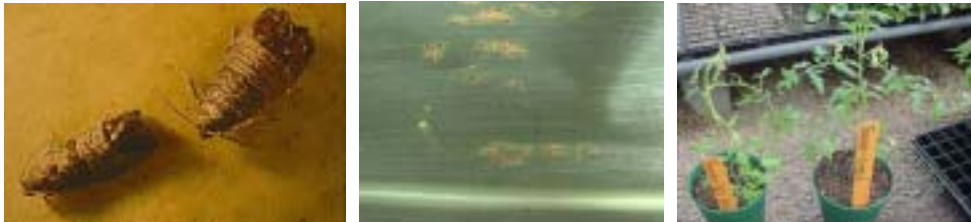


## ***Illinois Fruit and Vegetable News***

Vol. 9, No. 5, May 9, 2003

*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](mailto: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 address above.

*This issue's words of wisdom ... which usually means the jokes ... are at the end of newsletter ... check the last page.*

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**Vegetable Production and Pest Management Update** (Soil moisture and irrigation considerations, corn flea beetle in sweet corn)

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

### ***Crop Reports***

**From the south and southwest ...** Mother Nature, beginning late afternoon on May 6 and into the 7<sup>th</sup>, hit the southern-most portion of the state with a reminder of strong natural forces can be. Four confirmed tornado touchdowns tracked across Alexander, Pulaski, and Massac Counties. Crop damage was minimized by the fact that many fields remained unplanted due to previous rain delays, but serious damage was reported on non-crop trees and buildings, and two people were killed. Flooding is already a problem, and weather forecasts predict more rain for the area. Pea-sized to golf ball-sized hail was reported in the southern-most counties, with Pope county being particularly hard hit. Total rainfall for May 6-7 varied across the region, becoming greater from north to south. Calhoun County reported ½ inch overnight compared to 4½ inches in Johnson County.

Reports are favorable for the tree fruit crop in the region. Codling moths have been caught in pheromone traps throughout the region, and most growers have set their biofix date. Growers in the southern portion of the region reported April 22 as a biofix, and in the northern part of this region (St. Louis latitude and a bit farther north) traps have been catching moths consistently since April 29. No significant outbreaks of fireblight have been reported to date.

Vegetable growers are reporting some delay in planting because of rainfall, but most are getting plantings done between rains. One concern for growers who mechanically transplant is that plants will grow too large during these delays, resulting in more hand transplanting. Asparagus harvest continues, with no significant pest reports. In the far south, early plantings of sweet corn are at the 4- to 5-leaf stage, and cabbage is reported to be at the early heading stage. Some hail damage to transplanted tomatoes was reported last week in the Anna area, but the crop is expected to grow out of the damage. Outside the southern region, growers in Adams County received pea-sized hail on May 4, and it resulted in damage to strawberries and asparagus.

Harvest is underway for plasticulture strawberries throughout the southern region. Growers in the northern portion have just started harvesting the earliest variety, 'Sweet Charlie', while further south, harvest of all three plasticulture varieties is ongoing. In the west central region, plasticulture strawberries in Adams County are still two weeks away from harvest. Back in the southern region, matted row strawberries are coming in on time, if not a little early. Growers in Calhoun County expect to be harvesting during the last week of May, and earlier as you move south.

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**From the Dixon Springs Ag Center ...** Springtime activities were pretty much on schedule here (remarkable as it sounds ) until last week. We started receiving fairly heavy rain on Thursday and Friday (May 1 and 2), and that kept us from setting tomato and pepper transplants. Sunday afternoon (May 3) we again had heavy rainfall, over 3". Tuesday night (May 6) we had severe weather all around the station but fortunately didn't lose any structures to high winds. Unfortunately, marble-sized hail did quite a bit of damage. Figures 1 and 2 show hail damage to Liberty apple trees and fruit. Between rain showers on Wednesday, May 7, we managed to apply a cover spray to the apples, along with a dose of Agrimycin 17 to (we hope) prevent or at least slow down fireblight.

*Figures 1 and 2. Hail damage to limbs and fruit of Liberty apple at the Dixon Springs Ag Center in southern Illinois.*



The hail also severely damaged our plasticulture strawberries. We are probably going to be seeing negative effects from this storm for the rest of the harvest season ... and we harvested today for the first time. Approximately 40-50 percent of the foliage was knocked off, and the remaining leaves are riddled with holes. The number of strikes/fruit range from 0 to 4. After today's harvest, the strawberries were sprayed with Captan plus Elevate. We don't have Sweet Charlie's this year, so our first pick date is about 10 days later than normal. Gaviota and Treasure had the most ripe fruit to date, with Treasure having the best taste. The berries definitely need some sunny days to improve in flavor. The size and color of Gaviota is shown in Figure 3.

The forecast for the remainder of the week is calling for more thunderstorms ... ugh. But on a happier note, I can't wait to eat my first gallon of strawberries.

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Figure 3. Gaviota strawberries grown in plasticulture at the Dixon Springs Ag Center.



### Degree-Day Accumulations Since January 1, 2003

Data for the table below are taken from the Midwestern Climate Center web site (<http://mcc.sws.uiuc.edu/>). Degree days are calculated using a rectangular averaging method on a 50 degree Fahrenheit threshold, with the minimum temperature for calculations reset to 50 on days with highs above 50 and lows below 50. These totals seem a little high at several locations, especially Belleville ... we'll continue to check on their accuracy.

Location	DD, Base 50 F, through April 29	DD, Base 50 F, through May 6	DD, Base 50 F, 40-yr average through May 6	DD, Base 50 F, projected through May 20
Carbondale	510	625	636	846
Belleville	582	697	593	920
Mt. Vernon	444	543	558	753
Springfield	408	491	409	689
Urbana	406	486	357	661
Peoria	359	433	349	607
Kankakee	357	423	318	596
Moline	358	414	324	583
St. Charles	271	317	261	468



Projections for degree day accumulations two weeks into the future are derived by adding historic averages for degree days for the next two weeks to the actual current total listed for each location (April 20 in this instance).

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### Notes from Chris Doll

May 8 finds the area fairly wet! But my diary of 2002 dated 5/6-9/02 says that 4 nights of rain yielded 4 inches of water, with things Very Wet. It isn't quite as wet here this year, but it's getting close. While working in the Centralia area last week, it was already saturated and the rains have not abated yet. One report said there was 9 inches in April for that area. It was mighty miserable trying to work in the strawberry fields and apple orchards because of the mud.

Growth stages are also fairly comparable to last year's. Phenology markers are slightly ahead for 2003, with apples rapidly growing out of the thinning range of 12-14 mm and peaches have segregated into "yes" and "no" fruits. Sweet Charlie strawberries on plasticulture are ripening, but most matted row plantings are looking at harvest in 13-20 days. Black raspberries are in full bloom and the first blooms are showing on thorny blackberries, which means that "Blackberry winter" is near. The biofix for codling moth is either 4/22 or 4/29 for area orchards, which is later than last year. Fireblight sightings amount to a Paulared cluster on 5/1 and on Golden on 5/6. This is 2-3 days earlier than last year.

The peach crop looks like a good set. Blossom thinning looks good where growers attempted it. Growers are waiting for the remainder to loosen up so that thinning can begin. Apple set is variable, by grower and by area. I have seen the heaviest set ever on Reds and Gala, but hear and see reports that Jons and Golden are variable – some are even light. We are awaiting visible response to chemical thinning, both at petal fall and continuing through 15 mm in size. Golden are prime size for the full rate of NAA right now.

I have looked at a couple of Apogee-treated blocks, and there is a definite growth reduction from the 6- to 8-ounce rate applied at petal fall and two weeks later. Jons have retained many of the flower clusters on the lateral shoots and time will tell if some of the side blooms will set fruit. Golden had a 30 to 40 percent reduction in terminal growth. Growers are hoping for a reduction in pruning requirements, even if the benefits for better fruit fail.

Count your blessings if codling moths have not been a problem. Trapping programs in troubled orchards have yielded zero to few moths all the way up to 34 in two nights and 120 in 7 nights. I have caught 9 in two traps here in the Back 40. The tufted apple bud moth trap was set yesterday, and the first night yielded 34 moths. Plenty of Oriental fruit moth and lesser peachtree borers are being caught as well. Thrips were found in strawberry flowers on 5/5, with the numbers ranging from 1-6 per flower.

History and global warming: 33 years of phenology recording here at Edwardsville show the following for apple petal fall dates:

1994-2002: all April dates

1984-1993: 9 of 10 were April dates

1971-1983: 7 of 13 were April dates

The earliest date was 4/14/81 and the latest was 5/10/84

Back to the weather: Continued rains and saturated soils will cause stress to trees, and calcium uptake in the sap stream will be reduced. The addition of calcium to cover sprays in this area is suggested. It will also help against blossom end-rot of tomato and improve firmness of strawberry fruits when used on those crops.

Across the desk gleanings:

- "Research has shown that all chemical thinners work better when warm temperatures follow the spray application within two to three days after the application". This and lots of other information by Phil Schwallier in the MSU Alert, Vol. 18, No. 3.
- Rutgers newsletter recently stated that (1) boron and oil should not be combined, (2) boron and oil should not be combined, and (3) urea at 5 pounds per 100 gallons may be a good addition in post bloom sprays of apples.
- Tom Ringhausen's use of coyote urine in a wick applicator against deer grazing looked good on young peach trees. The overwinter discussion of using fabric softener sheets as deer repellents may be good, but 6 weeks in my trees and all the odor has gone.
- Numerous reports suggest scoring or girdling around petal fall time to increase fruit set and improve return bloom. It doesn't cost much but is difficult to evaluate. The crotch angle spreading with clothespins or toothpicks gives more obvious results, as does tying down or bending branches in apple trees.

*Chris Doll*

## ***New Registrations***

**Dual Magnum labeled for tomatoes:** The long-awaited national label for Dual Magnum (metalochlor) on tomatoes has been issued. In the past few years Dual Magnum has had a Section 18 label in Indiana and Ohio for control of eastern black nightshade in processing tomatoes. Dual Magnum may be used on transplanted or direct seeded, processing or fresh market tomatoes.

In transplanted tomatoes, Dual Magnum may be preplant incorporated or surface-applied before transplanting the tomatoes. Dual Magnum may also be applied to transplanted tomatoes post-directed after the first settling rain or irrigation. Dual Magnum will not control emerged weeds. When using transplants with raised beds and plastic mulch, Dual Magnum may be used under the plastic. Apply Dual Magnum preplant, non-incorporated to the top of the prepared bed as the last step prior to laying the plastic mulch.

In seeded tomatoes, Dual Magnum should be applied as a post-directed treatment. The tomato plants must be at least 4 inches tall at the time of application and you must minimize contact with the tomato plants.

The application rate for Dual Magnum varies depending on soil type and the expected intensity of weed infestation. It ranges between 1 and 2 pints/acre. Check the label for a specific application rate on your soil.

Dual Magnum can injure tomatoes, and the label contains specific precautions to avoid any injury. Conduct a small trial before using Dual Magnum to determine if the herbicide will injure the tomato cultivars you are using. Use only healthy, vigorously growing transplants and do not apply when wet and cold growing conditions are likely to occur. If incorporating Dual Magnum on transplanted tomatoes, plant the tomatoes below the depth of incorporation and use the lower end of the rate range. Dual Magnum has a 90-day preharvest interval which will limit its use on some fresh-market tomatoes. Even with these limitations, Dual Magnum will be a welcome addition, especially for growers who have been battling eastern black nightshade in their tomatoes.

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## ***Upcoming Meetings***

- June 27-28, 2003, Barry, Illinois. Illinois Summer Horticulture Field Day.
- August 7, 2003, Dixon Springs Agricultural Center, Simpson, Illinois. Dixon Springs Field Day.
- August 21, 2003, University of Illinois South Farm, Champaign, Illinois. Agronomy Day.
- September 5, 2003, University of Illinois Vegetable Crops Farm, Champaign, Illinois. Pumpkin Field Day.

## ***Fruit Production and Pest Management***

### **Miscellaneous notes on fruit insects**

- In apples, Chris Doll and Elizabeth Wahle reported biofix dates of April 22 and around April 29 for codling moth in the far south and the latitudes of the St. Louis area, respectively. The biofix date for the University of Illinois orchard at Urbana was May 6. Dates will vary a bit in individual orchards, but for growers who do not use traps, these observations provide a rough idea of when moth flight began. In the south, initial sprays for codling moth control should go on very soon if they have not been applied already. North of Champaign-Urbana, petal-fall sprays are yet to go on in some orchards. Remember that the petal-fall application rarely provides much codling moth control; the target for this spray is plum curculio. Guthion and Imidan remain effective for this use. White apple leafhopper nymphs develop on leaves beginning during bloom and petal fall ... the threshold for control is 3 nymphs per leaf. Check page 35 of the 2003 Commercial Tree Fruit Spray Guide for the effectiveness of various insecticides against leafhoppers. Assail and Provado are among the products that are very effective.

- Chris Doll noted that eastern flower thrips were present in some strawberry fields at densities that probably warrant control. Scout during the very beginning of bloom, and treat if numbers exceed 2-10 per blossom ... treat before most blossoms are open and bees are foraging in the field.
- Grape growers ... note that Danitol is labeled for use on grapes and is effective against the foliar stage of grape phylloxera. The only insecticide previously registered and effective against the foliar stage of phylloxera was Thiodan (endosulfan), and it injures several grape cultivars. The Midwest Small Fruit and Grape Spray Guide notes that the best time to limit phylloxera numbers by spraying is at bloom and 10 days later.
- Reapplication after rainfall ... According to the technical folks with Cerexagri, if the spray deposits have several hours to dry and penetrate leaf and fruit surfaces, Assail should remain effective against codling moth for 14 days even if a couple of inches of rain fall during that period. That said, apple and peach growers (and others) are reminded that heavy, driving rains remove significant amounts of many pesticide deposits from leaf and fruit surfaces. Last year I witnessed severe Oriental fruit moth infestations in peaches where 4-inch rains occurred within 24 hours after application of a cover spray and growers were unable to reapply an insecticide for several days. The period when the fruit was unprotected coincided with larvae hatching from eggs, and the result was good news for the worms and bad news for the growers.
- Captan and oil: Apple growers may be using oil (dormant oil, superior oil, horticultural oil) at low concentrations for mite control or at 3/4 to 1 percent by volume as an additive to increase the effectiveness of Assail. Remember, do not apply oil within two weeks after the use Captan or other sulfur-containing compounds. Leaf and fruit injury (“burn”) is the result.

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## ***Vegetable Production and Pest Management***

### **Soil Moisture and Irrigation Considerations**

Growers across the state are surely considering their soil moisture situation as the season gets started. Growers in the south may be wondering how to get rid of the excess while growers in the north, despite recent generous rains, are probably wondering whether or not they’re short of stored moisture for the growing season.

One important source of information for soil moisture in Illinois is the Illinois State Water Survey, which is affiliated with both the University of Illinois and the Illinois Department of Natural Resources. Their recent issues of soil moisture summaries indicate that soil moisture reserves in the south are excessive and in the north are very short. Particularly alarming in the north is the depth of soil which reflects significant shortages. Normally the lower layers of soil build up reserves through the winter. But across most of northern Illinois the soil moisture available in the 20-40" layer and the 40-72" layer is between 50% and 75% of normal. The significance of this shortage is that these are the reserves our crops tap into as the heat of the summer months drives crop demand for moisture into deficits in the upper ranges of the soil. When temperatures are in the mid-80's to 90's and crops begin to develop a full canopy, demand for moisture can reach up to 0.33" per day, especially when it's windy. At the most, our soils can supply 1.5" of moisture per foot of soil, giving us less than a week of reserves per foot during those really hot spells. That's why the moisture reserves in those lower layers are so important as we get into the season. The moisture in the top layers are adequate for the early part of the summer but we need those lower level reserves to be at their best as we get into the heart of summer, particularly if we don't have irrigation to back up soil moisture and manage it for optimum production and crop quality.

This raises the question, “Do I really need to manage water in my crops?”. Perhaps if you raise only cash grain, you may be able to get by without irrigating. But fruit and vegetable crops have unique characteristics which put more pressure on growers to manage water. First, many vegetables and fruits have shallower root systems that cannot access the soil moisture reserves that crops such as dent corn can. Even sweet corn doesn't develop the depth of root system found on most dent corn crops. Second, the harvested portion of grains is a dried down seed, where moisture is significantly reduced prior to harvest. Fruits and vegetables are moisture-rich products. They develop rapidly on the plant, and if moisture is reduced, the size and quality of the crop is immediately impacted. Third, many fruit and vegetable growers operate in soils which by their nature have lesser capacity for holding stored moisture. Examples are the sands in river valleys often used by vegetable growers, or the clays of the hillsides preferred by fruit growers. These soils simply cannot supply moisture to crops in the way that heavy silt loam soils do.

Irrigation technology has come a long way in recent decades. There are many options for fruit and vegetable growers to choose from in designing an irrigation system with appropriate capacities and flexibilities for the crops they choose to grow. These technologies give growers the opportunity to fine-tune their management of the ingredient that does more to determine the final outcome of their crop than any other – water. As the market becomes more sophisticated in its demands on growers, growers need more tools to manage the crop that grows the product they put into that market. Irrigation may be the most important tool available to fruit and vegetable growers for reaching the highest potential for quality in their crops.

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### **Corn flea beetles**

Corn flea beetles should not be very numerous in the northern half of the state after the moderately cold winter of 2002-03, but in the south, overwintering survival should have been fair. Expect beetles to be numerous enough to cause significant losses as a result of their transmission of Stewart's wilt to susceptible sweet corn hybrids. In fields where a susceptible or moderately susceptible hybrid was planted without a Gaucho (imidacloprid) or Cruiser (thiamethoxam) seed treatment, growers are advised to scout twice weekly for flea beetles. Recommendations from Cornell University suggest a threshold of 6 beetles per 100 plants (because of disease transmission, not direct feeding damage). Research conducted in 2001 and 2002 by Kelly Cook, a graduate student at the University of Illinois, showed that 6-inch square double-sided yellow sticky traps can be used to monitor flea beetle populations. Her results suggest a threshold of 5 corn flea beetles per trap per day. Yellow sticky traps are available from Great Lakes IPM and other suppliers ... we bought 6" X 12" traps and cut them to 6" X 6".

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### ***This issue's words of wisdom ...***

A doctor, a nurse, and the top executive of an HMO have all died and are in line together at the Pearly Gates. St. Peter speaks with them and asks what good each has done in their life.

Doctor: "I have devoted my life to the sick and needy and have had a part in caring for, and healing thousands of poor people."

St. Peter: "That's great. Go ahead in to heaven. And what about you, dear?"

Nurse: "I've supported the good doctor and his patients my entire life as an adult."

St. Peter: "Wonderful. Please proceed in with the doctor. And what about you?"

Health Maintenance Organization Director: "I was the president of a very large HMO and was responsible for the healthcare of millions of people all over the country."

St. Peter: "Oh, I see. Please go in...but you can only stay two nights!"

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