

## MCIA SPRING OAT & BARLEY VARIETY TRIAL – 2021 RESULTS

James DeDecker, Brook Wilke, Christian Kapp, Dean Baas, & Dennis Pennington



Michigan State University conducted spring oat and barley variety trials in 2021 with support from the Michigan Crop Improvement Association (MCIA). Locations included Chatham, MI at the MSU Upper Peninsula Research and Extension Center (UPREC), MSU's Mason Research Farm (barley), the Saginaw Valley Research and Extension Center in Frankenmuth, MI (oats), and the W.K. Kellogg Biological Station (KBS) in Hickory Corners, MI. These trials brought a national oat variety testing program to Michigan called

the Uniform Early Open Oat Nursery (USDA), 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. Unfortunately, oats were not harvested due to moisture stress at Hickory Corners. Oats at Frankenmuth experience late-season tillering due to moisture stress. Grain quality data were not collected at Frankenmuth or Mason. A small grains field day was held at KBS on June 25<sup>th</sup>, 2021 to share our research with stakeholders. State Rep. Sara Cambensy toured oat and barley research at UPREC on July 30<sup>th</sup>, 2021 (Fig. 2).

**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)	Protein (%)	Plump Kernels (%)
A10 (t)	108.3	34.0	4-Jul	25.0	12.5	54.8
A11 (w)	115.9*	36.0	5-Jul	27.3	12.5	41.9
A25 (t)	107.4	30.3	29-Jun	29.9	12.7	29.2
Antigo (y)	94.0	35.2	30-Jun	27.3	12.4	11.5
Badger (y)	117.1*	30.4	28-Jun	30.2	11.8	65.4
Beta Gene (y)	138.1*	33.6	3-Jul	32.5	11.0	50.4
CLINTFORD (ck) (t)	129.6*	32.6	29-Jun	30.2	12.5	29.6
DON (ck) (w)	120.5*	33.9	1-Jul	25.7	12.4	27.4
Esker 2020 (y)	142.8*	32.8	4-Jul	31.6	11.2	49.6
Goliath (w)	137.5*	35.4	9-Jul	43.0	10.8	54.7
Hayden (w)	142.0*	34.0	5-Jul	34.5	11.2	68.1
Horsepower (w)	133.8*	36.4	3-Jul	31.0	10.6	32.7
Ida (w)	115.5*	35.6	5-Jul	33.2	10.9	50.5
IL10-9872 (t)	137.1*	36.3	1-Jul	27.7	12.4	45.2
IL15-5271 (t)	123.3*	35.1	3-Jul	24.7	11.0	16.1
IL15-5752 (t)	103.5	34.7	28-Jun	27.4	12.5	32.2
IL15-8735 (t)	138.1*	34.0	4-Jul	27.8	11.9	61.6
KAME (ck) (y)	135.2*	31.0	28-Jun	26.5	11.4	31.6
MN Pearl (w)	150.7*	32.6	6-Jul	33.6	10.7	70.3
MN17111X_024 (w)	130.7*	31.5	29-Jun	27.7	11.9	33.0
MN18010X_010 (y)	121.8*	33.7	3-Jul	31.3	11.8	32.9
MN18015X_004 (w)	109.9	37.6	30-Jun	24.6	12.4	17.3
MN18057X_007 (t)	132.7*	31.9	30-Jun	26.5	11.9	47.5
NATTY (ck) (w)	142.0*	32.7	1-Jul	31.8	11.2	50.6
Rushmore (w)	136.9*	34.5	5-Jul	30.6	11.2	54.5
SD150012 (w)	150.5*	32.7	6-Jul	31.7	11.0	53.1

## TRIAL DETAILS

### Design:

Rectangular lattice with three replications

### Planting date:

May 11<sup>th</sup> at Chatham  
 March 23<sup>rd</sup> at Frankenmuth  
 April 6<sup>th</sup> at Mason  
 April 7<sup>th</sup> at Hickory Corners

Seeded at 28 seeds/ft<sup>2</sup>

### Fertility:

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

### Herbicide:

1pt/ac Broclean at Chatham  
 1.5pt/ac Broclean at Mason and Frankenmuth  
 None at Hickory Corners

### Fungicide (barley):

8.2 oz/ac ProSaro at Chatham  
 None at Frankenmuth, Mason or Hickory Corners

### Harvest Date:

August 19<sup>th</sup> at Chatham  
 July 28<sup>th</sup> at Frankenmuth  
 July 21<sup>st</sup> at Mason  
 July 19<sup>th</sup> at Hickory Corners

### Pest & Weather Notes:

-Some uncontrolled weeds and site variation in Chatham barley

-Cereal leaf beetles sprayed with 3.7 oz/ac Grizzly Z in HC

-Drought stress and late season tillering in Lower Peninsula oats

**Table 1 Cont'd: Oat Performance at Chatham, MI**

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Heading Date	Height (in)	Protein (%)	Plump Kernels (%)
SD170463 (w)	128.5*	39.3	6-Jul	31.8	11.2	74.6
SD170584 (w)	142.2*	33.0	5-Jul	32.0	11.7	25.1
SD170915 (w)	105.5	38.4	2-Jul	30.8	12.0	43.1
SD180029 (w)	140.0*	32.9	4-Jul	30.3	11.0	22.6
SD180175 (w)	129.7*	32.5	2-Jul	28.1	11.5	23.5
SD181377 (w)	129.7*	34.6	3-Jul	32.3	11.3	30.7
SD181382 (w)	142.5*	33.9	4-Jul	31.9	11.8	43.7
WIX10305-4 (t)	152.4	33.3	10-Jul	32.8	10.5	44.1
WIX10677-3 (w)	138.4*	31.5	5-Jul	26.2	12.0	43.9
WIX10710-1 (y)	150.0*	33.3	6-Jul	32.9	10.8	33.2
<b>Average</b>	<b>129.8</b>	<b>33.9</b>	<b>3-Jul</b>	<b>30.1</b>	<b>11.2</b>	<b>41.6</b>

**Table 2: Oat Performance at Frankenmuth, MI (\* indicates vars. similar to the BEST)**

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Variety	Yield (bu/a @13.5%)	TW (lbs/bu)
A10	113.9*	26.0	SD170915	128.2*	28.2
A11	108.4	27.0	SD180029	125.1*	27.0
A25	89.1	23.9	SD180175	129.0*	27.2
Antigo	88.7	33.1	SD181377	119.1*	26.5
Badger	98.3	29.9	SD181382	140.7*	29.6
Beta Gene	103.9	28.8	WIX10305-4	139.2*	25.8
CLINTFORD (ck)	116.5*	25.2	WIX10677-3	127.5*	24.8
DON (ck)	105.0	27.1	WIX10710-1	107.0	26.1
Esker 2020	97.9	26.1	<b>Average</b>	<b>119.7</b>	<b>27.6</b>
Goliath	137.5*	32.3			
Hayden	128.7*	33.6			
Horsepower	102.5	31.1			
Ida	125.0*	28.3			
IL10-9872	125.4*	27.1			
IL15-5271	135.0*	28.5			
IL15-5752	118.3*	27.2			
IL15-8735	126.4*	26.7			
KAME (ck)	116.7*	24.6			
MN Pearl	150.1	29.3			
MN17111X_024	125.3*	24.5			
MN18010X_010	133.2*	25.8			
MN18015X_004	119.7*	26.1			
MN18057X_007	119.7*	26.0			
NATTY (ck)	127.9*	26.7			
Rushmore	113.7	32.9			
SD150012	NA	NA			
SD170463	NA	NA			
SD170584	126.7*	26.6			



Figure 1. Chatham oats emerging May 21<sup>st</sup>, 2021



**Table 3: Barley Performance at Chatham, MI (Yield differences were not sig.)**

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Heading Date	Height (in)	Protein (%)	Plump Kernels (%)	DON (ppm)	RVA (rvu)	72 hr GE (%)
2ND32529	64.8	45.9	8-Jul	21.3	10.7	84.0	0.27	128	100
2ND36638	66.8	44.3	6-Jul	21.0	9.6	94.2	0.36	133	99
2ND36642	71.6	43.9	6-Jul	20.7	10.9	93.6	0.3	129	98
2ND37111	39.0	42.9	10-Jul	20.0	10.4	87.4	0.47	138	95
2ND37130	42.4	41.3	7-Jul	22.7	10.5	87.3	0.38	137	100
2ND37568	67.1	43.6	6-Jul	22.3	11.0	92.1	0.31	120	95
AAC Connect	29.5	41.4	11-Jul	19.0	11.9	69.1	0.25	70	100
AAC Synergy	49.0	42.6	12-Jul	22.0	12.3	83.1	0.23	74	100
Bowers	67.4	42.8	7-Jul	25.3	10.2	63.6	0.46	139	100
Brunilda	53.2	45.2	12-Jul	21.0	11.3	93.4	0.29	140	100
CU198	56.1	47.6	13-Jul	22.7	11.8	88.7	0.46	99	99
Esma	59.8	42.3	10-Jul	17.7	11.3	76.5	0.27	122	100
Excelsior Gold	63.7	45.3	4-Jul	24.0	10.3	79.4	0.50	149	100
Explorer	61.5	44.3	7-Jul	19.7	10.1	80.9	0.42	140	100
Fangio	37.3	43.5	12-Jul	21.7	10.2	90.8	0.59	77	94
Firefox	55.4	45.4	10-Jul	20.7	11.2	91.7	0.22	102	99
Focus	52.8	44.1	9-Jul	19.3	11.5	88.5	0.44	129	100
Klarinette	86.2	46.6	5-Jul	20.0	12.4	92.8	0.43	139	98
KWS Fantex	66.4	44.6	13-Jul	17.3	11.4	86.7	0.32	146	100
KWS Jessie	61.0	44.4	9-Jul	18.7	10.8	91.9	0.23	110	99
KWS Kellie	66.3	45.0	11-Jul	19.0	10.7	82.7	0.25	121	98
KWS Willis	69.0	44.5	10-Jul	20.0	10.6	93.7	0.37	133	98
LCS Odyssey	27.8	42.5	10-Jul	19.7	9.9	89.9	0.69	114	100
ND Genesis	76.4	47.6	8-Jul	23.0	11.3	87.8	0.37	113	99
Newdale	45.0	42.5	12-Jul	20.0	11.7	65.7	0.26	95	100
Pinnacle	70.3	46.0	6-Jul	21.7	9.6	88.5	0.44	141	99
Rasmusson	59.6	45.1	3-Jul	20.7	11.8	72.3	0.34	139	100
Revanche	54.0	44.1	11-Jul	19.3	9.5	81.1	0.28	115	100
<b>Average</b>	<b>57.8</b>	<b>44.3</b>	<b>9-Jul</b>	<b>20.7</b>	<b>10.9</b>	<b>84.0</b>	<b>0.36</b>	<b>121.1</b>	<b>98.9</b>

**Table 4: Barley Performance at Mason, MI (\* indicates varieties similar to the BEST)**

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Variety	Yield (bu/a @13.5%)	TW (lbs/bu)
2ND32529	89.5	39.7	CU198	77.9*	43.9	KWS Kellie	78.5*	42.0
2ND36638	77.0*	39.5	Esma	84.8*	43.1	KWS Willis	81.7*	42.6
2ND36642	75.9	39.5	Excelsior Gold	83.7*	42.4	LCS Odyssey	70.4	26.7
2ND37111	66.3	38.1	Explorer	83.8*	43.4	ND Genesis	84.9*	42.3
2ND37130	82.4*	40.6	Fangio	60.1	27.9	Newdale	85.2*	39.8
2ND37568	74.3	38.8	Firefox	73.6	39.5	Pinnacle	79.9*	40.6
AAC Connect	82.6*	38.1	Focus	68.3	40.2	Rasmusson	NA	NA
AAC Synergy	77.9*	37.6	Klarinette	74.8	42.7	Revanche	75.9	42.5
Bowers	NA	NA	KWS Fantex	85.9*	42.3	<b>Average</b>	<b>77.9</b>	<b>39.9</b>
Brunilda	65.8	41.7	KWS Jessie	85.7*	41.9			



**Table 5: Barley Performance at Hickory Corners, MI**  
 (\* indicates varieties similar to the BEST)

Variety	Yield (bu/a @13.5%)	TW (lbs/bu)	Protein (%)	Plump Kernels (%)	DON (ppm)	RVA (rvu)	72 hr GE (%)
2ND32529	27.7*	36.3	12.3	96.6	0.58	6	15
2ND36638	29.2*	38.1	13.5	96.8	0.27	54	59
2ND36642	<b>31.2*</b>	39.9	13.5	97.6	0.37	44	64
2ND37111	24.1*	39.0	12.1	97.1	0.5	23	63
2ND37130	23.4	38.9	12.7	97.2	0.37	19	57
2ND37568	24.4*	38.3	13.3	95.7	0.29	21	63
AAC Connect	23.2	39.2	13.9	94.7	0.49	6	13
AAC Synergy	22.7	39.2	13.8	98.1	0.53	7	16
Bowers	23.7	39.9	14.6	74.6	0.25	85	89
Brunilda	28.5*	42.4	14.6	98.4	0.38	83	90
CU198	27.0*	42.2	15.0	97.5	0.53	25	55
Esma	31.1*	42.5	14.4	95.7	0.5	20	78
Excelsior Gold	27.4*	41.2	13.3	97.2	0.27	30	51
Explorer	30.7*	42.4	14.6	97.3	0.42	48	91
Fangio	23.6	40.8	14.5	97.6	0.57	63	85
Firefox	18.1	36.5	12.0	97.8	0.61	7	*
Focus	26.2*	40.9	13.0	97.9	0.34	29	58
Klarinette	22.4	40.7	13.0	97.4	0.41	21	59
KWS Fantex	29.2*	42.7	14.6	95.1	0.38	72	60
KWS Jessie	29.1*	42.0	14.3	97.1	0.41	35	80
KWS Kellie	28.0*	41.5	12.6	96.7	0.31	10	59
KWS Willis	29.3*	42.2	14.0	98.4	0.30	76	87
LCS Odyssey	22.9	41.1	15.2	97	0.52	109	95
ND Genesis	28.3*	39.9	12.8	96.2	0.32	19	64
Newdale	30.7*	40.1	14.8	95.3	0.48	8	38
Pinnacle	24.3*	37.2	12.0	97.3	0.45	15	41
Rasmusson	12.9	41.1	13.3	84.3	0.35	28	54
Revanche	27.2*	41.8	14.0	97.7	0.52	55	90
<b>Average</b>	<b>25.9</b>	<b>40.3</b>	<b>13.6</b>	<b>95.7</b>	<b>0.42</b>	<b>36.4</b>	<b>62.0</b>



Figure 2. State Rep. Sara Cambensy touring UPREC oat and barley research July 30<sup>th</sup>, 2021



Figure 3. Harvesting barley at Chatham August 19<sup>th</sup>, 2021