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College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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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, weinzier@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.

For your calendar … June 16, 2006 – Illinois Summer Horticulture Field Day will be held at Boggio's Little Mountain Orchard near Granville, IL; and September 8, 2006 -- Illinois Pumpkin Field Day will be held at the University of Illinois Vegetable Research Farm near Champaign, IL.

In this issue ...

Regional Updates

In the Southern Region … The frost alarms went off again the evening of April 26th, making another long evening for strawberry growers … especially for Tom Schwartz, who was scheduled to defend his Master's thesis the following day. Congratulations to Tom on his successful defense of his thesis despite his lack of sleep.

I have seen a small amount of berry damage as a result of this last cold spell in the form of distorted berries, but nothing significant. Plasticulture berries started harvest for many the first week of May, and matted row are very close to harvest. I have already seen quite a bit of matted row berries ready for harvest. Thrips are a heavy this year, so keep diligent in your scouting. Thrips blow in with weather fronts, so a one time spray will not maintain control. Spray volume needs to be sufficient to thoroughly soak the plants and penetrate the flowers; otherwise you are wasting spray in terms of thrips control.

For anyone looking for strawberry production equipment, The Berry Patch in Livingston, IL is going out of business and will have a public auction on June 3rd. The auction bill can be located online at www.a-nauctions.com.

Grapes are progressing well, and many vineyards are in the process of suckering, and some have started combing and positioning vines. For those new to grape growing, you should be combing and positioning vines before tendrils tie the vine mass together, making the process much more difficult. Powdery mildew is a problem this year in several crops, and reports have come in on possible failure of Nova to control powdery mildew in grapes. Many grape growing areas in the nation have reported similar failures, so growers are encouraged to rotate to another powdery mildew product like Topsin-M or Abound.

Remember, most of the better powdery mildew products (except sulfur) have a fairly high risk of resistance development, so avoid spraying any product more than two times consecutively.

Chemical apple thinning is in the third round for many growers, and hand peach thinning will begin as soon as peaches loosen up a bit. They were still fairly tight the first week of May. Powdery mildew is making its presence known in apples, as is fire blight. Despite all the heavy storms recently, most of the growers have avoided any serious hail damage so far. The peach and apple crops look very good, and in general the trees themselves look healthy and strong this year too.

Planting conditions have been excellent for the vegetable producers. Main season tomatoes are being planted, and well as melons. Sweet corn and horseradish planting continues.

Tree fruit growers are invited to a twilight meeting on Thursday, May 18, at 5:30 p.m. at Tom Ringhausen Orchards in Batchtown, Illinois (Calhoun County). U of I Extension specialists will be on hand to discuss early season pest control, and growers will spend time in the orchard discussing other production updates. Participants should dress for the weather, as most of the meeting will be spent in the orchard. The Tom Ringhausen Orchards facility is located just east of Batchtown on Batchtown Road (1125 N). Take the Illinois River Road (1800 East) coming south from Hardin or north from Brussels and turn west on Batchtown Road (1125 N). Turn right (north) at the second driveway after the Batchtown water tower (mailbox number 86). Follow the left fork in the drive and go up the steep incline, following the curve to the right. The orchard facility is at the far end of the lane. For further information or if you need disability accommodations, contact Elizabeth Wahle at (618) 692-9434 or by email at wahle@uiuc.edu.

Other meetings on the calendar:

May 26, 2006—Mississippi Valley Peach Orchard Tour will be hosted by Bader Orchard. Bader's is located near Campbell, MO, in Dunklin County. I have not received details yet, but when I do, I will post it on my website at http://web.extension.uiuc.edu/regions/hort/.

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

In northern Illinois … we have enjoyed many sunny days during the April 19 - May 9 period, with day temperatures in the low 70s to upper 40s, and night temperatures in the upper 20s to mid 50s. The record low night temperatures of 27-31 ^{0}F were recorded in the counties north of I-80 on April 26, which occurred when apple buds were in the silver tip and pink stages, and other fruit trees were not in full bloom. This caused some injury to apple blossoms, but severity of the damage is low compared to last year and varies among orchards. The freezing temperatures also damaged some blossoms in June-bearing strawberries.

Soil moisture is adequate, as 3 to 4 inches of rainfall was recorded in the region in the month of April, with a lot of rain during the last two days in April. The region received another _ inch since the beginning of May.

Peaches are in the shuck split stage, and some apples are in full bloom, though the majority are at petal fall stage. I observed poor flowering in some apple varieties where there is an excellent bloom in one tree and the next two trees have few blossoms or none. Other fruit trees such as pears, plums, and sour cherries are at petal fall, and orchardists are now making petal fall sprays of fungicides and insecticides. Codling moth pheromone traps and mating disruption dispensers are already up in most orchards. In vineyards, grape shoots now have flower buds.

Black plastic mulch has been laid at many farms. Cool-season vegetables such as cabbage, potatoes, carrots, onions, and broccoli have been planted. First plantings of sweet corn are done, and seedlings are emerging. For other warm-season vegetables such as tomatoes, cucumbers, eggplants, peppers, and melons, transplants are still inside greenhouses, and will soon be hardened in readiness for field planting.

Maurice Ogutu (708-352-0109; ogutu@uiuc.edu)

Degree-Days

Degree-day accumulations listed below for weather stations in the Illinois State Water Survey WARM data base have been summarized by using the Degree-Day Calculator site 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 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).

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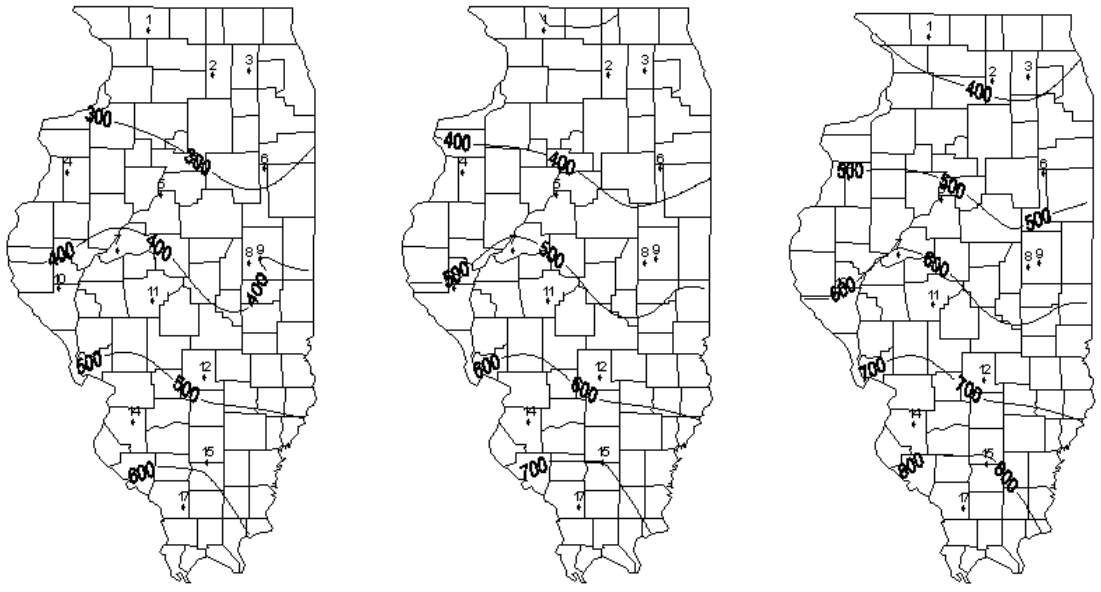
Degree-day accumulations, base 50 degrees F, starting January 1.

Station	County	Base 50F DD Jan 1 – May 8 Historic Average	Base 50F DD Jan 1 – May 8 2006	Base 50F DD Jan 1 – May 15 (Projected)	Base 50F DD Jan 1 – May 22 (Projected)
1. Freeport	Stephenson	279	233	301	372
2. Dekalb	Dekalb	315	239	313	390
3. St. Charles	Kane	287	257	322	388
4. Monmouth	Warren	358	337	418	503
5. Peoria	Peoria	395	355	441	527
6. Stelle	Ford	351	276	358	440
7. Kilbourne	Mason	480	426	517	608
8. Bondville	Champaign	409	Error	Error	Error
9. Champaign	Champaign	413	405	492	582
10. Perry	Pike	454	416	503	593
11. Springfield	Sangamon	450	460	556	656
12. Brownstown	Fayette	519	459	558	661
13. Olney	Richland	518	Missing	Missing	Missing
14. Belleville	St. Claire	578	571	674	780
15. Rend Lake	Jefferson	613	591	702	813
16. Fairfield	Wayne	572	Missing	Missing	Missing
17. Carbondale	Jackson	611	630	731	834
18. Dixon Springs	Pope	647	Missing	Missing	Missing



Degree days, base 50 degrees F, since January 1, 2006.
Left: January 1 – May 8; center: January 1 – May 15 (projected); and right: January 1 – May 22 (projected).

Notes from Chris Doll

Another early spring, and in contrast to the state report, this area of Illinois remains over 4 inches of rain below normal. Three days of rain that totaled 1.5 inches did make things green and trigger growth. Apples are in the 15-20 mm range for most varieties, and chemical thinning from here on out will be rescue sprays. Peach size is variable, being visibly larger where blossom thinning was done, either by hand or by rope thinners. A Belleville orchard reported some varieties being loose enough for easier thinning. That has not happened yet in the Back-40. Anyone growing the Saturn peach should hand thin them as soon as possible (and they pop off fairly easily). I have learned that they need to be removed near crotches and down to singles.

Most insect trapping programs in the area are quite successful in catching the targets. Codling moth numbers vary from low to more than 60 per week. Tufted apple bud moth counts are running high, as are counts of oriental fruit moth and lesser peach tree borer. My DD-50 number for codling moth is now at 160 after an April 23 biofix, and calculates out to 203 (here at Edwardsville) for those who observed an April 20 biofix date.

My records indicate that we are currently a couple of days earlier than 2005. Plant development has moved on in spite of low precipitation. On a historical note and in view of reports of global warming, I summarized my 34 years of apple petal fall dates, and found that the 1971-1988 17-year period had an average petal fall date of April 28.7, while the 1989-2006 l7-year period averaged April 25.7. For the last 10 years, the average apple petal fall date was April 20.8.

This year's variable apple bloom again points to the importance of a successful job of thinning, sometimes the availability of water, and the variety. Achieving return bloom has always been variable, and on overloaded biennial bearing trees, not very successful. For many years, the concept of adding 3-5 ppm of NAA to cover sprays in May and early June have been advocated. At the Michigan EXPO last winter, a posterboard display summarized a Michigan study on this and the suggestion was for 5 ppm NAA at 5, 7 and 9 weeks after petal fall. Cautions given were to avoid spraying during high temperatures, and to reduce the NAA by 30 percent if oil or a surfactant was added. An alternative to the NAA is the use of Ethrel at 200 ppm at the same interval.

Disease control has been quite effective in the orchards and berry field that I've seen. No scab on either apples or peaches has been found. Powdery mildew on apples has been visible and will probably show up on peaches that have not been sprayed correctly. A trace of blossom blight (fire blight) on apple has been found on a non-sprayed orchard, on Red Delicious without any Strep in a sprayed orchard, and on Golden Delicious in a row that the grower figured was missed with strep.

Strawberry harvest in plasticulture fields has been ongoing for about 10 days, and Earliglow in matted row plantings are starting this week. Yields and growth look good. Sprays for flower thrips have been needed in some of the plantings, but populations were down late last week in the sprayed fields. Flowering blackberries have some high numbers of this pest and might need control as well. They are relatively easy to kill, but spraying open flowers with an insecticide without killing pollinator bees requires best management practices.

Concern about available labor for fruit and vegetable growers is a major one. It is not a new problem, as most growers realize. At the 1972 ISHS Annual Meeting in Belleville, John Surgeon and I moderated at panel of growers on this subject. The conclusion was that "labor management is a major problem for orchardists. Good help is becoming increasingly difficult to obtain." Times have changed, but the problem persists. Incidentally, the picking rates reported at that time were 20-30 cents per bushel, and full-time field workers received $1.50-2.25 per hour.

Chris Doll

Fruit Production and Pest Management

Biofix Dates and Codling Moth Phenology

Data provided by Bronwyn Aly at Dixon Springs, Gary Grammer near Murphysboro, Sissy Erbacher of Eckert's Orchard at Belleville, Chris Doll at Edwardsville, and Kenny Horn from the University of Illinois orchard at Urbana indicate the following biofix dates and degree-day accumulations for codling moth in southern and central Illinois …

	Codling Moth Biofix Date	DD_{50} through May 8	DD_{50} projected through May 15	DD_{50} projected Through May 22
Dixon Springs / Murphysboro	April 17	245	347	452
Belleville	April 20	191	295	401
Edwardsville	April 23	160	240	330
Urbana	May 1	68	156	245

I invite growers from the northern half of the state to contact me and let me know the date that their traps began (or begin in the future) to catch codling moths. As the season progresses, keep in mind the following table of developmental events for the codling moth based on degree-day accumulations. In all the listings, "biofix" refers to the date of the first sustained capture of first-generation moths in traps. (Table based on ***Orchard Pest Management*** by Beers et al., published by Good Fruit Grower, Yakima, WA.)

Codling moth development:

First egg hatch (for first generation larvae)	~220 DD_{50} after biofix
50 percent of first generation moths emerged	~240 DD_{50} after biofix
50 percent of first generation eggs hatched	~500 DD_{50} after biofix
99 percent of first generation eggs hatched	~920 DD_{50} after biofix
First moths of second generation emerge	~900 DD_{50} after biofix
Beginning of second generation egg hatch	~1120 DD_{50} after biofix

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Federal Label Approved for Rimon in Apples and Cole Crops

Rimon 0.83EC, an insect growth regulator (chitin inhibitor) containing the active ingredient novaluron, has received a federal label for use on apples and "head and stem brassica" crops – cole crops. It may prove to be a useful compound in cole crop pest management, and data from around the country, including here in Illinois, indicate that it is almost certain to be a valuable insecticide for apple growers. It is most effective when applied before eggs are laid, as uptake into eggs occurs when eggs are laid on treated foliage or fruit. The label calls for application beginning 50 to 100 degree days (base 50 F) after biofix for first generation control or beginning at 1000 degree days after biofix for second generation control. (I would extrapolate from these recommendations and conclude that treatments beginning around 2000 degree-days after biofix should be effective for third generation control.) The label calls for application of 20 to 40 fluid ounces per acre (with the rate always determined on a per-acre basis, regardless of tree size or spray volume) in a minimum of 75 gallons of water per acre. For continued control, a second application should be made 14-17 days later (and a third 14 to 17 days after that) … but keep in mind that other products, not just Rimon, may be used to extend control. Restrictions include a limit of 4 applications per season and a 14-day pre-harvest interval. For most growers in Illinois, it will not be possible to obtain and use Rimon for first generation control programs, but it should be a valuable product for late-season control. I will summarize 2004 and 2005 trials with this insecticide in Illinois in a future issue of this newsletter.

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Lesser Peachtree Borer

Based on captures of lesser peachtree borer moths in traps at Edwardsville and Belleville and further south … and on degree-day accumulations elsewhere … if you have not already done so, now is the time to apply an insecticide to trunks and scaffold branches of peaches for control of this insect. See pages 31-32 of the ***2006 Commercial Tree Fruit Spray Guide*** for more information and a list of effective insecticides.

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Vegetable Production and Pest Management

Selecting Plastic Mulch Films

Plastic mulch has become a standard cultural practice for many vegetable crops. Since its discovery in the late 50's, it has developed into a very useful tool for growers. It can provide excellent weed control within the planted row, which by itself may be worth its price in some cases. It also holds moisture in the soil, though that has limited value as root systems withdraw that moisture over time. However it makes drip irrigation more efficient as it virtually eliminates evaporation of the irrigation water. But the most powerful feature of plastic mulch is the impact it has on light.

Light is one of the five fundamental elements of plant growth and development. It is the energy source for life on earth, captured almost exclusively by green plants, including the crops we grow. Light is also responsible for one of the other five elements, heat. As light reaches the earth and meets atmospheric resistance and the soil surface, heat results. Plastic mulch can impact the development of heat, increasing it or decreasing it, depending on mulch color. With white or reflective films the light is largely reflected away with reduced conversion of light to heat. Heat-sensitive crops such as lettuce can sometimes benefit from this soil-cooling trait. With black or dark green films, the light is converted to heat at a higher rate, exposing crops to warmer air. Heat-loving crops such as cucurbits or solanaceous crops often benefit from this increased heat by growing faster and becoming more productive.

In recent years, other colors of plastic mulch films have been investigated for their impact on crops. Like other plastic mulch films, these colored films interact with light and impact the development of heat. They also impact the nature of light the crop is exposed to. White films reflect the whole visible light spectrum back into the crop, reflective films even more-so. Black films largely absorb the light with little reflectivity. Dark green films reflect the green wavelength, which is why they look green. The plants are then exposed to a higher degree of green light. These wavelength differences have subtle, and sometimes profound, impacts on plant growth and development. Early research on red films found that they impacted tomatoes by forcing more compact growth, early flowering and earlier productivity. Recent research at St Charles by me and Dr. Maurice Ogutu has shown that blue films seem to stimulate productivity in muskmelons.

The question eventually becomes, "Does this pay for growers?". When green IRT films came out in the late 80's, I worked with them to evaluate their impact on peppers and melons at St Charles. After two years of work, we found that they indeed increased earliness over both bare ground and black plastic films in melons, but not in peppers. But the differences were marginal. And in the end, black plastic films were more productive for melons. While the colored plastic film had an impact, it didn't necessarily pay for the grower at the end of the season because it cost twice as much as black plastic mulch. With the red films, our experience at St Charles has been less than stellar. Weeds are not controlled underneath and productivity differences have been negligible at times. Over time, black plastic has been shown to be the workhorse plastic mulch for northern Illinois. Growers who try colored mulches should carefully watch the bottom line.

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

Cucumber Beetles in Southern Indiana

Frankie Lam, entomologist at the Southwest Purdue Agricultural Center in Vincennes, Indiana, prepared the following alert for melon growers in the Vincennes area. It's relevant for Illinois growers as well, so with credit to Frankie, here are his observations …

Cucumber Beetles in Southwestern Indiana: Over-wintered cucumber beetle populations were observed on cucurbits on May 3 at the Southwest Purdue Agricultural Center near Vincennes. Both striped and spotted cucumber beetles were found on plants and on yellow sticky traps. This is one of the earliest dates that spotted cucumber beetles have been observed in fields in southwestern Indiana. Fifty plants of cucumber (Calypso), muskmelon (Eclipse), summer squash (CashFlow F1), and watermelon (Royal Sweet) were randomly scouted for cucumber beetles at the Center, and the average the number of beetles per plant were 0.64, 0.52, 1.16, and 0.14, respectively. Furthermore, five yellow sticky traps placed in between rows of cucurbits had an average of 4.8 beetles per trap. As we predicted in the article, "Winter Temperatures (2005-2006) and Insect Survival in Indiana," (Vegetable Crops Hotline issue #462), the over-wintered insect populations in this early spring will be

relatively higher than those of last spring. Growers should scout more frequently for these insects, as early populations may occur at levels that are economically important.

(From Frankie Lam, Extension Entomologist, Southwest Purdue Agricultural Program, 4369 N. Purdue Road, Vincennes, IN 47591; wkflam@purdue.edu.)

Words of Wisdom

Usually I use this spot in the newsletter for humorous or sometimes sarcastic tidbits that I hope readers will find entertaining. In this issue I'll use it for what the heading says … words of wisdom. I spent several days at the end of April and the beginning of May in La Plata, Argentina, teaching in a Master's program in Plant Protection at the Universidad Nacional de La Plata. The students held a variety of jobs in the Argentine equivalents of our USDA Agricultural Research Service, Animal and Plant Health Inspection Service, and private industry. I taught about insect transmission of plant diseases and about combining information from the various disciplines of pest management (entomology, plant pathology, and weed science) along with crop production practices to develop real-world integrated pest management programs. And of course I learned a lot about Argentine agriculture and pest management again too (this is the third time I've taught in this program). The "words of wisdom" from this trip … we are often reminded that the best ways to overcome biases, stereotypes, or any other negative or inaccurate perceptions about "foreign" people is to visit them, interact with them, and learn how they really live and work and think. I'm a believer in that recommendation … it worked again for me and for the students in the program in which I taught. So, here they are …

Students in the 2005-2006 Master's in Plant Protection program at the Universidad Nacional de La Plata, La Plata, Argentina.

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