Sweetpotato Research Progress Report 2006

Scott Stoddard
Farm Advisor
Merced and Madera Counties

University of California Cooperative Extension
2145 Wardrobe Ave.
Merced, CA 95340
(209) 385-7403
http://cemerced.ucdavis.edu

Table of Contents:

Collaborators Trial 2006
Scott Stoddard, Farm Advisor

Location: Gallo Bear Creek Ranch. South of Hwy 140 & Howard Rds. Hilmar sand, slightly saline-alkali. Soil analysis results shown in Table 1. Blain Yagi, cooperator.

Varieties:

1. CA Beauregard G2
2. B63 G2
3. B14 G3
4. L-01-32
5. L-03-402
6. L-02-814
7. L99-35
8. NC 98-608 (Covington)
9. L01-29
10. Yagi Bros Japanese Yam
11. Costanero (G0 from FPS)
12. B63 G4
13. NC-99-573 (grown w/Dave Souza)

Plot layout. Randomized block design, plots 50 long by 1 row wide, 9" spacing. Replicated 4x.

Bedded: March 2, 2006. Sprayed with Botran
Bed evaluation: April 27, 2006
Transplanted: May 26, 2006 with new 4-row finger planter. Field moisture excellent, temps mild. Plants were cut previous day and stored in shade.
Harvest: Oct 19, 2006. Used 2-row digger and picked off the ground. Field graded.

igure 1. Hand picking plots.

Results:

Table 1. Soil sample results, 2005 Collaborators Trial.

Sample		SP %	pH	EC dS/m	Ca (SP) meq/L	Mg (SP) meq/L	Na (SP) meq/L	Cl (SP) meq/L	NO3-N ppm	Olsen-P ppm	X-K ppm	Zn (Total) ppm	Mn (Total) ppm	Fe (Total) ppm	Cu (Total) ppm
Bear Creek Ranch	0-12"	26	7.1	2.06	11.4	4.6	5.1	2.8	18.3	60.3	117	22	107	48	10
		sand	H	H				L		H	M	VH	VH	VH	VH

SP = saturation percentage.
Micronutrient analysis results questionable. Values much higher than normal.

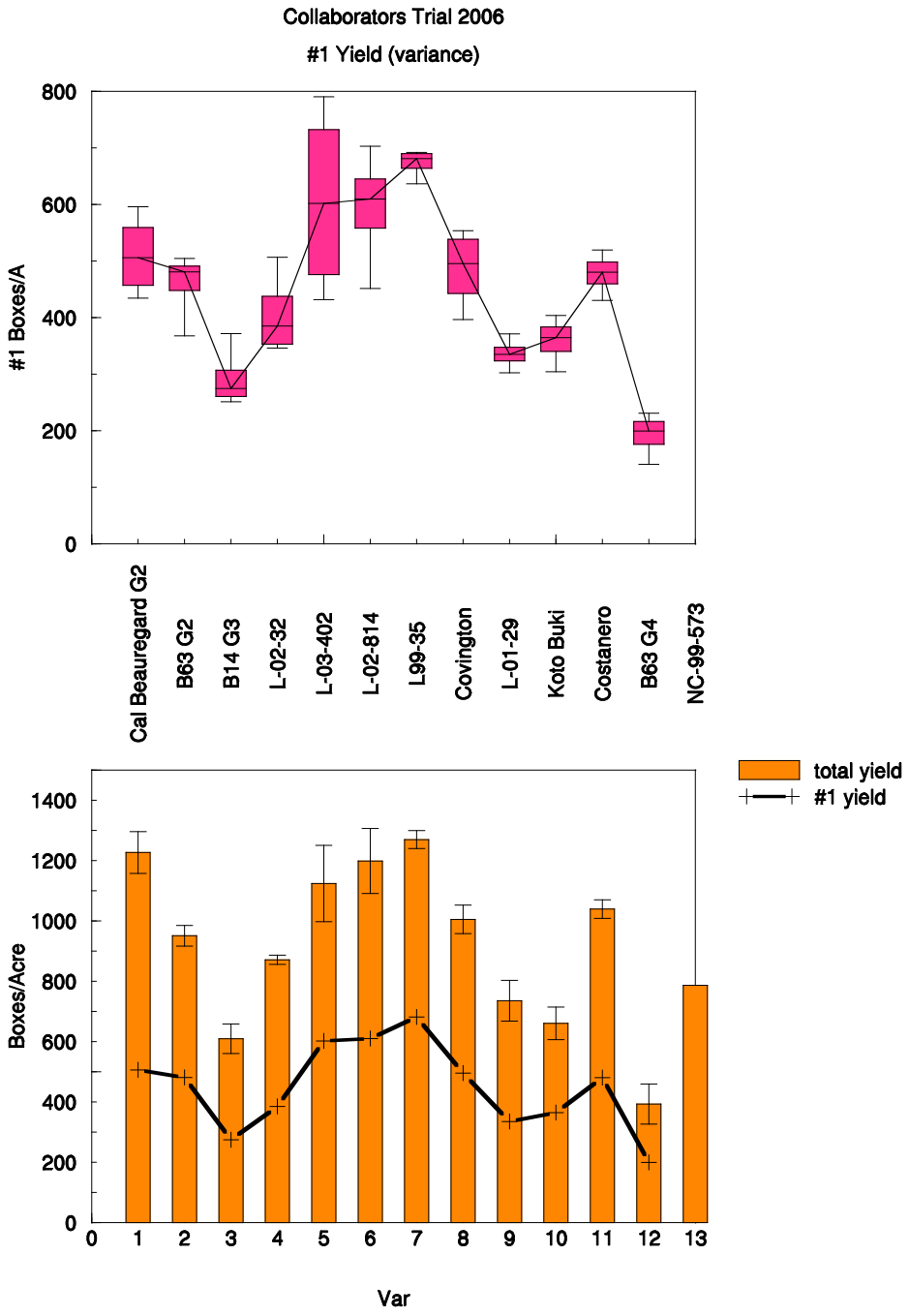


Figure 2. Yield results, Collaborators Trial 2006. #1 yield (above) and total marketable yield (below). See Table 3 for statistical analysis.

Table 2. SCORE SHEET FOR EVALUATION OF SWEETPOTATO SPROUT PRODUCTION

Date bedded: 3/7/06 Location: Yagi Bros Farms, Inc.

Date Evaluated: 4/27/06 Type of bed: hot bed w/ cotton gin trash

Evaluated by: S. Stoddard

Selection	Roots presprouted yes/no	Plant Production 1-5 (1)	Uniformity of Emergence 1-5 (2)	Earliness 1-3 (3)	Root Conditions 1-5 (4)	Remarks (5)
1. Cal Beauregard G2	no	2	3	1		some purple new growth
2. B63 G2	no	2	2	1		slightly taller than 1
3. B14 G3	no	2	1	1		mostly green new growth
4. L-02-32	yes	4	4	3		purple new growth
5. L-03-402	yes	4	4	3		dark green
6. L-02-814	yes	4	3	2		medium green
7. L99-35	no	1	1	1		worst plant producer, dark purple new growth
8. Covington	no	4	4	2		mostly green new growth
9. L-01-29	no	5	4	3		sl purple tinge to new growth, straight stems
10. Koto Buki	?	4	5	3		grower plants
11. Costanero	no	5	5	3		2x taller than rest, all green, lots of plants
12. B63 G4	no	2	1	1		clumpy
13. NC-99-573	arrived as cuttings 7/12/2006					

(1) Plant production rated from 1 – 5 based on observation during pulling season. A rating of 1 indicates low plant production, while 5 indicates good plant production.

(2) Uniformity of emergence rated from 1 - 5. One (1) indcates poor uniformity while 5 indicates the highest degree of uniformity of emergence.

(3) Earliness of plant production is rated form 1 – 3. One (1) indicated late emergence while 3 indicates early production.

(4) Root conditions six weeks after first pulling, rated 1 – 5. One (1) indicates complete rotting, while 5 indicates perfectly sound conditions. Mostly not applicable as beds were disced shortly after transplanting.

(5) Notes on size of root, decay in beds, etc.

Table 3. Yield.

NATIONAL SWEETPOTATO COLLABORATORS SUMMARY OF DATA
2006

STATE AND LOCATION REPORTING: Livingston, CA
DATE TRANSPLANTED: May 26. DATE HARVESTED: 10/19/2006. No. GROWING DAYS: 146
DISTANCE BETEEN ROWS (in): 40. DISTANCE IN ROW (in): 9
PLOT SIZE: NO. OF ROWS: 1 LENGTH (ft): 50 NO. OF REPS: 4
IRRIGATION: pre irrigate + drip irrigation. 1.5 to 2 inches per week during summer, total 36".
FERTILIZER: 1 ton gyp, 3 tons compost, 500 lbs K2SO4 pre plant, CAN17 drip. About 180-60-375 NPK.

		-------	40 lb box/A		-------	1000 lb	%	%
	SELECTION	US #1'S	CANNERS	JUMBOS	MKT YIELD	BINS/A	US #1'S	CULLS
1	CA Beauregard G2	510.4	241.1	475.1	1226.6	49.1	41.5	13.5
2	B63 G2	458.2	243.5	248.9	950.6	38.0	48.1	14.2
3	B14 G3	292.9	257.0	59.2	609.1	24.4	48.4	16.3
4	L-02-32	405.6	342.8	122.5	870.8	34.8	46.7	0.0
5	L-03-402	606.4	336.0	181.3	1123.7	44.9	53.5	1.3
6	L-02-814	593.3	249.3	355.8	1198.4	47.9	49.8	0.9
7	L99-35	672.6	366.9	230.0	1269.5	50.8	53.1	0.6
8	Covington	485.2	433.8	86.0	1005.0	40.2	48.2	2.1
9	L-01-29	335.8	326.0	73.7	735.5	29.4	46.4	0.0
10	Koto Buki	359.1	169.4	132.0	660.4	26.4	55.0	15.2
11	Costanero	477.5	193.8	367.9	1039.1	41.6	46.0	2.6
12	B63 G4	192.5	143.7	56.6	392.8	15.7	52.1	55.0
13	NC-99-573 *	287.8	498.6	0.0	786.4	31.5	36.6	0.0
	Average	449.1	275.3	199.1	923.5	36.9	49.1	10.2
	LSD 0.05	104.1	91.5	125.7	166.7	6.7	ns	8.6
	CV, %	16.1	23.1	43.9	12.5	12.5	14.9	58.9

US #1's	Roots 2 to 3.5 inches in diameter, length 3 to 9 inches, well shaped and free of defects.
Canners	Roots 1 to 2 in diameter, 2 to 7 inches in length.
Jumbos	Roots that exceed the diameter and length requirements of above grades, but are marketable quality.
Mkt Yield	Total marketable yield is the sum of the above three categories. Bin weight = 1000 lbs.
% US #1's	Weight of US #1's divided by total marketable yield.
% Culls	Roots greater than 1" in diameter that are so misshapen or unattractive as to be unmarketable.
	xx Because of a lack of data, statistical analysis was not performed.
LSD 0.05	Least significant difference. Means separated by less than this amt are not significantly different (ns).
CV, %	Coefficient of variation, a measure of variability in the experiment.
	* Because of a lack of plants and a different field location, NC-99-573 is not included in the analysis.

Sweetpotato Collaborators Trial -- 2006
Merced County

This year's sweetpotato evaluation was with Blain Yagi, near Livingston, CA. Soil type was Hilmar sand, slightly saline-alkali.
Ground was fumigated with Telone. Field pre-irrigated, and soil moisture was excellent at planting. Cool wet spring.
Plants were from 2 different hot beds, #13 arrived as cuttings, planted 7/12. Yield and quality variability greater than normal.
Very hot July. Russet crack showing in all Beauregard lines, especially #13.

Rep	Var	Variety Name	Skin Color	Skin Text	Flesh color	Eyes	Lents	Shape	Shape Uniformity	Overall App	Comments
1	1	Cal Beauregard	Rose-	9	2	9	7	2 ,5	7	7	some lumps, veins
2			copper	7	3	9	7	5, 2	7	5	rough skin, YCR
1	2	B63 G2	rose	9	3	9	7	2, 5	7	7	some veins, lumps
2			copper	7	3	9	7		7	7	YCR, slight cracking
1	3	B14 G3	copper	7	2	9	7	2, 5	5	5	More Cu color, rough skin
2			copper	5	3	9	7		5	5	some russet crack, YCR
1	4	L-02-32	Rose	7	3	9	5	3, 5	5	7	dark lenticles, very smooth
2			Rose	7	4	9	5	3, 5	5	7	some YCR
			similar to Beauregard, but slightly more upright vine, darker green, more crinkle.								
1	5	L-03-402	red	5	4	7	5	2, 6	5	7	nice color
2			dark rose	5	4	7	5		5	7	good flesh color
			Large leaves upright growth, mostly green.								
1	6	L-02-814	red rose	9	5	5	5	3, 5	7	7	good color, smooth. But long
2			deep rose	7	4	7	5		9	7	good flesh color, long
			All green leaves slightly darker than 402, mostly upright.								
1	7	L-99-35	rose Cu	5	3	9	7	3, 5	7	5	some lumps, some RC
2			rose Cu	7	4	9	7		7	7	good flesh color
			Dark green foliage with purple new growth, leaves slightly crinkled. Looks like Bienville.								
1	8	Covington	Rose Cu	7	3	7	5	5, 6, 8	9	7	good shape, slight fluting
2			Rose Cu	7	3	7	5		9	5	dark lents very visible, YCR
			All green foliage, compact growth habit, slight crinkle to leaves.								
1	9	L 01-29	purple	5	0	9	7	2, 5	7	7	good shape, color, texture
2			purple	6	white	9	7	3, 5	9	6	Skins easily, some rot
			All green foliage, smaller leaves, more upright bunch type growth.								
1	10	Koto Buki	purple	5	0	6	6	6, 7	5	5	Japanese yam (Koto Buki).
2											Blocky lumps, fluting
			Grower Japanese Yam to compare to L-01-29.								
1	11	Costanero	dull purple	1	2	3	5	4, 6, 7	5	3	fluting, lumpy, misshapen
2			red purple	3	2	3	5	6, 7	3	5	lents, heavy pimpling, dull color
			Very large, vigorous plant. All green foliage, upright growth habit with large leaves.								
1	12	B63 G4	copper	3	2	9	7	2, 4, 5	5	3	most roots with mild to severe
2											russet crack
1	13	NC-99-573	Rose Cu	7	3	5	5	2, 3	7	7	lots of latex, slower maturity
2											than Beauregard

Skin color:	Skin Texture:	Flesh Color:	Eyes:	Lenticles:
cream (Hanna)	1 = very rough	0 = white	1 = very deep	1 = very prominent
Tan	3 = moderately rough	1 = cream	3 = deep	3 = prominent
copper (Jewel)	5 = moderately smooth	2 = yellow	5 = moderate	5 = moderate
Rose (Beau)	7 = smooth	3 = orange	7 = shallow	7 = few
Purple (Garnet)	9 = very smooth	4 = deep orange	9 = very shallow	9 = none
		5 = very deep orange		

Shape:	Shape Uniformity:	Overall Appearance:
1 = round	1 = very poor	1 = very poor
2 = round-eliptical	3 = poor	3 = poor
3 = eliptic	5 = moderate	5 = moderate
4 = long eliptic	7 = good	7 = good
5 = ovoid	9 = excellent	9 = excellent
6 = blocky		
7 = irregular		
8 = asymmetric		

All ratings made on #1 roots.

Louisiana Advanced Line Trial 2006
Scott Stoddard, Farm Advisor

Location: D&S Farms seed block, Cressey Way and Hwy 140.

Varieties (all from Louisiana, Don LaBonte breeder):

1. 04-173
2. 04-85
3. 04-107
4. 04-178
5. 04-187
6. 04-6
7. 04-132
8. 04 - 87
9. 04-148
10. 175

Plot layout. 1 row plots, replicated 2x. Length dependent on number of plants, but generally about 25 feet.

Bedded: not performed. All began as cuttings shipped from LA.
Transplanted: June 2, 2006. Plants were cut previous day and stored in shade.
Harvest: Oct 11, 2006. Used 2-row harvester. Field graded.

RESULTS

The Advanced Line Trial is a trial to evaluate potential new lines from LA prior to being put into the Collaborators trial. The trial is small, with only 1 or 2 reps, and the potatoes have not been fully evaluated but may fit certain markets in California. This year there were several with deep red/purple skin color and white or orange flesh (Table 1). Yield results are shown, but do not give a good indication of the variety's yield potential due to limited reps.

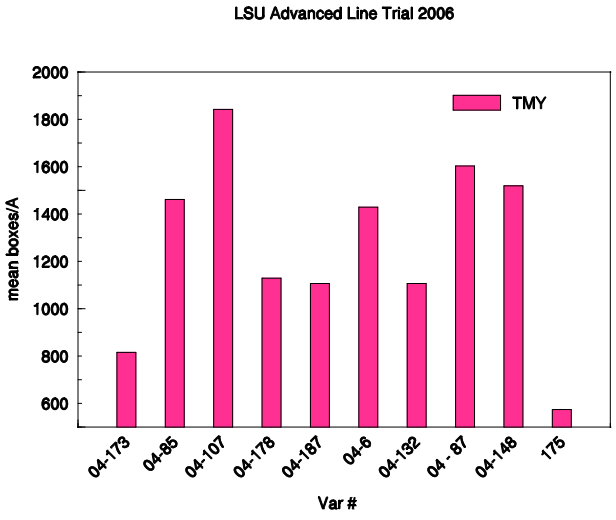


Figure 1. Total yield, boxes/A.

Louisiana Advanced Line Trial - 2006 **Root Evaluation**

Merced County

An advanced line sweetpotato observation trial with varieties from Don LaBonte was conducted with Dave Souza of D&S Farms.
Ground was fumigated with Telone. Soil is Delhi sand, deep and uniform.
Planted on an 12" spacing down one row (40"), drip irrigated. All plants received as cuttings, about 20 per variety. Plant stand very good.
Plants cut May 30, received June 1, and transplanted June 2. Harvest Oct 11, 2006 using mechanical harvester.

	plot	yield, lbs				boxes/A		Skin	Skin	Flesh	Eyes &		Shape	
Variety	distance	#1's	Med	Jumbo	culls	TMY	% #1's	Color	Text	color	Lenticles	Shape	Uniformity	Comments
04-173	30	38.1	19	5.6	0	683	60.8	Purple	smooth	orange	shallow	slender	good	nice looking potato
	21	16.2	38	6.7	0	948	26.6					fusiform		
04-85	25	72.4	22.6	36.7	11	1723	50.7	tan	mod	white	eyes	round	good	culls were splits and cuts
	20	36.3	28.6	8.5	11.1	1200	43.0		smooth			fusiform		
04-107	21	54.7	19.4	33.9	0	1682	50.6	red	mod	deep	prominent	blocky	moderate	slight YCR
	30	73.6	22.3	87.8	0	2002	40.1		smooth	orange				nice looking
04-178	25	26.3	28.7	17.4	17.4	947	29.3	burgandy	smooth	orange	deep eyes	good	good	cracks and splits
	30	55.7	24.9	39.7	9.4	1311	42.9							
04-187	20	27.9	14.8	21	4.2	1042	41.1	rose	fairly	deep	shallow	variable	poor	fine cracks and splits, some veins
	25	44.7	20	24.8	10.3	1171	44.8		smooth	orange				slight YCR
04-6	20	35.7	9.9	34.7	23.9	1313	34.3	purple	rough	white	large	ovoid	moderate	rough skin, splits and cracks
	20	21.9	18.1	54.5	37.6	1545	16.6				prominent			large eyes, poor looking
04-132	30	48.9	13.2	27.1	69.2	972	30.9	burgandy	mostly	orange	shallow	fusiform	poor	cracks, splits, wireworm, russet crack
	25	43.8	25.3	25.8	56.5	1241	28.9		smooth			asymetric		striping, YCR, some veins
04 - 87	21	26	19.5	46.4	0	1431	28.3	copper	smooth	orange	eyes	blocky	good	some veins
	25	42.6	22	71.1	7.8	1775	29.7					ovoid		culls are splits
04-148	30	71	27.5	26	0	1357	57.0	rose	mostly	orange	shallow	fusiform	good	nice looking
	23	69.5	30.8	17.9	1.6	1681	58.0		smooth					
175	30	22.5	10.9	19.3	2.7	574	40.6	burgandy	mostly	orange	shallow	blocky	okay	nice looking potato
									smooth					one rep only

Skin color:
cream (Hanna)
Tan
copper (Jewel)
Rose (Beau)
Purple (Garnet)

Skin Texture:
1 = very rough
3 = moderately rough
5 = moderately smooth
7 = smooth
9 = very smooth

Flesh Color:
0 = white
1 = cream
2 = yellow
3 = orange
4 = deep orange
5 = very deep orange

Eyes:
1 = very deep
3 = deep
5 = moderate
7 = shallow
9 = very shallow

Lenticles:
1 = very prominent
3 = prominent
5 = moderate
7 = few
9 = none

Shape:
1 = round
2 = round-eliptical
3 = eliptic
4 = long eliptic
5 = ovoid
6 = blocky
7 = irregular
8 = asymmetric

Shape Uniformity:
1 = very poor
3 = poor
5 = moderate
7 = good
9 = excellent

Overall Appearance:
1 = very poor
3 = poor
5 = moderate
7 = good
9 = excellent

All ratings made on #1 roots.

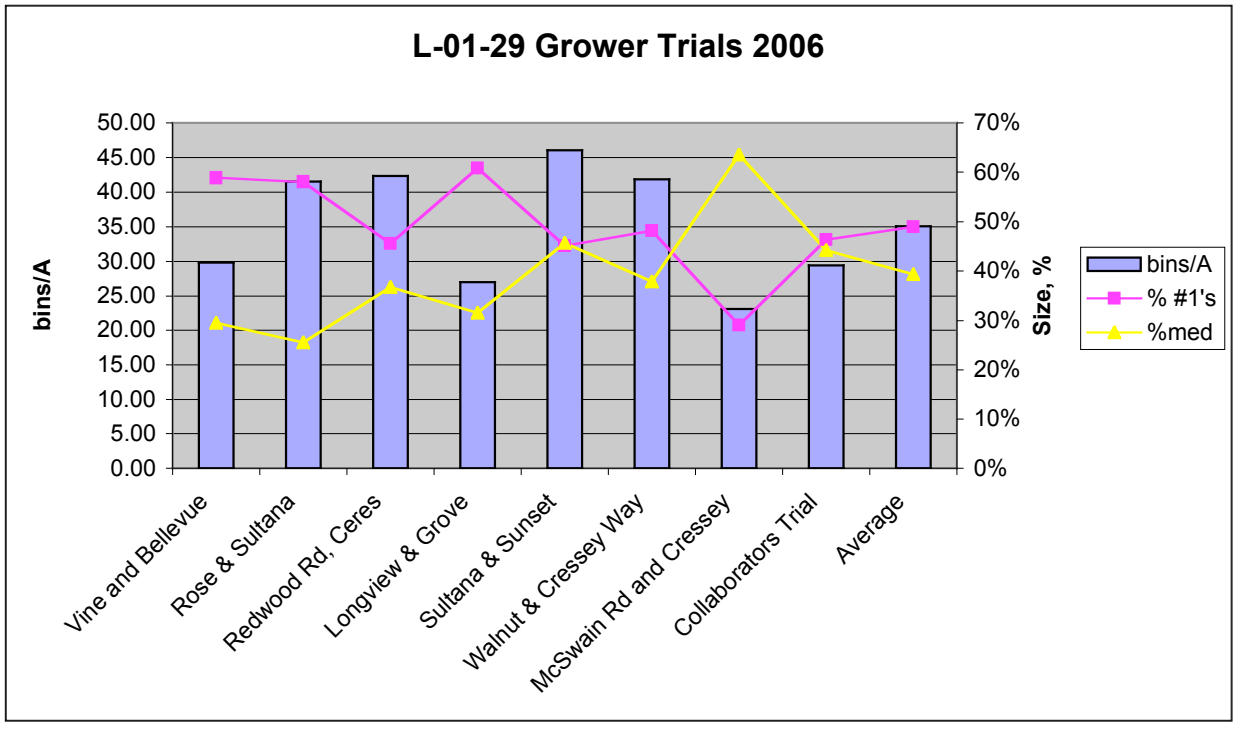
L-01-29 Grower Trials 2006

L-01-29 was first evaluated in the Collaborators Trial in 2004 from a limited number of plants. Root production was limited, but quality was excellent, with good color, shape, texture, and eating qualities. Results from 2005 and 2006 indicate that many agronomic characteristics of this sweetpotatoes are very good:

- Plant production. Excellent, comparable to Kotobuki.
- Plant hardiness/vigor. Good.
- Pest resistance. Resistant to Pox and Stem Rot. Moderate resistance to RKN. May be susceptible to Russet Crack.
- Appearance. Purple skin, white flesh. Mostly smooth, good shape.
- Yield potential Comparable to Kotobuki. 50% #1's, 40% mediums.
- Storage. Stores well through February.

In 2006, several strip trials with about 200 plants were put into various grower fields to evaluate performance under a variety of different conditions. All except one location was transplanted in mid May (late planting at one location was mid-July). Averaged across 8 locations, yields were 35 bins/A, with a size breakdown of 50-40-10 (#1's, mediums, jumbos). No significant problems were noticed, but the late field did show >6% russet crack.

LSU breeder Don LaBonte plans to release this variety under the name "Murasaki-29", predominantly for the California market, beginning 2008. Limited plant protection agreements will be pursued.



Sweetpotato Worm Contol Trial 2006

Scott Stoddard, Farm Advisor
UCCE Merced & Madera Counties

OBJECTIVE: Evaluate the efficacy of different worm insecticides for control of Western Yellowstripe Armyworms (WYSA) on sweetpotatoes in Merced County.

LOCATION: Corner of Westside and Washington Roads, near Livingston. Jim Alvernaz, cooperator.

TREATMENTS:

1.	UTC	Plot size 1 bed (2 rows) by 50 ft
2.	Avaunt 3.5 oz/A	4 reps
3.	Avaunt 7.0 oz/A	Variety Beauregard
4.	Intrepid 8 fl oz/A	
5.	Intrepid 12 fl oz/A	
6.	Assail 4 oz/A + COC	
7.	Rimon 9 fl oz/A	
8.	Rimon 12 fl oz/A	
9.	Proclaim 3 oz/A	
10.	Lannate (grower applied)	Field application by helicopter 8/16

Treatments applied using a backpack sprayer 40 gpa equivalent at 30 psi and 8004 flat-fan nozzles. Applied August 17 when initial WYSA counts > 50 per 25 sweeps.

METHODS

Initial worm counts made using a sweepnet indicated very high levels of WYSA larvae in several stages of development. The field was scheduled to be sprayed by helicopter with Lannate; a large section on the SE corner of the field was left out to conduct this trial. Post application evaluation of insecticide treatments were made by sweeping each plot 25 times with standard cotton insect sweepnet during late morning to early afternoon. This occurred on Aug 21, 31, and Sept 13. Statistical analysis was done using standard AOV procedures using a randomized block design with four replications. Due to high level of variability in the data, mean separation was performed on the square root adjusted data using Fischer's protected LSD at the 0.05 confidence level.

RESULTS:

Worm counts as affected by insecticide treatment are shown in Table 1. Four days post treatment, worm counts in the Assail and Rimon 9 fl oz/A plots were not significantly different than the untreated control. All of the other insecticides significantly reduced worm counts compared to the control; Lannate, Avaunt, and Proclaim had the lowest worm counts. In general, worm counts were lower than expected, which may reflect some drifting from the helicopter application of Lannate. At 14 and 27 days after treatment, WYSA could no longer be found, and instead beet armyworm became the dominant worm species, though at very low levels (Figure 1). Relatively high counts in the Lannate treated areas may reflect loss of beneficial insects populations and/or reduced edge effect where sweepnet samples were being taken.

ACKNOWLEDGEMENTS: Thanks to Jim Alvernaz for his cooperation and help putting out this trial, and to Stephen Colbert (Dupont), Roy Whitson (Ceraxagri), David Vitolo (Syngenta), and Curt Sandberg (Chemtura).

Table 1. Sweetpotato worm control trial sweepnet results as affected by insecticide 4, 14, and 27 days after trt.

		21-Aug #/25 sweeps		31-Aug #/25 sweeps		13-Sep #/25 sweeps	
trt #	name	WYSA	BA	WYSA	BA	WYSA	BA
1	UTC	20.3 a	0.0	0.0	4.8 ab	0.0	9.0 b
2	Avaunt 3.5 oz/A	4.5 cd	3.0	0.0	1.5 c	0.0	5.5 bc
3	Avaunt 7.0 oz/A	4.3 cd	0.0	0.0	1.3 c	0.0	6.7 bc
4	Intrepid 8 fl oz/A	9.3 bc	3.0	0.0	0.8 c	0.0	2.5 c
5	Intrepid 12 fl oz/A	7.5 c	0.0	0.0	0.3 c	0.0	5.5 bc
6	Assail 4 oz/A	21.3 a	5.7	0.0	2.0 bc	0.0	8.5 b
7	Rimon 9 fl oz/A	15.5 ab	2.7	0.0	1.0 c	0.0	3.5 c
8	Rimon 12 fl oz/A	8.8 bc	1.0	0.0	1.8 c	0.0	5.0 bc
9	Proclaim 3 oz/A	0.8 d	0.0	0.0	0.5 c	0.0	3.5 c
10	Lannate (grower applied)	4.5 cd	0.0	0.0	7.8 a	0.0	20.0 a
	LSD	***	xx	xx	***	xx	**
	CV, %	28.6	xx	0	34.7	0	32.2

WYSA = Western Yellowstripe Armyworm, live larvae per 25 sweeps

BA = Beet Armyworm

LSD 0.05 = Least significant difference. *** = 99%, ** = 95%. Means with the same letter are not significantly different (means comparisons performed on square root adjusted data).

CV = coefficient of variation.

xx = test not performed due to lack of data.

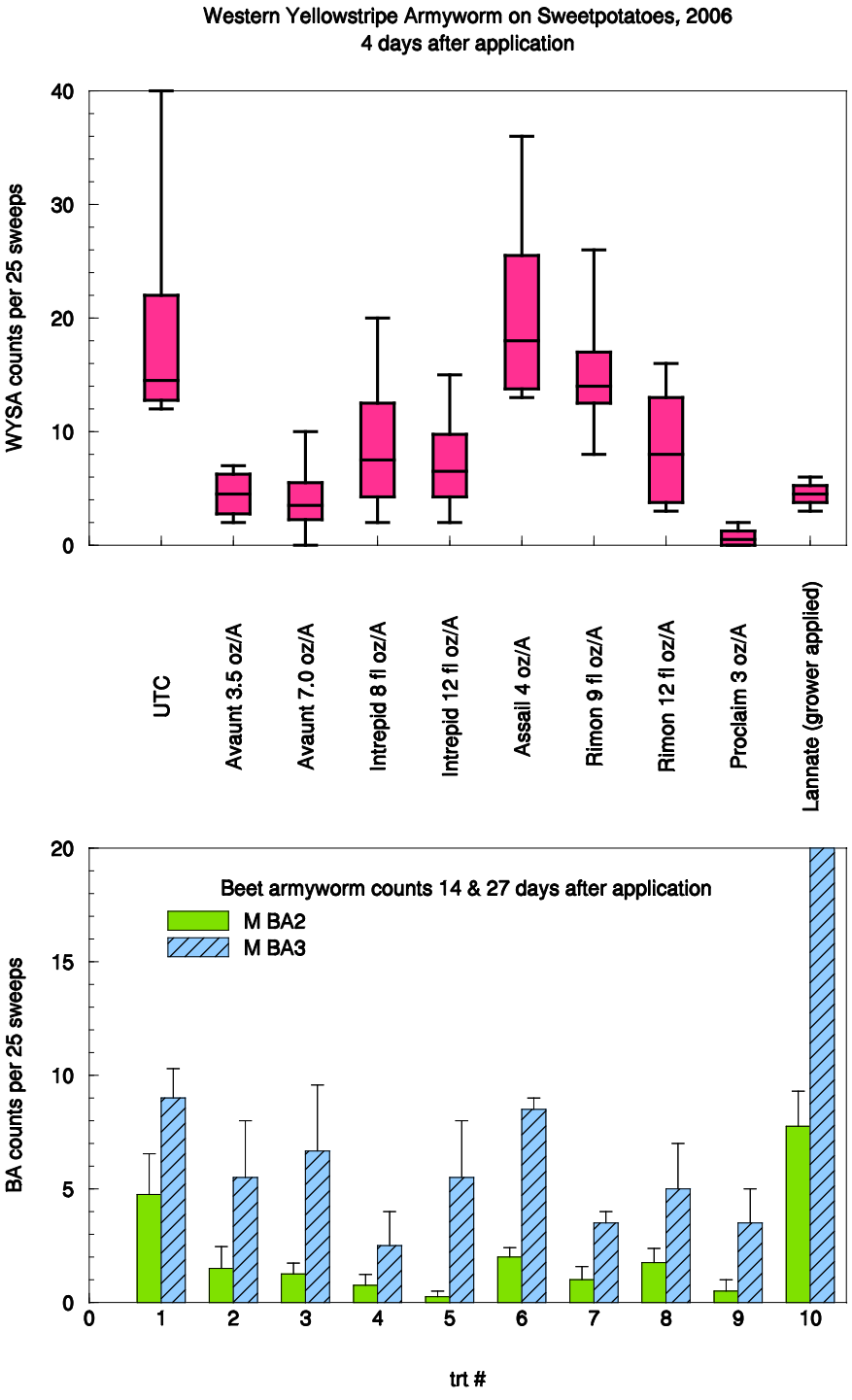


Figure 1. Western Yellowstripe Armyworm (WYSA, above) and Beet Armyworm (BA, below) counts as affected by insecticide treatment. Sweeps were perfomed 4, 14, and 27 days after treating the plots; WYSA was completely replaced by BA after two weeks.

Sweetpotato Hotbed Fumigation Trial 2006

Scott Stoddard, Farm Advisor
UCCE Merced & Madera Counties

OBJECTIVE: Evaluate different fumigation treatments on weed control and plant production in commercial sweetpotato hotbeds in Merced County.

LOCATION: One primary study site plus two additional observation sites:

1. (Primary) Corner of Westside Blvd and Cressey Way, about halfway between Atwater and Livingston. GPS coordinates: UTM 10 S 0706671, 4137258. Bob Weimer, cooperator.
2. Corner of Magnolia and Lincoln Rds, near Livingston. GPS coordinates: UTM 10 S 0702519, 4137978. Aaron Silva, cooperator.
3. South of Atwater Jordan Rd on Washington Rd, near Livingston. GPS coordinates: UTM 10 S 0698482, 4132656. Nathan Mininger, cooperator.

TREATMENTS:

1. Bob Weimer	2. Aaron Silva	3. Nathan Mininger
1. UTC	1. UTC (organic, summer fallow only)	1. Flood Vapam @ 75 gpa
2. MeBr + Pic (57/43) tarped at 350 lbs/A	2. MeBr + Pic (57/43) tarped at 350 lbs/A	
3. Pic only, tarped at 150 lbs/A		
4. Telone + Pic, tarped, 14 gals + 150 lbs/A		
Applied in December 2005	Applied in December 2005	Applied in January 2006

METHODS

Weed control ratings were made at six locations in each bed on April 6 and 18, 2006. Ratings were done on a subjective scale, with 0 indicating no weeds and 10 all weeds. Evaluation areas were flagged off and not hand weeded during the duration of the trial. Weed species included red-stem filleree, lambsquarters, red root pigweed, puncture vine, nightshade, mare's tail, mustards, thistles, and various grasses (annual blue grass, jungle rice, crab grass). Plant stands were measured on May 12, 2006, when the plants were ready to be harvested, by cutting and counting the plants within a 2 x 2 ft square area. Statistical analysis was done using standard AOV procedures assuming a randomized block design with six replications. Mean separation was performed on the subjective data using Fischer's Unprotected LSD at the 0.05 confidence level.

RESULTS:

At the Weimer location, weeds were significantly reduced in the MeBr and Telone treatments as compared to the untreated control (UTC). The chloropicrin treatment did not provide any significant weed control. MeBr significantly reduced weed growth at the Silva location as well. While no statistical comparisons could be made at the Mininger location because there was only one treatment, weed growth with Vapam was comparable to the MeBr treatments at the other locations (Figure 1).

Plant production in the MeBr and Telone treatments averaged 56 plants/ft^2, whereas in the untreated control plots it was 37.5 plants/ft^2—a one-third reduction in sweetpotato plant production because of

weed growth. Where no fumigant was applied but hand weeding was performed, plant production was very similar to the fumigated plots. The vapam treatment averaged 44.5 plants/ft^2 (Table 1).

ACKNOWLEDGEMENTS. Many thanks to Bob Weimer for his cooperation with this project.

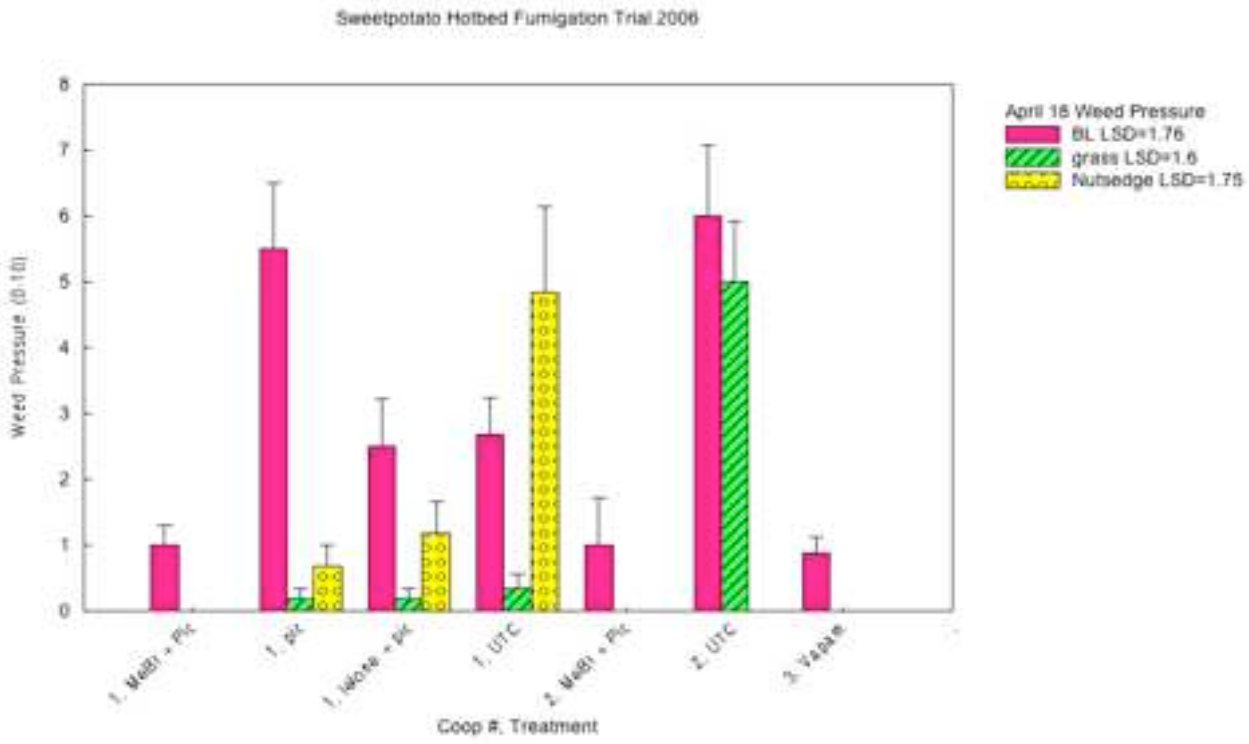


Figure 1. Broadleaf (BL), grass, and yellow nutsedge weed pressure on the second evaluation date, as affected by fumigation treatment for the different cooperator (Coop #). A value of zero indicates no weeds. UTC = untreated control, MeBr = methyl bromide, Pic = chloropicrin, Telone = 1,3-D, and vapam = metam sodium. Error bars are one standard error. LSD = least significant difference at the 95% confidence level. Sweetpotato hotbed fumigation trial, Merced County 2006.

Table 1. Hotbed fumigation trial weed pressure ratings and plant production, 2006.

	weed rating	4/6/06			4/18/06		total	12-May-06
Treatment	broadleaf	Grass	Nutsedge	broadleaf	Grass	Nutsedge	weeds	# plants/sq ft
1. MeBr + Pic 350 lbs/A	1.2	0.1	0.0	1.0	0.0	0.0	1.0	54
2. Pic 150 lbs/A	5.0	0.2	0.7	5.5	0.2	0.7	6.3	59
3. Telone + Pic 14 gals + 150 lbs/A	3.0	0.0	1.2	2.5	0.2	1.2	3.8	57
4. Vapam 75 gpa	0.0	0.0	0.0	0.9	0.0	0.0	0.0	xx
5. UTC	4.3	1.9	2.6	4.0	2.2	2.9	9.1	37
LSD 0.05				1.76	1.6	1.75	2.3	xx

LSD 0.05 Least significant difference at the 95% confidence limit. Means separated by less than this amount are not significantly different.

xx not calculated due to lack of data.