

Organic tomato and pumpkin production, Dale R. Mutch, Todd E. Martin, W.K. Kellogg Biological Station, Hickory Corners, MI 49060.

In 2009 organic pumpkins were grown to evaluate a reduced tillage system using the crimper/roller (C/R). The C/R system for killing rye was used to evaluate growing pumpkins organically at the MSU W.K. Kellogg Biological Station. Farmers throughout the Midwest desire new methods to keep pumpkins clean from soil. Clean pumpkins reduce the need for hand labor, which is expensive and becoming harder and harder to hire.

Fall seeded Wheeler rye produces very high plant biomass in the spring. Healthy, vigorously growing rye will C/R better than stressed rye. Healthy rye will remain on the ground as a mulch and will not come back upright as long as it is C/R at the pollination stage. The pollination growth stage of the rye at KBS usually occurs about the first week of June. This date can be late for soybean planting, but is very acceptable for pumpkin plantings.

Weed control in organic pumpkins is very difficult. We used several farmer advisory inputs to reduce weeds. We had good success growing pumpkins in 2009. Pumpkin yields from the treatments using rye and no-till were not as good as clean cultivation and the hand-hoed pumpkin treatment. We found that broadleaf weeds dominated when wheat straw was used in the zones where the pumpkins grew and grass weeds where we didn't use straw. The rye mat did reduce soil on the pumpkins. Transplants matured earlier than planting by seed and had a higher percentage of orange pumpkins. With an unseasonably cool summer in 2009, there was an advantage for growing pumpkins as transplants. Most farmers currently grow pumpkins from planting seeds.

The rye C/R system did provide excellent season-long weed control between the rows. We applied OMRI approved fungicide treatments every week from July 21 through September 15 in 2009. We never needed to use an insecticide. This could be from the rye system, the cool season or our location.

Organic tomatoes for fresh market were evaluated at MSU Southwest Research Extension Center (SWMREC) in Benton Harbor, Mich. Cover crops of cereal rye and hairy vetch were seeded in the fall prior to planting tomatoes in the spring. Five different sources of organically approved nitrogen and two sources of potassium were evaluated for tomato yield and quality.

Cereal rye biomass in the spring of 2010 (1,300 lb/A) was higher as compared to 2009 (1,100 lbs/A). Tomato yields in 2009 were higher than 2010. In 2009 hairy vetch as a cover crop resulted in greater yields of number 1 large tomatoes as compared to cereal rye. In 2010 all tomato yields were lower than 2009. In 2009 we picked tomatoes six times as compared to three in 2010.

Using an organic K₂O source such as sulphate of potash (SOP) plus non-GMO soybean meal as a nitrogen source resulted in our highest yields when combining yields from 2009 and 2010 for cereal rye cover crop. Hairy vetch provided similar tomato yields as all organic nitrogen treatments in 2009. Weather can impact organic tomato production. Over the two years, using an organic potassium fertilizer such as SOP plus non-GMO soybean meal resulted in the best quality and highest yielding organic tomatoes.

