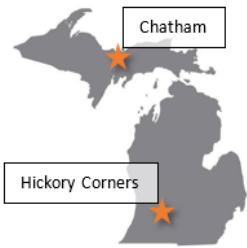


MCIA SPRING OAT & BARLEY VARIETY TRIAL – 2022 RESULTS

James DeDecker, Brook Wilke, Christian Kapp, Josh Dykstra, Lovisa Kunkle and Dean Baas



Michigan State University conducted spring oat and barley variety trials in 2022 with support from the Michigan Crop Improvement Association (MCIA). Locations included Chatham, MI at the MSU Upper Peninsula Research and Extension Center (UPREC) and the W.K. Kellogg Biological Station (KBS) in Hickory Corners, MI. These trials brought the Eastern Spring Barley Nursery (NDSU) and a national oat variety testing program called the Uniform Early Open Oat Nursery (USDA) to Michigan, as well as incorporating commercial oat and barley entries. This research represents an expanded effort to understand oat and barley adaptability and performance in Michigan for both traditional markets and emerging opportunities in craft malting, milling, and distilling.

Temperature and precipitation were near normal at Chatham, and slightly above normal at Hickory Corners. However, precipitation was limited during grain fill at Hickory Corners, contributing to lower test weights. Data were analyzed using ANOVA (alpha = 0.05) and Tukey's HSD test in the Agricolae package for R. Only aggregate data was available for grain protein at Hickory Corners. No lodging was observed at either location. Significant differences were observed among varieties for all other parameters except oat yield at Hickory Corners, where Cereal leaf beetle and grass weed pressure contributed to greater variation within varieties. Average yields were near 70 bu/ac across species and locations. Foliar disease ratings (blotch and powdery mildew) were significantly correlated with oat and barley yields at Chatham. LCS Odyssey seed had low vigor and unusually poor performance. Dr. DeDecker presented results of the ESNB at the 23rd North American Barley Researchers Workshop and 43rd AMBA Barley Improvement Conference (NABRW) in Davis, CA on Sept. 22, 2022 (Fig. 1). MSU Trustees and administrators toured UPREC plots on Aug 2, 2022 (Fig.4). Additional barley quality data is forthcoming and this report will be updated when it is available.

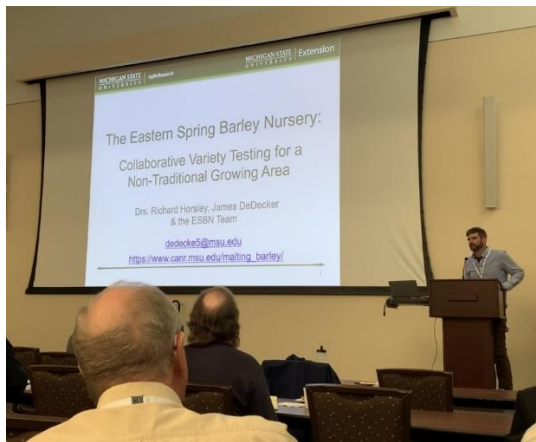


Fig 1. Dr. DeDecker presenting at the NABRW



Fig 2. Plots at Chatham on July 7, 2022



Fig 3. Air Dancer protecting plots from birds at Chatham



Fig 4. Dr. Wilke and Christian Kapp presenting to MSU leaders at Chatham

TRIAL DETAILS

Design:

Rectangular lattice with three replications

Planting date:

May 9th at Chatham
April 12th at Hickory Corners

Seeded at 28 seeds/ft²

Fertility:

50 lbs/ac actual N and 21 lbs/ac S across all locations at planting

Herbicide:

15 oz/ac of Huskie (barley)
1pt/ac Broclean (oats)
at Chatham
13.5 oz/ac of Huskie
at Hickory Corners

Fungicide (barley):

13.45 oz/ac of Miravis Ace
at Chatham
13.5 oz/ac of Miravis Ace
at Hickory Corners

Harvest Date:

August 15th (barley) & 30th (oats)
at Chatham
July 26th at Hickory Corners

Pest & Weather Notes:

- Significant foliar fungal disease at Chatham
- Some site variation at both locations
- Cereal Leaf Beetle sprayed with 3.2 oz/ac Grizzly Z at Hickory Corners

Table 1: Oat Performance at Chatham, MI (* indicates varieties similar to the BEST)						
Variety (color)	Yield (bu/a @13.5%)	TW (lbs/bu)	Heading Date	Height (in)	Disease (0-5)	Protein (%)
A10 (t)	55.6	34.6	29-Jun*	30.3	1.7	12.6*
A11 (w)	69.7*	36.9*	6-Jul	26.1	1.7	12.2*
A25 (t)	44.8	34.0	29-Jun*	28.7	2.0	12.1*
Antigo (y)	63.5*	37.4*	1-Jul*	29.9	2.7	12.0*
Badger (y)	65.3*	35.3	1-Jul*	30.1	2.7	11.9*
Beta Gene (y)	84.4	35.1	9-Jul	33.3	0.3*	11.5*
Buffalo (w)	73.9*	35.2	7-Jul	34.8	0.7*	11.8*
CLINTFORD (ck) (t)	61.6*	35.1	1-Jul*	31.0	1.3	11.6*
DON (ck) (w)	63.7*	35.1	3-Jul	28.7	1.0	12.3*
Esker 2020 (y)	75.5*	34.6	4-Jul	33.3	0.7*	11.4*
George (y)	80.2*	35.6	14-Jul	36.6*	1.0	11.6*
Goliath (w)	70.2*	37.1*	10-Jul	42.7	1.0	11.7*
Hayden (w)	81.5*	37.2*	6-Jul	32.3	1.7	11.7*
Horsepower (w)	80.8*	35.7	3-Jul	29.4	2.0	11.8*
Ida (w)	77.9*	35.3	5-Jul	34.8	1.0	11.7*
IL15-5271 (t)	77.9*	36.3*	4-Sep	29.9	1.3	10.9
IL15-5752 (t)	72.9*	37.5*	29-Jun	28.7	3.3	11.8*
IL17-5238 (y)	62.8*	36.0	1-Jul*	31.6	1.7	12.8
IL17-7334 (y)	69.5*	34.7	3-Jul	25.1	1.0	11.6*
KAME (ck) (y)	64.1*	33.4	3-Jul	29.2	2.0	11.5*
MN Pearl (w)	77.4*	35.2	10-Jul	34.0	1.3	11.1
MN18015X_004 (w)	74.6*	37.4*	1-Jul*	28.0	1.3	11.3
MN18048X_005 (t)	68.7*	36.3*	3-Jul	36.0*	2.0	11.1
MN18057X_007 (t)	60.2*	35.8	3-Jul	28.5	1.3	12.5*
MN19104X_016 (y)	71.5*	37.3*	3-Jul	30.8	1.0	12.1*
NATTY (ck) (w)	80.8*	36.5*	4-Jul	37.4*	1.3	11.7*
Rushmore (w)	77.5*	37.1*	6-Jul	34.9	1.7	11.6*
SD181377 (w)	81.4*	36.2*	4-Jul	34.2	0.7*	11.2
SD190323 (w)	69.0*	36.3*	4-Jul	30.1	1.3	11.5*
SD190850 (w)	72.7*	37.6*	3-Jul	36.8*	1.3	12.0*
SD190992 (w)	84.3*	36.7*	7-Jul	34.2	0.7*	11.6*
SD191467 (w)	77.2*	36.7*	3-Jul	36.4*	0.3*	11.4*
SD191508 (w)	70.4*	38.2	4-Jul	26.2	1.7	11.8*
WIX10305-4 (t)	62.8*	37.7*	2-Jul	25.8	0.0	12.1*
WIX10677-3 (w)	70.3*	33.4	7-Jul	33.5	2.0	12.3*
WIX10680-3 (y)	82.3*	34.1	14-Jul	33.2	0.7*	11.6*
Average	71.6	36.0	4-Jul	31.8	1.4	11.8



Table 2: Oat Performance at Hickory Corners, MI (*indicates varieties similar to the BEST)

Variety (color)	Yield (bu/a @13.5%)	TW (lbs/bu)	Heading Date	Height (in)	Disease (0-5)	Protein (%)
A10 (t)	62.2*	30.6*	12-Jun*	33.3	NA	12.3
A11 (w)	69.6*	31.9*	17-Jun	25.7	NA	12.9
A25 (t)	46.1*	29.2	12-Jun*	33.3	NA	13.6
Antigo (y)	74.6*	32.1*	13-Jun*	33.3	NA	12.9
Badger (y)	69.0*	30.9*	13-Jun*	31.7	NA	12.5
Beta Gene (y)	76.0*	28.7	17-Jun	32.0	NA	12.1
Buffalo (w)	80.5*	28.5	18-Jun	37.0	NA	11.4
CLINTFORD (ck) (t)	72.2*	30.1*	13-Jun*	33.7	NA	12.2
DON (ck) (w)	86.7*	30.3*	13-Jun*	30.7	NA	13.0
Esker 2020 (y)	80.2*	29.1	15-Jun*	34.3	NA	11.7
George (y)	62.6*	29.2	19-Jun	36.0	NA	12.4
Goliath (w)	64.6*	29.8*	18-Jun	42.3	NA	12.3
Hayden (w)	71.1*	30.2*	17-Jun	36.0	NA	12.1
Horsepower (w)	86.3*	29.3	15-Jun*	30.0	NA	12.0
Ida (w)	71.4*	28.3	19-Jun	36.0	NA	11.7
IL15-5271 (t)	72.7*	28.7	14-Jun*	31.0	NA	11.8
IL15-5752 (t)	62.7*	32.5*	12-Jun	31.0	NA	13.0
IL17-5238 (y)	86.7*	30.4*	12-Jun*	35.3	NA	12.3
IL17-7334 (y)	65.5*	28.0	14-Jun*	26.7	NA	12.3
KAME (ck) (y)	75.2*	28.5	13-Jun*	32.0	NA	12.2
MN Pearl (w)	63.4*	28.5	17-Jun	33.3	NA	11.1
MN18015X_004 (w)	82.8*	31.1*	13-Jun*	29.3	NA	12.6
MN18048X_005 (t)	57.5*	29.1*	14-Jun*	35.3	NA	13.0
MN18057X_007 (t)	70.0*	29.1*	16-Jun	32.7	NA	12.8
MN19104X_016 (y)	81.9*	30.2*	15-Jun*	34.7	NA	12.3
NATTY (ck) (w)	52.9*	31.6*	13-Jun*	35.0	NA	12.5
Rushmore (w)	72.4*	31.2*	15-Jun*	37.3	NA	12.0
SD181377 (w)	72.5*	29.4*	15-Jun*	35.7	NA	12.0
SD190323 (w)	71.1*	29.8*	15-Jun*	35.3	NA	11.9
SD190850 (w)	66.0*	31.4*	14-Jun*	38.7*	NA	11.0
SD190992 (w)	63.0*	28.9	17-Jun	35.3	NA	11.6
SD191467 (w)	86.8	32.6	15-Jun*	36.7	NA	11.9
SD191508 (w)	84.2*	31.1*	15-Jun*	32.3	NA	12.1
WIX10305-4 (t)	63.5*	31.6*	15-Jun*	26.0	NA	13.7
WIX10677-3 (w)	76.8*	28.6	15-Jun*	36.0	NA	12.0
WIX10680-3 (y)	84.5*	28.2	18-Jun	34.0	NA	12.7
Average	71.8	30.0	15-Jun	33.6	NA	12.3



Table 3: Barley Performance at Chatham, MI (* indicates vars. similar to the BEST)

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Heading Date	Height (in)	Disease (0-5)	Protein (%)	Plump Kernels (%)	DON (ppm)	RVA (rvu)	72 hr GE (%)
10031 U1	96.3	51.2*	5-Jul*	21.8*	2.0*	TBD	TBD	TBD	TBD	TBD
2ND32529	80.1*	48.2*	1-Jul*	24.3*	3.7	TBD	TBD	TBD	TBD	TBD
2ND36638	76.7*	48.6*	1-Jul*	23.5*	3.3	TBD	TBD	TBD	TBD	TBD
2ND36642	85.4*	49.8*	3-Jul*	23.8*	2.3*	TBD	TBD	TBD	TBD	TBD
2ND37111	67.9	46.2	1-Jul*	23.7*	3.0	TBD	TBD	TBD	TBD	TBD
2ND37130	70.7	48.5*	1-Jul*	24.1*	2.7*	TBD	TBD	TBD	TBD	TBD
2ND37568	62.9	46.6	1-Jul*	23.2*	2.3*	TBD	TBD	TBD	TBD	TBD
3523 U2	87.4*	49.3*	4-Jul*	20.2	2.3*	TBD	TBD	TBD	TBD	TBD
AAC Connect	65.0	47.7*	3-Jul*	23.2*	2.3*	TBD	TBD	TBD	TBD	TBD
AAC Synergy	68.4	48.1*	5-Jul*	23.4*	2.7*	TBD	TBD	TBD	TBD	TBD
BC Ellinor	80.4*	46.9	17-Jul	17.3	2.0*	TBD	TBD	TBD	TBD	TBD
Bowers	53.0	47.0	2-Jul*	26.2*	2.3*	TBD	TBD	TBD	TBD	TBD
CU198	86.3*	51.3	4-Jul*	26.1*	2.7*	TBD	TBD	TBD	TBD	TBD
Esma	85.2*	49.1*	4-Jul*	18.4	2.0*	TBD	TBD	TBD	TBD	TBD
Excelsior Gold	65.4	50.7*	3-Jul*	25.2*	3.0	TBD	TBD	TBD	TBD	TBD
Explorer	69.3	48.5*	7-Jul	18.1	2.0*	TBD	TBD	TBD	TBD	TBD
Firefox	82.8*	48.6*	30-Jun*	23.2*	3.0	TBD	TBD	TBD	TBD	TBD
Klarinette	91.0*	49.8*	3-Jul*	22.8*	1.7*	TBD	TBD	TBD	TBD	TBD
KWS Amadora	77.6*	50.2*	11-Jul	19.1	2.0*	TBD	TBD	TBD	TBD	TBD
KWS Jessie	88.0*	49.9*	3-Jul*	18.5	2.3*	TBD	TBD	TBD	TBD	TBD
KWS Kellie	85.5*	48.6*	10-Jul	18.2	1.7*	TBD	TBD	TBD	TBD	TBD
KWS Willis	85.4*	49.2*	9-Jul	20.8	2.0*	TBD	TBD	TBD	TBD	TBD
Lacey	63.7	49.8*	30-Jun*	27.3	4.0	TBD	TBD	TBD	TBD	TBD
LCS Genie	60.4	48.4*	20-Jul	21.3	2.7*	TBD	TBD	TBD	TBD	TBD
LCS Odyssey	51.8	47.2	20-Jul	22.8*	0.7	TBD	TBD	TBD	TBD	TBD
ND Genesis	71.1	50.5*	3-Jul*	22.9*	3.3	TBD	TBD	TBD	TBD	TBD
Newdale	61.0	47.1	9-Jul	23.2*	3.0*	TBD	TBD	TBD	TBD	TBD
OM140088	27.6	47.5*	13-Jul	22.5*	2.3*	TBD	TBD	TBD	TBD	TBD
OML	28.6	47.0	9-Jul	19.2	4.3	TBD	TBD	TBD	TBD	TBD
Pinnacle	58.4	49.3*	3-Jul*	21.0	3.0	TBD	TBD	TBD	TBD	TBD
Rasmussen	59.6	49.1*	30-Jun	22.6*	3.7	TBD	TBD	TBD	TBD	TBD
Revanche	81.3*	47.7*	5-Jul*	21.1	2.0*	TBD	TBD	TBD	TBD	TBD
TR17255	66.5	46.9	5-Jul*	24.0*	3.0	TBD	TBD	TBD	TBD	TBD
Average	70.9	48.6	5-Jul	20.9	2.5	TBD	TBD	TBD	TBD	TBD



Fig 5. Barley plots at Hickory Corners



Fig 6. Oat plots at Hickory Corners

Table 4: Barley Performance at Hickory Corners, MI (* indicates vars. similar to the BEST)

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Heading Date	Height (in)	Protein (%)	Plump Kernels (%)	DON (ppm)	RVA (rvu)	72 hr GE (%)
10031 U1	75.0*	39.0*	14-Jun	27.3	TBD	TBD	TBD	TBD	TBD
2ND32529	77.3*	41.4*	11-Jun*	32.0*	TBD	TBD	TBD	TBD	TBD
2ND36638	78.1*	40.9*	11-Jun*	29.3	TBD	TBD	TBD	TBD	TBD
2ND36642	84.6	39.1*	11-Jun*	30.3	TBD	TBD	TBD	TBD	TBD
2ND37111	67.3*	38.7*	11-Jun*	29.3	TBD	TBD	TBD	TBD	TBD
2ND37130	71.0*	39.9*	11-Jun*	30.0	TBD	TBD	TBD	TBD	TBD
2ND37568	71.8*	38.3*	12-Jun*	32.7*	TBD	TBD	TBD	TBD	TBD
3523 U2	70.9*	38.7*	14-Jun	25.3	TBD	TBD	TBD	TBD	TBD
AAC Connect	61.2*	37.3*	15-Jun	30.3	TBD	TBD	TBD	TBD	TBD
AAC Synergy	70.8*	38.7*	15-Jun	31.7*	TBD	TBD	TBD	TBD	TBD
BC Ellinor	67.0*	39.0*	17-Jun	24.0	TBD	TBD	TBD	TBD	TBD
Bowers	64.2*	36.8*	12-Jun*	36.0	TBD	TBD	TBD	TBD	TBD
CU198	75.0*	42.0	13-Jun*	33.3*	TBD	TBD	TBD	TBD	TBD
Esmá	72.8*	38.3*	15-Jun	26.7	TBD	TBD	TBD	TBD	TBD
Excelsior Gold	61.8*	38.8*	13-Jun*	34.7*	TBD	TBD	TBD	TBD	TBD
Explorer	74.7*	39.1*	15-Jun	25.3	TBD	TBD	TBD	TBD	TBD
Firefox	72.0*	40.4*	12-Jun*	32.0*	TBD	TBD	TBD	TBD	TBD
Klarinette	78.6*	41.2*	12-Jun*	24.3	TBD	TBD	TBD	TBD	TBD
KWS Amadora	75.4*	41.4*	15-Jun	25.7	TBD	TBD	TBD	TBD	TBD
KWS Jessie	76.7*	37.3*	16-Jun	23.3	TBD	TBD	TBD	TBD	TBD
KWS Kellie	72.9*	38.4*	16-Jun	26.0	TBD	TBD	TBD	TBD	TBD
KWS Willis	76.8*	37.5*	15-Jun	27.7	TBD	TBD	TBD	TBD	TBD
Lacey	69.9*	37.9*	10-Jun	35.0*	TBD	TBD	TBD	TBD	TBD
LCS Genie	58.2*	41.6*	19-Jun	26.3	TBD	TBD	TBD	TBD	TBD
LCS Odyssey	61.2*	37.4*	18-Jun	27.0	TBD	TBD	TBD	TBD	TBD
ND Genesis	68.6*	38.4*	13-Jun*	32.0*	TBD	TBD	TBD	TBD	TBD
Newdale	57.6*	37.5*	17-Jun	31.0	TBD	TBD	TBD	TBD	TBD
OM140088	50.3	36.0*	19-Jun	29.0	TBD	TBD	TBD	TBD	TBD
OML	41.7	38.7*	19-Jun	25.0	TBD	TBD	TBD	TBD	TBD
Pinnacle	62.0*	37.7*	12-Jun*	31.0	TBD	TBD	TBD	TBD	TBD
Rasmussen	64.7*	39.2*	11-Jun*	32.0*	TBD	TBD	TBD	TBD	TBD
Revanche	68.0*	36.1*	14-Jun	26.3	TBD	TBD	TBD	TBD	TBD
TR17255	64.7*	36.9*	14-Jun	32.7*	TBD	TBD	TBD	TBD	TBD
Average	68.6	38.8	14-Jun	29.2	TBD	TBD	TBD	TBD	TBD



Fig 7. MSU Extension intern, Sarah Hubbard, harvesting at Hickory Corners



Fig 8. Combining at Hickory Corners