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College of Agricultural, Consumer, and Environmental Sciences

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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, 217-244-2126, 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.

In this issue ...

Upcoming Programs

Regional Updates (from Elizabeth Wahle and Maurice Ogutu)

Notes from Chris Doll (bud development, fertilization, spring tasks, notes from Charlie Touchette's ISCAC presentation)

Fruit Production and Pest Management (dormant sprays for disease control)

Vegetable Production and Pest Management (transplant production tips(II), Stewart's wilt predictions)

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

Upcoming Programs

- **2008 Sustainable Agriculture Tours.** For the sixth consecutive year, University of Illinois Extension is offering tours that highlight sustainable agriculture operations around the state of Illinois. Not all of these tours involve fruit or vegetable production, but the overall schedule for the 2008 sustainable agriculture tours is:
 - May 13, Eagle Dancer Ridge Llamas, Inc. in East Peoria (www.edrlamas.com/).
 - June 20, Learn Great Foods in Mount Carroll (www.learngreatfoods.com/).
 - July 11, Lyons Fisheries in Sandoval.
 - July 22, Cedar Valley Sustainable Farm Community Supported Agriculture (www.localharvest.org/farms/M5067)
 - August 8, University of Illinois Dixon Springs Agricultural Center, Dixon Springs (www.cropsci.uiuc.edu/research/rdc/dixonsprings) This tour is being co-sponsored by the Upper Midwest Organic Tree Fruit Growers Network (www.mosesorganic.org/treefruit/).
 - September 8, Iyabo Farms in Hopkins (www.sustainusa.org/familyfarmed/profile_iyabo.html).
 - October 3, Mill Creek Farm in Quincy (www.millcreekfarmquincy.com/).

A fee of \$20 per person will be charged for each tour, which includes lunch. Registration at least one week in advance is required. Visit www.extension.uiuc.edu/smallfarm/ to register and for more details about each of the tours, including a map and agenda. To register by phone, contact Donna Cray at 217-241-4644. For more information, contact Deborah Cavanaugh-Grant (217-968-5512; cvnghgrn@uiuc.edu).

Regional Updates

In southern and southwestern Illinois, It's still winter, at least technically, and southern Illinois still continues to experience fairly large swings in weather. The weather has been so erratic that even the most doubtful are starting to give credence to the global warming issue; one predicted aspect of global warming is an increase in extreme weather patterns. Two significant ice storms in the region have kept the chain saw supply and service industry hopping the last 6 weeks. On the plus side, so much snow, rain, and ice has fallen that all of the ponds, streams, and rivers are finally at capacity; a welcome site after the last few years of drought. Quite a bit of drying will be needed though for growers to get into fields for plantings of potatoes and other early season vegetables, plus the first mid- to late-March sweet corn planting. High tunnel plantings should be gearing up as well.

The weather has hampered pruning as well, but orchards, berry farms and vineyards are working through the delays. This is a good time to get ready for dormant applications. Blueberries, brambles, grapes and the tree fruits all have dormant recommendations for control of disease and/or insect pest. This is a good opportunity to reduce pest levels and many of the dormant applications are less expensive than those applied in season. If you do not have printed copies of the 2008 spray guides, all are available online: with the *2008 Midwest Tree Fruit Spray Guide* at <http://www.extension.iastate.edu/Publications/PM1282.pdf>, and the *2008 Midwest Commercial Small Fruit and Grape Spray Guide* at <http://www.hort.purdue.edu/hort/ext/sfg/>. In addition, the *2008 Midwest Vegetable Production Guide for Commercial Growers* is available at <http://www.btny.purdue.edu/Pubs/ID/ID-56/>. Get prepared now to take advantage of any application window for dormant pest control. With the way the weather has been, that window may be very narrow this year, and you don't want to miss it.

For plasticulture strawberry growers, there has been a suggestion coming out of the northeastern U.S. that we could possibly plant much earlier than we currently do, even as early as late June or early July. Because they have similar hardiness zones to southern Illinois, planting early should work similarly and gain us several benefits such as increased growth and development going into the winter. I would offer a caution to this concept. Although we have similar winter lows to states like Pennsylvania and Massachusetts (USDA Plant Hardiness Zone Map <http://www.usna.usda.gov/Hardzone/ushzmap.html>), we differ significantly in the average level of summer heat (AHS Plant Heat-Zone Map http://www.ahs.org/pdfs/05_heat_map.pdf). Southern Illinois experiences more days above 90 degrees F than many of the northeastern states, which can greatly impact growth and development results. Dixon Springs Ag Center has plans to explore early planting of plasticulture strawberries through on-farm research this year, and perhaps this work will further support or refute early planting of plasticulture strawberries in the warmer regions of Illinois.

Grape growers from south central Illinois asked me to look into the possibility of getting a special use label for Milestone on grapes. They had heard that it was labeled in western states for use in grapes but not in Illinois. In researching the possibility I encountered an interesting story. The "original" Milestone was a DuPont experimental herbicide (active ingredient azafenidin) that was very close to registration in fruit/nut/vine (grape) and pasture about 5 years ago, before the company decided not to proceed with registration. There was a lot of name brand recognition for Milestone, and the name was on some early promotional items, but evidently word never got around to growers that the product never came to market. Since a label does not exist (nor is the product being produced), use in Illinois is not possible. Evidently the confusion developed after DuPont released the rights to the trade name Milestone, allowing Dow AgroSciences to pick it up. If you look up a Milestone label, you will see that it is now a Dow AgroSciences herbicide with the active ingredient aminopyralid, and is only for non-crop, pasture/range/CRP broadleaf weed control. Aminopyralid is in the same class of growth regulating herbicides as 2,4-D and dicamba, and grapes are highly susceptible to injury.

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

In northern Illinois, the winter that is coming to an end has seen the highest snow fall in more than a decade, with totals exceeding 50 inches. This was accompanied with much colder temperatures at this time of the year compared to the last three years. During the last two weeks of February, day temperatures in the region were in the teens to upper 30s, with night temperatures in single digits to low 30s, with more than 8 inches of snow on ground. It has warmed up since the beginning of March, with day temperatures in the 30s to upper 40s in northern counties bordering Wisconsin, and in the 50s to 60s in counties bordering central parts of the state. The region received 1-3 inches of rainfall between February 17 and March 10, and a snow fall of 5-7 inches. The colder temperatures have delayed pruning in many orchards. Warmer weather in recent days has finally been favorable for outdoor activities. Ground is still frozen in most parts of the region, with a few patches of snow scattered on fields. A reminder as planting time approaches: Growers who had problems with phytophthora in their cucurbit fields need to consider growing field crops or vegetables that are not susceptible to phytophthora in those fields this coming season.

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

Notes from Chris Doll

After a February that was not too much different than the one in 2007, the fruit crop appears to be in the same stage as it was a year ago on this date. And the comparison continues as the temperatures climb into the 60's and 70's for a couple of days. Bud swell is visible on some plum and apricot varieties and the peach buds are nice and green. Last year, pink of peach was listed as 3/22, with earlier dates of 3/5/92, 3/9/74 and 3/14/90 having been recorded in the Back-40. Soil moisture levels have improved since the last report, and more is predicted soon.

The southern areas have dried on the surface so that brush can be removed ahead of dormant and herbicide sprays. It's time to apply the half rate of nitrogen to peaches and full rates of all needed fertilizers to other tree and small fruits. The caution note is that timing is great ahead of soaking rains but poor if heavy rains are expected.

Other seasonal jobs that are timely are to finish pruning blackberries prior to bud break so that flower buds are not rubbed off in the process. I have said the same thing about grapes, but in 2007, tardy pruners had better bud survival by not being early. If some branching induction is needed on young vigorous apple trees with long unbranched shoot growth, a couple of options are available just before bud break. A sharp knife can be used to slice into the xylem just above the bud (or multiple buds on a long shoot) for the bud notching process. The second method is to mix Promalin at 0.3 pint to 1.0 pint of latex paint and one percent nonionic wetting agent and apply to bud with a brush or sponge before bud break.

Due to wet and/or frozen soils to date, most planting remains to be done. Any planting date before April 1 is classified as early for southern Illinois, so time remains. Early planting in cool soils improves root growth, so that is the objective. Good soil conditions are important for planting at any date, but cannot overcome late planting like in May. Depth of planting for apples should be with the bud union above the soil line to prevent scion rooting, and for peaches it is best to plant at the same depth as grown in the nursery.

Notes from Charlie Touchette's (Executive Director of the North American Farmers Direct Marketing Association) talk at the ISGA meeting in Springfield in January ... he made the following statements about Americans, food, and culture:

- Farm numbers from 1900 to 2008 have dropped from 39.3 million to 1.5 million.
- In 2017, the number of 14 year olds and 65 year olds will be equal.
- Apple consumption in the U.S. is by 85% of the white population and less than 21% of the non-whites.
- Tomorrow's children will not know what a fresh apple looks like.
- 10.1 % of our disposable income goes to food.
- Of our disposable income, communications (phones, TV, and electronics) take the largest amount, followed by health and education, with fuel moving up rapidly.

Semantics after a long, dark month of February might be in order. For instance, *philosophobia* is the dread of philosophy or philosophers. *Pessimism* is the disposition to take a gloomy view of affairs, while *optimism* is the doctrine that everything is ordered for the best. Fruit growers are in the latter category as we look for the coming year. New terminology includes *locavores*, who purchase only local-grown produce because they are concerned about the *food-miles* required in the marketing chain.

Chris Doll

Fruit Production and Pest Management

Dormant Sprays for Disease Management

Peach leaf curl, caused by *Taphrina deformans*, is a common disease of peaches in Illinois. If not controlled effectively, this disease causes yield losses and tree losses. Peach trees should be sprayed for control of peach leaf curl before bud swell. A single spray application of a copper compound (copper hydroxide, copper oxychloride, Bordeaux mixture), Ziram, Carbomate, or Bravo can effectively control peach leaf curl. Trees can be sprayed any time after leaf drop in the fall to before bud swell in the spring. For more information on pathogen biology and disease epidemiology, refer to <http://veg-fruit.cropsci.uiuc.edu/new/PeachesNectarines.asp>; and for choice of fungicides for control peach leaf curl, consult the **2008 Midwest Tree Fruit Spray Guide** (<http://www.extension.iastate.edu/Publications/PM1282.pdf>).

Fire blight of apples and pears. Fire blight, caused by the bacterium *Erwinia amylovora*, is the most destructive disease of apples and pears in Illinois. It occurs every year and cause blossom blight, shoot blight, canker blight, and rootstock blight. In 2007, tremendous shoot blight occurred in apple orchards in central, western and southern Illinois. In addition to proper pruning, dormant copper spray and application of antibiotics during bloom will be needed to minimize losses to fire blight in 2008. Copper should be applied to the entire orchard, including non-susceptible cultivars, at the silver tip stage of flower bud growth, and when temperatures are above 45°. Several copper compounds (Bordeaux mixture, copper hydroxide, copper oxychloride, copper sulfate) can be used in the dormant sprays. Do not apply copper after ½-inch green leaf stage or when drying conditions are slow, as severe injury can occur. Fixed coppers such as Kocide and C-O-C-S can be tank mixed with early season oil sprays, but do not combine copper sulfate alone with dormant oil. For more information on pathogen biology and disease epidemiology, check <http://veg-fruit.cropsci.uiuc.edu/new/apples18.asp>; and for additional information of dormant spray for control of fire blight of apples and pears, consult the **2008 Midwest Tree Fruit Spray Guide**.



Peach Leaf Curl

M. Babadoost



Fire blight of apples (shoot and fruit blight)

Babadoost

Anthracnose of brambles, caused by the fungus *Elsinoe veneta*, is one of the most serious diseases of brambles in Illinois. Dormant spray (spray application when tips of buds show green) of lime-sulfur (6-12 gallons per acre), or Sulforix (3-6 gallons), copper hydroxide (Blueshield 50WP, Kocide 50WP) at the rate of 4 pounds per acre is effective in controlling anthracnose of brambles. Sprays of lime-sulfur may burn leaves if applied after new shoots are 3/4-inch long. For additional information on disease epidemiology, refer to <http://veg-fruit.cropsci.uiuc.edu/new/brambles.asp>; and for more information on dormant spray for control of anthracnose of brambles, consult the *2008 Midwest Commercial Small Fruit and Grape Spray Guide* (<http://www.hort.purdue.edu/hort/ext/sfg>).

Anthracnose of grape, caused by the fungus *Elsinoe ampelina*, is one of the important diseases of grape. It reduces the quality and quantity of fruit and weakens the vines. Once the disease is established in a vineyard, it can be very destructive. The pathogen overwinters in vineyards on infected shoots. Dormant application of liquid lime-sulfur in early spring, followed by applications of foliar fungicides during the growing season, is recommended for control of this disease. Lime-sulfur solution should be applied before bud swell to reduce overwintering inoculum of the pathogen. For more information on anthracnose of grape, refer to <http://ohioline.osu.edu/hyg-fact/3000/3208.html>; and for more information on chemical control, consult the *2008 Midwest Commercial Small Fruit and Grape Spray Guide*. Also, dormant lime-sulfur application can help to more effectively control Phomopsis cane and leaf spot of grapes, which is caused by the fungus *Phomopsis viticola*.



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

Vegetable Production and Pest Management

Transplant Production Tips – Part II

Tomatoes and peppers are two of the more common transplants raised in Illinois. Larger growers often seed directly into plug trays (Figure 1) and then later transplant these plug plants into a large tray or pot to finish the transplant in the greenhouse. Although this system offers numerous advantages, many Illinois growers do not have access to the equipment required for this type of transplant production, and instead they seed into seeding flats (Figure 2) and then transplant the seedlings.

Plug mix is often the best choice of media to seed into even if growers are seeding into a seeding flat rather than plug trays. The plug mix is lighter and often results in less damage when pulling plants for transplanting.

As stated in the previous article, be sure to germinate seeds at optimal temperature and quickly remove flats from the germination room once seedlings have emerged. Seedlings will rapidly stretch in the warm germination room so they must be moved quickly to the greenhouse. Seedlings should be potted as soon as they are large enough to handle, and the grower should take great care to handle by the cotyledons to avoid damaging their growing point.

When potting, growers most commonly use soilless media such as Pro-Mix and others. These mixes tend to be well drained and offer a good growing environment for plants. However, it is common to observe micro-nutrient problems in 3- to 4-week old transplants. Two keys to prevent this are to avoid over watering and apply water-soluble fertilizer that contains micro nutrients during transplant production.

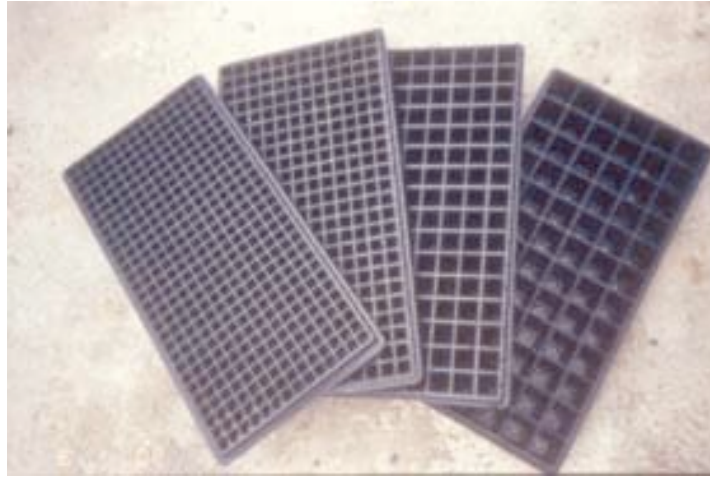


Figure 1. Plug tray flats

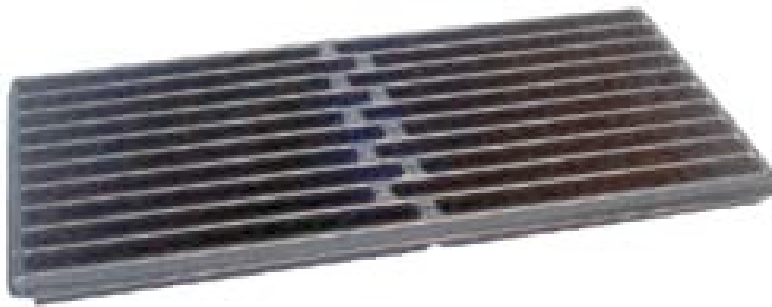


Figure 2 Seeding flat

Another common problem seen in transplants is stretching. Tall, spindly transplants typically perform poorly. There are many mechanisms that can be used to help reduce problems with stretching. Growers may use growth regulators on some crops, and numerous articles have been written on brushing transplants to reduce height. Perhaps easier methods are to be sure to keep the greenhouse cool, especially during the first few hours after daybreak, avoid excessive water and fertilizer, and spread plants out when possible.

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

2007-08 Winter Temperatures and Probability of Stewart's Wilt on Sweet Corn

For nearly 80 years, the occurrence of early-season Stewart's wilt has been predicted based on observations made by N.E. Stevens in the early-1930s. If the average daily temperature for December, January and February is above freezing, many flea beetles survive and Stewart's wilt is likely to be severe on susceptible hybrids. If the average daily temperature for these three months is below 27 F, few flea beetles survive and Stewart's wilt is unlikely to occur even on susceptible hybrids. The winter temperature forecast can be used as a "rule of thumb", even though it is not an extremely accurate predictor. At least part of the inaccuracy occurs because the forecast does not consider the resistance or susceptibility of the hybrid being grown.

The winter of 2007-08 has been the coldest since 2002-03 (Table 1). Based on the Stevens forecast, Stewart's wilt is expected to be relatively rare in north and north central Illinois, mild in central Illinois, and moderate to severe south of I-70.

Winter temperatures, 2007-08, and comparisons with previous years.

Location	2007-08	2007-08			Winter means				
	Winter	monthly means			2006-07	2005-06	2004-05	2003-04	2002-03
	mean	Dec.	Jan.	Feb.					
Dwight	23.7	26.4	23.6	21	25	27.7	28.4	25.5	23.0
Monmouth	22.4	24.1	21.8	21.4	25	28.1	29.7	26.5	25.0
Goodfield	25.6	28.3	24.7	23.7	25.5	30.1	31.1	28.7	26.4
Urbana	27.6	31	26.4	25.5	28.7	31.4	31.6	29.3	26.3
Perry	28	29.8	29.2	25.1	29.4	32.3	32.5	29.8	27.7
New Berlin	28.5	30.9	28	26.6	29.9	32.4	33.3	32.2	30.5
Brownstown	31.1	34.3	29.3	29.6	32.1	33.1	35	33.7	29.9
Carbondale	35.1	38.1	33.1	34	36	37.2	38.2	34.7	31.7
Belleville	34	36.7	34.7	30.7	36.8	38.4	38.5	36.1	33.6
mean	28.4				29.8	32.3	33.1	30.7	28.2

For the past five years, we've monitored the incidence of Stewart's wilt on sweet corn hybrids with different levels of resistance in order to improve the predictive ability of the winter temperature forecast. Data from those trials for the hybrids 'Jubilee' (susceptible) and 'Bonus' (resistant) are presented below as the 'worse case' and best case' scenarios.

Location	Incidence (%) of seedlings systemically infected by Stewart's wilt									
	Jubilee					Bonus				
	2007	2006	2005**	2004	2003	2007	2006	2005**	2004	2003
Dwight	1	0.6	0**	4.3	0	0	0	0**	0	0
Monmouth	1	2.8	0**	0.1	0	0	0	0**	0	0
Goodfield	0.4	0	0**	2.3	0.3	0	0	0**	0	0
Urbana	2.6	1.3	0**	8.2	3.2	0.6	4	0**	1.7	0
Perry	6	1.9	0**	7.7	8.8	1.6	0	0**	0.8	0.2
New Berlin	16	0	0**	7.2	10	2.7	0	0**	0.6	0
Brownstown	1.2	2.8	0.3	35.9	3.9	0.6	0	0	0	0
Carbondale	6.8	1.9	1.1	2.3*	7.9	0	0	0	0	0
Belleville	8.2	0	2.5	2.1*	5.7	0.4	0	0	5.6	0
	*planted late (after May 15)									
	** near freezing T May 1-4 after planting									
processing	If incidence of Stewart's wilt >5%, estimated value of seed treatment is > \$11.7 / A for \$325 / A crops									
fresh	If incidence of Stewart's wilt >1%, estimated value of seed treatment is > \$11.7 / A for \$1625 / A crops									
	Value of seed treatment = crop value x 0.8 x (incidence/100) x 0.9									
	0.8 - estimated efficacy of seed treatments: Poncho, Gaucho, Cruiser									
	0.9 - estimated yield loss from Stewart's wilt (slope coefficients from yield loss regressions)									

Based on the data from the past five years, it is unlikely that Stewart's wilt will be prevalent in 2008 on hybrids with good levels of resistance, but levels of Stewart's wilt on susceptible hybrids, such as 'Jubilee', may be high enough to warrant the use of seed treatment insecticides. Based on previous efficacy studies for Poncho, Gaucho and Cruiser, and regression models derived from Stewart's wilt yield loss studies, the value of these seed treatment insecticides was estimated to be about \$10-12 per acre when incidence was about 5% on processing crops (\$325 per A), and about \$10-12 per acre when incidence was about 1% on fresh market crops (\$1625 per A). An equation to calculate those estimates is presented in Table 2, in case you wish to modify any aspect of the estimate.

Using these estimates of the value of seed treatment insecticides, these treatments would have been economical on fresh market sweet corn (1% threshold) only 5 of 45 times for a hybrid that is as resistant as 'Bonus'. For a hybrid that is as susceptible as 'Jubilee', the

seed treatments were economical 5 of 15 times in north central Illinois, 11 of 15 times in central Illinois, and 13 of 15 times in southern Illinois. Thus, use of a seed treatment insecticide is probably an economical choice in 2008 for susceptible to moderately susceptible hybrids planted in central and southern Illinois but not in northern Illinois.

Jerald Pataky (217-333-6606; j-pataky@uiuc.edu)

Less seriously ... One more time with the “a picture’s worth a thousand words” idea ... again, I’ll leave over 990 of those words unwritten, but the caption speaks two or three ...



Redneck pet-carrier.

(from a message forwarded by Chris Doll)

University of Illinois Extension Specialists in Fruit Production and Pest Management

Extension Educators in Food Crop Horticulture		
Bill Shoemaker, St. Charles Res. Center	630/584-7254	wshoemak@inil.com
Maurice Ogutu, Countryside Extension Center	708-352-0109	ogutu@uiuc.edu .
Elizabeth Wahle, Edwardsville Extension Center	618-692-9434	wahle@uiuc.edu
Bronwyn Aly, Dixon Springs Agricultural Center	618-695-2444	baly@uiuc.edu
Jeff Kindhart, Dixon Springs Agricultural Center	618-695-2444	jkindhar@uiuc.edu
Peter Chege, Quad Cities Extension Center	309-792-2500	pchege@uiuc.edu
Extension Educators in IPM		
Suzanne Bissonnette, Champaign Extension Center	217-333-4901	sbisson@uiuc.edu
George Czapar, Springfield Extension Center	217-782-6515	gfc@uiuc.edu
Doug Jones, Mt. Vernon Extension Center	618-242-9310	jonesd@uiuc.edu
Dave Feltes, Quad Cities Extension Center	309-792-2500	dfeltes@uiuc.edu
Russell Higgins, Matteson Extension Center	708-720-7520	rahiggin@uiuc.edu
Campus-based Specialists		
Mohammad Babadoost, Plant Pathology	217-333-1523	babadoos@uiuc.edu
Mosbah Kushad, Fruit & Vegetable Production	217-244-5691	kushad@uiuc.edu
John Masiunas, Weed Science	217-244-4469	masiunas@uiuc.edu
Chuck Voigt, Vegetable Production (& herbs)	217-333-1969	cevoigt@uiuc.edu
Rick Weinzierl, Entomology	217-244-2126	weinzier@uiuc.edu

Return Address:

Rick Weinzierl
Department of Crop Sciences
University of Illinois
1102 South Goodwin Ave.
Urbana, IL 61801

