



# ORCHARD FACTS



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*Sacramento Valley Prune Newsletter*

## Heat at Bloom Update

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### In This Issue

Heat at Bloom Update

It's Your Money

Mobile Irrigation Lab

Fungicide Timing and  
Efficacy Tables

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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.

Excessive heat – sustained temperatures above 80°F -- at bloom can cause virtual crop failure in prunes. How bad can it be? In Sutter County, average prune yield per acre is in the range of 2.5 dry tons per acre over the last decade – in good crop years. In 2004, 2005, and 2007, when temperatures reached above 80°F at bloom, the Sutter County crop was 0.5, 0.7, and 0.6 dry ton per acre, respectively. Losses like this cost growers dearly in several ways. First, there is the obvious loss of income in those years. Second and longer lasting, catastrophic losses force local and international packers to find other sources of prunes, fruit not grown in California, to fill their orders. Recovering that market share can be difficult, even with a high quality product such as California prunes.

**What hot temperatures and weather patterns are most damaging to prune fruit set?** In the three years of crop disasters in Sutter County, the bloom weather has been similar:

- Early to normal bloom timing (March 10-15) with no rain from first flower to full bloom.
- Warm temperatures (70+°F daily maximum) begin early, even before any flowers open, and continue as bloom begins. These conditions help make a short, compact bloom period that can be more vulnerable to a spike in temperatures at the wrong time.
- Extreme heat (83+°F) occurs around full bloom and is sustained for at least two days. Extreme heat (85-87°F max) right around full bloom seems to have a big role in damaging the crop set. Appearance of extreme heat early in bloom followed by cooler temperatures doesn't appear to harm the crop as much as heat at full bloom or closely after.

**What can growers do if these conditions appear as bloom approaches?** Run water. Even though running water has not dropped orchard temperatures dramatically in recent research, it does provide some small relief, and may have some benefits we have not been able to measure in our recent work. Just the orchard surface foot of soil needs to be wet, so deep watering is not necessary. Anything else? Not that research has shown to date. We will continue to look at possible spray options at bloom.

## It's Your Money

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### NEW PRODUCTS

#### Some Good, Some Questionable

Do you have money to waste? There are many easy ways to spend it. New products for agricultural use appear on the market in a steady stream. Some of these products have real merit – they do a job for you and help you make a profit. A few have contributed to important advances in agriculture.

Other products may be of questionable value. They may be grossly overpriced – or of little use – or both. Such items waste your money. Often these products are sold by enthusiastic persons who use scientific-sounding sales talks, promising great benefits heretofore not available. These salesmen promise benefits based on “knowledge,” which is usually pure fancy.

Hopes: Almost everyone would like to get something for little or nothing, and it is human to hope that science will provide an easier and/or cheaper way of solving today's farming problems. Promoters capitalize on these hopes. They want you to think that some new “truth” – not yet fully appreciated – is just being made use of, and maybe you can “get in on the ground floor.”

Cost: Products of doubtful value are seldom entirely worthless, but they are often worth very little in relation to their cost. Questionable products usually carry an enormous markup on their price to pay for the extensive sales campaign. Rarely do these commodities prove to be a profitable investment and, occasionally, they produce detrimental effects.

### IDENTIFICATION

How do you determine which products you should be wary of buying? What clues should you look for?

The promotional patterns for products of questionable value have common, identifiable characteristics. Such sales campaigns may include one or several of the following statements or claims.

§ The product contains a secret or unknown ingredient that is very potent – almost magical in its benefits.

§ The commodity produces such remarkable results because it operates on a “newly discovered, secret principle.” Or it involves an entirely “new approach” to soil chemistry, the physical condition of the soil, or soil fertility. Or it operates by action of mysterious forces, such as magnetism, catalytic action, nutrient release, micro-organism or enzyme activation, etc.

This is all described in “scientific” language that is persuasive, perhaps, to potential buyers, but is meaningless to reputable scientists.

§ The discovery is so new that most scientists haven't heard about it yet. Or it is claimed that scientists with universities and the United States Department of Agriculture are backward and refuse to conduct research on the product.

§ Tests under controlled conditions in the laboratory or field are usually played down, stating that they don't show the benefits obtained in “practical” agriculture.

§ Using the product gives numerous, beneficial side effects – extra dividends. These are all highly desirable, but are not easily identified or measured.

§ The benefits claimed are supported by large numbers of testimonials – “unsolicited,” of course.

Such claims are mostly personal opinions. Data from properly conducted trials or research are seldom shown.

- 1) Instructions accompanying the product often recommend using it in combination with good management practices which, by themselves, may produce all the benefits that can be seen or measured.

In other words, the advice you get on the label may be worth more than the contents of the package!

- 2) The active ingredient may be the same as that in a well-known, reputable product, but the recommended quantity is less because of its “new formulation” or “magical properties.”

In such cases, the price per unit of active ingredient is much higher than for the well-known product.

### IT’S YOUR DECISION

You may be tempted to buy or use a product having some of the promotional features listed. However, you can save yourself time, money, and disappointment if you first do the following.

- 3) Don’t decide in a hurry. Consult a responsible, experienced person before you commit your dollars.
- 4) If you decide to try the product, buy just enough to treat a small portion of your land (1 acre or less). Compare the results with an adjacent plot of equal size on which you did not use the product, but where all other operations and conditions were identical. Then compare yield records or other measurable results.
- 5) Carefully evaluate all new products. Demand adequate proof of their value for your soil conditions and management practices.

Investigate before you invest!

AFTER ALL....IT’S YOUR MONEY.

## Mobile Irrigation Lab

The Mobile Irrigation Lab (MIL) is a service of the Tehama County RCD that performs on-site evaluations of agricultural irrigation systems. The two key pieces of information the MIL provides to the grower are, the rate of water being applied to a crop, and the overall efficiency of the irrigation system. The goal of the MIL is to give growers an overall snapshot of their irrigation system, provide scheduling information, and give recommendations to help improve efficiency.

The MIL provides several pieces of information in a full 10 to 20 page report that includes; application rates (how much water is being applied), the system’s efficiency or Distribution Uniformity (DU), suggested run times, soils descriptions with maps, pump efficiency data, and a written summary full of tips and suggestions. Based on these evaluations recommendations are made for system repairs and developing maintenance plans that can help improve system performance. Mobile Lab Technicians can then work with growers to develop irrigation management practices that are the most efficient and cost effective.

Through this service, growers gain tools that allow efficient system operation, which in turn can lead to reduced energy costs and water use while simultaneously increasing yields. Thanks to support from concerned agencies, MIL evaluations are performed at no cost to growers. To schedule an evaluation, contact Kevin Greer at 527-3013x102 or email at [kevin@tehamacountyrcd.org](mailto:kevin@tehamacountyrcd.org) .

**PRUNE (DRIED PLUM): TREATMENT TIMING**

**Note:** Timings listed are effective but not all may be required for disease control. Timings used will depend upon orchard history of disease, length of bloom, and weather conditions each year.

Disease	Green bud	White bud	Full bloom	May	June	July
Brown rot <sup>1</sup>	+++	+++	+++	----	+	++
Russet scab <sup>2</sup>	----	----	+++	----	----	----
Rust <sup>3</sup>	----	----	----	+	++	+++

**Rating:** +++ = most effective, ++ = moderately effective, + = least effective, and ---- = ineffective

<sup>1</sup> Flowers are susceptible beginning with the emergence of the sepals (green bud) until the petals fall but are most susceptible when open.

<sup>2</sup> A physiological disorder; no pathogens involved.

<sup>3</sup> More severe when late spring rains occur.

## PRUNE (DRIED PLUM): FUNGICIDE EFFICACY

Fungicide	Resistance risk (FRAC#) <sup>1</sup>	Brown rot		Russet scab	Rust
		Blossom	Fruit <sup>2</sup>		
Adament <sup>2,7</sup>	medium (3/11)	++++	++++	----	+++
Bumper/Tilt <sup>2</sup>	high (3)	++++	++++	----	+++
Distinguish**	medium (9/11)	++++	++	----	++
Elite**/Tebuzol <sup>2,7</sup>	high (3)	++++	++++	----	+++
Indar <sup>2</sup>	high (3)	++++	++++	----	+++
InspireXT* <sup>2</sup>	high (3/3)	++++	++++	----	+++
Inspire Super	high (3/9)	++++	++++	----	+++
Luna Sensation* <sup>2</sup>	medium (7/11) <sup>4</sup>	++++	++++	ND	ND
Pristine <sup>2</sup>	medium (7/11) <sup>4</sup>	++++	++++	ND	ND
Quash <sup>2</sup>	high (3)	++++	++++	----	+++
Quadris Top <sup>2</sup>	medium (3/11) <sup>4</sup>	++++	++++	ND	++++
Quilt Xcel <sup>2</sup>	medium (3/11) <sup>4</sup>	++++	++++	ND	++++
Rovral + oil <sup>2,5</sup>	low (2)	++++	NR	----	NR
Scala <sup>6</sup>	high (9) <sup>3,4</sup>	++++	+++ <sup>6</sup>	----	ND
Topsin-M /T-Methyl/Incognito+ oil <sup>2,4</sup>	high (1) <sup>4</sup>	++++	++++	----	----
Vanguard <sup>6</sup>	high (9) <sup>3,4</sup>	++++	+++ <sup>6</sup>	----	ND
Fontelis <sup>9</sup>	high (3)	++++	+++	----	ND
Elevate <sup>2,7</sup>	high (17) <sup>4</sup>	+++	+++	ND	----
Rovral/Iprodione /Nevado <sup>2</sup>	low (2)	+++	NR	----	NR
Topsin-M/T-Methyl/Incognito <sup>2,3</sup>	high (1) <sup>4</sup>	+++	+/-	----	----
Abound	high (11) <sup>4</sup>	++	+	----	+++
Botran	medium (14)	++	++	ND	ND
Bravo/Chlorothalonil/Echo/Equus <sup>8,9,10</sup>	low (M5)	++	++	++	---- <sup>9</sup>
Captan <sup>7,8,10</sup>	low (M4)	++	++	+++	----
Gem <sup>7</sup>	high (11) <sup>4</sup>	++	+	----	+++
Rally <sup>2</sup>	high (3)	++	++	----	----
Sulfur <sup>10</sup>	low (M2)	+/-	+/-	----	++

**Rating:** ++++= excellent and consistent, +++= good and reliable, ++= moderate and variable, += limited and erratic, +/- = often ineffective, ---- = ineffective, ? = insufficient data or unknown, NR=not registered after bloom, and ND=no data

\* Registration pending in California.

\*\*Not registered, label withdrawn or inactive

<sup>1</sup> Group numbers are assigned by the Fungicide Resistance Action Committee (FRAC) according to different modes of actions (for more information, see <http://www.frac.info/>). Fungicides with a different group number are suitable to alternate in a resistance management program. In California, make no more than one application of fungicides with mode of action Group numbers 1, 4, 9, 11, or 17 before rotating to a fungicide with a different mode of action Group number; for fungicides with other Group numbers, make no more than two consecutive applications before rotating to fungicide with a different mode of action Group number.

<sup>2</sup> Fruit brown rot treatments for fungicides in FRAC Groups 1,2, 3, 17, 7/11 are improved with the addition of 2% light summer oil. The oil is "light" summer oil (1-2% vol/vol). If applied in summer, fruit will lose their waxy bloom and look red. They will dry to normal color.

<sup>3</sup> Strains of *Monilinia fructicola* and *M. laxa* resistant to Topsin-M and T-Methyl have been reported in some California prune orchards. No more than two applications of Topsin-M or T-Methyl should be made each year. Resistant strains of the jacket rot fungus, *Botrytis cinerea*, and powdery mildew fungi have been reported in California on crops other than almond and stone fruits and may have the potential to develop in prune with overuse of fungicides with similar chemistry. Subpopulations of both *Monilinia* spp. have been shown to be resistant to AP (FRAC 9) fungicides on prune in CA.

<sup>4</sup> To reduce the risk of resistance development start treatments with a fungicide with a multi-site mode of action; rotate or mix fungicides with different mode of action FRAC numbers for subsequent applications, use labeled rates (preferably the upper range), and limit the total number of applications/season.

<sup>5</sup> Blossom blight only; not registered for use after petal fall.

<sup>6</sup> High summer temperatures and relative humidity reduce efficacy.

<sup>7</sup> Registered for use on fresh prunes only.

<sup>8</sup> Do not use in combination with or shortly before or after oil treatment.

<sup>9</sup> Do not use after jacket (shuck) split.

<sup>10</sup> Do not use sulfur, captan, or chlorothalonil in combination with or shortly before or after oil treatment.

<sup>11</sup> Quash, Elite, Tebuzol, Gem, Scala and Pristine are registered for plums and prunes (dried plum) in California.

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