UROP report

Spencer Barriball

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Organic Sweet Potato Yield Trial in Minnesota

Minnesota is not known for their sweet potato crop, as such these plants are rarely grown in the state. It was the objective of this study to test the ability of sweet potatoes to grow to full maturity under two techniques. The project was carried out at the University of Minnesota's St. Paul Campus during the summer of 2012.

In conjunction with my advisor, plants were ordered from Brown's Omaha Plant Farms, Inc and were potted in 4 inch extra deep pots on May 15th. These plants were then transplanted into the field June 21st on raised beds that were covered with black plastic. The experiment included two treatments on two varieties of sweet potatoes. The first variety was Beauregard (a 90 day maturity) and the second variety was Centennial (a 100 day maturity). All plants were planted at even depths on the same type of soil with four total rows of 12 plants in each row. A total of 24 plants from each variety were used.

Drip irrigation was used to water all four beds evenly and consistently throughout the summer. Certified Organic land was used to conduct this experiment and no synthetic fertilizers were used. Also, no inputs of any kind were added during the growing season. Prior to planting, the field had been a farrowed pasture with a mix of alfalfa, hay and wheat.

During the season no diseases were spotted. A minor amount of Japanese Beetle damage was seen on 5% of the foliage. No insecticides were applied. To compare the yield of the two varieties and the effect of increased growing days, half of each variety were harvested first on September 17 and the other half on September 29. Yield data was as follows:

Table 1. Yield data comparing variety and length of growing season.

Variety	Harvest 9/17/12 (in pounds)	Harvest 9/29/12 (in pounds)	Totals (in pounds)
Beauregard	43.64	40.36	84.00
Centennial	20.38	33.58	53.96
	64.02	73.94	137.96

First harvest was 89 days after transplant while second harvest was 101 days after transplant. Beauregard was a recommended 90 day season and the yield was highest at 89 days and dropped off only slightly at 101 days by 3.28 pounds. Centennial was a recommended 100 day season and the yield was highest at 101 days compared to 89 days. Yield increased 13.2 pounds with the additional 12 days. The final page includes images of field, plant growth and harvest of each variety.

This experiment has shown that a yield of sweet potatoes is possible. Future experiments would need to include soil temperature increases when using black plastic versus non covered beds along with accurate growing degree day effect on each cultivar. The original goal of the research was accomplished in that sweet potatoes can be grown in Minnesota and can provide a farm with another option in diversification of their crops.

My UROP experience was greatly improved through my advisor who was also growing sweet potatoes at a University of Minnesota Extension site in Grand Rapids, MN. Also, submitting the required time sheets and timely payment made the project flow smoothly. I plan to present this project alongside my advisor Terry Nennich January 17, 2012 at the Minnesota Fruit and Vegetable Growers Association conference in St. Cloud.

Figure 1. One week after transplant

Figure 2. Mid season growth

Figure 3. Beauregard 1st Harvest

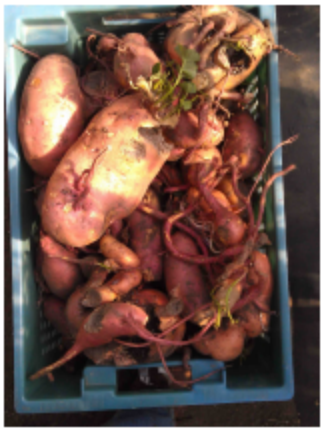

Figure 4. Centennial 1st Harvest