

Illinois Fruit and Vegetable News

Vol. 9, No. 9, July 2, 2003

a newsletter for commercial growers of fruit and vegetable crops



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

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-333-6651, 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 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 ...

Crop Reports (from Elizabeth Wahle and Maurice Ogutu)

Degree-Day Accumulations

Notes from Chris Doll (crop and pest updates, weed control, Apogee, vertebrate pests)

Pesticide Regulatory Issues (Enforcement of Worker Protection Standards, herbicide drift on fruits and vegetables)

Vegetable Production and Pest Management (Weed control along the edges of plastic mulch, corn earworm and corn borer, squash vine borer and squash bug))

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

Crop Reports

In the south, the frequency of rains has decreased but the amounts have remained still plentiful. Most of the region received 2-3 inches of rain late on June 25, and southern-most counties received rain again this week. With the rain came Japanese beetles, which were first reported around the June 20. Their numbers are picking up, and feeding is most noticeable on roses (especially yellow varieties), cherries, brambles, and grapes. Feeding results in skeletonized leaves, mostly in the top of plants where Japanese beetles prefer to feed in direct sunlight. Favored plants in bloom can have their petals totally devoured. Target pesticide control to the top of the canopy where Japanese beetles prefer to feed. Stinkbugs are still low in number compared to last season at this time.

Early peach season has started in the southern region. Some of the varieties coming off trees include 'Garnet Beauty', 'Flamin' Fury' PF-1', and Flamin' Fury -5B'. Some cases of split pit, which is not unusual for early season peach varieties, have been reported. The term "split pit" refers to the opening of the pit at the stem end of the fruit. Peach fruit with split pit generally develop rot problems much sooner than normally formed fruit, which in turn can spread to other fruit in the packing box. For this reason, split pits are undesirable and should be culled. It appears that pit problems are much less in fruits possessing viable seed, but the actual cause is unknown at this time. Possible contributions to split pit include low temperatures and/or freeze damage during flowering and early fruit development.

Renovated strawberries are already showing good signs of regrowth. Fruited raspberry canes should be pruned out at this time to reduce disease potential. In general, blackberry plantings look like a wall of fruit this season – yields should be high.

San Jose scale crawlers are active at this time, and are visible with the use of a hand lens. Short, stubby antennae combined with lemon-yellow coloring help to distinguish San Jose scale crawlers from mites. In terms of codling moth, growers with resistance problems have gained increased control with the rotation of Assail and Esteem. These growers have realized the importance of tracking degree-days closely, and monitoring spray patterns in order to maximize the value of these new products.

Sweet corn season has begun in the southern region. Despite cool early-season temperatures, many growers will make the 4th of July harvest window. The extended cool temperatures have produced a good potato crop this season, and green beans are also setting well due to the earlier cool temperatures and abundant rainfall. Currently, warming temperatures will greatly benefit crops like tomatoes, watermelons, sweet corn, and pumpkins.

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

In northern Illinois, average day-time highs have been in the 80s and night-time lows in the 60s except on June 24 & 25 when 90s and 70s prevailed in the area. Soil moisture remains very low in most counties, and some growers are irrigating their fields despite the fact that the region received about 1.4 inches of rainfall on average during the last two weeks. Orchardists are done with fruit thinning and continuing cover spray programs, and codling moth monitoring is ongoing as well. Some grape varieties are in full bloom and berries are sizing well in the earlier varieties. Phylloxera attack on leaves has been reported in some varieties. Sour cherry picking is underway.

Cucumber beetles are a problem in most cucurbit fields, and Colorado potato beetle and potato leafhopper are problems in some potato fields. Bean leaf beetles are feeding on green beans, and diamondback moth and imported cabbageworm adults flying in fields of cabbage, broccoli and other cole crops. Harvesting is underway for early plantings of cabbage, beets, and greens. Pumpkin planting is done on most farms, but ground squirrel feeding on seeds of pumpkins and other cucurbits such as squash and cucumber has led to poor stands in some fields. Some sweet corn in the area is now silking.

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

Degree-Day Accumulations Since January 1, 2003

Data for the table below are taken from the Midwestern Climate Center web site (<http://mcc.sws.uiuc.edu/>). Degree days are calculated using a rectangular averaging method on a 50 degree Fahrenheit threshold, with the minimum temperature for calculations reset to 50 on days with highs above 50 and lows below 50.

Location	DD, Base 50 F, through June 23	DD, Base 50 F, through June 30	DD, Base 50 F, 40-yr average through June 30	DD, Base 50 F, projected through July 14
1. Carbondale	1424	1599	1762	1957
2. Belleville	1560	1746	1711	2106
3. Mt. Vernon	1274	1434	1647	1786
4. Springfield	1216	1388	1451	1736
5. Urbana	1196	1357	1329	1685
6. Peoria	1137	1302	1318	1635
7. Kankakee	1017	1183	1252	1506
8. Moline	1119	1293	1276	1621
9. St. Charles	895	1055	1077	1344



Projections for degree day accumulations two weeks into the future are derived by adding historic averages for degree days for the next two weeks to the actual current total listed for each location.

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

Notes from Chris Doll

July 1, 2003 ... the new year for some bookkeepers and the new Illinois taxes. And according to the diary, phenological developments are almost identical with 2002. A year ago today, the record says that my first peach and Kiowa blackberry were picked, red raspberry harvest was at peak, and Japanese beetles were heavy. The same events have happened this year, and the Japanese beetles required control yesterday. The phenology "bible" remains the "Illinois Fruit Calendar", now out of print, but originally written by Drs. Dwight Powel, Ron Meyer, and Frank Owen. Their observations and records are close to actual happenings like "codling moth are leaving apples for pupation, lesser peach borers should [still] be laying eggs, Lodi harvest is ready, and second brood Oriental fruit moth are emerging". For the record, harvest of early peach varieties is under way, and PF 1 and 5B were being picked at the Apple Basket Farms last week. The first commercial sweet corn is being picked this week.

In scouted orchards, codling moth trapping varies widely, and in some orchards the first generation drop-off has not happened. Their presence is indicated by everything from new entries to larval emergence from the apple. San Jose Scale, mites and potato leafhopper have been other apple insects of note, while Oriental fruit moth has been found in peaches. Enough disease pressure has been present that a little scab, cedar apple rust, mildew, bacterial spot and fire blight can be found. Fire blight infections during storms around June 16 killed a few larger branches and some shoots but did not reach trauma conditions.

The Japanese beetle populations mentioned earlier are not as high as in previous years, as it took 14 days to collect the first quart in the trap. Most of them were trapped on the 1st. Favorite feeding sites are Honeycrisp apple, most of the grapes, sweet cherries, Japanese plums, and yellow-blooming roses.

Abundant spring rains have apparently leached and/or speeded the decomposition of some of the residual orchard herbicides, and weed and grass regrowth is showing. If post-emergence chemicals are used to knock down the regrowth, a shot of preemergence products can be added at the same time. If glyphosate is used for postemergence treatment, contact with apple sprout or tree foliage must be avoided to prevent absorption and translocation and resultant injury. July 1 is the date of this traditional caution notice.

Apogee sprays for growth control on apples look good at this time. Some Fuji blocks seem to respond more than Jons and Goldens, but all treated blocks can be visually identified by reduced terminal growth and sometimes more visible fruit. However, I thought I saw more red mites in the Apogee trees and would like to know if this has happened elsewhere.

One of the hot topics of discussion at the Summer Orchard Day was the crop damage and loss caused by deer and raccoons. The coyote urine control mentioned a couple of months ago has now failed under heavy deer pressure, as have most other treatments. The raccoons were reported to be consuming whole trees of ripening peaches and bushes of blueberries. Fencing and nuisance permits for population reduction are both needed.

Peach harvest means that summer's heat is near. The heat can also scorch leaves of pear trees, especially a variety like Moonglow or Starkrimson. (Pear psylla can also cause similar injury). And it is about time for necrotic leaf blotch drop of apple leaves which happens after certain hot and humid weather.

Acceptable pruning at this time of the year is the cutting or pruning of water sprouts of apple and some of the interior shoot growth of peach. The expired fruiting canes of raspberries, both black and red, should be pruned out immediately after harvest as part of a disease sanitation practice which gets rid of the canes and allows more aeration in the canopy.

Chris Doll

Pesticide Regulatory Issues

Worker Protection Standards ... A Shot Heard 'Round the Industry?

Since the Worker Protection Standard became law in 1992, this federal program has moved through various phases of federal and state implementation, including: 1) education/compliance assistance, 2) product labeling inspection, and 3) employer compliance inspections. Because of the relatively long time spent focusing on education/compliance assistance, you may have been led to believe that the WPS is not being enforced and that the law has no "teeth". Enforcement actions taken and comments made last month by the U.S. Environmental Protection Agency should dispel these myths.

The EPA issued administrative complaints against five Colorado growers on June 3, 2003 for violations of the Federal Insecticide, Fungicide, and Rodenticide Act's (FIFRA) Worker Protection Standard (WPS), a regulation aimed at reducing the risk of pesticide poisonings and injuries among agricultural workers and pesticide handlers. In one case, EPA is proposing a civil penalty of \$231,990 for 229 violations of the WPS and FIFRA. This is the largest proposed federal WPS misuse penalty in EPA history.

"Environmental justice is one of the highest priorities for EPA's enforcement program, and this Agency will take whatever steps are necessary to ensure agricultural workers and pesticide handlers are protected from harmful exposure to pesticides," said John Peter Suarez, EPA Assistant Administrator for Enforcement and Compliance Assurance. "The federal government will not tolerate growers who place their workers in harm's way because they fail to comply with the law." (For complete article, see: U.S. EPA <http://cfpub.epa.gov/compliance/newsroom/>; released 6/5/03.)

WPS Assistance in Illinois

In Illinois, the Illinois Department of Agriculture has been conducting WPS-specific compliance inspections for several years. What has the University of Illinois Extension done to help Illinois producers and commercial applicators understand and comply with the WPS? In addition to press releases, newsletter articles, radio spots, and answering untold individual compliance questions, we have spread the word in the following ways:

1. WPS-specific sessions: Soon after the EPA's "The Worker Protection Standard for Agricultural Pesticides: How to Comply" manual was released in 1993, University of Illinois Extension offered numerous informational WPS sessions across the state. These sessions continued for several years until widespread interest waned. In recent years, University of Illinois Extension has, upon request, conducted WPS Refresher and WPS Train-the-Trainer sessions.
2. WPS Worker and Handler Training: The WPS provisions are discussed during private and commercial Pesticide Applicator Training clinics and, upon request, the Extension Educator or Specialist can issue a Worker or Handler Training Verification card following training (these cards are optional and no test is required). Since about 1995, U of I Extension has issued 71 Worker cards and 223 Handler cards. Clearly, these cards are requested by a small fraction of the WPS employees in Illinois.
3. WPS Resources: The Pesticide Safety Education website (<http://www.pesticidesafety.uiuc.edu/facts/facts.html>) offers several simplified WPS guides, a Resource Guide, and linkage to the EPA's WPS website. Note that a wide range of WPS training materials and compliance publications and supplies can be purchased through major agricultural or horticultural supply catalogs such as Gempler's.

Future of WPS

Following full implementation in the mid-1990's, there have been a few specific amendments to the WPS rules which provide increased flexibility. However, the 132-page "How to Comply" manual published in July, 1993 remains as EPA's official compliance reference. Over the past eleven years, the EPA has received considerable constructive and destructive criticism about the WPS from producer groups, worker advocacy groups, the U.S. General Accounting Office (report dated 4/13/2000), and the Children's Health Protection Advisory Committee.

In response, the EPA sponsored four national stakeholder workshops over the last three years to determine if and how the WPS provisions should be revised. University of Illinois Extension Specialist Michelle Wiesbrook participated in two of these workshops. The reassessment centered on six areas: 1) Training, 2) Enforcement, 3) Complaint and Retaliation, 4) Communications, 5) Children's Health, and 6) Funding.

In short, the WPS is a federal program and there are diverse stakeholder needs and opinions that must be addressed. At this time, there is little more than speculation to offer WPS employers and employees regarding potential changes to the rules and regulations. A draft National WPS Reassessment Report is expected in mid-July 2003 and a draft proposal for regulation changes is planned for September 2004.

In the meantime...

- Review the existing WPS provisions (see “#3 WPS Resources” above) and make sure you are adequately protecting yourself and your employees as well as third parties (e.g., crop advisors, commercial applicators, etc.) that enter your fields. If you have specific questions, don’t hesitate to contact your local University of Illinois Extension office. In addition, you can contact Bruce Paulsrud (217-244-9646) or Michelle Wiesbrook (217-244-4397) for help.
- Watch for EPA’s Draft Reassessment Report later this year. Expect further information via this newsletter.
- Until the dust begins to settle with the WPS reassessment, U of IL Extension does not intend to launch any major WPS-specific training campaigns or develop additional paper, Internet, or other digital training materials.

Bruce Paulsrud (217-244-9646; paulsrud@uiuc.edu)

What Should You Do With Fruit and Vegetables After Pesticide Drift?

A version of this article first appeared in this newsletter during 1997, but because of continued questions, I decided to revise and reprint it. A common question that we get after a garden, vegetable field, or orchard is damaged by pesticide drift is whether or not it is “safe” to harvest and consume the produce. This is a very difficult question to answer. Re-entry time and worker protection information on the pesticide label will provide guidance on when the garden, field, or orchard can be re-entered, but it provides no information about the residue that might be on or within the produce. To answer conclusively the question about whether or not it is “safe” to harvest and consume the produce requires knowledge of the pesticide involved, the amount of residues within the plant, the health effects of the pesticide, how the harvested part of the plant has changed, and laws regulating pesticides.

When herbicide drift damages your plants, it is an indication that the herbicide has entered the plant. To legally sell the produce, there has to have been an established tolerance for the particular herbicide causing the injury. Some herbicides such as glyphosate (active ingredient in Roundup, Touchdown and others) are used for spot or stale seedbed treatments in a wide range of fruit and vegetable crops. These herbicides have established tolerances (Table 1). Other herbicides do not have an established tolerance for most fruit and vegetable crops. If the concentration of the herbicide in you fruit or vegetable is above the established tolerance or there is no tolerance, then you have a tainted crop that is illegal to sell and is subject to seizure. The website to check for tolerances is: www.epa.gov/pesticides/food/viewtols.htm.

Table 1. Examples of some tolerances for herbicide residues in apple and tomato fruit.

Apple		Tomato	
Herbicide	Tolerance (ppm)	Herbicide	Tolerance (ppm)
Casoran	0.50	Dacthal	1.0
2,4-D	5.0	Dual	0.1
Gramoxone	0.05	Poast	24
Karmex	1.0	Sandea	0.05
Liberty	0.05	Select	1.0
		Sencor	0.1

Tolerances are not the only factor that should go into your decision on whether or not to sell or consume produce. The U.S. EPA tolerance levels are the best scientific information we have, but you or your customers may not trust that information completely, and if your customers have heard of the drift problem, selling affected produce may damage your farm’s reputation. Concentrations detected by analyzing selected plant tissues, usually leaves, may have little relationship to the concentrations of herbicide occurring in the harvested portion of the plant, often the fruit. Because there are so many

unknowns, I advise not consuming the fruit or vegetable when visible herbicide injury occurs to the plant. Herbicide drift can kill flowers and damage fruit and leaves. The damage makes the harvested fruit or vegetable unsightly and may affect storage life and taste. Instead of trying to use the fruit or leaves from damaged plants, I recommend that gardeners purchase locally grown produce at a farmers market or roadside stand.

If you are interested in harvesting some undamaged fruit or vegetables from a garden or field with areas having drift damage, get as much information as possible. What herbicide(s) drifted? Many herbicides that commonly cause drift injury are absorbed by the leaves and translocate to the growing points, fruit, and seed where they concentrate. Some herbicides such as 2,4-D degrade in plants, others such as glyphosate degrade only slightly in plant tissues. Over time the herbicide concentration in the plant may be diluted due to plant growth and herbicide loss in dead shoot and root tissue.

I feel that having the fruits or vegetables analyzed for herbicide residue is critical to making an informed decision in herbicide drift situations. Several private laboratories will analyze plant tissues for herbicide residues for a fee; that fee can be several hundred dollars per herbicide per sample. Talk to the applicator who caused the drift problem; they may be willing to pay for the analysis. Some manufacturers will analyze plant tissues for their products. The Illinois Department of Agriculture, as part of a pesticide misuse investigation, will collect plant samples and test for herbicide residues. For the Illinois Department of Agriculture to be involved you must file a formal written complaint alleging herbicide misapplication. Contact the Illinois Department of Agriculture as soon as possible after discovering herbicide injury.

In addition, whoever collects samples for residue analysis must collect them correctly and in a timely manner for it to be useful for you in the decision making process. If the harvested part is present, collect that tissue. If fruit are not present, then collect samples of recently formed leaves and the shoot tips. Translocated herbicides will concentrate in those tissues. Ask that fruit samples be collected later to help you in deciding whether or not to sell or consume the fruit. Make sure that samples are collected from the crop plants showing injury and as close as possible to the site of herbicide application.

What does information herbicide residue concentrations tell you? Sometimes it may not tell you much. Obviously the lower the herbicide concentration, the better, and a concentration below an established tolerance is better than one above, but there are no clear-cut answers. Low or no residues can mean a variety of things. The herbicide may be absent from the parts you wish to harvest and eat, or the herbicide concentration may be below the limits of detection for the equipment or procedure being used. Another possibility is that your sampling procedure was not careful enough to find fruit or vegetables with residues, and the herbicide may have degraded between the time of the drift and when you sampled (or during sampling, handling, shipping, or storage). Be conservative in how you interpret the residue information.

If herbicide residues are detected, the scientific literature suggests that for the concentrations likely to occur from drift and subsequent absorption into fruits and vegetables, acute poisoning effects are very unlikely. Questions about the possible chronic effects (including cancer, the endpoint that is always debated in questions about pesticide safety) from multiple exposures from repeated incidents of herbicide drift along with many other routes of exposure remain the subject of research.

John Masiunas, (217-244-4469, masiunas@uiuc.edu)

Vegetable Production and Pest Management

Weed Control Along the Edges of Plastic Mulch

Weed control along the edges of plastic mulch is one of the most difficult weed management problems that many vegetable farmers face. In the June 26 issue (number 423) of the (Indiana) Vegetable Grower's Hotline, Liz Maynard of Purdue Extension discusses herbicide and tillage options for controlling weeds along plastic edges. The newsletter is available at

<http://www.entm.purdue.edu/entomology/ext/targets/vegcrop/VCH2003/VCH423.htm>

I also have a copy of the video "Vegetable Farmers and Their Weed-Control Machines" mentioned in the article. If you would like to borrow it, contact me.

John Masiunas, (217-244-4469, masiunas@uiuc.edu)

Corn earworm and European corn borer trapping updates

As a result of reports from several volunteers around Illinois, our Insect Monitoring Network is off to a good start. Black cutworm monitoring is behind us, but European corn borer and corn earworm trapping will continue for several weeks. So far, corn earworm and corn borer numbers have been low in most areas, and we are “in between” corn borer flights at present. As the summer progresses, bookmark the monitoring network

<http://www.ipm.uiuc.edu/fieldcrops/imn/index.html>

to check insect numbers near your area. We are continually looking for more volunteers to send in counts. Ideally, we would like to receive counts for many more counties. If you would like to work with us, please contact Kelly Cook (kcook8@uiuc.edu).

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

The annual sermon on corn earworm and corn borer control

Yep, it's that time again. Revised each year but similar to previous sermons ...

First, for the corn earworm ... this is of course the big worm in the tips of sweet corn ears. Moths lay their eggs singly on silks, and larvae move down the silk channel immediately after they hatch from the eggs. On corn, larvae do not feed on any exposed parts of the plant (leaves, husks, etc.), so the only way to kill them (short of having planted BT sweet corn) is with a contact insecticide applied to the silks. Larvae crawl across the residues on the silks, and the insecticide is taken up through the cuticle.

Although this insect overwinters with at least some success in some areas of the state in some years, it also migrates in on weather fronts. Counts remain low at present in much of Illinois partially because overwintering survival probably was limited by a colder winter in 2003-03 than many other recent winters and partially because we have not yet received immigrant moths on weather systems from the south. Moths are almost always active in the Collinsville area by late May and early June (though this year counts there are low too), but in much of the state the period of first activity (and the first need to control them) can vary from June through August. Although control may be necessary in one portion of the state at a particular time, it may be unnecessary in many other locations. Consequently, it really is essential to operate an earworm trap and determine spray needs based on moth captures.

Use a wire Hartstack trap or a nylon version of the same general design (not a paper sticky trap). Bait the trap with Hercon zealures, and replace the lure with a new one every 2 weeks. See the list below for suppliers. Earworm control is necessary when moth flight is ongoing and fresh silks are present. If traps are catching more than a few moths (3 to 5 per trap per night) when silking begins, sprays should be applied within 2 days after first silk – insecticide residues must be on the silks to kill larvae immediately after they hatch from eggs and before they enter the silk channel.

The pyrethroid insecticides Warrior, Capture, and Baythroid are most effective against earworms; they are restricted-use pesticides (users must be licensed). Pounce, Ambush, and Asana are also effective, but not as effective as Warrior, Capture, or Baythroid. Growers who are not licensed to apply restricted-use insecticides can reduce earworm damage somewhat by applying SpinTor or Sevin. None of the botanical insecticides is effective for earworm control, nor are applications of BT products, and organic growers generally must attempt to plant early so that at least a portion of the season's crop comes to harvest when earworm numbers are low.

Spray intervals: When moth flight is heavy (greater than 50-100 moths per trap per night) and temperatures are high (upper 60s at night, 90 and above during the day), the spray interval for Warrior, Capture, or Baythroid should be no longer than 3 days (2 days for Pounce, Ambush, or Asana). When moth counts are lower (5-25 per night) and the daily average temperatures (max + min divided by 2) are in the low 70s or lower, the interval for Warrior or Baythroid can be increased to 4 days (sometimes 5) and for Pounce, Ambush and Asana to 3 days (sometimes 4). The demands and expectations of your customers may influence these guidelines ... if you need 95 percent worm-free corn, keep the spray intervals on the short end of the ranges listed above. It is NOT useful to apply insecticides for earworm control until silking begins because significant egg-laying in corn begins only after silks are present.

Midwest sources of pheromone traps for earworms: Bob Poppe, Route 1, Box 33, Lexington, IL, 61753 (309-723-3201); Gempler's, P.O. Box 270, Belleville, WI 53508 (800-382-8473), and Great Lakes IPM, 10220 Church Rd NE, Vestaburg, MI

48891 (989-268-5693). **Sources for lures for earworms and corn borers and for light traps:** Gempler's and Great Lakes IPM at the addresses and phone numbers listed above.

Below: Hartstack earworm trap; adult earworm moths, eggs on silks, larva in ear tip.



European corn borer flights have been light to moderate in most areas, but numbers in Mason County and a few other locations have been high on a few dates. To monitor corn borers and make control decisions in sweet corn, use the following guidelines: Treat late whorl-stage corn (at “row tassel”) if 20 percent or more of the plants show larval feeding or if light trap counts are greater than 50 - 100 per night. Treat from tassel emergence until about a week before harvest at intervals of 5 to 7 days if light traps are capturing more than 10 to 25 moths per trap per night. You can use a corn borer pheromone lure and a cone-shaped trap (same type as for earworm moths) instead of a light trap to monitor corn borer, but the threshold number of corn borer moths captured per pheromone trap is still not too clear. The pyrethroids Warrior, Baythroid, Capture, Ambush, and Pounce are effective against the European corn borer and the corn earworm; SpinTor also is labeled and effective against both species.

Below: European corn borer moth and larva.



Ground versus aerial sprays: In one of Extension’s winter vegetable schools in February of 2002 I raised the hackles of an aerial applicator when I recommended that sprays for corn earworm control in sweet corn are more effective if applied by ground than by air. There are not a lot of recent data on this recommendation, but it’s repeated by nearly all the vegetable entomologists in the U.S. I’ll repeat in this year’s newsletter the same message I presented last year ...

For small scale, fresh-market sweet corn growers, the reason for ground sprays is simple ... in most cases relatively few rows of sweet corn that are in the stage that needs to be sprayed are surrounded by earlier corn and by a range of other vegetable crops. Drift or overspray onto these crops is very likely to be greater in aerial applications than in ground sprays, at least if all the rows at the edges of the target sweet corn are sprayed. If the insecticide used on corn results in any spray deposit on adjacent vegetable or fruit crops and it is not registered on those crops, it becomes an illegal residue. End of discussion.

But not quite the end of the discussion ... what about larger acreages? After all, sweet corn processors routinely rely on aerial applications of insecticides for earworm control in their contracted acreage. Although they may “get by” with this because a little bit of infestation and damage can be cleaned out in processing, there is another reason why aerial sprays have greater merit in these situations. The pyrethroids, especially Capture and Warrior, are generally thought to be much more effective at killing adult moths than were the older insecticides that preceded them (though PennCap-M also provides some adult control). In large fields, the influx of new earworm moths into the field after resident moths have been killed by an insecticide is relatively slow during at least some periods. Although aerial applications do not provide as thorough a coverage of silks as ground applications do, they do kill adult moths in the field at the time of spraying. Brian Flood of Del Monte has suggested that in fields of 30 acres or larger, adult control provided by aerial sprays persists for a few days because it takes a while for new female earworm moths to re-enter the field. (This is NOT true for corn borer moths, but aerial sprays are more effective at killing corn borer larvae anyway, as they feed on leaves and other exposed plant surfaces before tunneling into the plant.)

In smaller plantings, however, moths move back into the bulk of a field faster, simply because most of the field is close to an edge and to untreated surroundings. As a result, thorough coverage of silks and repeat applications of insecticides that put a residue on new silk growth are necessary. Where ground applications can be made in a timely manner, better coverage of silks is possible with ground sprayers equipped with drop nozzles. If heavy rains prevent the use of ground rigs for a few days, however, then a timely aerial application is FAR more effective than a ground spray applied 1 or 2 days late, after earworms have entered the ear.

So ... I'll stand by my recommendation that for earworm control, ground applications are more effective for most fresh-market sweet corn growers. Aerial applications have their place – in larger acreages typical of contract fields grown for processors and when rains prevent timely sprays from ground equipment.

Squash Vine Borer and Squash Bug

At last week's Summer Horticulture Day I handed out some information about squash vine borer and squash bug, as now is the time fo year to be attentive for both.

Squash vine borer adults are active now in much of the state. These "clearwing moths" are colored with red and black, they resemble wasps, and they fly and lay eggs on squash during the daytime. Larvae tunnel within vines, causing them to wilt. They most often cause damage in squash and pumpkins. Scout as soon as vines begin to run, looking for the moths and for entrance holes at the base of vines (from larval tunneling). Treat when first damage is noted and again about a week later. Several insecticides are effective for vine borer control, including Capture, Sevin, Asana, Pounce, Ambush, and methoxychlor. At the small scale, mounding soil around the base of vines can encourage adventitious root growth from portions of the vine beyond the point of vine borer damage.

Below: squash vine borer larva and adult



Squash bug adults are active now too. Like vine borers, they most often injure squash and pumpkins. Adults lay eggs on foliage, and nymphs and adults suck fluids from vines and leaves. Scout for egg masses, and use a treatment threshold of 1 to

1.5 egg masses per plant. If counts of egg masses exceed this threshold, treat as soon as nymphs begin to hatch. Capture, Asana, Pounce, and Ambush are registered for squash bug control ... Capture is the most effective.

Below: squash bug eggs, nymphs, and adult



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

This issue's words of wisdom ... Capitalism made simple ... or not ...

- Traditional Capitalism: You have two cows. You sell one and buy a bull. Your herd multiplies, and the economy grows. You sell them and retire on the income.
- American Capitalism: You have two cows. You sell one, and force the other to produce the milk of four cows. You are surprised when the cow drops dead.
- French Capitalism: You have two cows. You go on strike because you want three cows.
- British Capitalism: You have two cows. Both are mad.
- Russian Capitalism: You have two cows. You count them and learn you have five cows. You count them again and learn you have 42 cows. You count them again and learn you have 12 cows. You stop counting cows and open another bottle of vodka.
- Canadian Capitalism: You have two cows. Let's make a hockey team, eh?
- Californian Capitalism: You have two cows. They are happy.
- Texan Capitalism: You have two cows. You teach them to fire guns.
- Martha Stewart Capitalism: You have two cows. After decorating them, you sell them because a farmer told you the price of milk might go down.
- Enron Capitalism: You have two cows. You sell three of them to your publicly listed company, using letters of credit opened by your brother-in-law at the bank, then execute a debt/equity swap with an associated general offer so that you get all four cows back, with a tax exemption for five cows. The milk rights of the six cows are transferred via an intermediary to a Cayman Island company secretly owned by the majority shareholder who sells the rights to all seven cows back to your listed company. The annual report says the company owns eight cows, with an option on one more. Sell one cow to buy a new president of the United States, leaving you with nine cows. No balance sheet provided with the release. The public buys your bull.
- Real Capitalism: You don't have any cows. The bank will not lend you money to buy cows, because you don't have any cows to put up as collateral.

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

Extension Educators in Food Crop Horticulture		
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
Extension Educators		
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
Campus-based Specialists		
Mohammad Babadoost, Plant Pathology	217-333-1523	babadoos@uiuc.edu
Raymond Cloyd, Greenhouse insects	217-244-7218	rcloyd@uiuc.edu
Kelly Cook, Entomology	217-333-6651	kcook8@uiuc.edu
Imed Dami, Viticulture (So. Ill. Univ.)	618-453-2496	imeddami@siu.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

