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Crop Conditions

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Apples are sizing well and rainfall has been adequate to excessive in different areas of the state. Cool weather lately should help with color development. Apple growers with light crops should continue using calcium in their cover sprays to reduce cork spot and bitter pit. Summer apples, late peaches, and blueberries are being harvested at this time. Grape harvest is just beginning. The wet season has been conducive to fruit diseases so a good spray program should be maintained. Japanese beetle numbers seem to be dropping off somewhat, but there are still plenty around. The season is still about 10-14 days behind normal.

Weather Outlook: The 6 to 10 day outlook for Indiana calls for near normal temperature and below normal precipitation. The 90 day outlook for August, September, and October calls for below normal temperature and near normal precipitation.

Special Regional Meeting on the Federal Crop Insurance Program: Wednesday, August 21, 1996. The USDA Risk Management Agency is inviting growers and representatives of the agricultural industry to a meeting at the University of Illinois Environmental and Agricultural Sciences Building located in Champaign, Illinois. This meeting covers Illinois, Indiana, Michigan and Ohio.

The discussion will include Crop Revenue Coverage, Income protection, and other insurance options; actual production history procedures; improvements to specific crop policies; crop expansion; and the general program direction. They would like to hear our views

on the current crop insurance program, and how best to develop the strategy for providing better risk management tools in the future.

If you plan to attend please notify Denver Sheffield of the Risk Management Agency, Regional Service Office in Springfield, IL ASAP - i.e. NOW, at (217)492-4186. Also, please let Steve Doud, Pres. of IHS know(317) 985-3937. Dick Hayden (317)463-6587 and Steve have maps of that part of the U of I campus.

Pomology Specialist Position Update: The search committee for the Pomology Extension and Research position met in late July for an initial evaluation of candidates. An excellent pool of applicants was reviewed and three candidates have been selected for interviews. We will hold the interviews in September. Key members of the Indiana tree fruit industry will be invited to attend each candidate's seminar. We'll keep you posted.

Apple Crop Down: It appears that the apple crop in the U.S. will be down 6% from last year's crop. The national crop is estimated at 247 million bushels, down from the 1995 crop of 262.7 million bushels. Many Midwest and eastern states are reporting wide variations in the crop from orchard to orchard due to the hot dry summer of 1995, mid winter freezes, spring frosts, localized hail damage, and poor pollination caused by rainy conditions, lack of honey bees, and weak flowers. On a state by state basis the following are predictions by extension horticulturists: New York 100% crop, Pennsylvania 50-60% of full crop, Virginia 65% of full crop, West Virginia 50-60% of full crop, Indiana 67% of full crop, Kentucky 90% of full crop, North Carolina 91% of 95 crop, Arkansas 60% of full crop, Wisconsin down somewhat, but with a full crop of McIntosh, Michigan 67% of 95 crop, Washington 4% higher than 95 crop.

Small Fruit and Grape Crop Report: Blueberry harvest continues in the state with fruit quality being excellent. Fruit size is very large this year because of the reduced crop. Alternaria and anthracnose fruit rots have been problems due to the rainy season. Cranberry fruit worm and blueberry maggot pressure was unusually high this year. Prices are very strong and supply is limited. Black and red raspberries in most areas have shown delayed winter injury during June and July as hot weather stressed winter-injured floricanes and caused collapse. Yields have been down significantly. Fall-bearing red raspberry harvest should begin soon, but primocane growth is reduced in many plantings, so yields may be low. Excess soil moisture and leaching of nitrogen are the most likely causes. The grape crop looks excellent in most areas. Some cultivars suffered poor fruit set where rain coincided with bloom, but overall, fruit set is excellent. Disease problems are not severe in commercial vineyards. Phomopsis cane and leaf spot is common this season, and black rot has been a problem in home plantings. So far,

downy and powdery mildew have not been problems. Early cultivars such as Aurore and Foch have been harvested in southern areas. Harvest should proceed over the next 4 to 6 weeks. If the cool weather continues, fruit quality should be excellent.

Grape Harvest Parameters: As harvest time approaches growers should keep in mind that fruit composition (sugar, acid, and pH) is the determining factor for harvest date in grapes. Desired fruit composition depends on the wine style to be made. For light, fruity style wines, grapes are usually harvested before full maturity. This is especially true with American cultivars such as Concord and Niagara. For heavier, full-bodied wines, fruit is usually allowed to fully ripen. This is usually the case with red French hybrids. At full maturity grapes should have 20 to 24 % soluble solids (sugars), 0.7 to 0.9 titratable acidity, and a juice pH of 3.1 to 3.5. When deciding on harvest date, soluble solids is not the best indicator of optimum fruit quality. Instead, a balance of soluble solids, titratable acidity, and juice pH should be considered. Of the three parameters, juice pH is probably the most important. High juice pH is a big problem in the winery, and it cannot be adjusted as easily as titratable acidity or sugar content. Most winemakers prefer white wine grapes with a juice pH of about 3.1-3.2 with a maximum of 3.4, and red wine grapes with a pH of 3.3-3.4 with a maximum of 3.5. Several wine quality attributes are adversely affected by high pH. These include color, protein, and tartrate stability, oxidative rate, metal complexing, ability to clarify, biological stability, and sensory attributes.

As harvest nears, sampling should be done at least twice weekly to track the progress of fruit ripening. If cool temperatures continue this season, fruit should be ripen slowly and should reach full maturity without the problems that were encountered during the hot summer of 1995. Last year's heat caused low titratable acidity and high juice pH. If cool

weather persists, titratable acidity should remain relatively high, and juice pH should remain low as sugars increase. If you plan to sell to a winery, keep them updated on fruit composition and let them help make harvest decisions based on their needs. During harvest, protect fruit quality by picking early in the day while the fruit is cool, keep the fruit cool, and handle the fruit carefully to avoid cracked berries, juice leakage, and potential spoilage. Minimize the time between harvest and crush as much as possible.

Stop Drop Sprays: NAA is the only material now available for stop drop use on apples. It is expensive, so use it wisely and according to the label. Stop drop sprays are not a substitute for timely harvest since fruit continues to ripen and can go out of condition. Growers would like to hold fruit on the tree long enough to attain good color, but do not delay harvest past the attainment of good internal fruit quality.

Use 5 ppm on summer apple varieties and 10 ppm on fall and winter varieties. For maximum effect apply when temperatures are in the 70's. Only two applications are permitted. Do not apply closer than 5 days before harvest. Apply when the first sound, uninjured fruit begin to drop. NAA requires two days or more to become effective and is effective for 7 to 10 days. Healthy foliage is necessary for best results. Mite damage will reduce the effectiveness of stop-drop sprays. Several formulations of NAA are available, so be careful in calculating the tank mix. Follow label recommendations and cautions carefully.

Ethephon for Color Enhancement and Advanced Maturity: Ethephon (Ethrel) may be applied 14 to 21 days prior to the expected harvest data for a variety at the rate of 150 to 300 ppm (1/2 to 1 pint per 100 gallons). Use the lower dosages for late maturing varieties. Ethephon will be most effective when weather conditions are suitable for good color development, e.g. bright, mild days and cool nights. Days with 75°F max and 50-55°F min. are

ideal for color development. If the weather is hot at time of application, ethephon will be ineffective.

Ethephon stimulates maturity of the fruit. Treated apples will go out of condition more quickly. Always treat only the amount of fruit that can be harvested and marketed on a timely basis. Do not try to store ethephon treated fruit for an extended time, and do not recommend that your customers store ethephon treated fruit for an extended period of time, especially in non-refrigerated storage. Ethephon should be used only on the red varieties since it may cause mottling on Golden Delicious. Ethephon causes fruit abscission, so for orderly harvesting, NAA should be used as the stop-drop if harvest is to be delayed in any way. Carefully program Ethephon applications so that you have treated no more fruit than can be harvested in three days. Follow label instructions carefully.

European Red Mites: I have received several reports from growers who have had outbreaks of European red mites in their orchards this year, even though they have conserved their predatory mites by selecting insecticides that are least toxic to the predators. In most situations, the outbreaks occurred in varieties that are most susceptible to mites, such as Red Delicious, and that had not been treated with Apollo or Savey. I think the lesson to be learned from these outbreaks is that problem blocks will need to be treated with one of the preventive acaricides, at least every other year. As my research has shown over the last several years, the predators perform best when they have some help from materials such as Apollo or Savey that reduce the European red mite populations to a manageable level.

Of more immediate concern, what should you do about the outbreaks now that we no longer have Omite available? I had high hopes that we might be able to use Agrimek as a rescue treatment. I applied Agrimek to trees at the Hort Farm two weeks ago, and one week after treatment, the Agrimek + oil treatment

had populations only 25% below the untreated. I think at this point we are better off to use some of the older acaricides, such as dicofol, Vendex, and summer oils rather than Agrimek. Agrimek did work very well when applied within 6 weeks of petal fall, as recommended on the label.

Pinpoint Scab: Wet weather during the apple harvest period can lead to the development of pinpoint scab and other fruit infecting diseases, eg. 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.

Harvesting and Handling Apples: Growing good quality fruit is useless if that quality is not maintained because of sloppy handling! Train your picking crews carefully and supervise them adequately to eliminate bruises in picking and handling. Finger bruises, especially on McIntosh, Goldens, and Ozark Gold, show up clearly, so handle carefully. Gentle transfer of fruit from picking bag to crate or bin will help to prevent bruises. Bruising is less when bins are used for transport of harvested fruit.

Check orchard roads and driveways and smooth out the bumps. Each bump translates into extra bruising. Also, train and supervise the drivers of vehicles transporting fruit to eliminate excess speed or carelessness which will compound the bruising problem.

Cool the fruit quickly after it has been harvested. Get it into refrigerated storage as quickly as possible. Storage life is best when apples reach the storage temperature in less than four days. Each day's delay can result in about 7 days shortened storage life. Loading fruit into the storage in the morning after a cool night can help to reduce the refrigeration load. Remember to control mice.

Maintenance of storage temperatures at or just below 32°F will be optimum for most cultivars. Also relative humidity of 95% will reduce loss of moisture and resultant loss of storage life. It is a good practice to wet boxes and fruit down when they enter the storage and periodically thereafter to maintain high humidity.

When to Harvest Apples: There are several ways to help determine the best time to harvest, but no one method works all the time. Growers should not rely on one method only. The best procedure is to use a combination of measurements. These include days after full bloom; fruit softening; sugar level (percent soluble solids); starch disappearance; fruit and

seed color; and fruit flavor.

Skin and flesh color and "the market" are primary tests for many growers. These are poor indicators of fruit quality and readiness of fruit for harvest and storage.

Fruit firmness should be followed periodically for several weeks before the expected date of harvest. It should decrease slowly from more than 20 pounds to 15 or 16 pounds. Harvest should occur before the pressure gets down to about 14 pounds, depending on the variety.

Soluble solids (%SS) should be a part of the determination and once the average fruit of a variety reaches an acceptable level, harvest can begin. Delicious should not be harvested until the %SS reaches at least 10%, and Golden delicious at least 11%. Varieties such as Gala, Fuji and Braeburn should reach substantially higher %SS levels before they are acceptable.

Disappearance of starch is also a good assessment of maturity. Starch converts to sugar in a reasonably uniform manner. Applying an Iodine solution to a cut fruit surface will stain the starch in the flesh blue-black. A commonly used rating system for this test is the scale of 1 to 6.

1= full starch (entire cut surface is blue-black)

2= clearing of the color in the seed cavity and halfway to the vascular area

3= clear of color through the vascular bundles

4= about half of flesh clear

5= starch only under the skin of the fruit

6= starch free - no blue black color at all

Guidelines have been developed for using this scale to rate the readiness for harvest for various purposes. Fruit to be held for long term storage needs to be harvested earlier than that to be sold during the early season.

A good guide is still:

Sell the first fruit harvested immediately

Fill the storage from back to front and withdraw it from front to back. Thus the least mature fruit is stored longest.

Do not rely on only one maturity test, but try to use several of the above to determine the optimum harvest date.

Marketing Hail Marked Apples at Retail:

Growers who have experienced hail in the orchard usually have little problem marketing apples that have been hail-marked at retail or PYO. This assumes that the damage occurred early in the season and the hail marks are well healed or did not penetrate the skin. Damage that is not well healed will throw the fruit out of grade and in some situations may even make it unsuitable for cider.

If the hail damage is not too severe apples can simply be sold as usual. The fruit may also be marketed using a catchy description of the damage, such as calling the apples "Ice-Kissed" along with a description of what that means. Usually a small discount is called for if the damage is more severe. Most consumers will understand the problem and take it in stride. This is a situation where a little public relations can go a very long way in getting the crop marketed successfully.

If there is enough undamaged fruit to make separation practical, then two grades of fruit can be marketed. If the fruit that is damaged has an aggregate damage of less than about 1/2 inch diameter per fruit it can be marketed as US #1 "hail grade".

Another obvious outlet is to use the worst damaged fruit in cider or sell it for juice or cider use. Selling juice apples, however has not been a profitable outlet. With a somewhat short crop in the state and region, juice prices may be a little better. However using the fruit in your own operation for your own cider is a much better option.

Summer Pruning of Apples: Summer pruning apples in early to mid-August results in the least re-growth of shoots, allows for good light penetration for improved fruit coloring, and minimal affect on fruit size. Cultivars that garner a premium for enhanced color (Gala, Fuji, Braeburn) are good candidates for sum-

mer pruning. Be careful about sunburn on the fruit. Yellow apples are probably not good candidates for summer pruning except for watersprout removal to facilitate spraying, etc. Summer pruning can be a good utilization of labor and can reduce the time spent in dormant pruning.

With smaller trees a few judiciously placed cuts or the removal of long extension growth at the tops of trees can reduce dormant pruning time and enhance fruit color. Typically the long current season extension growth, mainly in the tree tops, is cut back to 1/2 inch from the base, or into two year wood to the first fruit spur.

Young trees just coming into bearing are also good candidates for some summer pruning; especially in the tops of trees. In those blocks that are spaced too close, summer pruning combined with dormant pruning can help maintain fruit quality in a planting for a few extra years.

Summer pruning should not be excessive so that soluble solids and fruit size is maintained. Limit the number of cuts to about 10 to 20 per tree. Avoid summer pruning on young trees that have not filled their allotted space or are low in vigor.

Worker Protection Standard Public Meeting in Tipton, Indiana: The U.S. EPA will hold a public meeting in Tipton, Indiana on August 21, 1996 to obtain input from workers, growers, handlers and others on the Worker Protection Standard (WPS) for agricultural pesticides. EPA wishes to assess the first full year of implementation of these new regulations which are designed to protect the health of agricultural workers who are exposed to pesticides on the job. This public meeting will provide an opportunity for both workers and employers in Indiana and neighboring states to relay actual experiences and lessons learned within the past year in the course of WPS implementation. EPA is interested in hearing public comment on: understanding of WPS requirements; successes or difficulties in

implementation; usefulness of available assistance from state agencies; and suggestions for improvement. The information will be used by EPA and cooperating state officials and organizations to evaluate and improve the impact and performance of the WPS program. **MEETING LOCATION:** Tipton County 4-H and Community Building in Tipton, Indiana (about 30 miles north of Indianapolis) on Wednesday evening, August 21, 1996 at 7:00 pm. **VOICE YOUR OPINIONS:** Persons who wish to speak at the meeting may register on site beginning at 5:00 PM. Speakers are encouraged to submit written comments as well to ensure that their position is accurately received. People unable to attend may submit written comments or a short videotape for presentation on their behalf by August 1. Limited funds are available through the Midwest Migrant Health Consortium to cover travel expenses for migrant/seasonal workers to provide testimony (contact Suzy Richards of Community Health Partnership at 312/663-1522 ext. 252). Disabled attendees requiring special accommodations should notify EPA at least 3 weeks prior to the meeting. Persons who cannot attend the public meeting but wish to comment without presentation at the meeting may do so by submitting written comments to: Jeanne Heying, Office of Pesticides Programs (7505C), U.S. EPA, 401 M Street, SW, Washington, D.C. 20460. Telephone: 703-305-7164; fax 703-308-2962. Questions about this Indiana public meeting may be directed to Edward Master 312/353-5830) or Donald Baumgartner 312/886-7835) at the U.S. EPA Region 5, Pesticides Program Section (DRT-14J), 77 West Jackson Blvd., Chicago Illinois 60604.

Kentucky Commercial Apple IPM Meeting: August 20, Appledale Farms (Mark and Don Haney owners), 2183 Hwy 80, Nancy, KY 42544 606/636-6148 (farm market). Directions — Take Hwy, 27 South to Somerset. Turn right on to Hwy. 80. The orchard is 7-8 miles on the right.

10 am-Noon EDST: Apple Production Round Table discussion led by Bill Jackson, President of the Kentucky State Horticultural Society. Noon: Lunch will be available at cost for those who pre-register. Preregister by calling Mary Ann Kelley at 502/365-7541 Ext. 216 between 8 AM & 4:30 CST weekdays before August 18 and give her the count for the Apple IPM meeting in Nancy.

1 - 3:00: IPM Program by University Specialists. All UK Cooperative Extension Service Meetings are open to everyone. If you have questions contact Jerry Brown 502/365-7541 ext. 204, or John Strang 606/257-5685.

Illinois Cider School: Thursday, August 22, 1996 9:30 am - 3:30 pm. Illinois Cider School, Quig's Orchard, Mundelein, IL Contact Don Naylor, Exec. Sec'y, IL Hort Society, (309)828-8929. This meeting, sponsored by the Illinois State Horticultural Society, will include a demonstration of cider making by Michigan Orchard Supply personnel using a continuous press. It will also include best cider making practices taught by Illinois Dept. of Health and MOS personnel. The chemistry of cider will be discussed; and maintaining a consistent flavor in cider throughout the season will be discussed by a panel of cider producers. Advance registration is \$25 with \$5 added for registration at the door. Quig's Orchard is located on Route 300S in Mundelein about a quarter mile north of Midlothian Road. Mundelein is a Northern suburb of Chicago. It is on US 45 northwest of Highland Park between Libertyville and Wauconda.

Facts for Fancy Fruit Available Electronically: All 1996 issues of Facts for Fancy Fruit issues are available through the Horticulture and Plant & Pest Diagnostic Clinic worldwide web homepages. To locate the newsletters on the web, go to the Horticulture home page at: <http://www.hort.purdue.edu>, select Extension/Outreach, then Extension Bulletins and Newsletters. Or you can go directly to the Facts for Fancy Fruit Index at <http://www.hort.purdue.edu/fff/fff.html>.

To access the newsletters from the Virtual Plant Disease Diagnostic Lab homepage at <http://www.aes.purdue.edu/ppdl/p&pdlwww.html>, select Newsletters, then Facts for Fancy Fruit.

In addition, a listserv is set up so you can subscribe and unsubscribe to the email version. To subscribe send a message to "almanac@ecn.purdue.edu". Your message should consist of this single one-line message: "subscribe FFF_L <your name>" without the quote marks. To unsubscribe follow the same procedure: "unsubscribe FFF_L <your name>". Do not include anything else in the message. Note that the address to subscribe and unsubscribe is not the same as the return address for FFF_L. If you have any problems contact me at bb@hort.purdue.edu and I'll try to help.

Coming Meetings/Events:

August 20 — Commercial Apple IPM Meeting, Haney's Appledale Orchards, Don and Mark Haney, Owners, Nancy, KY. See directions above.

August 21 — Worker Protection Standard Public Meeting in Tipton, Indiana, Tipton County 4-H and Community Building, See article above for further information.

September 15 — Ohio Valley Harvest Festival, Louisville, KY. Contact Roy Ballard (812-948-5470).

September 22 — Indiana Nutgrowers Association fall meeting, Bernie VanderKleed's place in Shadeland. Contact Bernie at 317-538-3528.

October 6-10 — 93rd American Society for Horticultural Science Annual Meeting, Lexington Convention Center, Lexington, KY. Contact the Department of Horticulture, Purdue University (317-494-1301).

October 10 — Orchard Meeting and Apple Cultivar Showcase. Dana and Trudie Reed's Townsend Valley Orchard. 1-5 p.m. Contact Jerry Brown 502/365-7541 ext. 204.

October 19 — Annual Meeting of the Kentucky Vineyard Society. Contact Ken Harmet (502) 269-2411.

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