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

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

SWEETPOTATO TIPS

UCCE

Merced & Madera Counties Vol. 1, Jan, 2013

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

IN THIS ISSUE:

- ✓ February 6, 2013 meeting agenda
- ✓ Hotbed cost of production.
- ✓ DPR units requested: 1.0 hours L&R and 1.0 "other". 3.0 CCA units.

Special Note:

Methyl bromide is no longer available. Telone - Pic combinations are the drop-in substitute.

U.S. FDA has proposed 2 new rules under the Food Safety Modernization Act. One targets growers and packers. Public comments will be taken until the end of April, 2013.

New state groundwater regs will likely result in nutrient management plans being required for all farms in the near future.

48th Annual

SWEETPOTATO MEETING

Weds, February 6, 2013
8:30 am - noon
UCCE Classroom
2145 Wardrobe Ave., Merced

8:00 am	Signing in, coffee, and muffins *Courtesy of Yosemite Farm Credit*
8:30	Scott Stoddard. Summary of production research: Scurf fungicide trial and field fumigation evaluation of C35 and 1,3-D + metam rates and combinations.
9:00	Sean Runyan, Deputy Merced County Agriculture Commissioner. Reminder about the upcoming metam meeting and other updates..
9:15	Brian Hegland, Dow AgroScience. Telone availability for 2013 and update on Pic label process, regulations, and impacts on Telone.
9:45	Break
10:00	Scott Stoddard. Variety trials, L-04-175 red yam trial, and 3 yr irrigation trial summary.
10:30	Parry Klassen, East San Joaquin Water Quality Coalition. Update on new groundwater and nitrogen regulations.
11:00	Hicham ElTal, Merced Irrigation District. Water availability outlook and current status of state activities impacting future deliveries.
11:40	Industry survey, food safety update, comments and questions.
Noon	Lunch (pork loin & sweetpotatoes by Arnold's Catering) *Courtesy of Lonnie Slaton with Simplot*
1:00 pm	Sweet Potato Council business meeting.

Other meetings:

- Two metam stewardship classes are being held by the Agriculture Commissioner in January and again Feb 7. All growers who will use metam are required to attend one of the meetings.
- The CA Small Farm Conference will be held March 10 - 12 at the Radisson Hotel and Conference Center in Fresno.

PRODUCTION NOTES

Hotbeds:

Hotbeds begin soon. If you did not use methyl bromide in the last year, improve **weed management** by using Devrinol herbicide at a rate of 12 oz per 1000 ft of bed in 5 - 6 gallons of water (sprayer calibrated at 30 gpa). Apply before the first irrigation and prior to the emergence of weeds. Incorporate with a brief irrigation — about 10 minutes will do. This gives about 80 - 90% suppression of most weeds and is safe on your plants.

Valor/Chateau is also very effective on weeds, and is in fact better than Devrinol. But there is little room for application error: 1.5 oz/A provides excellent weed control, 2.0 oz/A will cause significant injury to sweetpotato plants. Rate: 8 grams per 1000 feet of bed, or for those with a postal scale, 2.8 oz per 10,000 linear feet. Like with Devrinol, apply before weed emergence and incorporate with a brief irrigation.

Last year, rotting in the hotbeds produced sick plants, which when taken to the field resulted in small, stunted growth and reduced plant stands. This was most obvious with Diane, since this variety is most sensitive to cold wet conditions at harvest. One of the pathogens was Fusarium, which causes stem rot in Golden Sweet. There are a few fungicides registered that can help reduce some types of general rotting in the beds (Quadris Top, Ridomil, Botran, Mertect, Phostrol), but these do not work on Fusarium. Better is to simply avoid planting cuttings from “bad” areas in the bed if this were to occur again.

Fumigation. With Methyl Bromide no longer available, the drop-in replacement is a 1,3-D (Telone) + chloropicrin (Pic) combination, such as Pic Chlor 60. This treatment combination, which requires a tarp, will do as good of job as MeBr for disease and nematodes, but gives only about 60% weed suppression. Metam products such as Vapam or K-pam can provide weed suppression depending on method of application. In my testing, when sprayed on the surface and incorporated, weed control was excellent. When it was shanked, weed suppression was marginal.

Some have asked whether fumigation is even needed at all. Research I did with Dave Souza for 3 years showed that the main impact of fumigation was weed control. We never had disease or nematode problems. This was following a MeBr fumigated area on a 3-yr rotation, however, so we started clean. Essentially, fumigation is a low cost insurance policy, costing about $35 per acre when amortized over the 60 field acres that an acre of hotbeds plants. It does not increase plant productivity, nor will it prevent sick plants if the seed is bad (see above). For situations where you are “stuck” on the same piece of ground (because of the the well) and have been for many years, fumigation should be maintained.

Consider **cold beds.** The main drawback to cold beds is that you start them a couple of weeks later — end of February to early March. To improve plant emergence and uniformity, use pre-heated seed, wet the roots before covering, and keep the plastic on as much as possible before emergence.

Hotbed cost of production estimates were done last year with different scenarios for hotbeds/cold beds and fumigation treatments (Table 1). Costs ranged from about $34,000 for metam+1,3-D, and almost $40,000 per acre for tarped MeBr with gin trash. Solar was less than fallow because it did not include gin trash. Add another $2500 per acre regardless of system for non-cash overhead costs (e.g. rent, taxes, insurance, capital recovery costs).

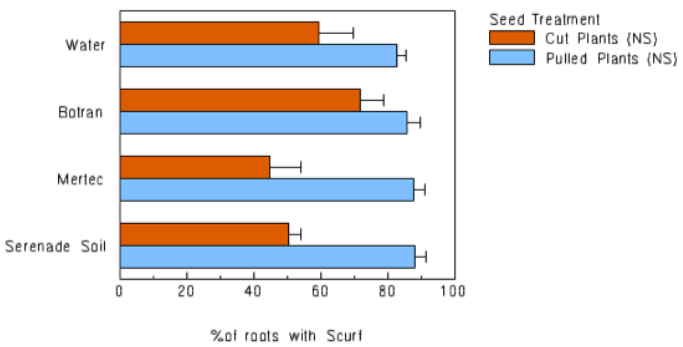
Table 1. Estimated hotbed production costs as affected by fumigation and herbicide treatments (2012), sweetpotato PAW-MBA project.

	Main Plot	split plot	$/A		$/A	gin trash	$/A	weed	$/A		Total Cultural	Total Operating
	(fumigation)	(herbicide)	Fumigant	Application	gin trash	handling	herbicide	hoeing cost	plant cost	**sub-total**	$/acre	$/acre
1	UTC	UTC	$-	$-	$2,095	$489	$-	$172	$486	**$3,242**	$21,357	$35,960
		Devrinol	$-	$-	$2,095	$489	$48	$84	$476	**$3,193**	$21,318	$35,920
		Valor 1.5	$-	$-	$2,095	$489	$26	$31	$511	**$3,152**	$21,243	$35,844
2	MeBr + Pic	UTC	$2,235	$1,565	$2,095	$489	$-	$42	$496	**$6,922**	$25,028	$39,720
	57/43, 350 lbs/A	Devrinol	$2,235	$1,565	$2,095	$489	$48	$20	$472	**$6,924**	$25,034	$39,726
		Valor 1.5	$2,235	$1,565	$2,095	$489	$26	$15	$489	**$6,914**	$25,007	$39,699
3	PicChlor 60	UTC	$987	$1,565	$2,095	$489	$-	$43	$595	**$5,774**	$23,714	$38,375
	45 gpa	Devrinol	$987	$1,565	$2,095	$489	$48	$32	$527	**$5,742**	$23,710	$38,371
		Valor 1.5	$987	$1,565	$2,095	$489	$26	$19	$615	**$5,795**	$23,782	$38,445
4	Vapam + Telone	UTC	$542	$90	$-	$-	$-	$38	$474	**$1,144**	$19,344	$33,901
	40 gpa + 12 gpa	Devrinol	$542	$90	$-	$-	$48	$28	$462	**$1,170**	$19,362	$33,919
		Valor 1.5	$542	$90	$-	$-	$26	$13	$480	**$1,151**	$19,318	$33,874
5	Pic only	UTC	$804	$1,565	$2,095	$489	$-	$78	$525	**$5,557**	$23,633	$38,292
	150 lbs/A	Devrinol	$804	$1,565	$2,095	$489	$48	$35	$496	**$5,532**	$23,638	$38,297
		Valor 1.5	$804	$1,565	$2,095	$489	$26	$17	$497	**$5,492**	$23,597	$38,256
6	Solar	UTC	$-	$1,350	$-	$-	$-	$153	$529	**$2,032**	$20,287	$34,915
		Devrinol	$-	$1,350	$-	$-	$48	$59	$558	**$2,015**	$20,241	$34,869
		Valor 1.5	$-	$1,350	$-	$-	$26	$27	$599	**$2,002**	$20,144	$34,770
	Average		$761	$1,023	$1,397	$326	$25	$50	$516	**$4,097**	**$22,209**	**$36,675**

Fumigation costs are for the entire area.
Gin trash: 24 tons per 2500 linear ft of bed, $90 per ton
Gin trash handling: open bed, apply, roll, irrigate, cover
herbicide costs = product + application. Devrinol $11/lb, Valor $110/lb.
Plant cost based on 2008 - 2010 average production and $15.15 per linear foot.

Scurf Fungicide Trial

It has been known for decades that an effective cultural method to control Scurf in planting stock is to cut plants in the hotbed above the soil line. Unfortunately, Covington grows so slow and short that it must be pulled to have a plant long enough for the transplanter. Therefore, this trial was conducted to see if fungicides could be used on roots or plants to control Scurf on pulled plants.



Cutting plants was the best way to prevent new Scurf infections in the field. The use of fungicides only slightly reduced Scurf, and only with cut plants. There was no difference between the fungicides tested, though Botran did not perform as well as Serenade Soil or Mertect. Even with cutting and fungicides infection rates were very high, >40%.

Scott Stoddard
Farm Advisor