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Crop Conditions

The season is still running about 10 days ahead of normal. Grape harvest is in full swing and apple harvest is picking up speed. Most growers report a good crop of Gala, and the fruit size of other varieties generally looks good. We've had a bumper crop of plums at the Horticultural Research farm, so if any farm markets can use any, give us a call. Overall, fruit quality looks very good. The lack of rain over the past couple of weeks has helped reduce rots, and the cooler night temperatures have improved color and flavor.



Weather Notes: The 6-10 day outlook calls for above normal temperature and normal precipitation. The medium range outlook for September calls for normal temperature and precipitation and the long range outlook calls for normal temperature and above normal precipitation.

Temperatures through the month of August averaged about 2 degrees above normal statewide while rainfall amounts broke from the pattern of the rest of the summer with below normal amounts over most of the state. The exceptions were northcentral and northeast which both received above normal rainfall during the month of August. Over the last two weeks (August 23 - Sept. 4) rainfall has turned off in the state, particularly in the central and southern portions with rainfall amounts averaging below normal to much below normal in all but the northeast corner. Some areas of the state have received no rain during the last two weeks. Temperatures have continued to average 2 degrees above normal across the state.

September historically is the driest month of the year in most of Indiana with rainfall averaging 3 - 3 1/2 inches across the state. Most of the state is well below that at this time. This is indicative of La Nina type weather characteristics.

When looking at the first winter of La Nina historically Ken Scheeringa found that 1958-59 and 1983-84 had quite cool Falls, with temperatures taking a severe turn in November and December, and dramatic temperature drops in December with extreme lows. *-by Ken Scheeringa from the Purdue Crop and Weather Meeting, Sept. 4, 1998.*



Fall Small Fruit Notes:

Strawberries- Flower bud initiation in the crown of the plants is happening now, determining next year's yield.

So, maintaining good plant health into the fall is important. The recent dry weather can have a significant impact on fruitfulness next year because the fruit buds are developing in the

crowns during August and September for next spring's crop. Irrigate to provide at least 1 inch of water per week. Nitrogen fertilizer should be applied in early September to bring your seasonal total up to about 100 lb./acre. Most growers apply about 70 lb. of nitrogen at renovation. The fall application should provide another 30 lb. (more on soils with low organic matter content). This stimulates good root growth in the fall and supplies nitrogen needed for flower bud initiation. New fields also need to have a total of around 70-80 lb./acre of nitrogen. Ammonium nitrate (33% N) is a good fertilizer for the fall. If your leaf tissue analysis shows deficiencies in magnesium or boron, early fall is a good time for foliar applications of Epsom salts (15 lb./100 gal./acre for magnesium) and Solubor (3 lb./100 gal./acre) for boron. Don't make these applications on hot humid days, however, or phytotoxicity could result. Read the labels. In addition to keeping up with the fertilizer program, suppressing leaf diseases improves the ability of the plant to carry on photosynthesis and store starch in the crowns. Don't let leaf spot or powdery mildew get ahead of you. Check fields for infestations of leafhopper or aphids. Generally, plants can take a fair amount of feeding by these insects, but heavy infestations can be a problem. And, aphids in particular, can vector virus diseases and should not be allowed to build up especially when they are in the winged form and can disperse to other fields. Weed management at this time of year is limited to cultivation and hand weeding/hoeing. The only herbicide you should consider using is Poast for controlling grasses. Poast will only work on relatively young, actively growing grasses.

Raspberries-Encourage hardening off of canes in summer bearing varieties of red and black raspberries and blackberries by avoiding nitrogen fertilizers and supplemental watering at this time. Do not remove spent floricanes until later in the winter unless they are significantly infected with disease. Fall bearing raspberries can still benefit from irrigation in this dry weather to help maintain fruit size. Early varieties like 'Autumn Bliss' are starting to run out while 'Heritage' is

still going strong, although fruit size has dropped off from the early pickings. Based on soil and tissue test results, apply non-nitrogen containing fertilizers and lime as needed. For example, Sul-Po-Mag or Epsom Salts can be applied now so that fall rains can help wash it into the root zone of the plants. If Phytophthora root rot has been identified in a field, treat the affected area with Ridomil Gold or Alliette in September or early October. This timing is important to get the material in place in the root zone before the onset of cool wet weather (and soil) in the fall. Now is the time to check plantings for crown borers. Adults of this pest look like very large yellowjacket, but is actually a moth. They are active in the field in August and September laying eggs. Scout the fields for crown borer damage by looking for wilting canes. This symptom can also indicate Phytophthora root rot, so when you find a plant with a wilting cane (or two), dig up the plant and check the roots for brick red discoloration in the core of the roots (Phytophthora) or the presence of a crown borer larvae in the crown. Rogue out infested crowns and eliminate wild bramble near the planting, since they will harbor more of this pest. Insecticide applications can be made to the canes in October and to the crowns (in a drench application) in early spring. Now is a good time to do a weed survey and map the weed problems in your planting. This information will be very useful in tailoring your weed management plan so that is effective and not wasteful.

Blueberries-As with raspberries, blueberry plants should be encouraged to harden off for the winter. However, growers should continue to irrigate if dry weather persists. Fruit buds are developing now for next year's crop so it is important to avoid water stress on the plants during this time. Don't apply any nitrogen fertilizers at this time. Based on foliar analysis and soil tests, sulfur, lime, and some fertilizers can be added now. Apply these before fall rains begin and also before adding any supplemental mulch to the plants. As with raspberries, now is

a good time to do a weed survey and map the weed problems in your planting. This information will be very useful in tailoring your weed management plan so that is effective and not wasteful. Diseased or weak plants can easily be detected this time of year because they tend to turn red earlier than healthy bushes. Upon finding weakened bushes, try to determine the reason for weakness. Check for damage to the root system and determine if it is due to a disease infection or damage by voles or grubs. Accurate diagnosis is the first step in resolving the problem and avoiding spread. Enlist the help of specialists if you have trouble determining the cause of problems. -Adapted from *Massachusetts Berry Notes*, Sept. 1998 by Sonia Schloemann.



Grape Harvest Notes: So far, 1998 has been an good year for grapes. Minimal winter injury occurred during the mild winter, and little spring frost damage occurred. Most varieties have a full crop and required considerable crop load adjustment to reduce yields to reasonable levels. On the negative side, birds have been more troublesome than in the past, and sour rot has been a problem in southern areas where rainfall coincided with early harvest. Overall, though, the cooler weather of late August and early September is leading to excellent quality fruit. Flavor and aroma are very pronounced and sugars are high and titratable acidity is relatively low.

Pinpoint Scab: Even though it has been dry, you never know when the rains may come...so, wet weather during the apple harvest period can lead to the development of pinpoint scab and other fruit infecting diseases, such as sooty blotch and fly speck. Pinpoint scab can infect fruit up to and during the harvest period if wet weather persists at this time, however, the symptoms of pinpoint scab may not show up until the fruit have been stored for several months. Late season apple scab can also build up on leaves after harvest, resulting in large quantities of primary scab spores the following

season, even though a good spray program was followed early this year. Help prevent such problems by maintaining scab fungicides in late cover sprays; also do not stop cover sprays too early. Check the label for days-to-harvest restrictions before making the final application.

Collar Rot: Late summer is a good time to inspect trees for above-ground symptoms of collar rot. Look for weak trees with premature leaf reddening (especially on goldens); sparse, yellow foliage; and many small, highly colored fruit. Keep in mind that such symptoms are general stress symptoms that may be caused by a number of factors, eg. wet feet, mouse injury, trunk decay, root rot, etc. However, trees that show the above-described symptoms *and* also have a canker at or just below ground level are likely infected with collar rot. If collar rot is suspected we advise the use of Ridomil 2E in the fall after harvest. Apply Ridomil as soon as possible after harvest so it will be in place before the fall rainy periods begin and possible new infections occur. Also be sure to concentrate your Ridomil treatment on surrounding healthy appearing trees, not just trees already showing severe symptoms of collar rot. Ridomil is best used to prevent collar rot.... not cure it.



Guthion Under Review: Written comments about the value of Guthion in your pest management program will be accepted by the EPA until October 13, 1998. Guthion is one of the nine organophosphates currently under preliminary risk assessment. Submit written comments in triplicate to: Public Information and Records Integrity Branch, Information Resources and Services Division (7502C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. For further information contact Karen Angulo at (703) 308-8004; e-mail: angulo.karen@epa.gov. Source: William G. Smith, Pesticide Management Education Program, Dept. of Entomology, Cornell University, NY Reprinted from Ohio



Grape Post Harvest Disease Control:

Growers often neglect to scout their vineyards once harvest is complete which can be a costly mistake. Downy and powdery mildews are common diseases that often build to epidemic levels on susceptible cultivars in fall. Heavy dews which form on cool nights in late summer and fall provide sufficient moisture for sporulation and spread of these fungi. Downy and powdery mildew are fairly common this year, though the severity of disease is fairly low. Anthracnose and Phomopsis cane and leaf spot are very common this year and in some vineyards incidence is high. Growers should continue to scout for diseases as they can 'explode' in a very short period of time. A severe downy mildew outbreak can cause early defoliation which reduces winter hardiness. Powdery mildew reduces photosynthesis and the plant's ability to store adequate carbohydrates. Allowing either disease to become established greatly increases the amount of inoculum that will be in the vineyard next spring. Thus, it is important to maintain some protection against these diseases throughout the fall until leaves drop naturally.

There are several options available for post harvest downy mildew control; captan, copper compounds, mancozeb, or Ziram. Ridomil formulations MZ 58 (Ridomil/mancozeb) and Ridomil Copper 70W are registered for use on grapes, however, it is not a good idea to apply ridomil to a well established downy mildew infection because of the potential for development of fungicide resistance in the fungus. Because of its broad spectrum of activity, the newly registered fungicide Abound should be an effective post harvest tool. Captan and mancozeb both provide excellent protection against spread of downy mildew. Copper fungicides also provide good control, but can cause phytotoxicity on certain varieties and under certain climatic conditions. Fixed coppers plus lime are the least likely to cause phytotoxicity.

There are also options for powdery

mildew control. Sulfur is effective against powdery mildew, but many cultivars are sensitive to sulfur, limiting its usefulness. Sulfur should not be applied if temperatures greater than 85F are expected. Some cultivars such as Chancellor, Foch, Concord, and Cynthiana may be damaged at any temperature. Sterol inhibitors such as Nova, Bayleton or Rubigan are available for powdery mildew control on sulfur sensitive varieties. However, development of fungicide resistance in the pathogen population is a real concern with these materials and their use on existing infections is not recommended. They should be used for prevention of disease rather than eradication. JMS stylet oil is one possible alternative, but our experience with it is limited, so it should be used with caution. Be sure to thoroughly read the label for possible interactions with other materials, especially sulfur and captan, before using JMS stylet oil. As with downy mildew, Abound should be an effective post harvest tool.

It may not be necessary to apply fungicides post harvest. Growers should scout their plantings for problems to determine if fungicides are necessary. Cultivars differ greatly in susceptibility to the common diseases. For example, Chancellor and most vinifera cultivars are highly susceptible to both powdery and downy mildew and often require post harvest disease control. Concord and Foch are only slightly susceptible to downy mildew and moderately susceptible to powdery mildew so seldom require post harvest disease control. Other cultivars vary in relative susceptibility to diseases, and disease incidence and severity varies with the growing season. Apply fungicides only if necessary. Be sure to check for season limits on quantity of product allowed and read and follow all label recommendations. Refer to ID-169 for rates, comments, varietal susceptibility, and other valuable information.

Soil Management and Cover Crops: Fall is a good time for cultivating fields, adding lime and fertilizer, and planting cover crops in fruit plantings. Cover crops can be an integral part of

the overall orchard floor management plan. Growers planning on establishing new orchards or vineyards next year should consider a pre-plant soil management program which includes deep subsoiling, soil pH adjustment and addition of fertilizer, especially P and K, according to soil test recommendations, and planting cover crops. Cover cropping a site the year before planting is an excellent way to increase soil organic matter content and control weeds. Several cover crops are available for fall planting, and mid to late September is the time to plant in most areas of the state. A favorite among growers is winter rye because it performs very well under Indiana conditions. Rye not only adds large amounts of organic matter to the soil, but also suppresses the development of many annual and perennial weeds. It should be grown until it begins to head-out in the spring then treated with post emergent herbicides or incorporated into the soil mechanically. When the cover crop is killed with post emergent herbicides, the residue left on the surface will provide a mulch layer which will suppress weeds, help conserve moisture, increase organic matter, and improve soil structure. Dormant fruit plants or vegetable transplants can be set directly into the mulch. There are several other cover crops for fall and spring planting and choices depend on the grower's specific preferences and needs.

Nursery Stock: If you plan to plant a fruit planting next spring, the time is running short to order plants from nurseries. Most nurseries take orders in winter or spring for the following season, giving them a year to propagate the needed plants. At this time nurseries will only have available plants that they have not already committed to another grower. Make your orders soon for planting next spring.



Perennial Weed Control: Late summer and fall is an excellent time to control troublesome perennial weeds by spot spraying with suitable herbicides. Perennial weeds tend to become established within the rows in fruit plantings

because they are not fully controlled by the normal weed control program. Once established, these plants can be difficult to eliminate. Fall is a particularly good time to control perennial weeds with glyphosate (e.g. Roundup). As perennial plants begin to slow growth and harden off for winter, carbohydrates are transported to the roots for storage. Fall applied systemic herbicides will be similarly transported to the root system which leads to excellent control. Fall application works equally well on hard to control herbaceous perennial weeds such as thistle, dock, smartweed, and morning glory, as well as woody perennials such as poison ivy, Virginia creeper, multiflora rose, mulberry, blackberry and so on. The plants do not have to be actively growing for good results but should have sufficient active leaf area to take up the herbicide. Check the manufacturers product label for specific recommendations. NOTE: Desirable crop plants are also translocating carbohydrates to the roots and can be severely injured by fall applied systemic herbicides. Be extra careful when spot treating to AVOID ANY CONTACT with desirable plants. Read and follow all label recommendations.



Fall Herbicides for Fruit Crops:

There are several advantages to fall applications of pre-emergent herbicides in fruit crops. Dry soil conditions in the fall allow for equipment travel without compaction, weather conditions are more stable giving the grower greater flexibility in application times, and there is less likelihood of heavy rains to cause runoff. Fall applications provide control of winter annual weeds which can eliminate the need for a post emergent herbicide application the following spring. Though weed control from fall applications can last shorter into the following growing season than spring applications, a split application can help eliminate this problem. Several herbicides registered for use on fruit crops have a recommendation for fall or fall/spring split applications. Materials such as Surflan, Devrinol,

Princep, Karmex and Kerb perform well in fall or fall/spring split applications. See ID-168 and ID-169 for complete weed control recommendations.

Small Fruit Pest Management Handbook Wins ASHS Award: Congratulations to Drs. Richard Funt, Michael Ellis, and Celeste Welty of Ohio State University for winning the 1998 ASHS (American Society for Horticultural Science) Extension Division Materials Award for Commercial Fruit, Vegetable and Herb Production. Their entry, the Midwest Small Fruit Pest Management Handbook was published in 1997 as a joint effort of the Midwest Fruit Workers Conference which includes university staff from nine midwestern states: University of Arkansas, Iowa State University, University of Illinois, Kansas State University, University of Kentucky, University of Missouri, Southwest Missouri State University, The Ohio State University, Purdue University, and the University of Wisconsin. Funt, Ellis, and Welty were the primary editors and put together an excellent publication. Copies are available from the universities listed above or by contacting Extension Publications, 385 Kottman Hall, 2021 Coffey Rd., Columbus, OH 43210-1044 614-292-1607.



Fall Activities on Campus:

There are quite a few things happening on campus in September and October that may be of interest to the state's fruit growers. On September 24, the Department of Food Science will dedicate their new Food Science Building. This new \$22 million facility, with its 36 research and teaching labs, 9,000 square foot pilot plant, and computer-integrated manufacturing lab will help the Food Science department offer enhanced educational opportunities for students and increased benefits for the industry worldwide. On October 2-3 the Department of Horticulture and Landscape Architecture will hold a reunion and open house, to dedicate the new plant growth facilities. These state-of-the-art greenhouses, growth rooms and facilities will

allow the department to engage in the highest quality teaching and cutting edge research.



Purdue Enology Library Named: The Department of Food Science, and Gary Ramona, general manager of Forest Glen Winery in Ceres, California have dedicated the Richard P. Vine Enology Library in honor of Purdue's renowned wine expert. Ramona said the \$150,000 donation was to recognize Vine's 30 years of expertise, research and outreach in advancing the science and appreciate of wine.

Purdue Extension Educators to Receive Training on Fruit Crops: A group of Cooperative Extension Agriculture and Natural Resource Educators will be on campus September 16 to take part in a training program for fruit production. This will enable the county educators to train Indiana Master Gardeners and will lead to increased expertise in fruit production in county offices. Peter Hirst and Bruce Bordelon will handle the instruction which is being coordinated by Rosie Lerner, state Master Gardener Coordinator.

Program Ideas for the Winter Meetings: Please send Peter Hirst, Bruce Bordelon, and/or Dick Hayden your suggestions for topics or speakers for the winter meeting programs. We have a number of good suggestions, but need additional ones. The dates of the meetings are January 26-27, 1999 so mark your calendar.

Subscribing Electronically: To subscribe (or unsubscribe) to Facts for Fancy Fruit, send a message to fff@lists.hort.purdue.edu with the subject or body "subscribe" (or "unsubscribe"). You can also use the form at the web site <http://www.hort.purdue.edu/fff/maillinglist.html> to submit your subscription. Electronic access is free of charge.

Coming Meetings

Sept. 12 - Beyond Corn and Beans... Alternative Farming Workshop. Sullivan County Fairgrounds, Sullivan, IN. 8:30 A.M. to 5:00 P.M. Contact Shenna Reynolds, 812-268-4332.

Sept. 13 - Ohio Valley Harvest Festival, Noon to 6:00 P.M., Riverfront Plaza/ Belvedere, Louisville, KY. Contact Roy Ballard, Floyd Co. Extension, 812/948-5470

Sept. 24 - Purdue University Department of Food Science State Dedication Day for the new Food Science Building. 1:30-4:00 p.m. Contact 800-829-3319 or 765-494-8256

Sept. 29-Oct. 1 - Farm Progress Show, Baird Brothers Farm near Windfall in Tipton County. Contact Purdue CES at 765-494-8494

Oct. 2-3 - Purdue University Department of Horticulture and Landscape Architecture Reunion and Departmental Open House. Contact 765-494-7420

Oct. 16-17 - Beekeeping and Honeybee Pollination Conference. Purdue University campus. contact Dave Laney 219-656-8701 or Greg Hunt, 765-494-4605.

Oct. 21 - Apple variety showcase and tour will be held at Hilltop Nursery, Hartford, Michigan. The tour begins at 5 PM followed by a buffet dinner and variety showcase at 6:30 PM. Contact Mark Longstroth at 616-657-7745 or Hilltop Nursery at 800-253-2911

Beginning fruitgrowing workshop - On the day before Hort. Congress (January 25) we will be holding a one-day workshop on beginning fruitgrowing. This will cover the basics from site selection, to marketing, with a focus on apple and peach production. This is primarily aimed at folks who are new to the industry, or perhaps those just thinking about it. It might also be a good review for some county educators and established growers. There will be a separate registration for this workshop, and numbers will be limited. Watch Facts for Fancy Fruit for more details.



Cider - Many of you are gearing up to make cider. I think everyone is aware of the new regulations pertaining to warning labels – if not look at the last FFF or contact me. I just want to stress 2 things: sanitation and quality. Remember that sanitation starts in the orchard – it's a lot easier to keep the fruit clean rather than trying to clean up dirty fruit. The quality of the cider is dependent on the fruit going into it, so don't think of cider as a dumping ground for unsound fruit. Obviously much of the fruit going into cider has cosmetic blemishes, may lack a bit of color or may be on the small side, but cider is no place for rotten or wormy apples. We all need to work hard to insure that we have a problem-free year, and restore the reputation of cider as a healthy, nutritional product.



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