

FACTS FOR *Fancy Fruit*



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Crop Conditions:

Grapes are ripening and harvest has begun for early varieties in the south. Primocane bearing red raspberry harvest continues and pressure from spotted wing Drosophila is very high. Harvest of early apples is complete and Gala harvest is underway in NW Indiana.

Late Season Insect Management in Apples :

Most apple growers are harvesting some of their earlier varieties now. Once you start harvest, it's easy to focus more on the fruit that you are finished growing than the fruit that still have some time in the orchard. After all of the time and money you've already invested in those main season and later varieties, don't neglect them now. We are past the peak for European red mites, so if you have not yet had a problem, you probably won't. On the other hand, this week I have seen a small surge in the number of codling moths I am catching in my pheromone trap. Be sure that you continue to check your traps and take appropriate action as necessary. Also, you should continue to regularly scout your orchard for other pests, such as leafhoppers and stink bugs, both of which we have seen some problems with recently.
(Foster)

Spotted Wing Drosophila Update:

We continue to see low to moderate populations of spotted wing drosophila around the state. In places where we were catching upwards of 800 flies per week in 2013, we are catching less than 100 this year. Other traps are catching in the single digits in some weeks. Untreated small fruits are showing maggot infestations, but SWD are not nearly as plentiful as they were in 2013. Most small fruit growers are on a regular spray schedule and are getting good to excellent control. I'm not sure why populations are lower this year. It could be the result of the cold winter, cool temperatures, or because growers are doing a better job spraying. Growers should remain vigilant as long as your crop continues to produce.
(Foster)

Green Stink Bugs:

When the brown marmorated stink bug entered the state, one of the thoughts was that it would outcompete our native stink bugs and they native would diminish in numbers. Wrong! We are seeing more green stink bugs this year than we have ever seen before, and the brown marmorated stink bug is apparently less serious than in the past couple of years. Green stink bugs have always been a minor pest of many crops

including tree fruits and fruiting vegetables. If you are noticing apples with dimples or small holes in them, you should look for the presence of stink bugs. Products such as Actara, Calypso, and the pyrethroids have been shown to provide good control of stink bugs.
(Foster)

Brown Rot on...Apples?

For many of us across Indiana, we've received almost twice as much rain as normal. One of the many consequences of this is the unusual disease activity. At Meig's, we are seeing the beginnings of bitter rot, especially on HoneyCrisp, and an uptick of black rot. These were expected. What was not was the obliteration of Pristine by brown rot (Fig. 1).

In the course of my career, I've only encountered brown rot as a sole cause of disease on apples once before—and it was *Monilinia laxa*, which causes European brown rot, and it happened in Minnesota. Most of the time, brown rot is associated with injury (often bird injury). This was not the case in the fruit examined, although insect injury could not be entirely ruled out. Furthermore, the



Fig. 1

incidence of disease exceeded 20%. Symptoms and signs of brown rot on apples included brown spots that quickly expand throughout the fruit, followed by brown tufts of fungus (Fig. 2). These tufts produce thousands of spores (conidia).



Fig. 2

The disease triangle describes the interactions of a susceptible host, virulent pathogen, and conducive environment. This year, unusually wet weather, coupled with a susceptible host and inoculum, created a perfect storm. We don't expect to see this next year, but we will be keeping our eyes open. If you've seen this in your orchard, please drop me an email.
(Beckerman)

Grape Harvest 2015:

Grape harvest is just getting started in the southern part of the state. Most varieties are a bit ahead of normal this year. Fruit quality overall is very good despite the wet season. Black rot and anthracnose are the biggest problems in most areas. Spotted wing *Drosophila* has not become a problem in grapes yet this year, though they are prevalent in primocane fruiting red raspberries. Growers need to watch for SWD and decide if a late season spray is necessary. Bird damage is a widespread problem this year.

With wine grapes, all fruit of a given cultivar is typically harvested from the vineyard or block at a single time to coordinate winery activity and to reduce costs. It is important

Facts for Fancy Fruit is a newsletter for commercial and advanced amateur fruit growers. It provides timely information on pest control, production practices, and other topics likely to be of interest to fruit growers. All growers and interested persons are welcome to subscribe.

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to plan carefully so that the harvest date coincides with the optimum fruit quality.

Most vineyards have some degree of variability in soil type and drainage, sunlight exposure, wind, insect and disease pest, nutritional status, etc. These variations can result in large differences in fruit ripeness and quality. Fruit from different parts of the block, from adjacent vines, as well as from different parts of the same vine can vary. Much of the variability can be reduced with proper vineyard management.

As harvest nears, it is very important to monitor grape chemistry. Growers should sample weekly leading up harvest with a protocol to collect a representative sample of fruit from the entire vineyard. This can be a sample of 200 berries per block collected from vines randomly, but with emphasis on collecting berries from top, middle and bottom of clusters, and from exposed and shaded clusters. Some growers prefer to collect a sample of whole clusters rather than individual berries to capture the variability within clusters. Whatever approach is used, be sure to compare your sampling results to the actual final harvest juice parameters to determine the accuracy of your sampling. Most of the time samples tend to over estimate the level of fruit maturity.

Fruit quality is comprised of several factors, the most important of which are sugars, organic acids, and pH. Other factors such as phenolics and anthocyanins, and aroma and flavor

compounds can be very important to wine quality as well. And of course, freedom from rots is an important consideration. Unlike some other fruits, grapes do not continue to ripen after harvest. Consequently, it is important to harvest grapes at the peak of quality and with the desired parameters for the intended use.

Wine grape growers should have the ability to measure sugar content (with a refractometer), titratable acidity and pH (with a pH meter and burette). Equipment and supplies to measure these parameters can be purchased for about \$500. Each of these factors is important for determining proper harvest time, but none alone can accurately estimate overall fruit quality. It is the balance of sugars, acids and juice pH that is important to the wine maker. And of course, there are the subjective qualities of seed and skin maturity, tannins, anthocyanins, flavors, aromas, etc. The Berry Sensory Analysis method addresses evaluation of these more subjective factors such as skin, pulp and seed maturity. More needs to be done to adapt the method for use with our Midwest varieties, but as a descriptive tool, it can be an excellent way for growers to go beyond the basics of sugar, acid and pH.

Bird pecks, cracks from rain, and bee damage can lead to sour rot and its vinegar spoilage bacteria, (Fig 3). The vinegar (acetic acid) leads to high volatile acidity levels in the wine. Growers need to closely monitor for development of sour rot and take measures to reduce the spread by

managing fruit flies. Ultimately it may be necessary to develop a strategy to minimize harvest of rotted clusters. A pre-harvest walk through the vineyard block should identify any clusters with sour rot and those lagging in ripeness. In most cases, late clusters will never catch up to the rest and will only reduce the overall quality of the crop at harvest. Now is a good time to drop any undesirable fruit. Don't expect your harvest crew to sort as they pick. Go through beforehand and eliminate the guesswork.
(Bordelon)

Strawberry Fruit Bud Development:

June bearing strawberries are "short day" plants that set flower buds in response to short days. As we get into late summer, days shorten and strawberry plants respond by setting the flower buds that will result in the crop next spring. It is important to maintain appropriate nutrition and soil water status during this time. General recommendations are to fertilize strawberry fields with 20 to 50 pounds of actual nitrogen per acre. Nitrogen rates depend upon amount supplied at renovation and plant vigor. New fields with high vigor may not need additional nitrogen now, but older fields should benefit. Irrigation during this time is also extremely important, if rainfall has not been sufficient in your area. We suggest about 1 inch per week. Continue to irrigate strawberries through fall to assure a good crop next year.
(Bordelon)



Fig. 3 Bird pecked fruit

Grape Anthracnose:

With all the rain we've had in 2015 it is not surprising to see more disease problems than normal. One disease that is widespread this year is grape anthracnose, aka black spot or Bird's eye rot. There have been numerous reports from both commercial vineyards and home grape plantings. This disease is not uncommon, but is seldom widespread except in very wet years. All the rain we've had this year is making the disease worse than normal. In addition, the newer cold hardy grape cultivars from Minnesota appear to be highly susceptible to anthracnose. There are now several acres of Frontenac, Marquette and La Crescent planted in the state.

Anthracnose can infect all green grape tissues, (Fig. 4). Symptoms first appear early in the year on the first few internodes of new shoots. They are deep lesions with dark margins and a gray center. If the disease spreads to young tissue, it can distort and kill the shoot tips, giving the shoots a burned appearance. Leaf lesions often cause the leaf to distort and curl. Centers of the spots often fall out, leaving a shot-hole appearance. fig grape anthracnose The disease spreads to

developing berries. Berry lesions appear as a dark spot with a gray center, giving the disease its common name, Bird's eye rot. Bird's eye rot is mostly



Fig. 4 Grape anthracnose



Fig. 5 Birdseye rot

cosmetic, as it does not affect the eating or processing quality of the fruit, (Fig 5). Severe infection, however, can reduce vine vigor and yield.

Managing anthracnose can be relatively easy. The best control method is to apply a delayed-dormant application of liquid lime sulfur or Sulforix (calcium polysulfide). This fungicide effectively kills the developing spores (primary inoculum) at the beginning of the season and prevents the disease from becoming established. If this spray is missed and the disease becomes established, control is more difficult. Lime sulfur will burn tender foliage so it must be

applied just as buds are swelling, but before the leaves are exposed. After bud break mancozeb, captan and the strobilurin fungicides such as Abound or Sovran can provide some control and keep the disease from spreading. But the single application of lime sulfur usually provides nearly complete control. That's why it's important for growers with a significant problem this season to plan ahead for an early season fungicide application next year. (Bordelon)

Leaf Spots of Brambles:

The wet weather this year has led to an outbreak of two diseases in many plantings of blackberries and raspberries, raspberry leaf spot and Septoria leaf spot. These diseases cause small circular spots on leaves and can also infect developing fruit, causing dry drupelets, (Fig. 6) and (Fig. 7). As the season progresses, heavily infected canes may defoliate, leaving them in poor condition going into winter. It is not too late to manage this disease. Even late (post harvest) applications of fungicides should help maintain healthy foliage going into fall. The strobilurin fungicides (Abound, Cabrio, Pristine) provide good control of both diseases. These fungicides have a zero day PHI so can be used during harvest in primocane fruiting raspberries. (Bordelon)



Fig. 6 Raspberry leaf spot on fruit



Fig. 7 Raspberry leaf spot

Determining Apple Maturity:

Making the decision on when to harvest can be a very tricky and complicated issue. The longer you intend to store the fruit, the more precise your timing needs to be. For summer apples, most growers only intend to store fruit until their better quality fall apples come on stream, so storage times beyond a week or two are not that common. For example, very early season apples such as Lodi and Pristine should only be stored for a few weeks until Gala harvest begins. Even for fall apples, many Indiana growers aim to sell the majority of their crop immediately to the consumer, and try to be done by mid November or so. So since storage times are relatively short, harvest maturity is less important than for longer term storage. This being the

case, apples should be harvested when they are fully ripe. This will maximize their flavor, and although it reduces their storage potential, this is not too important for many direct market growers. There are various tests for measuring fruit maturity and degree of ripeness, but taking a bite out of a few apples will give a good enough indication for fruit being stored for short periods where flavor is important but storage life is not. Obviously this also applies to apples intended for U-pick.

Bear in mind that even in cold storage, fruit continue to ripen, just at a slower rate. Therefore, fruit intended for longer term storage should be harvested when they are less ripe. There is no single test that will give you the answer but factors such as calendar date, heat unit accumulation, fruit firmness, soluble solids concentration, starch content and ethylene evolution all give answers to a piece of the puzzle. As you can see, this gets complicated real fast. In fact, states with large apple industries have labs dedicated to performing these tests and measurements are fed into complex mathematical models to determine the optimum harvest time for fruit for long-term storage.

Beyond the taste test, if you are going to perform one test I suggest looking at starch index. As fruit ripen, enzymes convert starch in the fruit to soluble sugars, which explains why fruit become sweeter as they ripen. This test provides an estimate of how much of the starch in the apple has been converted to sugar. So in Figure 8, the

fruit with a rating of 0 (completely black) are full of starch and not ready to be harvested. The fruit with a rating of 6 have almost complete conversion of starch to sugar and are ready for immediate consumption. This test is quick, easy, and doesn't require expensive equipment. For more details look in Chapter 7 of the Tree Fruit Pest Management Handbook, ID-93, available at <http://www2.ca.uky.edu/agc/pubs/id/id93/id93.htm>

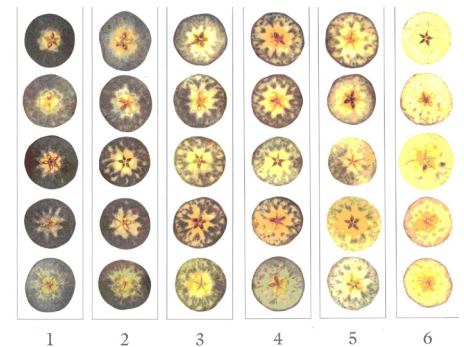


Fig. 8. Fruit start levels as indicated by staining with iodine

(Hirst)

Control Of Preharvest Drop with NAA:

Preharvest drop refers to the process where fruit fall from the tree prior to harvest. Not all apple varieties are affected, but with some, such as McIntosh and Pristine, pre-harvest drop can be extreme. Several growth regulator materials are available to growers to help reduce pre-harvest drop. These materials are often referred to as "stop-drop" or "sticker" sprays. The traditional material used to help prevent pre-harvest drop on apples is NAA (Fruitone N), a synthetic auxin. Other synthetic auxins you may have heard of include 2,4-D and 2,4,5-T. Of

course you also know Fruitone N as a chemical thinner. Early in the season NAA knocks fruit off the tree and later towards harvest it sticks them on. This highlights the importance of timing when using plant growth regulators.

Another newer stop drop material is ReTain (see articles by Schupp and Schwallier in this issue). Although both NAA and ReTain can reduce preharvest drop, they do this in different ways. ReTain delays apple maturity whereas NAA does not delay maturity (and may even hasten it) but just reduces the fruit dropping. As Dr Schupp highlights in his article, ReTain must be applied well ahead of the anticipated harvest date so a considerable amount of planning is required. NAA on the other hand needs to be applied just before apples start dropping, so in this regard can be viewed as a rescue treatment.

Once NAA is applied it takes about 3 days for the activity to kick in. After that you can expect about 7 days of drop control. Rates of 10-20 ppm are usually effective, but knowing exactly when to apply it can be tricky. If the application is made too soon, the effect may wear off before harvest is complete. If the NAA is applied too late, then too many apples will have dropped on the ground before the NAA starts having an effect. Wait until you start to see a few apples drop, and perhaps assist this by bumping a few branches and seeing if any apples drop. Then it's time to apply the NAA. Longer stop-drop control can be obtained with a split application, 10 ppm applied 7-14 days apart. NAA works best when

applied in slow drying conditions and when temperatures are warm (70-75F). Bearing this in mind, many growers apply their stop drop sprays early in the morning when there may be some dew on the trees and when temperatures are rising. Be aware that high rates of NAA (20 ppm) can advance fruit maturity.

NAA can be tank mixed and is compatible with a wide range of products. Always conduct a small test before mixing NAA with materials you haven't tried previously. Apply in enough water to ensure good coverage. (Hirst)

Timing Retain Sprays:

ReTain (AVG) is a plant growth regulator that blocks the production of ethylene. When ReTain is applied to apple, several ripening processes are slowed, including preharvest drop, fruit flesh softening, starch disappearance, and red color formation.

In order for ReTain to be effective it must be applied well in advance of the climacteric rise in ethylene production that signals the onset of fruit maturity. If applied too early the effects may wear off prematurely. If applied too late, a significant portion of the crop may not be responsive to AVG, having already begun to produce autocatalytic ethylene. A second reason for avoiding late applications of ReTain is the 21 day preharvest interval (PHI), which, combined with a late spray date could result in an undesirable delay in harvest.

The label recommends applying ReTain four weeks before anticipated

harvest (WBH). This has sometimes caused confusion, as the grower is timing the spray relative to some future, unknown date. A more scientific basis for timing would be to state that ReTain should be applied four weeks before the natural climacteric rise in fruit ethylene, but this is still a future event with an element of uncertainty. The good news is that there is a fairly wide window when ReTain can be applied with optimal results, and a fairly easy way to determine when to apply it.

The best application window for ReTain is about 10 days wide and centered on the 4 WBH date. For early season varieties, such as Gala and McIntosh, start by estimating when you would normally expect to begin harvesting the variety if no ReTain or ethephon (Ethrel, Ethephon II) were used. Now take into consideration the season. Adjust the anticipated harvest date according to how early or late you estimate the season is, then count back four weeks on the calendar. Now mark the calendar from that date through the next seven days. This is your application window for that early season variety.

Watch for good spray conditions with at least six hours drying time within that week and apply the material at the first opportunity. Congratulations! Your ReTain is on at the right time.

Now mark your calendar for 21 days after the spray was applied. This is the PHI, as required by the label. You can't legally harvest before this date.

Repeat the same thought process for later varieties, but keep in mind that

later varieties are usually less affected by seasonal variation in maturity than stone fruits or early apple varieties. It is usually unnecessary to account for seasonal variation in fruit maturity for Empire and later varieties.

(Dr. Jim Schupp, The Fruit Times, Penn. State University)

ReTain Use on Apples in Stress

Years:

ReTain is a very useful growth regulator on apples that has the following benefits. It will:

1. Delay fruit maturity of any variety.
2. Decrease fruit drop.
3. Improve the condition of treated fruit in storage.

ReTain needs to be applied 30 days before anticipated harvest to achieve the best results and highest effectiveness of the material. Full rate ReTain will delay maturity of most varieties seven to ten days and some very sensitive varieties up to 21 days. Gala and Jonagold are very sensitive to ReTain. Honeycrisp appears to be moderately sensitive and other varieties are less sensitive but still respond to the ReTain treatment. Some growers will use half rate on Gala, Jonagold and Honeycrisp because of the sensitivity, but realize that this also will reduce the response.

ReTain will delay harvest, reduce fruit drop, improve storage condition life and sometimes increase fruit size if the fruit hang long enough. The delayed maturity is very useful to pick-your-own operations. The delayed maturity

extends when varieties are available for customers to pick in excellent condition.

Large growers can use ReTain to help program harvest. For example, if a grower has large acreages of one variety like Red Delicious, then a portion of the Reds can be treated with full rate Retain to reduce drop and delay maturity. Another portion of the Reds could be treated with half rate to only slightly delay maturity. This will allow the picking to be more orderly, result in less drop and all the Reds will be picked in excellent condition.

ReTain is a helpful growth regulator with benefits to small and large growers. Time the applications 30 days ahead of anticipated normal harvest and then plan on picking treated fruit later than normal.

Stressful years: Apple trees under stress do not respond well to ReTain treatments. Hot, dry years seem to reduce the ReTain response. In those situations where trees' stress is a factor, consider not applying ReTain or use the higher rate. One third and half rate will not provide good results on stressed trees. ReTain is also more effective closer to the 28 days before harvest timing rather than the 30 to 35 days before anticipated harvest. (Philip Schwallier, Michigan State University)

Pristine™ apple:

Although Pristine™ was selected in 1982, its history goes back to the early days of the PRI breeding program. From an original cross of Rome Beauty with *Malus floribunda* 821, selections and hybridizations were made incorporating Golden Delicious, McIntosh, Starking

Delicious and Cazumat along the way. The cross that resulted in Pristine™ was Coop 10 x Cazumat made in 1974 at Rutgers University in New Jersey, and Pristine™ was selected at the Purdue Hort. Farm in 1982.

Pristine™ is a very early maturing apple – we've been harvesting them for about 2 weeks in West Lafayette. It is very attractive with a clean finish (see Fig. 9). For such an early apple, it has very good eating quality, certainly much better than other very early apples such as Lodi or Transparent. The texture is crisp and flavor has a good acid/sugar balance. If fruit are allowed to become over-mature, pre-harvest drop can be severe, but with timely pickings this should be a minimal problem. Fruit stores well for up to a month or so, but usually growers will probably only store the fruit until better quality, main season fruit comes along, such as Gala. Pristine™ has good field resistance to apple scab, and seems to have quite low susceptibility to fire-blight and powdery mildew. Russet and skin disorders are rare, but bruising can be severe so careful handling is required.

For direct marketers, Pristine™ may be a very good way to kick off the apple season, or to transition from peaches into apples. But only grow them in such quantities that you can have them sold by the time main-season apples are ready.
(Hirst)



Fig. 9 Pristine apple

Horticulture Producers Featured at Indiana State Fair:

The Indiana State Fair's theme this year is the "Year of the Farmer" presented by Dow AgroSciences. To honor and celebrate those who have committed their lives to innovation in agriculture, each day of the 17-day Fair will highlight a different farmer/farm family who represents a different element of Indiana agriculture. These farmers, who were selected in collaboration with Indiana agriculture stakeholders, will be featured on daily highlight sheets for the Fair as well as participate in various events and exhibits all around the Fair. "Farmers are the heroes of modern agriculture, and the people on this list are amazing role models for this essential industry," said Rajan Gajaria, Vice President, North and South America, Dow AgroSciences. "There is amazing variety in Indiana agriculture, which gives fairgoers a unique opportunity to learn more about the farmers who feed us all."

Horticulture producers featured include:

- Jerry and Paige, Jason and Alison McClure—Apples, produce, wine; Peru, Miami County; Wednesday, August 12.

- Maggie Goeglein Hanna—Urban farmer, Indianapolis, Marion County, Thursday, August 13
- Dean and Anita Stumler—Pumpkin; Fredericksburg, Washington County; Saturday, August 15
- David, Mary, Adam, and Aaron Howell—Tomato; Middleton, Delaware County; Thursday, August 20
- Larry Sr., Debra, Eric and Larry Jr. Wappel—Mint; San Pierre, Starke County; Friday, August 21
- Cathy and Ashley Richards, Produce; Greenwood, Johnson County; Saturday, August 22
- Ed Bell—Strawberries and fruit; Hagerstown, Wayne County; Sunday, August 23

Congratulations to all the farmers featured at the Fair this year!

Industrial Hemp Production Focus of Purdue Field Day:

The agronomic and economic potential of industrial hemp, as well as the legal issues surrounding its production, will be the focus of a Purdue Extension field day Aug. 25.

Hemp, one of the world's oldest cultivated crops, was once an important source of oilseed and fiber in the United States, where the hemp industry flourished for centuries until shut down by the Marihuana Tax Act of 1937. The 2014 Farm Bill legalized the growth of industrial hemp for research purposes, but the nearly 80-year freeze in hemp production has left information gaps on how to best produce the crop.

Purdue researchers have planted test plots of industrial hemp to help provide answers to basic questions of its production, such as the yields growers can expect, optimal soil conditions for hemp, which nutrients to apply, and how to identify and manage pests and diseases.

"This field day will allow the public to see hemp production firsthand - in one of the worst growing seasons in Indiana history," said Janna Beckerman, professor of botany and plant pathology. "We've used our present experience growing hemp and years of additional experience with other cropping systems to inform our production practices. What we have learned sometimes conflicts with the 'conventional wisdom' found on the Internet, but we invite people to come see for themselves."

The field day will be at the Meigs Farm, part of Throckmorton Purdue Agricultural Center. The farm is at 9101 S. 100 E, about 10 miles south of Lafayette.

Topics include how to plant hemp, pest management, harvesting, organic production of hemp, nutrient budgets and hemp's uses, (Fig. 10). The Indiana Industrial Hemp Association will also give a presentation. Two identical half-day sessions will be offered - the first running 8:15-11:30 a.m. and the second 1-4 p.m.

Industrial hemp production still presents a legal tangle for would-be commercial growers. The plant *Cannabis sativa* is regulated under both federal and state law and is considered a narcotic by the U.S. Drug Enforcement

Administration regardless of whether the variety is marijuana or hemp. While the Farm Bill modified federal law to allow licensed research institutions to grow industrial hemp and Indiana law changed in 2014 to allow hemp research, commercial hemp cultivation remains illegal.

But that will likely change, said Ron Turco, professor of agronomy and the assistant dean for agricultural and environmental research, (Fig 11). Beckerman and Turco co-lead the Purdue effort to obtain federal and state permits to grow hemp for research, as well as import and export permits from Canada, in anticipation of a future market for U.S. hemp. Also helping with the research are Kevin Gibson and Bryan Young of botany and plant pathology.

Hemp can be grown for its seed or fibers. The seed is a valuable source of oil and a good protein source for animal feed. The plant produces fine fibers suitable for textiles and rougher fibers that can substitute for fiberglass and building materials. The lower part of the plant consists of a tough material that can be used in products such as “hempcrete,” a cement mix that is strong, carbon dioxide-absorbent and recyclable.

The United States spends about \$38 million a year on hemp imports for fiber and seed from China and Canada, and the value of all U.S.-based hemp products is about \$600 million a year.

“Because of Purdue’s long history of working with biobased products, we are really well-positioned to be a leader

in helping to craft a market for hemp products,” Turco said. “We don’t yet know which varieties grow best or which soil conditions give the highest yields or the issues surrounding oil and fiber production. A lot of technical details still need to be worked out. But the fundamental research we’re doing will help provide quality information about the production and processing of industrial hemp.”

Turco emphasized that while hemp and marijuana are different varieties of the same species, hemp contains less than 0.3 percent tetrahydrocannabinol, or THC, the primary psychoactive ingredient chemical in marijuana. By comparison, marijuana can have THC concentrations of 18 percent to 38 percent.

“We need to eliminate hemp’s stigma,” he said. “It’s not marijuana. It has no psychoactive powers whatsoever.”

Space in the field day is limited, and registration in advance is required. The registration deadline is Aug. 19. The workshop costs \$20. To register, contact Lisa Green of the Purdue Crop Diagnostic Training and Research Center at 765-494-4783, lgreen06@purdue.edu.



Fig. 10 Industrial hemp pollinates prolifically. A slight tap can release a thick cloud of pollen from the plant.



Fig. 11 Purdue researchers Janna Beckerman and Ron Turco

Upcoming events





Jan. 19-21, 2016:

Indiana Horticultural Congress,
Wyndham Hotel, Indianapolis, IN
<http://www.inhortcongress.org/>

Please visit our Purdue HLA Extension website under the Events tab for further event details.

<https://ag.purdue.edu/hla/extension>

CURRENT CROP CONDITIONS IN WEST LAFAYETTE

<i>Grape</i>	<i>Red Raspberry</i>
	
<i>early veraison on Norton</i>	<i>harvest of primocane fruit continues</i>
<i>Gala Apple</i>	<i>Blackberry</i>
	
<i>Gala apple nearing harvest</i>	<i>harvest of primocane fruit continues</i>



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