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**Crop Conditions:** Fall raspberries are being harvested across the state. Blueberry and peach harvests are winding down to late season cultivars. Summer apples are being harvested, especially in the south and central areas. Early grape cultivars, mostly table grapes and early winegrapes, are being harvested in southern areas. The season is still running about 10 days ahead of normal.



**Weather Notes:** The medium range outlook (6-10 days) calls for normal temperature and precipitation. The 30 day outlook (August) calls for normal temperature and precipitation, and the 90 day outlook (Aug. - Oct.) calls for below normal temperature and normal precipitation.

July Weather Review: July ended up as the 17th wettest in the last 104 years with several very intense point thunderstorms dropping large amounts of precipitation on localized areas. Peru received 6-7 inches of rainfall in one episode, Bluffton received 9-10 inches in one episode and Columbus received 7-8 inches in one episode. Temperatures for the month were near normal with the statewide average being slightly less than 1 degree below normal.

Over the period of July 25-Aug. 7 the bullseye pattern continued with Marion receiving over 7 inches of rainfall in one evening. Temperatures during this period averaged 1 - 2 degrees below normal across the state. Why the localized intense rainfall events? Ken Scheeringa has identified 3 potential explanations. 1) Systems move very slowly across Indiana in the summer and this summer has been no exception. Since we are not in the main jet stream in the summer systems typically sit over the state for a longer period of time than they do in other seasons. 2) Entrainment: As storms get started the system brings in moisture from surrounding areas to feed on

enhancing the rainfall potential in an event. During the recent events in Indiana there has been plenty of available moisture. 3) Looking at past weather records as El Nino dies heavy, intense rainfalls have tended to happen. We can assume, therefore, that these heavy, intense rainfalls may be part of the transition to La Nina. Rainfall graphics for previous years can be found on the web at the Midwestern Climate Center page: <<http://mcc.sws.uiuc.edu/>> A couple of specific years to look at are 1958 and 1973 under the El Nino Information link. From these two graphics we see similar patterns to what Indiana has experienced in 1998. *by Ken Scheeringa from the Purdue Crop and Weather Meeting, August 7, 1998.*



**Warning Labels on Cider:** It's official. Cider made this year **MUST** have warning labels, unless you pasteurize. The FDA has issued it's final rule, which is a 54 page document that addresses the comments which were submitted in response to the proposed rule. Very few substantive changes have been made. The following is my attempt to boil it down to address many of the common questions and concerns you may have.

**Who must use warning labels?**

The rule on warning labels applies to every-

one who sells cider regardless of the amount.

There is some confusion surrounding the exemption if you produce less than 40,000 gallons per year. This exemption only applies to the proposed HACCP rule but not the rule regarding warning labels. You do not have to apply warning labels if you have a HACCP plan which results in a 5-log (100,000 time reduction) in pathogens. At the moment, pasteurization is the only way we know of to achieve this.

If you are not selling cider directly to the public, but to another manufacturer to be used in the production of another product, warning labels are not required, however the fact that the cider is not pasteurized must be stated in documents accompanying the cider. The FDA wording is "...juice that is not for distribution to retail consumers in the form shipped and that is for use solely in the manufacture of other foods or that is to be processed, labeled, or repacked at a site other than originally processed, is exempt from the warning statement requirement, provided that for juice that has not been processed in the manner described [pasteurized] the lack of such processing is disclosed in documents accompanying the juice, in accordance with the practice of the trade." Unpackaged cider sold for immediate consumption (eg. at a cider bar) does not require a warning label.

#### **What does the warning label have to say?**

"WARNING: This product has not been pasteurized and, therefore, may contain harmful bacteria that can cause serious illness in children, the elderly, and persons with weakened immune systems."

The word "pasteurized" was chosen because the FDA felt that it was something that the public could relate to and understand, even though in the future technologies other than heat pasteurization may be used to achieve the 5-log reduction in pathogens.

#### **Does the warning label have to be on the jug itself?**

In the future, yes, the warning label will need to be on the jug. But, for this year only, the warning label may be in the form of a sign on the display case where the cider is sold. In the FDA's words, "...the provision in the juice labeling proposal that the warning statement requirement may be met, in the short term, by labeling (i.e., a sign or placard that is displayed at the point of sale) rather than by application of the warning statement to the product label..." When signs or placards are used, the type size should be not less than one forth inch in height.

#### **How large do warning labels need to be?**

If you are going to place warning labels on jugs this year (see the above comment), they must appear on the principal display panel or the information panel on the cider container. "...the act requires that mandatory label information be prominently placed on the label with such conspicuousness (compared with other words, statements, designs or devices in the labeling) as to render it likely to be read and understood by the ordinary individual under customary conditions of use." The word WARNING is to be in bold type and the warning statement should be set off in a box by the use of hairlines.

#### **If cider is pasteurized, does it have to be stated on the label?**

Again, from the FDA, "the agency is not requiring that the term "pasteurized" or any similar term, i.e., heat treated, appear on the label of juice that has been pasteurized. The agency advises that labeling a pasteurized juice product as "fresh" is a misbranding violation under section 403 of the act. Such products are subject to regulatory enforcement action."

#### **If cider is to be sold through a supermarket or other retailer, who bears the responsibility for correct labeling?**

"Under the applicable law, regulations, and agency policy, the firm that is identified as the manufacturer or distributor on the product label bears the principal responsibility to ensure that the product meets all applicable legal requirements, including labeling. However, retailers and wholesalers also have legal responsibility to ensure that products they sell are properly labeled."

#### **If someone becomes sick from my cider and I have labeled it, can I still be held liable?**

I'm no lawyer, but think about the tobacco companies. They have warning labels on their products, but that does not seem to have helped them too much in the courts recently.

#### **What's the deal with HACCP?**

The FDA's final rules regarding HACCP are not yet final and will not be in place for the coming cider season. The way it looks now is that cider makers who produce less than 40,000 gallons per year will be exempt from the HACCP rule.

This will mean that warning labels will need to be used. If you produce more than 40,000 gallons per year, it seems likely that a HACCP plan that achieves a 5-log reduction in pathogens is on the way. We expect the final rule from the FDA in the next few months, but this won't impact you for this season, and you may have a couple of years to comply with the rule.

If you have other questions or concerns about the new rules for cider for this season, call or email Peter Hirst.



**Apple Summer Rot Diseases:** Black rot and White rot (also known as bot rot) are two common fungal diseases that can cause significant fruit losses as fruit begins to ripen. Both diseases are also capable of infecting woody tissue causing stem and/or trunk cankers. The stem canker phase of black rot is very common in northern Indiana. It becomes established on almost any dead wood within the tree and is especially prevalent on shoots killed during the previous season by fire blight. Like black rot, white rot is generally considered to be a weak parasite, gaining entry into woody tissues where indiscriminate pruning cuts or wounds are made.

Branches which show bright yellow leaves that eventually turn brown and die are likely candidates for having black rot or white rot cankers. All such yellow "flags" should be pruned out completely several inches below any signs of obvious cankering or discolored wood as soon as they appear. Removing dead wood, mummies and cankers from the trees is critical in the management of these diseases. Current-season prunings should be removed from the orchard or chopped with a flail mower. Prunings piled on the orchard perimeter (let alone within the orchard!!) can serve as important disease sources...both this year and next! Act now to get rid of such sources. *-Pecknold*

**Apple Scab:** Severe apple scab infection is being reported from many areas of the state. This means that susceptible, unsprayed apples and crabapples will be producing mass quantities of secondary "summer" spores throughout the summer anytime conditions favorable for apple scab occur. We advise all commercial growers, especially those located near abandoned, unsprayed orchards or wooded areas, to be especially diligent this year in maintaining a regular spray schedule for scab. Do not become lax with your scab sprays, even if your orchard is free of scab... the idea is to keep it that way. *-Pecknold*



**Grape Harvest Parameters:** Grape harvest is getting started, especially in the southern part of the state. Early cultivars such as Foch, Aurore, and Leon Millot are being harvested. Grape harvest appears to be about 10 days ahead of normal this season. That could be a problem for vineyards in the southern half of the state where high temperatures during ripening may lead to high pH, low TA, and poor flavor development, especially on the early ripening cultivars. The recent slow moving low pressure system has caused several days of rain over much of the state. This could lead to significant fruit rot problems, though no problems have been reported at this time. Bird damage has been a problem in some areas.

As harvest nears, sampling should be done at least twice weekly to track the progress of fruit ripening. 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, handling the fruit carefully to avoid cracked berries, juice leakage, and potential spoilage, and keeping the fruit cool by moving containers out of the vineyard quickly and placing them in shade or cold storage. Minimize the time between harvest and crush as much as possible.

Growers should be sampling their vineyards twice weekly and analyzing fruit composition (sugar, acidity, and pH) to determine harvest date. As fruit ripen sugar concentration increases, titratable acidity decreases, and pH increases. Flavor also develops as the ripening process occurs. It is very important to pick grapes at their peak ripeness level because grapes do not continue to ripen after they are harvested. The level of ripeness desired at harvest depends on the style of wine to be made. For light, fruity style wines, grapes are usually harvested before they are fully ripe. This is especially true with strong flavored American varieties such as Concord and Niagara, and some of the French-American hybrids such as Cayuga White. When grapes are harvested before full ripeness sugar may have to be added to the must before fermentation, but the results are a lighter, fruitier wine without an overpowering 'foxy' flavor. For heavier, full-bodied wines, fruit is usually allowed to fully ripen before harvest to develop full flavor. Fully ripe grapes should have 20 to 24 % soluble solids (sugars), 7 to 9 grams/L titratable acidity, and a juice pH of 3.1 to 3.5. To accurately measure these parameters growers

need a refractometer, pH meter, and burette with 0.1 N NaOH.

Soluble solids is the easiest parameter to measure, but is not the best indicator of optimum fruit ripeness. Instead, a balance of soluble solids, titratable acidity, and juice pH should be considered. Of the three parameters, juice pH is perhaps the most important. High juice pH can be a problem in warm growing seasons, and with certain varieties, and causes many problems for the winemaker. Several wine quality attributes are adversely affected by high pH including color, protein and tartrate stability, oxidative rate, metal complexing, ability to clarify, biological stability, and sensory attributes. Since pH cannot be adjusted in the winery as easily as titratable acidity or sugar content, it is best to harvest fruit within the desired pH range. Most winemakers prefer white winegrapes with a juice pH of about 3.1-3.2 with a maximum of 3.4, and red winegrapes with a pH of 3.3-3.4 with a maximum of 3.5.

If warm temperatures occur during harvest this season, fruit may ripen quickly, leading to low titratable acidity, and high juice pH. Growers will want to work closely with the winemakers to determine when to harvest. -*Bordelon*



#### *Managing 1998 Apple Harvest:*

Source: Dr. Dave Ferree, Fruit Specialist, ARDC from Ohio Fruit ICM News, Volume 2, Issue 22, August 6, 1998

Harvest based on peaches and early apples is 10-14 days early this year. One of the tools to help manage harvest is the chemical Retain. This material has consistently given greater preharvest drop control than other available materials and often improves firmness. To achieve the greatest effect, it must be applied one month prior to expected first harvest. As an example, the normal harvest date of Delicious at Wooster is October 1, and with the earliness this year, it would be September 15. Thus, Retain needs to be applied by mid-August to be most effective. For Gala in northern Ohio, Retain would need to be applied the first week of August. Retain is useful for its drop control and also as a help in managing harvest of a cultivar that you have more planted than you can harvest at the proper time. In this latter case, part of the cultivar can be sprayed and harvested later with maintenance of good fruit quality.

Do everything possible to avoid losing quality during harvest. For example, supervise pickers to avoid bruising. Make sure ruts in the road from the orchard to the storage are filled so fruit in the bin is not

bruised in transport. Attempt to cool fruit as quickly as possible to retain firmness and quality.

#### *Fall Herbicide Applications for Strawberries:*



From Illinois Fruit and Vegetable News  
Vol. 4 No. 18 by John Masiunas

A number of herbicides can be used on strawberries during late summer and fall to prevent weed germination, kill emerged weeds, and provide residue control until the following spring. The key set of weeds you need to control during this period are fall germinating winter annuals such as chickweed and shepherds purse. You may also need to control wheat, oats, or rye that come from seed in the straw mulch that you apply for winter protection.

Devrinol (napropamide) is a preemergence herbicide. It can inhibit rooting of daughter plants. Thus Devrinol should be applied after early forming daughter plants have rooted. Late forming (after late August) daughter plants do not contribute to yield and Devrinol can be applied before these plants root. Devrinol must be applied before winter annuals and small grains emerge. Devrinol provides excellent control of small grains and some winter annuals such as chickweed. Devrinol must be moved into the soil by cultivation or water after application.

Sinbar (terbacil) is primarily a preemergent herbicide but it has some postemergence activity against small susceptible weeds. Fall applications of Sinbar should only be applied after the strawberries are completely dominant. If Sinbar is applied to actively growing strawberries, injury can occur. Cultivars differ in tolerance to Sinbar. In general, less vigorous cultivars have greater injury. Applications are most effective when applied to the soil and activated by rainfall or irrigation. Sinbar provides excellent control of many winter annual weeds. Fall applications of both Devrinol and Sinbar will persist to the following spring.

Poast (sethoxydim) is a postemergent, grass active herbicide. The grasses must be actively growing. Thus Poast should be applied in late summer or early fall before plants become dormant. Also make sure that you scout your fields to determine which grass weeds are present. Summer annual grasses, such as foxtails and crabgrass, will be killed by fall frosts, and do not require Poast applications for control. Poast is more effective against annual than perennial grasses. Poast can be used in the fall to suppress perennial grasses such as quackgrass; con-

trol early emerging small grains, and kill winter annual grasses such as wild oats and downy brome. Poast must be applied with a crop oil.

A systemic, postemergence broadleaf herbicide, 2,4-D, can be applied when strawberries are dormant to control some winter annuals. 2,4-D provides good control of many mustards, shepherdspurse, but is not very effective against chickweed. The herbicide should be applied to actively growing weeds. Be careful of 2,4-D drift causing injury to non-target plants.

Gramoxone Extra (paraquat) can be applied as a directed spray between strawberry rows, using shields to prevent contact with strawberry plants. Gramoxone is a nonselective herbicide, so it will kill or severely injure strawberries it contacts. Gramoxone is a restricted use pesticide and is extremely toxic to animals including humans. It provides excellent control of annual grass and broadleaf weeds. Gramoxone does not extensively translocate in plants so it does not control perennial weeds. Weeds should be actively growing when Gramoxone is applied.

In conclusion there are a number of herbicide options that can be used on strawberries during the fall. Select herbicides that will control problem winter annuals and small grains. Herbicides such as Devrinol and Sinbar can provide residue weed control until spring. John Masiunas (217-244-4469; masiunas@uiuc.edu)

**Raspberry Anthracnose:** The plant disease clinic is receiving numerous raspberry samples with severe anthracnose infection. The most disturbing overall symptom at this time is the failure of fruit to ripen; fruit remain small, hard and discolored due to the extensive girdling of canes and pedicels. The fungus overwinters on both living and dead plant tissues; therefore, old fruiting canes and infected primocanes should be removed from plantings after harvest and destroyed. This greatly reduces the amount of disease that survives within the planting. ALSO, if anthracnose is severe, do not forget the liquid lime sulfur application next spring. See ID-169, "1998 Indiana Commercial Small Fruit & Grape Spray Guide", for further information. -Pecknold



**Beyond Corn and Beans... Alternative Farming Workshop:** Sullivan County Cooperative Extension Service and Sullivan County Farm Bureau, Inc. are teaming up to sponsor "Beyond Corn and Beans... Alternative Farming Workshop" at the Sullivan County Fairgrounds in Sullivan,

IN from 8:30 A.M. to 5:00 P.M. on Saturday, September 12. The workshop will provide various sessions for landowners on possibilities of how to use land for profit besides traditional crops. Topics include: harvesting wild mushrooms, growing mushrooms, hydroponics, herbs, grapes and berries, aquaculture, ginseng, goldenseal, bees and honey, gamebirds, alpacas, etc. Contact Shenna Reynolds at 812-268-4332 for more information.

**Questions and Answers:** Growers often have questions about articles that appear in this newsletter, or topics we don't cover. If you have a question or a topic you would like to see discussed, send it to one of us by mail or email and we'll be happy to do an article for the next issue of the newsletter.



**Subscribing Electronically:** To subscribe (or unsubscribe) to Facts for Fancy Fruit, send a message to [fff@lists.hort.purdue.edu](mailto: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

**August 19** - Ohio Grape and Wine Day. OARDC Grape Research Branch, Kingsville, Ohio. 1:00 PM to 5:00 PM (EDT). More information at 440-224-0273.

**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

**October 2-3** - Horticulture and Landscape Architecture Reunion and Open House. Registration deadline: 9/1/98. Contact the Purdue Ag Alumni Association at 494-8593 for more information.

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