

Sweet Onions Are a Potential Crop for Michigan
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Onion consumption in the United States has increased primarily due to popularity of sweet onions. Sweet onions have lower levels of pyruvic acid than cooking onions and a more desirable flavor for fresh or slightly cooked products. Low acidity also reduces eye irritation when peeling. Onion storage ability is directly related to pyruvic acid levels so sweet onions do not store well causing production areas to move seasonally.

Michigan's onion industry consists almost solely on direct-seeded, pungent, long-storing cooking onions. Production systems and infrastructure are well established and are somewhat easier and less expensive than sweet onions. However, this does not mean Michigan growers should not explore sweet onion production since Michigan could be a supplier during August and September or longer at a time when they are sourced from western states or imported.

Research at the Southwest Michigan Research and Extension Center (SWMREC) has investigated sweet onion production including variety adaptability, direct seeding, harvest period and others. This report summarizes those efforts.

Onions bulb in response to day length and sweet onions adaptable to Michigan need to be either intermediate or long day onions, with long day-types being more successful in our trials. Thirty varieties from several seed companies have been evaluated and Table 1 gives yield data on the better performing lines. Of those listed, Ovation and Western Giant have been the most consistent in size and yield. White varieties in general have poor performance due to greater disease susceptibility.

Sweet onions are transplanted which adds to production expense. In Michigan, transplants are started in the greenhouse mid- to late February and transplanted late April or early May for harvest in early August. Beginning in 2008, trials at SWMREC were conducted to determine if direct seeding was possible. The 2008 trial was planted April 7 and found better direct seeded performance with Ovation than Western Giant. Montero, Desperado, and Red Fortress were also among the better performers. Harvest of the direct seeded trial occurred early September – a month later than transplanted trials. Bulb size was generally smaller and less uniform and some entries performed poorly. However, results appeared promising so the trial was repeated in 2009. The 2009 transplanted trial again performed well; however, performance of the direct seeded trial was so poor it was not harvested.

Weather during 2008 seed germination was different than 2009. The average April 2008 temperature was 50.6°F compared to 47.3°F in 2009 and precipitation in 2008 was 1.77 inches while in 2009 it was 4.13 inches. So temperature and rainfall may have contributed to poor performance in 2009. April weather during 2010 was more like 2008 with an average temperature of 54°F and 2.01 inches of precipitation.

The 2010 trial evaluated six varieties planted at five dates starting April 1 and ending May 10. This was designed to try to avoid poor weather during seed germination and to see how late seeding could be done without seriously affecting yields. Data for this trial has yet to be fully analyzed but direct seeded Ovation again appeared to perform

better than others in size and yield at the earlier planting dates. Bulbs from seeded plants were again less uniform and smaller than transplants. Later planting dates did poorly for all entries. Results from the 2008 and 2010 trial indicated there may be potential for some varieties of sweet onions to be direct seeded. Trials on direct seeding will continue in 2011.

These trials indicate certain sweet onion varieties can be grown successfully in Michigan from transplants (Table 1, Figure 1). Transplants increase production costs but large, sweet onions also bring greater return. Transplants should be planted in the greenhouse in February for planting late April or early May for harvest in early August. They could be sold soon after harvest or sold through November if held in common storage. This is a time when sweet onions sold in Michigan are being sourced from a considerable distance. Direct seeding can not be recommended but this may change with further research.

Table 1. Yield and size grades of in hundred weight per acre of transplanted onion varieties at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan. Plant population was approximately 95,000 plants per acre.

Colossal = 4.0 – 4.5”; Jumbo = 3.0 – 4.0”; Medium = 2.0 – 3.0”; Small = 1.0 – 2.0”.

Variety	Color	Total Yield	Colossal	Jumbo	Medium	Small	Cull
Solid Gold	Y	385.7	3.9	219.8	130.4	7.7	23.8
Maverick	Y	329.5	4.4	193.5	98.8	12.9	19.9
Western Giant	Y	325.4	3.8	185.9	106.2	14.1	15.5
Centerstone	Y	324.8	0.0	142.8	156.4	25.6	0.0
T-439	Y	317.5	0.0	185.0	120.4	9.3	2.7
Bello Blanco	W	313.5	0.0	27.2	18.3	3.5	264.6
T-433	Y	282.5	4.9	140.5	99.5	37.7	0.0
T-866	Y	281.6	0.0	184.2	83.7	5.3	7.5
Ovation	Y	273.6	3.9	147.4	104.1	12.2	5.9
Milestone	Y	257.0	0.0	89.5	142.9	17.9	6.7
Delgado	Y	253.8	0.0	130.7	104.4	11.0	7.7



Figure 1. Bulbs from six transplanted onions grown at the southwest Michigan Research and Extension Center with a plant population of approximately 95,000 plants/acre. Left to right: Back row; Solid Gold, Red Defender, Desperado. Front row; Aruba, Western Giant, Ovation.