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TOMATO INFO

VARIETY TRIAL RESULTS

GENERAL FIELD NOTES

As the season winds down, here's a review of some late-season events. Blackmold fruit rot was on the increase beginning in mid to late September. While not rain driven for the most part, the morning dews were a factor. Preventative fungicidal spray programs continue to reduce disease incidence.

In some of the infected fields, fruit developed a watery breakdown on the blossom end side. Some varieties appear more prone to this physiological event especially in fields with low soil moisture and high temperature during ripening. I suspect that if harvested during rainy weather conditions; distinguishing the breakdown from a water mold would be difficult.

Late season harvests have fruit sets that are normally less concentrated with fruit more difficult to ripen. The high temperatures earlier in the summer likely contributed to a partial split set. Ethephon is a useful tool. However, the application rate is difficult to balance in order to promote ripening, while not overdosing to defoliate the vine. Fruit ripening benefits from ethephon applications are not an overnight event, but require almost a 3-week wait. Leaving unsprayed check strips as well as perhaps some differentials in application rate can provide useful information for the future. And of course, we expect there are varietal responses that complicate the management.

With the end of harvest, two items might be on the check list. For fields with high bindweed populations, a herbicide control program in the fall is worthwhile. By using glyphosate or some phenoxy choices, spraying in the fall can be effective, if the bindweed has sufficient soil moisture to remain vigorous and flowering. Beware of plant-back restrictions with some materials.

Plots grown at the UC Sustainable Ag Farming Systems project on campus at Davis, without fall tillage (disking, subsoiling, landplaning, and re-listing beds) had tomato yields that were similar to the traditional tillage practice and that of reduced tillage. The peculiarity of the fall 2004 period with an early rain meant that the conventional heavy tillage was done under wet soil conditions. There should be mounting interest in Conservation Tillage (CT) among tomato growers to reduce expenses, but we should be patient to understand the limitations as well as the advantages in a management scheme that reduces soil tillage. At the UC Westside Research and Extension Center near Five Points, tomatoes grown under reduced tillage were on par or above that of conventionally tilled tomato crops. Those of you who were able to partake in the Conservation Tillage tour of the Westside in the early summer, saw the substantial activity of growers. UC Specialist Jeff Mitchell has been actively leading the charge in promoting CT. Air, soil and water quality benefits might further drive this system.

As more information develops, I'll keep you informed.

Local Variety Trials: Two local processing tomato variety evaluation trials were conducted: one early and one mid-maturity class. Both trials were conducted in commercial fields and mechanically harvested with grower equipment to determine marketable yield. Fruit samples were collected and sent to a local PTAB inspection station to measure fruit color, Brix and pH. The early maturity trial contained the only replicated entries.

Our early-maturity variety trial was established near Winters with Tony Turkovich and Martin Medina of Button and Turkovich Ranches. We direct seeded on February 9 on double lines per bed. The previous crop was alfalfa in this class 2, Rincon silty clay loam soil. Plants grew well during the season although bacterial speck was a problem in the late spring. Three of the 10 varieties were in the top-yielding group led by H 5003 with 43.1 tons/acre and included BOS 66508 and APT 410 (table 1). PS 740 and HyPeel 45 had the highest soluble solids with 5.3% and 5.2% respectively, but included 4 other varieties in the top group. Percent sunburn was high especially with U 446, HA 3523 with 44% and 20% sun damage, respectively. Other varieties also had a high incidence of sun-damaged fruit.

Table 1. Early-maturity variety trial, Button and Turkovich Ranches, Winters, 2005

	Variety	Yield tons/A		Brix	Machine Harvest PTAB color	pH	% sun burn	% end rot	lbs per 50 fruit
1	H 5003	43.1	a	5.1	26.4	4.40	8	0.5	5.85
2	BOS 66508	40.2	ab	5.0	24.0	4.39	10	0.8	6.88
3	APT 410	39.5	ab	5.0	25.6	4.40	9	0.9	7.04
4	U 250	38.9	b	4.5	27.6	4.45	12	0.3	8.21
5	HyPeel 45	37.9	bc	5.2	26.0	4.33	12	1.5	7.43
6	PS 740	37.4	bc	5.3	24.4	4.32	7	1.5	6.93
7	HMX 2853	37.3	bc	4.9	27.2	4.48	15	0.7	7.41
8	H 9280	34.3	cd	4.7	28.0	4.39	16	0.0	7.19
9	HA 3523	32.6	d	4.7	25.0	4.54	20	0.5	7.14
10	U 446	22.6	e	4.8	25.6	4.50	44	3.8	7.50
	LSD 5%	4.0		0.37	2.2	0.06	6.5	1.7	0.49
	% CV	8		6	6	1	34	129	5
	Average	36.4		4.9	26.0	4.4	15.2	1.0	7.2

Our mid-maturity trial was conducted in a class 2, Rincon silty clay loam soil west of Davis with Steve Meek and John Pon of JH Meek and Sons. Transplants from Westside Transplants where mechanically transplanted by the grower's crew on May 6. Plants established well. Verticillium wilt was severe at mid bloom stage, weakened plants and caused vines to open. Also, some root rot was noted later in the season. A number of varieties lost canopy cover during the ripening stage, resulting in extensive sunburn damage.

The top yielding varieties were led by AB 2 with 46.4 tons/acre, and followed closely by 7 other varieties (table 2). Heinz H 2601 was in the top-yielding group in 2003 while falling to the bottom ranking this year. H 5803 was the top °Brix performer with 5.7. Percent pink, green, mold and blossom end rot levels were low to moderately low. Sunburn levels were at or above 11% in a number of varieties, but particularly severe with U 005, Sun 6360 and H 5803.

Table 2. Transplanted, mid-maturity variety trial, J.H. Meek and Sons, Davis, 2005

	Variety	Yield tons/A		Color	PTAB °Brix	pH	% Green	% Sun	% Mold	% BER	lbs per 50 fruit
1	AB 2	46.4	a	23.5	5.4	4.40	0	6	3	0.1	9.0
2	PS 345	45.5	ab	24.5	5.2	4.47	2	11	1	1.6	8.8
3	Hal double*	45.3	ab	24.5	5.2	4.42	1	8	2	0.6	8.2
4	AB double*	45.0	ab	24.0	5.3	4.39	1	7	2	0.4	8.2
5	U 232	44.8	ab	23.5	4.9	4.42	1	9	1	0.4	6.3
6	Sun 6368	44.2	abc	24.3	5.2	4.49	0	8	2	0.3	8.0
7	H 2401	44.1	abc	24.5	5.1	4.38	1	11	1	0.9	6.2
8	Sun 6366	43.8	abc	23.0	5.2	4.50	0	11	1	0.8	7.3
9	Halley	43.2	bc	23.8	5.3	4.35	2	8	2	0.6	8.5
10	H 8892	41.9	cd	23.5	5.1	4.42	1	6	3	0.1	6.8
11	UG 151	40.0	de	23.0	5.2	4.53	1	11	2	0.3	7.6
12	H 5803	39.6	de	22.5	5.7	4.47	1	19	2	1.3	8.5
13	Sun 6360	39.0	e	23.0	4.9	4.51	0	21	5	0.3	7.4
14	Red Spring	38.9	e	22.3	4.9	4.56	3	16	3	1.1	8.6
15	HMX 3859	38.9	e	24.5	5.3	4.52	2	9	2	0.7	6.7
16	H 9665	37.7	e	24.5	5.1	4.38	1	16	3	0.2	7.3
17	H 2601	34.8	f	23.5	5.2	4.42	1	15	0	0.6	7.5
18	U 005	32.9	f	24.5	5.2	4.44	2	23	1	0.5	7.9
	LSD (5%)	2.7		1.3	0.3	0.07	1.2	6.2	NS	0.9	0.7
	% C.V.	5		4	4	1	69	37	93	101	7
	Average	41.5		23.8	5.2	4.46	1.2	12.0	1.92	0.6	7.7
	* = two plants per plug (vs norm of single plants)										
	Plug comparisons										
	Single	44.8	a	23.6	5.3	4.37	1.1	6.9	2.8	0.3	8.7
	Double	45.2	a	24.3	5.3	4.40	1.2	7.2	1.9	0.5	8.2
	Probability	NS		NS	NS	NS	NS	NS	NS	NS	0.04

Additionally, within the variety trial, double plants per plug were compared to singles with varieties AB 2 and Halley. In this test as well as other local tests I've conducted, there were no yield advantages with double plants per plug.

Table 3. Non-Replicated, Transplanted, mid-maturity variety trial, J.H. Meek and Sons, Davis, 2005

	Non Rep Variety	Yield tons/A	Color	PTAB °Brix	pH	% Pink	% Green	% Sun	% Mold	% BER	lbs per 50 fruit
1	BOS 67374	53.4	22	5.4	4.39	0	1	2	3	0.4	7.0
2	H 9780	49.1	26	5.3	4.37	4	2	5	3	1.6	8.3
3	U 567	48.3	24	4.5	4.53	0	0	14	6	0.4	8.8
4	NDM 3379	48.3	22	5.1	4.48	0	1	17	1	1.2	7.4
5	Sun 6374	47.3	22	5.9	4.45	0	2	8	0	0.0	7.5
6	H 8004	47.0	22	6.0	4.38	0	1	10	0	0.0	7.2
7	HMX 4802	45.9	23	5.2	4.52	1	2	6	2	0.0	7.9
8	DRI 9730	45.3	23	5.1	4.30	0	3	3	4	0.0	8.3
9	HMX 4798	44.6	23	5.3	4.23	0	5	3	2	3.1	5.9
10	HMX 4801	44.2	21	5.5	4.52	0	0	6	0	0.0	7.6
11	HMX 4799	43.8	22	5.3	4.50	1	1	5	3	0.9	8.1
12	Sun 6371	43.2	22	5.6	4.37	0	1	5	2	0.8	7.7
13	CPL 4863N	43.2	22	5.2	4.42	0	1	9	0	0.8	5.9
14	U 519	39.9	23	5.0	4.55	0	0	11	3	0.0	8.6
15	PS 607	38.3	22	5.5	4.49	1	1	10	2	0.8	7.6
	Average	45.5	22.6	5.3	4.43	1	1	8	2	0.7	7.6

Non-replicated data should be viewed with less confidence.

Submitted by,

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