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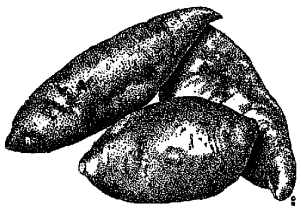

SWEETPOTATO TIPS

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December, 2002

COOPERATIVE EXTENSION WORK IN AGRICULTURE, HOME ECONOMICS AND 4-H, U.S. DEPARTMENT OF AGRICULTURE, UNIVERSITY OF CALIFORNIA, AND COUNTY OF MERCED COOPERATING

2002 USDA ACREAGE ESTIMATES

The 2002 *USDA Vegetables Outlook* predicts total harvested acreage for sweetpotatoes in the U.S. to be about 4% less than last year, but increased 5% for California. Essentially production is concentrated in only 4 states now: California, Louisiana, Mississippi, and North Carolina. Due to the way that prices are recorded, cash receipts are higher for California than any other state, predicted to be around $67 million for 2002. This is 14% higher than even North Carolina, which has about twice as much total production. Because of the different accounting methods, the cash receipt estimates imply that California producers' gross returns are about $6,700 per acre, while those in competing states are $1500—$1800 an acre. Estimated production costs for Mississippi, by the way, are $2350 per acre.

State	*2001 Acres*	*2002 Acres*	*2001 Production, 1000 boxes*	*2001 Cash receipts Million $*	*2002 Cash receipts Million $*
Alabama	3,000	2,900	1233	8.3	8.4
California	10,000	10,500	5875	66.8	67.0
Georgia	500	—	100	0.7	0.6
Louisiana	24,000	21,000	7975	43.7	44.0
Mississippi	16,700	15,500	5600	28.4	32.3
New Jersey	1,200	1,000	315	2.6	2.7
North Carolina	37,000	38,000	13,950	58.5	58.6
South Carolina	800	1,300	100	0.6	0.5
Texas	4,200	3,700	475	3.7	3.4
Virginia	500	500	275	0.8	0.9
U.S.	97,900	94,400	35,887	214	218

Source: Economic Research Service, USDA, October 2002

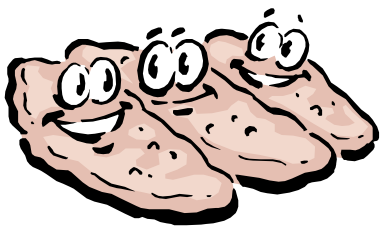
NEW VARIETY FOR 2003:

BIENVILLE

ERRATIC POX CONTROL

Pox (*Streptomyces ipomea*) showed up in several fields during harvest this year, even though some were fumigated and/or were planted to resistant varieties. There are a number of reasons this could have occurred, some just due to acts of mother nature. Here are some factors involved regarding Pox:

1. Lack of soil moisture. This is double trouble, actually. Not only does dry soil prevent a good seal during soil fumigation, but the Pox organism prefers hot, dry conditions. We had a very dry winter last year, which no doubt contributed to Pox problems this past season. Dry conditions early impact yield, whereas dry conditions late impact root quality.
2. Windy conditions. High winds soon after or during fumigation will hasten the escape of fumigant from the soil.
3. Late plantings are more susceptible to infection because the soil is warmer and because the organism prefers new, young growth.
4. Variety resistance is not the same as immunity. Resistant varieties can still become infected, though typically symptoms appear at low rates (less than 10%). Additionally, resistant lines may not show the classic dumbbell appearance usually associated with Pox. Jewel is susceptible, Beauregard and Golden Sweet are considered resistant.
5. According to Dr. Chris Clark, disease specialist at LSU, it is possible that insects may break down the plant resistance. For instance, grub and wireworm feeding. Even the specialists have a hard time distinguishing many old feeding wounds from Pox lesions.
6. **Control**. Soil pH less than 5.2. Rotation with other crops will reduce severity but will not eliminate the problem. Irrigate to eliminate periods with dry soil. Fumigation, especially with materials containing chloropicrin.



SCURF

Scurf (*Monilochaetes infuscans*) is a fungal disease that produces brown to black surface discoloration on the skin. The discolored patches range in size from small spots to the entire potato. While the fungus makes sweetpotatoes essentially unmarketable, it is only skin deep and can be scraped off easily with your fingernails.

The Scurf fungus overwinters in storage and on the decayed vines and roots in the field or hot beds. If infected roots are used for seed, the fungus grows up the stems and can be carried by the transplants to the field, where it grows down onto the roots again.

Scurf can grow while the potatoes are in storage, and high humidity may contribute to its growth especially if it is warm (> 70° F) and humid at the same time—something that is likely to happen only in the early fall in most storage sheds. Scurf should not spread noticeably in cool shed conditions, but excessive handling or free water can spread the spores.

Scurf problems are most likely to occur on heavy soils and those with high organic matter or have been recently manured. Scurf is more severe in wet soil conditions. A field that had problems this year will likely have higher levels next year if potatoes are grown again.

Control. There is no variety resistance to this disease. Best ways to control include using disease-free seed; cut slips 1 inch above the soil line and dip slips in a fungicide such as Botran or Mertect; rotate the field out of potatoes for 2—3 years; and fumigation. Remember though that a fumigated field will not control Scurf if your seed was infected and you bring it in on your transplants.

Table 1. Yield comparison from Livingston tests for Beauregard vs. Bienville. Boxes per acre.

	1999	2000	2001
Beauregard, #1's	225	548	315
Mediums	131	204	167
Jumbo	154	260	144
Bienville, #1's	182	498	386
Mediums	212	266	241
Jumbo	84	469	36

BIENVILLE VARIETY UPDATE

The variety tested in California as L94-96 has finally been officially released from LSU and renamed *Bienville*. Bienville looks like Beauregard, with copper colored skin and moist orange flesh. The foliage does not look like Beauregard, however. The vine grows more upright, and the leaves are larger and darker green with ripples. New growth is purple. Plant production in the beds is similar to slightly worse than Beauregard.

According to our taste tests and those of the breeder, Bienville eats a little better than Beauregard. Yield potential is similar to slightly less (Table 1).

The biggest improvement of Bienville is that it has nematode resistance combined with Fusarium wilt (stem rot), Fusarium root rot, internal cork, and Pox resistance. Because of this improved nematode resistance, Bienville should have a fit in fields with high nematode pressure, have not been recently fumigated, fields in the 3rd and 4th year, and organic production.

While this potato has a higher level of resistance than Beauregard, it is still not immune. In a small production field with heavy Pox pressure this year, lesions still developed and 10—20% of the crop was lost. Furthermore, I have not tested this variety under heavy nematode pressure to see how it really does under these conditions. The take home message here is that good farming practices are still required for this potato: fumigation, pre-irrigation, clean seed, etc., to get a good crop.

LSU has released this seed to the public, but with patent protection. It is available through the Sweetpotato Council of California from FPMS at Davis, CA. A patent fee must be paid when plants are purchased. To purchase plants requires two checks: one to FPMS for their customary fees, the other to the Sweetpotato Council for $0.50 per plant for the patent fees. FPMS will send all checks to the Council, which will deposit them and send the funds to LSU at the end of the season.

Note that the only patent charge collected is the per-plant fee from FPMS. After receiving the plants, you may propagate them as much as you want without any other fees. You may also collect and save seed for as long as you want without any other fees. The only time you will pay a patent fee again is when you go back to FPMS to renew your stock—something you should be doing no less than every three years (regardless of the variety).

Bienville virus-tested plants are available from FPMS for the 2003 season. Order soon.

NEW SWEETPOTATO PEST "DISCOVERED"

During the season, I attempted to do some sweetpotato insect monitoring using traps and sweepnet samples. This initial attempt to do some monitoring yielded three things: 1) a lot of time and money would be required to do such a project thoroughly; 2) aphids are present from hot beds to harvest; and 3) the sweetpotato leafminer is not the critter we all assumed it to be. More specifically, it is not the vegetable leaf miner, *Liriomyza spp.*, which is the larvae of a fly, but is actually the larva of a small moth called *Bedellia spp*, the Morning glory leafminer.

This discovery was made by David Haviland, Farm Advisor from Kern County. Because he is an entomologist by training, he noticed that it wasn't the typical vegetable leafminer, but more like the kind found in apples. This discovery is important for two reasons. One, if it actually is a *Bedellia* moth, it is not supposed to even be in California. Two, management strategies are completely different for the larvae of flies versus moths. More specifically, if it were to become a problem, it should be controlled with soft chemistry such as Success or Dipel. The vegetable leafminer *Liriomyza* is somewhat resistant to Lannate, and unaffected by Success or Dipel. Also, sprays of Lannate to control armyworms will not flare leafminer problems (in sweetpotatoes).

Morning glory leafminer inside of leaf.

TELONE USE RESTRICTIONS IN CALIFORNIA
Tom Trout, USDA-ARS, Fresno

Telone (1,3-Dichloropropene) is a soil fumigant and effective nematicide that can replace many uses of methyl bromide. Its use in California has increased from essentially zero in 1995 when it was reintroduced, to 4.4 million pounds in 2000. It is marketed as Telone II, Telone C-35 (35% chloropicrin), and Telone C-17 (17% chloropicrin).

Due to emissions associated with 1,3-D, the state limits applications de-

pending on the application method, location, and time of year. During December and January, methods are restricted and application factors used to calculate township caps are increased. Field and buffer zone reentry is restricted for 7 days.

Buffer zones. The buffer zones for Telone shank applied products are 300 ft for fields that are fumigated more than once every three years. A residence located on the border of a field would prohibit application to about 3 acres of the field with this much buffer.

Township Caps. The Permit Conditions allow only 90,250 "adjusted" pounds of 1,3-D (9600 gallons of Telone II) be applied to any township in a calendar year. Adjusted pounds are the actual pounds of 1,3-D applied times the application factor specific to the application method. Application factors for the Feb.– Nov. time period:

1.0 for shank applications deeper than 18 inches

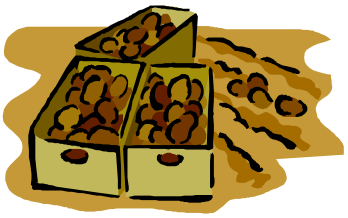
1.9 for shank applications shallower than 18 inches.

These township caps results in maximum acreage use per township of 645 acres with deep shank application at 140 lbs/A.

In 2002, DPR issued a *California Management Plan for 1,3-D* in which they allow township caps to double (to 180,500 lbs) temporarily. This was based on the chronic nature of the risks and the fact that no Telone was used between 1990 and 1994 and use since 1995 has been gradually increasing. In 2002 (and "the next several years"), townships are given credit for their unused (banked) cap allowances since 1995 and use the credits to double the cap allowance. Thus, if a township did not use Telone for the 6 years before 2002, they could use 180,500 lbs per year for the next 6 years (or until regulations are modified).

2002 RESEARCH UPDATE

Collaborators Variety Trial. 13 lines this year, including three Beauregards (from Louisiana, B63, North Carolina, B14, and California, B1-Bomber). Best yield and shape occurred with a new line from North Carolina, the NC 96-61. Our California Beauregard yielded better than the other two. Many thanks to our new cooperator, Bob Alvernaz, for all his help this season.



Fumigation Trial. Compared 2 rates of Telone, 2 rates of Vapam (metam sodium), and Mocap. The Vapam and Mocap were injected to 18" on 9" centers. The main pest problems were grubs and wireworms, some nematodes. Except for the low rate of Vapam, all treatments did better than the untreated check. The best overall treatment was Mocap, though statistically it was no different than Telone. I plan to look at this again in 2003. Many thanks to Bob Weimer and Larry Beckstead, cooperators.

Fertilizer Trial. Last year of a four year study comparing 4 rates of nitrogen and 4 rates of potash on drip irrigated Beauregards. Finally got a potash response—significantly increased yield with 150 lbs/A. Overall best nitrogen rate determined to be 150—175 lbs/A. Many thanks to Bob Weimer and Lonnie Slayton, cooperators.

Worm Control Trial. Evaluation of various insecticides to control western yellowstripe armyworms. Dipel, a Bt product, did a marginally well, but only at the highest rate of 2 lbs/A. Success, which is registered on sweetpotatoes, offered little control. Most promising was a new product called Intrepid, which is similar to Confirm but offers quicker knock down combined with excellent worker safety. Its performance was similar to Lannate. Thanks to Jim Mueller and Bob Weimer, cooperators.

Fungicide Trial. A trial to evaluate the control of various fungicide dips to control stem rot (*Fusarium*) on Hannas. Unfortunately for me, there was no disease problems in the test plot, and so all I can conclude is that none of the treatments, including a 2% chlorox dip, harmed the transplants. Will repeat in 2003. Thanks to Nathan Mininger and Lonnie Slayton, cooperators.

Degree Day Evaluation. Hannas and Beauregard were observed again, but the data are not yet analyzed. Dave Souza, cooperator.

Ditera for nematode control. No affect on yield, but a reduction in the cull rate from nematodes. Thanks to Tino Lopez, cooperator.

Herbicide Trials. Herbicide tests were put out, but unfortunately evaluations were not made before the hoeing crews went through. More trials are planned for 2003.

SWEETPOTATO STORAGE CONDITIONS

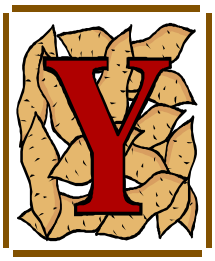
With the arrival of colder weather, storage temperatures should be watched closely.

Hold the temperature during storage as constant as possible between 55° - 60° F with relative humidity of 85—90% in order to keep shrinkage of the potatoes to a minimum.

Sweetpotatoes held at temperatures of below 50° F for a period of time are subject to chilling injury. If the temperature remains as low as 40° for three weeks or more, 40—90% of the potatoes may rot. Seed potatoes stored for next year's crop should be carefully watched. If these potatoes get chilled from too low a temperature, they will produce very few sprouts, or no sprouts at all in the plant beds in the spring. Artificial heating may be needed during winter storage to keep temperatures in the safe range.

Ventilation from the outside is necessary only for temperature control, and to prevent excessive condensation. Avoid cold drafts on the potatoes.

Two-row diggers have arrived to California. They're big and need a lot of room to turn, but offer considerable improvements in labor and tractor efficiency.



UPCOMING MEETINGS:

38th ANNUAL WINTER SWEETPOTATO MEETING. Wednesday, Feb. 12, 2003. 8:30 am — 12:00 noon. Lunch included.PCA continuing education credits applied for. Sweetpotato Council meeting follows at 1:30 pm. Please plan to attend.

NATIONAL SWEETPOTATO CONVENTION. Jan. 26-28, 2003. Myrtle Beach, SC. Make your travel arrangements soon if you plan to attend. Call 919-989-7323 with questions.

CONTINUING EDUCATION: FUMIGATION REGS AND VAPAM STEWARDSHIP PROGRAM. Tuesday Feb. 25, 9:00 am — 4:00 pm Ag Center classroom.

or

Weds., Feb 26, 9:00 am. Germino Bldg., Los Banos fairgrounds.
2 hrs L&R, 4 hours other. For discussion will be the new Telone permitting and allocation process, which impacts all sweetpotato growers whether you use Telone or not. Plan to attend one of these important meetings.

This is the first Sweetpotato Tips newsletter I've written since becoming your new Farm Advisor last April. I hope to mail these out twice a year, with meeting notices in between. You may also view this information or past editions on the Merced County CE website at http://cemerced.ucdavis.edu. Click on the AGRICULTURE link, then FIELD AND VEGETABLE CROPS. Please feel free to contact me about research ideas, field problems, or program suggestions.

Scott Stoddard
Farm Advisor