



UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

Vol. 13, No. 3, April 12, 2007

a newsletter for commercial growers of fruit and vegetable crops

"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-333-6651, weinzierl@uiuc.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.uiuc.edu/ifvn/index.html>. To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or email address above.

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University of Illinois Extension Specialists in Fruit & Vegetable Production & Pest Management

Upcoming Programs ...

- **Jersey County Orchard Twilight Meeting, April 17, 2007, 6:00 p.m.**, Joe Ringhausen Orchard, 67 S. State Street (US 67), Jerseyville.
- **Tri-State Organic IP Video Series: Insect and Disease Management in Organic Vegetables, April 19, 2007, 5:00 – 7:30 p.m.**; this is the third of five sessions to be held from February through November; several sites throughout Illinois serve as host locations for each session. For more information, contact Deborah Cavanaugh-Grant at 217-968-5512 or cvnghgrn@uiuc.edu, or check the web site at <https://webs.extension.uiuc.edu/registration/default.cfm?RegistrationID=510>. (Also see the note from Deborah Cavanaugh-Grant below.)
- **Indiana Farm Sustainability Tour, April 19, 9:30 a.m.**, "Opportunities in Horticulture" at three farms in Southwest Indiana, beginning at the Halter Farm located south of Vincennes. For more information and to register, check <http://www.conf.purdue.edu/farmtours> or contact Jerry Nelson, Purdue New Ventures Extension Educator, at (812) 886-9582 or jnelson@purdue.edu, or Roy Ballard at (317) 462-1113 or rballard@purdue.edu. The registration fee of \$15 per person includes lunch, refreshments, and materials.

Tri-State Organic IP Video Program: Insect and Disease Control in Organic Vegetables, April 19, 2007 5:00 – 7:30 pm

Offered at 11 sites around Illinois and additional sites in neighboring states. Topics to be covered: Preventing Insect Problems in Organic Vegetable Systems - Rick Foster, Purdue University; Biological Control and Organic Pesticides in Organic Vegetable Production - Rick Weinzierl, University of Illinois; Diagnosis and Prevention of Vegetable Diseases in Organic Systems - Dan Egel, Purdue University; and Specific Approaches to Disease Management in Organic Systems – Sally Miller, Ohio State University.

Registration is \$10 per person/farm and includes workshop materials and refreshments. To register, please contact Donna Cray at 217-241-4644, or you may register online at: <http://web.extension.uiuc.edu/smallfarm>. For more information about the program or assistance with registration, contact Deborah Cavanaugh-Grant, cvnghgrn@uiuc.edu, 217-968-5512.

Regional Updates

In southern and southwestern Illinois ... Not since 1955 have both the peach and apple crop been destroyed by a freeze in southern Illinois, but that's what has occurred in 2007. Apples were at full bloom and peaches were at petal fall to early shuck split when temperatures dropped below freezing early Thursday morning, April 5. Calhoun County reported 24 degrees F, whereas other areas in the region hovered just below freezing. Friday morning was similar, but as evening came on temperatures dropped dangerously low—some reports as low as 14 degrees F in the far southern region. Temperatures never rose above freezing on Saturday. Heavy frost was on the ground both Sunday and Monday morning, and not until Monday evening did the region stay above freezing overnight.

As of this writing, there is not a commercial crop of peaches, apples, or blueberries in southern Illinois. I was able to find patches of live buds in both apple and peaches, but nothing significant. Time will tell if any of them will set. I hope I'm made a liar. Peach buds that appear to be alive have a texture or consistency similar to what I will call a Q-tip – somewhat dry and springy. Strawberries that were covered (matted row and plasticulture) survived but are showing varying degrees of injury. Most of the injury is to blooms that were in the upper portion of the plant, especially if they made contact with covers or ice. This will impact fruit size considerably because the biggest berries come from the first flowers. Brambles are showing significant injury, but again, time will tell to what degree. If predictions are based on mine and Chris Doll's Back 40, there won't be a significant bramble crop this year. Regardless of whether there is fruit or not, early spring sprays are critical for control of orange rust in brambles if this disease was present in your planting in previous years (except red raspberries, which seem to be resistant). Rogue out anything with orange pustules and apply a protectant on symptomless plants – see pages 35-36 in the small fruit spray guide for spray recommendations and timing. Navaho blackberry seems to be particularly susceptible, so it should be monitored closely. All primary growth on grapes has been frozen. After primary buds are killed on grapes, growers should expect to see secondary and tertiary buds break over the next several weeks, depending on variety. Although the secondary buds generally will produce fruit, the crop is expected to be significantly reduced. Hold off on pruning until you see what the new growth looks like.

For a broader picture of the state, almost everyone is suffering some level of damage to their fruit crop. The corridor running from Peoria down to Champaign seems to be the best case scenario in the state. As of this writing the northern counties were still reporting an apple crop with some damage—but they are experiencing a snow storm that may result in some additional remarks later. Because grapes in northern Illinois have not significantly broken bud yet, they still appear to have their primary growth.

The wheat crop in southern Illinois is also showing varying levels of damage. Emerson Nafziger, University of Illinois Department of Crop Sciences, wrote that there is real concern in southern Illinois about whether the crop will grow out of the injury done by freezing temperatures. In some cases, such as those fields giving off a silage-like smell and with darkened leaf tissue, the crop is basically dead, though some tissue at the base of the plant is still alive. Some of this living tissue is likely to be small tillers that had stopped developing at the base of the plant. These might start to grow as the competition from the larger stems decreases, but they would be starting very late, and so would be flowering and trying to fill grain very late into the season. This makes it unlikely that late tillers will produce high yields, and harvest will certainly be late. In fields that were in Feekes growth stage 8 (flag leaf emergence) or 9 (flag leaf completely out, or early boot), the growing point (developing head) was 6 or more inches above the soil surface. Many plants this size may not have had the majority of their leaf area killed by the freeze, but stems may have frozen below the growing point, and many such plants have "flopped", ending up nearly flat on the ground due to weakened stem tissue. Dead stem tissue beneath the head means that the head is basically cut off from nutrients and water. Such plants may show green color for some time, but there's little chance that they will recover to produce good yields. Plants less advanced at the time of the freeze show a range of symptoms, from minor leaf burn (death of leaf tissue) on the upper leaves and leaf margins, to considerable loss of leaf area. Loss of leaf area is seldom a positive thing, but if the plants were only starting to joint (grow upright), only a third or so of their total (eventual) leaf area was exposed, so they should recover their green color as new leaves emerge and expand. Loss of lower leaves might have little effect on yield. The important factor in these fields is that the growing point was nearer to the ground and better protected from the low temperatures.

Nurseries with container or in-ground stock took a hit on anything not protected. There was quite a rush to either wrap plants or haul them indoors for protection during the freeze. Many of the larger nurseries with stock in high tunnels still had covers on, and came through the freeze a bit better.

Nationwide, the entire eastern United States fruit crop has been hit and hit hard in some areas – particularly the corridor running from Missouri over to the coast and down to Alabama. Additionally, I have asked several long time residents to the area if they have ever seen the landscape so withered and scorched like this before, and so far the answer is no. Chris Doll just returned from South Carolina, and he reported the landscape is even more wilted as you get closer to the Carolinas. Food for wildlife may become an issue with the amount of damage to the woodland trees.

Two twilight meetings have been scheduled in the Calhoun/Jersey County area for tree fruit growers. The first twilight meeting is scheduled for April 17, at 6:00 pm, at the Joe Ringhausen Orchard, 67 S. State Street (US 67), Jerseyville. We will be focusing on reduced spray schedules in light of the recent freeze damage. The second twilight meeting is (tentatively now) scheduled for May 22,

at 6:00 pm, at Murray's Orchard just north of Mosier, IL. From Hardin, go north to Kampsville, and turn left (west) on State Route 96. Follow the right hand turn to stay on State Route 96, and then turn right on to Crooked Creek Road (white Church on corner). Go about a _ mile and Murray's Orchard is the first driveway on the right.

In terms of vegetable production, older plantings of greens were frozen out, but younger, lower growing plants came through the freeze remarkably well. Field planting of tomatoes and sweet corn are gone, but tomatoes in high tunnels came through the freeze. Horseradish harvest continued throughout the freeze for the most part.

Elizabeth Wahle (618-692-9434; wahle@uiuc.edu)

At the Dixon Springs Agricultural Center ... Far southern Illinois experienced all-time record cold temperatures for April. The cold has hammered area tree fruit crops and many small fruit crops as well. The blueberry crop at DSAC has been almost eliminated. Hope that was held out for some remaining live buds dwindles with each new day as the full extent of the damage becomes more evident. DSAC had weather station lows of 30 on April 5, 31 on April 6, 26 on April 7, 21 on April 8, and 27 on April 9. The coldest night on April 8 saw temperatures drop below 25 at 12:08 a.m. and not return above 25 until after 7:08 a.m. Temperatures on that same night dropped to 22 at 4:08 a.m. and did not climb above 22 until after 7:08. Growers in Union county observed 18 degrees in orchards and strawberry fields. Attempts to save plasticulture berries were successful for some area growers. Growers relying on row covers alone saw appreciable loss, although many blooms were saved, while those using both row covers and overhead irrigation saw good protection. Failure to use any frost protection methods resulted in severe damage to plasticulture berries.



Left: Strawberries in Union County protected with row cover only. Right: Strawberries in Union County protected with row cover and overhead irrigation.



Left: Strawberries in Union County without frost protection. Right: High tunnel tomatoes; note end two plants with injury.

The low temperatures resulted in only slight losses of tomatoes in high tunnels, although it is clear that even slightly lower temps would have been disastrous. Damage to tomatoes was limited to the low end of the tunnel (which was also the side toward the wind). Tomato plants also showed injury where the row cover was seamed and cold air was able to enter. Field planted tomatoes with row covers did not survive.

Jeff Kindhart (618-695-2444; jkindhar@uiuc.edu)

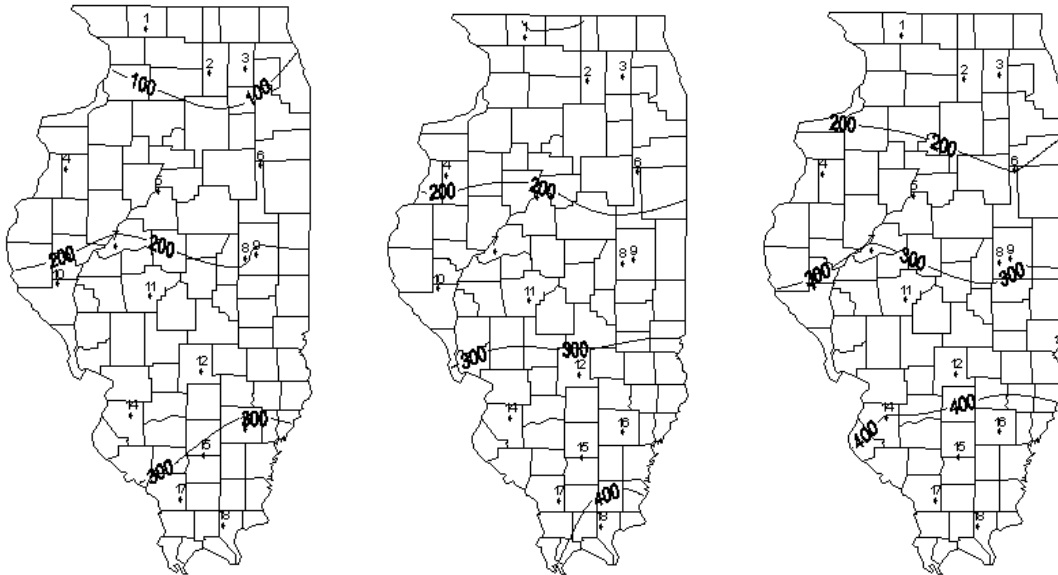
Degree-day Accumulations

Degree-day accumulations listed below for weather stations in the Illinois State Water Survey WARM data base have been summarized using the Degree-Day Calculator on the University of Illinois IPM site (<http://www.ipm.uiuc.edu/degreedays/index.html>). The list below includes only degree-day accumulations and projections based on a 50-degree F developmental threshold and a January 1 starting date, but other options that use different thresholds and specific biofix dates are available on the Degree-Day Calculator. The degree-day calculator is available as a result of a joint effort of current and former extension entomologists (primarily Kelly Cook) and Bob Scott of the Illinois State Water Survey. If you have questions about how to use the site, contact me or Bob Scott (rwscott1@uiuc.edu).

Rick Weinzierl (217-333-6651; weinzier@uiuc.edu)

Degree-day accumulations, base 50 degrees F, starting January 1.

Station	County	Base 50F DD Jan 1 – April 12, Historic Average	Base 50F DD Jan 1 – April 12, 2007	Base 50F DD Jan 1 – Apr 19 (Projected)	Base 50F DD Jan 1 – Apr 26 (Projected)
1. Freeport	Stephenson	97	73	101	134
2. Dekalb	Dekalb	115	81	112	148
3. St. Charles	Kane	109	91	120	151
4. Monmouth	Warren	149	151	187	228
5. Peoria	Peoria	165	171	212	258
6. Stelle	Ford	137	120	157	198
7. Kilbourne	Mason	221	207	254	305
8. Bondville	Champaign	181	193	233	277
9. Champaign	Champaign	180	210	251	297
10. Perry	Pike	217	210	256	305
11. Springfield	Sangamon	203	227	274	325
12. Brownstown	Fayette	251	259	314	371
13. Olney	Richland	251	Missing	Missing	Missing
14. Belleville	St. Claire	299	283	340	401
15. Rend Lake	Jefferson	309	306	371	437
16. Fairfield	Wayne	284	309	369	433
17. Carbondale	Jackson	323	308	369	432
18. Dixon Springs	Pope	346	356	424	492



Degree-day accumulations, base 50 F, from January 1 – April 12, 2007 (left), and projected through April 19 and April 26.

Notes from Chris Doll

The "Apple Crop" discussion group has been talking about the **Easter Freeze**, which has affected all of southern Illinois as well as much of the Midwest and Southeast. It was (is) a devastating freeze that included 5 to 6 mornings of freezing temperatures that reached the lower 20's everywhere, and a reported 18 degrees in an orchard west of St. Louis. All of this happened with the peach crop in shuck split stage and apples in full bloom to petal fall. I had set April 3-4 as the date for full bloom of Jons and Golden Delicious apples, and this is at least two weeks ahead of average. The crop potential for all tree and small fruits looked very good, which makes the loss more depressing.

I had access to a product advocated as a cryoprotectant and sprayed multiple trees and varieties 24 hours to 36 hours before the first freeze, but there is no evidence of any positive effects. With multiple nights of the freezing temps coupled with windy conditions, there was not much that could be done to save any crop.

The optimist side of business will say that there will be some fruit in spite of the dire outlook at this time. A commercial crop on anything but protected strawberries is very unlikely. Be on the lookout for a tree or variety that produces a significant crop. To maintain the plantings for future production looks like the primary tasks for the rest of 2007. Weed control will be of primary importance to reduce competition with the trees and plants. Pest control efforts can be lessened and the entomologist and plant pathologist can tell about that. Growth control may be a problem on trees that have been fertilized and on soils of good fertility where it hasn't. For apples, Apogee might be used to reduce some of the early season shoot growth and help with control of any surviving fire blight infections too.

Pruning can still be done. It might be a good time to reduce the height of trees that have grown out or reach and need fruit-bearing wood in the lower elevations. Without a crop to harvest, summer pruning for good light penetration can be done also.

Chris Doll

Fruit Production and Pest Management

Fungicide Programs for Freeze-damaged Apple and Peach Orchards

As noted above, low temperatures (dipping to 18 F in some locations) April 5-8 have caused up to 100 percent crop losses in apple and peach orchards in portions of Illinois. The following are disease management suggestions for the affected orchards. If there is a partial crop loss in the orchard and the remaining crop will be marketed, the orchard should receive regular spray applications such as those recommended in the *2007 Commercial Tree Fruit Spray Guide* (<http://www.extension.iastate.edu/Publications/PM1282.pdf>). For the orchards that have no crop, growers should focus on minimizing development of scab and powdery mildew on apples and powdery mildew on peaches. The best way would be to scout the orchard and apply fungicides as needed.

- Apples:
 - Where primary scab was effectively controlled, no additional fungicide sprays may be necessary, except for cultivars that are highly susceptible to [mildew](#).
 - Where scab lesions are present in trees with no crop and there is no need for mildew control, a single application of captan at the maximum label rate in early to mid-June will limit secondary spread of scab to new leaves. Secondary spread of scab in summer is often limited by hot weather. Temperatures above 85°F significantly reduce viability of conidia. If, however, the weather stays cool and wet, further applications of captan may be needed during June and July to slow secondary spread of scab, especially in vigorous trees where shoot growth may continue unabated. Where considerable leaf scab is evident in late summer, a fungicide spray in September can help to limit the spread of scab to the undersides of leaves during autumn. Preventing spread of scab during autumn can significantly reduce the amount of carry-over inoculum for next year. There is no need for 100 percent control of scab in an orchard with no crop. So long as the foliage remains reasonably healthy, it will be more cost-effective to control scab next year. Also, spray-application of urea to fallen leaves would accelerate leaf decay and minimize carry-over inoculum for next year.
 - Apple trees can tolerate mildew, so 100 percent mildew control is not essential. Nevertheless, for mildew-susceptible cultivars such as Ginger Gold, Cortland, Paula red, and Rome, mildew sprays may be needed during summer to limit the amount of carry-over inoculum for next year. Sulfur is the cheapest product for mildew control, and it should provide adequate protection for trees with no crop. In orchards with no crop, better mildew control might be achieved by applying sulfur at 10-15 lb/A. Even at these higher rates, sulfur will be easily removed by rain. Mildew-susceptible apple cultivars should be sprayed with sulfur at about 14-day intervals or after rains of one inch or more.
- Peaches
 - Disease control may not be necessary in peach orchards with no crop. For control of powdery mildew and bacterial spot of leaves, however, fungicide applications may be required. Powdery mildew can develop rapidly in susceptible cultivars such as Redskin and Rio Oso Gem, and spray treatments may be needed. Application of sulfur [e.g., Microthiol Disperss (80% sulfur) at 10 to 15 lb/A] at 14-day intervals can control powdery mildew. Spray trees as needed.
 - Bacterial spot of peach is a serious disease in Illinois and will develop on leaves in moist conditions. Severe bacterial spot causes defoliation in susceptible varieties. If needed, trees can be sprayed with copper at the rate of 0.25 lb copper per acre.

Mohammad Babadoost (217-333-1523; babadoos@uiuc.edu)

Insect Management in Freeze-damaged Apples and Peaches

On the same theme as the preceding article by Mohammad Babadoost, it's equally important to reduce insect management efforts and costs in orchards that will not produce a harvestable crop. I'll present some similar recommendations for small fruit crops in the next issue of this newsletter. As Mohammad noted, be sure to distinguish between "no harvest" and a "reduced harvest" that you still intend to market. If a 20-percent crop is to be sold, it requires pretty much the same insect management effort as a 100-percent crop; otherwise, insect damage and contamination will make even the small crop unmarketable. So, as you decide whether or not a very small crop is worth maintaining, be sure to factor in an essentially normal spray bill.

In any blocks or plantings of fruit crops where the crop will not be marketed, use the following guidelines to reduce insect management costs but still keep plants healthy and ready to be productive in 2008.

- Apples: Insects and related pest that remain a concern in the absence of a fruit crop include aphids (including woolly apple aphid), potato leafhopper, dogwood borer, San Jose scale, and Japanese beetle. European red mite injury and white apple leafhopper injury are independent of the presence of fruit, but mite and white apple leafhopper outbreaks are far less likely where no insecticides or very few insecticides are used (they are secondary pests that cause problems when insecticides kill their natural enemies). Plum curculio, codling moth, leafrollers, and apple maggot are non-issues in the absence of fruit. These direct pests are the targets of most sprays applied after bloom, so an insecticide cover spray program is not needed. That said, a conventional cover spray program kills several insects – pests and nonpests – other than these primary pests (think of it as coincidental control or collateral damage), so where cover sprays are not applied routinely, it's necessary to scout for and control the creatures that can cause damage over the long term. Scouting and spray guidelines:
 - Aphis: Examine terminals for rosy apple aphids first and then green aphids at about 2-week intervals, beginning at the time corresponding to petal fall (had bloom progressed through a normal cycle). Treat if more than 30 percent of terminals are infested and natural enemies are absent. Controlling woolly apple aphid generally is advised where infestations are observed on greater than 50 percent of pruning scars.

- Scouting for white apple leafhopper is recommended at the time of normal petal fall and again in August, and treatment in fruit-bearing orchards is warranted if counts exceed 3 nymphs per leaf. Although WALH can have an impact on tree vigor and the following year's crop, greater infestations certainly can be tolerated in the absence of fruit (but no thresholds are available for this specific situation).
 - Scout for potato leafhopper beginning in mid-May, especially on young trees where vigorous growth is important to bring the trees into productivity. Even a few potato leafhoppers feeding on leaves of new shoots can cause curling of leaves and stunted growth, so control is warranted on young trees when potato leafhopper is simply observed as present. This insect is easy to control in apples with organophosphate, carbamate, or neonicotinoid insecticides; Imidan or Guthion works well, and these two products are not very toxic to predaceous mites.
 - San Jose scale: Oil sprays applied before bloom were the primary and best steps for San Jose scale control, but an application of Esteem about 8 weeks after full bloom (again, timing is dependent on weather) might be considered in blocks where scale problems were severe last year. Use black electrical tape (sticky side out) wrapped around twigs or branches of problem trees to determine when crawlers are active ... that's the time to treat.
 - Dogwood borer: Adults are clearwing moths similar to (but smaller than) peachtree borer and lesser peachtree borer; they lay eggs in burrknot tissue or the graft unions on clonal rootstocks such as M.7, M.26, etc., and in interstems. Larvae tunnel in the burrknot tissue and adjacent cambium, sometimes girdling trees. Flights usually begin in mid-May in southern IL and early June in the north, with flight peaks roughly 4 weeks later (all dates are of course weather-dependent). Where traps are used to monitor flight, the best time for applying insecticides as trunk sprays to prevent larval damage is roughly a week after peak flight. Where traps are not used, trunk sprays generally should be used in mid-June in southern IL and early July in northern IL. Lorsban is labeled for this use and is among the most effective insecticides against clearwing borers.
 - Japanese beetle: No surprises here ... if beetles are defoliating trees from June through August to the extent that desired growth or vigor is compromised, control them.
 - European red mite: If an application of oil went on before bloom and growers do not use neonicotinoids (Assail, Calypso, and Clutch) or pyrethroids (Pounce, Asana, Warrior), it's unlikely that outbreaks will occur. Thresholds are 2.5 mites per leaf at petal fall, 5 mites per leaf in midsummer, and 7.5 mites per leaf by late July. Several effective miticides are listed in the [2007 Commercial Tree Fruit Spray Guide](#).
- Peaches: The list of creatures that can still be pests even in the absence of fruit is shorter in peaches: lesser peachtree borer, peachtree borer, San Jose scale, and European red mite (though as for apples, mite problems are unlikely if insecticides that kill predaceous mites are not used). In the absence of a crop, there is no reason to control plum curculio, stink bugs and plant bugs, or oriental fruit moth (unless oriental fruit moth is tunneling into so many shoot tips that it's reducing new growth enough to compromise next year's crop, and that's not likely).
 - Lesser peachtree borer flight usually begins in early May in southern IL, and although it peaks a few weeks later, it often spans most of the summer, sometimes with a second peak in August. Peachtree borer flight may begin by early June, and there's one peak per season. Where control is needed, a trunk and lower scaffold branch spray of Lorsban 4EC about 1 week after lesser peachtree borer flight begins (or by mid-May in southern IL) provides control for up to 8 weeks. A trunk spray of Lorsban 4EC or Endosulfan or a pyrethroid (including Pounce, Asana, or Warrior) provides later season control of lesser peachtree borer and peachtree borer. Only one application of Lorsban is allowed per crop season.
 - San Jose scale: As in apples, oil sprays applied before bloom were the primary and best steps for San Jose scale control, but an application of Esteem about 9-10 weeks after full bloom (again, timing is dependent on weather) might be considered in blocks where scale problems were severe last year. Use black electrical tape (sticky side out) wrapped around twigs or branches of problem trees to determine when crawlers are active ... that's the time to treat.
 - Japanese beetle: Same as above ... if beetles are defoliating trees from June through August to the extent that desired growth or vigor is compromised, control them.
 - European red mite: Again, much like in apples, if an application of oil went on before bloom and growers do not use pyrethroids (Asana, Pounce, Warrior, Baythroid) as cover sprays, it's unlikely that outbreaks will occur. Several effective miticides labeled for use on peaches are listed in the [2007 Commercial Tree Fruit Spray Guide](#).

Rick Weinzierl (217-333-6651; weinzier@uiuc.edu)

Vegetable Production and Pest Management

Dual Magnum in Pumpkins

I have received several questions about the use of Dual Magnum (s-metolachlor) on pumpkins. Currently there is no label for using Dual Magnum on pumpkins. Syngenta Crop Protection is in the process of applying to the Illinois Department of Agriculture for a 24c Special Local Needs label to allow the use of Dual Magnum on pumpkins. I hope that a label will be available by pumpkin planting in May.

The proposed Dual Magnum label would require the user to agree to waive Syngenta from liability for crop damage. The pumpkin grower would assume liability for any pumpkin injury. Similar liability waivers have existed for using Command (clomazone) and Curbit (ethalfuralin) in pumpkins. Our research has found that Dual Magnum has good safety on pumpkins.

The proposed label would allow a single broadcast (over and between crop rows) application of Dual Magnum to either processing or jack-o-lantern pumpkins. This application would occur after pumpkin seeding but before plant emergence or before planting pumpkin transplants. Application rates would be at 1.0 to 1.33 pints/acre. Dual Magnum will be a welcome addition for control of grasses and difficult-to-control broadleaf weeds such as eastern black nightshade, water hemp, and pigweed. Dual Magnum would need to be used with another herbicide such as Sandea (halosulfuron) to broaden and lengthen the weed control.

I will announce when Dual Magnum receives a label for use on pumpkins. You will need to have a copy of the approved 24c label before you can use Dual Magnum on pumpkins.

John Masiunas (masiunas@uiuc.edu)

Seed and Stand Establishment for Direct-Seeded Vegetable Crops

Planting seed in the spring is often the first step in initiating the season for crop production. Crops such as onion can be planted very early, just after the ground thaws out, giving the crop the best chance to establish and enjoy a long growing season. Ensuring that the seed truly has the best opportunity to create a uniform stand and get off to a quick start requires proper, well-managed equipment, good seedbed preparation, and appropriate soil management practices.

A number of seeders are used by Illinois vegetable growers, some of which are as simple as passive handheld units. These use gravity and gentle features to direct the seed and reduce the flow from the unit to an appropriate level, according to the choice of the grower. Some can provide rudimentary singulation, which helps the grower control the eventual population at planting time. But, like many things, you usually get what you pay for. More expensive equipment often uses more powerful technology, such as pneumatic forces, to provide greater control over singulation and delivery rates to provide more accurate placement and stand populations. Well managed units, because they give the grower greater control over accurate stand establishment, can provide more return on investment, particularly if they are used over larger numbers of acres. This allows the grower to devote more time to management and requires less time for the practice of planting and correcting planting missteps. Be sure to use this growing season to critically evaluate whether your time spent during seed establishment is used efficiently. It might be nice to take the next step up and make a wise investment in improved technology.

Seedbed preparation is every bit as important as advanced planter technology. Giving the seed an appropriate environment for germination and subsequent growth is critical to successful stand establishment. If the soil is uneven and cloddy, particularly with small vegetable seeds, placement can be disrupted, spoiling the effort to use advanced technology. When preparing the soil for a seedbed, it is important to provide some aeration of the soil without drying it out. Seeds need both water and air in appropriate amounts to properly germinate and begin healthy growth. But they need solid soil particles for structure to grow into and to provide the mineral nutrients that feed the young plant. So the soil, when properly prepared, will have a balanced combination of solid particles, good moisture and air spaces. At planting time, a soil with these features will receive and hold the seed in place, nurturing it through germination and emergence, its most vulnerable period of development.

The grower's soil management practices can influence the character of the soil, leading to positive or negative features. Overworking a soil can lead to serious compaction and soil crusting. These features can provide physical barriers to seed development, forcing the seed to expend more of its limited energy to emerge. This can result in significant losses during stand establishment. Limiting cultivation of the soil and maintaining fresh organic matter inputs can improve the physical conditions of the soil for seed placement and development. Fresh soil organic matter gives soil physical elasticity and better water-holding characteristics. The soil will not compact as easily and will better provide the important physical conditions to facilitate seedling development. As the planter sets the seed and provides light compaction for good soil-to-seed contact, the organic matter in the soil structure will help prevent over-compaction. It will also ensure aeration and conduction of moisture to the seeds. Ignoring soil organic matter management could cost more than the inputs involved in managing it.

As the grower gets the season started by working the ground, preparing the planting site and filling the planter with seed, the almost spiritual experience of the spring re-birth brings vitality to the farming enterprise. Taking time to properly prepare the planter and the soil for receiving the seed can go a long way toward making sure that the optimism at the beginning of the season is rewarded with success at the end of the season.

Bill Shoemaker (630-584-7254; wshoemak@inil.com)

Words of Wisdom ... the price of forgetfulness ... and an unappreciated sense of humor

Don't try this at home ...

It was Saturday, and Mike had forgotten his wife's birthday on Friday – not for the first time – and she was more than upset. This time she was going to confront him and make sure she received a real gift. “It better be shiny, sleek, and go from zero to 60 in a flash ... and it better top 120 when I really step on it,” she demanded. “And it better be in the driveway tomorrow morning.” Mike knew exactly what to do.

She was surprised and confused when she awoke the next morning to see a small package, wrapped quite nicely, in the middle of the driveway. She unwrapped a brand new, shiny, and sleek ... bathroom scale. Mike has not been seen alive since.

University of Illinois Extension Specialists in Fruit Production and Pest Management

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