



# your Lake County HORTICULTURAL NOTES

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## RED SENSATION BARTLETT HARVEST FACTORS

### Part I: Relationship between size and color

It has become standard practice on the North Coast to pick Red Sensation about halfway through green Bartlett harvest. In recent years the economic need for large box sizes, i.e. 100-120 peak, has pushed growers to leave fruit on the tree longer. In the case of Sensation, this likely results in a poor color pack, because, unfortunately, the period of rapid size gain is also when red color fades fastest. Shaded trees on good soil and vigorous rootstock may accentuate the problem, (see Part II) though Sensation, like most red pears, is a decidedly nonvigorous variety.

While green Bartlett harvest date is determined by pressure, solids and size, red Bartlett growers, packers and sales agents must also consider color. As premiums for the increasing supply of red pears as a group drop, being able to offer highly colored fruit becomes necessary in a competitive, cosmetics-oriented marketplace which pays lipservice to eating quality but pays for size and color.

In response to industry queries as to the ideal Sensation harvest window, tests, led by Extension Specialist Jim Beutel, were conducted in 1989 in Lake and Mendocino Counties. In Lake, a vigorous young block on sandy loam soil was compared to an older, less vigorous block on gravelly clay loam. From the start of green Bartlett harvest, two boxes of fruit per block were picked weekly for 5 weeks. After a brief (2-4 day) storage period, 20 pears per box were sampled for weight, volume, box size, pressure, soluble solids and color (number of fruit with at least 50% red color) (Table 1). The remaining fruit was returned to cold storage and samples removed monthly and pressured (Table 2).

Results showed that:

- 1) Red Sensation fruit volume is 20-40% less than green Bartletts on the same date;
- 2) The number of acceptably red pears decreased 50% during the final two weeks of picking while fruit size increased 1-3 box sizes;

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University of California and the United States Department of Agriculture Cooperating.

- 3) Fruit picked early (above 20 psi), though highly colored, had low soluble solids and shrivelled in long-term cold storage. Fruit picked late (16-17.5 psi), though large, had very poor color and developed some internal breakdown in storage.
- 4) Fruit picked mid-way, though somewhat faded, was adequately sized and measured above 15 psi when removed from storage in early November.

In conclusion, this study substantiated with data the accepted practice of picking about 2 weeks into green Bartlett harvest. Growers, packers and buyers must understand Sensation maturity factors, especially the tradeoff between large size and good color. Based on this knowledge, as well as market and storage plans, the decision to emphasize one or the other must be made. Hopefully, the long term goal of all parties will be reasonable size and color. Growers will then learn over time, for individual blocks, when the line of desirable size crosses that of acceptable color and pick accordingly.

Table 1. Sensation Red Bartlett Study 1989 - Lake

Orchard	Pick Date	% Red Pears		Volume	Diameter	Wt. 100 Fr.	% Gain	Approx.	Firm.	% S.S.
		Count	Wt.	cm <sup>3</sup>	mm	lbs.	Wk. Wt.	Box Size	Lbs.	
B-KV	7/28	95	94	107	59.0	23.6	--	165	21.2	11.5
	8/5	81	82	125	62.0	27.5	17	150	19.0	12.5
	8/11	78	73	145	65.2	31.9	16	135	18.2	13.6
	8/19	48	48	174	69.3	38.3	20	110	17.1	13.5
	8/25	41	38	188	71.1	41.4	8	100	16.2	13.5
R-UL	7/28	92	90	102	58.0	22.4	--	165	20.6	11.6
	8/5	82	85	121	61.4	26.7	19	150	19.7	12.3
	8/11	76	78	157	67.0	34.6	30	120	18.1	13.0
	8/19	69	62	199	72.4	43.8	27	90	18.4	12.8
	8/25	56	50	213	74.1	46.9	7	90	17.6	12.4

Table 2. Sensation Red Firmness in Storage - 1989.

Orchard	Pick Date	August Firmness	September 1 (Lbs.)	October 4 (Lbs.)	November 8 (Lbs.)
B-KV	7/28	12.2	18.3	17.9	17.4
	8/5	19.0	17.6	17.2	16.9
	8/11	18.2	16.0	16.2	15.5
	8/19	17.1	14.8	15.5	15.2
	8/25	16.2	14.2	14.4	12.2
R-UL	7/28	20.6	19.7	18.5	18.2
	8/5	19.7	17.5	17.3	17.0
	8/11	18.1	17.5	17.4	16.8
	8/19	18.4	16.5	16.7	15.7
	8/25	17.6	16.8	15.5	11.6

Part II: Effect of site and rootstock on color  
(excerpts from a talk by Jim Beutel, Proc. 1990 California Pear Short Course)

"It was obvious at the time of harvest that less red color developed on Red Sensation Bartletts on vigorous trees on Calleryana and Betulaefolia rootstocks than on trees with Winter Nelis rootstock. Growth of water sprouts throughout these 6-year-old trees shaded the fruit, decreasing their red color. In 1990, the grower pulled out most of the water sprouts in the trees in June, resulting in much better red color of the fruit throughout the tree because the fruit received more direct sunlight with the shade from the water sprouts removed.

To grow red pear varieties with good red color the grower wants to increase the light reaching the fruit a month before harvest and during the harvest season. This means less vigorous rootstocks, trees, soil and nitrogen fertilizer plus more summer pruning and less stimulating winter pruning. Trees in narrow hedgerows or trees with open centers will get light penetration into the leaf canopy to develop maximum red color of the fruit. As Red Sensation pear trees get older, fruit color will become worse so pruning to keep the tree open and develop outside fruiting limbs will help red color development. Red Sensation Bartletts actually had the best color on gravel soil and heavy soil where shoot growth was drastically reduced compared to that on deep loam (river bottom) or alluvial soils normally preferred for green Bartletts. Use of drip or microsprinklers might provide water for maximum fruit growth for these trees on poorer soils during 50-60 days before harvest without excessive shoot growth. Training young red pear trees to have spreading limbs through the use of spreaders, weights, etc., or by tying down limbs which opens trees to sun and, if this is coupled with water sprout removal in June, will allow more light to enter trees to better color red pears. Old red pear trees need center limbs removed to let light into the tree center plus developing young limbs that bear and size red pears better than old shaded limbs."

POWDERY MILDEW ARTICLE ERROR

In the April-May 1991 issue of Hort Notes, please make the following correction on Table 1, "Vineyard sites and comparative EC50 values for Rally, Rubigan and Bayleton" on page 5:

<u>Site</u>	<u>Variety</u>	<u>Rally</u>	<u>Rubigan</u>	<u>Bayleton</u>
Madera	Carignane	0.45	0.16	4.9 ( <u>not</u> 0.49)

**PREPUBLICATION DISCOUNT FOR REVISED UC GRAPE PEST MANAGEMENT MANUAL** (contact our office)

PRE-ORDER BEFORE OCTOBER 1, 1991 and pay only \$48.00 for the completely revised, second edition of Grape Pest Management. On October 1, the price will increase to \$68.00.

The new edition contains the latest thinking on integrated pest management programs for all regularly-observed grape pests in California. It is 416 pages long with over 400 color photos.

I highly recommend all Lake County growers contact our office to place their order by September 30 for this invaluable and long-awaited manual.

**PESTICIDE CONTAINER DISPOSAL**

(by Dave Niemann, Lake County Dept. of Agriculture)

**Attention All Growers:** New Game Plan!

All emptied glass, plastic and metal agricultural pesticide containers can now be disposed of in the landfill at Davis Street in Clearlake or taken to the transfer station in Lakeport.

**BUT FIRST . . .**

Those containers must be inspected by one of the Agricultural Commissioner's staff.

1. All pesticide containers are to be kept separate - they are not to be co-mingled with trash.
2. Each container must be rinsed thoroughly - the rinsate must be free of contamination (no odor, no concentrate).
3. Each container must be rendered unusable by puncturing or crushing.
4. No paper/cardboard pesticide containers go to the landfill.
5. The inspected containers must be delivered to the transfer station/Davis Street landfill **THE SAME DAY** of the inspection.

Contact David Niemann at 263-2271 for further information.

### WORKSHOP SET TO SHOW GROWERS HOW TO USE COVER CROPS

Northern California growers will have an opportunity to learn how to use cover crops during an all-day workshop to be held in Room 2, Wellman Hall at the University of California, Davis on August 16, from 9:00-5:00.

"Creative Cover Cropping for California Farms" will focus on recent and current research in cover crops and will emphasize discussion among workshop participants.

Morning program topics include cover crop selection and management, how they can enhance yields, encourage beneficials, reduce and control pests and how they improve soil quality and productivity.

The afternoon program will provide participants with an opportunity for in-depth discussion and exploration of creative approaches to cover cropping in row crops, vineyards and orchards. Particular attention will be given to the unique problems of workshop participants.

The workshop is sponsored by the California Association of Family Farmers, U.C. Cooperative Extension, the U.C. Small Farm Center and the Committee for Sustainable Agriculture. Registration is \$20, not including lunch. Checks, made payable to University of California Regents, should be mailed to Small Farms Center, University of California, Davis, CA 95616-8699. To pay by VISA or MasterCard, or for additional conference information, call the Small Farm Center at (916) 757-8742.

### TWO NEW UC PERSONNEL NEWSLETTERS AVAILABLE (sample copies at our office)

#### 1) Labor Management Decisions 3 issues/year      free

Aimed at farm managers and others who manage agricultural personnel, labor contractors, public policy makers and others with an interest in labor issues.

Contact: Labor Management Decisions  
Agricultural Personnel Management Program  
319 Giannini Hall  
University of California  
Berkeley, CA 94720  
(415) 642-2296

2) Safety and Occupational Health in Agriculture  
Multiple issues/year free

Information about safety and health issues that arise from operating, working or living on a farm or ranch in California

Contact: Farm Safety Program  
Agricultural Engineering Extension  
University of California  
Davis, CA 95616  
(916) 752-0563  
(916) 752-2640 (FAX)

OTHER PUBLICATIONS AVAILABLE (contact us)

1) Farmer-To-Consumer Directory

Describes 171 certified farmers' markets, 21 farm trails and nearly 1,000 direct-market growers by county, produce type, operating hours and special facilities.

Contact: CDFA Direct Marketing Program  
1220 N Street  
Sacramento, CA 95814  
(800) 952-5272

2) California Walnut Commission Interim Report - 1991-92  
Topics include 1990-91 market review, trade policy update and an extensive review of export market promotional activities.

Contact: California Walnut Commission  
1540 River Park Drive #101  
Sacramento, CA 95815  
(916) 646-3807  
(916) 923-2548 (FAX)

AUGUST CHECKLIST (contact me for details)

GRAPES - take veraison petiole samples if bloom-time potassium levels were marginal.

- terminal growth should slow as clusters begin to turn color and sugar. Watch excessive vigor on fertile sites and hold back water if needed.

PEARS - it has been a long growing season, but the crop has finally sized well and looks good - **HAPPY HARVEST!!** and here's to a great marketing year!

- begin thinking about post-harvest nitrogen applications to optimize uptake and movement into storage organs while trees are still actively growing (more on this next month).

- begin planning fall pre-emergence weed control.

**WALNUTS** - continue to monitor walnut husk fly traps. We caught the first moth the week of July 15 so peak flight should occur the first half of August. Materials are limited - USE NU-LURE (Staley's bait) WITH ALL MATERIALS TO DECREASE TREATMENT AREA AND RATES. Pear growers - you may have to re-treat during harvest since the remaining registered materials are short term vs. Ethion. Know your WHF history and decide accordingly.

Sincerely,

*Rachel*

Rachel Elkins  
Farm Advisor



HAPPY HARVEST  
1991

