Topics in Subtropics Newsletter

University of California Cooperative Extension
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News from the Subtropical Tree Crop Farm Advisors in California

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Etaferahu Takele is the editor for this issue of the newsletter. The newsletter is available online at: http://ceriverside.ucdavis.edu/newsletterfiles/newsletter657.htm

Please let us know if there are specific topics that you would like us to address in subtropical crop production. If you would like to change the information on the mailing label, add your email address to receive the electronic issue, or add someone else to the mailing list, please call or send an email message to the farm advisor in the county where you live. Phone numbers and email addresses can be found at the end of this newsletter. Thank you for your outstanding response to the first three issues of the newsletter. We appreciate your interest and your support.

In this issue:

Water Requirements Vary on Different Sides and Altitudes of a Hill

Ben Faber

While on sabbatical three years ago I had a chance to measure the relative differences in potential water requirements that occur depending on slope position on a hill. California avocados are planted up and down slopes, on north and south sides, and at tops and bottoms of hills. Trees on the north slope get less sunlight than those on the south. Trees at the top of the hill get the most wind. Yet irrigation scheduling typically consists of turning on a set of valves and running the emitters for 12 hours, and on the next day, turning on a new valve and running the next block for the same length of time. This is regardless of the trees' slope position. Some growers have used tensiometers to schedule different blocks according to tree water requirements, but most do not.

Atmometers (atmosphere meters) are a type of tube that evaporates water like an evaporation pan. They lose water based on the same environmental conditions that drive water loss in a tree. They are more convenient than an evaporation pan and easier to use. On a nicely shaped hill about 300 feet high, I placed atmometers at the four quadrants and at the base, mid-slope and top of the hill for a total of 9 atmometers. I then measured water loss from the devices each month for nine months. And here are the results:

Atmometer	Water loss (inches)
1	24.2
2	21.7
3	21.6
4	21.6
5	20.9
6	19.9
7	19.8
8	15.9
9	14.5

If you look at the numbers, they fall into roughly three groups, atmometer 1, 2-7 and 8 & 9. Atmometer 1 was at the top of the hill, 8 & 9 were at the bottom and mid-slopes of the north side and 2-7 were at the bottom and mid-slopes of the other sides. On a monthly basis, there were inconsistencies in the atmometer 2-7 readings, depending on position. For example, in one month an atmometer at the top of the slope would have a higher reading than the mid-slope on the same aspect and the next month their rankings would be reversed. This was possibly due to the uneven topography on the hill, which could have affected wind patterns differently in different months. Their readings however, were always intermediate between atmometer 1 and atmometers 8 & 9. The atmometer at the top of the hill evaporated about 16% more of the averaged value of atmometers 2 - 7 for the total time period.

During the highest evaporative season in the summer when sunlight was equivalent for all trees on the hill, there was only a 32% difference between the highest and lowest readings (atmometer 1 and 8 &9). During the lowest evaporative period in the winter, there was nearly 120% difference in the highest and lowest. This difference occurred when the sun was lowest on the horizon. The evaporative demand difference between a north and south slope is not constant from month to month in an avocado grove and this should be accounted for in the irrigation schedule.

The wind conditions, as well as the other climatic factors of high humidity and low temperature, make it difficult to directly apply these results to all California avocado growers' conditions. It does, however, underscore the variability in evaporative loss depending on slope position. Growers should adjust an irrigation schedule based on that knowledge. When designing an irrigation system, growers should build in enough flexibility so that they can irrigate according to the tree's needs. In the example presented, the grower would need to have at least three different schedules to irrigate properly.

How far can pollen travel to cause seeds in mandarins in California?

C. Thomas Chao

Mandarin acreages in California have increased dramatically in the past 10 years as consumer and market preferences have changed to easy peeling, seedless, and sweeter varieties. The increased importation of the Clementine mandarin from Spain, Morocco and other countries also encourages our growers to plant more mandarins. In California two types of mandarins have commonly been planted in recent years. The first type is the Clementine mandarin that originated from Spain, Morocco, Corsica, or South Africa. Currently there are 17 Clementine cultivars in California with most acreage in 'Nules' Clementine (also called 'Clemenules' or 'De Nules'). Other Clementine cultivars such as 'Caffin', 'Fina Sodea' and 'Sidi Aissia' also are grown in smaller acreages. The second type of mandarin that is increasing in California is the 'Afourer' mandarin from Morocco (also called 'W. Murcott' or sold under the trade name "Delite").

Depending on the cultivar, location, and environment, Clementine mandarins are early to mid season mandarins that mature from late October to January. 'Afourer' is a late season mandarin that matures from late January to April. Both types of mandarins are easy peeling, have good rind color, are great tasting, and are nearly completely seedless if grown in isolation. However, both groups of

mandarins can be very seedy if there are compatible pollen sources nearby. Valencia orange, 'Minneola' tangelo, and other citrus can be excellent pollen sources for seed production in Clementine mandarins (de Lange and Vincent, 1979). Minneola tangelos, Clementine mandarins, pummelos, lemons, grapefruits, and some Valencia oranges have pollen germination higher than 10% to >35% and they can potentially cause large number of seeds in other citrus (Barry, 1995).

Clementine mandarins have a self-incompatibility system that prevents self-pollinating when they are grown in isolation (Soost, 1956). It is known from experience in California that Clementine mandarins and 'Afourer' mandarins are also compatible with each other and seeds can be produced if they are planted together. How seedy these two groups of mandarins could be in an orchard environment in California is yet unknown.

In research supported by the California Citrus Research Board, we used amplified fragment length polymorphism (AFLP) molecular markers to determine the pollen parentages of mandarin seedlings of fruit samples from two orchards. The first orchard is located northeast of Madera. From the west of the orchard toward the east, there is a block of Clementine mandarins, followed by an 'Owari' Satsuma mandarin block, an 'Afourer' mandarin block, a 'Lane Late' Navel orange block, and a 'Minneola' tangelo block. The AFLP markers were able to clearly identify Clementine mandarin as pollen parents of 26.6% (25 out of 94) of the 'Afourer' mandarin seedlings at west end of the 'Afourer' block. The pollen grains of Clementine mandarins located to the west were able to travel across a minimum of 30 rows of 'Owari' Satsuma mandarins (30 acres) plus two rows of 'Afourer' mandarins (660 feet in total) to pollinate 'Afourer' mandarins. At the east end of the 'Afourer' block, we found 12.73% (14 out of 110) of the 'Afourer' mandarin seedlings were progenies from 'Minneola' tangelos located to the east. The pollen grains of 'Minneola' tangelos were able to travel across a minimum of 92 rows of 'Lane Late' Navel oranges (100 acres) plus 2 rows of 'Afourer' mandarins (1900 feet in total) to pollinate 'Afourer' mandarins. Also 12.73% (14 out of 110) of the 'Afourer' mandarin seedlings from the east end of the 'Afourer' block were progenies from Clementine mandarins. The pollen grains of Clementine mandarins located to the west were able to travel a minimum of 30 rows of 'Owari' Satsuma mandarins plus 24 rows of 'Afourer' mandarins (1100 feet in total) to pollinate the 'Afourer' mandarins.

The AFLP markers also identified the 'Afourer' mandarin as the pollen parent of almost all 'Nules' Clementine mandarin seedlings (98.63%, 72 out of 73) at a second orchard (north of Bakersfield). The pollen grains of 'Afourer' mandarin were able to travel across a minimum of 74 acres of empty ground from the east or a minimum of 91 rows of Navel (128 acres)(1840 feet) from the north, to pollinate 'Nules' Clementine mandarins.

Citrus pollen is not adapted for wind pollination. Cross-pollination is accomplished by insects, most likely by bees. Our study provided the first solid data to answer the question of how far pollen grains can travel within mandarin orchards. The distance that compatible pollen grains were able to travel was much larger than anyone expected. In the past, Navel oranges from 5, 10, or 20 rows were suggested to be an effective buffer to prevent seediness between two compatible mandarins. Based on the findings so far, that is not far enough. In the multiple faceted agricultural environment in California, it is almost impossible to prevent bee cross-pollination. Growers need to carefully select the planting sites of mandarins and watch out for any compatible pollen sources near by. Honey bees are known to forage up to five miles. The distance that pollen was transported, most likely by bees, was minimally 1900 feet (0.36 mile) in our study. A safe distance up to several miles, or rows of buffer trees wider than 0.36 mile, may be

needed to prevent bee cross-pollination completely in California.

We continue sampling fruits of mandarins from different locations in California to determine how far compatible pollen sources can cause seeds in mandarin production. Any growers who have concern about the potential pollen sources that may cause seeds in their mandarin orchards can contact us and we will be happy to investigate the issue.

References:

Barry, G. H. 1995. A predication model to determine the cross-pollination ability of *Citrus* spp. MS Thesis, University of Natal, Pieteermaritzburg, Republic of South Africa.

De Lange, J. H. and A. P. Vincent. 1979. Pollination requirements of Clementine. Citrus & SubTropical Fruit J. 547: 9-14.

Soost, R. K. 1956. Unfruitfulness in the Clementine mandarin. Proc. Amer. Soc. Hort. Sci. 67: 171-175.

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Cost Comparisons in Weed Management

Kurt J. Hembree

Managing weeds in orchard and vineyard settings is no easy task. No single weed control program will work for all growers or in all situations. In some cases multiple strategies may need to be used over the life of the crop as weed types and populations change. Numerous factors can affect management decisions for controlling weeds. Some important ones include, types of weeds, seasonal weed flushes, degree and length of control, availability of herbicides, equipment, labor, and cost. Cost of weed control is often a driving factor behind the type of strategies employed. Growers and managers must weigh the risks and costs of weed control technologies. In economic hardship, the market value of a commodity may, in part, be a driving force behind the options used.

There are several steps that can be taken to reduce overall costs associated with the selection and use of chemical and non-chemical tools. These steps include routine weed monitoring, proper sprayer calibration, accurate and timely application of herbicides, and adjustment of the herbicide rate as needed.

Monitoring

Routinely monitoring fields for weeds helps to determine the success of the current program strategy. It is inexpensive, and reduces the overall cost of control. It allows the grower to make adjustments to the program before problems arise. Weed surveys can show how and when weed control measures need to be modified. The procedure is rather easy, requiring five steps: 1) walk several locations of the field every three months and identify any weed problems, 2) rate the weed infestation and record the findings, 3) note any new weeds, weed escapes, or a shift in the types of weeds, 4) map out areas of the field that are of particular concern, and 5) maintain the records in a file where they can be easily retrieved and updated.

Sprayer Calibration

The value of a properly calibrated sprayer cannot be overemphasized. Applying herbicides through spray equipment of proper function and accurate calibration will assure the proper dosage. This maximizes control and reduces unnecessary waste of product and resources, potential crop injury, equipment and labor down time, and contamination of the environment. Some herbicides, like halosulfuron methyl, require a low use rate (2/3 to 1 1/3 oz/acre), so it is critical that the proper dose and placement of the herbicide be made. Replace or repair worn or damaged nozzles, hoses, pumps, and

other parts that may contribute to poor or erratic spray discharge.

Timely and Accurate Applications

Herbicides should be applied uniformly and in a timely manner. Soil residual or pre-emergence herbicides are applied before weed seeds begin germinating. Since winter and summer annual weeds germinate at different times of the year, it is important to have a good understanding of weed life cycles to better time pre-emergence sprays. Adjusting the timing of application to best meet the periods of weed seed germination will help maximize the cost-effectiveness of control.

Post-emergence herbicides must also be applied properly and in a timely manner. The weeds should be small (less than 4" tall), and the foliage should be thoroughly wetted for adequate control. This is especially true when using contact-type herbicides, like paraquat, diquat, and glufosinate. Also, consider adding a spray surfactant to the tank to control hairy weeds like hairy fleabane or cudweed. As weeds increase in size, it becomes more difficult to control them, even with higher rates of herbicides, so spray them when they are young and actively growing. This will help to maximize control and reduce costs.

For instance, treating an orchard or vineyard berm that has a weed cover rating of 100%, would require 64 oz/acre of product (like glyphosate) if mixed at a rate of 2% by volume and sprayed broadcast. The same field with only 20% weed cover would use 80% less material or 12.8 oz/acre.

Some weeds have prolonged or multiple germination periods and may require higher doses or split-applications to provide the desired degree of residual control.

"Smart spray" applicators significantly reduce the total herbicide used, by applying the post-emergence sprays on the growing weeds and not on the bare soil. It is important to apply the spray to the soil in a manner that insures proper pattern overlap. This will help reduce over-spraying and weedy streaks in the field.

Controlling weeds mechanically (especially within the planted row) is most cost-effective when the weeds are smaller than 4" tall. Small-seeded broadleaves and grasses are easy to dislodge from the soil when they are small, and their rooting structures have not fully developed. Adjust and operate the equipment as recommended by the manufacturer to improve the effectiveness of control.

Finally, it is advantageous to eradicate perennial weeds before their populations become "unmanageable". Perennial weeds, like Johnsongrass, Bermudagrass, nutsedge, and bindweed should be controlled when they first appear. Don't allow them to produce seed or reproductive structures. Field borders and ditches should also be managed for perennials. Assign a person to eliminate small patches of these weeds. It will take some time and resources, but reduces the cost in the long run. Once established, these weeds can be difficult and quite costly to manage.

Minding Herbicide Rates

Herbicide labels usually show various rates that can be applied, depending on the type and stage of weeds present, soil type, and other factors. Use the rate that is best suited to control your specific weeds. In some cases, lower doses of herbicides will provide equally effective control as higher rates, which can save money. Tank-mixing certain herbicides can also be an effective method of providing good control at reduced rates. For example, combining low rates of diuron and simazine can effectively control a broad spectrum of weeds at a reduced cost, compared to either one used alone at higher rates.

It is also possible to reduce or eliminate the number of pre-emergence sprays needed (which tend to be more costly than post-emergence herbicides). Reduce the

Table 1. Sample costs of different equipment used for weed control

Equipment	Tractor	Outlay Cost	Speed (MPH)	Operating Cost/Hr.	Labor Rate/Hr.*	Use in Hrs./A	Total Cost/A
Perfect In-row Mower	60 HP, 4WD	$8,500	1-2	$14.22	$12.70	1.38	$37.15
Kimco In-row Mower	60 HP, 4WD	9,000	1-2	14.22	12.70	1.38	37.15
Rears In-row Mower	60 HP, 4WD	2,500	1-2	14.22	12.70	1.38	37.15
Chris Grow Mower	60 HP, 4WD	8,000	3-4	31.22	12.70	0.80	35.14
Flail Mower	60 HP, 4WD	3,966	3-4	31.22	12.70	0.80	35.14
Hand-held Weed Eater	-----	225	---	6.75	12.70	9.00	175.05
Kimco In-row Tiller	60 HP, 4WD	11,000	1-2	22.53	12.70	1.38	48.62
L&H In-row Tiller	60 HP, 4WD	4,500	2.5	8.53	12.70	1.10	23.36
L&H In-row Hoe Plow	60 HP, 4WD	4,200	3-3.5	15.22	12.70	1.00	27.92
In-row Cultivator	60 HP, 4WD	4,222	2.5	14.22	12.70	1.10	29.61
Spader	60 HP, 4WD	2,600	3	14.22	12.70	0.92	24.77
Disc, Offset 8’	60 HP, 4WD	9,410	3	11.97	12.70	0.92	22.70
Mulch Spreader	60 HP, 4WD	10,000	2-3	16.22	12.70	1.10	31.81
Propane Flamer	60 HP, 4WD	3,000	1-2	22.53	12.70	1.38	48.62
Steamer	60 HP, 4WD	4,000	1-2	22.53	12.70	1.38	48.62
Enviromist Sprayer	ATV	6,000	3	10.72	12.70	0.92	21.55
Patchen Weed Seeker	ATV	6,000	3	12.72	12.70	0.92	23.39
100-gal Weed Sprayer	60 HP, 4WD	3,404	3	19.22	12.70	0.92	29.37
50-gal Weed Sprayer	60 HP, 4WD	2,300	3-3.5	19.22	12.70	0.92	29.37

*Includes benefits, taxes, and miscellaneous expense paid by the grower

Table 2. Sample costs of various herbicides and combinations of herbicides

Pre-emergence Treatments	lb. a.i./A	Product/A	Cost ($)	Cost/A ($)*
A. Goal 2XL® +	1.0	0.50 gal	96/gal	**$12.00**
B. Goal 2XL® +	1.0	0.50 gal	96/gal	12.00
Surflan A.S.®	4.0	1.00 gal	90/gal	22.50
			Total treatment cost:	**$34.50**
C. Princep Caliber 90® +	2.0	2.22 lb	3.20/lb	7.11
Surflan A.S.®	2.0	0.50 gal	90/gal	11.25
			Total treatment cost:	**$18.36**
Post-emergence Treatments	**lb. a.i./A**	**Product/A**	**Cost($)**	**Cost/A ($)***
Rely®	1.0	1.00 gal	65/gal	**$16.25**
Touchdown®	1.0	0.33 gal	48/gal	**3.96**
Roundup Ultra®	1.0	0.25 gal	40/gal	**2.50**
Gramoxone Extra®	0.5	0.20 gal	39/gal	**1.95**
Sprayable Ammonium Sulfate	---	0.16 lb	18/lb	**0.72**
*Assumes treating a 3’ berm on a row spacing of 12’ in a vineyard; figures do not include cost of application				

weed population in a given field over time until the ground appears bare, and occasional spot treatments may be all that is needed. In this case, a pre-emergence treatment could be applied every third or fourth year to help maintain low levels of weeds, with escapes being spot treated with post-emergence sprays.

Proper weed control management requires a variety of strategies. Comparing the costs of the various chemical and non-chemical options is important and the information provided in Tables 1 and 2 will assist the grower toward that effort. However, making decisions based solely on those costs will not yield the best weed management practice over time. The final strategy should be based on a consideration of all the factors discussed above. Doing so will allow the grower to realize the greatest return on his investment.

Farm Maps – A Valuable Tool in Managing Your Farming Resources

Mary Bianchi

In the last issue of Topics in Subtropics we reported that water quality protection is being asked of all industries in California, including agriculture. The subtropical crops industries can use this opportunity to take credit for all of the activities you already do that protect your local water bodies and/or groundwater from nonpoint source pollution from your operation.

One of the first, and most basic actions you can take includes the development of a farm map. Maps play a useful role in the development and presentation of an individual farm plan that addresses nonpoint source pollution. Much of the farm inventory can be shown on maps. Maps can graphically show the natural and cultural features present on the farm and their spatial relationships. Maps may also help to document those management practices you already have in place that address potential pollution from sediments, nutrients and/or pesticides.

You may already have farm maps that have been developed for reporting your pesticide use, or for designing your irrigation system. Aerial maps show features such as roads, fences, waterways, and vegetation. Aerial, topographic, or even hand-drawn maps can serve as a base map from which to build a picture of your operation. Geographic Information Systems (GIS) are computer systems capable of assembling, storing, manipulating, and displaying geographical information in layers.

Your ability to work with and change your map as needed is more important than the type of base map you choose (aerial, topographic, GIS, or hand-drawn). Additional information on accessing maps can be found in *Farm Maps Publication 8061*, a free publication you can download at http://anrcatalog.ucdavis.edu/pdf/8061.pdf.

To develop a farm map, begin with your base map. Overlays are easy to develop for hardcopy maps. Sheets of acetate or other transparent material are placed over the base map. Tick marks are placed on the overlay, marking the corners or other locations on the base map so that the overlay can always be returned to its proper geographic location. It is helpful to tape the base map and overlay to your work surface. Be sure to use tape that will come off easily without damaging the overlay or map.

Some of the features that you might want to consider adding to your map:

- *Boundary Features* include property lines, fence lines, roads, and other features at the discretion of the mapmaker.

- *Cultural Features*: roads, homes, farm headquarters, barns, equipment storage buildings, pesticide storage sheds, irrigation and drainage structures, and any other desired feature.

- *Hydrology and Natural Features* can include streams, rivers, lakes marshes, estuaries, wetlands, and other water bodies on or adjacent to your farm. You may also want to include other important natural features such as ridge tops, cliffs, valleys, wildlife habitats or refuges, and other natural features.

- *Planting Features* that are extremely valuable are field number, crop type, acreages, and irrigation setup.

- *Soils Features* are helpful for replanting and redevelopment decisions.

- *Monitoring Features* show the location of monitoring points used to document conditions and evaluation of management practices on the farm or ranch.

- *Planning Features* may be developed to show the locations of planned nonpoint source pollution management practices, irrigation applications, future redevelopment and cultivation practices.

Including a map legend helps to explain symbols and color schemes used on your farm map. Conventional map symbols used by USDA Natural Resources Conservation Service can be found in *Developing a Farm Map, Publication 8062*, a free publication you can download at http://anrcatalog.ucdavis.edu/pdf/8062.pdf.

In future articles we will look at some of the ways you can document your current efforts to protect water quality, and methods for assessing the potential for pollution from your farming activities.

Calculating The Value of Tree/Vine Loss

Etaferahu Takele

It is often asked what is fair compensation for tree/vine loss due to fire, accident or vandalism. Estimating the compensation for this loss must include the following:

- ***Cost of tree/vine replacement (replanting),*** which includes the removal of the lost tree/vine, land preparation, maintenance of property that may have been damaged (such as a fence or irrigation system), and planting of the new tree/vine.
- ***Cultural costs*** that may have been incurred for special care of the new tree/vine. In most cases it is assumed that the normal cultural activities for the orchard/vineyard will support most activities for the replacement tree.
- ***Value of the crop loss*** which will cover several years until the new tree/vine reaches the bearing level equal to the rest of the trees/vines in the orchard/vineyard. To estimate the value of the loss, the following is required: age of the tree/vine, yield per tree/vine (the yield per acre divided by the number of trees/vines per acre), and price per unit of product.
- ***Other loss related expenses*** such as attorney fees, accounting and delayed interest payment.

A very important concept in estimating compensation is the involvement of future costs and returns. These figures must be discounted to their present value.

The chart on page nine presents a sample compensation for loss of a single avocado tree. Assumptions for our sample are specified in the charts.

A computer program to estimate compensation for tree loss is available in Microsoft Excel®. A user will be required to input general data such as age of tree/vine, average yield, prices and costs. The program will do the rest of the calculations. To obtain a copy of the program or for more information, call Etaferahu Takele, Area Advisor in Farm Management Economics at (909) 683-6491 ext. 243.

TREE AND VINE REPLACEMENT COST CALCULATOR

Sample Calculator AVOCADOS **DATE:** Oct.31,2003

A. Data Entry

Enter / Replace default costs and values where appropriate:

Age of tree replaced:	12	years old			
Stump removal cost:	15.00	each			
New tree/vine cost:	19.00	each			
Plant, wrap, stake and mulch	5.50	each	Unit		
Crop value:	1.00	per	pound		
Harvest (Pick & Haul) cost:	0.20	per	pound		
Discount Rate:	6	%			
Spacing - R x T:	20	ft x	15	ft or enter	# of trees/acre

Enter new tree/vine - pruning cost: $/tree & yield: pounds/ac

Year	Prune	Yield	Year	Prune	Yield
1			7	$ 2.96	5510
2			8	$ 2.96	7500
3			9	$ 2.96	7500
4	$ 0.44	725	10	$ 2.96	10000
5	$ 0.88	2900	11	$ 2.96	10000
6	$ 1.22	4350	12	$ 2.96	10000

B. Costs and Returns Calculations

145.2 # of trees/acre

YEAR	0	1	2	3	4	5	6	7	8	9	10	11	12
EXPECTED YIELD FOR REPLANTED TREE/VINE													
pounds of fruits or nuts/ac					725	2900	4350	5510	7500	7500	10000	10000	10000
pounds of fruits or nuts/tree or vine					5.0	20.0	30.0	37.9	51.7	51.7	68.9	68.9	68.9
NEW TREE/VINE COSTS													
Replacement costs/tree/vine													
Stump removal	$15.00												
New tree/vine		$19.00											
Plant tree/vine		$5.50											
Pruning					$0.44	$0.88	$1.22	$2.96	$2.96	$2.96	$2.96	$2.96	$2.96
Harvest					1.00	3.99	5.99	7.59	10.33	10.33	13.77	13.77	13.77
Income credit					4.99	19.97	29.96	37.95	51.65	51.65	68.87	68.87	68.87
TOTAL COST: NEW TREE/VINE	$15.00	$24.50			-$3.55	-$15.10	-$22.75	-$27.40	-$38.36	-$38.36	-$52.14	-$52.14	-$52.14
YIELD LOST FROM OLD TREE/VINE													
pounds of fruits/acre	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
pounds of fruits/tree	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9
PROFIT LOST FROM OLD TREE/VINE													
Income lost	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87	$68.87
Decrease in pruning cost	-$2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96	-2.96
Decrease in harvest cost	-$13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77	-13.77
TOTAL Profit Lost: Old Tree/Vine	$52.14	52.14	52.14	52.14	52.14	52.14	52.14	52.14	52.14	52.14	52.14	52.14	52.14
ANNUAL LOSS	$67.14	$76.64	$52.14	$52.14	$48.58	$37.04	$29.39	$24.74	$13.77	$13.77	$0.00	$0.00	$0.00

VALUE OF LOST TREE/VINE	**$349.74**

Nick Sakovich Announces His Retirement

I would like to announce that beginning January 2004, I will be farm advising on the Nick Sakovich Estate in Hilo, Hawaii. (i.e. I am announcing my retirement). My last day in the Ventura County office will be December 19; on January 9 I will depart for Hawaii. Approximately two years ago, I bought a 3 acres parcel with a nice home on it, with views of the city and the bay. I am afraid that the call of the warm breezes, the swaying palm trees, the crystal clear waters and the tropical fruit trees were just too strong of an attraction for me to resist.

Due to a declining citrus industry in Orange County, some 20 years ago, I was transferred to Ventura County. Although quite a shock, the move was very good for me. I have tremendously enjoyed working with the Agricultural community. We accomplished many things, making positive changes.

Reminiscing back… I can remember when citrus growers would regularly spray for mites and thrips; apply 150 to 300 pounds of nitrogen to lemons; orchard floors were bare; Growing organically was a weird concept; irrigation was mostly furrow and dragline; there were few alternative markets, mostly Sunkist; tree skirts were to the ground; and University of California Cooperative Extension (UCCE) specialists regularly made farm visits. In those days, no one (including UC) thought of the need for soil analysis. Soil was considered only as a ground for the purpose of holding the plant in place. There was no thought about the good guys in the soil (microorganisms) or soil organic matter content.

Now it's all changed. Farming is certainly different today - some changes for the good, some for the bad. On one side, IPM is strong in Ventura County; no more indiscriminate mite and thrips sprays; no more nitrogen waste; orchard floors have cover crops and mulch; organic production greatly increased; Improved irrigation system using mostly minisprinklers and good water conservation practiced. Tree skirts are pruned and copper bands are used for snail control. There are more marketing alternatives available including brand marketing, farmers' markets, and other niche marketing. Growers and researchers are now interested in humates, kelps, organic matter and knowing more about those good guys in your soil. On the other side, the UCCE force (advisors and specialists) has greatly dwindled.

Then there's the whole issue of global agriculture.

Needless to say, agriculture has changed during my career. But it has been good. I have enjoyed my work and especially working with all the wonderful people in this great industry. Soon, I will be doing my own exotic farming (although not too strenuously) on the Big Island. If you are ever in the neighborhood, do stop by, I'll have plenty of extra hoes and shovels.

My name's in the phonebook or you can get numbers from the UCCE office.

Very sincerely and appreciatively,
Nick Sakovich

P.S. You will be in the very capable hands of Dr. Ben Faber.

USDA FARM SERVICE AGENCY

SUBJECT: USDA Emergency (EM) Loans for Wildfire Losses

INFORMATION:

Pursuant to President Bush's declaration of an emergency in the State of California on October 27, 2003, and amendment on October 30, 2003, five (5) primary counties have been named eligible for USDA emergency farm loans because of physical and production losses caused by wildfires, which occurred on October 21, 2003, and continuing.

Los Angeles, San Bernardino, San Diego and Ventura counties were named as a primary disaster area on October 27, 2003, and Riverside County was added on October 29, 2003. Also eligible are contiguous counties of Imperial, Inyo, Kern, Orange and Santa Barbara.

Farmers in all ten counties have eight months to apply for loans to help cover part of their actual losses. To be eligible, they must have:

- Have suffered at least 30% loss of normal production directly related to the above-cited cause,
- Be able to repay the loan and any other loan,
- Be unable to obtain credit elsewhere,
- Have adequate security, and
- Have multi-peril crop insurance (MPCI), if available.

All applicants must complete a certification of disaster losses, which reflects the exact date(s) and nature of the designated disaster and how it caused the loss or damage. Crop insurance filed reports may be a source for documenting losses directly related to the cited cause.

The authorization for FSA to accept EM loan applications under this authorization expires on June 28, 2004, for all other counties other than Riverside, which expires on June 30, 2004.

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To File a Complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington D.C. 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

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Web site: <http://www.fsa.usda.gov/>

Upcoming Educational Opportunities

AVOCADO EDUCATION SERIES 2003-2004
Co-sponsored by:

California Avocado Society
University of California Cooperative Extension
California Avocado Commission

The Scene Around Your Trees
The How to's in avocado production

- February 10, 2004 (Ventura and SLO)
  February 12, 2004 (Escondido)
  - Controlling orchard pests
- April 13, 2004 (Ventura and SLO)
  April 15, 2004 (Escondido)
  - Irrigation put simply – Using CIMIS, irrigation calculators, trouble shooting irrigation problems, water and food safety
  - How much is the cost of water cutting into your profits
- June 8, 2004 (Ventura and SLO)
  June 10, 2004 (Escondido)
  - Disease management
  - Harvesting techniques, post harvest handling and food safety
- August 10, 2004 (Ventura and SLO)
  August 12, 2004 (Escondido)
  - Global Perspective of Canopy Management
  - How much light do the trees need to produce more fruit?
  - Auditing your operation with fruit quality and food safety in mind.

Locations:

Ventura: 1:00-3:00 p.m. – Cooperative Extension Ventura County, 669 County Square Drive, #100, Ventura

SLO: 8:00-10:00 – Cooperative Extension San Luis Obispo County UCCE Auditorium. 2156 Sierra Way, San Luis Obispo

Escondido: 1:00-3:00 p.m. – Castle Creek Country Club, 8797 Circle R Drive, Escondido

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Happy Holidays!