Game and Fisheries Committee. Sixteen other Senators have signed on to the bill.

The legislation would clarify that landowners cannot be held liable for a hunter’s violation of the game code simply because he or she gave permission to take game or wildlife on their land. For example, if a farmer gives a hunter permission to hunt on his land, and that hunter takes an animal out of season, the farmer cannot be held liable for that game code violation. There is an exception made, however, if a fee, payment or gratuity is paid by the hunter to the landowner.

**USDA FRUIT AND VEGETABLE WEBINARS**
USDA’s Agricultural Marketing Service (AMS) is hosting a series of free informational webinars on fresh produce. Each webinar features a presentation from an USDA expert on a specific topic, followed by an interactive question and answer session. These webinars are designed for fruit and vegetable growers, packers, shippers, processors, wholesalers and retailers of all sizes.

All of the webinars are free and available to anyone with Internet access. However, registration is required and space is limited. The schedule of webinars is available... continued on page 7
at http://www.ams.usda.gov and entering “webinar schedule” in the search menu then clicking on the first link.

SENATORS GRASSLEY, JOHNSON INTRODUCE PAYMENT LIMITS BILL

Senators Tim Johnson (D-South Dakota) and Chuck Grassley (R-Iowa) recently introduced a bill that would place a hard cap of $250,000 on the farm payments a married producer couple could receive in a year. Johnson and Grassley had introduced similar legislation last year, but said they wanted to be sure the legislative text would accommodate any type of safety-net program adopted in a new farm bill.

The Rural America Preservation Act of 2012 would set payment limits on marketing loan gains at $75,000 ($150,000 for a couple). The remainder of the payment limit would be a cap on the total amount a farmer can receive in safety-net payments in general. For instance, if the new farm bill includes a shallow loss program, the senators’ legislation would set a limit of $50,000 ($100,000 for a couple) that a farmer could receive.

Johnson and Grassley said their legislation would also “close long-abused and well-documented loopholes in the farm payment program” by setting a measurable standard for someone to qualify as actively engaged in farming by providing management for the operation.

KNOW YOUR FARMER SITE DEBUTS

The U.S. Department of Agriculture has unveiled the Know Your Farmer, Know Your Food Compass, an interactive web-site that shows how the agency is supporting local food systems. The web site is a companion to the USDA’s Know Your Farmer, Know Your Food initiative, which was designed to coordinate USDA resources and expertise on local and regional food systems.

Visitors to the site can see an interactive U.S. map which shows how the agency has worked with local business and producers. Areas covered include Local Food Infrastructure, Farm to Institution, Careers in Agriculture, Stewardship and Local Foods and Healthy Food Access. Each portion of the map is searchable by theme.

“By encouraging all Americans to know their farmer, USDA is helping consumers learn more about agriculture and the people producing your food,” said Deputy Secretary Kathleen Merrigan. “The Know Your Farmer, Know Your Food initiative helps farmers and ranchers tap into a vibrant, growing market opportunity. And it’s also stimulating a broader national conversation about where our food comes from and how important agriculture is to our country.”

For more information: www.usda.gov/knowyourfarmer.

WIND RESOURCE PROGRAM AVAILABLE FOR FARMERS

Saint Francis University Renewable Energy Center has grant money available from the U.S. Department of Agriculture to assist farmers and small businesses in Pennsylvania to determine the feasibility of wind energy on their property.

The program will use wind maps and other factors to draw conclusions on the viability of wind energy in a particular location. Preliminary reports developed through the project will help landowners and installers with the next phases of a wind energy program. The grant is free to qualified landowners throughout Pennsylvania. To learn more about the program call (814) 472-2872 or visit: www.francis.edu/communitywindHome.htm.

CONGRESS MUST APPROVE RUSSIA PNTR

After 18 years of trying, Russia is finally joining the World Trade Organization. But for this to make an impact in the United States, Congress must first vote to give Russia permanent normal trade relations status.

“We have an old law going back to the Cold War days which requires the United States to grant something called permanent normal trade relations before the United States can take advantage of Russia joining the WTO,” explained Dave Salmonsen, the American Farm Bureau Federation’s trade specialist, in a Newsline radio report. The requirement stems from Russia formerly being a communist country.

Until Congress approves PNTR, other WTO member nations will have better negotiating power with Russia than the U.S. Congress passed the same provision in 2000 when China entered the WTO. U.S. trade with Russia in farm goods has been increasing and is currently valued at $1.4 billion per year, primarily in meat products. For many years Russia was the largest U.S. export market for poultry and also a significant buyer of pork and beef.

RISING AGRICULTURAL PRICES COULD DRIVE INVESTMENT

Rising prices for agricultural commodities could have a silver lining, according to Paul Bulcke, CEO of Nestle, the world’s biggest food manufacturing company. As incomes and demand for high quality foods increase, he said, so will interest in investing in agricultural research and infrastructure.

“Prices are getting to a level that may result in an effect that is positive for food production,” Bulcke said in an interview on Bloomberg Television. “People are motivated again to be in agriculture.”

NEW CHERRY TREE HIGHLIGHTS 100TH ANNIVERSARY OF JAPANESE GIFT

USDA has released a new cherry tree variety named for former first lady Helen Taft to commemorate the 100th anniversary of the Japanese gift of cherry trees that now are a celebrated landmark of the nation’s capital. Helen Herron Taft and Viscountess Iwa Chinda, wife of the Japanese ambassador, planted the first two cherry trees at
the Tidal Basin in a ceremony on March 27, 1912. The “Helen Taft” variety is part of a series of flowering cherry trees being developed by the U.S. National Arboretum in Washington and named in honor of first ladies. The new variety was created by crossing a Yoshino cherry (Prunus × yedoensis) with a Taiwan cherry tree (Prunus campanulata). The Yoshino parent, currently growing at the arboretum, is a clone of a tree originally planted by Chinda.

The arboretum is part of the Agricultural Research Service, USDA’s principal intramural scientific research agency. Global agricultural output must rise 70 percent by 2050 to keep up with demand, according to the United Nations Food and Agriculture Organization.

The horticultural performance of ‘8S6923’ (Aurora Golden Gala™) apple on M.9 EMLA and V.1, V.2, V.3 and V.4 (Vineland) rootstocks was evaluated for 8 years in Summerland, B.C., Canada. The trees were planted in 2003 and trained as vertical axes on a post and wire trellis. Tree vigor fell into three groups based on trunk cross-sectional area, where V.4 > V.1, V.2 > V.3, M.9 EMLA. Trees on V.4 were also significantly taller and had wider canopies than trees on the other rootstocks. No tree mortality occurred. The cumulative number of root suckers on V.1, V.2 and V.3 was significantly lower than on V.4 or M.9 EMLA. Precocity (based on counts of flower clusters in the second leaf) was highest for M.9 EMLA, whilst trees on V.4 had no blossoms at all. The latter finding is noteworthy because the scion cultivar is normally extremely precocious. Cumulative yield was proportional to tree size. Cumulative yield efficiency was highest for V.3 and M.9 EMLA. In comparison to M.9 EMLA, V.3 was similar in most respects, and it produced fewer root suckers, but it did reduce scion fruit size by about 5%. V.1 and V.2 were both semi-dwarfing under the conditions of this trial, and they also reduced fruit size slightly relative to M.9 EMLA.

(From J. Amer. Pom. Soc. 66:23)
Catherine Lara Joins the Penn State Extension Tree Fruit Team

The Penn State Extension Tree Fruit Team welcomes Catherine Lara as the new Penn State Extension Specialty Crop Innovations Program Manager and Young Grower Alliance (YGA) Coordinator. Her specialty crop extension role includes assisting with collaborative extension and applied research programming on innovations for tree fruit crops. She also works with specialty crop demonstration trials on increasing production efficiency, socio-economic sustainability, on-farm energy efficiency and environmental stewardship. As YGA Coordinator, she facilitates a program to bring in a new generation of horticulturists from diverse backgrounds. She will coordinate tours and workshops for YGA and Spanish sessions at the Mid-Atlantic Fruit and Vegetable Convention and other programs.

Catherine is a 2008 graduate of Shippensburg University, where she earned a BS in Biology with a concentration in Ecology and minored in Spanish. Previous experience includes four seasons as an environmental education specialist with Pennsylvania State Parks. She looks forward to working with the orchard industry and both veteran and new fruit growers.

Effects of Climate Change on Pome Fruit Phenology and Precipitation

By M. Blanke & A. Kunz

Meteorological data more than 50 years (1958-2010) from the University of Bonn, Klein-Altendorf research centre’s own weather station, including air and soil temperature as well as precipitation, were analysed for climate change effects. Phenological data over 50 years on hand-written filing cards were calendar dates of full bloom, harvest and leaf drop, as well as late frost and consequent yield loss, for a range of apple and pear cultivars, using only bearing fruit trees at the time. This implied (i) the use of several generations of fruit trees/orchards and (ii) use of original pome varieties, which existed as bearing trees since 1958, and were replanted after the orchard had been grubbed; the error rate in the 18,000 air temperature data was 0.77% and corrected where possible. Analysis and correlation of the meteorological data from the last 50 years showed two distinct climate phases in Klein-Altendorf: an early 30 year period (1958-1987) with a temperature of -0.4°C below the long-term, 50-year average of 9.4°C; followed by a ca. 20 year period of a +0.6°C temperature rise (1988 to date). A comparison of the phenological data of phase II (1988 to date) with phase I (1958-1987) showed 4 days earlier full bloom, but only 2 days earlier harvest without change in leaf drop date. This resulted in a 2 days longer fruit development - despite the warming - for cultivar ‘Cox’s Orange Pippin’ at Klein-Altendorf. This may be explained by temperatures exceeding the optimum for photosynthesis of pome fruit and leaves. A European comparison showed Klein-Altendorf to have the oldest combined phenology and weather data and the latest apple flowering (F1 of cultivar ‘Golden Delicious’), except for Gembloux in Belgium, where phenology records started in 1985. There was no change in the amount of annual precipitation of 594 mm in Klein-Altendorf over the 50 years of observation and records, but the relative distribution changed slightly from ca. 50 mm less precipitation in the summer during the fruit growing period to spring, with possible drought stress in summer (July) resulting in e.g. smaller fruit size.

(From Acta Hort. 922:381)
Twilight Meetings for Fruit Growers

Tuesday, May 8—Lancaster/York Co.; Contact Tim Elkner, tee2@psu.edu

Wednesday, May 9—Adams County; Contact Tara Baugher, tab36@psu.edu

Thursday, May 10—Franklin County; Contact Tara Baugher, tab36@psu.edu

Wednesday, May 16—Western PA; Contact Bob Pollock, rcp3@psu.edu

Thursday, May 17—Erie County; Contact Andy Muza, ajm4@psu.edu

Tuesday, May 22—Appalachian Growers, Bedford; Contact Tom Ford, tgf2@psu.edu

Wednesday, May 23—Susquehanna Meeting; Contact John Esslinger, cje2@psu.edu

Wednesday, May 24—Southeastern PA Meeting; Contact Rick Kaufmann, rsk5@psu.edu

Tuesday, June 5—Tri-State Meeting; Contact Tara Baugher, tab36@psu.edu

Program Highlights

- Disease, Insect, and Weed Control Strategies Following the Challenging 2011 Season
- Maintaining an Effective IPM Program while Controlling New Fruit Insect Pests
- Cropload Management Principles for Consistent Fruit Size and Quality

Times, locations, and pesticide license certification information available from contact person in each region.

This publication is available in alternative media on request.

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For the 3rd year, the U.S. Apple Association hosted the “Young Apple Leader Program.” Two individuals from the primary apple growing states are selected to represent their respective state at legislative meetings as well as U.S. Apple Association’s annual committee meetings.

I had the privilege of being part of the 2012 class of Young Apple Leaders, a melting pot of 15 young industry leaders from all around the country.

We attended a reception on Wednesday evening hosted by U.S. Apple Association, their board members and staff. It was quite a large group, but a great way to set the stage for our Washington, D.C. visits. It was exceptionally helpful to put names with faces and to further develop our personal relationships with the seasoned members of the apple industry.

Thursday began with an “Industry Issues,” breakfast that gave a briefing of what we should expect during our Capitol Hill visits, along with important talking points and main issues of concern. Some of those issues included AG Labor, Chinese imported apples, MAP Funding and the 2012 Farm Bill. My group met with Legislative Assistants for Senator Toomey and Representative Holden. We met directly with Representative Todd Platts. I couldn’t help but be in awe as I was walking from the Senate to the House of Representatives buildings. It was truly an honor to be in the heart of our country’s government.

The overall tone for our legislative meetings was very positive and extremely supportive for the agricultural industry as a whole. However, we were told more than once that any issue of great significance will most likely not be resolved in an election year. It is expected that some of the gridlock will shift once the presidential election concludes in November 2012. We were encouraged to keep scheduling meetings and voicing our concerns. If our representatives do not have a constant reminder of our issues and challenges, they risk being lost in the shuffle.

I believe that Capitol Hill Day is an opportunity for individuals to make a difference for all of agriculture. It leaves you with a renewed sense of hope that change will come, albeit slow. At the very least, it leaves you with a great appreciation for all the people working night and day for your business.

Thank you to Nancy Foster, Diane Kurrle, Mark Gedris and the rest of U.S. Apple’s staff and board for your hospitality, your patience and for your willingness to share your vast knowledge of agricultural policies.

Thank you to Ken Guise and Knouse Foods Cooperative for your sponsorship. Lastly, thank you to all the senior members of the apple business, the incoming freshman really appreciated you showing us how it’s done!

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The Young Grower Alliance (YGA) held their first orchard tour this season in scenic Bedford County visiting Ridgetop and Boyer’s Orchards. With over 30 young growers attending, the Boyer family opened up their orchards to show their success, struggles and innovations developed over generations of fruit growing. Nestled on top of Chesnut Ridge, Ridgetop Orchard and Boyer’s Orchard sit at a 1200 to 1800 ft elevation with a 4 to 6 degree difference throughout the orchards, an Elliber soil with a unique water holding capacity and large hills as far as the eye can see.

The tour began at Ridgetop Orchard which grows 400 acres of apples for packing, peaches for the retail store and cherries for U-pick. Dan, Lois, Seth and Mark Boyer showed off their various blocks of high-density Honeycrisp, Gala, Red Delicious and Penn State Conservation Innovation Grant (CIG) plantings. Their Honeycrisp/M.9 are planted at 4x14 growing 9 ½ to 10 ft tall. Mark explained that although Red Delicious will reach over 1000 bushels/acre this is not a goal of theirs for Honeycrisp due to the observation that bitter pit is avoided with careful crop load management. Young Growers learned about the importance of supporting trees top to bottom in a high density orchard where tops of trees often flop over or get broken, an issue Justin Weaver of Weaver’s Orchards said he has had to deal with. Although high yields are a goal of high density plantings it is quality over quantity that is of importance for Ridgetop Orchard. Gala is a particularly strong apple at Ridgetop with some planted at 3x14 with a top 9 to 10 ½ ft wire. Dad, Dan Boyer, mentioned an older Honeycrisp/B9/M9 planting at 3x12 which he says taught him that “3 feet is too tight to get adequate color on Honeycrisp,” although son Seth says he would consider “3x12 if [he] had irrigation.” Several years ago, cicada taught them about the importance of supporting trees. This is one aspect Young Growers learned about while seeing the Penn State CIG block at Ridgetop which is one acre of high density trellised Cameo and Honeycrisp planted at 4x14 with a 9 ft top wire. Dr. Rob Crassweller, Professor of Tree Fruit at Penn State, explained the various ways to train trellised trees to optimize sunlight interception and how effective a dutch cut can be for lateral growth.

Before heading over to neighboring Boyer’s Orchard, Young Growers saw the 18 acre planting of pick-your-own cherries which is “like a hobby” for Dan Boyer who mentioned that Jubileum was their most popular variety.

Young Growers enjoyed a delicious lunch at the Boyer’s Retail Market where conversation led to the new information available on calibrating sprayers and the importance of not depending on the face value of pressure gauges. Many growers chimed in from experience after

continued on page 15
learning the same thing at the Extension Winter Tree Fruit Meeting. With only a few hours to go Young Growers headed to see the operations at Boyer’s Orchard. Many thanks to Ellen and Janet for the delicious barbecue lunch!

Boyer’s was turned into a partnership LLC in 1989 when Bruce and Matt Boyer decided it was time to plan ahead and prepare for the next generation of growers, their sons Wes, Sam and Ben. They grow close to 300 acres of apples, pears and peaches with the majority going to packing at Hess Brother’s in Lancaster and the remaining sold at their retail store in Bedford County. The Boyer’s land used to be loaded with American chestnuts but is now all planted with fruit trees, gradually transitioning to high density, high wire, conduit plantings. Matt’s son Sam showed the YGA group around the various plantings of Mac, Gala, Honeycrisp, Red Honeycrisp, Red Delicious, and Cortland in a particularly interesting plot planted using a ‘NY Method.’ While the majority of the orchard is staked with steel, fiberglass, or conduit, it is this NY Method that they would like to see their orchards transition to. This trellis method has high tensile wires at 1 ½ ft and 9 ft, and a vertical 12 ½” gauge wire at each tree for leader support. The Boyer’s have planted Scarlett Spur and Red Delicious in this manner. While many NY State high density growers use this method it is still uncommon to see in PA orchards. Young Growers were intrigued to see this method implemented, especially after seeing the other ways Ridgetop and Boyer’s support their trees. Sam Boyer mentioned through their ups and downs of figuring how to best support trees “you can’t afford to do it right the first time, but you can the second time,” and hopes the NY Method will be effective. Most new plantings at Boyer’s are going in at 4x14 with older plantings at 16, 18, and 20 feet and even a few dense three row experiments where there were simply too many trees, not enough land. Their Bartlett pears have not fared well due to Fire Blight last year but the Boyer’s seem optimistic about the upcoming season.

Young Growers on this tour really got to see the dynamics of multiple generations on an orchard. With Dan, Matt and Bruce showing how things have been done to sons/cousins Seth, Mark, Wes, Sam and Ben never missing a beat to explain the progressions the orchards have taken and will continue to take. Catherine Lara, YGA Coordinator, commented that “Both families shared a tremendous amount of knowledge on how to effectively implement high density plantings. Learning from the trials and triumphs of other growers is what makes YGA tours a success. YGA members understand the value of learning, not only from one another, but also from other growers. That’s why several tours like this one are planned each season.” On behalf of all YGA members, another THANK YOU to the extended Boyer family for hosting a wonderful tour, delicious breakfast and lunch and sharing priceless information and experiences with young growers. Look out for another YGA tour heading to Chester County in May! For more information on the Young Grower Alliance, contact Catherine Lara at cyl1@psu.edu or 717-334-6271, ext. 331.
Orchard management practices, such as destroying of overwintered inoculum and limiting the number of fungicide applications, are often recommended as tactics for slowing the development of resistance to sterol demethylation-inhibitor (DMI) fungicides in populations of *Venturia inaequalis*. However, there is little quantitative evidence relating the use of such practices to levels of resistance in orchards. The aim of this study was to evaluate the sensitivity of *V. inaequalis* isolates from Pennsylvania to DMI fungicides, and to identify orchard management factors related to the incidence of resistant isolates. In total, 644 single-spore *V. inaequalis* cultures obtained from 20 apple orchards in 2008 or 2009 were tested for sensitivity to myclobutanil, (Rally) fenbuconazole (Indar), or difenoconazole (Inspire). Growers provided management history of the sampled plots. Widespread shifts toward resistance to the three fungicides were noted, with mean effective concentration for 50% inhibition (EC$_{50}$) values of 2.136, 0.786, and 0.187 µg/ml for myclobutanil, fenbuconazole, and difenoconazole, respectively. Cross resistance to the three fungicides was documented in high correlation (Spearman’s ρ>0.6) between mean EC$_{50}$ values for 14 orchards. Based on a 0.5-µg/ml threshold, 66 and 26% of isolates were resistant to myclobutanil and fenbuconazole, respectively, and 22% were cross resistant to the two fungicides. A significant between-year shift toward increased resistance was noted in two of three orchards surveyed in both years. Failure to use dormant copper sprays, older trees, larger orchards, orchards with ≤10 cultivars, and application of >4 DMI sprays were positively correlated (0.0001<P<0.05) with the incidence of resistant isolates. Isolates from orchards with >4 DMI sprays were four times as likely to be resistant to fenbuconazole (odds ratio=4.57; P=0.015). Isolates from orchards without dormant copper sprays were twice as likely to be cross-shifted toward resistance to all three fungicides (odds ratio=1.76; P=0.048). Results identify management practices that can reduce the risk of *V. inaequalis* developing resistance to DMI fungicides.

(From Phytopathology 102:272)
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The University of Arkansas blackberry breeding program began to focus on primocane-fruiting (PF) breeding in the mid 1990s, and has expanded this effort since then. Cultivars released since then include ‘Prime-Jan’® (‘APF-8’), ‘Prime-Jim’® (‘APF-12’) in 2004 and ‘APF-45’ in 2009. Immediate challenges in breeding were seen, the most significant was heat damage to primocane flowers and fruits in Arkansas, along with development of commercially acceptable fruit size, quality, and plant productivity. One of the most striking observations made in the early 2000s was that the selections ‘APF-8’ and ‘APF-12’ performed much better in the more moderate climate of the Willamette Valley of Oregon. They had larger, more plentiful fruits, and overall plant performance was superior in Oregon to that in Arkansas. Fruiting began later compared to Arkansas, with mature fruits present from early September to late October. This striking environmental effect indicated that advances in PF breeding could benefit from multi-location testing and breeding. Expanded locations for PF genotype trials have further supported this observation. Near the time of release of ‘Prime-Jim’® and ‘Prime-Jan’®, it was evident that innovative cultural management of these genotypes would be required to provide for commercially acceptable yields. The initial studies conducted by Oregon State University indicated that tipping of primocanes was required to manage cane height and increase yields. Subsequent work evaluated tipping heights, mowing of canes to adjust the fruiting season, and high tunnel production and resulted in substantial yield increases and extension of the fruiting season. The combination of research in breeding, testing in diverse climates and locations, and development of cultural management systems has resulted in the beginning of commercial PF blackberry production in the USA. Further research and expanded commercial acreage will likely enhance precision timing of extended-season and off-season production.

(From Acta Horticulturae 926: 387)
Rootstock-regulated Gene Expression Patterns Associated with Fire Blight Resistance in Apple  
By P. Jensen et al.

Background: Desirable apple varieties are clonally propagated by grafting vegetative scions onto rootstocks. Rootstocks influence many phenotypic traits of the scion, including resistance to pathogens such as *Erwinia amylovora*, which causes fire blight, the most serious bacterial disease of apple. The purpose of the present study was to quantify rootstock-mediated differences in scion fire blight susceptibility and to identify transcripts in the scion whose expression levels correlated with this response. Results: Rootstock influence on scion fire blight resistance was quantified by inoculating three-year old, orchard-grown apple trees, consisting of ‘Gala’ scions grafted to a range of rootstocks, with *E. amylovora*. Disease severity was measured by the extent of shoot necrosis over time. ‘Gala’ scions grafted to G.30 or MM.111 rootstocks showed the lowest rates of necrosis, while ‘Gala’ on M.27 and B.9 showed the highest rates of necrosis. ‘Gala’ scions on M.7, S.4 or M.9F56 had intermediate necrosis rates. Using an apple DNA microarray representing 55,230 unique transcripts, gene expression patterns were compared in healthy, un-inoculated, greenhouse-grown ‘Gala’ scions on the same series of rootstocks. We identified 690 transcripts whose steady-state expression levels correlated with the degree of fire blight susceptibility of the scion/rootstock combinations. Transcripts known to be differentially expressed during *E. amylovora* infection were disproportionately represented among these transcripts. A second-generation apple microarray representing 26,000 transcripts was developed and was used to test these correlations in an orchard-grown population of trees segregating for fire blight resistance. Of the 690 transcripts originally identified using the first-generation array, 39 had expression levels that correlated with fire blight resistance in the breeding population. Conclusions: Rootstocks had significant effects on the fire blight susceptibility of ‘Gala’ scions, and rootstock-regulated gene expression patterns could be correlated with differences in susceptibility. The results suggest a relationship between rootstock-regulated fire blight susceptibility and sorbitol dehydrogenase, phenylpropanoid metabolism, protein processing in the endoplasmic reticulum, and endocytosis, among others. This study illustrates the utility of our rootstock-regulated gene expression data sets for candidate trait-associated gene data mining.  
(From BMC Genomics 13:1471)

Effects of Drip Irrigation Configuration and Rate on Yield and Fruit Quality of Young Highbush Blueberry Plants  
By D. Ehret, B. Frey, T. Forge T. Helmer and D. Bryla

A 4-year study was conducted to establish the effects of drip irrigation configuration and rate on fruit yield and quality of young highbush blueberry plants (*Vaccinium corymbosum* L. ‘Duke’). Plants were grown in a silt loam soil on raised beds and were non-irrigated or irrigated using either one or two lines of suspended drip tape. Each line configuration had in-line emitters spaced every 0.3 or 0.45 m for a total of four drip configurations. Water was applied by each drip configuration at two rates, a moderate rate of 5 L/plant per irrigation event, and a heavy rate of 10 L/plant. The frequency of irrigation was guided by measurements of soil matric potential. Irrigation was applied each year, and plants were cropped beginning the second year after planting. Rainfall was above normal in the first 2 years of the study, and differences in soil moisture were most evident in the last 2 years, in which soil matric potential increased with irrigation volume. Neither the number of irrigation lines nor emitter spacing had an effect on yield or fruit quality. Yield was unaffected by irrigation rate until the fourth year after planting and was only higher when 5 L/plant was applied. The yield increase was the result of differences in fruit weight during the second of two harvests and was associated with delays in fruit maturation. Irrigation affected plant mineral concentrations but leaves and berries responded differently; affected minerals tended to decrease in leaves but increase in the fruit. Many irrigation-induced changes in fruit quality were evident 1 or 2 years before changes in yield. Higher irrigation volume increased fruit size and water content but reduced fruit firmness and soluble solids. Irrigation reduced fruit water loss during storage and thereby promoted longer shelf life. Irrigation also resulted in a change in anthocyanin composition in the fruit but did not affect antioxidants or total anthocyanin content.  
(From HortScience 47:414)
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Successes and Challenges With Adoption of Whole Farm Mating Disruption Programs by Commercial Fruit Growers in Eastern United States - a Pennsylvania Perspective

By G. Krawczyk, L. Hull & M. Reed

Codling moth (CM) and Oriental fruit moth (OFM) continue to be the most serious insect threats to the profitable production and sale of fruit in Pennsylvania. The Whole Farm Mating Disruption (WFMD) program started in 2006 as an effort to assist growers through practical process of integrating mating disruption (MD) into their established pest management programs. During the 2009 season 21 growers from 11 counties across Pennsylvania took part in the WFMD program. All growers marketed their produce through retail markets such as roadside stands or farmers markets. The MD products in apple orchards included: CheckMate® CM/OFM Duel and Isomate® CM/OFM TT. Mating disruption materials in peach blocks included: Disrupt OFM® mats, CheckMate OFM, and Isomate M-100. In apple orchards growers monitored codling moth, Oriental fruit moth, tufted apple bud moth, obliquebanded leafroller, dogwood borer, and apple maggot while in stone fruit also lesser peach tree borer, and peach tree borer. Pest management decisions were based upon local pest populations determined by insect monitoring and fruit evaluations. In-situ fruit evaluations were conducted twice per season, once during mid-season (summer) and again at harvest (fall). Although the number of fruit evaluated per orchard varied, at least 5 blocks and 4×100 half fruit (400 per block/cultivar) were evaluated in each orchard during each fruit injury assessment. The control of the CM/OFM complex was outstanding in the majority of orchards, although in some isolated orchards, unexpected outbreaks of secondary pests, such as plum curculio and various stink bug species caused some economic injury. On average, growers participating in the WFMD program reduced the number of insecticide applications and the total amount of used insecticide active ingredients by 40 to 75 percent.

(From Proc. IOBCWPRS Working Group)

Comparison of the Effects of Metamitron on Chlorophyll Fluorescence and Fruit Set in Apple and Peach

By S. McArtney, J. D. Obermiller, C. Arellano

The effects of foliar applications of the photosystem II (PSII) inhibitor metamitron on chlorophyll fluorescence and fruit set were compared in peach and apple trees. Metamitron increased dark-adapted chlorophyll fluorescence, measured as a reduction in Fv/Fm values, in both peaches and apples. Maximum suppression of the normalized ratio of variable fluorescence to maximum fluorescence (Fv/Fm) in peaches occurred 1 to 2 days after application and Fv/Fm values recovered by 7 days after treatment. The effects of metamitron on chlorophyll fluorescence were more persistent in apples compared with peaches. Fv/Fm values in apple declined within 2 days of treatment and did not start recovering until 5 days after treatment or longer. Concentrations of metamitron greater than 200 mg·L⁻¹ were phytotoxic to peach leaves, reducing the leaf chlorophyll concentration as determined by SPAD measurements. At 300 mg·L⁻¹, metamitron reduced fruit set in apple but not in peach. Inclusion of a non-ionic surfactant (Silwett L-77) with metamitron greatly increased its negative effect on Fv/Fm, quantum photosynthetic yield of PSII (ΦPSII), and relative electron transport rate (ETR). These results suggest that metamitron may be a useful thinner in apple but not in peach. Additional information is needed to understand how combining metamitron with existing thinning chemicals might enhance their activity. In particular, caution may be necessary if metamitron is applied as a tank mixture with commercial thinning products that have been formulated with a wetting agent.

(From HortScience 47:509)
The accurate prediction of winter injury caused by low-temperature events is a key component of the effective cultivation of woody and herbaceous perennial plants. A common method employed to visualize geographic patterns in the severity of low-temperature events is to map a climatological variable that closely correlates with plant survival. The U.S. Department of Agriculture Plant Hardiness Zone Map (PHZM) is constructed for that purpose. We present a short history of PHZM development, culminating in the recent production of a new, high-resolution version of the PHZM, and discuss how such maps relate to winter hardiness per se and to other climatic factors that affect hardiness. The new PHZM is based on extreme minimum-temperature data logged annually from 1976 to 2005 at 7983 weather stations in the United States, Puerto Rico, and adjacent regions in Canada and Mexico. The PHZM is accessible via an interactive website, which facilitates a wide range of horticultural applications. For example, we highlight how the PHZM can be used as a tool for site evaluation for vineyards in the Pacific northwestern United States and as a data layer in conjunction with moisture-balance data to predict the survival of Yugoslavian woody plants in South Dakota. In addition, the new map includes a zip code finder, and we describe how it may be used by governmental agencies for risk management and development of recommended plant lists, by horticultural firms to schedule plant shipments, and by other commercial interests that market products seasonally. To see the new map go to http://planthardiness.ars.usda.gov/PHZMWeb/

(From HortTechnology 22:6)
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