



# TOMATO INFO

## Local Trial Results

### Tomato Meeting, Jan. 6<sup>th</sup>

### Other meeting schedules

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#### **LOCAL FIELD TRIAL RESULTS**

Use of transplants for crop establishment continues to gain ground. While some growers returned to direct seeding, this was not the trend. Should price of seed increase substantially, the conversion to transplants will be further fueled. The spiraling dilemma created is a cost squeeze for the variety development program of seed companies: high overhead costs with diminishing sales volume.

Clearly our California processing tomato industry has greatly benefited from the strong breeding programs of the many seed companies operating in the state. The level of competition to develop cultivars with high yield, improved quality and multiple disease resistance has produced many outstanding varieties. While cultivars alone aren't responsible for the production gains over the years, variety selection remains important for growers and processors.

Rumors are surfacing about one or more seed companies creating a two-tier pricing program aimed at substantially boosting the price of seed used by transplant houses.

The marketing scheme is to add dead tomato seed to a package to artificially lower the percent germination. The filler seed is presumably an open-pollinated variety or some old inventory seed whose germ is intentionally killed. As greenhouses benefit from seed lots with high percent germination to produce trays with full stands, only the higher priced, high percent germination seed packets would be used in the greenhouse. The cheaper, lowered percent germination seed would be used for direct seeding.

Tomato growers always made calculated decisions on seeding rates in the past and will continue to make economic adjustments. To achieve reasonable chances of producing a full stand, the procedure is to over-seed by a wide margin. As price of seed increased, the grower response was to drop seeding rate.

The planting-rate strategy should change again when using diluted seed. In the case of a 75:25 dilution, the likelihood of selecting nearly 750 'good' seed from a 1000-seed sample is high. Contrast that with the likelihood of having 3 'good' seed in any 4-seed planting clump. What is the probability of having only 2, 1 and zero good seed in that 4-seed selection? The rate of failure increases as the dilution with bad seed increases. The simple probability of selecting a dead seed is 25%. The probably of selecting two dead seed is 6.25% (25% x 25%). The probability of selecting 3 dead seed is 1.6% (25% x 25% x 25%). And the probability of selecting 4 dead seed is 0.4% (25% x 25% x 25% x 25%). More seed planted per clump reduces the chances of a complete blank. A 3-seed planting clump with 75% germ seed puts you at immediate risk of being down 1.6% of the time. The compounding problem is that percent emergence has commonly been around 50% of the planting rate while using 95% germ seed.

The point is: with diluted seed, to maintain the level of confidence in planting rates, the over-seeding rate will be increased. The approach might be to increase the seeds per drop, but to hold costs down, to slightly increase the distance between clumps.

## **Direct Seed vs. Transplant Evaluation**

To further compare transplants with direct seed, a field trial was conducted with Frank, Tom and Louie Muller in a field northwest of Woodland. We direct seeded into single lines on March 23 when the grower seeded. We returned to mechanically transplant 3 weeks later after our field seedlings were at the two-true leaf stage. Sprinkler irrigation established the crop though residual soil moisture was good. Conditions were very good for crop establishment for the direct seed as well as the transplants. Halley was our primary variety. We thinned the direct seed into clumps of 3 plants centered on 12, 16, 20 or 24 inches and transplanted with plugs with single plants at 12, 15, 20 and 24 inches. Varieties AB 2 and HM 830 was also planted but only on 12 inch spaced clumps for direct seed and 16-inch spacing for the transplants. We presumed those spacing would represent the norm for direct seed as well as for transplants. Of the few plants that were lost, gaps were filled with transplants during the first few weeks to layby to achieve full stands. Furrow irrigation was used for the bulk of the remaining season. There was some minor damage from Phytophthora root rot in this Rincon silty clay loam, class 2 soil. Verticillium wilt was prevalent and caused moderate loss of canopy during the later growth stage. Harvest was timely with both establishment methods nearly optimal maturity together.

Yield between direct seed and transplants were similar, though in this case advantage was with transplants, 39 vs 41 tons, respectively (Table 1). Direct seed compensated well for spatial differences and were similar across the 12 to 24 inch spacing with Halley. As a transplant, Halley was less forgiving with yields slightly reduced linearly as spacing between plants increased with yields ranging from 38 to 41 tons per acre. However, the transplant Halley spacing of 16 inches apart was similar to the 12 inch spacing, 40.0 vs 41.0 tons, respectively. AB 2 and HM 830 yields were similar between transplanting and direct seed as well. AB 2 had 45 plus ton yields and was the highest yielding variety in the test. In this particular test, the transplants had fewer sunburn damaged fruit, fewer blossom end rot and high level of pink fruit. Brix levels were 6.0, for both direct seed and transplants in this test.

**Bottom line:** Yield and performance of transplants are very similar to direct seed.

The value of continued comparisons diminishes at this point for me. Further evaluations would likely produce results where some locations and conditions would slightly favor one planting method, but without a consistently superior method identified. The upshot appears to be that establishment method is comparable between the two.

Table 1. Transplant vs direct seed evaluation, Joe Muller and Sons, Woodland, 2004

Variety	Method	Spacing (inches)	Marketable					Fruit per
			Yield (lbs/acre)	% Mark	% Open	sun burn	% :R	
	seed	12	37.7	1	2	3	2	1.58
	seed	16	38.3	1	1	3	1	1.67
	seed	20	38.8	1	2	4	3	1.06
	seed	24	37.1	2	1	6	1	1.75
	transplant	12	41.0	3	2	7	2	1.83
	transplant	16	40.9	3	2	1	2	1.05
	transplant	20	39.1	3	1	7	2	1.53
	transplant	24	38.1	7	2	3	1	1.56
	seed	12	45.6	1	2	7	2	1.77
	transplant	16	47.8	2	2	3	1	1.41
	seed	12	36.9	1	2	5	1	1.15
	transplant	16	38.0	2	1	1	1	1.29
			3.0	3	S	.4	S	NS
			5	3	5	2	9	8
			NS	S	S	S	S	NS
		c	NS	S	S	S	S	NS
	nted		*	1	S	S	S	NS
		c	NS	S	S	S	S	NS
	ed		39.1	3	4	1.0	1	3.0
	nt		40.8	8	0	.4	4	3.1
			**	**	11	**	1	NS

# South Sacramento Valley Processing Tomato Production Meeting

University of California Cooperative Extension Farm Advisors  
Colusa/Sutter/Yuba and Yolo/Solano/Sacramento Counties

## Heidrick Ag History Center, Woodland

1962 Hays Lane  
(NW corner County Road 102 x Interstate 5)

**8:00 am to noon January 6, 2005 (Thursday)**

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- 7:30 Doors will open — Coffee and refreshments will be ready
- Moderator: Mike Murray, County Director/ Farm Advisor, Colusa/Sutter/Yuba
- 8:20-8:50 *Evaluation of Mustard Cover Cropping & Comparing Direct Seed vs Transplant Populations:* Gene Miyao, Farm Advisor, Yolo/Solano/Sac
- 8:50-9:10 *Disease Control Update:* Mike Davis, Plant Pathologist, UCD
- 9:10-9:30 *Powdery Mildew Control Evaluations:* Jan Mickler, Farm Advisor, Stanislaus
- 9:30-10:00 *Deficit irrigation & K fertigation for fruit quality improvement:* Paul Johnstone, UCD
- 10:00 -10:20 ————— Short Break—————
- 10:20-10:40 *The Role of County Farm Advisors in the Development of the California Processing Tomato Industry:* Mike Murray, County Director/ Farm Advisor, Colusa/Sutter/Yuba
- 10:40- 11:10 *Research progress reports: Transplant spacing with multiple plant densities & evaluating extended field storage varieties,* Michelle Le Strange, Farm Advisor, Tulare/Kings/Fresno counties.
- 11:10- 11:30 *Nightshade and nutsedge control in processing tomatoes:* Scott Stoddard, Farm Advisor, Merced/Madera counties
- 11:30- noon *California Processing Tomato Industry Outlook 2005 and Beyond:* Ross Siragusa, President/CEO, California Tomato Growers Association

### *Hall Rental and Refreshments Courtesy of:*

Dow AgroSciences (Jill LeVake)  
Syngenta (Dave Vitolo)  
Bayer (Scott Hansel)

BASF (Jim Gaggero)  
DuPont (Tim Butler)  
Valent USA (Cheryl Norton)  
AgraQuest (Mike Howard)

Meeting is open to any interested party. Meeting facility is handicap accessible.   
**NOTE:** 2 HOURS OF PEST CONTROL ADVISOR CREDIT REQUESTED. CAPCA SPONSORED.

**Other tomato meetings:**

Jan 19<sup>th</sup>, California Tomato Growers Association Annual Meeting, Double Tree, Modesto;  
Jan 21<sup>st</sup>, Fresno Vegetable Production Meeting, UC Westside Research and  
Extension Center, Five Points  
Jan 30, Feb 1-2, CA League of Food Processors Showcase, Sac Convention Center  
Feb 7<sup>th</sup>, UC Quad County Tomato Production Meeting, Modesto

Mel Zobel enjoyed meeting his old friends and colleagues in November. He sends his “thanks to the growers for taking the time to come by and visit”.

In our holiday season, I have plenty to be thankful for. Thank you for the continued cooperation and generous support of our local University program. Wishing you a joyful holiday season.

Submitted by,

Gene Miyao  
Farm Advisor, Yolo, Solano & Sacramento counties

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