

## ***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, [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.

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

### ***Crop and Regional Reports***

**In the south and southwest**, only trace amounts of rain have fallen during the last week of August and the first 2 weeks of September, and for the most part, weather conditions have been very mild. Many grain farmers are in their second week of field corn harvest, and reported yields are high. Several farm markets not in the apple business are preparing to close for the season in the next few weeks. Markets in the apple business are in full swing. Apple color is good, and that autumn feel to the air should put consumers in the frame of mind to buy apples and cider. Early pumpkin harvest has started, but the main target market is still a few weeks away.

*Elizabeth Wahle (618-692-9434; [wahle@uiuc.edu](mailto:wahle@uiuc.edu))*

**In northern Illinois**, day temperatures in the 70s to 80s and night temperatures in the upper 50s to low 60s have been common during the last week of August and the first 2 weeks of September. Many areas in northern Illinois received an inch or more of rainfall during the last week of August and trace amounts since the beginning of the month. Most of the pick-your-own orchards are now open to the public. Picking of summer apple varieties (Royal Gala, Jonamac, Ozark Gold, McIntosh, Cortland, and others) is going on in some orchards while other varieties will be ready for picking from mid-September onwards. Light incidence of sooty blotch and flyspeck have been reported in some orchards. Fall-bearing raspberry harvest is underway, and pruning of fruited canes of summer-bearing raspberries continues as well. Early grape

varieties are ready for harvest, and some wine grape varieties will be ready very soon. Bunch rots are a problem in some varieties, and Japanese beetles continue to feed on grape leaves. Yellow jackets are also feeding on ripe fruit of raspberries and grapes.

Harvesting of sweet corn, tomatoes, peppers, muskmelons, watermelons, squash, and other vegetables continues on most farms. Diamondback moth larvae, cabbage loopers, and imported cabbageworm adults and larvae are present in cole crops. The pumpkin crop looks good this year, and in most fields more than 50% of the fruits are orange in color. There is a serious outbreak of powdery and downy mildew in many pumpkin fields, and western corn rootworm beetles and cucumber beetles are feeding on pumpkin fruits.

Maurice Ogutu (708-352-0109; [ogutu@uiuc.edu](mailto:ogutu@uiuc.edu))

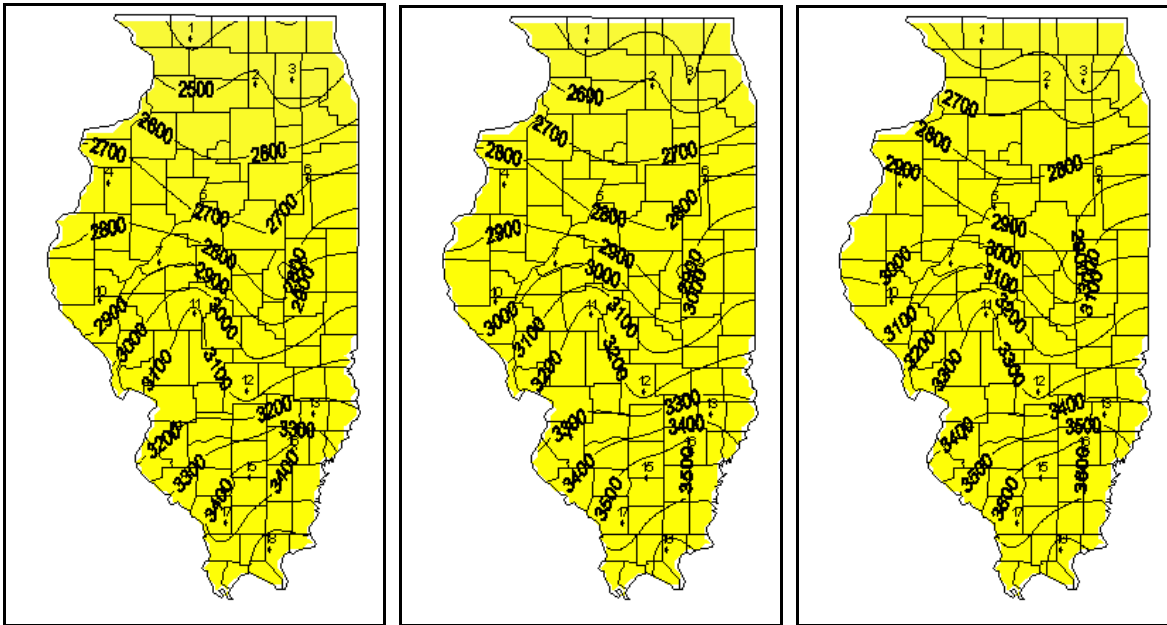
### ***Degree-Day Accumulations and Projections***

No.	Station	County	Base 50 Degree-Days Jan 1 - Sep 13
1	Freeport	Stephenson	2374
2	Dekalb	Dekalb	2538
3	St. Charles	Kane	2408
4	Monmouth	Warren	2785
5	Peoria	Tazewell	2666
6	Stelle	Ford	2694
7	Kilbourne	Mason	2878
8	Bondville	Champaign	2663
9	Champaign	Champaign	2962
10	Perry	Pike	2825
11	Springfield	Sangamon	3134
12	Brownstown	Fayette	3039
13	Olney	Richland	3257
14	Belleville	St. Clair	3207
15	Rend Lake	Jefferson	3445
16	Fairfield	Wayne	3425
17	Carbondale	Jackson	3445
18	Dixon Springs	Pope	3232

To view an up-to-date contour map of accumulated degree-days in Illinois, go to <http://www.sws.uiuc.edu/warm/pestdata/choosemap.asp?plc=#>, and select a base temperature of 50°F. To reach the degree-day calculator, go to: <http://www.ipm.uiuc.edu/degreedays> or <http://www.sws.uiuc.edu/warm/agdata.asp>.

This is the final time we will list degree-day accumulations for the 2004 season.

Kelly Cook (217-333-4424; [kcook8@uiuc.edu](mailto:kcook8@uiuc.edu); Rick Weinzierl (217-333-6651; [weinzier@uiuc.edu](mailto:weinzier@uiuc.edu))



DD accumulations, base 50 F, for January 1 through Sep 13 (left) and projected through Sep 20 (center) and Sep 27 (right).

## ***Upcoming Meetings***

### ***Illinois-Iowa Fruit and Vegetable Growers Conference, December 2, 2004***

The Illinois-Iowa Fruit and Vegetable Growers Conference is scheduled for 1:00 to 5:00 p.m. on December 2, 2004, at the Quad Cities Botanic Center. Mark your calendar now, and expect to see more details in a few weeks in this newsletter. For more information, contact Martha Smith, Horticulture Educator at the University of Illinois Extension Center in Macomb.

Martha Smith (309-836-2363; [smithma@uiuc.edu](mailto:smithma@uiuc.edu))

### ***Highlights from the September 9, 2004, Pumpkin Field Day***

Pumpkin growers from all over Illinois and a few from Iowa and Missouri came to the St Charles Horticulture Research Center, St Charles, IL, on September 9 to participate in the annual statewide Illinois Pumpkin Growers Field Day. Approximately 70 people were present on a beautiful day for touring pumpkin research plots at St Charles.

Speakers from the University of Illinois and Southern Illinois University came prepared to give growers new insights into the challenges of pumpkin production. Several studies were presented which evaluated weed control strategies in pumpkin crops. Bill Whiteside discussed trials that examined efficacy and potential for phytotoxicity in pumpkins. Included were an evaluation of a number of broadleaf preemergence herbicides, an evaluation of Sandea in several different applications, an IR-4 project evaluating Dual II Magnum, and a study of an experimental improvement for Select herbicide from Valent Corp. Elizabeth Wahle discussed issues related to timing of application with Sandea herbicide, and Bill Shoemaker discussed an evaluation of an adjuvant for Strategy herbicide which may improve efficacy, especially for broadleaf weed control.

Other speakers for the field day included University of Illinois plant pathologist Mohammed Babadoost, who discussed pumpkin disease issues and presented his evaluation of pumpkin disease control strategies at the Research Center. Rick Weinzierl was on hand to discuss pumpkin insect problems. He also demonstrated aphid trapping methods and discussed their value in understanding aphid-borne virus diseases in pumpkins. Our long-distance traveler was Alan Walters, who came from SIU-Carbondale to speak to growers about advances in pumpkin breeding and new cultivars.

Volunteers of the St Charles Horticulture Research Center contributed significantly to a smooth operation. In particular, they prepared a grilled bratwurst lunch, with cut vegetables, seedless grapes, and cold salads from crops grown at the Research Center.

Pumpkin growers from Illinois and surrounding states can look forward to another field day in 2005 in southern Illinois as

this event continues its rotation around the state. Dr. Alan Walters will host it at Belleville, IL, at the Southern Illinois University research farm there. Thanks to all who participated in this year's event.



Top left: Mohammad Babadoost talks on pumpkin disease management. Top right: Rick Weinzierl and growers collect aphids from an interception net. Above: Lunch is served!

Bill Shoemaker (630-584-7254; [wshoemak@inil.com](mailto:wshoemak@inil.com))

### ***Notes from Chris Doll***

For much of the summer, we have been running close to 2003 on the phenology clock. After an unusually cool August, we remain ahead of 2003 with the wrap up of peach harvest and the picking of most apple varieties. I finished Encore peaches a week ago, which was a week earlier, and apple varieties like Spartan, Jonagold, and Red and Golden Delicious are mature enough to come off. In SW Michigan last week, everyone said that crops were two weeks earlier, and I saw lots of empty Jonathan trees in the area.

For the record, Japanese beetles continue to ravish some of the buds of roses, but no Asian lady beetles have been seen yet. Several codling moth entries have been made in apples in the past 10-20 days. Heavy leaf drop from necrotic leaf blotch has been ongoing on some Golden Delicious trees. It appears that most growers have done a good job of control against sooty blotch and flyspeck this year, but unsprayed trees have heavy fungus coatings. Varietal differences in susceptibility to sooty blotch and flyspeck were quite apparent in a block of Midwest Apple Improvement Association seedling trees in their first year of fruiting in St. Clair County. Approximately 15 percent of the unsprayed 800+ trees bore fruit this year, and several of those have a trace or less of fungal infection while many are completely covered.

NAA did a nice job of ending the drop problem in the Back-40. If the dry weather continues, there may be a need for stop-dropping the Reds, Golden and other varieties as well. Red varieties continue to show some of the best color since the loss of Alar.

The International Plant Management Variety Showcase was the reason for last week's trip to Michigan. New varieties and sports are coming fast and furious. When I left Extension 10 years ago, I felt overwhelmed by all the new vegetable varieties, and now the tree fruit industry is almost as bad. A quick estimate of fruit on the display tables was 50 old and not-so-old varieties from Herb Teichman's collection of over 100, 60 plums, 10 Gala sports, 8 pears, and about 100 peach varieties, including white, yellow and cling. More interesting peach varieties are coming out of the Paul Friday and the Fruit Acres breeding programs. Fruit Acres displayed Brightstar and Early Star, both early season varieties. The Paul Friday display included four very late ripening varieties that might extend the season. In the Southwest Michigan Experimental Farm peach planting, I liked Autumn Star, PF 25 and PF 30-007 over Encore and Flame Prince.

High color was evident on the Honeycrisp apples on display and in all the Gala sports. I tended to give the highest color to Buckeye, with Gale, Pacific and Brookfield close behind. I walked through the SWMREC experimental block of over 100 apple varieties and saw similar color.

More varietal discussions were held with Herb Teichman at his farm near Eau Claire, where he is growing over 100 varieties of apples, 28 of cherries, 30 plum, 25 pears, 10 apricots and about 25 peaches. I think that leaves him just about enough time to conduct his Cherry Pit Spitting contest as a sideline.

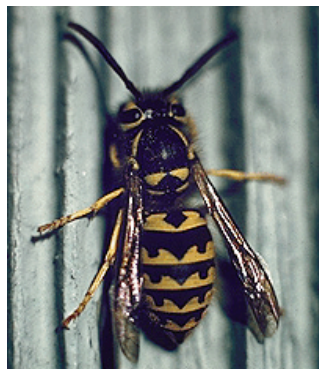
It's apple cider season, and I assume that the Illinois Cider Contest will be held again this winter. As the season progresses, so does the quality of cider in my mind and taste. For cider makers and contestants, weekly sampling might enable you to select and store this year's winner. While I was conducting the contest, no early September entry ever won the contest.

*Chris Doll*

Edwardsville, Illinois

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

### ***Yellowjackets on ripe fruit***



A yellowjacket

Just as he did last year at this time, Maurice Ogutu noted a few problems with yellowjackets feeding on ripe fruit. Grapes, apples, raspberries, and late peaches are all among the treats these wasps like to eat as fall nears. By this time of year, populations of yellowjackets are increasing to their annual highs, and great numbers of workers from large colonies are foraging for food (including other insects and ripe fruit) to feed the nest's brood (larvae). Although baits and insecticide sprays can be used in attempts to reduce numbers, very little can be done to really control yellowjackets at this time of year. Timely picking, disposal of over-ripe fruit, screening to reduce wasp access to indoor market areas, and keeping all foods and drinks covered all help, but none of these steps will eliminate problems. Several people have reported that in areas of their market where they provide samples of apples or other fruit, they also scatter cucumber slices on those table tops and that the cucumbers seem to repel the yellowjackets. Just as I asked last year ... If you try this, please let us know if you see any benefit. Sprays of insecticides with short preharvest intervals (Sevin = 3 days apples, 7 days grapes; natural pyrethrins = 0 days) can reduce numbers a little bit in apple orchards or grapes where pickers would otherwise risk lots of stings, but such applications are rarely effective enough to offset costs and concerns about visible residues on fruits at harvest. After ripe fruit

is abundant in orchards, bait buckets of insecticide-treated over-ripe fruit are mostly ineffective because they do not “out-compete” all the fruit still on trees for yellowjackets’ attention. So ... no easy answers to reducing yellowjacket numbers in orchards or around markets.

Rick Weinzierl (217-333-6651; [weinzier@uiuc.edu](mailto:weinzier@uiuc.edu))

### ***Multicolored Asian lady beetle as a pest of fruit***

(A brief article resurrected from 2003 and revised for 2004 ...) It’s difficult to write a recommendation about using an insecticide to control a lady beetle, but controlling multicolored Asian lady beetles can be necessary. Adults of these aphid-eaters can and do feed on ripe, sugary fruit in the fall, and they can damage apples and grapes. In grapes, they may also become contaminants in wine. If control is necessary (and no, there’s no established threshold for what constitutes “necessary”), insecticides with short pre-harvest intervals are the only options. In apples, Sevin (3), Imidan (7), Assail (7), or natural pyrethrins such as Pyganic (0) are possibilities. In grapes, the most appropriate choices include Assail (7), Sevin (7), malathion (3), and natural pyrethrins such as Pyganic (0). (Numbers in parentheses specify the legally required interval in days between final application and harvest.)

Rick Weinzierl (217-333-6651; [weinzier@uiuc.edu](mailto:weinzier@uiuc.edu))

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

### ***Bacterial Leaf Spot***



Bacterial spot of pumpkin.

Bacterial spot, caused by the bacterium *Xanthomonas campestris* pv. *cucurbitae*, has been observed in pumpkin fields throughout of Illinois. This is a serious disease of cucurbits. The pathogen infects cucumbers, gourds, pumpkins, and summer and winter squashes. Outbreaks of bacterial spot in Illinois, however, have been observed only on pumpkin. Yield losses caused by this disease can exceed 50% in moist conditions.

Symptoms on leaves appear as small (1-2 millimeters) and dark lesions, with indefinite yellow margins. The lesions may coalesce to form larger necrotic areas, usually on leaf margins. The most readily identifiable symptoms occur on fruit. The appearance and size of fruit lesions can vary, depending on rind maturity and the presence of moisture. Initial lesions are small, slightly sunken, circular spots, 1/16 to 1/4 inch in diameter, with a beige center and a dark- brown halo. Later the cuticle and epidermis crack, and the lesions enlarge, reaching up to 1/2- inch in diameter. The large lesions may have a scab-like appearance and give rise to tan, raised blisters. On mature fruit, saprophytic fungi often colonize the dead, tan tissue at the center of the lesion. Penetration of the bacteria into the flesh can lead to significant fruit rot in the field or later in storage.

The bacterium is a seed-borne pathogen. Also, the bacteria can survive in association with infested crop residue. The disease appears during the summer months when temperatures are high, and most commonly after heavy rain, dew, or overhead irrigation. Fruit infection occurs through natural openings in young, rapidly expanding fruit prior to the development of thick,

waxy cuticle. The bacteria are splash-spread in the field. Spread of the bacteria within fields can be very rapid. Long distance dispersal of the pathogen is by contaminated seed.

The most effective method for control of this disease is planting pathogen-free seed. Rotation with noncucurbit crops also is effective. Application of copper compounds during early formation and expansion of fruit may result in substantially fewer symptomatic pumpkins. Copper spray, however, is ineffective once an epidemic is underway. At this time, ripe fruit should be harvested and stored in dry conditions.

### ***Downy Mildew***

2004 is a downy mildew year in Illinois. This disease has been observed in almost all cucurbit fields in the state. Downy mildew, caused by *Pseudoperonospora cubensis*, affects all cucurbit crops.



Downy mildew of cucurbits.

Downy mildew affects only leaves. Symptoms of downy mildew vary with the host and the environmental conditions. The first symptom is usually the appearance of indistinct, pale green areas on the upper leaf surface. The pale green areas soon become yellow in color and angular to irregular in shape, bounded by the leaf veins. As the disease progresses, the lesions may remain yellow or become brown and necrotic. During moist weather the corresponding lower leaf surface is covered with a downy, pale gray to purple mildew. On watermelons, yellow leaf spots may be angular or non-angular, and they will later turn brown to black in color. Often on watermelons, an upward leaf curling will occur.

The downy mildew pathogen survives only on cucurbit hosts. The pathogen overwinters in the southern United States where cucurbits are grown during the winter, and it progresses northward with cucurbit production each spring. Usually by the time downy mildew becomes established in the Midwest, it is toward the end of season for most of the cucurbit crops. Once infection has taken place, the pathogen can produce spores (sporangia) in about four days, which initiate another infection cycle. Downy mildew is favored by cool, wet conditions.

Control of downy mildew on cucurbits is achieved by planting resistant cultivars, early planting of crops, and/or fungicide sprays. Cucumber cultivars resistant to downy mildew are available. Early plantings for crops for July harvest often escape infection with downy mildew, while plantings for harvest in August or later in the season are vulnerable. Because of the potential for rapid plant infection, sprays should be initiated on a preventive basis for vulnerable plantings. Fields should be scouted regularly for disease development. When downy mildew is present, fungicides should be applied. Fungicides with systemic activity tend to be more effective than protectants. Using systemic fungicides with protectants will minimize resistance development in the pathogen. Pristine, Cabrio, Quadris, and Flint have been effective against downy mildew in cucurbit fields. Pristine provided very good protection to pumpkin plants against downy mildew in experimental plots. A disease-forecasting program is available ( [www.ces.ncsu.edu/depts/pp/cucurbit](http://www.ces.ncsu.edu/depts/pp/cucurbit) ).

(Mohammad. Babadoost; 217-333-1523; [babadoos@uiuc.edu](mailto:babadoos@uiuc.edu))

### ***Harvesting and storage of Halloween pumpkins, winter squash, and gourds***

Halloween pumpkins usually are harvested in late September through October, but sometimes harvesting may start in mid August to early September, and early harvests require good handling and storage of the pumpkin fruit before selling it to customers in late October. The first frost occurs in early to mid October in northern parts of the state, when the pumpkin fruits are still curing in fields. Growers in pick-your-own pumpkin operations use this method to ensure that pumpkins are well cured in the field before picked up by their customers. Some growers practicing conventional pumpkin marketing systems where the fruit is picked, washed, dried and sold to customers on weight or per fruit basis also use this method. It is important to note that pumpkin fruits can tolerate light frost that kill the vines only but more fruit loss can occur if the frost caused injury on the fruit surface as the damaged areas act as avenues for fungal and bacterial fruit rot pathogens. Remove pumpkins from fields before a hard freeze (when the night temperatures are less than 27 °F) or you risk losing 80-90% of the fruits.

Pumpkins should be harvested when the fruits are uniformly orange and the rind is hard. Green immature fruits may ripen during the curing process, but not after the vines are killed by frost. The vines need to be dry when fruits are mature. Handle the fruit with care to avoid cuts and bruises. Harvest the fruit by cutting off the vine with a sharp knife or a pair of lopping shears, leaving 3-6 inches of the stem attached to the fruit. This makes the fruit look more attractive, and it is less likely to be attacked by fruit rot pathogens at the point of stem attachment. Do not carry the pumpkin fruit using the fruit stems because the fruit is very heavy and may lead to detachment of the fruit stem. Wash the fruit with soapy water containing one part of chlorine bleach to ten parts of water to remove the soil and kill the pathogens on the surface of the fruit. Make sure the fruits are well dried before setting in a shed to cure.

Pumpkin fruits are cured at 80-85 °F and 80-85% relative humidity for 10 days. This is done to prolong the post harvest life of the pumpkin fruit because during this process the fruit skin hardens, wounds heal and immature fruit ripens. After curing, the fruits can be sold or stored.

Store pumpkins in a cool, dry place. Put the fruits on a single layer on wooden pallets with space in between the fruits (the fruits should not touch each other); do not place them on a concrete floor. Improve the air circulation within the storage area by letting in cool air at night and use fans to circulate air during daytime. Do not let in warm air from outside during the daytime. The optimal storage condition is 50-55 °F temperature and relative humidity of 50-70%. The relative humidity is very important within the 50-70% range because very high humidity leads to settling of moisture on fruit surfaces, which increases decay of the fruit. Low relative humidity may cause dehydration of the fruit. Under ideal conditions, you can keep the fruits for about 2-3 months. Store the pumpkins separately from apples, because apples produce ethylene gas as they ripen. This gas also speeds up the ripening process in pumpkins, hence decreased shelf life. Check pumpkins regularly, and remove the ones that begin to rot so that they do not serve as a source for further spread.

**Winter squash** such as Butternut, Acorn, Hubbard, and other types are mature when the skin (rind) is hard and cannot be punctured by thumbnail. The mature fruit has a dull and dry skin compared to the shiny, smooth skin of immature fruits. Remove stems completely from Hubbard types and if desired leave only a 1-inch long stump on the fruit. Stems longer than 1-inch tend to puncture adjacent fruits when in transit or storage. Butternut, Hubbard and other squash types do not need be cured, as the benefits are less compared to pumpkins, while curing is very detrimental in Acorn types as it leads to decline in quality. Acorn types have the shortest storage time of 5-8 weeks at 50 °F and relative humidity of 50-75%. Butternut, Turban, and Buttercup types can be stored at the same temperature and relative humidity as Acorn types but have a longer storage time of 2-3 months. The Hubbard types can be stored much longer than the rest (5-6 months) at 50-55 °F and relative humidity of 70-75%. Winter squash should be marketed or used immediately when taken out of storage to avoid development of fruit rot diseases.

**Gourds** should be harvested before frost when fruit is mature. As gourds mature, stems turn brown and become dry. Don't use the "thumbnail" test on gourds, as it can cause dent on the shell of unripe gourds and lower their quality. Harvest the fruit by using a sharp knife or shears to cut the stem from the vine, leaving a few inches of the stem attached to fruit. Do not handle gourds by the stem, because the stem can easily detach from the fruit and lower its decorative value. If the fruit is dirty, wash it in soapy water to remove soil and rinse in clean water with household bleach (1 part bleach to 10 parts water) to kill soil-borne pathogens, and dry each fruit with a soft cloth. Spread the fruits so that they do not touch each other on shelves lined with newspapers in a well-aerated shed. Turn the gourds daily and change damp newspapers for 1 week. The outer skin will harden in this time, and surface color develops. The gourds should be wiped with a damp cloth soaked in household disinfectant and placed in a warm, dry dark area for 3-4 weeks for further curing. Decorative gourds can remain attractive for 3-4 months, or as long as 6 months with a protective coat of paint or wax on the surface.



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

<b>Extension Educators in Food Crop Horticulture</b>		
Bill Shoemaker, St. Charles Res. Center	630/584-7254	wshoemak@inil.com
Maurice Ogutu, Countryside Ext Center	708-352-0109	ogutu@uiuc.edu
Elizabeth Wahle, Edwardsville Center	618-692-9434	wahle@uiuc.edu
<b>Extension Educators</b>		
Mark Hoard, Mt. Vernon Center	618-242-9310	hoard@uiuc.edu
Suzanne Bissonnette, Champaign Center	217-333-4901	sbisson@uiuc.edu
George Czapar, Springfield Center	217-782-6515	gfc@uiuc.edu
Dave Feltes, Quad Cities Center	309-792-2500	dfeltes@uiuc.edu
Russel Higgins, Matteson Center	708-720-7520	rahiggin@uiuc.edu
<b>Campus-based Specialists</b>		
Mohammad Babadoost, Plant Pathology	217-333-1523	babadoos@uiuc.edu
Raymond Cloyd, Greenhouse insects	217-244-7218	rcloyd@uiuc.edu
Kelly Cook, Entomology	217-333-4424	kcook8@uiuc.edu
Mosbah Kushad, Fruit & Veg Production	217-244-5691	kushad@uiuc.edu
John Masiunas, Weed Science	217-244-4469	masiunas@uiuc.edu
Chuck Voigt, Veg Production (& herbs)	217-333-1969	c-voigt@uiuc.edu
Rick Weinzierl, Entomology	217-333-6651	weinzier@uiuc.edu

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

