



TOMATO INFO

LOCAL TRIAL RESULTS TOMATO MEETING, JAN. 7 VARIETY TRIAL RESULTS

LOCAL FIELD TRIAL RESULTS

With estimates of transplant use exceeding 50% locally as well as statewide, a substantial effort in the local applied research program is devoted to transplant studies. Summaries of the trial results are:

- Single row vs. double row comparisons in this year's test showed no yield difference between the two configurations with 7 vs. 8.6 thousand plants/acre respectively.
- Twin-row variations in spacing within the row of 13.5, 27 and 40 inches resulted in no substantial yield difference among the wide variation in plant populations.
- On a single seed line per bed, 12-inch spacing between plants yielded the highest. As spacing widened from 12 to 28 inches, yields declined linearly.
- Direct seeded yields were higher than transplants, 25.2 vs. 19.5 tons/acre, respectively, at a UCD campus site where many production problems were encountered, resulting in high variation in yield. Our transplants were planted behind schedule as well as were afflicted with an unidentified disorder during early fruit set.

Ideal transplant populations were not clearly identified in our recent field tests. Local tests over the past several years presented opposing results. Even so, a target population of ~7,000 plants per acre on single or double lines appears reasonable. Higher plant populations may be beneficial if substantial skips or plant loss during establishment is expected or if later season diseases further thin out stands. Single lines may well be on par with double seed lines. Varieties, soil types and environmental factors probably influence the optimal plant population & row configuration to maximize yield.

Extension Pathologist Mike Davis continued to put much effort into directing field trials on *Fusarium solani* control. We've identified fungicides that reduce the incidence of the disease, but plant vigor is reduced as well. While we've lowered our dosage for crop safety, yield benefits have not followed. We documented the disease can reduce fruit yield by 50%. While Dr. Davis' lab tests indicated that safflower and sunflower were extremely susceptible, our 2003 test in an infested field indicated these two rotational crops grew well and without apparent injury.

Mustard cover cropping is receiving much interest and attention statewide. The hope of disease control including Verticillium and Fusarium wilt is alluring for tomato growers in our area. We haven't seen the benefit in our initial attempts with small plot plantings, but we are continuing the evaluations in 2004.

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

8:00 AM-12 NOON, JANUARY 7, 2004 (WEDNESDAY)
PLUS DRIP IRRIGATION WORKSHOP 1-3 PM

PLEASE PRE-REGISTER FOR AFTERNOON SESSION & LIGHT LUNCH
(530) 666-8143 OR SDBARRA@UCDAVIS.EDU BY JAN 2

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- 7:50- Doors will open — Coffee and refreshments will be ready
- Moderator: Mike Murray, County Director/ Farm Advisor, Colusa County
- 8:30-9:00 *Weed Control Update*: Bob Mullen, Farm Advisor, San Joaquin County
- 9:00-9:30 *Disease Control Update*, Mike Davis, Extension Plant Pathologist, UCD
- 9:30-10:10 *Water Discharge Waivers*, Allen Fulton, Farm Advisor, Tehama County
- 10:10-10:25 ————— Short Break —————
- 10:25-10:55 *Potential of Mustard Cover Crops*, Richard Smith, Farm Advisor, Monterey County
- 10:55-11:20 *Transplant Studies: Population, Double Rows, Direct Seed Comparisons*: Gene Miyao, Farm Advisor, Yolo/Solano/Sac counties
- 11:20-11:45 *North California Considerations and Market Outlook for California processing tomato industry*, Derek Chamberlain, The Morning Star Company
- Lunch- hosted lunch for drip irrigation attendees (1st 80 folks to register for afternoon session). PreRegister at 666-8143 or e-mail at sdbarra@ucdavis.edu by Jan 2.
- 1:00-3:00 Drip Irrigation Workshop: *Scheduling, Maintenance, Injecting Nutrients, Management for Crop Quality, Soil Moisture Monitoring*.
UC Specialists: Blaine Hanson, Tim Hartz, and Larry Schwankl
- Hall Rental and Refreshments Courtesy of:**
- | | |
|--------------------------------|------------------------------|
| Dow AgroSciences (Jill LeVake) | Syngenta (Marty Wiglesworth) |
| 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: 2.25 HOURS OF PEST CONTROL ADVISOR CREDIT REQUESTED

Local Variety Trials: Our office conducted 3 local processing tomato variety trials: one early and two mid maturity evaluations. All trials were conducted in commercial fields and mechanically harvested to determine marketable yield. Fruit samples were collected and sent to a local PTAB inspection station to measure fruit color, Brix and pH. Only the replicated entries are reported in this newsletter.

Our early-maturity variety trial was established near Winters with Tony Turkovich and Martin Medina of Button and Turkovich Ranches. We seeded on February 10 on double lines per bed. The previous crop was alfalfa on this class 1, Yolo series soil. Plants grew well during the season, but vines weakened several weeks prior to harvest. Marketable yield and fruit solids were both good. AP 957 had the highest yield with 50 tons per acre (table 1) but the high yield group included 6 other varieties. HyPeel 45 had the highest soluble solids with 5.7%, but the high solids group included 5 others. Sunburn was elevated in Calista and H 1100 with 17 and 20%, respectively.

Table 1. Early-maturity variety trial, Button and Turkovich Ranches, Winters, 2003.

	Variety	Yield		PTAB		% pink	% green	% sun burn	% BER	Lbs. Per 50 fruit	
		Tons/A		Brix	color						pH
1	AP 957	50.0	a	5.0	23.8	4.41	1	0	8	0.0	5.1
2	H 9280	49.0	a	4.8	23.8	4.42	1	1	3	0.0	6.9
3	APT 410	47.0	abc	5.5	23.3	4.44	1	1	7	0.3	6.2
4	H 1400	46.1	abc	5.4	24.8	4.32	1	2	8	0.2	5.1
5	HyPeel 45	45.9	abc	5.7	24.0	4.41	1	1	8	0.4	6.5
6	H 9997	45.6	abc	5.0	23.3	4.46	1	1	8	2.1	6.1
7	SUN 6358	41.1	bcd	5.4	24.0	4.43	1	1	6	0.3	5.4
8	H 1100	40.5	cd	5.6	24.5	4.47	0	0	20	0.2	6.5
9	CXD 224	39.5	cd	5.5	23.3	4.47	1	1	8	0.2	6.2
10	CALISTA	37.6	d	5.2	23.0	4.54	0	0	17	0.1	6.0
	LSD 5%	7.6		0.4	0.8	0.06	NS	NS	8	NS	0.7
	% CV	12		6	2	1	99	80	63	366	8
	Average	46.4		5.3	23.7	4.44	1	1	9	0.3	6.9

Our first of two mid-maturity trials was conducted in a class 1 soil northwest of Woodland with Frank, Tom and Louie Muller of Joe Muller and Sons. In late March, we direct seeded on single lines per bed into moisture and under soil caps. Emergence was good (with the exception of Sun 6119 which was replanted with transplants). Plants grew vigorously and set well even while flowering during an extended heat period. Vine growth was generally excessive with vines mechanically trained twice. The trial was custom harvested by Cal Sun just prior to our August 21st rains.

Ten of the 18 varieties were in the top-yielding group, led by AB 2 with 44.4 tons per acre (table 2). Solids averaged only 4.6. The highest Brix group was led by AB 2, CXD 221 and CPL 15-58, all with 4.9°. The top Brix group included 5 other varieties. Ripening was not concentrated, with combined pink and green fruit averaging 25%. Percent sunburn, rots and blossom end rot were all low.

Table 2. Mid-maturity variety trial, direct seed, Joe Muller & Sons, Yolo, 2003.

Variety	Yield		PTAB			%	%	% sun	%	Lbs per 50 fruit
	tons/A		Brix	color	pH	pink	green	burn	mold	
1 AB 2	44.4	a	4.9	25	4.27	10	12	1	2	8.78
2 NDM 0098	44.1	ab	4.6	25	4.33	4	7	2	2	7.48
3 H 2501	43.4	ab	4.6	24	4.30	11	10	2	1	7.79
4 AB 5	43.0	ab	4.7	26	4.28	8	20	0	1	6.43
5 PS 296	42.9	ab	4.8	26	4.24	11	11	1	1	7.35
6 U 941	42.7	ab	4.4	27	4.39	9	19	1	1	7.99
7 H 8892	42.5	ab	4.1	25	4.37	7	15	1	2	7.43
8 HM 0830	41.9	ab	4.8	26	4.41	6	11	0	1	8.01
9 H 2601	41.7	abc	4.4	26	4.38	11	18	0	1	7.28
10 H 2801	41.1	abcd	4.8	25	4.41	11	11	2	1	7.59
11 Halley 3155	40.6	bcd	4.7	26	4.33	7	13	1	1	7.85
12 La Rossa	38.1	cde	4.4	26	4.37	5	8	1	3	7.49
13 PX 849	37.7	de	4.5	27	4.31	12	16	1	2	7.80
14 CXD 221	37.7	de	4.9	27	4.38	6	14	1	4	8.45
15 CPL 15-58	37.5	de	4.9	27	4.36	13	16	1	3	9.26
16 SUN 6119	35.3	ef	4.5	28	4.37	11	15	2	1	7.25
17 H 9780	32.3	fg	4.6	27	4.33	14	26	1	1	8.84
18 CXD 222	30.6	g	4.6	26	4.36	15	28	0	2	8.10
LSD 5%	3.7		0.2	1.2	0.04	5	5.13	NS	1.8	0.8
% CV	7		3	3	1	37	24	124	79	7
Average	39.8		4.6	25.9	4.34	9.5	15.0	1.0	1.6	7.8

Our other mid-maturity trial was conducted in a class 2 soil north of Davis with Steve Meek and John Pon of JH Meek and Sons. Plants were started in the greenhouse by Westside Transplants and mechanically transplanted by the grower on April 23rd. Plants established easily under mild weather. Vines grew and set well even under an extended heat spell. Over 0.5 inches of rainfall occurred a week before harvest and resulted in elevated mold levels, primarily blackmold.

The top yielding varieties were led by NDM 0098, with 58.1 tons/acre, and included U 941, H 2601, H 8892, AB 2 (table 3). CPL 15-58 and PS 296 were the top Brix performers with 5.4 and 5.2°, respectively. Percent pink, green, sunburn and blossom end rot were moderately low. Fruit size was large. Mold averaged 7%. The varieties with high rots were AB 2 and CLP 15-58 with 12 and 11%, respectively, but the high rot group included 5 other varieties. The low-rot group included 9 varieties with H 2601, H 2801 and H 9780 with the lowest with 2, 2, and 3%, respectively.

Table 3. Mid-maturity variety trial, transplants, J.H. Meek and Sons, Woodland, 2003.

Replicated Variety	Yield		PTAB			%	%	% sun	%	Lbs
	tons/A		Brix	color	pH	pink	grn	burn	mold	50 fruit
1 NDM 0098	58.1	a	4.6	23	4.38	2	1	2	7	9.0
2 U 941	56.7	ab	4.3	25	4.42	3	2	1	9	8.6
3 H 2601	55.9	abc	4.4	24	4.40	4	2	0	2	7.7
4 H 8892	55.3	abcd	4.2	23	4.37	3	2	1	10	8.0
5 AB 2	55.2	abcd	4.9	23	4.29	3	1	2	12	8.9
6 AB 5 double	54.0	abcd	4.6	24	4.26	3	3	1	5	6.1
7 AB 5	53.4	bcde	4.8	23	4.29	2	2	0	4	6.6
8 AB 2 double	52.5	cdef	5.0	23	4.25	4	2	1	8	8.9
9 H 2501	51.7	def	4.7	23	4.34	6	2	2	3	8.7
10 La Rossa	49.7	efg	4.4	24	4.34	3	2	4	8	8.7
11 PS 296	49.4	efg	5.2	24	4.31	4	1	3	7	8.2
12 Halley	49.4	efg	4.9	24	4.33	6	4	0	6	7.7
13 H 2801	49.1	fg	4.9	23	4.40	3	2	1	2	7.7
14 PX 849	49.0	fg	4.8	26	4.27	5	5	1	4	8.2
15 H 9780	47.1	gh	4.9	25	4.29	6	6	1	3	7.9
16 SUN 6119	46.5	ghi	4.9	25	4.35	5	2	1	6	8.5
17 HM 0830	46.5	ghi	4.9	24	4.44	3	2	2	10	8.7
18 CXD 222	46.1	ghi	5.0	24	4.34	5	6	0	8	8.6
19 CPL 15-58	43.8	hi	5.4	24	4.35	6	2	1	11	8.6
20 CXD 221	42.5	i	5.0	24	4.42	4	4	1	7	8.5
LSD 5%	4.1		0.2	1.3	0.08	NS	2.2	2.0	4.4	1.2
% CV	6		3	4	1	51	58	104	47	10
average	50.6		4.8	23.7	4.34	4.0	2.6	1.4	6.5	8.2

Double= double plants per plug

Note: Double vs. single plants per transplant plug were compared in the Meek trial. The varieties compared were AB 2 and AB 5. There were no statistically significant difference in yield as well as other fruit parameters between the two populations. Percent survival of plants at transplanting was high in our trial. Perhaps double plants per plug would be advantageous when stand establishment was problematic.

Note: Relative performance of the varieties in the 2 mid maturity tests generally appeared to be similar in yield. The varieties in the top-yielding group in both tests were AB 2, NDM 0098, H 8892, and H2601. Conversely, CXD 222 was in the lowest yielding group in both tests.

A more complete variety report will be available at our January 7th annual meeting in Woodland at the Heidrick Ag History Center.

Other tomato meetings:

January 8, UC Davis Tomato Day, UCD Buehler Alumni Center, 8 to noon;
Jan 21st, CTGA annual meeting & UC Quad County tomato production meeting, Modesto; Feb
2-4, CA League of Food Processors Showcase, Sacramento Convention Center:
Nov 3-4, World Tomato Congress, Melbourne, Australia.

I am grateful for the continued cooperation and generous support of our local research
program. Wishing you a joyful holiday season.

Submitted by,

Gene Miyao
Farm Advisor, Yolo, Solano & Sacramento counties

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