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, 2023

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

IN THIS ISSUE:

Special Note:

Heavy metal sampling project in 2021& 2022 showed very good results, plan to repeat in 2023.

There will be a Metam stewardship class from 2:00 - 4:00 pm on Thursday, Feb 9 (class required by CAC for growers using metam products)

57th Annual

SWEETPOTATO MEETING

Thursday, February 9, 2023
8:00 am - noon
UCCE Classroom
2145 Wardrobe Ave., Merced

7:30 am	Signing in, coffee, and Jantz Sweetpotato muffins. Sponsored by Telios Ag Solutions.
8:05	Scott Stoddard, Farm Advisor. Summary of 2022 variety and pest management research: Collaborators trial and ALT, nematicide trial, IR-4 herbicide and wireworm insecticide trials.
9:00	Sean Runyon, Merced County Agriculture Commissioner. DPR regulations update: Big Telone permit changes could be coming in 2023 and other label updates.
9:50	Brian Hegland, Teleos Ag Solutions. Telone good stewardship practices; availability, monitoring and registration updates.
10:00	Coffee break
10:20	Dr. Heather Scheck, CDFA Nematologist. Guava root knot nematode exterior quarantine requirements and proposed 2023 sampling. *Zoom*
10:50	Hicham Etal, Merced Irrigation District. SGMA and water storage update.
11:30	Jill Silverman Hough. The Sweetpotato Council of California marketing review.
11:45	Jill Damskey, AgAMSI. CDFA Specialty Crops Grant: Reducing Consumer Confusion Through Clear Retail Signage for Sweetpotatoes.
11:55	Darren Barfield. SPC Board nominations and Convention wrap.
Noon	Lunch, sponsored by Simplot of Ballico.
1:30 pm	The Sweet Potato Council of California business meeting (library).

PRODUCTION NOTES

During the winter of 2020 - 2021 Merced County recorded 7.65 inches of rainfall, which is 65% of average. For 2021 - 2022, total precipitation was just 7.18 inches. Not only was 2022 very dry, it was extremely dry — January, February, and March were the driest on record. Spring was dry and windy, and much of the snow in the mountains simply evaporated or was absorbed by drier than normal soils. Runoff was only about 60% of average, and Lake McClure ended the season at less than 200,000 AF. The winds were relentless at planting, and as a result, many fields were blown out and had to be replanted. In September, Merced was treated to some of the hottest weather ever recorded — with several days above 105 F and a record high of 112 F on Sept 6. Many fields that were still sizing and being irrigated through this hot spell developed extensive and widespread Fusarium surface rot and Fusarium + Charcoal rot co-infections.

Despite these challenges, yields were about average for the area. This is based upon my first ever "yield survey", where I measured yield from 50 feet of one row from 30 fields. Results are shown in Table 1. My estimates matched fairly well with field yield at the time of sampling. I plan to do this again next year with a larger number of fields.

Fusarium surface rot impacted many fields that were irrigated through early September. All varieties were affected, though Bellevue was hit the hardest. The causal organisms were confirmed as *Fusarium oxysporum* and *Macrophomina phaseolina.*

Table 1. Yield survey results, Sept - Oct 2022.

	TMY, bins/A	% #1's
Murasaki	26.7	54.1%
Red	52.2	61.8%
Bonita	26.3	56.5%
Cov/Bellevue	43.2	53.3%

The main production problems in 2022 were largely abiotic: wind and labor shortages. Spring and fall wind storms were persistent and damaging. As in 2021, we had fall rains again with about ½" in September. Because so many cut acres this season, for the first time in many years several growers finished harvest before November.

ACRES

USDA has revised their estimates for production acres in California:

2018: 21,000

2019: 21,500

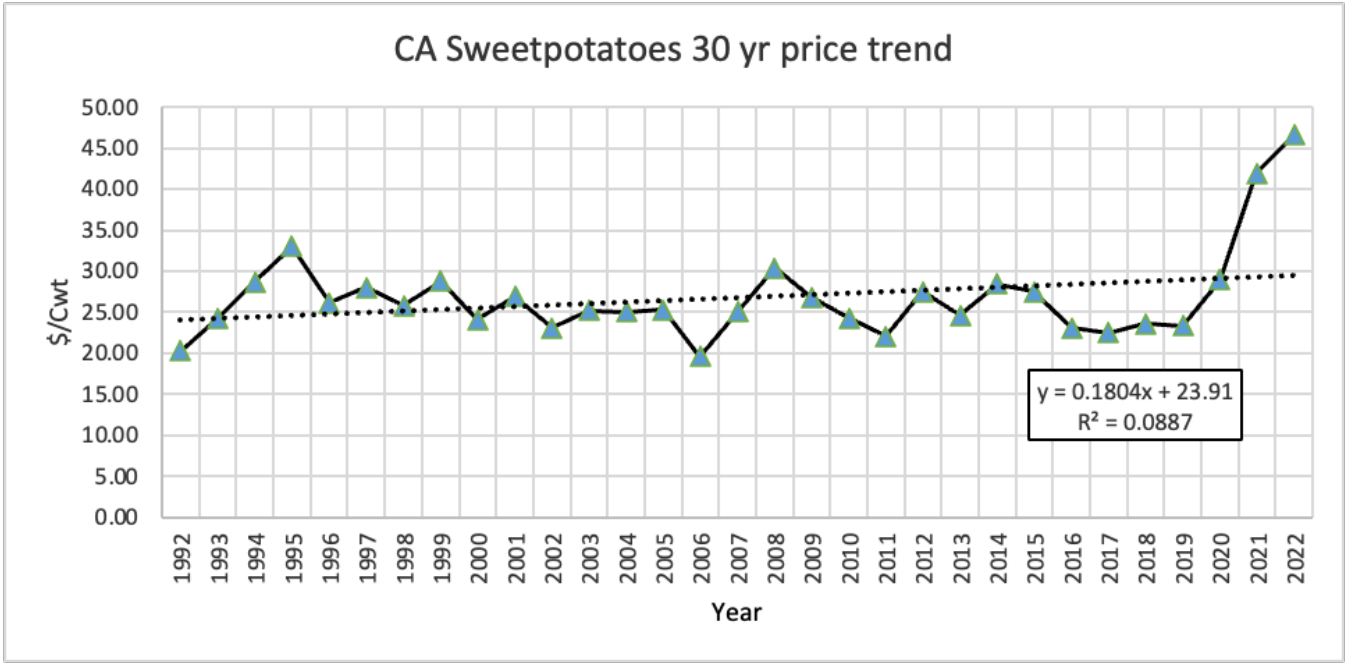
2020: 22,000

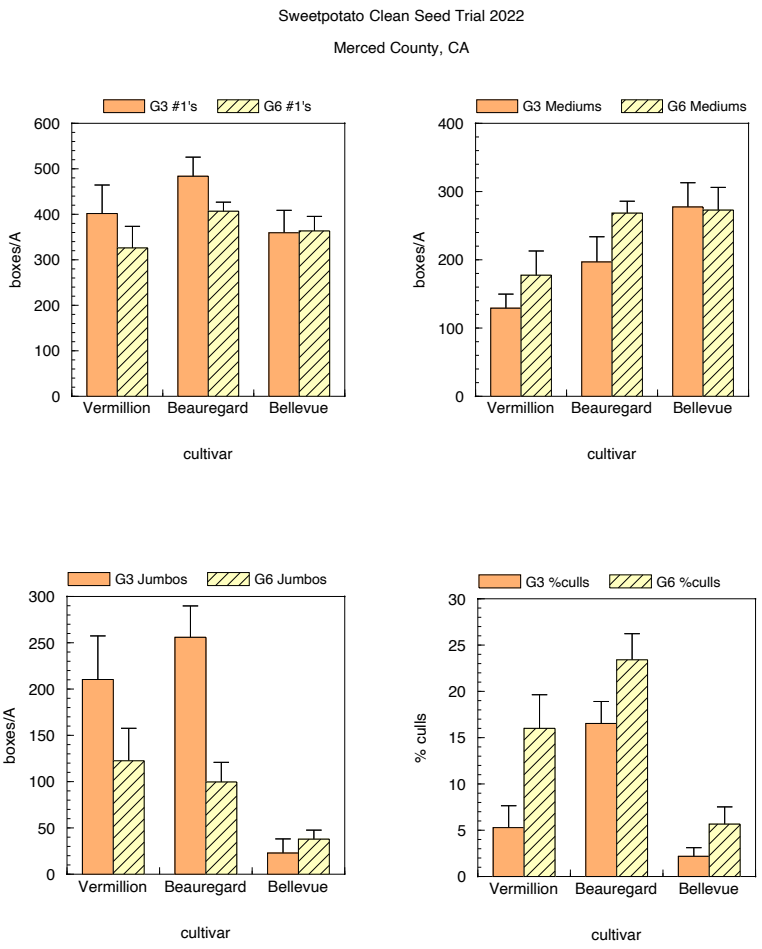
2021: 21,000

2022: 18,000

Assuming 32 bins and 18,000 harvested acres, total production this year was around 526 million pounds, about 145 million lbs less than the previous 3 year average. This would be a dramatic reduction if correct. More likely, harvested acres were 20,000 or more.

According to USDA, prices-received by the growers so far have been up over prior years, to about $42 per hundred weight (equivalent to $16.80 per box, after packing fees).





VIRUS TESTED SEED TRIAL

As part of my participation in the USDA funded multi-state Clean Seed project, I evaluated Vermillion, Beauregard, and Bellevue for the impact of new compared to old seed. "New" seed was from virus-tested plants that were grown for one year in the field (G1 seed to G2 roots at harvest); "old" seed was seed that I had been using in my variety trials for several years in a row, and was at least 5 years old (G6). Also included were Beauregard plants directly from the greenhouse (GH plants to G1 roots at harvest). Plots were 1-row by 50 feet long and replicated four times. Harvest took place on November 3, 2022, using the grower's harvester and harvest crew.

The benefit of using newer seed for all three cultivars is shown in the graphs below. #1 and jumbo yields significantly increased for Vermillion and Beauregard, while there was little impact on yield for Bellevue. Cull% was reduced for all three varieties with newer seed. Color and overall appearance was also superior with new seed. Note that these results were obtained even though testing on the roots showed all ages were infected with 4 poty viruses. In sweetpotatoes, virus impacts are typically more chronic than acute—the older

the seed the greater virus titer which results in reduced yield and quality.

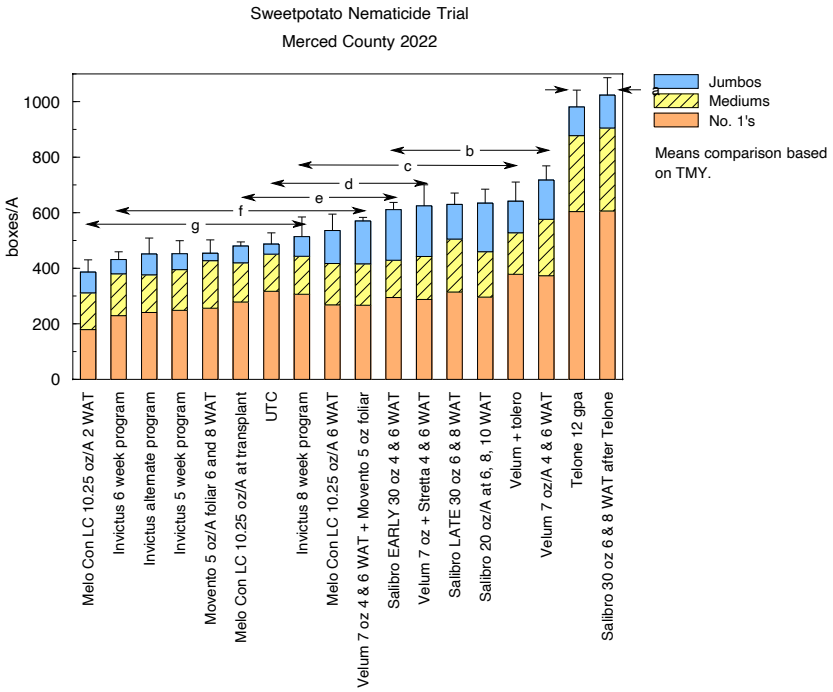
NEMATICIDE TRIAL RESULTS

Nematode trials were conducted in 2020 - 22 in a commercial sweetpotato field in the buffer zone where no fumigant was used. The field had been in continuous sweetpotato production for 10 years. Treatments included Velum (fluopyram, Bayer Crop Science), Salibro (fluazaindolizine, Corteva Agriscience), and several biological nematicides, including Majestine and Grandevo (Marrone Bio Innovations). Treatments were designed to test different rates, timings, and combination of materials. Untreated control plots were used for comparison in both years; in 2022 Telone was also used as a comparison treatment.

Nematicide treatments were applied at 3 to 8 weeks after transplanting (WAT), depending on product use guidelines, by injecting into surface drip tape. Sweetpotato variety 'Diane' (RKN susceptible) was used both years. Harvest was done using the growers mechanical digger and crew. Plots were 1 bed x 100 feet with 4 replications. Treatment design was a randomized block with four replications. Means separation was performed using Fisher's protected LSD at *P*=0.05. 2022 results are shown below.

Salibro and Velum had significantly better yields in both treatments than the Invictus program (multiple "soft" and /or biological products injected through the season) and Melocon. Yields were still dramatically less than Telone.

Over 6 years of testing, Salibro and Velum have increased TMY in Diane by an average 35.5% and 18.0% respectively, as compared to the untreated control. While not as effective as Telone, they are helpful for reducing the yield impact from nematodes in susceptible varieties. Note that Salibro is not currently registered in California, but is getting close. Perhaps in late 2022.



OTHER PROJECTS IN 2022

- Collaborators Trial (replicated variety trial) and Advanced Line Trial (ALT). Diane was the best producer this past growing season, at over 1000 boxes/A total market yield — about 50 bins/A. L-13-81 was officially released in late 2021 and has been called "Vermillion". 2022 testing was the first year of commercial availability. It placed mid-pack using G3 seed.
- Heavy metal testing. Sponsored by the Sweetpotato Council of California, results show low levels of lead, mercury, arsenic, and cadmium.
- Performance of post emergence broadcast herbicides on sweetpotatoes. This was a USDA IR-4 project to evaluate weed control and crop safety on several unregistered herbicides.

Scott Stoddard, Farm Advisor