

Lodi-Woodbridge Winegrape Commission

# IPM Program Update

Crush District #11, Local Commission

July 1993

## Inside This Issue

- ✓ IPM Objectives
- ✓ ASEV Conference
- ✓ Kellogg Foundation Proposal Summary
- ✓ Printed Materials and Tapes
- ✓ Meetings of Interest

As we head into the summer months and the stretch run to harvest, I would like to review the basic objectives of the Integrated Pest Management Program in the district and then categorize information and activities in the district under those headings.

## Objective #1

### *Increase Bio-diversity in and Around the Vineyard*

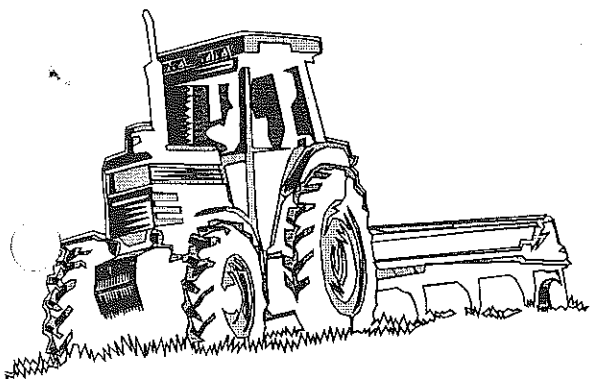
There are two major approaches for accomplishing this. These are: 1). Use of cover crops and/or resident vegetation during the winter and summer, and 2). Use of refuges that encourage beneficial insects. Refuges can consist of:

- A) Native grasses, shrubs and trees, or
- B) Prune trees, or
- C) A combination of A & B.

This winter and spring, cover crops abounded in the district. The crimson clover was particularly spectacular this year. There were also some significant failures. There were several growers who tried summer cover crops also. A block managed by Ernie Dosio has a particularly nice stand of buckwheat and safflower on Dustin just north of Acampo Road on the west side. Job well done, Ernie! Planting and maintenance of winter and summer cover crops will be discussed at our NEXT IPM SEMINAR ON JULY 31ST. Look for more details in a couple of weeks.

There was a rush for refuge plants this spring, particularly for prune trees. This is very encouraging for the long-term objective of reducing pesticide inputs in the district. Growers are now consciously selecting plants which will generate beneficials for vineyard pest control when they line drives, fencelines, ditchbanks, and "dead areas" around pumps, shops, and storage sheds. When I visit a grower's properties and drive around with he or she, invariably I find that there are also opportunities to incorporate them in the vineyard itself.

Continued on Page 2



### Objective #1 Cont'd

Be Creative! A good example of using prune tree refuges and cover crops as a strategy can be found at the Steve Quashnick Zinfandel block across from Mondavi Winery on Woodbridge Road. Steve has planted a perennial native grass mix in the vineyard and prune trees all along his western boarder. That's the way to get after them, Steve!

The IPM program would like to offer a service to those growers wishing to plant prune trees in 1994. This year (1993) we purchased about 500 trees and passed the cost of trees on to the purchasing grower at no additional charge. Because we can place an order for a large number of trees, the IPM program can get a very good price for them. We need to place an order ASAP. There are 1000 prune trees we can get our hands on for sure. If you want to reserve trees for 1994, please call the Commission and give Kim the information needed. First come, first serve!

### Objective #2

#### Improve Vine Health by Improving Soil Health

At the heart of all sustainable agriculture systems is the enhancement of soil health. In visiting with organic or sustainable agriculture operation managers, the approach is essentially the same.

1. Increase carbon sources in the soil by using compost, manure, tilled-in cover crops, humates, or even molasses.
2. Stimulate microbial activity in the soil by using field-proven microbe stimulators and by significantly reducing or eliminating the use of preemerge herbicides and other soil-applied broad spectrum pesticides.

Vine health is also dependent on closely monitoring nutritional needs of vines.

The data from this year's bloom soil and leaf blade samples are still being tabulated, but two trends are already evident:

1. The levels of aerobic soil microbes, including the very important Actinomycetes group, were significantly lower throughout the district this year versus last year. This was due to the unusually high rainfall we had this year, particularly in the spring.
2. Very low levels of Potassium were present in virtually all blocks sampled (22 blocks). This may indicate problems with finishing off the crop after veraison. Except where Zinc had been applied, most blocks showed very low Zinc levels and this is quite evident in the field. Poor berry set can occur where Zinc deficiency is occurring.

**NOTE:**

An interesting product is being researched and promoted by the Arizona Department of Food and Agriculture. The product is methanol. Methanol appears to be increasing photosynthesis by acting as a carbon source for the production of sugar in plants. Increased photosynthesis has resulted in significant increases in yields of a number of vegetables, melons, strawberries, cotton, wheat, and citrus. Rates and timing are tricky and different for every crop as methanol can be phytotoxic at rates only 10% above the rates necessary to get the desired effects. There is no data on grapes as yet. Recently, EPA ruled that it would NOT consider methanol a Plant Growth Regulator (i.e. a pesticide), so registration for use should occur as rapidly as performance data can be generated. More on methanol as the data develops.

### Objective #3

#### Monitor Closely Both Pest and Beneficial Arthropods (insects, mite, spiders)

The IPM Program, in cooperation with district PCA's and Statewide IPM Project personnel, are closely monitoring 28 blocks in the district. Within a number of these blocks are one or more sub-blocks of cover crops (some winter annuals, some perennials) all of which are being monitored separately. The breakdown of blocks by region, variety, and presence of cover crop (cc) sub-blocks is as follows:

VARIETY	Region							
	I	cc	II	cc	III	cc	IV	cc
Zinfandel	1	1	3	2	3	2	2	2
Chardonnay	2	1	1	1	1	1	2	1
Cabernet Sauvignon	1	1	1	1	1	1	1	-
Sauvignon Blanc	1	1	2	1	1	-	1	1
Merlot	1	-	1	-	1	-	1	-
<b>TOTAL</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>7</b>	<b>4</b>

This is the second year of monitoring several of these blocks.

We also have a special monitoring project set up with a student at San Joaquin Delta College where we are trying to evaluate the impact of commercial predator releases on leafhoppers and mites with no conventional sprays applied, versus no releases, and no conventional sprays applied, versus a conventional spray program.

As you can see, a tremendous amount of time and effort is being dedicated to trying to answer very important questions about the relative merit of cover cropping, commercial predator releases, etc. Unfortunately for us and fortunately for the district growers, pests are not much of a problem this year, particularly leafhoppers. Blocks with very high leafhopper populations last year suddenly have very low populations this year. One disturbing fact is evident: Variegated grape leafhopper is finding it's way into more and more acres in the district.

The IPM Program monitoring activities are very adequately being carried out by Ms. Sandy Kelley, a Master's student in the IPM Program at U.C. Davis. We were very fortunate to find Sandy available late in the spring. She has already become an integral part of the LWWC IPM Program.

### Objective #3 Cont'd

Assisting Sandy in bug-counting and entering data on the computer is our latest addition to the staff, Jennifer Martel. Jennie will only be with us through the summer so we will be working her extra hard.

These two staff additions are being totally funded through monies the district-wide IPM Program has received from a Kellogg Foundation Project that we are a part of (See Kellogg Foundation project later in newsletter).

Using the WEATHERNET System and the University of California Day-Degree Model for Western Grape Leafhopper, Paul Verdegaal, in cooperation with the IPM monitoring program, generated for the growers a projected date for the peak of 3rd instar leafhoppers. Historically, this has been the best timing for leafhopper control because most nymphs have emerged from the eggs and few, if any, have molted to adults. Paul re-ran the model in mid-June and the actual date of peak 3rd instar leafhoppers was June 11th. Paul predicted 6/10 to 6/13 at the start of the emergence. Right on, Paul! By June 18th, many new adults were evident in the vineyards, signaling that optimal timing for Western Grape Leafhopper control had passed. Optimal timing for Variegated Grape Leafhopper is typical one week later than the optimal timing for Western Grape Leafhopper. This year, June 18th was the optimal timing for Variegated Grape Leafhopper.

Be on the look-out for Willamette mite outbreaks in July. In the South San Joaquin Valley, severe outbreaks of Willamette mite are occurring because of the disruption of natural control factors, particularly predaceous mites, from the excessive use of sulfur dust for powdery mildew control.

If you have applied sulfur dust often during the last 75 to 90 days, watch out for Willamette and/or Pacific mite outbreaks.

### Objective #4

#### Utilize Cultural Activities for Pest Control as Much as is Economically Feasible

Examples of this are pulling leaves at a time when leafhopper egg and nymph populations can be maximally impacted and mowing or mechanically controlling weeds on the bems rather than using preemerge herbicides.

The pros and cons of leaf removal are always a topic of discussion. Last November at a Viticulture Research meeting, Dr. Doug Gubler, U.C. Davis plant pathologist, reported the following results in Zinfandel on the impact of leaf removal:

#### VARIABLES

1. No leaf removal (None)
  2. Removal up to distal cluster (Moderate)
  3. Removal of 4 leaves past distal cluster (Severe)
- A. Bloom (Early)  
B. Bloom + two weeks (Berry Set) (Late)

The combination which reduced yield the least was the Late/Moderate leaf-pull, reducing yield by only 6%.

The upside of the leaf-pulling was a 16% reduction of the incidence and a 21% reduction of the severity of Sour Rots, Botrytris and Aspergillus. Other benefits included:

1. 50% reduction of leafhoppers if leaves are pulled before adult emergence begins, and
2. Better control of powdery mildew on bunches (This is really evident this year) and better control of OLR on bunches because of significantly better coverage.

### Objective #5

#### Use Soft Pesticides or Non-Chemical Alternatives Whenever Possible

Only use broad-spectrum pesticides as a last resort. "Soft Pesticides" include soaps, oils, low rates of Omite and botanicals (e.g. Pyrenone, Pyrocide, or Pyrelling). Non-chemical alternatives include augmentative releases of predators; cover crops; refuges; sticky, attractant trapping materials; and beneficial feeding attractants.

We set up yellow, sticky, leafhopper attractant film in portions of a Chenin Blanc block in Acampo much later than recommended (shoots were already 4" to 5" long). Nevertheless, very encouraging results were obtained:

	WGLH Nymphs/Leaf				
	5/19	5/29	6/10	6/19	6/23
Continuous Film (Edges)	---	---	2.3	0.4	0.5
Film on 1st Five Vines (Middle)	0.6	5.3	7.3	0.3	1.3
No Film	1.1	39.1	12.1	4.2	5.1

This type of product will be available in 1994 from two companies:  
Biological Alternatives, Lodi (209) 368-6734  
Entosphere, Madera (209) 673-8796

Material cost/Ac. will vary depending on acres/block and row configuration. Cost for materials and labor on a 20-25 acre block will likely be \$15-\$20/Ac. The larger the block, the less will be the cost/Ac.

We also set up a demonstration block for growers to view the performance of two botanicals (Pyrenone and Pyrocide) and the insecticidal soap, M-PEDE, versus Dimethoate for the control of Western Grape Leafhopper. There was also an untreated control area. All of the treatments significantly reduced the nymph populations:

TREATMENTS	WESTERN GRAPE LEAFHOPPER Nymphs/leaf			
	Pretreat.	3 DAT	7 DAT	10 DAT
Pyrenone @ 6 oz/Ac.	24.7	0.4	0.1	0.1
Pyrocide @ 1 qt/Ac.	27.0	0.3	0.6	1.4
M-PEDE @ 2% (1.6 gal/Ac)	25.5	1.5	0.4	1.7
Dimethoate 25WP @ 8lbs/Ac.	22.8	1.2	0.4	0.2
Control	19.8	11.4	7.5	6.1

## Objective #5 Cont'd

We also have a small trial area at DeLuca Ranch where David Devine is fighting rabbits in trying to grow velvetbeans (*Mucuna* sp.) and sesame between the rows as summer cover crops. (So far, the rabbits are winning!) Velvetbeans are a summer legume capable of controlling many species of nematodes. According to Dr. Rodriguez-Kabana, an Auburn University nematologist, velvetbeans are controlling nematodes through nematicidal exudates and by increasing populations of microbes that attack nematodes, specifically *Pseudomonas cepacia* and *Penicillium* spp. Sesame is another plant which Dr. Rodriguez-Kabana and Dr. Michael McKenry, Kearney Ag. Center nematologist, have found possesses encouraging nematicidal properties. Dr. McKenry also feels that safflower may be a likely summer cover crop candidate for reducing nematodes.

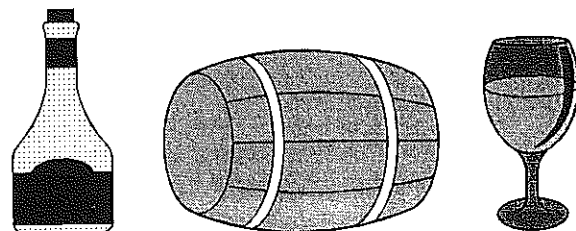
With powdery mildew problems as severe as they are this year, consider a post-harvest application of lime sulfur. Dr. Doug Gubler plant pathologist, U.C. Davis, has found that lime sulfur @ 2 gal/Ac. applied post-harvest and before the first fall rain prevented the germination of powdery mildew ascospores when the rains came (0% germination), thus, significantly reducing the carry-over of powdery mildew.

## ASEV Conference

A lot of useful information was presented June 22-24th in Sacramento at the American Society of Enology and Viticulture conference. Of particular interest were two presentations:

1. Dr. Mark Kliever reported on yield increases of 21 and 29% in Cabernet Sauvignon where mepiquat chloride, a plant growth regulator (PGR) presently registered on cotton as PIX, was applied at 1-5% bloom at a rate of 0.2 gm/vine. The yield increases occurred because there were more berries/cluster where the PGR was used. The PGR manufacturer is pursuing registration on grapes.
2. Rodney Ruskin presented information on various candidate drip hoses for use in a subsurface drip irrigation system. The hoses were rate on the basis of maintenance, performance, and price.

The brands that rated highest overall were Netafim Typhoon and Chapin Cane.



## Kellogg Foundation Proposal Funding

In May, we were informed that the Kellogg Foundation had funded a proposal submitted by a consortium of California groups. LWWC was one of these groups. Within the objectives of the proposal, the IPM Program of the LWWC will carry out the following activities:

1. Create "Lighthouse Vineyards". A Lighthouse Vineyard is simply a vineyard where the grower and PCA are implementing IPM/Sustainable Ag. practices and strategies, and working towards eliminating conventional pesticides and fertilizers.
2. Conduct grower and PCA workshops at Lighthouse Vineyards.
3. Conduct field demonstrations at various locations (not necessarily at Lighthouse Vineyards).
4. Conduct educational workshops for farm workers and ranch foremen.
5. Generate educational material for growers and farm workers on IPM.

Continued on Page 7

## Kellogg Foundation Cont'd

If this sounds like what the IPM Program is already doing, you are right! What the Kellogg Foundation funding is doing is enhancing and accelerating the activities we are already engaged in. This funding has allowed us to hire the field and office personnel noted earlier and to participate in special projects in the district, e.g. supervising a San Joaquin Delta student field project for summer credits.

Using the Kellogg Foundation funding as an anchor, we are presently pursuing additional funding in-state and nationally for the IPM Program.

See you at the next IPM Seminar, July 31!

Dr. Dennis Culver

## Printed Materials & Tapes of Interest

- ✓ Effects of Vineyard Floor Management on Juice, Wine and Phenology of Chardonnay Grapes by Dennis E. Bowker
  - ✓ Entomological Aspects of Vineyard Cover Cropping by Robert L. Bugg
  - ✓ Comparison of 32 Cover Crops in an Organic Vineyard on the North Coast of California by several authors
  - ✓ Cost Analysis of Organic vs. Conventional Farming Costs for Chardonnay Blocks on the North Coast of California by Ron Bartolucci
  - ✓ Strategies for Establishing Native Grasses by John Anderson
  - ✓ Barn Owl Nest Box -- Plans and Instructions
  - ✓ Bug Wars -- A coloring book of beneficial arthropods by Max Jehle
  - \* Composting for 21st Century
  - \* Biological Management of Soil and Plant Pathogens
- ✓ Copy available from the Commission  
\* Tapes available for loan from the Commission