Cooperative Extension • Monterey County

Crop Notes

JANUARY/FEBRUARY, 2006

In This Issue:

University of California, U.S. Department of Agriculture, and County of Monterey cooperating

1432 Abbott Street • Salinas, CA 93901

phone 831.759.7350
fax 831.758.3018

http://cemonterey.ucdavis.edu

UC OFFERS SUPPORT AND ANALYSIS AS LAWMAKERS GRAPPLE WITH FARM LABOR UNCERTAINTIES

California farmer associations are urging U.S. lawmakers to respond to a labor shortage in the state that they feel is brought on by a confluence of factors – including heightened border enforcement, a changing economy and government regulation. The shortage, they say, is threatening the state's multibillion dollar agricultural industry.

Though the exact meaning of "labor shortage" is itself the subject of debate, the University of California, through UC Cooperative Extension (UCCE), is a source of information and support as growers tread the shifting sands of agricultural labor availability.

UCCE county- and campus-based programs offer help on public policy as well as business management issues pertaining to farm labor, such as understanding and keeping up with employment law, creating management policies that comply with regulations and make sense to workers, selecting and developing capable employees, and structuring a pay system to help recruit, retain and elicit good performance from them.

Illegal entry interceptions and other Border Patrol enforcement actions have probably reduced the number of people looking to work in the fields, according to UCCE farm-labor management specialist Howard Rosenberg. Better earnings and conditions of employment offered in some non-agricultural work, such as construction, also draw people away from the lower tier farm jobs.

The changes have farmers worried. Joe Santellano of Sunnyside Packing in Selma, which also has farming operations in Fresno County, said, "2006 is our biggest concern."

"They're not letting people across the border. It's a real serious problem," Santellano said. "What's the use of planting stuff if we can't get it harvested?"

UC Davis agricultural economist Dan Sumner, the director of the UC Agricultural Issues Center, said anytime there is upward pressure on wages, employers talk about a worker shortage.

"In the short run, say a few weeks or months, there is likely to be only a finite number of people who know how to prune grape vines, for example," Sumner said. "So even if the wage went up a bit, not many more people would be available and qualified. Given more time or some advanced information that substantially higher wages would be available, many more people would be available and the shortage would disappear at the higher wage. But, currently, there has not been time for the wage to rise sufficiently and no one knows if the market will remain tight long enough for the wages to adjust."

Some workers prefer jobs in processing plants to those in the fields, and former and potential farm workers across the country have found more opportunities, often with greater stability or preferable work conditions, in other industries. For example, in the Fresno area, nonagricultural employers are reported to be recruiting for jobs with wages ranging from $11 to $16 an hour, compared to the $6.75 state minimum wage paid in many entry-level jobs on the farm, according to Rosenberg.

Agricultural employers are finding that they have to consider adjustments. "The human resource manager of a large company that workers consider to be an 'employer of choice' recently told me that even he had stepped up recruitment advertising and sweetened the pay package," Rosenberg said.

One useful reference for agricultural employers is an annual wage and benefit survey on which UC now collaborates with the Farm Employers Labor Service and several grower associations. A quarterly USDA survey of farm employment and wages only distinguishes job content as "field" or "livestock" in the state as a whole. In contrast, the California survey tracks wages and benefits for 14 specific agricultural jobs, within regional-, commodity- and business-size groups.

"It's no surprise that surveys like this have long been part of the stock in trade of human resource management," said Rosenberg. "It's tough to position your pay relative to the market if you don't have comparative information."

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Results of the grower survey are reported more than three months after data collection, but even as retrospective benchmarks they are useful to employers assessing the external and internal equity of their own pay scales. Survey results for 2004 are online at http://apmp.berkeley.edu/APMP/pubs/wagesurvey04.sum.html, and the 2005 summary will be posted soon.

The UC Agricultural Personnel Management Program Web site – http://apmp.berkeley.edu – provides access to myriad agricultural labor resources, including frequently updated information on the flurry of bills in Congress that could either ease or exacerbate the current agricultural labor situation. It also provides information on UC experts who are gearing up to help employers as well as workers decipher the opportunities and requirements presented by legislation as it is enacted, as they did with a major immigration reform bill in 1986.

The executive director of the Imperial Valley Vegetable Growers Association, Ayron Schoneman, expresses the frustration felt by many in the agricultural industry. She said current laws regulating worker documentation are "unreasonable and unworkable."

"We need to have a workforce, falsely documented or not," she said. "We are educating our legislators that you cannot kick all workers out of the country who are falsely documented."

One of the bills pending in Congress is particularly relevant to the agricultural community and has been strongly supported by both grower and labor organizations since its nearly identical predecessor was introduced in 2003. The Agricultural Job Opportunities, Benefits, and Security Act, commonly known as AgJOBS, contains provisions that would allow many unauthorized – but currently or recently employed – farm workers to obtain a temporary legal status, and to earn the right to convert it later to permanent legal status and even citizenship. This bill would also relax some requirements of the existing, though little used, H-2A work visa program through which workers can be admitted temporarily as "guest workers" for farm employment when resident labor is shown to be insufficient.

"There is significant opposition, however, to any legislation that would provide a benefit, such as legal status or even the right to participate in a visa program, to people who have broken the law in entering the U.S.," Rosenberg said. "And some opponents argue against such legislation on grounds that adding to the labor supply tends to depress bargaining power, wages and working conditions for people legally in the labor market."

Media contacts:
Howard Rosenberg, (510) 642-7103,
howardr@are.berkeley.edu
Daniel Sumner, (530) 752-1668,
dasumner@ucdavis.edu

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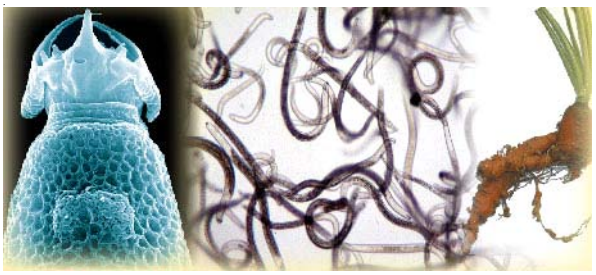
MEETING ANNOUNCEMENT

38th California Nematology Workshop
Tuesday, March 28, 2003, 8 AM - 4:30 PM
at the University of California Extension Center,
1200 University Ave, Riverside, CA 92507-4596

38th California Nematology Workshop



This annual workshop offers pest management professionals and growers the latest information on problems caused by plant-parasitic nematodes and on their potential solutions. Target audience for this program includes pest control advisors and operators, growers, pesticide and biocontrol industry representatives, landscapers, municipal and state employees, parks and recreation personnel, educators and consultants. A superb lineup of speakers and workshop presenters will share their expertise concerning nematode-related issues. Posters will cover the latest Nematology research activities at the University of California, CDFA, USDA and industry. Breakout sessions will give the audience an opportunity to sharpen their skills in nematode identification, disease diagnostics, and sampling procedures.
For info and registration: www.nematology.ucr.edu or contact antoon.ploeg@ucr.edu, 951-827-3192.

Monterey County Cooperative Extension

Just Published. . .

The following new ANR publications are now available from Communication Services:

Agritourism and Nature Tourism in California
H. George, E. Rilla

Whether as an opportunity for curious urban dwellers to find out more about the food they eat, as a welcome weekend escape from an urban environment, or as a vacation destination – agritourism is growing. Farmers and ranchers are curious about how to take advantage of this trend.

This manual has been written to help farmers and ranchers determine if agritourism is for them. The easy-to-use workbook walks users through the steps needed to establish a tourism enterprise. Included are hands-on activities that can help one assess, plan, develop, and evaluate a farm or ranch's tourism potential. From U-pick orchards to bird watching, trail rides to farm tours – the possibilities are as endless as one's imagination. While written with California in mind, farmers and ranchers nationwide will find valuable analysis and planning tools in this handbook. Publication No. 3484 $25.00

Residential, Industrial, and Institutional Pest Control, 2nd Edition
Volume 2 in the Pesticide Application Compendium focuses on managing structural, food, and fabric pests and on rodents, birds, and weeds.

This new edition has been completely updated and now includes review questions and answers to help users study for the exam. A new detailed index enhances navigation and tables and sidebars are now listed in the table of contents. This is a helpful reference for anyone solving institutional or household pest problems – from pest control operators to building managers or homeowners.

New information is included for those carrying out school IPM programs – including how to select appropriate pesticides for school buildings focusing on herbicides, and safe and effective cockroach and ant baits. This is study material for the California Department of Pesticide Regulation's QAL and QAC exams in the Residential, Industrial, and Institutional and the Health Related categories.
Publication No. 3334 $30.00

Wildlife Pest Control around Gardens and Homes, 2nd Edition
Terrell P. Salmon, Desley A. Whisson, Rex E. Marsh

Our indispensable guide to wildlife pests has been completely revised! Operating under the premise that it is the activity, not the species, that defines the pest, this handy guide will help you determine if a control method is necessary – and then offers management and control options. The information presented is in keeping with the principles of integrated pest management and offers the widest range possible of both preventive and population reduction methods for common bird, mammal and reptile pests. From cliff swallows to rattlesnakes, bats to voles, deer to woodpeckers, this volume will help you identify, appraise, and monitor your wildlife pest situation. 2006. 122 pp. Publication No. 21385 $25.00

New Pricing:
Postharvest Transport Series
Save 25% when you buy all three titles in the Postharvest Transport Series — Air, Refrigerated Trailer, and Marine Container Transport. All of these titles can still be purchased separately.
Publication No. 21621 $36.00

Back in Stock:
Irrigation Pumping Plants Publication No. 3377 $25.00
Scheduling Irrigations: When and How Much Publication No. 3396 $25.00
This is a "retail only" publication - no discounts apply.

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For these and other helpful publications, go to anrcatalog.ucdavis.edu

UNIVERSITY of CALIFORNIA
Agriculture & Natural Resources

Cooperative Extension • Monterey County

2006 Irrigation and Nutrient Management Meeting and Cover Crop and Water Quality Field Day

Tuesday, February 21

7:45 a.m. to 3:00 p.m.

RAIN OR SHINE

* **Sponsors:** University of California Cooperative Extension; United States Department of Agriculture (USDA); Community Alliance with Family Farmers (CAFF); and Agriculture and Land-Based Training Association (ALBA)
* **Spanish translation will be available**
* **For more information call Michael Cahn 759-7377 or Richard Smith 759-7357**

Please call ahead for arrangements for special needs; every effort will be made to accommodate full participation.

2006 Reunión del Manejo de Riego y Nutrientes y Día de Practica de Cultivos de Cobertura y Calidad de Agua

Martes, 21 de Febrero

Las 7:45 a.m. hasta las 3:00 p.m.

NO IMPORTA LA LLUVIA

* **Patrocinado por:** University of California Cooperative Extension; United States Department of Agriculture (USDA); Community Alliance with Family Farmers (CAFF); y Agriculture and Land-Based Training Association (ALBA)
* **Se ha solicitado crédito para Certified Crop Advisor y Calidad de Agua**
* **La reunión se presenta en ingles, con interpretación al español**
* **Para más información llame a Richard Smith 759-7357 o Michael Cahn 759-7377**

Continuing education credits have been requested. Please call ahead for arrangements for special needs; every effort will be made to accommodate full participation.

Advisors, 4-H, and Nutrition Education #'s	
Larry Bettiga	831.759.7361
Michael Cahn	831.759.7377
Bill Chaney	831.759-7359
Sonya Hammond	831.759.7358
Steve Koike	831.759.7356
Merrielee Merritt	831.759.7386
Kathleen Nolan	831.759.7373
Richard Smith	831.759.7357

UC CE University of California Cooperative Extension

CILANTRO YELLOW BLOTCH VIRUS

Steven T. Koike
Plant Pathology Farm Advisor

The disease was first detected in the mid-1990s and has occurred from time to time through 2006.

In recent years, plantings of cilantro in California have been periodically showing symptoms of a virus disease. Symptoms on leaflets consist of bright to pale yellow blotches with irregular margins, yellowed veins, and slight twisting and buckling of the leaflets. Some cultivars can be slightly stunted. Because cilantro is harvested for its leaves, this disease can reduce the quality of the harvested product.

When symptomatic leaves were examined with an electron microscope, unusual virus-like particles measuring approximately 2 µm in length were observed. The particle shape resembled that of the group of viruses called closteroviruses, though the cilantro virus had an unusual twisted appearance. In thin sectioned leaf material, groups of virus-like particles were seen in phloem tissue. The pathogen has not yet been fully characterized and is tentatively named cilantro yellow blotch virus. The disease was first detected in the mid-1990s and has occurred from time to time through 2006.

The disease cycle has not been researched. The disease appears to be associated with several aphid vectors, possibly including the coriander aphid (*Hyadaphis coriandri*). However, according to Farm Advisor Bill Chaney, a closely related aphid named *Hyadaphis foeniculi* may be more common in our coastal area and is found on celery and cilantro. Such information demonstrates that the precise details of this virus disease are still lacking.

Several circumstantial bits of evidence indicate the virus may be seedborne. When the disease was first observed in California, cilantro fields in southern, coastal, and northern parts of the state all reported problems at about the same time. Very young cilantro seedlings developed the disease even if vectors did not appear to be present. Finally, seeds collected from diseased plants were grown in greenhouses and developed into diseased plants.

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Control measures have not been devised. The disease occurs sporadically and at present does not appear to be of lasting, significant economic importance. No information is available on whether cilantro yellow blotch virus can infect other crops and weeds in the Apicaceae.

Cilantro leaf on the left shows yellow blotches from the new virus disease.

Just Published. . .

(Cont'd from page 3)

Recently Updated Pest Management Guidelines
3435 **Asparagus**
3438 **Carrot**
3439 **Celery**
3445 **Cucurbits**
3457 **Peppermint**
3467 **Spinach**
3469 **Sugarbeet**

New Free Publications Recently Posted to the Online Catalog
8160 **Raising Dairy Goat Kids**
8161 **Pesticide Choice: Best Management Practice for Protecting Surface Water Quality in Agriculture**
8162 **Common Lice and Mites of Poultry**

Genetic Engineering Fact Sheets
8183 **Genetic Engineering and Animal Feed**
8184 **Genetic Engineering and Animal Agriculture**
8185 **Genetic Engineering and Fish**

anrcatalog.ucdavis.edu

STRAWBERRY LEAF BLOTCH DISEASE COMMON IN 2006

Steven T. Koike
Plant Pathology Farm Advisor

Early in 2006, damaged strawberry leaves are being commonly observed in some coastal plantings. We have confirmed that most of these symptoms are caused by leaf blotch disease. Symptoms generally consist of tan to gray leaf lesions that develop on the first few leaves of the growing transplant. These affected areas tend to grow fairly large; they can expand and cover from 1/4 to 1/2 of the leaflet surface. Leaf infections commonly grow from the margin or edge of leaflets, and can be surrounded by a purple red border. Because these lesions are irregular in shape, the disease has been given the name of leaf blotch. An important sign of leaf blotch is the presence of tiny, brown to black, fungal fruiting bodies in the gray blotches. Brown to black petiole lesions can also occur. The leaf blotch pathogen can cause a brown decay on the calyx end of strawberry fruit. This fruit phase of disease, known as stem-end rot, appears to be fairly rare in California.

Leaf blotch symptoms may be similar to those caused by another pathogen, *Phomopsis obscurans* (causal agent of Phomopsis leaf blight). Note that the blotches are not small and round as in the case of leaf spot caused by *Mycosphaerella fragariae* (this disease is also called Ramularia leaf spot). Leaf blotch superficially might resemble damage caused by anthracnose disease (caused by *Colletotrichum acutatum*) or abiotic factors (chemical burn, etc.).

Leaf blotch disease is caused by the fungus *Gnomonia comari*, which is an ascomycete that produces dark, spherical fruiting bodies (perithecia) and airborne ascospores. Like many pathogenic fungi, this organism also produces a second asexual form that has spores called conidia. The conidial stage is named *Zythia fragariae*. The *Zythia* form also makes dark, spherical fruiting bodies that in this case release tiny spores. Both *Gnomonia* and *Zythia* forms can be found on infected strawberry tissues. Thus far in 2006, only the *Zythia* form has been observed on symptomatic strawberry leaves.

Zythia fragariae survives on strawberry crop residues. The fungus does not appear to be a true soilborne fungus, so it will not likely persist in soil unless strawberry crop debris is present. The *Zythia* form is especially dependent on splashing water for spore dispersal and infection. This accounts for the typical appearance of leaf blotch during winter and early spring seasons when there are rains.

Leaf blotch is usually considered a minor problem and fungicide treatment programs have not been developed nor are they currently recommended. The strawberry plants usually grow out of the problem. Leaf blotch spread and development is dependent on rains and splashing water, so once the winter rains cease, leaf blotch usually becomes a non-issue for growers. It is useful for growers to have leaf blotch identified so that other factors (such as chemical burn and other diseases like anthracnose) can be eliminated as causes of the brown, damaged leaves.

An important sign of leaf blotch is the presence of tiny, brown to black, fungal fruiting bodies in the gray blotches. Brown to black petiole lesions can also occur.

Leaf blotch is usually considered a minor problem and fungicide treatment programs have not been developed nor are they currently recommended.

Gray leaf blotches characterize this foliar disease.

Very small, brown to black fungal structures are found in the blotches.

SCLEROTINIA MINOR HOST RANGE

Steven Koike
Plant Pathology Farm Advisor

Control of *S. minor* for all crops is best attained by thoughtful crop rotation and avoidance of heavily infested fields.

Note that this list does not evaluate the significance of *S. minor* for each host. For example, while cauliflower is a known host, our experience indicates that cauliflower is not a good host and that disease incidence is always very low.

The soilborne fungal pathogen *Sclerotinia minor* is best known in coastal California as the main cause of lettuce drop disease of lettuce. *Sclerotinia minor* is therefore a long term, important concern for those growers producing lettuce. However, over the past few seasons, researchers have documented that *S. minor* can also cause crown and root rots of other crops grown in coastal California. These findings indicate that *S. minor* has a broader host range than previously thought.

Table 1 summarizes the documented host range of *S. minor* on crops and plants in the Salinas Valley. The list is not comprehensive because other, undocumented hosts may exist. Note that this list does not evaluate the significance of *S. minor* for each host. For example, while cauliflower is a known host, our experience indicates that cauliflower is not a good host and that disease incidence is always very low. The *S. minor* host list extends beyond the plant family (Asteraceae) that contains lettuce. However, be reminded that the *S. minor* host range is still quite narrow compared to that of *S. sclerotiorum*, the ascospore producing species that has dozens of hosts. In general, all diseases caused by either *S. minor* or *S. sclerotiorum* are named white mold.

In all cases the symptoms of infection by *S. minor* are the same on all crops. The fungus can only infect susceptible tissue that is in close proximity to sclerotia in soil because no spore stage is involved in the disease cycle. Infection results in a tan to brown, watery soft rot of roots and crowns. The characteristic white mycelium and small (less than 1/4 inch in diameter), black, irregularly shaped sclerotia form on diseased tissues. Plants having soft tissues, such as lettuce and celery, often collapse with extensive fungal colonization. Other plants such as bean, cauliflower, and pepper will remain upright because of their strong woody stems; however, even these plants will die when the crowns become completely rotted.

Control of *S. minor* for all crops is best attained by thoughtful crop rotation and avoidance of heavily infested fields. Only a few crops, such as lettuce, have effective and registered fungicides for white mold control. Growers, pest control advisors, and other field personnel should be aware of this host range for *S. minor*. For example, growers who produce corn salad will know that this crop is very sensitive to the same pathogen that affects lettuce; if a particular lettuce planting is severely affected by *S. minor*, then the corn salad producer would be advised to not plant their crop in this specific field.

Researchers (Koike and Subbarao) will be examining and comparing various isolates from these diverse crops. It might be possible that *S. minor* consists of subgroups or strains that differ in biological or pathological aspects. Such information might prove useful to growers.

Table 1. Documented host range of *Sclerotinia minor* in the Salinas Valley.

Plant Host	Host Family
Austrian winter pea (cover crop)	Fabaceae
basil	Lamiaceae
bean	Fabaceae
cauliflower	Brassicaceae
celery	Apiaceae
corn salad	Valerianaceae
endive	Asteraceae
escarole	Asteraceae
fennel	Apiaceae
lettuce	Asteraceae
mustards (cover crop)	Brassicaceae
pepper	Solanaceae
phacelia (cover crop)	Hydrophyllaceae
radicchio	Asteraceae
tomato	Solanaceae
vetch (cover crop)	Fabaceae

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2005 CHEMIGATION EVALUATIONS WITH KERB ON LETTUCE IN THE SALINAS VALLEY

Richard Smith and Dwain Morton, University of California Cooperative Extension, Monterey County and Dow AgroSciences, respectively

Summary: These trials provided us with the opportunity to evaluate differences in weed control between applying Kerb through the sprinklers (chemigation) with the standard ground application. Chemigation provides the grower an opportunity to apply the Kerb later in the germination cycle. This may be important because of the potential to leach Kerb beyond the top 0.5 inch with the first irrigations which may result in reduction in overall weed control. Delaying the application of Kerb until the lettuce seedling is at the "hook" stage (just prior to emergence from the ground) provides improved weed control in the desert production area of Yuma. However, in the first season of evaluations in the Salinas Valley, we observed improved weed control by chemigating Kerb in one of the five trials conducted in 2005. There were no differences in weed control between Kerb chemigation and ground application in the other trials.

Methods: ***Trial No. 1*** – Was conducted in King City in a field planted on April 5. The grower's weed control program was 3.0 lbs Kerb/A applied to bed top and shoulders of the bed. No ground application was made to the area to be chemigated. The first irrigation was on April 6 (1.0" on April 6 and 0.5" on April 9). 2.0 pounds/A of Kerb were chemigated on April 11 when the seedlings were in the crook stage and not yet emerged. The chemigated area included two 24-bed wide areas by the length of the field. Soil was Cropley silty clay. ***Trials No. 2 and 3*** – Was conducted in Chualar. Trial 2 was planted on April 4 and trial 3 was planted on April 5. Trial 2 wet date was April 7 and trial 3 wet date was April 8 (rain). The grower's weed control program was 3.33 lbs Kerb/A applied to two 6-inch bands. 2.0 pounds/A of Kerb were chemigated on both fields on April 12 when the seedlings were in the crook stage and not yet emerged. The each field in trials 2 and 3 were split and half was chemigated and the other half applied with the ground application mentioned above. Soil was Metz fine sandy loam. ***Trial No. 4*** – Was conducted in King City in a field planted on July 12. The grower's weed control program was 4.0 lbs/A Kerb applied to bed top and shoulders of the bed. The first irrigation was on July 13. 2.0 pounds/A of Kerb were chemigated on July 17 when the seedlings were in the crook stage and not yet emerged. The chemigated area included two 24-bed wide areas by the length of the field. Soil was Cropley silty clay. ***Trial No. 5*** – Was conducted in Chualar in a field planted on July 27. The grower's weed control program was 2.5 lbs Kerb/A plus 1.5 gallons of Prefar applied to the bedtop. The wet date was July 28. Kerb was chemigated on August 1 when the seedlings were just emerging from the ground. The field was split and half was chemigated and the other half applied with the grower's practice. The soil type was Metz loamy sand. See tables for evaluation dates.

Results: ***Trial No. 1:*** There was significantly fewer Malva in the Chemigation treated plot (Table 1), however there was variability in the weed population across the replications at this site that made definitive weed evaluations impossible at this site (Table 2). ***Trials No. 2 & 3:*** Weed control in both trials was equivalent and there was no trend in the commercial yields (Table 3). ***Trial No. 4:*** There were no differences in the weed treatments on August 1 (Table 4), but there were less Hairy Nightshade and total weeds on the August 8 evaluation date (Table 5). ***Trial No. 5:*** There were more Sow Thistle in the chemigation treatment but no differences in total weeds between the chemigation and ground applications (Table 6).

Acknowledgements

Willie Pantoja, Green Valley Farm Supply, Inc.
John Romans, Grower
Ed Mora, D'Arrigo Bros.
Henry Carasco, Western Farm Service

These trials provided us with the opportunity to evaluate differences in weed control between applying Kerb through the sprinklers (chemigation) with the standard ground application.

Chemigation provides the grower an opportunity to apply the Kerb later in the germination cycle.

Table 1. Trial No. 1. Weed count[1] on April 26.

Treatment	Weeds/30 ft^2				
	Nightshade	Malva	Lamb's Quarters	Other	Total
Chemigation	1.4	0.2	0.3	0.1	2.0
Ground	13.1	0.6	0.4	0.1	14.1
Untreated	3.6	0.3	0.2	1.2	5.3
LSD (0.05)	*NS*	0.4	*NS*	*NS*	*NS*

[1] Evaluation of area between the marks of planter shoe (16" wide)

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This may be important because of the potential to leach Kerb beyond the top 0.5 inch with the first irrigations which may result in reduction in overall weed control.

Table 2. Trial No. 1. Weed count[1] by plot on April 26 showing spotty weed distribution.

Treatment	Plot location	Weeds/30 ft^2				
		Nightshade	Malva	Lamb's Quarters	Other	Total
Untreated II	North	0.2	0.4	0.0	0.0	0.6
Ground II	South	1.2	0.8	0.1	0.1	2.1
Chem II	South	0.5	0.3	0.6	0.1	1.5
Chem I	North	2.3	0.0	0.1	0.1	2.5
Ground I	North	24.9	0.3	0.7	0.2	26.1
Untreated I	South	6.9	0.2	0.4	2.4	9.9

[1] Evaluation of area between the marks of planter shoe (16" wide)

Table 3. Trials No. 2 & 3. Weed count[1] on April 27 and yield June 21 and 22

Treatment	Weeds/30 ft^2				
	Nightshade	Nettle	Sow Thistle	Purslane	Total
Chemigation	0.6	2.8	0.5	0.0	1.5
Ground	0.3	0.0	1.1	0.1	0.9
LSD (0.05)	*NS*	*NS*	*NS*	*NS*	*NS*
Yield Evaluations					
Yield (boxes/A)	Trial 2	Trial 3	Mean		
Grower Practice	859	1,017	938		
Chemigation	929	831	880		

[1] Evaluation of two 6-inch wide bands around the seedline.

However, in the first season of evaluations in the Salinas Valley, we observed improved weed control by chemigating Kerb in one of the five trials conducted in 2005.

Table 4. Trial No. 4. First weed count[1] on August 1.

Treatment	Weed Count/60 ft^2			
	Nightshade	Malva	Other	Total
Chemigation	1.83	0.28	0.11	2.2
Ground	1.33	0.50	0.56	2.4
LSD (0.05)	*NS*	*NS*	*NS*	*NS*

[1] Evaluation of area between the marks of planter shoe (16" wide)

Table 5. Trial No. 4. Second weed count[1] on August 8.

Treatment	Weed Count/120 ft^2			
	Nightshade	Malva	Other	Total
Chemigation	16.3	1.7	1.3	18.3
Ground	12.3	1.4	3.0	15.2
LSD (0.05)	*1.2*	*NS*	*0.9*	*1.2*

[1] Evaluation of area between the marks of planter shoe (16" wide)

Table 6. Trial No. 5. Weed count[1] on August 17.

Treatment	Weed Count/40 ft^2					
	Purslane	Sow Thistle	Shepherd's Purse	Mustard	Other[2]	Total
Chemigation	2.6	7.3	8.1	7.3	10.5	35.8
Ground[3]	0.5	3.3	6.3	14.3	8.0	32.3
Untreated	48.7	4.8	21.9	13.4	19.3	108.1
LSD (0.05)	*32.1*	*2.1*	*10.0*	*NS*	*7.4*	*27.6*

[1] Evaluation of area between the marks of planter shoe (16" wide)
[2] Poison hemlock and tar weed (area recently reclaimed from Salinas River)
[3] Treatment included Prefar

SYMPHYLAN RESEARCH TRIALS FROM 2005

William E. Chaney, Farm Advisor – Entomology

Based on our review of the literature and discussion with growers and PCA's, we believed that areas infested with symphylans would have damage in the same area year after year. While this is largely true, we have found that the degree of damage will vary considerably from year to year. Part of the reason for this is crop choice and farming practice, but part is also apparently annual variation that may be due to the amount of soil moisture over the winter, either due to rainfall or winter crops.

Symphylans can be monitored using raw potato slices.

Soil arthropods by their nature are difficult to sample because they cannot be seen. A very acceptable technique for sampling for both the seed springtail and the garden symphylan has been developed from a technique used by a graduate student at Oregon State. This method involves using thick slices of raw potato placed on the soil surface at the level at which moisture is clearly visible in the soil. Care must be taken in removing dry soil from the surface not to disturb the pores in the moist soil in which symphylans move. A technique of gently raking the dry soil away with a lettuce knife, rather than slicing into the soil with a knife or spade is more effective.

Cover the bait with a solid plastic dome to protect the bait from drying out while it is allowed to attract symphylans. This plastic dome or cap must be large enough not to cause excessive heating of the area or to accumulate excess condensation. We used 6 inch round by 6 inch high white plastic "pots" with no drainage holes. PCA's and growers can use this technique and may find large plastic or Styrofoam cups easier to acquire. Researchers at OSU used 4 inch white PVC caps. The bait was left in place for 24 to 36 hours. The cap was then removed and the symphylans were counted first on the soil surface, then on the underside of the potato.

A trial was conducted in a grower cooperator's field near San Juan Bautista in an area of the field where symphylan feeding had destroyed the crop. The trial was conducted as a randomized complete block design with 4 replications. Blocks were six 40-inch beds wide and reps were one bed by 10 ft long. Transplant plugs were dipped in a pesticide solution in the equivalent of 70 gals of water/acre. Symphylan counts were taken 14 days after treatment by placing potato bait stations on the soil surface. At 39 days after transplanting, plants were cut at the soil surface and fresh weight taken. The following four graphs show the mean plant weight per plant for lettuce and celery and the mean number of symphylans per bait station in the treated areas, respectively.

Trials on Symphylan management are conducted in grower-cooperator fields.

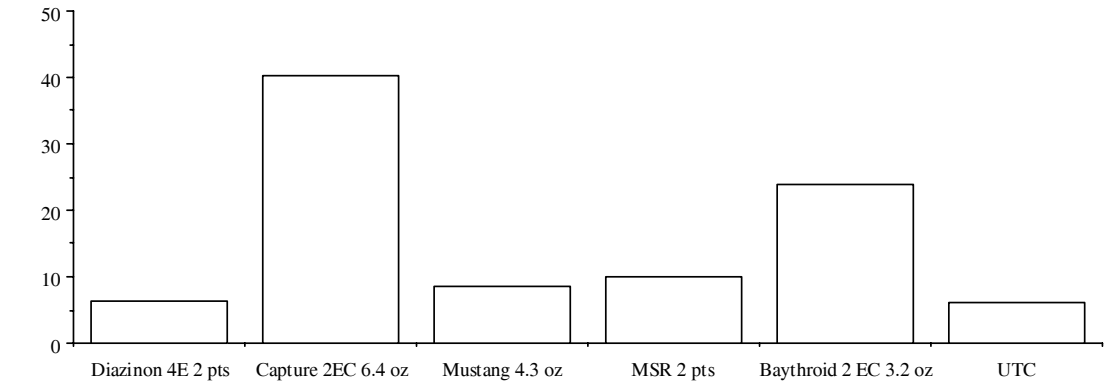

Figure 1. The mean fresh weight per plant for lettuce 39 days after being treated as transplants with the insecticide shown.

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(Cont'd from page 10)

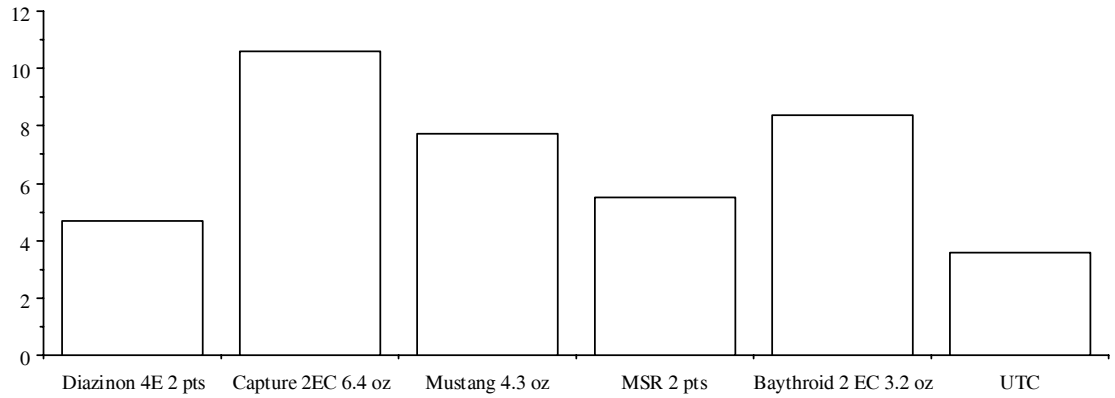

Figure 2. The mean fresh weight per plant for celery39 days after being treated as transplants with the insecticide shown.

Results of insecticide trials sometimes rely on indirect measures such as plant weight.

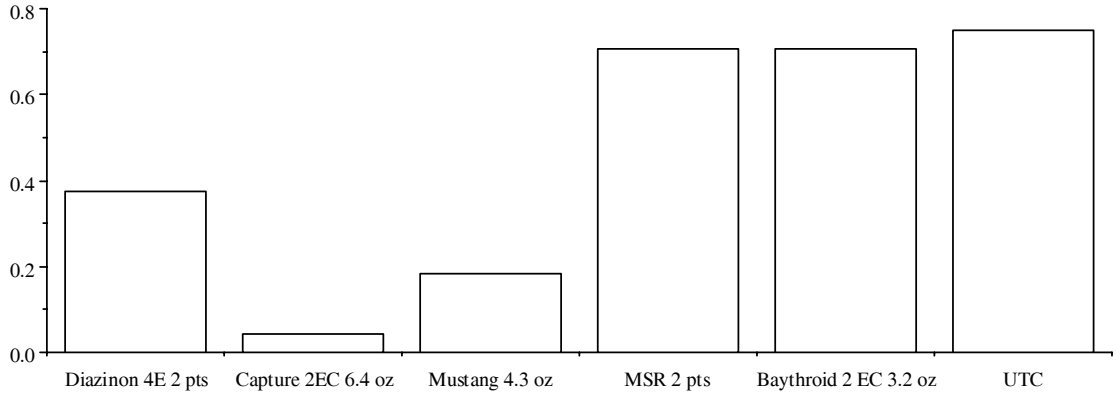

Figure 3. The mean number of symphylans recovered per bait station in areas treated 14 days earlier with the insecticides shown.

Field trial cooperators for field work are always welcomed.

Work on symphylan management continues, and growers or PCA's planting in fields where symphylans have been a problem in previous years are encouraged to call Bill Chaney or Franklin Dlott if they would be interested in cooperating in field trials this year.

For information on how to get rid of those pesky pests such as raccoons, squirrels, opossums and many more go to www.ipm.ucdavis.edu/PMG/selectnewpest.home.html

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MONTEREY COUNTY

Crop Notes

JANUARY/FEBRUARY, 2006

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

Sonya Varea Hammond, County Director
University of California Cooperative Extension
1432 Abbott Street
Salinas, CA 93901

phone 831.759.7350 fax 831.758.3018
Español: 831.759.7393