Trials featuring winter malting barley varieties and management practices were initiated at Michigan State University in 2016, both at the W.K. Kellogg Biological Station in SW Michigan and on farms in the Saginaw Valley region. Objectives include optimizing yield while also meeting quality parameters for malting. Although more years of research are needed, winter barley has produced high yields of malting quality barley at both locations. This report summarizes the data and observations made from these trials through June, 2018.

Barley is part of Michigan’s agricultural history. Production peaked at just over 300,000 acres harvest in 1919 and again in 1932. As with other cereal grains, barley is suited to Michigan’s climate.

Figure 1. A field of winter barley approaching maturity

Key Observations for Winter Barley Management

1. Deep planting >1.5” has resulted in poor emergence. Seeds should be planted 1” deep at 1.0—1.4 million seeds per acre

2. Nitrogen fertilizer applied at 75-100 lbs/A at green-up in spring optimized yield without increasing grain protein above the threshold, which should be between 10-12%.

3. Sulfur and split / late applied nitrogen did not improve yields but split nitrogen applications did increase grain protein

4. Fungicide at flowering increased yield (and can protect against Fusarium infection)

5. Early planting (last two weeks of September) is advised, but we are still learning about effects of planting date

6. Varieties did not respond to nitrogen applications the same, in terms of yield and grain protein content

7. Barley should be harvested ASAP after grain moisture reaches 13.5% or below to avoid pre-harvest sprout. Drying grain is possible with low temperature (<100°F) systems
Big Takeaways from 2017 Trial Data

1. Scala & Tepee responded better to high nitrogen rates than Puffin & Wintmalt, as exhibited by increased yields and suitable crude protein (CP).
2. Fungicide application improved yields across all four varieties without affecting grain quality.
3. Scala retained a high percentage of plump kernels across all treatments.

The data table to the left represents yield and quality data from the 2017 winter barley management study at the W.K. Kellogg Biological Station.

Four varieties were fertilized with three different nitrogen rates. Plots were also split with a fungicide application (Prosaro) at flowering.

**Dark green** highlighted cells indicate optimum yields / quality scores while **light green** cells indicate tolerable and **red** indicates unacceptable (based on the guidelines outlined by the American Malting Barley Association).

Next steps for 2018 Research Trials

Two varieties (‘Puffin’ and ‘Scala’) over three different planting dates (Mid Sept., Early Oct., Late Oct.)

Comparing seven nitrogen rates from 0-175 lbs N/A using the variety ‘Puffin’

Evaluation of double crops after winter barley, including soybeans, sorghum sudan and cover crop mixtures with and without irrigation.