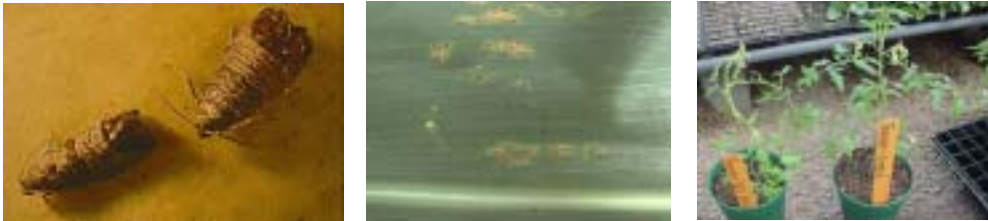


Illinois Fruit and Vegetable News

Vol. 10, No. 7, May 7, 2004

a newsletter for commercial growers of fruit and vegetable crops



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

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

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

In this issue ...

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Upcoming Programs, Opportunities (Summer Orchard / Summer Horticulture Day, IDFTA Summer Tour)

Degree-day Accumulations (using new stations and presenting new maps!)

Fruit Production and Pest Management (codling moth, plum curculio, rosy apple aphid, and foliar applications of calcium nitrate)

Vegetable Production and Pest Management (black cutworm and Phytophthora blight of cucurbits)

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

Crop and Regional Reports

In the south and southwest, fields and orchards received some much-needed rain over the April 30 - 2 weekend – in some locations over two inches. With the rain came much cooler temperatures, though well above freezing. The forecast for flea beetles and Stewart's wilt in 2004 for early-planted sweet corn has ranged from moderate to severe in southern and western counties. This should serve as a heads-up for sweet corn producers who aren't using wilt-resistant hybrids or seed treatments to control flea beetles. For insecticide control options, see the Midwest Vegetable Production Guide:

<http://www.entm.purdue.edu/Entomology/ext/targets/ID/>

It is time again to mention that Karmex (diuron) is not labeled for use in lakes and irrigation ponds. The label specifically states "Do not apply directly to water, to areas where surface water is present...". Applying Karmex directly to water is inconsistent with the label, and ultimate responsibility always falls on the applicator, regardless of who is making the recommendation. For producers who have questions concerning aquatic plant control, see:

<http://www.ipm.uiuc.edu/weeds/aquaticWeeds.pdf>

If you did not pre-register for the peach orchard tours on May 14, you can still register on site. This is a joint meeting for Illinois and Missouri growers, and is being sponsored by University of Illinois Extension, University of Missouri Extension, and Southwest Missouri State University. The registration fee for the tour is \$5.00, and lunch is being provided by Southern FS. The tour will begin at Grammer's Orchard at 9:00am. Grammer's is located approximately 5 miles south of Murphysboro off IL-127. Turn east on Grammer Road and go approximately 2 miles, then turn right onto Dutch Ridge Road. Tour stops also include Rendleman Orchards and Flamm's Orchards. For more information, contact Elizabeth Wahle (618-692-9434) and check the following web sites: <http://web.extension.uiuc.edu/regions/hort> and <http://mtngrv.smsu.edu/calendar.htm>.

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

In northern Illinois, recent weather has been characterized by sunny days with strong gusty winds in the 30-40 mph range. Day temperatures in the last 2 weeks have ranged from the upper 50s to low 80s, and night temperatures have dropped to the upper 30s to upper 50s. During the same period, the area received about 2 inches of rainfall. Even so, it has been very dry for the spring overall, as the total rainfall received in the area during the month of April was 50 percent of average. Soil moisture levels had been low, so most growers have prepared their fields.

Most pears are at full bloom. peaches are at petal fall, most of early maturing apple varieties are in full bloom, and later apples are at pink. Right along the Wisconsin border, apples were still at tight cluster on May 1. Bees are already in the orchards where apples are in full bloom, and spraying for scab, powdery mildew, and fire blight is ongoing in most orchards. Grapes are at the bud swell stage.

Asparagus harvest continues some farms. Most growers have planted cool season vegetables such as potatoes, onions, carrots, broccoli, and cabbage, and some have planted sweet corn as well. Tomato, pepper, and melon transplants are still inside greenhouses.

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

Upcoming Programs, Opportunities

Illinois Summer Horticulture Day, June 17

The Illinois State Horticulture Society Summer Orchard Day (now more broadly the Illinois Summer Horticulture Day) will be held at Eckert's Country Store and Farms in Belleville on June 17. More details will follow in subsequent issues of this newsletter.

International Dwarf Fruit Tree Association Summer Tour, June 20-22

Details on the IDFTA 'Honeycrisp' tour in Wisconsin and Minnesota are available at: www.idfta.org. Here's a summary, forwarded by Teryl Roper of the University of Wisconsin ...

The International Dwarf Fruit Tree Association announces its summer tour for 2004 will be headquartered in La Crosse, Wisconsin. The annual summer tour will be held June 21-22, with a preparatory discussion on Sunday evening, June 20. The emphasis for the 2004 tour is 'Honeycrisp', an explosively crisp apple that has attracted a huge customer following in an extremely short period of time.

Monday's tour will begin at Sunrise Orchards in Gays Mills, Wisconsin. Sunrise Orchards Inc. is a third generation family owned operation growing, packing, and selling apples grown on 240 acres of hills overlooking the Kickapoo Valley. Approximately one-fourth of the production is marketed retail and the remaining crop sold through chain stores. Sunrise specializes in McIntosh, Cortland, and Empire for wholesale. Another twenty cultivars are grown mainly for retail sales including Jonagold, Gala, and Golden Supreme. The Teach family have grown Honeycrisp since 1997. Since 1985 all Honeycrisp plantings have been at 500 trees or more per acre and are mostly on M.9 or B.9. Due to a concern about vigor, the latest Honeycrisp plantings have been made at 13 X 3', with some blocks receiving fertigation. Since the terrain is very steep, all trees are trained to single stakes and are mostly planted on contoured rows.

The second stop of the day will be at Shefelbine's Orchard, nestled in a beautiful valley in West Central Wisconsin near Holmen. The orchard was established in 1951 by Doug's parents. In 1970 Doug and Gale purchased the 25 acre orchard and dairy farm. By the 1980's the orchard had grown to 100 acres plus strawberries. Currently Shefelbines grow apples on about

40 acres consisting of about 10 acres of Redcort, McIntosh and other cultivars and about 30 acres of ‘Honeycrisp’ on B.9, M.9, Mark, M.7, and MM.111. About 30 acres of seedling plots contain about 50,000 trees. Doug has been innovative in tree manipulation to encourage fruiting. We’ll see branch bending and chainsaw girdling.

Monday’s final stop will be at Sacia Orchard, one of the largest orchards in West central Wisconsin with 230 acres of apples, including 32 acres of Honeycrisp. The orchard began in 1898 when Fred Sacia purchased a small farm from his grandfather. This orchard is still owned by the Sacia family. Acquisitions over time have increased the farm to its present size. Sacia's has two retail locations, but 95% of apple production is sold wholesale. The first 100 trees of Honeycrisp were planted in 1992 on M.7. Between 1993-1996, 10 more acres of Honeycrisp were planted on M.7. In 2000-2001, 20 additional acres of Honeycrisp were planted on four different rootstocks- G.16, G.30, B.9, and sporter 4. All trees are supported with individual tree stakes.

The tour continues on Tuesday June 22 with the first stop at Maiden Rock Apples near Stockholm, Wisconsin. Herdie Baisden and Carol Wiersma are new growers, having planted their first apple trees in 2000. Located on an 80-acre farm, their orchard is designed to serve the retail market. In fact, they opened their "apple boutique" retail store in the village of Stockholm the same year that they planted their first trees. So far, they have about 25 cultivars, including Zestar, Senshu, Liberty, and Honeycrisp, planted on mostly dwarfing rootstocks, especially G.16 and Bud 9. In 2003, they planted 1,000 "sleeping-eye" Honeycrisp/Bud 9, along with another 500 Honeycrisp/G.16 and 500 Honeycrisp/Bud 9 trees. These blocks (4 x 15 feet) like most others are trained to a vertical axe. The farm has a rich, silt-loam soil that held moisture even during a recent drought.

After leaving Maiden Rock Apples we’ll cross the river at Red Wing and proceed south to Bridal Rock Orchard. Chuck & Judy Bremer own Bridal Rock Orchard. It is located on the bluffs overlooking Lake City, MN and the portion of the Mississippi River known as Lake Pepin. The Bremer family bought the original 200 acres in 1907. The farm evolved from a general livestock farm to a dairy and cash crop farm in 1970 when Chuck and Judy bought it. In 1983 apple trees were planted on 40 acres of the farm and the dairy was phased out. The first plantings were on M.7a at 120 to 200 trees per acre. Haralson, Red Delicious, Cortland, McIntosh, Regent, Fireside, and Paulared were the main cultivars. With the 1991 release of Honeycrisp, 100 trees on M.7a were planted at 12 x 22 and trained as central leaders. In 1992 a block of Honeycrisp were planted on Mark rootstock without support. In 1997-98, 3000 Honeycrisp were planted on B.9 at 7 x 18 supported by angle iron or conduits and an overhead wire. A high tensile wire deer fence protect the block.

The tour will conclude at Pepin Heights Orchard, a vertically integrated grower, packer, processor, and broker of fresh apples and juice products based in Lake City, Minnesota. In addition to 300 acres of orchards (70 acres of which are Honeycrisp), Pepin Heights Orchard packs and sells for over 40 other Honeycrisp growers in four states and one Canadian province. Pepin Heights One, the farm we will be visiting, has Honeycrisp plantings from the tenth leaf on down ranging from 518 trees per acre to 670 trees per acre. Busses will then return to La Crosse.

La Crosse is easily accessible by air or by car. La Crosse Municipal Airport (LSE) is served by American Airlines, Northwest Airlines and Midwest Airlines with connections from Chicago, Minneapolis or Milwaukee. Interstate 90 runs just north of La Crosse. Participants may find it easier to fly into Minneapolis and drive to La Crosse along US highway 61 that runs along the Mississippi River.

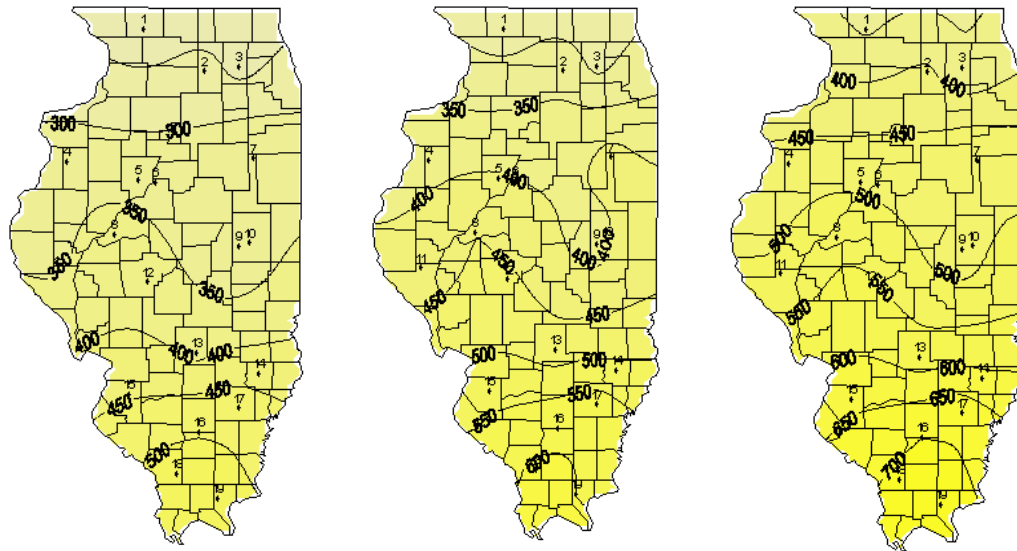
The price of the tour includes motor coach transportation, lunches and breaks on Monday and Tuesday, and a group dinner on Monday evening at Drugan’s Castle Mound Restaurant in Holmen. The cost is US \$250 for IDFTA members. Registration materials have been sent to members in the mail. They are also available on the Internet at www.idfta.org. A block of rooms has been set aside at the Days Inn in La Crosse (608-783-1000). Days Inn is just south of the La Crosse Airport. For more information or to register contact Charles Ax 14 S. Main Street, Middleburg, PA 17842. Phone: 570-837-1551. Fax: 570-837-0090. E-mail: idfta@ptd.net.

Degree-Day Accumulations and Projections

With this issue, we are shifting to a different presentation of degree-day totals. Each issue will present a table of current accumulations (base 50 F) and maps that show the same current totals as well as projections approximately 1 week and 2 weeks ahead. We’re also shifting to Illinois Climate Center stations for temperature data.

No.	Station	County	Base 50 Degree-Days January 1- May 6
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1	Freeport	Stephenson	216
2	Dekalb	Dekalb	272
3	St. Charles	Kane	231
4	Monmouth	Warren	324
5	Wildlife Prairie Park	Peoria	331
6	Peoria	Tazewell	328
7	Stelle	Ford	348
8	Kilbourne	Mason	372
9	Bondville	Champaign	298
10	Champaign	Champaign	327
11	Perry	Pike	343
12	Springfield	Sangamon	379
13	Brownstown	Fayette	387
14	Olney	Richland	429
15	Belleville	St. Clair	445
16	Rend Lake	Jefferson	496
17	Fairfield	Wayne	482
18	Carbondale	Jackson	524
19	Dixon Springs	Pope	508



Left to right: Degree-day accumulations, base 50 F, through May 6 (actual), May 12, and May 19 (projected).

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>.

Kelly Cook (217-333-6652; kcook8@uiuc.edu) and Rick Weinzierl (217-333-6651; weinzier@uiuc.edu)

Fruit Production and Pest Management

Fruit Insects

Codling moth in apples

Trapping data from the southern half of the state suggest biofix dates of approximately April 20 for far southern Illinois and April 30 for the area around St. Louis (Belleville to Edwardsville to Jerseyville. It is always better to use observations from traps in your own orchard to determine the timing of codling moth activity and management practices, but these dates should provide some rough ideas overall. I'll report biofix dates for central and northern portions of the state as they occur ... recent warm weather should trigger rapid development. Issue 6 contained brief recommendations on insecticides for codling moth control.

Some key events in codling moth development according to degree day accumulations (note that these DD accumulations begin at biofix, not January 1):

Accumulated DD, Base 50 F, Since Biofix	Moth Flight	Egg Hatch
220		First egg hatch of first generation
240	50 percent of first generation moths have emerged	
480-500	90 percent of first generation moths have emerged	50 percent of first generation eggs have hatched
740	100 percent of first generation moths have emerged	90 percent of first generation eggs have hatched
940	2 percent of second generation moths have emerged	99 percent of first generation eggs have hatched
1100		First egg hatch of second generation
1340	50 percent of second generation moths have emerged	
1560-1600	85 percent of second generation moths have emerged	50 percent of second generation eggs have hatched

Plum Curculio and Rosy Apple Aphid

Travels in far southern Illinois May 4-5 to set up some field plots provided the opportunity to scout a few orchards, at least briefly. I did not see a lot of injury from plum curculio or rosy apple aphid, but I did see some. So, a reminder to northern growers ... Remember that petal fall sprays are key to controlling plum curculio damage, and in practicality, past history of damage is the best indicator of whether or not control is needed. Orchards surrounded by wooded areas are most likely to suffer damage, and border trees are most heavily attacked. Insecticides that control plum curculio include Guthion and Imidan (organophosphates) and Avaunt. Pyrethroids also are effective, but their use at this stage is not recommended because of their toxicity to beneficial predaceous mites that provide natural control of European red mite as the season progresses. For organic growers, Surround is fairly effective against plum curculio; Entrust is not.

Lots of growers often discover a few sporadic infestations of rosy apple aphid when they scout orchards at petal fall. Petal fall is not the time to control this aphid, however, as its damage is almost entirely done already, and it is about to leave apples to move to its summer host, narrow-leaf plantain. Spraying to control rosy apple aphid on a few isolated shoots at petal fall and later generally is a waste of money and an ineffective practice.

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



Left: Plum curculio egg-laying scar on 3/4-inch diameter apple. Right: Rosy apple aphid-infested shoot.

Calcium Nitrate Applications to Enhance Fruit Size

The month of April is probably one of the windiest months I can remember. A radio station in the Champaign-Urbana area reported wind speed of up to 51 miles per hour on April 28. The weather station at the University of Illinois Pomology Farm measured a wind speed of between 11 to 27 miles per hour from 9:00 am to 11 pm on the same day. The station is located in a 2 acre block of “Gala” trees surrounded by windbreaks on all four corners. Wind injury to the leaves in this block is substantial. I estimated that nearly 70% of the leaves have some visible injury. Some of the leaves were torn and others have injuries that resemble fire blight (but without the drooping of twigs that is characteristics of fire blight injury and not restricted to one area). Injury to the young leaves can have significant impact on fruit size. Unlike flower buds that depend heavily on reserve carbohydrates from the tree, young fruitlets depend to a large extent on the young leaves for food. Any damage to these leaves will likely affect the growth of fruitlets. The first two to three weeks of fruit development are very critical in that during this period the cells are actively dividing. The more cells the fruit has the more likely it is that it will be larger, and so final fruit size is determined in part during the first two to three weeks of fruit growth. In order to enhance active cell division and ensure that fruits will grow to their largest size, the leaves must stay healthy. Multiple applications of low doses of nitrogen during the early stages of fruit growth will keep the leaves healthy and increase fruit size. Application of 5 pounds per acre of calcium nitrate with each cover spray up to the fourth cover will enhance fruit growth and the health of the leaves. Avoid using ammonium nitrate or urea, because they encourage leaf growth but they cause a dilution of the calcium, which is badly needed to build the cell walls. Avoid adding nitrogen after the fourth cover so you will allow fruits to develop color. However, continue to add calcium in the form of either calcium chloride or other formulations on the market. I would also like to recommend adding ½ pint of etrel or ethephone per acre during the first four cover sprays to slow down the growth of the tree and encourage return bloom.

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Vegetable Production and Pest Management

Vegetable Insects

Black Cutworm

April showers have led not only to May flowers, but to flights of black cutworm as well. Black cutworm moths arrive in Illinois on southerly winds in early spring. These moths look for weedy, grassy areas to lay eggs. After the eggs hatch, the small larvae feed on these host plants. Although primarily a pest of corn, black cutworm can also be a problem in vegetable crops including tomatoes, cucurbits, and sweet corn.

Black cutworm larvae pass through 6 or 7 instars (stages of larval development). Their rate of development depends upon temperature; the larvae develop more quickly when the weather is warm. The first three instars are very small, and the feeding injury they cause as young larvae appears as small holes or bites in leaves. In corn, the fourth through seventh instars cut the plants off at or just below the soil surface. If the soil is dry and crusted, the larvae remain below the surface and drill into the base of the plant. If the growing point is destroyed or the plant is cut below the growing point, the plant will not survive.

Black cutworm larvae vary in color from light gray to black, and are about 1 1/2 inches long when fully grown. Numerous convex skin granules of different sizes give the cutworm a somewhat "greasy" and rough appearance. The moths are dark gray, with a black, dagger-shaped marking toward the outer edge of the forewing and a wingspan of about 1 1/2 inch. After the larvae finish feeding, they pupate. The moths then emerge from the soil and begin mating and laying eggs for another generation; there may be 3 or 4 generations each year.

Flights of black cutworm moths can be monitored with the use of pheromone traps or light traps. Evidence of a "significant" moth flight (9 or more moths per pheromone trap in two consecutive nights) is used as a biofix to start a degree-day model, and scouting for cutting is recommended beginning about 300 base-50 degree-days later. Monitoring of moth flights and regular field scouting are good management strategies for the black cutworm. Up-to-date records of moth flights for several Illinois locations are listed on the University of Illinois Insect Monitoring Network web site at <http://www.ipm.uiuc.edu/fieldcrops/imm/index.html>. Data provided on this web site are reported weekly by volunteers around the state ... to become a volunteer and provide data, please contact me at the email address or phone number below. For more information on the black cutworm, see the new fact sheet at http://www.ipm.uiuc.edu/fieldcrops/insects/black_cutworm.pdf. For degree-day calculations and predictions for a specific biofix date, use the degree-day calculator on the web at: <http://www.ipm.uiuc.edu/degreedays>.

Based on pheromone trap catches around the state, the April 7 issue of the Illinois Pest Management and Crop Development Bulletin listed the following biofix dates and projected dates for accumulation of 300 degree-days (and the time to begin scouting for cutting). After these dates, scouting should continue in newly emerging vegetable crops and seedling stands for a few weeks.

County	Biofix	Projected First Cutting Date
Adams/Brown	March 27	May 8
Pulaski	April 17	May 9
Sangamon	April 17	May 13
Piatt	April 20	May 24
St. Clair	April 21	May 24
Knox	April 25	May 24
Hancock	April 27	May 24
Pulaski	April 28	May 24



Left to right: Black cutworm adults, larva, and early instar leaf feeding.

Kelly Cook (217-333-6652; kcook8@uiuc.edu)

Phytophthora Blight of Cucurbits: How to Manage It?

Over the past several years, the incidence of Phytophthora blight, caused by *Phytophthora capsici*, on vine crops (cucumbers, cantaloupe, muskmelon, pumpkins, squash, watermelon) has been increasing throughout Illinois and in many vegetable-growing regions of the United States. The disease can be devastating, occasionally resulting in nearly total yield loss. *Phytophthora capsici* is also a serious pathogen on eggplant, pepper, and tomato.

No single method currently available provides adequate control of Phytophthora blight. A combination of measures should be practiced to reduce the damage caused by *P. capsici* on cucurbits. The most effective practice in controlling *P. capsici* is preventing the pathogen from being moved into a new field. The following practices can help to manage Phytophthora blight in cucurbit fields:

1. Select fields with no history of Phytophthora blight.
2. Select fields not used to grow cucurbit, eggplant, pepper, or tomato crops for at least 3 years. No rotation period has been established for effective management of Phytophthora blight of cucurbits.
3. Select fields that are well isolated from fields infested with *P. capsici*.
4. Select well-drained fields, or do not plant the crop in the areas of the field which do not drain well.
5. Clean farm equipment of soil between fields.
6. Plant non-vining crops (i.e., summer squash) on dome-shaped raised beds (approximately 25 cm high).
7. Plant resistant varieties, if available.
8. Avoid excessive irrigation.
9. Do not irrigate from a pond that contains water drained from an infested field.
10. Do not work in wet fields.
11. Scout the field for the Phytophthora symptoms, especially after major rainfall, and particularly in low areas.
12. When symptoms are localized in a small area of the field, disk the area.
13. Discard infected fruit, but not in the field.
14. Do not save seed from a field where Phytophthora blight occurred.
15. Remove healthy fruit from the infested area as soon as possible and check them routinely.
16. Do not display fruit for sale in an area that is infested with *P. capsici*.
17. Apply effective fungicides, when recommended. Seed treatment with either mefenoxam (Apron XL LS at 0.64 fl oz/100 lb seed) or metalaxyl (Allegiance FL at 1.50 fl oz/100 lb sees) can protects seedlings of cucurbits until 5 weeks after sowing seed. Applications of dimethomorph (Acrobat 50WP at 6.4 oz/A) plus copper sulfate (i.e., Cuprofix Disperss at 2 lb/A) at weekly intervals can provide effective protection against foliar blight and fruit rot caused by *P. capsici* in cucurbit fields. Crop losses resulting from Phytophthora blight in cucurbit fields can be minimized by combining Apron 50WP seed-treatment with applications of Acrobat plus copper.



Fruit Rot of Cucumber Caused by *Phytophthora capsici*



Fruit Rot of Processing Pumpkin Caused by *Phytophthora capsici*



Seedling Death of Pumpkin Caused by *Phytophthora capsici*



Crown Rot of Squash Caused by *Phytophthora capsici*

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

This issue's words of wisdom ...

What Problem?

An eccentric philosophy professor gave a one-question final exam after a semester dealing with a broad array of topics. The class was already seated and ready to go when the professor picked up his chair, plopped it on top of his desk, and wrote on the board:

"Using everything we have learned this semester, prove that this chair does not exist."

Fingers flew, erasers erased, notebooks were filled in furious fashion. Some students wrote over 30 pages in one hour, attempting to refute the existence of the chair. One member of the class however, was up and finished in less than a minute.

Weeks later, when the grades were posted, the rest of the group wondered how he could have gotten an "A" when he had barely written anything at all.

His answer consisted of two words: "What chair?"

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