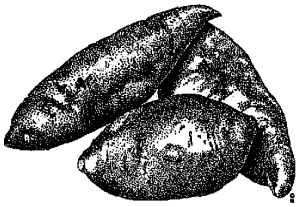
University of California Cooperative Extension

2145 Wardrobe Ave., Merced, CA 95341
(209) 385-7403 http://cemerced.ucdavis.edu



SWEETPOTATO TIPS

In this issue:

Meeting Notice

April 14, 2010

SWEETPOTATO FIELD MEETING:

HOTBED FUMIGATION ALTERNATIVES

Thursday, April 29, 2010
1:00 pm - 2:30 pm
D&S Farms hotbeds
NE corner of McSwain Rd and Cressey Way

Special Guests: Dr. Mike Davis, UC Davis, and Dr. Antoon Ploeg, UC Riverside

- Please join me for this brief afternoon meeting to view the 3rd year of the USDA ARS sponsored methyl bromide alternatives test plot. Chemical fumigation treatments, solarization, herbicide and fungicides are being evaluated.
- Telone update (cap, production) and other fumigation test plots discussion.
- Light refreshments provided.

Scott Stoddard, Farm Advisor

News and Announcements:

The 2009 Sweetpotato Research Project Report available online at http://cemerced.ucdavis.edu/. Once there, click on the "Field and Vegetable Crops" link. It is long, but contains all the details regarding the projects that I worked on last year and which are summarized below.

Sweetpotato acreage expected to increase again in 2010

According to the USDA National Ag Statistics Service, California's acreage planted to sweetpotatoes will increase 106% in 2010, to 18,500 acres. Nationally, growers intend to increase production 107% — over 117,000 acres. If realized, this would be the most acres planted for this crop since 1982.

Prospective Plantings Agricultural Statistics Board March 2010. NASS, USDA.

Sweet Potatoes: Area Planted by State and United States, 2008-2010

State	Area Planted			
	2008 *1,000 Acres*	2009 *1,000 Acres*	2010 (1) *1,000 Acres*	2010/2009 *Percent*
AL	2.6	2.6	3.0	115
AR (2)		3.0	3.3	110
CA	14.8	17.4	18.5	106
FL (2)		3.0	3.8	127
LA	15.0	14.0	16.0	114
MS	20.0	20.0	20.0	100
NJ	1.2	1.2	1.2	100
NC	47.0	47.0	50.0	106
SC (3)	0.6			
TX	1.7	1.4	1.3	93
VA (3)	0.3			
US	103.2	109.6	117.1	107

1 Intended plantings in 2010 as indicated by reports from farmers.
2 Estimates began in 2009.
3 Estimates discontinued in 2009.

Sweet Potatoes
Value of production for 2009

State Rank	State	Acres (1,000)	Yield Boxes/A	Price $/box	Value (*million $*)
1	North Carolina	47.0	500	7.24	170.140
2	California	17.4	850	10.72	158.549
3	Louisiana	12.0	337.5	7.12	28.836
4	Mississippi	11.0	287.5	7.20	22.770
5	Florida	3.0	275	12.00	9.900

Variety Update

Covington continues to gain market dominance in the yam category, and will likely be planted on more acres than **Beauregard** this year. Covington tends to have improved pack-out of #1 roots, is nematode resistant, and seems to be a more consistent performer. It also has a high level of tolerance to Sweetpotato Feathery Mottle Virus, and will not get russet crack like Beauregard. I have some very old seed, however, that is losing orange flesh color, so this variety, like its predecessors, needs to be cleaned up occasionally to maintain maximum yield and quality.

Beauregard has greater yield potential than Covington, however.

A new variety from LSU called **Evangeline** is being grown commercially now in Louisiana and Mississippi. The roots of this sweetpotato looks similar to **Beauregard**, but may be slightly redder (actually, the foliage and roots look just like **Bienville**, a variety that was grown on limited acreage for a few years here in CA). It is sweeter than Beauregard, jumbos easily, has nematode resistance, and at least here in our climate, suffers from air cracking.

Evangeline probably will not do well for us because of this air cracking problem, which can be severe depending on the field, weather, and time of harvest. Storage losses can be enormous, in excess of 30%. Unless this variety adapts to our growing conditions, I do not see this one being a good replacement for Beauregard. Currently, LSU is trying to restrict sales of this variety to Louisiana and Mississippi only, where it does not have this problem. It may be released nationally next year.

Murasaki-29 continues to gain commercial acceptance. I was aware of only one field where it did not perform adequately last year (roots were bally). Some tips for Murasaki:

- This is a long season variety, needing about 140 days to yield well. Plant early and harvest late.
- It has nematode, disease, and insect resistance, so this is a good candidate for the buffer zones if you are also planting Kotobuki.
- It tends to produce mostly mediums and #1's. Planting at 12 - 15 inch spacing

increases #1 roots; planting at 9" results in greater mediums. As long as the medium price is almost the same as #1's, your potential return is similar for all three plant spacings. If the medium price drops to $12 per box while #1's are more than $20, however, you are better off to plant at 12 - 15".

- Murasaki stores well: harvest and sell Kotobuki first if growing both varieties.

The new red (**175**), and sweet (**85**) varieties I had high hopes for last year no longer look promising. 175 stores poorly: easily rots and loses color. 85 became mixed with O'Henry seed and it is not possible to separate them any longer. **05-29** develops veins and an off-color to the skin. Both LSU and NCSU continue to send me new material to evaluate, but the process is slow since these type of sweetpotatoes are not grown commercially in their states.

2010 Projects

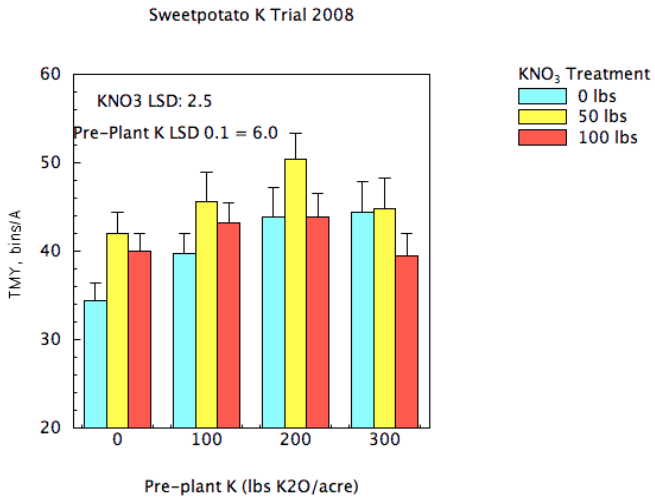
- ☑ Collaborators variety trial and Advanced Line Trial
- ☑ MeBr alternatives trial in the hotbeds
- ☑ A USDA Specialty Crops trial to record root development in three fields as affected by various weather and soil conditions.
- ☑ An irrigation trial.
- ☑ Continued fumigation work.

2009 Research Summary

Sweetpotato Fertilizer Trials 2008/09.

C. Scott Stoddard, UCCE Merced, Rob Mikkelsen, INPI, and Ed Carmondy, GSL Inc.

Two fertilizer trials were conducted in commercial sweetpotato fields in 2008 to observe the effects of nitrogen fertilizer source and timing, potassium fertilizer source, and potassium fertilizer rate on crop response and long-term storage of the harvested roots. In the N trial, CAN-17 (calcium nitrate 17% N) was compared to UAN32 (urea-ammonium nitrate 32% N) by applying through the drip irrigation lines either early in the season (early) or throughout the season (long). Potassium was applied at 200 lbs K2O per acre, either from muriate of potash (KCl) or sulfate of potash (K_2SO_4). In the K trial, potash rates from 0 – 300 lbs K_2O per acre were applied pre-plant, then supplemented with additional K during the growing season to give a range of potassium rates of 0 – 400 lbs K_2O per acre in 50 lb increments. Both trials were set up as randomized block split plots with 5 to 6 replications; pre-plant potash was the main plot and split plots with fertilizer additions through the drip irrigation system. In the N trial, early N resulted in greater leaf N in both July and August sampling periods as compared to season-long nitrogen applications, however, there was no consistent root response to either timing or source of N. Furthermore, no significant differences could be found between N or K source on root yield or storage losses occurred through May, 2009 (7 month storage period). In the K trial, leaf K levels increased as fertilizer increased to 400 lbs K_2O per acre, but root yields peaked at 250 lbs per acre of applied K_2O and then declined at higher rates.

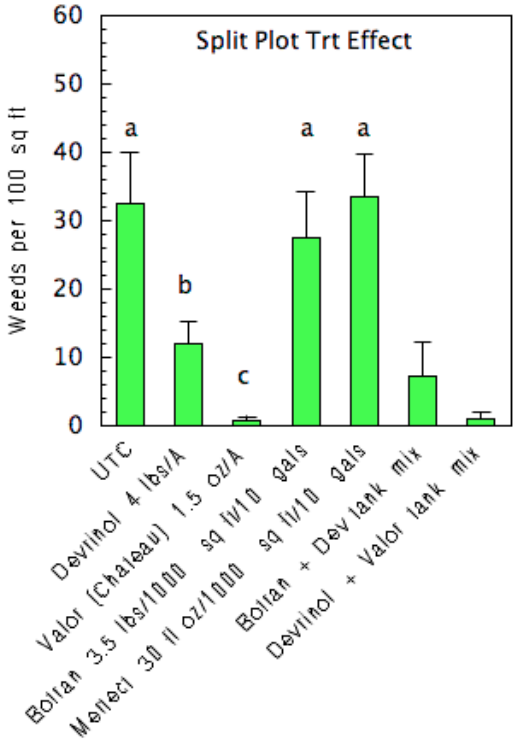


There was no observed storage benefit to high rates of K; rather, losses in storage were increased at rates higher than 300 lbs K_2O/A. On average, the harvested crop removed 103, 40, and 172 lbs per acre of N, P_2O_5, and K_2O, respectively. This is equivalent to 2.4, 0.9, and 4.0 lbs per bin of each of these nutrients (assuming 22 boxes, or 880 lbs, per bin).

Methyl Bromide fumigation alternatives for sweetpotato hotbeds in California.

Scott Stoddard, UCCE Merced County; Mike Davis, UC Davis Plant Pathology; Antoon Ploeg, UC Riverside Nematology; Jim Stapleton, KAC Plant Patholgy.

Research thus far has shown weeds to be the main pest issue sweetpotato growers must contend with in the hotbed area. As a result, the Telone + Vapam treatment has been the most effective and economical alternative to MeBr. Unfortunately, solarization has not been that effective in suppressing weed populations, probably a result of the length of time between treatment in the summer and bedding the following spring. The use of pre-plant herbicides Devrinol or Valor significantly improved weed control, especially in the Pic only, solarization, and untreated alternatives. Though Valor did cause a reduction of plants in the hotbed, there was no affect from this herbicide on the yield potential of the transplants taken to the field.



Murasaki-29 Sweetpotato Plant Spacing Trial

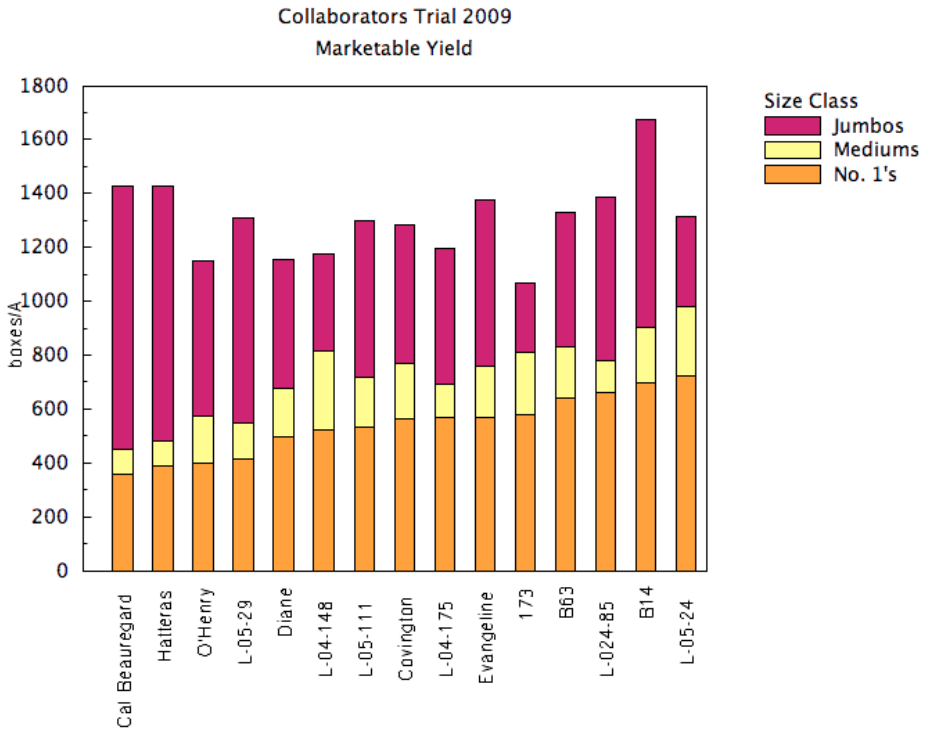
Scott Stoddard, UCCE Merced, Deborah Golino, UC Davis Foundation Plant Services, Don LaBonte, LSU.

Five plant spacings were evaluated to determine impacts on root yield and size distribution: 6", 9", 12", 15", and 18". No. 1 yield peaked at the 12" spacing, however, there was no significant differences in No. 1 yield or No.1 + medium yield between any of the plant spacings. Significant differences were seen in size category, with very few Jumbos (15%) but increased mediums in the 6" and 9" spacings. There are about 250 plants per 4 sq ft in the bed, or 500 plants per linear ft of bed. Therefore, to increase plant population by 4000 (planting at 9" rather than 12"), requires an additional 8 ft x 18.00 = $144. Based on this limited data set, it appears that 9", 12", or 15" plant spacings offer similar yield potential; increased plant costs at 9" are offset by the higher potential income from the increased medium size class, resulting in net returns that are very similar between 9" to 15". If the medium size class value per box is reduced to $12, however, best returns occur at 12" and 15".

National Sweetpotato Collaborators Group Variety Trial.

Scott Stoddard, UCCE Merced, Deborah Golino, UC Davis Foundation Plant Services, Don LaBonte, LSU, Craig Yench, NCSU

The Collaborators Trial is so named because it is a long-term variety evaluation trial (> 40 years) that is a collaborative effort between breeders in North Carolina and Louisiana and multiple AES/Extension personnel in other states where this crop is grown. The objective of the trial is to evaluate new breeding lines of sweetpotatoes for their quality, yield, and storage characteristics for California conditions. It is conducted in a commercial field and require grower cooperation. Statistical design is a randomized block with four replications. The Collaborators trail in 2009 was with Blain Yagi, near Livingsont, CA. Soil type was Hilmar sand, slightly saline-alkali. The field was fumigated with Telone and pre-irrigated.



Sweetpotato Field Fumigation Trial 2009

Scott Stoddard, Randy Jantz, Jerry Krebs, TKI, Brian Hegland, Dow Agro, Larry Beckstead, CPS.

The objective of this trial was to evaluate the effect of reduced Telone (1,3-D) rates when combined with K-pam (metam potassium) on root knot nematodes (RKN – *Moloidogyne incognita*) and yield of sweetpotatoes. Fumigation treatments:

1	UTC
2	K-Pam 35 gpa only
3	K-Pam 50 gpa only
4	Telone 6 gpa only
5	K-pam 35 gpa + Telone 6 gpa
6	K-Pam 50 gpa + Telone 6 gpa
7	Telone 9 gpa only
8	K-Pam 35 gpa + Telone 9 gpa
9	K-Pam 50 gpa + Telone 9 gpa
10	Telone 12 gpa + 45 Vapam
11	Telone 12 gpa only

Applications were made simultaneously using a CPS rig, then planted to O'Henry sweetpotatoes.

A a significant reduction in yield in the untreated control was observed, mainly as a result of very few plants setting roots rather than a high cull count. Indeed, the cull % was only slightly higher in the control plots than the fumigated plots in spite having high nematode counts. In general, yields were improved when Telone and metam were combined. Telone only at 6 gpa was too low for optimal production, but when combined with either rate of metam significantly increased yields.

Based on the results of this study at one location with high indigenous populations of RKN and Spiral nematodes, the combination of reduced rates of Telone + metam looks very promising. The factorial analysis indicated that metam was as effective as Telone. Nematodes were effectively controlled, and yields were significantly improved as compared to the untreated control areas that had very high nematode counts in the fall. Further evaluation of this system is needed.

Scott Stoddard

Farm Advisor, Merced and Madera Counties