University of California Cooperative Extension, Yolo County
70 Cottonwood Street, Woodland, CA 95695 530-666-8143
http://ceyolo.ucdavis.edu

16 Dec 2011 (vol. 51-3)

TOMATO INFO

Meeting Agenda, Tues, January 10
Variety Trial Report, 2011

GENERAL NOTES

Despite challenging weather conditions in the northern part of the state, the California processing tomato industry managed to produce nearly 12 million tons in year 2011. Locally, we saw limited harvest activity in July due to the rain delaying planting as well as the cool weather in the late spring and early summer further delaying the harvest. The spring rains also caused severe bacterial speck damage in numerous fields. Speck, when severe, stunts plants and thus also delays harvest and reduces yield. Several early October rainstorms disrupted the late season harvest as well as produced fruit rots. Some fields were abandoned because of the high level of fruit mold that developed. Despite the glitches, overall statewide production remained high.

Table 1. Rainfall per month, Woodland, 2011

	rain (inch)	rainy days	rainy days > 0.1"
Jan	1.68	11	3
Feb	3.08	9	7
Mar	5.48	15	10
April	0.07	3	0
May	0.88	7	4
June	1.57	5	4
July	0	0	0
Aug	0.01	1	0
Sept	0.01	1	0
Oct	1.09	7	4
Nov	1.1	13	3
Total	14.97	72	35

Bacterial speck infested fields from 2011 will pose a disease risk if scheduled back to tomatoes in 2012. Since speck survives on plant debris, burying the crop residue is helpful.

Soil compaction is a major concern in those fields when harvest resumed after the early October rains. Presumably, with a buried drip system, care was taken to not drive equipment directly over the drip tape. Soil compaction will influence water infiltration rate and irrigation uniformity more with furrow irrigation methods compared to the buried drip system. In an attempt to remain on schedule, many fields were also worked wet in the spring after the high rainfall in March. There is no instant fix to alleviate soil compaction once created. Subsoil and chisel tillage to break up layers, cover cropping to initiate root penetration to create channels, organic matter additions and allowing time for weathering of the soil all may help at some level.

Wide beds on 80" centers have attracted much attention with a few local producers either initially trying or expanding acreage devoted to wide beds. The major attractions are: 1) less drip irrigation tape needed per acre, 2) lower operating cost with wide-span cultivation equipment, 3) relatively lower hand-weeding expense because of fewer rows per acre and 4) higher ratio of bed top to furrow area. The disadvantages of wide beds are: 1) retooling and modification of current row crop equipment, 2) addition tractors with wide wheelbase, 3) harvester modifications and 4) retooling for rotational crops to fit the semi-permanent bed configuration which includes a single buried drip line. UC farm advisors Scott Stoddard from Merced and Tom Turini from Fresno are comparing the 80" beds to the traditional 5' centered beds at a UC experiment station near Five Points. The results appear to be mixed over a 3-year study, with the 2011-year results indicating no distinct advantage.

Wide beds may raise the yield ceiling with the higher portion of bed top to furrow area ratio. However, I believe there is much headroom to increase production using our current 5-foot bed configuration. Current yield potential is nearly 100 tons/acre- more than double the statewide yield average. Obviously, there are many challenges to achieving that high level.

What incremental steps are needed to maximize yields? Managing irrigation, plant nutrients and soil structure are major controllers to high yield. Variety selection is important. Addressing pest management issues are needed. And if we could control the weather...

Upcoming Tomato Meetings:

- ✓ 10 January 2012 (Tuesday) S. Sacramento Valley Processing Tomato Production Meeting, Woodland Community & Senior Center, 2001 East Street, Woodland, 95776
- ✓ 31 January to 1 Feb 2012 (Tues-Wed) - CA League of Food Processors Showcase, Sacramento Convention Center, 1400 J Street, Sacramento. Registration required.
- ✓ 2 Feb 2012 (Thurs)- N. San Joaquin Valley processing tomato production meeting (AM) follows with CA Tomato Growers Association meeting, DoubleTree Hotel, 1150 9th St, Modesto. Registration required for CTGA luncheon.

South Sacramento Valley Processing Tomato Production Meeting

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

Woodland Community & Senior Center

2001 East Street, Woodland 95776
(From Highway113, exit on CR 25A, head west to East Street. Right turn on East St. for ~1 mile)
Rooms B, C & D located toward south side of main building

8 am to noon, Tuesday, January 10, 2012

7:45-	Doors will open — Coffee and refreshments will be ready
8:30	*Disease management update: 1) fungicidal control of blackmold 2) drip chemigation studies and 3) study of mechanical spread of Fusarium wilt* Gene Miyao, Farm Advisor, Yolo/Solano/Sacramento counties
8:50	*Weed control update including bindweed*: Tom Lanini, Weed Management Specialist, UCD
9:10	*Research briefs from Sustainable Ag Program at Russell Ranch:* Martin Burger, Research Manager, Russell Ranch Sustainable Ag Facility, UCD
9:30	*Powdery Mildew Control Update*: Brenna Aegerter, Farm Advisor, San Joaquin County
9:50	——————— Short Break———————————
10:10	*Evaluation of double-row tomatoes on 80-inch beds: a progress report* Scott Stoddard, Farm Advisor, Merced-Madera counties
10:30	*Agricultural market outlook for California in a global context* Steve Blank, Dept. of Agricultural and Resource Economics, UC Davis
10:50	*TSWV control update*: Tom Turini, Farm Advisor, Fresno County
11:10	*Why the North-South difference in tomato productivity, and what can we do about it?* Tim Hartz, Vegetable Crop Specialist, UCD
11:30	*A history of developing color measurement standards for tomatoes* Dave Slaughter, Ag and BioEngineering Department, UCD
11:50	end

Hall Rental and Refreshments Courtesy of:

Dow AgroSciences (Jill LeVake)
Syngenta (Derrick Hammonds)
Bayer (Bob Austin)
Valent USA (JR Gallagher)
BASF (Ben Duesterhaus)
DuPont (Tim Gallagher)
FMC (Mike Howard)
Gowan (James Brazzle)

Meeting is open to any interested party. Meeting facility is handicap accessible.

PCA Credit APPROVED: 1.5 hours Meeting Code M-0087-12
CA CCA Credit APPROVED: 3.0 hours Meeting Code 08645

EARLY MATURITY VARIETY TRIAL, LOCAL RESULTS

An early maturity variety evaluation trial was reinitiated. The field test was in the Winters area in cooperation with Joe Rominger of D.A. Rominger and Sons. We transplanted on April 6 and harvested on August 6 (122 days later). The field had double lines per bed and was exclusively furrow irrigated. Bacterial speck was a problem in the field due to late spring, rainy conditions. The estimated speck level was 25% of the foliage severely damaged during the early flowering period (table 2). Vine growth as well as fruit set were reduced.

The trial averaged 33 tons per acre while our standard APT 410, producing 35.5 tons with an impressive 5.7 Brix level. The highest yielding variety was N 6397 with 6.1 Brix, but the statistically highest yielding group included 11 of the 15 varieties tested.

The earliest maturing varieties were our standard H 2206, estimated to be 7 days earlier than APT 410 as was Keithly-William's K 2769.

Bacterial speck averaged over 50% on H 3044. Blossom end rot in the test was high at almost 2%.

MID MATURITY VARIETY TRIAL, LOCAL RESULTS

Our local mid maturity variety evaluation trial was conducted with Steve Meek and John Pon of JH Meek and Sons in a field north of Davis. The trial was transplanted on April 26 and harvested on Sept 12 (139 days later). The field was planted with double lines per bed and was exclusively irrigated with a buried drip system.

With late spring rains, bacterial speck was severe after the post layby period. Plants regained vigor including vine size, but maturity was greatly delayed. Speck was especially high with Sun 6366 (54%), AB 314 (50%), AB 0311 (43%), AB 3 (43%), H 5608 (39%), UG 19406 (35%), AB 2 (32%) and N 6394 (32%). Speck infection levels at or below 10% were observed on HM 9905, H 6385, H 3402, H 7709 and UG 19006 (table 3).

In spite of the bacterial speck, fruit yields were high. The grower adjusted his harvest schedule to optimize the fruit recovery for the field trial. The high yielding group included H 7709, HM 9905 and H 5508, all with 58 plus tons/acre. Sun 6366 and UG 19406 were the lowest yielding in the trial. Their poor performance is related to the speck infections stunting plants and thus delaying ripening.

Vine necrosis and fruit sunburn damage was high with many varieties. The high level of sun damage would have been greater with a more typical hot summer.

A more complete report will be available as a handout at regional tomato meeting on January 10, 2012. The collective statewide, UC Farm Advisor trial evaluation is listed on our web page at:

http://ceyolo.ucdavis.edu/Vegetable_Crops/Processing_Tomato_Variety_Trials/

Non-replicated yield and other measurements from our local mid maturity variety trial are listed in **table 4**. Much less confidence should be placed on the non-replicated data.

Table 2. Yield, fruit quality, and cull-out from tomato variety evaluation,
D.A. Rominger and Sons, Winters, 2011

	Variety	Yield tons/A		°Brix	PTAB color	pH	% pink	% green	% sun burn	% mold	% BER	lbs./ 50 fruit	% bacterial speck infection	% bed cover	% fruit canopy cover	estimated maturity relative to APT 410 (days)
1	N 6397	36.5	a	6.1	23	4.45	3	6	5	0	3	5.34	16	95	78	0
2	**APT 410**	35.5	ab	5.7	24	4.38	3	5	8	0	1	6.31	35	93	76	0
3	H 1015	35.4	abc	6.0	21	4.49	3	6	10	0	5	6.00	16	85	68	-1
4	BQ 204	35.2	abcd	5.8	23	4.42	3	5	4	0	1	4.70	21	83	69	-1
5	UG 15308	35.0	abcde	5.8	24	4.31	7	7	3	0	1	5.09	29	100	84	1
6	HMX 1889	34.6	abcde	5.5	23	4.49	4	11	7	0	1	6.98	25	93	73	6
7	K 2770	33.8	abcdef	5.7	24	4.36	3	6	3	0	0	5.08	16	88	74	1
8	BOS 602	33.7	abcdef	5.7	26	4.34	5	9	7	0	2	6.95	32	93	71	1
9	BQ 140	33.5	abcdef	6.3	23	4.31	6	11	2	0	2	5.65	21	90	88	4
#	UG 15908	32.8	abcdef	5.9	25	4.38	7	8	4	0	1	5.28	39	100	81	3
#	**H 2206**	32.6	abcdef	5.9	23	4.39	1	2	6	0	0	4.50	13	73	64	-7
#	K 2769	32.0	fg	5.9	24	4.44	3	3	3	0	0	4.34	21	73	56	-7
#	SVR 1245	30.1	g	6.2	26	4.21	8	12	9	0	5	6.25	22	98	76	6
#	H 3044	27.0	h	5.4	22	4.48	8	4	18	0	2	5.76	54	73	45	2
#	BOS 686	26.8	h	5.9	21	4.39	7	13	4	0	1	5.61	16	95	80	5
	LSD 0.05	2.4		0.32	2.0	0.10	3.4	2.7	4.7	NS	1.6	5.28	10.4	6.3	7.9	2.7
	CV	5		4	6	2	49	26	52	469	65	7	29	5	8	17
	Average	33.0		5.8	23.4	4.39	4.9	7.2 *	6.2 *	0.0	1.7	5.6	24.9	89	72	1

Major Points:

√ The highest speck susceptible group was H 3044; and was followed by UG 15908, APT 410, BOS 602 and UG 15308.

√ Modest yield due largely from severe bacterial speck infection.

√ Very high Brix levels led by BQ 140, SVR 1245, N 6397 & H 1015

Table 3. Yield, fruit quality, and cull-out from tomato variety trial, JH Meek and Sons, Woodland, 2011.

	Replicated Variety	Yield tons/A	LSD 5% yield	°Brix	PTAB color	pH	% pink	% green	% sun burn	% mold	% BER	lbs. per 50 fruit	% speck infection	11-Sep vine necrosis (%)	vine size (% row width)	fruit canopy cover (%)
1	H 7709	60.7	a	4.80	24.0	4.40	1	1	14	2	0.0	6.75	8	25	100	80
2	HM 9905	59.7	ab	5.08	24.8	4.49	3	2	12	0	0.0	6.69	6	21	98	79
3	H 5508	58.6	abc	4.60	22.5	4.35	1	2	7	1	0.2	7.23	20	21	98	81
4	BQ 205	56.4	bcd	5.28	22.8	4.39	2	2	12	2	0.0	8.15	25	21	100	81
5	H 5608	56.0	bcd	4.53	21.8	4.38	4	4	9	1	0.0	6.81	39	28	95	76
6	AB 0311	54.8	cde	5.48	22.5	4.29	6	4	11	2	0.0	8.39	43	54	100	64
7	**AB 2**	54.5	cde	5.23	23.5	4.33	9	5	12	1	0.0	8.33	32	57	100	69
8	**H 9780**	54.2	de	5.00	23.0	4.36	2	3	12	1	0.0	7.68	9	39	100	71
9	BQ 163	54.1	de	5.15	23.3	4.40	3	4	18	1	0.1	8.11	28	79	100	48
10	UG 19006	54.0	def	5.05	21.8	4.32	1	1	6	2	0.0	6.55	10	50	100	69
11	N 6394	53.3	def	5.13	23.3	4.52	4	2	27	3	0.0	7.90	32	39	98	69
12	H 3402	52.6	def	4.83	22.8	4.50	2	2	12	1	0.2	5.68	8	92	100	38
13	AB 314	52.4	def	5.38	25.0	4.26	7	8	10	3	0.0	7.96	50	82	100	55
14	AB 3	51.6	ef	5.18	23.3	4.40	8	7	6	1	0.0	9.28	43	32	100	78
15	AB 314	49.9	f	5.65	23.8	4.27	7	8	10	3	0.3	8.23	50	68	100	65
16	N 6385	49.9	f	4.53	22.8	4.47	1	0	27	1	0.0	6.94	8	13	100	86
17	SUN 6366	45.2	g	5.63	24.5	4.38	14	11	8	1	0.0	8.56	54	10	100	83
18	UG 19406	42.5	g	5.00	22.3	4.29	11	17	5	2	0.0	7.05	35	18	100	83
	LSD 5%	4.2		0.31	1.7	0.07	3.8	4.0	6.8	NS	NS	0.67	12.8	12.9	NS	7.4
	% CV	6		4	5	1	55	61	40	122	447	6	32	22	3	7
	average	53.4		5.08	23.2	4.38	4.8 *	4.6	12.0	1.5	## *	7.57	28	25	99	71

* statistically significant non-additivity= weak analysis

Standards from test (AB 2 and Sun 6366) were **extremely delayed** in ripening due to bacterial speck.

Table 4. Non-Replicated, yield, fruit quality, and cull-out from tomato variety trial, JH Meek and Sons, Woodland, 2011.

	Observational variety	Yield tons/A	°Brix	PTAB color	pH	% pink	% green	% sun burn	% mold	% BER	lbs./ 50 fruit	6-Jun speck (%)	11-Sep vine necrosis (%)	vine size (% row width)	fruit canopy cover (%)
1	N 6402	50.7	5.4	22	4.43	1	2	5	1	0	5.90	10	35	100	70
2	BQ 265	41.6	4.8	27	4.37	6	3	12	1	0	8.40	35	21	70	80
3	HMX 1884	52.1	5.0	22	4.49	2	1	31	0	0	6.95	21	90	100	60
4	C 299	44.8	4.9	23	4.40	0	1	32	4	0	7.80	10	65	80	60
5	HMX 1890	42.2	4.9	24	4.59	0	1	37	1	0	5.65	3	90	100	40
6	N 6404	62.8	5.0	22	4.51	1	2	18	0	0	7.70	3	35	100	80
7	HMX 1885	52.4	5.2	21	4.45	1	2	19	3	0	7.10	3	35	100	85
8	BQ 186	45.6	5.8	22	4.51	2	1	12	3	1	6.50	3	65	100	70
9	N 6398	50.3	4.3	22	4.47	1	0	26	1	0	6.70	3	79	100	70
10	HMX 9903	40.6	4.8	20	4.58	2	1	60	1	0	6.15	3	100	100	10
11	DRI 0319	57.4	5.3	22	4.40	6	7	15	0	0	7.70	21	35	100	85
12	UG 19306	56.4	5.1	23	4.30	4	3	16	2	0	7.45	21	50	100	80
13	C 298	29.6	5.1	24	4.38	3	0	53	1	0	7.40	3	100	100	90
	average	48.2	5.0	22.6	4.45	2	2	26	1	0.1	7.03	10	62	96	68

Best wishes for a Happy Holiday Season,

Gene Miyao
Farm Advisor, Yolo, Solano & Sacramento counties