



Inside

Straw Removal on Strawberries
Strawberry IPM Newsletter
Grape Insects
Planting Fruit Plants
Pruning at Planting Time
Soil pH
Grafting Wood
Pesticide Safety
Bees for Pollination
Fire Blight
Collar Rot of Apple
Peach Leaf Curl
Raspberry Anthracnose
Disease Guidebooks - APS Press
Delaney Clause
Subscription Notice
Coming Meetings

Crop Conditions

FFF 96-02
March 12, 1996

March is the month of transition from winter to spring. Though spring officially begins March 20, winter has not left the state. Snow, sleet and freezing rain fell across much of the state March 6-7 and low temperatures were in the teens or single digits the following days. Luckily, most fruit crops are still dormant. Blackberries and raspberries were starting to show bud swell in southern areas so they have been damaged. Apples, grapes, strawberries, and blueberries are still dormant throughout the state. We have seen and had reported a lot of soil heaving as a result of freezing and thawing. Where small fruit or nursery plants have been unprotected, damage to plants may be severe. Strawberries are most susceptible to heaving, especially if not straw mulched, or if the straw has blown off.

In southern Indiana there was peach bud survival on some cultivars. Hardier cultivars apparently still have enough buds for a crop while the more tender cultivars have been damaged severely. The recurrent brushes with single digit minimum temperatures continue to take their toll. Dave Byers in Bedford has reported greater damage after each one of these latest occurrences. Dave indicates that on the more advanced cultivars, pollen sacs are already yellow and well developed. Here at Lafayette, we could find no appreciable number of live buds on Newhaven. Apples appear to be in good shape over the state.

From the internet a South Carolina beekeeper reports that they reached temperatures in the mid to low teens on the mornings of March 9 & 10. Since many of the peaches were in full bloom, severe damage can be expected. Greg Reighard of Clemson indicated that damage was severe, but was not absolutely sure the crop was completely lost.

Straw removal on Strawberries: Straw should be removed from strawberry beds before the plants grow enough to cause yellowing of foliage. Rake most of the straw off the tops of the beds and into the row middles. Leave some straw on top of the beds for plants to grow up through. This provides a clean surface for fruit. Studies done in Illinois indicate that proper time to remove straw is when the soil temperature at 4 inches averages about 40-43°F. This tempera-

ture is usually reached in March for most areas of the state. Allowing the leaves to become etiolated (yellowed with long petioles) due to late straw removal can reduce yields by as much as 25%. However, uncovering the plants early may promote early growth and increase chances of frost or freeze injury. This is a judgment call that growers will have to make for themselves. After the straw is removed it is time to set up the frost protection irrigation equipment.

Strawberry IPM Newsletter Available: An excellent publication is available for commercial growers and others interested in strawberry production. **Strawberry IPM Update** is published quarterly by Iowa State University. Editor Mark Gleason welcomes subscription (it's free of charge), suggestions and articles from growers, educators and researchers. If you would like more information, write to Mark Gleason, Department of Plant Pathology, 313 Bessey Hall, Iowa State University, Ames, IA 50011; or call (515) 294-0579.

Grape Insects: The most damaging insect pests of grapes feed during the period from early budswell through budbreak. That period occurs during March and April, depending on location in the state. The major bud-feeding insects are grape flea beetles and climbing cutworms. Growers should carefully scout for these pests and take control measures if necessary. Symptoms of flea beetle feeding are holes about 1/8 inch in diameter eaten into the sides of developing buds. Buds may appear normal except for the small holes. This feeding damage completely destroys the buds and consequently, the potential fruit production from those buds. Damage can be severe if populations are high and no control measures are taken, resulting in losses of 50% or more. Flea beetles will begin feeding on buds from first bud swell through early shoot growth. Once shoots reach about 1/2 inch the damage is much less severe. Larvae feed on developing leaves later in the growing season, but the damage is seldom severe enough to warrant control measures. Flea beetle adults are less than 1/4 inch long and dark, shiny green or blueish-black. The adults hibernate in the soil, emerge in early spring, climb the vines and feed on developing buds during the daytime. The beetles can often be found on the vines or in leaf litter and weeds beneath the vines. They move quickly and, as the name implies, jump when alarmed.

Climbing cutworms are less common in the state, but do occasionally cause economic damage. The larvae are dull gray caterpillars that are 1 to 1 & 1/2 inches long. Symptoms are

similar to flea beetle damage, except that holes may be eaten into the tip as well as sides, and the entire bud is sometimes consumed. Climbing cutworms feed at night and hide during the day in the soil and debris beneath the vines. They generally do not feed on buds until they are at full swell.

Control measures for these two pests should be taken as soon as any damage is observed, because once these pests become active they can cause a considerable amount of damage in a short time. Several materials are labeled for control of these pests. See ID-169 for complete recommendations.

Planting Fruit Plants: Fruit trees and other plants almost always grow better the first year when planted in the early spring before the weather gets hot and dry. Growers should plant as soon as the ground becomes dry enough to plant to take advantage of the cool temperatures. However, planting into soils that are much too wet can reduce plant growth appreciably. If you use an auger to dig the holes, be sure that the auger does not leave the sides of the hole polished and impervious to water movement. If that happens the root growth will be restricted and the wall can act as a "pot" that holds water and may kill the tree. The auger bit can be modified by welding a hardened metal tab to the outer edge of the bottom of the auger sweep. The tab should be about 1-3 inches long. The extra projection breaks up the slick surface of the sides of the hole as the auger is removed. However, augering holes in wet clay soils is a mistake, whether you modify your auger or not. It's best to wait until the soil has dried enough to crumble when worked. For planting a few trees, a shovel can be used to break down the sides of the hole before the tree is set.

Use an auger that is large enough to accommodate the root systems of the plants to be planted. DO NOT bend roots around in a circle to get them into a hole that is too small. A few of the long or damaged roots can be pruned off to facilitate planting, but it is not

advisable to prune roots because it reduces plant growth considerably. Be sure that the plant is set at the proper depth to get the bud or graft union above the soil surface by about 2 inches. This will help to ensure that the graft union remains above the soil surface and scion rooting won't occur. Dig the hole only as deep as needed so that the plant will not settle after planting.

Keep root systems moist. Be sure that plants do not dry out in the interval between their arrival from the nursery and planting time. It is best to keep plants in the shipping box in cold storage (no apples), but if storage is not available, heel the plants in a suitable, well drained situation in the field with the tops slanted toward the south to minimize sun drying of tissues. Keep plants watered adequately and plant as soon as possible.

Before planting it is usually worthwhile to place roots in water for a few hours to get them fully hydrated. Then during the planting operation, be sure to keep the roots in water or otherwise moist, never allowing them to dry out during the process. Do not take more plants to the field at one time than can be kept moist.

Pruning at Planting Time: Pruning fruit trees at planting depends on the quality of trees and the ultimate size desired for the trees. On well feathered trees with more than three well developed laterals at the right height it might be well to do no pruning. This will encourage fruiting and with a crop will result in the greatest dwarfing of the tree. This will be most desirable on full dwarf trees set at close spacing. On whips or trees with less than three good feathers, it is suggested that the feathers be removed and the tree headed at 32-36 inches to encourage development of good laterals at the desired height. Heading height will depend on the height at which laterals are desired. This height in turn will depend on the soil management program, herbicide application and/or mowing equipment, and tree density. Where trees on semi-dwarf rootstocks

are planted at wide spacing, pruning at planting may be somewhat more severe in order to promote vegetative growth so that the tree will fill its allotted space quickly. By so doing the very early fruit production will be sacrificed, but may be more than made up by the larger tree produced in the first three years in the planting. Therefore, decide what your objectives are before you prune.

Soil pH: Questions often arise about the effectiveness of lime applied to mature orchards. Soil pH is best corrected before the orchard is set. This is the only way to get lime down into the full root zone of the trees when it is needed. It is almost impossible to change soil pH after the trees are in the ground. Therefore get a soil test and make the appropriate correction before the trees are set. Work the soil as deeply as possible to get the pH modified throughout the root zone of the trees. Ideally orchard soils should have a pH of 6.3 to 6.8 in the top 18-20 inches. This may mean subsoiling extensively to get the lime down deep if there is a real pH problem. Surface applied lime moves very slowly down through the soil profile. Depending on the soil, downward movement may be less than an inch per year. Where orchard soils are too acid, lime may be applied to the surface, but amounts should seldom exceed two tons per acre. It is suggested that applications might be made every three or four years where the problem is severe.

Grafting Wood: Just a reminder to harvest any needed grafting wood before it begins to push. See the last issue for details.

Pesticide Safety: Take time to read those pesticide labels again before using the products for the first time this year. There may be changes that will affect rates, timing, formulations, warnings, etc. Also look again at your pesticide storage area. Is it clean and dry, well protected, away from water contamination, well marked, locked? How about your per-

sonal protective gear? Is it ready for the season? Will water be available close to the spraying operation? Now might be a good time to recall those employee safety rules. Indiana fruit growers have a good safety record, lets keep it.

Bees for Pollination: It has been reported on the internet that bees in eastern and northeastern states have taken a severe hit during the past winter from severe weather and inroads of the Varroa mite. Apparently the freak weather of the past couple of weeks in southeastern states has caused early development of colonies, followed by extreme cold that damaged the brood of many colonies. How this might affect Indiana fruit growers or beekeepers remains to be seen. It was suggested that growers who import colonies should check early with their suppliers to be sure that the bees are available. It would be a good idea to closely check hives that growers have, too.

Fire Blight: Growers in southern Indiana run a high risk of severe fire blight infection every year. An early season copper spray is the first line of defense for fire blight prevention. If you do apply copper, the entire orchard block, including non-susceptible cultivars should be treated rather than only trees of susceptible varieties. The reason for treating non-susceptible cultivars is that even normally fire blight resistant trees like Red Delicious can be colonized by the bacteria and serve as a source of infection during bloom. If copper sulfate (4 pounds per 100 gallons) is used, be sure to apply it when trees are dormant. If applied late it may burn leaf tissue. Also, **do not** apply copper sulfate with oil; apply copper sulfate and dormant oil as separate sprays spaced at least 10 days apart. If copper sulfate is applied under poor drying conditions or later than silver tip, plant injury can result. An alternative to copper sulfate are the fixed coppers such as Kocide and Champion. Most fixed coppers do not have the compatibility problems of copper sulfate and can be tank mixed

with early season oil sprays. Remember however that even fixed coppers, if applied after half-inch green, can cause fruit russetting in years when there is not enough rain to remove the copper residues before tight cluster.

Collar Rot of apple: Both Ridomil and Aliette are labeled for use on **bearing** pome fruits for control of *Phytophthora* collar and root rots. We especially recommend the use of these fungicides in those problem wet areas having poor drainage and heavy, clay-type soil. See ID-168, "1996 Indiana Commercial Tree Fruit Spray Guide", for further information.

Peach Leaf Curl: Cold injured peach trees need all the help they can get. That includes a spray for control of peach leaf curl. If you have not yet sprayed for leaf curl get on your tractor and spray the first chance you get. If peach trees are at, or past bud swell, your too late.

Raspberry Anthracnose: The most important spray you will apply all season for control of anthracnose on brambles is the delayed dormant spray of liquid lime sulfur. **DON'T FORGET IT!** Liquid lime-sulfur at 10 gallons per 100 gallons of water, or 20 gallons per acre should be applied when new leaves are exposed 1/4 to 3/4 inches; if you are late in your application and don't spray until a few leaves have unfolded, cut the rate to 10 gallons per acre. **NOTE:** There is greater risk of lime-sulfur burn when applied at this later time.

Disease Guidebooks Available From APS Press: The following disease compendia are now available from APS Press: Apple and Pear Diseases; Grape Diseases; Strawberry Diseases; Raspberry and Blackberry Diseases; Compendium of Stone Fruit Diseases; and the Compendium of Blueberry and Cranberry Diseases. All disease compendia include illustrations and color photos for many of the major diseases described. They are excellent

resources to help expand your knowledge in the area of plant diseases, we highly recommend them. They can be ordered from: APS Press, 3340 Pilot Knob Road, St. Paul. Minnesota 55121 OR by calling their toll-free-number 1-800-328-7560.

Delaney Clause: Most fruit growers are well aware of the Delaney Clause and the controversy surrounding it. Congress is reviewing Delaney and its implications now. It might be a good idea to call or write your congressmen to express your opinion.

Subscription Notice: Check the mailing label on this issue of Facts for Fancy Fruit. If there is a "95" in the corner we still have no record of your payment for 1996, and you will be cut from our mailing list. If you wish to continue to receive this newsletter please send a check for \$10.00 payable to Purdue University, to: 'Facts for Fancy Fruit', Dawn Caldwell, 1165 Department of Horticulture, Purdue University, West Lafayette, IN 47907-1165. If you feel there is an error, please contact Dawn Caldwell at (317) 494-1298.

Coming Meetings:

April 2 — Southeast Indiana Fruit Growers Meeting. 7:00 p.m. Dearborn County Farm Bureau building, Aurora. Contact: John Ewart (812) 926-1189.

April 4 — Eastern Indiana Fruit Growers meeting. 7:00 p.m. Minnestrista Cultural Center. Contact: Harold Brown, Muncie (317) 747-7732.

April 4 — Fruit tree pruning demonstration for homeowners. 2 p.m., C.S.T. Buckley Homestead Co. Park, Lowell (Lake Co.) Contact Mark Kepler, Crown Point (219) 755-3240

Department of Horticulture
Purdue University
1165 Horticulture Bldg.
West Lafayette, IN 47907-1165

Bruce Bordelon
1165 Dept. of Horticulture
Purdue University
West Lafayette, IN 47907-1165
317/494-1298
e-mail: bb@hort.purdue.edu

Paul Pecknold
1155 Dept. of Botany & Plant Path.
Purdue University
West Lafayette, IN 47907-1155
317/494-4628
e-mail: Pecknold@btpny.purdue.edu

Dick Hayden
1165 Dept. of Horticulture
Purdue University
West Lafayette, IN 47907-1165
317/494-1298
e-mail: Dick_Hayden@hort.purdue.edu

Rick Foster
1158 Dept. of Entomology
Purdue University
West Lafayette, IN 47907-1158
317/494-9572
e-mail: Rick_Foster@entm.purdue.edu

Disclaimer: Reference to products in this publication is not an endorsement to the exclusion of others which may be similar. Any person using products listed in this newsletter assumes full responsibility for their use in accordance with current label directions of the manufacturer.