



FFF 08-02
April 09, 2008

Crop Conditions:

Winter weather has been pretty mild in most parts of the state so we go into spring in pretty good shape. Little damage has been seen on peach buds, so careful attention to thinning this year will be critical. With a cool spring this year, crops are developing a little later than normal, with apples in West Lafayette just starting to show a little green. Last year at this time we were almost at full bloom. Obviously later tree development means we are at less risk of damaging spring frosts. Lower risk does not mean no risk, so we're not home free yet.

Managing Trees After Low Crops Last Year:

Apple crops were very low around the state last year, so in all likelihood trees were more vigorous than normal. This coupled with a mild winter means that trees are going into spring with the potential for very heavy flowering and heavy crops. What are the implications of this for growers? Well firstly, hopefully you're on top of your pruning and are finishing up with that task. Going into a heavy crop year

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is a good time for heavier than usual pruning if the trees warrant it. Maybe this is a good time for removing some of those heavy limbs from the tops of trees that shade the lower parts of the tree canopy. Secondly, plan to be aggressive with your thinning. Remember that over cropping the trees this year will compromise two years' crops, resulting in small fruit this year and poor return bloom next year. We'll have more on chemical thinning in the next issue of FFF. (Hirst)

2008 Spray Guides:

Most people should have received their 2008 spray guides. If you're a member of the Indiana Horticultural Society these come free with your membership. Both the 2008 Commercial Tree Fruit Spray guide (ID 168) and the 2008 Midwest Small Fruit and Grape Spray Guide (ID 169) are currently available. Please do not use previous versions of these spray guides as important changes have been made to the latest versions to keep them up to date. They are available from the Purdue Media Distribution

Center for \$5.00 (tree fruit) or \$6.00 (grape and small fruit). These can be ordered online at:

<https://secure.agriculture.purdue.edu/store/>

or call 1-888-EXT-INFO (1-888-398-4636)

We'll also have these for sale at various county extension meetings during the spring and summer. They can also be downloaded free from the publications page of the Fruit and Vegetable Connection website; <http://www.hort.purdue.edu/fruitveg>. (Hirst)

Pheromones and Pheromone Traps:

One way insects communicate with individuals of the same species is with pheromones. Pheromones are volatile chemicals released by an insect that usually can be detected only by individuals of the same species. There are a number of different types of pheromones, but the most common type is the sex pheromone. Usually the females will emit a tiny amount of a chemical that attracts the male to her and increases the likelihood of mating. Because the chemical is volatile, air currents carry it. The male detects the pheromone in the air with receptors on his antennae. He then flies upwind to find the source of the pheromone, a prospective mate. The chemical compositions of pheromones for a number of pest species have been identified and synthetic copies can be produced in the laboratory. Synthetic pheromones can be used in conjunction with traps to catch male insects.

There are a number of fruit pests that can be monitored with pheromone traps. For growers who have not used traps before, I suggest starting out by trapping for codling moth, spotted tentiform leafminer, or grape berry moth. As you gain experience with the traps and learn how they can improve your pest management practices, you may want to begin trapping for additional pests.

The proper timings for setting out pheromone traps for fruit pests are:

Pest	Begin Trapping
Spotted Tentiform Leafminer	April 1
San Jose Scale	April 1
Redbanded Leafroller	Green Tip
Oriental Fruit Moth	April 10
Codling Moth	Pink
Lesser Peachtree Borer	Late April
Obliquebanded Leafroller	Mid May
Peachtree Borer	Late May
Grape Berry Moth	Late May

Monitoring with pheromone traps lets you know when the insect is active. This allows you to better time control practices or, in some cases, to determine if control is even necessary. If you choose to control spotted tentiform leafminers with sprays targeted at the adults, having pheromone traps will help you know when the moths are flying in large numbers. For codling moth control, we can use a combination of pheromone trap catches and degree day accumulations to better time sprays. This will be covered in more detail in the next issue of FFF.

Listed below are some, but certainly not all, of the suppliers of pheromones and traps.

Gempler's; P. O. Box 270; 100 Countryside Dr.; Belleville, WI 53508; 800-382-8473; www.gemplers.com

Great Lakes IPM; 10220 Church Rd., NE; Vestaburg, MI 48891-9746; 989-268-5693; www.greatlakesipm.com

Scentry Biologicals Inc.; 610 Central Ave.; Billings MT 59102; 800-735-5323; www.scentry.com

Trece Incorporated; P.O. Box 129. 1031 Industrial St.; Adair, OK; 866-785-1313; www.trece.com

Just a few notes about using pheromones.

1. It is preferable to use more than one trap for each insect pest for which you are trapping. Sometimes for reasons we don't entirely understand, a trap placed at a particular location may not catch many moths, which could give you misleading information. If you have two or three traps, you can be a lot more confident in the results.

2. Pay attention to how frequently the lures need to be replaced. When you replace a lure, don't throw the old lure on the ground. If you do, it may compete with the lure in the trap and lower your trap catch.

3. If you are trapping for more than one insect, don't handle more than one type of lure with your bare hands. You can contaminate the lure with the other pheromone and it will lose effectiveness.

4. When monitoring for the clearwinged moths such as the peachtree borers, remember that these pheromones are not as species specific as most pheromones. Therefore, you may catch some moths that are not pests of fruit. So, you will need to identify the moths in the trap to make sure they are peachtree borers. (Foster)

Oil Sprays:

One of the first and most important parts of a good insect and mite management program is the application of an early season oil spray to control European red mites, San Jose scale, and several species of aphids. Scales overwinter on the tree as nymphs and European red mites and aphids overwinter as eggs. Because two-spotted spider mites do not overwinter on the tree, oil sprays are not an effective control measure for that species. Although scales, European red mite eggs, and aphid eggs may appear to be inactive, they are living organisms and, therefore, must respire, or breathe. The application of the oil creates an impervious layer over the pests that will not allow the exchange of gases, causing the pest to die of suffocation. We have seen a resurgence of San Jose scale in recent years in some orchards. If you had scales on

your fruit last fall, then a well-timed oil spray is highly recommended. Earlier oil sprays are more effective than late sprays for San Jose scale control.

Oil sprays should be applied between 1/2-inch green and tight cluster. Apply a 2% rate at the 1/2 inch green stage or a 1% rate at tight cluster. Oil sprays should not be applied during, immediately before, or immediately after freezing weather. For best results, apply when temperatures are 45°F or above, and not just before rain showers. Remember that oils are not directly toxic to the pests. They only work by suffocation. Therefore, the better the coverage, the better control you will receive. Our data have shown that mite control is improved if oil is applied at tight cluster rather than at 1/2 inch green.

One question that has arisen as a result of our research that showed that predator mites overwinter on the tree is: What effect will early season oil sprays have on predator populations? In other words, will the oil sprays kill the predators and create more serious European red mite populations? Our research showed that oil sprays, whether applied at green tip or tight cluster, had no detrimental effect on mite predators. Therefore, we recommend the use of early season oil sprays as a good management practice.

If you plan to use a preventive miticide (see the last issue of FFF) this year, a reasonable question to ask is: Is it still necessary to apply an early season oil spray? I believe that the oil application is still a good idea, for two reasons. First, it will provide control of aphids and scales, as well as European red mites. Secondly, I believe that the use of oil will reduce the likelihood of developing resistance to these miticides. Therefore, I still recommend oil sprays even if other miticides are going to be used. (Foster)

San Jose Scale:

San Jose scales seems to have been increasing in importance in recent years. This pest can infest apples, pears, peaches or plum. They can feed on leaves and limbs, causing loss of tree vigor, or on fruit, causing them to be spotted. Pheromone traps should be in place in problem blocks by April 1. You will need at least a 10X hand lens to see the adults in the trap. Once adults have been caught, start accumulating degree days and treat when 400 degree days (Base 51° F) have been accumulated. This should coincide with the presence of crawlers. Alternatively, you can trap for crawlers by wrapping black electrical tape with the sticky part out around infested limbs. Treatment should be made when crawlers are observed stuck in the tape.

If scales are a more important problem than mites, the Superior oil spray should be applied at green tip. Lorsban, Supracide, or Diazinon can be added to the oil spray to improve control. These products will also control aphids. Esteem will provide effective control any time between half-inch green and second cover. Use the low rate pre-bloom and the high rate if targeted at crawlers. (Foster)

Rosy Apple Aphids:

Rosy apple aphids can be the most devastating aphid pest of apples. Not only do they do direct damage by sucking plant juices, but they also inject a toxin that cause leaves to curl or fruit to be small or abort. Growers should scout for rosy apple aphids at pink. An insecticide application is justified if any are found. After petal fall, treatment should be made if 5 percent of the terminals or fruit clusters have live colonies. There is a long list of effective insecticides for control of aphids. Consult the 2008 Midwest Tree Fruit Spray Guide for details. (Foster)

Disease Management in Apples:

Spring is in the air, and soon, ascospores, basidiospores, and conidia will be as well-now is the time for disease management! The im-

portance of timing only increases as we enter tight cluster. Ascospores of the scab fungus are beginning to be released in central Indiana. Depending upon which part of the state you live (from central Indiana southwards) infection will be visible in the next two weeks if you haven't stayed on top of your spring sprays. The severity of infection will remain high if the wet weather remains. As this is the Midwest, I wouldn't dare make a prediction (and my Magic Eightball informs me that the "Outlook not so good"). Instead of relying upon a Magic Eightball, consider the Mill's Table that is used to predict apple scab infection periods. This table shows the relationships between temperatures, duration of leaf wetting, and development of apple scab infections. (Beckerman)

The Juniper Rusts:

We are still currently too cool for telial spore horn development to begin on the junipers, at least in central Indiana, but the development should begin in the next significant rain event (or two). Telial spore horns are produced for several weeks. Usually, rust spore release from these gelatinous spore horns coincides with the pink stage of apple development. The DMI fungicides used to control scab have excellent control of the rust pathogens, as well as powdery mildew.

Speaking of **powdery mildew**...If growing mildew susceptible varieties like Ginger Gold, Ida Red, Jonathan, Paula Red, and Rome, the DMIs should effectively control this disease as well. Unlike scab, we are seeing no resistance issues in rust or powdery mildew pathogens to DMI fungicides.

On the plus side, this cooler spring is slowing down fire blight development. This could change should the temperatures become suddenly warmer and wetter. See ID-168, "2008 Midwest Commercial Tree Fruit Spray Guide" for a complete listing of suggested fungicides for tree fruit disease management. Available at the Purdue Fruit and Vegetable Connection website (www.hort.purdue.edu/fruitveg) under bulletins. (Beckerman)

Table 1. The Mill's Table describes the approximate wetting period required for primary apple scab infection at different air temperatures, to estimate the time required for development of conidia. (a)

Average temperature	Average temperature	Wetting period (hr)(b)	Wetting period (hr) (b)	Wetting period (hr)(b)	
Fahrenheit	Celsius	Light Infection	Moderate Infection	Heavy Infection	Incubation period (days)(c)
78	25.6	13.0	17	26	-
77	25.0	11.0	14	21	-
76	24.4	9.5	12	19	-
63 - 75	17.2 - 23.9	9.0	12	18	9
62	16.7	9.0	12	19	10
61	16.1	9.0	13	20	10
60	15.6	9.5	13	20	10
59	15.0	10.0	13	21	12
58	14.4	10.0	14	21	12
57	13.9	10.0	14	22	13
56	13.3	11.0	15	22	13
55	12.8	11.0	16	24	14
54	12.2	11.5	16	24	14
53	11.7	12.0	17	25	15
52	11.1	12.0	18	26	15
51	10.6	13.0	18	27	16
50	10.0	14.0	19	29	16
49	9.4	14.5	20	30	17
48	8.9	15.0	20	30	17
46	8.3	15.0	23	35	-
45	7.8	16.0	24	37	-
44	7.2	17.0	26	40	-
43	6.7	19.0	28	43	-
42	6.1	21.0	30	47	-
41	5.6	23.0	33	50	-
40	5.0	26.0	37	53	-
39	4.4	29.0	41	56	-
38	3.9	33.0	45	60	-
37	3.3	37.0	50	64	-
36	2.8	41.0	55	68	-
33 - 36	0.6 - 2.2	48.0	72	96	-

^a Adapted from Mills, 1944, as modified by A. L. Jones. From: http://www.caf.wvu.edu/Kearneysville/disease_descriptions/millstable.html

^b The infection period is considered to start at the beginning of the rain.

^c Approximate number of days required for conidial development after the start of the infection period.

Early Season Grape Disease and Insect Management:

Phomopsis cane and leaf spot has been a continuing problem in the region. Control of this disease is best accomplished with protectant fungicides applied between one and five inches of shoot growth. Clusters and shoots are vulnerable as soon as they become exposed. Wet weather conditions during this period of rapid shoot elongation are ideal conditions for the infection and spread of Phomopsis. Protectant fungicides must be applied before an infection period occurs, so applications should be made prior to expected rainfall. Applications should be made 7 to 10 days apart, depending on weather conditions. If there are frequent rain events (several per week, with rainfall totals greater than one inch since the last spray) then the spray interval should be 7 days or less. While Phomopsis is still the primary concern at this stage of growth, black rot may be an issue in vineyards that had a problem the previous year. There is an abundance of succulent tissue that is highly susceptible to infection. In addition, the clusters are also exposed to infection at this stage. Extended periods of wet weather are very favorable to most grape diseases. In general, if the leaves and shoots are wet for eight hours or longer, infection is possible if not protected by a fungicide.

The broad spectrum fungicide mancozeb (Dithane, Manzate, Penncozeb) is the most effective material for controlling Phomopsis and black rot early in the season. It is recommended to save the use of SI's (e.g., Nova and Elite) and strobilurins (e.g., Abound, Sovran, Flint) until later in the season when they are needed for control of multiple diseases. Both of these groups of fungicides are prone to resistance development, so are best used at critical disease control periods (immediate prebloom until second postbloom). Do not use these materials more than three times per season regardless of the material. Rotating these two fungicide groups can help delay the development of resistance.

Flea beetles and climbing cutworms are occasional problems in vineyards. Neither of these insect pests are a problem in every vineyard every year, however they can cause significant damage under the proper set of conditions. Scouting is the key to pest management, and especially for these pests, so that you can decide if there is adequate damage to warrant making a pesticide application. Scout vineyards for these insects or their damage and make an application to control if more than 5% of the buds have been damaged. Damage from flea beetles appears as holes eaten into the sides of buds. The insects are small (1/8 inch long) and shiny green, blue or black in appearance. They crawl quickly along the canes and tend to drop to the ground if disturbed. Incidence often occurs along vineyard edges adjacent to fence-rows or woods, making spot spraying an option. Climbing Cutworms overwinter in plant trash on vineyard floors. They climb grape trunks on warm spring nights and feed on swelling buds and early new growth. After this brief period they are seldom a problem. Good weed control helps prevent the occurrence of cutworms and flea beetles. Sevin will provide excellent control of these insect pests. See ID-169, Midwest Commercial Small Fruit & Grape Spray Guide, and the Midwest Small Fruit Pest Management Handbook for complete discussions of grape IPM. These are both available free from the Fruit and Vegetable Connection website, www.hort.purdue.edu/fruitveg under bulletins. (Bordelon)

Strawberries and Botrytis Fruit Rot:

The most important sprays for control of Botrytis fruit rot (gray mold) of strawberry are those applied at bloom - starting at 10% bloom. Topsin M, Elevate, Scala or Switch, tank mixed with captan, or CaptEstate (a combination of captan and Elevate) should provide excellent control of gray mold. Because of the potential for development of resistant pathogen strains, none of the products should be used alone for season long control, nor applied without captan. See ID-169, Midwest Commercial Small Fruit & Grape Spray Guide, and the

Midwest Small Fruit Pest Management Handbook for complete discussions of strawberry IPM. (Bordelon)

Eastern Flower Thrips:

One of the factors we believe may be associated with problems with eastern flower thrips on strawberries is having sustained, strong southerly winds early in the growing season. Such winds may blow eastern flower thrips to Indiana from southern areas. We recommend looking at the early flowers, especially on early varieties. Although an exact threshold has not been established for Midwest conditions, data from elsewhere suggest that control is warranted if counts exceed 2 to 10 thrips per blossom. This is a wide range, but more precise information is not available. Endosulfan, Lorsban, Brigade, Danitol, Entrust or SpinTor are likely to work well. Growers may also want to consider using an insecticide containing neem extracts (Aza-Direct or Neemix) that is less toxic to bees. (Foster and Bordelon)

New Fungicide for Vegetable Crops and Grapes:

Revus 250L was recently registered for use on vegetables and grapes. Revus contains mandipropamid (a carboxylic acid amide) and is a fungicide in group 40 (FRAC code 40). Revus is manufactured by Syngenta Crop Protection, Inc. and contains 2.08 pounds of active ingredient (mandipropamid) per gallon and can be used to control downy mildew of Brassica crops, downy mildew of onion and garlic, downy mildew and Phytophthora blight of cucurbits, downy mildew of lettuce and spinach, downy mildew and Phytophthora blight of peppers, and downy mildew of grapes. It has preventative and limited curative properties. Revus is applied as a foliar spray and can be applied in alternating spray schedules or as a tank-mixed with other crop protection products. This fungicide may be applied by ground or aerial equipment at the rate of 8.0 fl oz product (0.13 pound active ingredient) per acre, a maximum rate of 32 fl oz product (0.52 pounds active ingredient) per acre per season. No more

than four sprays of Revus should be applied during one crop cycle, and no more than two sequential applications should be made. Crops other than those listed on Revus label should not be planted within 30 days of a Revus application to the proceeding crops. More information on Revus is available at: <http://www.cdms.net/LDat/ld8FU000.pdf>. Source: Illinois Fruit and Vegetable News (Volume 14, number 2)

Callisto Herbicide Labeled for Blueberries:

Callisto (mesotrione) herbicide, manufactured by Syngenta Crop Protection, has been labeled for use on highbush and lowbush blueberries. Callisto at 6 fl oz/A will control amaranth species, carpetweed, chickweed, galinsoga, jimsonweed, common lambsquarters, eastern black nightshade, pigweed species, common ragweed, smartweed species, velvetleaf, and waterhemp. If grass weeds are a problem, apply Surflan AS preemergence for grass control according to label directions, and follow with a later application of Callisto. Callisto should be applied pre-bloom, post-directed to highbush blueberry. Callisto can be applied as a single treatment up to 6fl oz/A or as a split treatment at 3 fl oz/A followed by 3 fl oz/A, do not make more than 2 applications or apply more than 6 fl oz/A per year. Use a crop oil concentrate safe for blueberries when applying Callisto. Do not apply Callisto after the onset of bloom of highbush blueberries. Source: Illinois Fruit and Vegetable News (Volume 14, number 2)

Horticulture Marketing Website:

Jennifer Dennis has created a website focusing on horticultural marketing topics that provides information for horticulture business owners. Topics listed include risk management agency fact sheets, direct marketing resources, produce auction prices, farmers' market prices (coming soon), USDA shipment reports (coming soon), and select Purdue Extension publications. This website is in its infancy stage and will be changing dramatically in the next few months. If there are statistics or resources that you would like to see posted, please contact her at jhdennis@purdue.edu or contact her secre-

tary Ms. Tammy Goodale at 765-494-1296.
The new website address is:
<http://web.ics.purdue.edu/~jhdennis>
(Dennis)

New Tool Links Consumers, Businesses With Producers to Ease Search for Local Foods:

Hoosiers can now find farm-fresh eggs or just-picked apples right in their neighborhood, thanks to a new interactive Web site called MarketMaker.

The Web site connects consumers, agricultural businesses and farmers, providing a one-stop shop to locate locally grown food products.

“Consumers, local food buyers, retailers and restaurants are all looking for a quick and easy way to locate Indiana food products,” said Andy Miller, director of the Indiana State Department of Agriculture. “MarketMaker is the tool to open new markets to Indiana food producers, helping farmers reach their market directly.”

Indiana MarketMaker - online at <http://www.inmarketmaker.com> - currently has more than 150 farm enterprises with more farmers and food businesses registering each day. The Web site is free to consumers, farmers and businesses.

“For example, a consumer who wants to find fresh apples can go to the MarketMaker Web site and search for fruit from farmers/producers by city, county, state or multiple states,” said Maria Marshall, Purdue Extension agriculture economics specialist and project coordinator. “A list of results will appear, and the consumer can look at a specific location or all locations around the state with that product for sale. They can also view other products offered by that business.”

Consumers can search for dairy products, fruit and nuts, grains, herbs, meat, vegetables, and specialty products like honey from a variety of sources. MarketMaker users can narrow or expand their search using a variety of methods.

MarketMaker isn't just for consumers. It's also useful for the grocery store looking for organic

tomatoes and the farmer looking for a place to sell them, Marshall said.

MarketMaker offers strategic marketing information for producers and food retailers alike, with demographic information and census data available. In addition to scanning databases, users can post requests or offer products for sale in a “Buy-Sell Forum.”

“This is undeniably an effective way to locate specific new markets,” said Jerry Nelson, a Purdue New Ventures Team Extension educator. “Restaurants know Indiana food product is out there. Now they know where to find it.”

There are two types of MarketMaker searches:

* “Find a market,” with information on household type, education, foreign born, race, income and income by race.

The results are sorted by city, county, state or multi-state and displayed in interactive map formats. Also, descriptions and contact information are listed for registered businesses.

“MarketMaker is modern technology at its best to help the consumer and agricultural producers,” said Debbie Trocha, executive director of Indiana Cooperative Development Center (ICDC).

Marshall encourages food producers and those with product for sale to register their products online. To register, producers should visit <http://www.inmarketmaker.com> and click on the “register your business” button. For those who do not have Internet access and wish to register, contact Marshall at (765) 494-4268 and a form will be mailed. All horticulture businesses are encouraged to sign up.

MarketMaker is made possible by a collaboration of Purdue Extension, the Indiana State Department of Agriculture, ICDC and the U.S. Department of Agriculture Rural Development.

For more information, visit the MarketMaker Web site or contact Marshall at

(765) 494-4268, mimarsha@purdue.edu.

Editors note: The total hits on the Market-Maker site for March was 632,063 from over 20,000 users. Indiana received the most hits with 182,924.

Farmers' Market cost-Share Reimbursement Program: (Indiana State Department of Agriculture)

Purpose

On December 21, 2004, the Specialty Crops Competitiveness Act of 2004 authorized the U.S. Department of Agriculture (USDA) to provide state assistance for specialty crops. Under Section 101 of the statute, the Secretary of Agriculture is directed to "make grants to States for each of the fiscal years 2005 through 2009 to be used by State Departments of Agriculture solely to enhance the competitiveness of specialty crops."

The Indiana State Department of Agriculture (ISDA) is implementing a cost-share reimbursement program to provide grants to Indiana farmers' markets. The state of Indiana has seen a dramatic growth in farmers' markets and feels the need to increase consumer awareness and overall appeal of Indiana farmers' markets.

Eligibility

Farmers' Market Directors or Market Masters with an established Farmers' Market listed on ISDA's website at http://www.in.gov/isda/files/Farmers_markets_10_07.pdf are eligible to apply. Organizations who have purchased advertising, displays and promotional materials on or after January 1, 2008 may apply for this reimbursement program. If your organization is not listed on this site and you feel you may qualify for this funding, please contact Jennifer Dennis at Purdue University (jhdennis@purdue.edu) to fill out a contact information form. ISDA will then be able to add you to our website, which will qualify your organization for the application process.

Eligible Activities

The program will reimburse 50 percent of the advertising, displays and promotional materials farmers' markets pay for these items up to

\$500.

Funds Available

Total available funds = \$25,000. Maximum per organization = \$500

The Cost-Share Reimbursement Program will assist 50 farmers' markets across the state allowing them to promote their market. Funds will be paid to qualifying entities on a first come first serve basis. If funds are still available on August 1, 2008 ISDA will allow any previously awarded recipients to reapply for an additional reimbursement of 50 percent up to \$500. This second allotment of funds will also be awarded on a first come first serve basis.

Timeline

February 1, 2008 -- Announcement of Cost-Share Reimbursement Program

March 7, 2008 -- Open application period begins

December 31, 2008 -- Application period closes, or will close anytime prior to this date if funds run out.

Criteria for Reimbursements

- Expenditures will increase consumer awareness of Farmers' Market.
- Expenditures will increase participation and visitation of Farmers' Markets.
- Expenditures will increase promotion, advertising and marketing of Farmers' Markets.

Application Process

Applications must be submitted via e-mail in Microsoft Word format. Applicants are encouraged to scan and attach copies of any receipts and/or invoices for items purchased. Applicants must also fill out a W-9 form and a direct deposit form and e-mail these at the same time as their application. (Dennis)

Farmers' market workshops to feature benefits of WIC program:

"Operating an Efficient Farmers' Market" workshops will be held at six Indiana locations to help inform market operators and vendors

about Indiana's food handling regulations, alternative payment programs, and recent trends.

The Purdue University workshop will give an overview of state regulations for food handling presented by the Indiana Board of Health and the Indiana Board of Animal Health, as well as updates on the Women, Infants and Children Nutrition Program. In addition, results from a farmers' market survey and pricing study conducted by Purdue University will be shared.

The WIC program is a federal program run by the U.S. Department of Agriculture that provides supplemental foods, health care referrals and nutrition education for low-income pregnant, breastfeeding and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk.

"Farmers' markets can be a part of this program by providing fresh produce to participants," said Jennifer Dennis, Purdue Extension specialty crop marketing specialist. "However, both the market organizer and vendor have to attend a brief training session to become certified to accept WIC vouchers."

The WIC program can be a very important customer base for farmers' markets, Dennis said.

Market operators and vendors wanting to know more can find a brochure and registration form online at http://www.agecon.purdue.edu/extension/programs/farmers_markets_workshops.asp. Registration costs \$25 and includes workshop materials and snacks. The workshop will begin at 8 a.m. with registration and refreshments and will adjourn at 12:30 p.m.

Workshops will be held:

* April 24 in Boonville at the Warrick County Fairgrounds 4-H Center located at 133 E. Old Degonia Road. Registration is due April 14.

* May 12 in Greencastle at the Putnam County Fairgrounds, Harris Hall, located at 67 US Hwy 231. Registration is due April 30.

* May 16 in Bedford at the Purdue Extension office in Lawrence County located at 92 16th St. Registration is due May 1.

The workshops are sponsored by the Indiana Cooperative Development Center, Purdue Small Farms Team, Purdue Extension, New Ventures Team and the Department of Agricultural Economics.

For questions and more information, contact Dennis at (765) 494-9812 or jhdennis@purdue.edu.

Indiana Farm Sustainability Tour:

The 2008 Indiana Farm Sustainability Tour Series returns on April 17 with its second stop in Lafayette, Indiana at the Cooley Family Farm. The focus of the day will be on ways that farmers can increase sustainability and profitability with various season extending tools and techniques. Additionally there will be presentations that will address ways to foster the marketing of Indiana farm products through specialty retail outlets. Participants will be able to learn from two successful farmers who employ season extending systems on their farm and will have a unique opportunity to tour the Cooley Family Farm to learn how this operation manages to provide farm product to their customers on a nearly year round basis.

Family owned and operated the Cooley Family Farm was established in 2001 and is located only a few minutes from Lafayette, Indiana. The farm specializes in growing hundreds of varieties of naturally grown produce. Four high tunnels provide for season extension and a longer market season.

Produce is sold on their 100 year old farmstead in a convenient "Farm Stand" and at the West Lafayette Farmers Market and the Downtown Lafayette Farmers Market. They also provide

an “On-line Farm Stand” accepting orders placed via the internet and then delivered weekly for over 50 types of produce from arugula to zucchini. A “Harvest Basket” subscription is also offered by the Cooley family for customers to enjoy from May through October.

Tour participants will also have the opportunity to meet the owners of two Indiana specialty food stores who support local farmers while meeting the changing and exacting needs of their consumers. They will share what has motivated them to create local food markets, what kind of foods their customers demand and how they work with farmers to meet those needs.

The Indiana Farm Sustainability tours will be held monthly through November focusing at each session on a different topic related to farm sustainability. These tours offer educators and farmers and other rural residents the opportunity to learn from successful farmers and marketers across Indiana about what makes them competitive in a rapidly changing and otherwise consolidating, farm market economy.

For more information and to register, visit <http://www.conf.purdue.edu/farmtours>.

Each tour is \$15 per person, which includes lunch, refreshments and materials. Individuals have the option to register for all of the tours or to select one or two at a time. Registration is due seven days prior to a tour.

For questions and more information, please contact Jerry Nelson, New Ventures Extension educator and tour coordinator, at (812) 886-9582; jnelson@purdue.edu; or Roy Ballard at (317) 462-1113; rballard@purdue.edu.

Starting a specialty food business workshop:

Developing and selling specialty ingredients and foods is one alternative for homemakers and farmers to add value to Indiana commodities. This workshop was developed to serve as a comprehensive overview of the issues associated with starting a specialty food business in Indiana. The overall purpose of this workshop is to provide knowledge, contacts, and resources about starting a new food

business in Indiana through formal lectures and question and answer sessions with speakers and entrepreneurs, as well as written materials with information and resources.

This workshop was developed for people interested in developing a specialty food or food ingredient business. Participants may be small farmers interested in vertically integrating, homemakers, and current/former entrepreneurs who need a comprehensive overview of the topics to be covered when starting a new food business in Indiana.

The workshop will be held Thursday, April 24 at the Indiana Farm Bureau, 225 S East St, Indianapolis. For more information: <https://www.agecon.purdue.edu/newventures/Pubs/Brochures/Entr0408.pdf> or contact Marsha Pritchard, mpritch@purdue.edu, (765) 494-0889

Woodson named Purdue Provost:

Dr. Randy Woodson, Dean of Agriculture and former head of the Department of Horticulture and Landscape Architecture, was recently named the new Provost at the university. The Provost is the chief academic officer of the university, and has oversight of all colleges, schools, and other academic activities. The office of the provost also oversees issues of academic concern for the university’s four regional campuses and the Purdue Cooperative Extension Service. Dr. Woodson assumes his new position on May 1. In making the announcement, Purdue President France A. Cordova said “Randy Woodson is well respected internationally, as well as throughout our university. He was selected from an outstanding national group of candidates to become our chief academic officer. As a scholar, he has distinguished himself globally in the fields of plant science and horticulture. As an administrator, he is a proven leader with a strong vision and the ability to work productively with faculty, staff and students. I am thrilled that he has accepted my offer to lead the academic mission of the university.” Woodson said he is looking forward to this new chapter in his service to Purdue. “This is a very exciting time in Purdue’s history,” Woodson said. “We

have made important strides in our quest to be a supporting public research university, and I look forward to helping our students succeed, growing the research enterprise and enhancing Purdue's reputation as a globally engaged and locally responsive university."

Adults Who Eat Apples, Drink Apple Juice Have Lower Risk for Metabolic Syndrome:

Not eating your apple a day? Perhaps you should be. Adults who eat apples, apple juice and applesauce have a significantly reduced risk of metabolic syndrome, a cluster of health problems that are linked to numerous chronic diseases such as diabetes and cardiovascular disease.

The study results, presented at the Experimental Biology 2008 meeting this week, were derived from an analysis of adult food consumption data collected in the 1999-2004 National Health and Nutrition Examination Survey (NHANES), the government's largest food consumption and health database.

Dr. Victor Fulgoni analyzed the data, specifically looking at the association between consumption of apples and apple products, nutrient intake and various physiological parameters related to metabolic syndrome. When compared to non-consumers, adult apple product consumers had a 27% decreased likelihood of being diagnosed with metabolic syndrome. Fulgoni notes, "We found that adults who eat apples and apple products have smaller waistlines that indicate less abdominal fat, lower blood pressure and a reduced risk for developing what is known as the metabolic syndrome." In addition to having a 30% decreased likelihood for elevated diastolic blood pressure and a 36% decreased likelihood for elevated systolic blood pressure, apple product consumers also had a 21% reduced risk of increased waist circumference – all predictors of cardiovascular disease and an increased likelihood of metabolic syndrome. Additionally, adult apple product consumers had significantly reduced C-reactive protein levels, another measurable marker related to cardiovascular risk.

Furthermore, apple product consumers' diets

calcium and potassium. These consumers also ate less total fat, saturated fat, discretionary fat and added sugars.

Metabolic syndrome is believed to affect an estimated 36 million Americans. Metabolic syndrome, also known as Syndrome X and insulin resistance syndrome, is defined as having three or more of the associated symptoms, which include elevated blood pressure, increased waist size and abdominal fat, and elevated c-reactive protein levels. (US Apple Association)

Farm Bill Deadline Looms -Prospects Increasing for Extension:

With the current Farm Bill extension set to run out in two weeks, pressure keeps mounting on House and Senate negotiators. The tight budget environment, coupled with higher grain prices (which resulted in a lower budget baseline to start) and "pay-go" rules have meant negotiations continue to focus on finding needed funding. As a result, the Senate Finance Committee and the House Ways and Means Committee are playing a major role. ("Pay-go" requires Congress to find offsets from other federal programs to justify additional spending.)

The Farm Bill must include funding for a new permanent disaster program, according to Finance Committee Chairman Max Baucus (D-MT), leaving few funds left to expand current programs or introduce new ones. The disaster program includes mandatory funding for the Tree Assistance Program (TAP) and crop disaster payments, which would be available to specialty crops (including apples). However, grain states like Montana that are subject to drought would draw the largest benefit from the program. Meanwhile, House Ways and Means Committee Chairman Charlie Rangel (D-NY) is pushing hard for more nutrition program funding, particularly for food stamps.

Most farm programs are getting cut to some degree from the House- and Senate-passed legislation in order to pay for the disaster program and still fall within the rules of

“pay-go.” High grain prices are also taking the pressure off some legislators to write a new Farm Bill. The Specialty Crop Farm Bill Alliance (SCFBA) has been working with our House and Senate champions to ensure that our top priorities are funded and that any cuts that occur are as minimal as possible.

At this point, the Farm Bill may be extended for another few weeks for more work or for 1-2 years if Congress stays deadlocked. (US Apple Association)

Immigration & Enforcement Hot on Capitol Hill & in Media:

With Congress back in session this week, USApple and other members of the Agriculture Coalition for Immigration Reform (ACIR) are meeting with key Members of Congress to urge support for an ag labor emergency bill. Reissue of the Social Security “no match” rule by the Department of Homeland Security (DHS) and the looming discharge petition on the enforcement-only “SAVE Act” further underscores the crisis. A California anti-immigration group started warning its members about an “amnesty proposal” being drafted by Senator Feinstein (D-CA). The alert erroneously reports that “farm wages could be raised substantially to attract more workers with little impact on consumers.”

The SAVE Act discharge petition gained 4 more signatures, bringing the total to 185. If the petition reaches 217, House rules require that it be brought directly to the floor for a vote. While getting to 217 might prove a stretch, proponents of the measure will likely come close to hitting that mark. USApple is working hard to discourage Congressmen from signing on. (US Apple Association)

Upcoming meetings:

April 16. Twilight meeting, Sunrise Orchard (Kerscher’s), Goshen. Registration 6:00 pm, meeting 6:30 pm. For more details contact Andrew Westfall, awestfall@purdue.edu, (574) 533-0554

May 6. Eastern Indiana fruit meeting. Time and location to be announced. Contact Dave Clamme, dclamme@purdue.edu, (765) 747-7732

May 8. Central Indiana fruit meeting, Anderson Orchard, Mooresville, IN. 5:30 pm. For details contact Roy Ballard, rballard@purdue.edu, (317) 462-1113

June 3. Eastern Indiana fruit meeting. Time and location to be announced. Contact Dave Clamme, dclamme@purdue.edu, (765) 747-7732

June 22-25. International Fruit Tree Association summer tour. South Carolina and North Carolina. For more information: <http://www.ifruittree.org/>

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