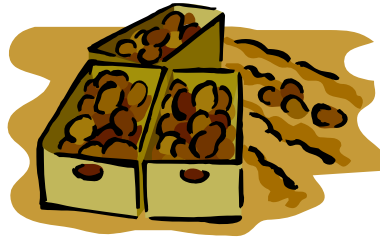


# 2003 Sweetpotato Research Progress Report

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## **Collaborators Variety Trial 2003**

Scott Stoddard  
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**OBJECTIVE:** Evaluate new sweetpotato varieties against California standards as part of the National Sweetpotato Collaborators Trials.

**LOCATION:** North-west corner of B St. and Robin Rds, in Livingston (behind Joe Gallo place). Cooperator: Blaine Yagi, Yagi Bros., Farms.

### **VARIETIES:**

1. Cal Bgard (G3)
2. B63 (G2). From Louisiana.
3. B14 (G2). From North Carolina
4. B14 (G1) (arrived as cuttings)
5. Koto Buki
6. W375. From South Carolina.
7. MS I52. From Mississippi.
8. Diane

Plots were 1 row with 50 plants per variety, replicated 4 times. Transplanted May 22, 2003 using 2 row mechanical transplanter. Drip irrigated.

### **RESULTS:**

Plant bed evaluation is shown in Table 1. Koto Buki and W375 had very good production and had already been trimmed at the time of the evaluation.

Yield results are shown in Table 2. Yields in general were extremely good, with the exception of Koto Buki. A slight amount of root rot and grub damaged roots were observed. All B14 and B63 varieties in this trial had statistically similar #1 yields, followed closely by MS 152 and Diane. California Beauregard had reduced #1 and total marketable yields compared to the others, probably because the seed is 3 years old and showing signs of russet crack disease. W375 and Koto Buki yielded significantly less than the other varieties.

The very high total yields observed for B63 were mainly a result of a large percentage of Jumbos that occurred in this line.

Root evaluations were done at harvest on #1 roots and are presented in Table 3. W375 maintained its good color but suffered from skinning and heavy veining—problems that have been noted in the past. MS 152 seems to get better every year, and is now producing very attractive, smooth skinned potatoes. The California Beauregard had some problems with rough skin and russet crack. Diane received the overall highest appearance score, averaging an 8.

**SCORE SHEET FOR EVALUATION OF SWEETPOTATO SPROUT PRODUCTION**

Date bedded: 3/11/03 Location: Yagi Bros Farms, Inc.  
 Date Evaluated: 4/23/03 Type of bed: hot bed  
 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. Bearegard	yes	3	4	1		14 - 16" tall
2. B63 G2 plants	yes	3	4	1		have been trimmed
3. B14 G2 plants	yes	3	3	1		12 - 14" tall
4. B14 G1 plants	blank					
5. Koto Buki	yes	5	5	3		17" tall and trimmed
6. W375	yes	5	5	3		trimmed
7. MS I52	yes	3	3	1		12" tall
8. Diane	yes	4	4	3		trimmed

- (1) Plant production rated from 1 Š 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) indicates poor uniformity while 5 indicates the highest degree of uniformity of emergence.
- (3) Earliness of plant production is rated from 1 Š 3. One (1) indicates late emergence while 3 indicates early production.
- (4) Root conditions six weeks after first pulling, rated 1 Š 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.

**NATIONAL SWEETPOTATO COLLABORATORS SUMMARY OF DATA  
2003**

STATE AND LOCATION REPORTING: Livingston, CA  
 DATE TRANSPLANTED: May 16. DATE HARVESTED: Oct. 22. No. GROWING DAYS: 159  
 DISTANCE BETWEEN ROWS (in): 40. DISTANCE IN ROW (in): 9  
 PLOT SIZE: NO. OF ROWS: 1 LENGTH (ft): 40 NO. OF REPS: 4  
 IRRIGATION: drip irrigation. 1.5 to 2 inches per week during summer.  
 FERTILIZER: with the drip system. About 125-75-125 NPK

SELECTION	40 lb boxes/A		MKT YIELD	1000 lb BINS/A	% US #1'S	boxes/A CULLS	
	US #1'S	CANNERS					
B14 (G1)*	772.3	172.0	552.5 ab	1496.9	59.9	51.9	19.5
B63 (G2)	768.1	157.6	745.2 a	1671.0	66.8	46.3	177.1
B14 (G2)	763.4	270.8	362.8 c	1397.0	55.9	55.1	38.5
MS I52	720.8	243.4	383.5 bc	1347.8	53.9	53.6	33.1
Diane	685.6	300.5	364.4 c	1350.5	54.0	50.4	28.3
Cal Bgard	597.3	270.0	429.8 bc	1297.2	51.9	45.6	69.1
W375	498.1	240.6	269.7 c	1008.4	40.3	49.6	35.5
Koto Buki	294.0	179.4	134.4 d	607.8	24.3	46.4	33.6
Average	637.5	229.3	405.3	1272.1	50.9	49.9	54.4
LSD 0.05	180.3	97.3		295.8	11.8	NS	NS
CV, %	19.2	28.9	15.4	15.8	15.8	13.9	28.1

- 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 of 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.
- \* B14 plants arrived as cuttings.  
CA Beauregard from 2001 virus tested seed.
- LSD 0.05 Least significant difference. Means separated by less than this amount are not significantly different.  
Cull and jumbo LSD performed on transformed data to assure homogeneity of variances.

## Sweetpotato Collaborators Trial -- 2003

Merced County

This year's sweetpotato evaluation was with Blain Yagi, near Livingston, CA. Soil type was Atwater loamy sand. All lines except #4 were presprouted for ~ 3 weeks. Varieties 2 & 3 were seed in second year. W375 seed is old and needs replacement. Some russet crack showing in CA beauregard. Some worm pressure mid season. Slight rotting in some plots. Overall yields excellent.

**Table 3. Root descriptions at harvest.**

Rep	Var	Variety Name	Skin Color	Skin Text	Flesh color	Eyes	Lents	Shape	Shape Uniformity	Overall App	Comments
1		1CA Beauregard	Copper	7	4	9	7	5, 6	5	7	skin getting rough on some, YCR
2			copper	6	3	9	7	3, 5	7	7	YCR, dull color
1		2B63 (G2)	rose copper	6	3	9	7	5	7	7	some rough skin, cracking, YCR
2			copper	7	4	9	7	3,5,6	5	6	good flesh color, dull color
1		3B14 (G2)	copper	6	4	9	7	5	8	7	rough skin, esp on stem end
2			copper	7	3	9	8	3, 5	7	7	YCR
1		4B14 (G1)	rose copper	8	4	9	7	3, 5	6	7	CV rose to copper
2			rose copper	8	4	9	7	3, 5, 6	5	7	CV, slight YCR
1		5Koto Buki	purple	3	1	5	5	3, 4	5	4	some cracking, lumpy, fluting
2			light purple	4	1	3	7	4, 6, 7	4	4	lumpy-classic KB
1		6W375	deep purple	9	2	5	5	2, 5	7	5	veins, skins easily, latex
2			burgandy	8	3	5	7	1, 3, 5	5	5	veins, eyes, latex

Rep	Var	Variety Name	Skin Color	Skin Text	Flesh color	Eyes	Lents	Shape	Shape Uniformity	Overall App	Comments
1		7MS I52	tan	8	3	9	7	2,5,8	7	7	YCR, very smooth skin
2			tan	8	3	7	6	1,2,5	6	7	nice looking, slight fluting
1		10Diane	rose	8	4	5	7	3,4	8	8	little long, eyes deeper than normal
2			deep rose	8	4	7	7	3,4	8	8	good color inside and out

**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-elliptical  
3 = elliptic  
4 = long elliptic  
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.**

## Sweetpotato Fumigation Trial 2003

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**OBJECTIVE:** Evaluate shanked applications of Vapam (metam sodium), Mocap (ethoprop), and the combination of the two on sweetpotato yield and quality. Treatments are compared to a Telone standard and an untreated control.

**LOCATION:** River Road, about 4 miles west of Livingston, just across from the Gallo Wines tank farm. Nathan Mininger, Simplot, and Western Farm Service, cooperators.

### TREATMENTS:

1. UTC
2. Mocap 2 gpa shanked
3. Vapam 75 gpa shanked
4. Mocap 1 gpa + Vapam 75 gpa tank mix shanked
5. Telone 15 gpa.
6. Mocap 1 gpa shanked

All Mocap and Vapam treatments were applied by shanking them in to 18” deep on a 9” spacing. The chemicals were injected at three levels: 6”, 12”, and 18”. Application date was Jan 16, 2003. Telone was injected to 18” deep on 18” centers (standard application procedure) on April 21, 2003. The shanks on the applicator were mounted on an 18” spacing, and so the 9” spacing was accomplished by using a DGPS system and “nudging” the tractor over 9” then going through the plots a second time.

### PLOTS:

106	105	206	101	102	103	104	202	204	201	203	205 305	304	303	302	301	403	401	404	402	306	x	406	405
											← Buffer area →												
Field Road																							

Plot size: 22’ wide (3 beds) by 200’ long. Total size: 2.32 acres  
 Soil: Delhi loamy sand

Fumigation: Jan 16, 2003 and April 21, 2003  
 Transplant: May 15, 2003. Variety: Diane

Nematode samples: February and October, 2003  
Harvest: Oct 14, 2003.  
Previous crop: sweetpotatoes

## RESULTS

Market yield and cull weights are shown in Table 1. All treatments except for the 2 gpa Mocap treatment significantly increased #1 yields and total market yield over the untreated control. The Telone and Vapam treatments had the highest marketable yields at 826 and 808 boxes per acre. There were no significant differences for Jumbo or Medium sized potatoes. Culls from nematodes or disease were not significantly different among the treatments, but culls caused by grubs and wireworms were significantly reduced in all treatments as compared to the untreated control.

The Vapam + Mocap treatment was also tried on just a one pass, 18" spacing as an observation plot. Yields were increased slightly and culls decreased slightly as compared to the untreated control, but the results were not as good as shanking on a 9" spacing.

Root knot nematode counts taken in the spring and fall were low in all treatments (none were found in the Vapam and Mocap plots. Table 2). This field had been fumigated the year before with Telone, which may explain the very low numbers. Since the soil counts were so low, potatoes with nematode symptoms were also low in this trial.

Weed control ratings were made in the plots in March of 2003, before the application of Telone. The plots with Vapam significantly reduced the broadleaf the grass weed presence as compared to the other treatments (Table 2). Surprisingly, the treatments just with Mocap also showed some weed suppression as compared to the untreated control.

Previous research has shown Mocap to be of little value when sprayed on the soil surface and then incorporated with a disc to 6 – 8". Thus, one of the objectives of this trial was to see if shanked applications improved efficacy of this material. Two years of research suggest that this method is superior to doing nothing at all. However, combining Mocap with Vapam was not better than either chemical alone. Both this trial and the one from 2002 also show that grub and wireworm damage is significantly reduced by soil fumigation.

## ACKNOWLEDGEMENTS

Thanks to Nathan Mininger, Larry Beckstead with Western Farm Service, Lonnie Slayton with Simplot, and Larry Burrows, County Ag Technician for their help and cooperation with this trial.





**Table 1. Soil fumigation trial on sweetpotatoes, 2003. Market yield and cull weights**

plot	treatment	40 lb boxes/A			culls		culls other	Total Culls boxes/A	TMY	
		#1's	Jumbo	Meds	nematodes	grubs/wireworm			boxes/A	bins/A
1	UTC	350.9	133.8	187.4	3.7	106.0	19.7	129.3	672.0	26.9 c
2	Mocap 2 gpa	345.3	131.3	192.0	9.0	27.5	29.5	66.0	668.6	26.7 c
3	Vapam 75 gpa	454.1	145.0	208.4	7.4	52.1	18.5	77.9	807.5	32.3 ab
4	Mocap 1 gpa + Vapam	413.0	145.4	186.0	0.0	23.1	13.0	36.1	744.4	29.8 b
5	Telone 15 gpa	431.6	179.8	214.9	0.8	23.0	25.1	48.8	826.4	33.1 a
6	Mocap 1 gpa	421.1	123.0	209.7	1.6	14.8	44.2	60.6	753.8	30.2 b
x	Mocap + Vapam 18"	393.7	121.7	215.7	0.0	51.2	46.9	98.1	731.1	29.2
	Average	402.7	143.1	199.7	3.7	41.1	25.0	69.8	745.5	29.8
	LSD 0.05	73.1	NS	NS	NS	38.1	NS	41.7	71	2.8
	CV (%)	12.1	32.4	21.4	245	61.5	94.7	39.6	6.3	6.3

Cull potatoes were separated based on whether the damage was due to nematodes, grubs and/or wireworms, or something else.

TMY = total market yield = #1 + Jumbos + Mediums

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

NS = not significant.

CV = coefficient of variation, a measure of the variability in the experiment.

The Mocap + Vapam 18" treatment was shanked on an 18" spacing in one rep only, and is not included in the statistical analysis.

**Table 2. Root-knot nematode counts and spring weed control.**

plot	treatment	RKN #/500 cc soil		Spring weed pressure	
		Feb-03	Oct-03	BL	Grass
1	UTC	54	90	7.5	3.25
2	Mocap 2 gpa		---	4	2.75
3	Vapam 75 gpa		0	3.25	2.5
4	Mocap 1 gpa + Vapam		0	3.75	2.5
5	Telone 15 gpa		12	9	3.5
6	Mocap 1 gpa		18	5	3.5
	Average	---	---	5.1	3
	LSD 0.05	---	---	1.1	0.7
	CV (%)			9.6	10.5

Weed pressure ratings were made on March 25, 2003. 0 = no weeds, 10 = all weeds. BL = broadleaf weeds.

The Telone test plots had not been fumigated at time of weed evaluation.

Root-knot nematodes were measured on fall samples, composite sample with no replication.

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

CV = coefficient of variation, a measure of the variability in the experiment.

## **Devrinol/Dacthal Herbicide Evaluation 2003**

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**OBJECTIVE:** Evaluate different rates of Devrinol and Dacthal Flowable, a new formulation, on weed control in drip irrigated sweetpotatoes.

**LOCATION:** South of the corner of Central and Rose, near Atwater. Cooperator was Dave Souze with D & S Farms.

### **TREATMENTS:**

1. UTC
2. Devrinol 50-DF 2 lbs/A
3. Devrinol 4 lbs/A
4. Dacthal Flowable at 3 qts/A
5. Dacthal Flowable 6 qts/A
6. Devrinol 2 lbs/A + Dacthal 3 qts/A

Plot size was 1 bed (2 rows) by 25 ft, replicated 4 times. All treatments were applied to clean bed and incorporated with a rake on 7/18/2003.

Application: CO<sub>2</sub> sprayer @ 30 psi using 1.5 gals of water.

Date: July 18, 2003

Variety: Beauregard seed field, transplanted July 14

Irrigation: Drip.

Prior weed control: fumigation and cultivation.

Weed ratings: weed evaluations were made on July 29 and Aug 6, 2003.

Harvest: no harvest data taken

### **RESULTS:**

Treatments were applied to a recently planted seed field that had received Vapam fumigation but no other herbicide applications. Both herbicides were applied with a back pack sprayed directly over the top of the plants to a clean bed, then hand incorporated with a rake to about 1 – 2”.

Weed control ratings are shown in Table 1 for both broadleaf (BL) and grass weeds. The predominant weed in the plots was red root pigweed, though there was a little puncture vine and purslane. There were very little, if any, grass weeds in the plots, and as a result no statistics were run for these. For the broadleaf weeds, the observation data were transformed by the arcsin method to reduce the variance and change the data to reflect weed pressure on a percentage basis.

At the first evaluation, broadleaf weeds were significantly reduced by all treatments as compared to the untreated controls. The lowest weed counts (best control) were observed for both rates of

Dacthal and the high rate of Devrinol (9.2%, 13.8%, and 19.6% respectively). At the second evaluation, all treatments were significantly better than the untreated control, but there were no significant differences among the treatments that received the herbicide. There was a trend for better control in both the high rates of Devrinol and Dacthal. Combining the two in a tank mix did not improve weed control in this trial. Weed pressure at the second evaluation is shown in Figures 1 – 6.

While not obvious at the first evaluation on July 29, by the second evaluation some phytotoxicity was observed on the sweetpotato plants in the treatments that received the Dacthal applications (Table 2). The problem was especially obvious at the 6 qt/A rate, which caused deformed leaves and smaller plants (Figure 7). The crop eventually grew out of the problem, and phyto symptoms could not be seen by September.

The results in this trial are similar to those in the 2001 trial, where weed pressure was also significantly reduced by these herbicides. The results from the 2003 trial suggest that there is no advantage to combining the Devrinol and Dacthal in a tank mix. The high rate of Devrinol (4 lbs/A) provides better redroot pigweed control. Some crop phytotoxicity problems were observed with the high rate of Dacthal (6 qts/A) when used as an over-the-top application.

Currently, there are very few herbicides registered on sweetpotatoes in California. While Devrinol and Dacthal have labels, they are not often utilized, because many growers think that the control is erratic and/or insufficient. It is true that these materials will not provide 100% control in most situations—in Table 1 even the best treatments had 25% weed pressure—but compare this with nearly 70% weed pressure rating in the control plots and it is obvious that the herbicides are suppressing many weeds. Hand hoeing will not be eliminated, but can be substantially reduced in fields where herbicides are used.

#### ACKNOWLEDGEMENTS

Many thanks to Dave Souza for his help and cooperation with this trial, to Chuck Duerksen with Amvac Corporation for product, and to Larry Burrow, County Ag Field Tech for field help.

**Table 1. Sweetpotato herbicide broadleaf and grass weed control, 2003.**

plot treatment	7/29/03		BL, %	8/6/03	crop
	BL, %	grass, %			
1 UTC	52.3 a	9	68.9 a	5	0
2 Devrinol 2 lbs/A	22.7 b	0	32.5 b	0	0
3 Devrinol 4 lbs/A	19.6 bc	3	23.1 b	0	0
4 Dacthal Flowable 3 qts/A	13.8 bc	0	27.9 b	0	20.5 deformed lvs and
5 Dacthal Flowable 6 qts/A	9.2 c	0	17.9 b	0	31.4 smaller plants
6 Devrinol 2 lbs + Dacthal 3 qts/A	22.5 b	0	26.2 b	0	0
Average	23.4	2	32.7	2	8.6
LSD 0.05	10.6	---	18.4	---	4.1
CV, %	30.1	---	37.4	---	31.7

BL = broadleaf weeds, primarily redroot pigweed.

LSD 0.05 = least significant difference at the 95% confidence level. Means followed by the same letter are not significantly different. Analysis performed on arcsin transformed data.

Grass data not analyzed, due to lack of weeds.

CV = coefficient of variation, a measure of the variability in the experiment.



**Figure 1. Treatment 1, untreated control (UTC) on Aug 6.**



**Figure 2. Treatment 2. Devrinol 2 lbs/A.**



**Figure 3. Treatment 3. Devrinol 4 lbs/A.**



**Figure 4. Dacthal 3 qts/A.**



**Figure 5. Dacthal 6 qts/A.**



**Figure 6. Treatment 6. Devrinol 2 lbs + Dacthal 3 qts/A.**



**Figure 7. Leaf distortion caused by the high rate of Dacthal.**

**Iodomethane (methyl iodide, MIDAS) fumigation trial on sweetpotatoes 2003**

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**OBJECTIVE:** Evaluate different rates of iodomethane (Midas) on yield and quality of sweetpotatoes.

**LOCATION and COOPERATORS:** Gabe Estrada, Angelakis Farms, SW corner of Howard and Atwater-Jordan Rds.. Others: Lonnie Slayton, Simplot; Neal Yoshida, Tri-Cal; Mike Allan, Arvesta.

**TREATMENTS ANGELAKIS FARMS:**

1. UTC
2. iodomethane, 120 lbs/A, tarped
3. iodomethane, 200 lbs/A, tarped
4. iodomethane, 280 lbs/A, tarped
5. Telone, 16 gals/A, shanked 18" deep on 24" centers. 12/18/2002

**FIELD PLOT PLAN:**

1	2	3	4	5	4	1	3	5	2	3	1	4	5	2	2	4	1	3	5
REP 1					REP 2					REP 3					REP 4				

**PLOT SIZE:** 11 ft (one pass) by 100 ft. Total test 0.55 A. Two locations.  
 Telone: 13 ft by 100 ft. 0.12 A  
 Iodomethane: 0.3 A

**PROTOCOL:**

- December 2002 fumigation. Telone 12/18, Midas 12/27.
- pre-application nematode samples. Samples taken 12/18/2002
- weed and disease control ratings as appropriate. Weed rating 2/21/2003.
- Variety: Diane transplanted early May. Drip irrigated.
- harvest 9/19/2003

**NOTES:** iodomethane tests plots are crop destruct. Applied at higher rate than intended.

**IODOMETHANE TEST PLOT ON SWEETPOTATOES**  
**Merced County, 2003. DALLAS BROS FARMS**

**OBJECTIVE:** Evaluate different rates of iodomethane (Midas) on yield and quality of sweetpotatoes.

**LOCATION and COOPERATORS:** Tom Dallas, with Dallas Bros. Farms. Southwest corner of Washington and Vinewood. Others: Lonnie Slayton, Simplot; Neal Yoshida, Tri-Cal; Mike Allan, Arvesta.

**TREATMENTS:**

1. UTC
2. iodomethane, 120 lbs/A, tarped (ran out of product part way into 101)
3. MeBr, 60 lbs/A, tarped
4. MeBr, 140 lbs/A, tarped
5. Telone, 16 gals/A, shanked 18" deep on 24" centers. 12/18/2002

**FIELD PLOT PLAN:**

1	2	3	4	5	4	1	3	5	2	3	1	4	5	2	2	4	1	3	5
REP 1					REP 2					REP 3					REP 4				

**PLOT SIZE:** 11 ft (one pass) by 100 ft. Total test 0.55 A. Two locations.  
 Telone: 13 ft by 100 ft. 0.12 A  
 Iodomethane: 0.08 A

**PROTOCOL:**

- December 2002 fumigation. Telone 12/18, Midas 12/27.
- pre-application nematode samples. Samples taken 12/18/2002
- weed and disease control ratings as appropriate. No weeds.
- Variety: Beauregard transplanted late April. Drip irrigated
- Harvest Aug 4 – 6, 2003.

**NOTES: Ran out of product and substituted methyl bromide for this test.**  
**Was not able to weigh all plots because of conflict with tomato harvest.**



## RESULTS

Originally this test was to have identical treatments at both locations, but due to calibration problems with the application equipment (the methyl iodide was applied with a methyl bromide rig and there is a difference in the specific gravity between MeBr and MeI), twice as much MeI was applied at the Angelakis site as was originally planned. Because this happened, there was not enough material left to duplicate the test at the Dallas Bros location, and different rates of MeBr were substituted.

Nematode samples were taken at both field sites at the time of soil fumigation in late December, 2002. No root knot nematodes were found at either location, and only 90 ring nematodes per 500 cc of soil were found at the Angelakis Farms trial location.

Weed ratings were made at the Angelakis site on February 21, 2003. As compared to the untreated control (UTC) and Telone, all the iodomethane (MeI) treatments significantly reduced winter weeds (Table 1). There were essentially no weeds growing in any of the MeI treatments throughout the winter. The Telone treatment suppressed weed growth as compared the untreated controls. No weed evaluations were made at the Dallas Bros site.

Yield results for both locations is shown in Table 1. Because the Dallas Bros site harvest conflicted with fresh market tomato harvest, most plots were not weighed, and therefore the data were not statistically compared. There was a trend for improved total market yield where fumigants were applied. At the Angelakis site, significant differences between the treatments were observed for Jumbos and total marketable yield (TMY). Highest TMY was found for Telone and the low rate of MeI, at 1042 and 1151 boxes/A, respectively. As the MeI rate increased, however, yields declined (Figure 1), which probably indicates that the rate was so high that the system was over-dosed. This has also been known to occur in situations where MeBr was over-applied. In these tests, no crop phyto or growing problems were seen in any of the plots.

There were no differences between treatments in the amount of cull potatoes produced. Culls averaged a low 26.4 boxes per acre at the Angelakis site and were a combination of many factors, including grubs, wireworm, nematode, and russet crack.

In conclusion, the application of MeI significantly increased sweetpotato TMY over the untreated control. Best results were obtained at the 120 lb/A rate, which was comparable to a standard application of Telone at 16 gallons/A. Yields decreased at the higher rates. No differences were observed in the quality of the potatoes or in the nematode damage. Weed control was excellent in the plots that received MeI. Because of the problem with calibrating the application equipment, further research should be conducted to determine the best rate for sweetpotato production.

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**Table 1. Iodomethane fumigation trial on sweetpotatoes, Merced County 2003.**

**Angelakis Farms**

trt #	trt	Weed Rating, 2/21		----- 40 lb boxes/A -----				TMY	TMY	% #1's
		BL	G	#1's	Jumbos	Med	culls	boxes/A	bins/A	
1	UTC	5.5	2.75	416.8	123.5	274.7	26.1	815.0	32.6	51.0
2	Mel 120 lbs/A	0	0	574.1	272.6	304.2	24.3	1150.8	46.0	49.9
3	Mel 200 lbs/A	0	0	500.7	271.9	264.1	22.2	1036.8	41.5	48.0
4	Mel 280 lbs/A	0	0	485.1	231.2	252.0	24.1	968.3	38.7	50.2
5	Telone 16 gals	2.75	1.5	526.1	255.7	260.6	35.1	1042.4	41.7	50.5
	Average			500.6	231.0	271.1	26.4	1002.7	40.1	49.9
	LSD 0.05	0.56	0.89	NS	68.9	NS	NS	125.9	5.0	NS
	CV, %	22.1	67.9	14.3	19.4	9.3	65.3	8.2	8.2	8.0

**Dallas Bros Farms**

trt #	trt	Weed Rating, 2/21		----- 40 lb boxes/A -----				TMY	TMY	% #1's
		BL	G	#1's	Jumbos	Med	culls	boxes/A	bins/A	
1	UTC			281.2	57.6	242.0	0.0	580.8	23.2	48.5
2	Mel 120 lbs/A			399.0	124.3	230.6	0.0	753.8	30.2	52.4
3	MeBr 60 lbs/A			279.9	152.1	263.6	95.2	695.6	27.8	40.2
4	MeBr 140 lbs/A			378.7	114.1	185.8	6.5	678.6	27.1	56.1
5	Telone 16 gals			328.2	117.2	212.7	3.3	658.1	26.3	49.9
	Average			333.4	113.0	226.9	21.0	673.4	26.9	49.4

Weeds BL = broadleaf, G = grasses. Values indicate weed pressure (0 = nothing, 10 = all weeds).

No weed control ratings were made at Dallas Bros Farms.

#1's Roots 2 to 3.5 inches in diameter, length 3 to 9 inches, well shaped and free of defects.

Meds 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 of marketable quality.

TMY Total marketable yield is the sum of the above three categories. Bin weight = 1000 lbs.

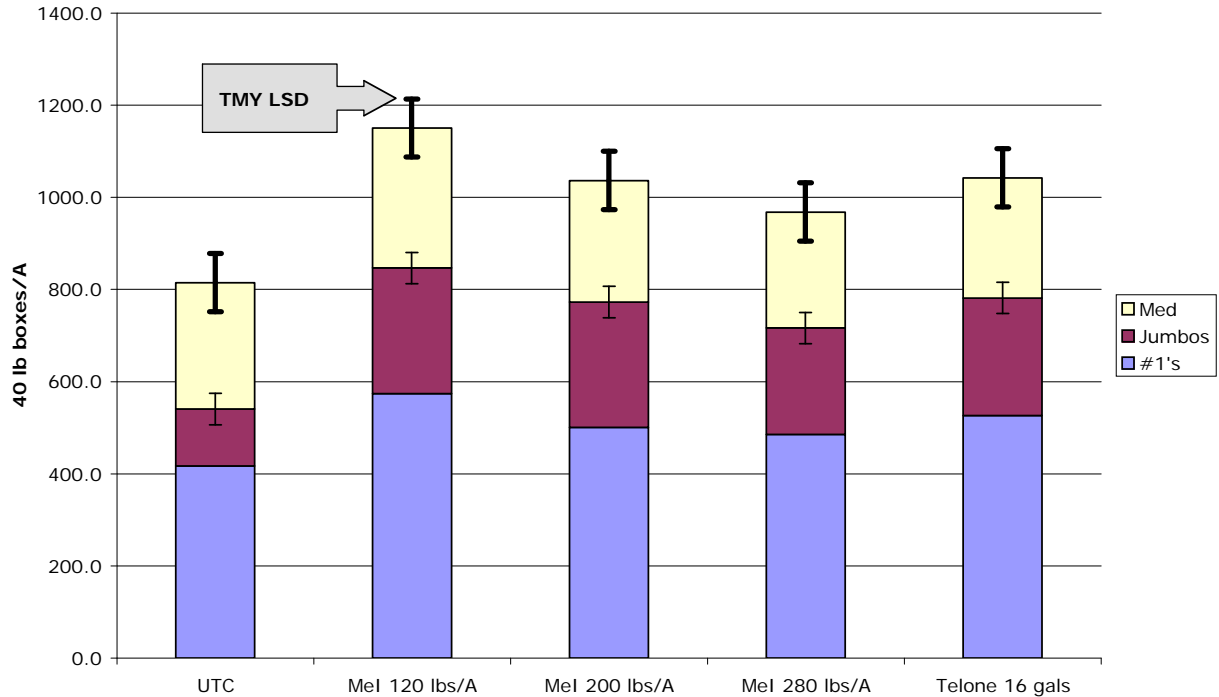
% US #1's Weight of US #1's divided by total marketable yield.

Culls Roots greater than 1" in diameter that are so misshapen or unattractive as to be unmarketable.

LSD 0.05 Least significant difference. Means separated by less than this amount are not significantly different.

Not enough plots were sampled at Dallas Bros to perform a statistical analysis.

**MeI Fumigation Trial on Sweetpotatoes, 2003  
Angelakis Farms**



**Figure 1. Yield results in boxes/A for the iodomethane trial at Angelakis Farms, 2003. Total height of column equals total marketable yield (medium + Jumbos + #1's). Error bars represent the LSD 0.05 for Jumbos and total yield. There was no significant difference in #1 yield between the treatments.**