HEALTHY FOOD SYSTEMS • HEALTHY ENVIRONMENTS • HEALTHY COMMUNITIES • HEALTHY CALIFORNIANS

University of California
Agriculture and Natural Resources
Making a Difference for California

UCCE

SWEETPOTATO TIPS

Merced & Madera Counties Vol. 2, Dec, 2010

UC Coperative Extension • 2145 Wardrobe Ave. • Merced, CA 95341
(209) 385-7403 FAX (209) 722-8856 • http://cemerced.ucdavis.edu

IN THIS ISSUE:

Special Note:

The National Sweet Potato Convention is January 23 - 25, 2011, in Orange Beach, Alabama

December 2010
Happy New Year

Production Notes:

According to the latest reports from NASS, the United States harvested 110,200 acres in 2010, an increase of 13.7% over 2009. This makes 2010 a year with the greatest number of acres since 1979. More telling, though, is total production. In 2009, total U.S. production was estimated at 1.96 billion pounds, the most since 1950. This occurred in spite of low yields from both Mississippi and Louisiana as a result of severe late season rains. There have been no reports of widespread losses due to weather in 2010, so average yields from each state can reasonably be expected (California and North Carolina had above average yields in 2009). I estimate the U.S. average to be 480 boxes/A, for total production of 2.12 billion pounds. A long way from the 2.7 billion pounds produced in 1950, but that also required 490,000 acres.

We have a large crop to sell, but I'm confident that there is room for more growth in the industry. In 1950, the US population was estimated to be 152 million; today it is almost exactly double, at 308 million.

Sweet Potatoes: Area Planted, Harvested and Production by State and United States, 2009 - 10 *

State	Area Planted		Area Harvested		Yield
	2009	2010	2009	2010 (est)	2009
	1,000 Acres	*1,000 Acres*	*1,000 Acres*	*1,000 Acres*	*boxes/A*
AL	2.6	3.0	2.3	2.9	425
AR	3.0	3.3	2.5	3.0	462
CA	17.4	18.5	17.4	18.5	850
FL	3.3	3.5	3.2	3.4	275
LA	14.0	15.0	12.0	14.0	340
MS	20.0	18.0	11.0	17.0	290
NJ	1.2	1.2	1.2	1.2	275
NC	47.0	50.0	46.0	49.0	500
TX	1.4	1.3	1.3	1.2	250
US	109.9	113.8	96.9	110.2	502 **

** National Agriculture Statistics Service Crop Production 2009 Summary.*
*** Weighted average, adjusted for acres.*

General Notes:

Season in review.
Weather had a big impact on California producers this year. We had a cool, wet spring that delayed and slowed transplanting. This was followed by one of the most mild summers on record – there were very few days above 100° F this year. By late summer I thought the combination of the two would result in delayed harvest and lower than average yields.

In the end, I was only partially correct. We began harvest this year on July 20th, about 2 weeks later than normal. Many producers delayed some harvests in September and October to give fields greater time to bulk up. Many acres were still in the ground on November 1 – a date that usually signals the traditional end of harvest. But yields for most fields and varieties are not below average. **Diane** and **Covington** look excellent, **Murasaki** less so. This makes sense considering that Murasaki needs about 140 days even in a hot summer to yield well. But because so many acres of Murasaki were planted this year, the price premiums for this cultivar have dropped dramatically. **Beauregard** and **O'Henry** were mixed. I observed both irregular set and shape with very good yields in some fields.

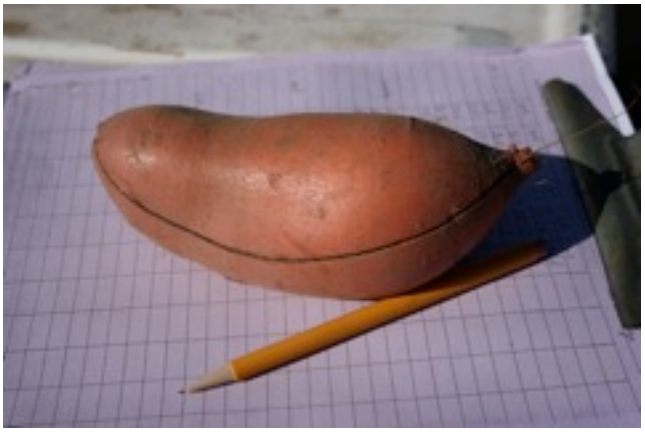
Of course, another reason for the extended harvest season is because we had more than 18,000 acres to get into the shed this year. In the end, I expect that average yields will be less than last year, around 750 - 800 boxes per acre, and total production of about 576 million pounds.

Summer of 2010 also revealed problems with Covington under long-term storage conditions. Many sheds noted rapid weight loss and darkening of the skin, beginning around June. This was not restricted to just California: North Carolina experienced similar problems. They called the darkening "tea staining". Samples I submitted for pathology testing were inconclusive.

Variety Development:
Evangeline will be available in limited amounts for the 2011 season, both from Dave Souza and from FPS up in Davis. Evangeline is a Beauregard-type yam, but with better color, shape, flavor, and nematode resistance. The root has a little more rosy red in it. Foliage is dark green for mature leaves, with deep purple new growth. It is easy to recognize it in the field because of this growth habit.

Evangeline appears that it should be a winner, and producers in Louisiana, Mississippi, and Alabama are growing it commercially. It is the preferred variety by Lamb Weston for fries, because of it's sugar profile. But I have my reservations for California growers because it cracks easily at harvest. Furthermore, I do not know how well does in long-term storage, nor do I know its Russet Crack tolerance.

Research in carrots has shown that cracking can be exasperated by high levels of nitrogen. Therefore, I suggest organic producers try this one first: the cracking may be reduced under organic fertilizer programs.



Bonita is a new Jersey-type sweetpotato just released from the LSU program that will be available for very limited testing by California growers in 2011. Bonita has cream colored flesh, similar to O'Henry, but its skin color is more tan. It has the usual disease resistance package (Stem Rot, Pox, and RKN), and as such offers benefits over Golden Sweet or O'Henry. I have tested this cultivar for several years and yield potential is very good, but it tends to grow long and jumbo up.

I am not that excited about Bonita as a replacement for our current sweets. Unlike what its name suggests, it is not that pretty: it tends to be too long and gets veins, and at harvest the skin color can be mottled with a rosy hue (this

mottling fades in storage). It does not eat like a Golden Sweet, since it is not a true dry-flesh type, but it does eat better than O'Henry. Nonetheless, it may be an improvement until something better comes along. Anyone interested in evaluating this cultivar will need to contact me this spring.

There are several new **red yam** types in the pipeline, and I am hopeful we will have a couple of very good lines available in the near future. This is the result of the collaborative efforts with the breeder from LSU, Dr. Don LaBonte, and Dave Souza help with the Advanced Line Trial (ALT).

Fumigation Update:
Alternatives to using methyl bromide in the hotbeds has been a major theme of my project activities for the past three years. The reason: MeBr will soon not be allowed for use in California or anywhere else because it depletes ozone. Currently, the industry is allowed to continue to use the product under a Critical Use Exemption granted by U.S. EPA until suitable alternatives can be found. This almost happened this year -- there was no MeBr available in late November because of limited supplies. Tri-Cal was finally able to source some product from the Watsonville area to meet our demands, but we were very close to not having any MeBr or Telone in which to fumigate the beds.

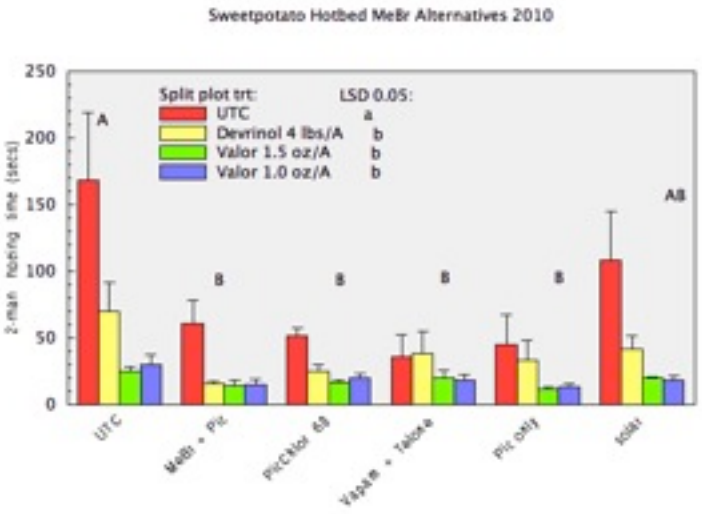
The sweetpotato industry in California is very close to not having MeBr anymore. The drop-in replacement is Pic-Chlor 60 (60% Pic + 40% Telone, shanked under tarp). This is a nice fumigation combo, but the problem is that Telone may not be available in December because of the caps restricting its use. Dow Chemical and the Agriculture Commissioner will need to work together to ensure that sufficient material is set aside for fumigation work in the fall.

Field fumigation with metam via the shank method is currently being scrutinized by DPR, with possible requirements that include post-application water caps and buffers of up to 2000 feet to sensitive sights. Of course, with such requirements, there is almost no way that metam would be applied by this technique. Metam has become the replacement for Telone in the capped out townships 7-11 and 7-12, and is being used on several thousand acres. A very productive meeting was held by the Agriculture Commissioner on December 8 with representatives from DPR and several growers so that a discussion could take place about the new restrictions. While I have not heard anything definite as of yet, it appears that this type of fumigation will still be allowed in 2011 under the current permit conditions required in 2010.

Research Results:

Sweetpotato Methyl Bromide Alternatives for Hotbeds. *Cooperator: Dave Souza*

Results in 2010 closely resemble what was observed in the first two years of this trial: weeds are the main pest issue sweetpotato growers must contend with in the hotbed area. Nematodes are a non-issue, probably because the amount of time in the hotbeds is not long enough for nematode populations to increase to levels that could damage plants or be transported to the field. Thus, the Telone + Vapam treatment has been the most effective and economical alternative to MeBr. Unfortunately, solarization has not been that effective in controlling weeds, 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

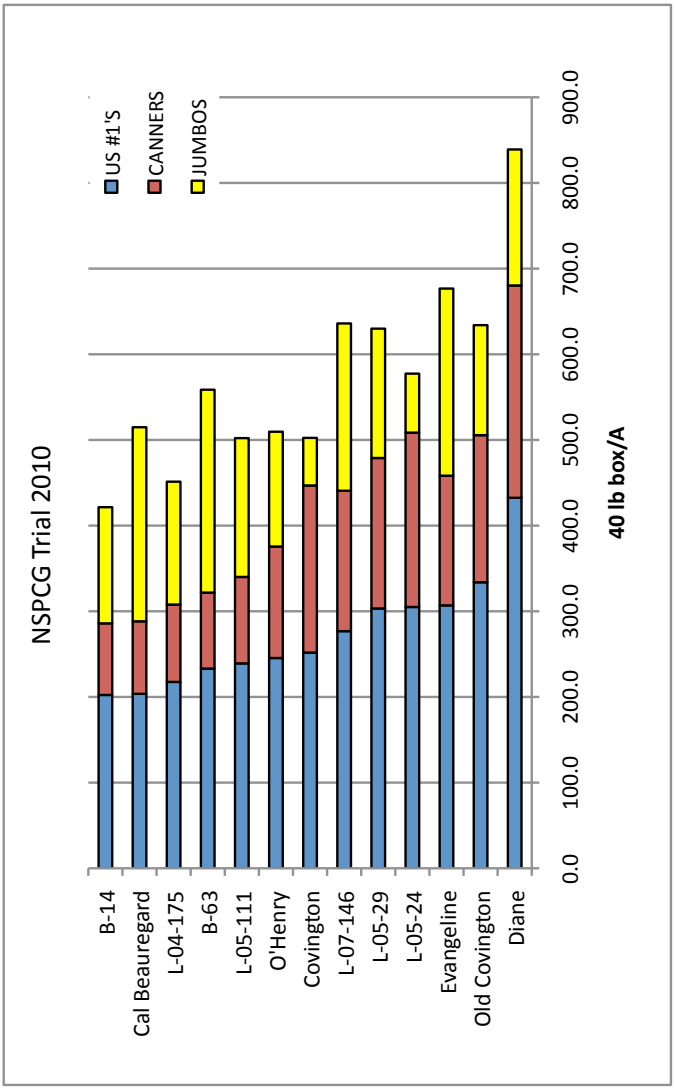


in the Pic only, solarization, and untreated alternatives.

This research suggests that MeBr is not necessary for sweetpotato hotbeds in California, and that weed control can be obtained by judicious use of fumigation alternatives such as Telone, metam, or the combination thereof, or no fumigants at all when herbicides are used. Further work is planned to verify these results, which were done at one location, with additional commercial growers.

National Sweetpotato Collaborators Trial
Cooperator: Blain Yagi

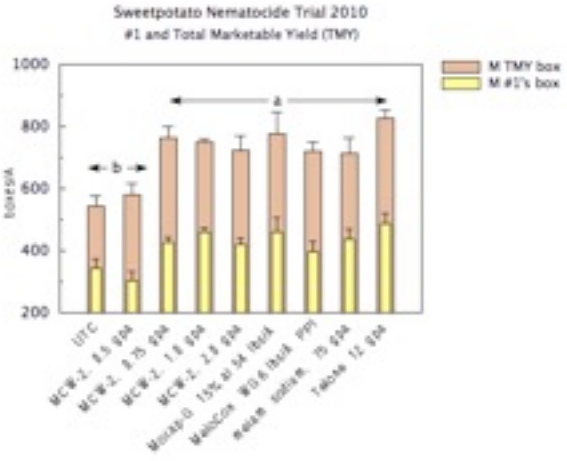
Conducted with Blaine Yagi, Yagi Bros Farm. Transplant May 27, harvest Oct 22. Beauregard had Russet Crack and nematode damage; Diane



excellent yield and quality. Full report will be available in the 2010 Research Progress Report.

Nematocide Trial
Cooperator: Randy Jantz

In 2010, various rates of an experimental nematocide MCW-2 were compared to Telone, Mocap, metam, and MeloCon with the nematode susceptible variety O'Henry under commercial field conditions. All treatments except the 0.5 gpa MCW-2 treatment significantly increased yield and decreased the amount of roots classified as culls. Yields were 15 - 42% higher than the untreated control. However, only the Telone and metam treatments continued to show reduced RKN populations in the fall. While these results show that alternatives to Telone can be very effective for sweetpotato production, regulatory restrictions on use, which include timing and buffer zones to reduce chronic exposure, make using any alternative a challenge.



Storage Building Monitoring 2009 - 10
Various cooperators

Sweetpotatoes store best when the temperature is between 55 - 60° F and >85% relative humidity. Keeping storage buildings in these zones is critical for successful long-term storage, regardless of the variety. Last winter, I placed temperature and relative humidity monitors in over a dozen commercial storage

buildings in order to determine how well these two important factors were being maintained. Monitoring began in December and continued until mid June. Only one shed maintained good RH and temperature for the duration. Most started well and then degraded as the outside temps increased through the spring. Additional monitoring needs to be done.

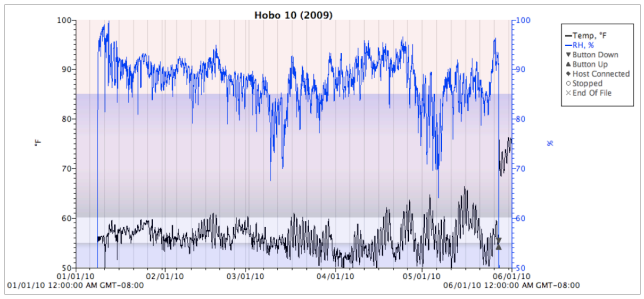


Figure 1. An example of a shed maintaining good relative humidity (top line) and temperature (bottom line) from December through June, 2010.

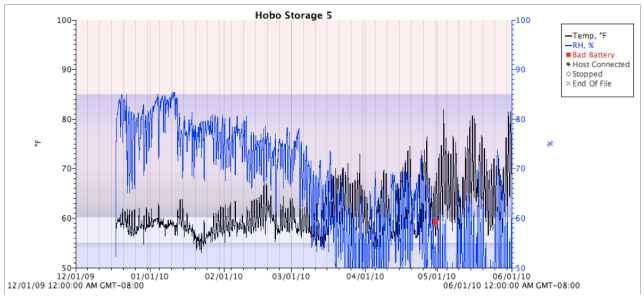


Figure 2. Typical storage conditions of most sheds monitored last winter: initial relative humidity and temperature are good, but RH drops and temps increase significantly in March. Variability also increases.

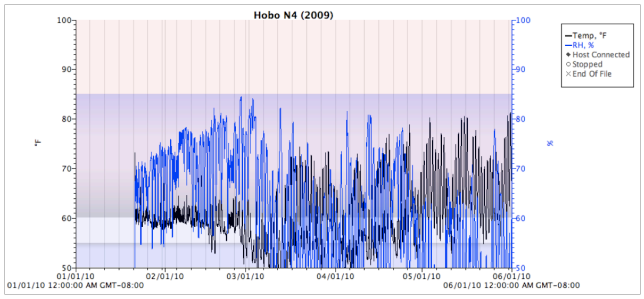
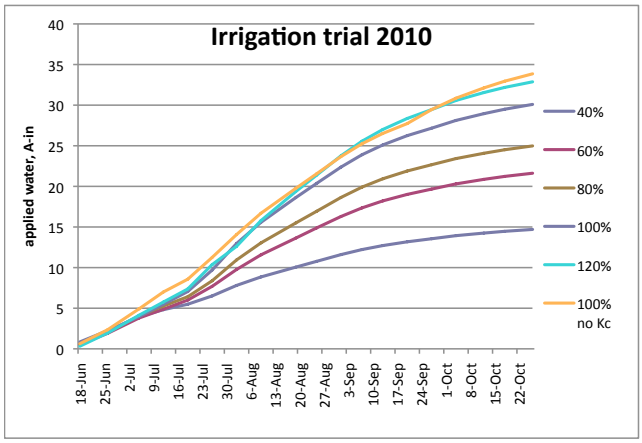


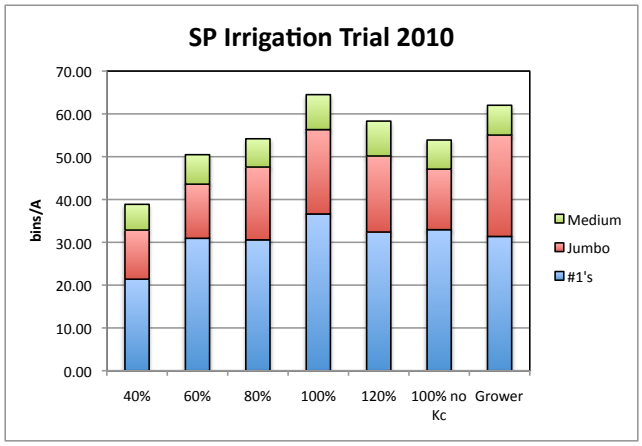
Figure 3. An example of a shed with poor storage conditions throughout the winter and spring. High variability, and rarely within proper storage parameters.

Irrigation Trial

Cooperator: Bob Weimer

This is the first year of a trial to observe the impacts on yield and size of roots at different amounts of applied irrigation water. The field was transplanted with the normal amount of transplanter water, then irrigated equally for the first 4 weeks to establish the plants. At about one month after transplanting, deficit irrigation treatments were started, which were 40%, 60%, 80%, 100%, and 120% of Et. The other treatment was 100% of Et, but without using a crop coefficient. Total water applied ranged from 1.22 to 2.82 acre-ft. Preliminary results show that restricting water reduced yield, mainly by decreasing both #1 and Jumbo sized roots. Further research is planned.





Scott Stoddard, Farm Advisor