

Tomato Powdery Mildew Control Programs

Five CTRI-funded uniform powdery mildew control trials were conducted in processing tomatoes in 2010. Three trials were located within commercial fields (north Dos Palos-area, Stockton/Delta and Dixon/ Davis-area), while another two were conducted at the UC West Side Research and Extension Center near Five Points and at the Plant Sciences/Vegetable Crops field facility at UC Davis. Trials were established in fields transplanted in May, four were in fields of the variety SUN 6366, while the Davis/Dixon-area trial was in a field of AB2. Four of the treatments were variations on a spray program of Quadris Top (a strobilurin and a DMI fungicide mixture) rotated with sulfur dust. These four programs varied in the timing of the applications (i.e. varying intervals and treatment start dates). Other treatments evaluated sulfur alone either as a dust or wettable sulfur formulation. The eighth treatment was a nontreated control. At some locations, additional treatments were added (not presented here).

- program 1: Quadris Top 8 oz alternate w/ sulfur dust 50 lb, 7-day interval
- program 2: Quadris Top 8 oz alternate w/ sulfur dust 50 lb, 14-day interval
- program 3: Quadris Top 8 oz alternate w/ sulfur dust 50 lb, 7-day interval, late start
- program 4: Quadris Top 8 oz alternate w/ sulfur dust 50 lb, 7-day interval, early start
- program 5: sulfur dust 50 lb, 7-day interval
- program 6: sulfur dust 50 lb, 14-day interval
- program 7: sulfur wettable 30 lb, 14-day interval
- program 8: Non-treated control

Results

Three out of the five trial locations developed mildew at levels sufficient to make them good tests of mildew programs.

There were two trials in the southern Sacramento Valley area (Yolo & Solano counties); one in a commercial field

(Dixon/Davis-area, Timothy & Viguie), and another on campus at UC Davis. In the Davis/Dixon-area trial, powdery mildew was first observed on August 18th, about one week after early fruit ripening and about one month prior to harvest. From that point, disease increased steadily to a moderate level in the nontreated plots (54% of non-treated foliage necrotic by September 21st). A weekly sulfur application was among the best treatments, regardless if the sulfur was a dust or wettable form. Fruit production was statistically similar among treatments. Soluble solids levels were similar to each other, but slightly better with dusting over wettable sulfur forms. The sulfur dust program had less sunburn damage compared to the sprayed sulfur form. Blackmold levels were lower in the fungicide-treated plots, particularly in those programs that included Quadris Top.

At the UC Davis campus trial, powdery mildew infection occurred in late August, about 3 to 4 weeks before harvest and developed slowly to a high level of leaf necrosis (93% of non-treated foliage necrotic by September 29th). There were significant differences in powdery mildew levels between nontreated controls and all control treatments as a group. The two forms of sulfur (dust vs. wettable/sprayable) were comparable in this test. All treatments held up relatively well through to the last rating of the trial after harvest at the end of September, which was 30 days after the last applications were made. This suggests that if mildew is kept well under control during mid-season that perhaps it is possible to stop spraying during the last month prior to harvest. More data is needed to confirm this observation. In this trial, there were no significant differences in fruit yield or cull level among treatments. However, there was a highly significant difference in reduced soluble solids level in the non-treated control (5.0 °Bx) compared to fungicide programs as a group which had soluble solids of 5.5 °Bx. There were no other significant differences in fruit quality; pH and color were not impacted significantly.

At the Fresno County location (Five Points-area, UC WSREC), powdery mildew pressure began around August 12th, just over one month prior to harvest and dis-

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ease increased to a moderate level of 16% of the foliage infected and 50% of the foliage necrotic in mid-September. All programs held up well under these conditions, all of them reduced disease compared to nontreated control, but there were no significant differences in disease severity between the programs. Yield and cull rates did not vary between treatments. However, there was a sizeable impact of the mildew on soluble solids; fungicide-treated plots as a group had soluble solids of 6.2 °Bx compared with 5.6 °Bx in the nontreated controls.

Summary:

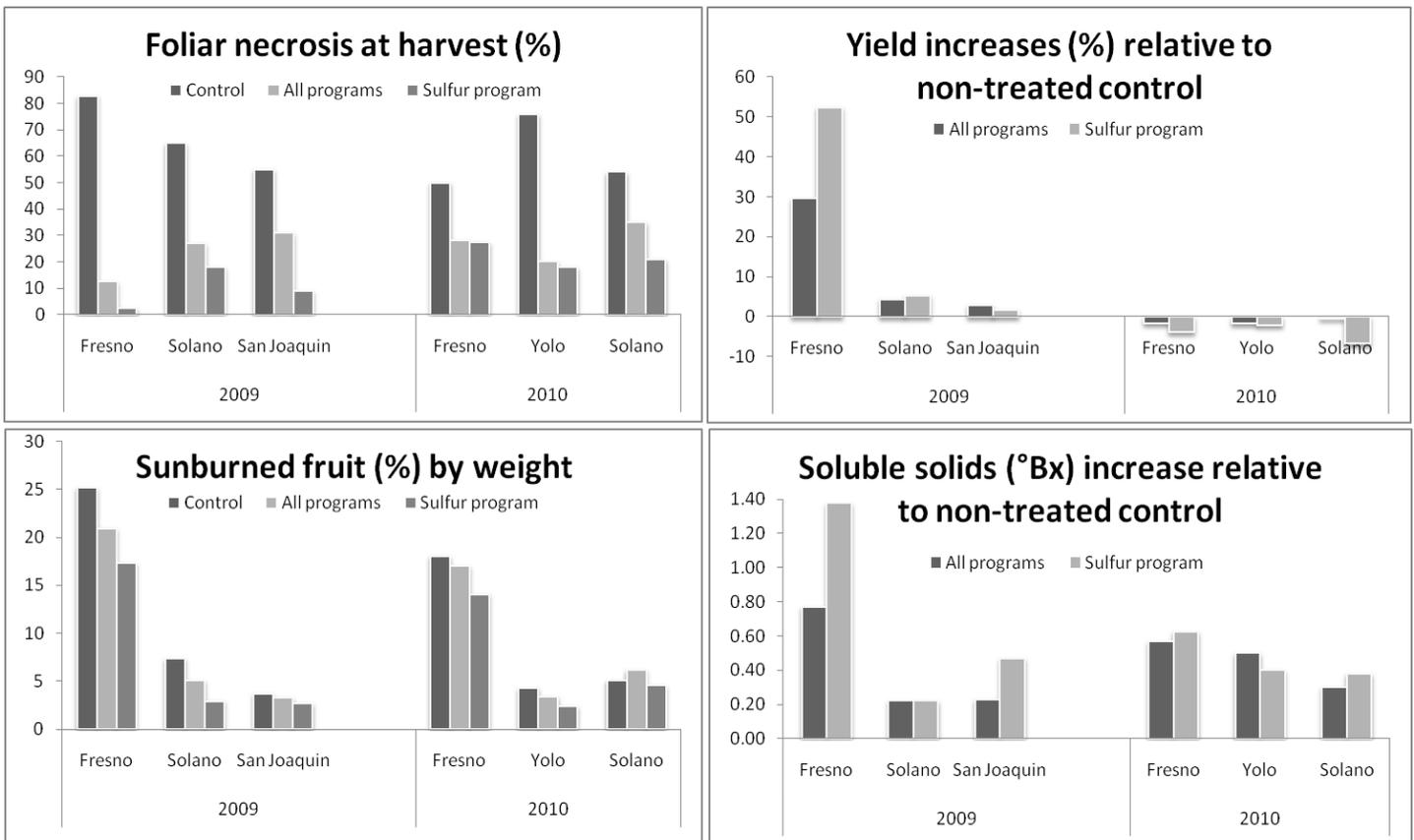
This season, powdery mildew pressure was lighter in our trials, as it was in most commercial fields as well. With lighter disease pressure, it becomes difficult to draw conclusions about the differences between different control programs with any confidence. In 2009, sulfur dust stood

out as the best program, while in 2010 all programs controlled powdery mildew moderately well. We detected no yields reductions from uncontrolled mildew in our 2010 trials.

Based on our two years of data it seems that mildew getting started in a field in mid-August, about one month prior to harvest can result in considerable foliar necrosis at harvest and can drop soluble solids several tenths of a degree Brix, but generally does not seem to reduce fruit yield. However, mildew beginning earlier in the season (greater than one month prior to harvest) and not well controlled may impact yield significantly as we saw in our trial in southwestern Fresno County in 2009.

Despite less disease pressure in 2010, powdery mildew remains a challenging disease to control in tomatoes.

Brenna Aegerter, Vegetable Crops Farm Advisor



Impacts of tomato powdery mildew on foliar necrosis, processing tomato yield, sunburning, and soluble solids from six field trials from 2009 and 2010. Data for 'all programs' refers to the average of the observations from 7 fungicide programs, while 'sulfur program' refers to a program of weekly applications of sulfur through July and August. Asterisks indicate that the mean for that fungicide program (or group of programs) was significantly different from the non-treated control ($P = 0.05$).

Experience is Increasing With New UC Walnut Varieties

In 2004, the University of California released the new varieties 'Sexton', 'Gillet' and 'Forde'. Last year, 'Ivanhoe' was released. As data and observations for Sexton, Gillet and Forde increase from test plots and commercial plantings, a clearer picture is emerging on the performance and potential for these varieties. It will be several years before we have similar information and impressions for Ivanhoe, and we will likely have to wait many years to know for certain whether these varieties will live up to the potential they have shown in the test plantings so far.

Following is some descriptive information and observations on these varieties, summarized from a recent report by Dr. Gale McGranahan and Chuck Leslie of the Walnut Improvement Program at UC Davis.

Sexton was selected for its very precocious yield and low amount of blight. It has large light kernels, high (53%) kernel percentage, and smooth, round, solid shells. The tree leafs about a week after Payne and harvests a week before Chandler. Yields continue to be excellent with little blight observed most years. Trees tend to form neck buds and narrowly forked branches, requiring more pruning than average to set conventional tree structure and to prevent possible stunting from early over-cropping. It may be suitable for hedgerows where limb structure is less critical, heavy early yield is an objective, and limited tree size is an advantage. This variety also accumulates a significant number of residual dead fruiting spurs following heavy fruiting. Its pollen shed overlaps the female bloom very well and it tends to exhibit secondary flowering like Chico, resulting in some small and later-harvesting nuts.

Gillet is a protogynous variety (female flowers begin emerging before pollen shedding begins) which continues to exhibit excellent yield and large kernels. It harvests mid-season, about two weeks earlier than Chandler. Gillet trees are large, upright and vigorous. The canopy is more open and allows better light penetration than Tulare. Even under the wet growing conditions of 2010, Gillet had less blight than other varieties with similar leafing dates. Nuts average 51% kernel and yield halves easily. Kernel color has been generally lighter than Tulare at comparable locations. Kernels have had little shrivel and few veins or blanks. Shell seal, which remains a concern - particularly in young trees - was adequate in 2010. This variety is suitable for cracking but not for in-shell use.

Forde has consistently produced kernels with very good color and shown excellent yield and kernel fill, but it continues to harvest very close to Chandler time. This past season, it harvested slightly later than Chandler. Forde has large, plump 8.3 g kernels, a protogynous bearing

habit, and nuts that yield 53% kernel. This is a large vigorous tree with upright growth and little blight. Its shell and seal strength, kernel fill and plumpness, percent kernel, and yield on young trees have all been better than Chandler and kernels show an absence of tip shrivel. Yields this year were generally not as strong as the past several years. Nuts often loosen in the hulls before the hull split and some hulls, particularly this year, do not open widely, so that nuts may not dry in the field as well and may tend to stay in the canopy until shaken rather than fall on their own.

One of the largest and oldest test plantings of Sexton, Gillet, and Forde was established by Farm Advisor Kathy Anderson and Modesto Junior College at the MJC farm near Salida. This planting, which also includes Tulare, was planted in 2004. Results of that trial confirm that nut size and quality of the three new varieties is very good and that they appear to be less susceptible to walnut blight than other varieties with similar leafing dates. Forde yields at this trial have been consistently lower than Tulare and Gillet. Due to early grafting problems, there are insufficient Sexton trees at the trial to compare its production to the other varieties:

Average yield (lbs/tree) of Tulare, Gillet & Forde trees, Modesto Junior College Farm, 2008–2010 (5th-7th leaf). Trees are planted 18' X 18' on Paradox.

	2008	2009	2010
Tulare	49.6a*	57.6a	72.7a
Gillet	53.5a	51.3a	75.4a
Forde	35.7b	33.7b	53.8b

*Numbers followed by different letters indicate statistically significant difference in yield (Duncan's Multiple Range test, $P \leq 0.05$)

Ivanhoe was released as an early-harvest shelling variety. It will likely not have enough shell strength or seal for in-shell use. Ivanhoe harvests early - with or before Payne and Serr - and has good yield, smooth shells, excellent kernel percentage, color and removal of halves. Nut size has been good in limited trials so far, but it should not be considered a "large nut" variety. Ivanhoe's biggest drawback for our area is its very early leafing date (similar to Serr and Payne), making it very prone to walnut blight. As such, it is probably best suited to southern San Joaquin Valley districts. Ivanhoe trees are less vigorous than other varieties like Tulare and Chandler. It should be planted on Paradox and managed well to ensure good nut size.

Joe Grant, Farm Advisor

Back to Basics: Milk Quality – It Starts on the Farm

Milk quality starts on the farm. The processing plant cannot improve the quality of your milk; it can only maintain the quality that you deliver. In a recent article we talked about preparing cows in the milk parlor. (Read it online at http://cestanislaus.ucdavis.edu/newsletterfiles/Dairy_Newsletter28447.pdf). In this article, we'll continue the discussion of producing quality milk by explaining your milk laboratory results and highlighting reasonable goals for your dairy.

Quality standards for market milk (Grade A):

Standard plate count (maximum): 50,000 bacteria per milliliter of milk

Laboratory pasteurization count (maximum): 750 bacteria per milliliter of milk

Coliform (maximum): 750 bacteria per milliliter of milk

Somatic cell count (maximum): 600,000 cells per milliliter of milk

What do these standards refer to?

Standard Plate Count (SPC) is a measure of the bacteria present in bulk tank milk. Basically, a sample of milk is plated and the number of colonies counted. It is an estimate of the total aerobic bacteria (those which can live in the presence of oxygen). High SPC may indicate inadequate refrigeration, but it is not an indication of udder health (mastitis). **A goal may be to have a SPC of 5,000 or lower.**

Laboratory Pasteurization Count (LPC) is the cell count of bacteria after a raw milk sample has been lab pasteurized. It is similar to the SPC except the milk is pasteurized. The organisms that survive pasteurization and grow on the plate most often originate from the soil environment. High LPC indicates improper cleaning procedures. Check the cleaning procedures so that there are no residues in the pipeline, traps, and tank. Check the temperature of the wash water during the wash cycle. Check the quality of the soap and cleaning chemicals. Check the cow preparation in the milking parlor so there is no feed, dirt, feces, or other foreign organic material on the teats and udder that will contaminate the milk. Another potential cause of high LPC is long milking shifts. In-line filters should be changed out as appropriate if milking lasts longer than four hours. A high LPC is not an indication of general udder health (mastitis). **A goal may be a LPC of 100 or less.**

Coliform Count is a measure of the level of sanitation of the cow (teats and udder) and the milking equipment. These bacteria are associated with the fecal environment. In the parlor, ensure that only clean, dry teats are milked. Check to be sure that the wash system is cleaning and disinfecting the surfaces of the milking equipment where milk comes into contact - from the inflations to the

pipeline to the bulk tank. A high coliform count does not reflect udder health (mastitis). **A goal may be a coliform count of 50 or less.**

Somatic Cell Count (SCC) is a measure of udder health. SCC is a measure of all cells in milk. Cells are primarily leukocytes (white blood cells) along with epithelial cells that are sloughed from within the mammary gland. Leukocytes are products of the cow's immune system that move into the mammary gland in response to an inflammation (mastitis). The SCC is a measure of udder health and mastitis. High SCC in the bulk tank is an indication of a problem in the herd. To detect problem cows, milk must be sampled from individual cows for SCC. Bulk tank milk with high SCC has poor processing qualities and a reduced shelf life at the retail level. **A goal may be a SCC of 100,000 or less.**



How is the finished dairy product affected by milk quality?

Bulk tank milk is pasteurized at the processing plant or creamery. Pasteurization is the process of heating milk for a predetermined time at a predetermined temperature to destroy pathogens. Pasteurization is based on destroying *Coxiella burnetii* (agent causing Q fever), the most heat-resistant organisms of public health concern. Bacteria are killed at a rate that is proportional to the number of bacteria present in milk, meaning milk that is pasteurized is **not sterile**. The number of bacteria present in pasteurized milk depends on the number of bacteria delivered from the farm to the processing plant. The lower the number of bacteria in the milk from a dairy, the lower the number of organisms present in milk following pasteurization. High quality milk from dairies is necessary to produce the high quality dairy products that consumers demand. Quality milk is also associated with longer shelf life at the retail level.

Laboratory milk test results provide necessary information to make management decisions on the farm in order to produce high quality milk. Consumers trust that California produces high quality dairy products, and that quality starts on the farm!

Ed DePeters, Animal Scientist, UC Davis
Jennifer Heguy, Dairy Advisor, UCCE Stanislaus & San Joaquin Counties

Pruning First Season Dormant Almond Trees

First season dormant pruning is the most important pruning your almond orchard will ever have, determining the tree's shape and performance for its lifetime! At this time you should select three permanent primary scaffolds that will form the framework of the tree. I have observed the consequence of first year trees pruned improperly: premature loss of tree vigor, failure or breaking of primary limbs, resulting in increased susceptibility to diseases and in some extreme cases the early removal of orchards. The primary goal of the first dormant pruning is to select three primary branches with as much space as possible between them. Wide spacing ensures the best chance of strong branch attachments that will not split or break as the tree matures. Try to have 3-6 inches of space vertically between primary limbs (Fig. 1-A). The three primary scaffolds should be oriented 120 degrees apart when viewed from above (Fig. 1-B). Such an arrangement reduces the chance of splitting branches, leaning trunks, and crossing limbs. If possible, one of the three primary scaffolds, preferably the strongest, should grow into the prevailing wind, usually the northwest. A strong, vigorous limb on the north side helps keep the tree from being dominated by growth on the 'sunny' south side of the tree.

Pruners should also pay attention to the angle of the primary limbs when selecting them; for the scaffold angle determines whether bark will become embedded between limb and trunk. The ideal primary scaffold grows 45 degrees from the vertical and the horizontal (Fig. 1-C). If the ideal limb is not present try to find limbs at least 30 degrees from the vertical or at least 30 degrees from the horizontal. Limbs that grow at too flat of an angle tend to lose their vigor and upright orientation. Limbs where the bark becomes embedded will be weak and prone to split with the heavy crops.

No tree needs to have more than three primary limbs. A mature tree with more than three limbs will limit access to limb-shaking equipment. I have seen a few prime

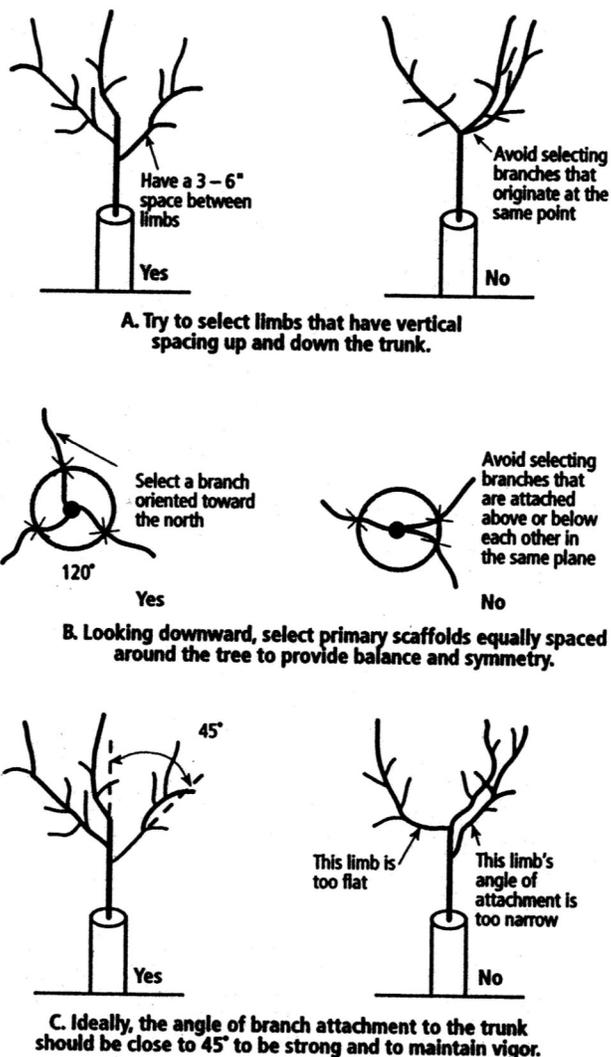
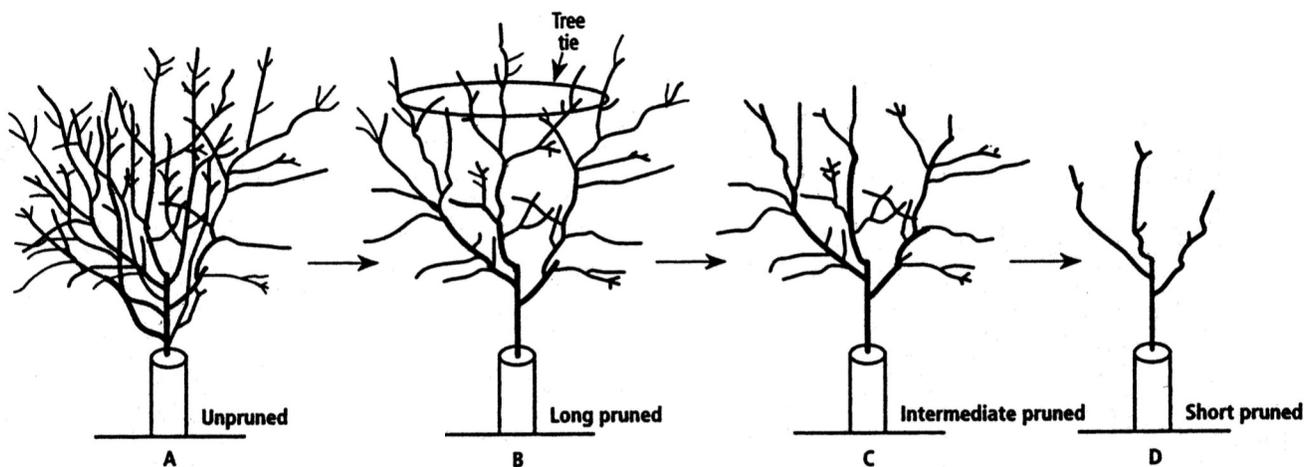


Fig. 1. The three considerations in selecting primary scaffolds are limb spacing (A), orientation (B) and angle of attachment

Fig. 2. The same tree (A) before pruning and after first dormant pruning according to different training systems: (B) long pruning, (C) intermediate pruning, and (D) short pruning. Both figures from the UC Almond Production Manual, ANR publication no. 3364.



orchards decline prematurely because they were too large to trunk shake, but because they had more than three primary limbs they could not be limb shaken and the trees were barked severely while attempting to shake. Because of tree barking almost every tree had *Ceratocystis* bark canker, so instead of reaching optimal age and production these orchards were declining prematurely. Roger Duncan, UCCE Advisor in Stanislaus County, has found in his tree density and pruning trials that the number of primary limbs is less important if they have proper scaffold angles and spacing, especially in higher density plantings where trees will most likely never get so big that they need to be limb shaken.

What if you can't find three acceptable primary scaffolds? Selecting two sound scaffolds is better than keeping four poor ones according to Warren Micke (Emeritus Almond Specialist, UC Davis)! After the primary scaffolds have been selected, the next step is to remove all other major limbs that originate from the trunk, and all growth below the lowest primary limb. Pruners should leave small lateral branches on the primaries; this growth promotes scaffold caliper growth and is the first to develop spurs and produce nuts. Growers can prune their primary scaffolds differently using three different pruning practices; short pruning, long pruning, and intermediate pruning. These practices generally do not affect trunk diameter or limb caliper, but production differences related to tree pruning occur with the first few harvests but gradually disappear after trees mature. In choosing the pruning method a grower must decide which is more important, high early production or ease of training during the early growing years. The grower must also consider the growth habit of the variety they are pruning and the wind conditions present in their orchard. I usually prefer the 'happy medium'—intermediate pruning.

Long pruning entails no major heading cuts on primary scaffolds and the retention of small lateral branches that will provide leaf surface and early fruiting. This type of pruning allows the tree to develop a natural branching habit. Scaffolds, canopy, and fruit wood develop quickly. Long-pruned trees usually need roping or tying (Fig. 2-B). If ropes are used, they must be placed as high on the primary scaffolds as possible so that the scaffolds do not bend over them and break. In this system, secondary and tertiary branches are selected from the natural branching of the tree. The main advantage of long pruning is heavy early production. Disadvantages include the need for more work and care the second growing season. Willowy-growing varieties such as Monterey may be unsuitable for this system of training.

Short Pruning involves heading each of the three primaries back to 18 to 24 inches. Unfortunately, I have seen some pruners even head their primaries back to 12 inches or less - which is much too severe and will lead to "elbow" growths and sharp secondary angle branching. Short pruning (18-24 inches) stimulates vigorous secondary growth that is largely removed later with thinning cuts. This type of pruning allows growers a large role in shaping trees, because the vigorous regrowth provides

many choices for secondary limb selection where you want it. Short-pruned trees are usually shorter in stature and require less roping or tying during their third leaf (Fig. 2-D). Keeping trees shorter may be advantageous their second growing season in areas with strong wind. Although short pruning is easy to teach, growers should consider the trade-offs. Heading cuts on vigorous trees can encourage vegetative growth at the expense of early nut production and increased pruning expenses. Developing a primary scaffold on short-pruned trees long enough to limb-shake can be difficult.

Intermediate pruning (my favorite) is a compromise between short and long pruning. Growers make heading cuts high on the primary scaffolds. These cuts are at 42 to 48 inches from the trunk, usually at a point just below the closely spaced buds that are common in the last 6 to 12 inches of shoot growth (Fig. 2-C). Heading at this distance greatly reduces the number of new shoots that originate near the end of the branch in the second leaf. This reduces the shoot weight at the end of the primary scaffold and makes it less likely to bend in spring winds. As with long pruning, intermediate pruning will keep small lateral branches to increase leaf surface and promote early fruiting. Intermediate pruning generates fewer undesirable water sprouts than short pruning. If intermediate-pruned trees are especially vigorous or if the variety is willowy, branches may require roping prior to the second leaf. Overall, this is a successful training system that avoids the worst problems of long pruning but offers advantages in terms of early production.

Interest in minimal pruning has increased greatly and deservedly. I believe my family severely over-pruned our first almond orchard, resulting in lost production, because we were former cling peach growers converting to almond production and pruning had been one of our main methods of crop thinning for size. But with almond, thinning for crop size is not necessary, and minimal pruning should start with the second growing season, after primary limbs have been properly selected. At this point growers can back off on pruning and concentrate on early production. Usually by the second dormant season the secondary branches do not need to be headed unless excessively long, since most almond trees branch sufficiently without heading cuts. Other than pruning out limbs that compete with our selected primary scaffolds, and removing badly crossing branches or limbs that interfere with mechanical cultivation, additional limb removal is usually unnecessary. For young trees between three to seven years old it is generally a good idea to tie the canopy in order to support limbs and prevent breakage. With some varieties, like Monterey, tying is critical or primary limbs could be lost. It is difficult to judge next year's crop load when pruning and circle tying in the dormant season. Better safe than sorry!

Good Luck and Happy New Year!

Brent Holtz, County Director and Farm Advisor



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For more information, contact: **Jeff Mitchell** mitchell@ucrcac.edu
(559) 303-9689



Mike Petersen : a retired USDA NRCS conservationist who is now the precision tillage specialist for Orthman Mfg. Throughout his career, he has researched and developed information on strip-till approaches.

- To Be Precise for Soil & Plant Reasons: Strip-till Does Work



Andy McGuire : a cropping systems advisor with Washington State University in Moses Lake, WA. He has been working to evaluate and develop high residue cropping systems for the irrigated crops of his Central WA region.

- High Residue Farming Under Irrigation in Washington State



Dwayne Beck : the manager of the Dakota Lakes Research Farm in Pierre, South Dakota, and is also in SD's Hall of Fame in recognition of the significant contributions he has made to no-till farming.

- What Is Your Problem?

2011

C A L I F O R N I A

All presenters each date. PCA and CCA credit applied for

WEDNESDAY
MARCH
9 **Noon - 4 pm**

Western Center for Agricultural Equipment

UC Davis: Hwy 113 and Hutchison Blvd • Davis, CA

THURSDAY
MARCH
10 **8 am - 2 pm**

Southern California Edison AgTAC

4175 South Laspina Street • Tulare, CA

FRIDAY
MARCH
11 **9 am - Noon**

UC Westside Research & Extension Center

17353 W. Oakland Avenue • Five Points, CA

Crops Digest—Grapes

The 2010 year ended only slightly behind average considering the coolest growing season in the last twelve years. Rainfall for the past fall that leads us into 2011 started out about average and with one of the wettest Decembers in memory ended up way above what is usually expected by January 1st. The rainfall total for the months of October, November, and December ended up at 12.1 inches for the north county and well above average for the south county, around 8 total inches for the fall period (average 7.7”).

Even though January was the second driest in the last eight years, rainfall totals are still above average for this point of the season. As of the first week in February, the north county is still above average at 13.5 inches and the south county is just above average because of the dry January at 8.5 inches. Last year at this time there was a total of 10.6 inches of rain in the Lodi area. Most everyone was finished with harvest when the first really big rain hit on October 23 & 24, with 20 mph winds. This brought a fairly definitive end to the season, although not as bad as the October 13 rain of 2009 with 3 inches of rain and 30 to 40 mph winds.

Rainfall San Joaquin County—Lodi							
	Total	Oct/Nov/Dec	Jan	Feb	Mar	Apr	May
2005	24.7	10.4	3.2	3.3	3.5	1.4	1.3
2006	23.7	7.1	5.4	1.1	5.2	3.8	0.8
2007	12.1	4.6	0.3	4.3	0.6	2.3	T
2008	13.6	4.5	7.3	1.8	0.1	0	0
2009	15.1	4.0	1.9	5.3	1.9	0.7	1.3
2010	19.2	6.1	4.5	3.6	1.8	2.9	0.3
2011	13.5	12.1*	1.4				
Avg	15.5	7.0	3.4	3.2	2.2	1.9	0.6
* 1.7 inches on October 23 & 24							

Chilling hours have been about average and for a second year in a row, fog has been a more common occurrence as in the "Good Old" days when the sun often disappeared for three to four weeks at a time. Although January was a very dry one, many foggy days were so wet as to record 0.01 to 0.02 inches of "rain," along with below-average temperatures.

Chilling hours (hours below 45° F) have totaled slightly less than the long-term average at 695 hours for 2010-11 compared to about 752 hours for the 15-year average. Evapotranspiration (ET) of winter cover and weeds has been low, so we have a good chance to mitigate the last three years of drought. But I better not say nay more.

At this point it is probably not necessary to think about late winter irrigation. Soil profiles should be wetter than last year, as early fall rains were heavy and sufficiently well-spaced to really soak most sites. Rains were heavy enough that some sloughs and creeks that had not had standing water since 1999 were full again. But checking out the irrigation system soon is neither a bad idea nor a waste of time. Also checking out the soil profile with an auger or even just a little digging with a shovel may help confirm how good a recharge the winter rains may have done your soil profile. Last year's above-average rainfall wetted the top three feet, but there was little to no water below that; one of the reasons I had more farm calls last year for stressed vines even though it was cool.

There were some scattered frost events in 2009 (2008 was the bad year), but last season there were no nasty surprises. Just to review last year's reminder of comparison for soil conditions and cold, to hopefully renew the good luck:

- * Firm bare ground, that is wet +2° F
- * Firm bare ground, that is dry ---
- * Freshly disked soil -2° degrees colder
- * High cover crop (24 to 30 inches) -2° to 4° (possibly 6° to 8° colder)
- * Low cover crop (< 24 inches) -1° to 3° degrees colder
- * Mowed cover crop -½° F

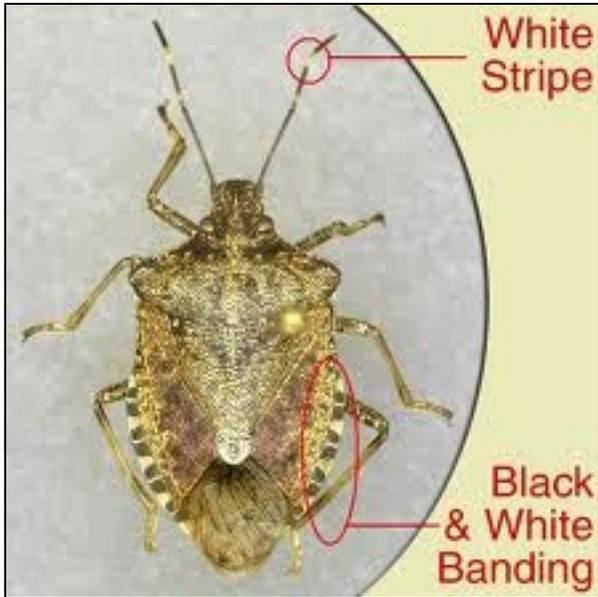
Weed growth seems to be less than last year; good control should be achievable with some normal rainfall patterns. And there are some newer materials available. Rotation of herbicides for particular weed species should be considered. If you missed the 59th Lodi Grape Day, you can check out some of the slides from weed presentations by Specialist Dr. Brad Hanson of the Plant Science Dept at UC Davis or John Roncoroni of Napa County CE at: cesanjoaquin.ucdavis.edu. If you have related questions, check in at ipm.ucdavis.edu or wric.ucdavis.edu.

As spring and budbreak approach, the San Joaquin County Ag Commissioner's office will begin trapping for European grapevine moth (EGVM). There were no other finds last year but the quarantine continues for now. Scott Hudson and his staff have done a lot of work and have been able to consider an accelerated determination of the Lodi area to be free from EGVM. Traps will be going out soon. If you have any questions about the program and what will be required contact, one of their offices.

As for the other quarantine in the south county around Manteca for light brown apple moth (LBAM), it does continue to spread slowly. The bad news is it is still under a quarantine protocol, but the good news is it seems to be coming under natural control in other areas such as Sonoma and Napa. It is a lepidopteron pest very similar to the OLR and it seems to be susceptible to the same biological control by our native beneficial insect predators and parasites.

(Continued from page 8)

Along the same topic, vine mealybug (VMB) also continues to spread, but there are some new materials for control and Movento has been re-registered. Next on the horizon is the potential pest of concern; the brown marmorated stink bug (BMSB) from Asia. It may be more of a problem for some of the orchard crops such as peaches, apples, cherries and pears but grapes are a possible host. Unfortunately it looks somewhat similar to some species of stink bug already here, but this one builds into devastating population levels. So if you see a problem that never occurred before contact the San Joaquin County Ag Commissioner or our office.



Brown marmorated stink bug

Some thoughts by two gentlemen smarter than I, during these times when many are trying to determine what is important:

"Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independent, the most virtuous and they are tied to their country and wedded to its liberty and interests by the most lasting bonds."

Thomas Jefferson

"The cultivation of the earth is the most important labor of man. Unstable is the future of the country, which has lost its taste for agriculture. If there is one lesson of history that is unmistakable, it is that national strength lies very near the soil."

Daniel Webster

Paul S. Verdegaal, Viticulture Farm Advisor

UC IPM Online STATEWIDE INTEGRATED PEST MANAGEMENT PROGRAM

Check out the latest issue of UC IPM's "Green Bulletin" which features articles on **Ground Squirrel Management** and **Trapping to Manage Pocket Gophers**. Find it online at: <http://www.ipm.ucdavis.edu/greenbulletin/>



Adult pocket gopher. Photo by Jack Kelly Clark.



Calendar of Events

59th Annual Oakdale Livestock Forum

Tuesday March 1st, 2011

Oakdale Bianchi Community Center

contact: Theresa Becchetti (209) 525-6800

Goats for fun, profit and weed control

Tuesday March 15th, 2011

Cathey's Valley

detailed information to be announced soon
contact: Maxwell Norton (209) 385-7403 or
Theresa Becchetti (209) 525-6800



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