

ORGANIC OAT VARIETY TESTING IN MICHIGAN—2018

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Trials featuring organic oats were initiated in 2018 at the W.K. Kellogg Biological Station (KBS) and the Upper Peninsula Research and Extension Center (UPREC), which are research stations of Michigan State University. Objectives included assessing oat varieties for yield and quality parameters related to malting, de-hulling, and human consumption. This report summarizes the data and observations made from the KBS trial through July 24, 2018. Once data is received back from UPREC and the processing and quality tests, another article will be released with further information.



Figure 1. Harvesting oat plots at the Kellogg Biological Station.

*Organic Oat's are
the number one
produced organic
crop in the United
States. Around
3.6% of all oats
grown in the
United States are
organic.
-USDA*

Key Agronomic Practices for Organic Oats

1. Oats can be the first crops planted in the spring. They will germinate when soil reaches 38 degrees F.
2. Planting depth for oats should be approximately 1”
3. Planting as early as possible is important. Since oats are a fast growing crop, and can grow during cool weather, they have a better ability to outcompete weeds compared to other spring planted cereal crops.



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2018 KBS Organic Oat Variety Trial Data

| Variety | Average Heading Date | Height (in.) | Lodging | Crown Rust | Yield (bu/Ac) | | Test Weight (lb/bu) | | Crude Protein % | |
|------------|----------------------|--------------|---------|------------|---------------|-----|---------------------|---|-----------------|----|
| Horsepower | 6/16/2018 | 30.25 | 50% | 2.75 | 46.4 | c | 25.7 | c | 10.5 | d |
| Shelby 427 | 6/14/2018 | 37.50 | 100% | 1.25 | 53.9 | bc | 32.3 | b | 11.4 | bc |
| Beta Gene | 6/19/2018 | 36.50 | 0% | 1.00 | 95.1 | a | 28.7 | c | 11.4 | bc |
| Jerry | 6/13/2018 | 40.50 | 100% | 2.25 | 62.0 | bc | 32.8 | b | 11.7 | bc |
| Excel | 6/18/2018 | 33.75 | 50% | 2.00 | 72.7 | abc | 26.4 | c | 11.3 | bc |
| Ida | 6/15/2018 | 35.00 | 0% | 1.25 | 62.4 | bc | 26.8 | c | 11.3 | bc |
| Rockford | 6/15/2018 | 43.00 | 25% | 1.50 | 62.2 | bc | 28.1 | c | 10.9 | cd |
| Souris | 6/13/2018 | 38.00 | 75% | 2.25 | 58.0 | bc | 27.6 | c | 10.6 | d |
| Newburgh | 6/15/2018 | 42.75 | 100% | 1.50 | 66.8 | bc | 26.8 | c | 11.3 | bc |
| Saber | 6/18/2018 | 37.00 | 25% | 2.50 | 71.1 | abc | 28.9 | c | 11.8 | b |
| Badger | 6/12/2018 | 31.75 | 100% | 2.25 | 63.2 | bc | 28.7 | c | 10.9 | cd |
| Deon | 6/16/2018 | 37.00 | 75% | 0.25 | 47.0 | c | 29.0 | c | 11.6 | bc |
| Hayden | 6/15/2018 | 42.25 | 75% | 1.25 | 59.3 | bc | 32.9 | b | 11.5 | bc |
| Reins | 6/15/2018 | 29.25 | 0% | 1.75 | 80.8 | ab | 32.2 | b | 11.5 | bc |
| Streaker | 6/15/2018 | 41.75 | 25% | 1.25 | 48.3 | c | 42.9 | a | 14.8 | a |
| Sumo | 6/16/2018 | 36.50 | 25% | 1.00 | 82.8 | ab | 33.1 | b | 11.8 | b |

Takeaways from KBS Trial Data

- Oat yields varied by nearly 50 bushels per acre between the lowest and highest yielding variety.
- Lodging varied substantially between varieties and overall was enhanced by three days of wet weather immediately prior to harvest.



The picture above shows the different varieties of organic oats just before flowering.

The data table above include yield and agronomic data from the organic oat variety trial at the W.K. Kellogg Biological Station.

All varieties were replicated 4 times and the results shown are the averages for each variety. All varieties were planted on 4/25/18 with 1.5 million seeds/acre at 1" depth. Two tons of pelletized chicken manure was applied prior to planting (split between fall and spring)

Crown Rust ratings were 0-no crown rust to 5-severe rust.

Lodging and height were taken immediately before harvest.

2018 UPREC Organic Oat Variety Trial Data

| Variety | Average Heading Date | Height (in.) | Lodging | Yield (bu/Ac) | | Test Weight (lb/bu) | | Crude Protein % | |
|------------|----------------------|--------------|---------|---------------|------|---------------------|------|-----------------|----|
| Horsepower | 7/1/18 | 30 | 40% | 130.8 | a | 39.4 | cdef | 11.9 | cd |
| Shelby 427 | 6/30/18 | 34.3 | 80% | 105.2 | bcd | 41.3 | bc | 12.0 | cd |
| Beta Gene | 7/1/18 | 35.3 | 66% | 115.1 | abcd | 38.7 | def | 11.7 | cd |
| Jerry | 6/26/18 | 31.5 | 36% | 93.5 | d | 40.9 | bcd | 12.5 | bc |
| Excel | 6/29/18 | 35 | 60% | 124.4 | ab | 37.7 | f | 11.9 | cd |
| Ida | 7/1/18 | 36.5 | 70% | 93.1 | d | 38.5 | ef | 11.2 | d |
| Rockford | 7/1/18 | 34 | 46% | 104.8 | bcd | 41.8 | b | 11.1 | d |
| Souris | 7/1/18 | 34.3 | 60% | 105.6 | bcd | 39.4 | cdef | 11.4 | cd |
| Newburgh | 7/1/18 | 36.5 | 70% | 101.4 | bcd | 39 | def | 11.0 | d |
| Saber | 6/29/18 | 34 | 56% | 118.9 | abc | 38.8 | def | 11.7 | cd |
| Badger | 6/28/18 | 31.5 | 56% | 52.7 | * | 38.9 | def | 11.7 | cd |
| Deon | 7/3/18 | 30.8 | 46% | 126 | ab | 40.6 | bcde | 11.1 | d |
| Hayden | 6/30/18 | 31.3 | 36% | 114.8 | abcd | 40.7 | bcde | 11.5 | cd |
| Reins | 6/28/18 | 33.3 | 66% | 116.5 | abcd | 41.4 | bc | 12.0 | cd |
| Streaker | 7/2/18 | 33.5 | 70% | 59.8 | e | 48.8 | a | 13.1 | ab |
| Sumo | 6/28/18 | 33.3 | 50% | 97.7 | cd | 41.6 | b | 13.4 | a |

Takeaways from UPREC Trial Data

- Oat yields and test weight were much higher at UPREC compared to KBS.
- The hullless oat (Streaker) yielded significantly less than all other varieties.
- High winds prior to harvest resulted in significant lodging of most varieties.
- * Badger yield in one plot was severely impacted by animal predation; only two plots were included in the analysis



The data table above include yield and agronomic data from the organic oat variety trial at the Upper Peninsula Research and Extension Center

All varieties were replicated 3 times and the results shown are the averages for each variety. Letters beside each numerical average indicate statistical difference with 95% confidence.

All varieties were planted on 5/3/18 and harvested on 8/23/18. Plots were planted with 1.5 million seeds/acre at 1" depth. The field site was perennial pasture until summer 2017, followed by an oilseed radish / crimson