

# Ohio Malt

By: Andrew Martahus of Haus Malts



# What is Malting?

Steep



Germination



Kilning



# Which Grains can be Malted?

## Common

- Barley
- Wheat
  - Spelt
- Rye

## Uncommon

- Corn
- Rice
- Millet
- Buckwheat
- Quinoa
- Amaranth
- Triticale
- Oats

# Availability of Grains in Ohio

- Commodities

- Corn
- Soft Red Wheat

- Contract Grown

- Spelt
- Rye
- Specialty Wheat

- Ohio Barley

- Historically grown in Ohio
- OSU breeding program
  - Test plots
  - New varieties adapted for Ohio
- Ohio Certified Seed
  - Maja
- Haus Malts Contracts
  - 5 fields of winter barley
  - 2 fields of spring barley

# Current Barley Trials

- Ohio
  - Eric Stockinger at OSU
- New York
  - Cornell
- Pennsylvania
  - Pennsylvania State

Accession	Kernel Weight (mg)	On 6/64" (%)	Barley Color (Agron)	Malt Extract (%)	Wort Color	Wort Clarity	Barley Protein (%)	Wort Protein (%)	S/T (%)	DP (%ASBC)	Alpha-amylase (20°DU)	Beta-glucan (ppm)	FAN (ppm)	Quality Score	Overall Rank
'Charles'	30.6	85.8	38	81.5	2.8	1	12.6	5.68	47.4	148	110.0	185	256	47	3
'Endeavor'	30.3	76.8	38	80.4	2.4	1	12.6	5.42	44.3	158	107.8	204	232	50	2
'Halcyon'	32.6	78.7	49	78.3	2.0	1	12.8	4.50	36.0	116	52.5	493	166	34	19
'Pipkin'	31.9	79.1	41	78.3	2.9	2	12.3	4.05	34.7	100	62.8	452	142	29	30
NT 074	29.0	60.3	31	76.4	6.7	2	14.1	*7.34	52.6	106	77.5	55	309	24	37
NT 140	34.2	75.3	31	78.3	n.d.	3	12.7	4.60	38.3	142	89.7	207	174	35	17
MO B2126	34.1	83.3	54	73.2	2.5	2	15.2	4.17	27.5	110	37.5	926	133	8	42
MO B2169	42.2	89.7	43	*70.7	2.2	1	*16.9	5.26	31.7	149	58.2	596	188	34	19
MO B2171	35.1	91.4	41	74.7	2.0	1	15.6	5.21	33.6	159	61.6	546	200	33	23
MO B2186	39.8	86.5	37	75.3	2.4	2	14.3	4.46	31.5	114	49.3	635	147	21	40
MO B2247	36.7	89.3	43	77.1	2.7	2	14.8	4.74	33.7	135	51.8	462	176	25	35
MO B2549	37.7	75.7	46	72.4	1.8	1	*18.0	5.81	33.2	187	60.9	404	205	24	37
MO B2566	41.5	90.2	47	74.1	n.d.	3	15.2	5.17	34.7	136	51.1	501	178	30	27

For Wort Clarity - 1 = clear, 2 = slightly hazy, 3 = hazy; Wort Color was not determined (n.d.) on hazy samples  
Data flagged by an asterisk exceed the mean by +/- 3 standard deviations and are excluded from statistics

Accession	Kernel Weight (mg)	On 6/64" (%)	Barley Color (Agron)	Malt Extract (%)	Wort Color	Wort Clarity	Barley Protein (%)	Wort Protein (%)	S/T (%)	DP (%ASBC)	Alpha-amylase (20°DU)	Beta-glucan (ppm)	FAN (ppm)	Quality Score	Overall Rank
'Mathias' (OR 76)	28.8	76.7	38	77.0	3.3	2	13.6	5.57	41.7	104	67.1	320	229	30	21
'Alba' (OR 77)	31.2	84.7	47	76.6	2.2	1	12.1	4.45	37.7	106	56.8	769	160	28	24
'Maja' (OR 81)	24.1	85.0	43	80.0	3.7	2	11.9	4.88	42.4	134	71.2	92	218	52	1
OR 91	23.2	61.8	39	80.6	3.8	1	11.7	5.60	48.8	113	93.8	132	252	44	3
OR 92	23.6	65.6	37	80.6	3.8	1	11.8	5.58	50.8	114	94.9	156	249	44	3
OR 97	23.6	64.6	35	80.2	4.4	1	11.5	5.66	50.9	107	96.3	128	265	39	9
OR 98	24.0	68.1	37	80.2	3.7	1	11.9	5.61	49.7	104	89.8	162	254	44	3
OR 813	28.3	77.4	42	78.0	3.2	2	14.1	5.71	42.0	103	69.1	231	237	30	21
OR 815	31.0	84.2	44	78.9	2.0	1	13.1	4.85	38.6	108	63.9	546	193	41	7
OR 816	27.8	75.5	43	79.4	2.6	1	12.1	4.64	40.1	123	67.7	396	190	36	14
OR 818	23.6	62.3	34	78.7	3.4	1	11.7	5.59	48.7	111	98.1	195	250	38	13
OR 910	24.3	68.8	36	80.6	4.3	1	12.1	5.77	50.6	113	95.9	137	262	40	8
OR 915	26.8	73.3	45	79.8	3.6	2	12.6	4.85	41.3	101	71.4	236	205	39	9
OR 101	26.8	79.1	47	78.7	3.0	1	12.8	4.96	40.7	134	66.8	257	193	39	9
OR 102	31.7	79.6	39	76.5	3.2	1	12.9	4.75	38.0	105	59.3	448	186	26	26
OR 103	32.8	89.8	49	79.6	2.7	1	11.7	4.43	38.7	95	57.0	711	172	39	9
OR 104	27.2	81.8	45	79.7	n.d.	3	12.0	4.78	40.2	115	62.4	255	192	35	15
OR 105	28.3	85.0	42	78.9	n.d.	3	11.8	4.74	40.8	95	61.9	263	192	34	16
OR 106	27.6	78.7	41	78.3	n.d.	3	12.0	4.53	39.3	103	58.4	384	172	27	25
OR 107	30.7	85.7	36	78.3	3.0	2	12.4	4.52	37.2	98	58.4	350	172	34	16
OR 108	30.4	77.4	49	78.2	2.2	1	11.4	4.30	37.9	109	59.6	541	158	25	27
OR 109	27.7	80.3	46	79.7	3.2	2	12.0	4.99	43.1	107	66.4	257	212	46	2
OR 110	28.8	79.4	49	77.3	2.8	1	11.9	4.43	39.8	112	54.6	488	152	24	28
OR 111	34.7	90.6	46	77.9	2.1	1	12.1	4.62	39.4	104	54.8	762	172	33	18
OR 112	29.1	80.3	42	79.3	n.d.	3	11.6	4.79	42.2	95	68.1	230	199	42	6
OR 113	26.9	78.7	45	79.5	n.d.	3	11.7	4.77	40.9	104	68.1	179	191	33	18
OR 114	29.1	82.6	42	79.3	n.d.	3	11.3	4.55	41.2	80	57.4	269	180	29	23
'Strider'	28.8	66.5	36	77.2	n.d.	3	12.6	4.58	37.1	53	52.3	339	163	19	29
'Eight-Twelve'	28.4	67.8	33	77.1	n.d.	3	12.1	5.07	41.9	130	56.0	348	215	31	20

For Wort Clarity - 1 = clear, 2 = slightly hazy, 3 = hazy; Wort Colors were not determined (n.d.) on hazy samples

# Small Grain Farming

## Challenges

1. Competition with Corn and Soybean
2. Growing rain and temperature
3. Disease pressure
4. Higher quality

## Benefits

1. Double crop
2. Winter cover crop
3. Soil quality
4. Lower fertilization
5. Straw market
6. Relationship with buyer and end user
7. Natural manure on fall crop

# Benefits to Us

- Sustainability
- Decrease transportation
- Keep \$ in Ohio
- Control of varieties
- Personal relationships with farmers
- Transparency in supply chain



# Farm to Malt – Quality Checkpoints



- Malt quality barley
  - Most Important: Protein, RVA/Falling Number, DON, Germination
  - Others: Weed seeds, Plumpness, Weathering, Moisture, etc.
- Seed cleaning
  - Uniform kernel size, removal of straw, foreign seeds
- Malting
  - Process control
  - Removal of rootlets and broken/undersized grain
  - Friability, moisture, and color

# What Has Us Excited

- Access to different varieties
- Custom flavor profiles
- Ability to move quickly and respond to changes in local demand
- Freshness
- Unique grains
- Building a local supply chain



# Progress of Haus Malts

- Initially finding farmers
  - Eric Stockinger, Brad Bergefurd, Ohio Seed Improvement Association, Great Lakes Brewing
- Farmers reaching out
  - Specialty crop, economics, winter cover crop, malting themselves
- Current Farms
  - Winter barley: 1 in Smithville, 2 in Pemberville, 2 in Spring Valley
    - Wintmalt and Scala
  - Spring barley: 1 in Trumbull County and 1 in Garrettsville
    - TBD: Synergy, New Dale, Full Pint, etc.



# Progress of Haus Malts Cont.

- 2<sup>nd</sup> batch of base malt bagged 1/10/2016
- 2500 lbs of spelt for batch 3
- Test batch brewed at Nano Brew
- Continuous improvements on our kiln, process control, and recipes
- Addition of next bin and pilot kiln



# Malt Houses in Ohio

Malt House	Location	Batch Size	Malt Styles	Distribution Range	Production	Contact Info
Haus Malts	Cleveland	4,000 lbs per bin	Pilsner to dark Munich, smoked, and caramel	Delivery in Cleveland and shipment around Ohio	Started 12/2015	<a href="mailto:andrew@hausmalts.com">andrew@hausmalts.com</a> or 216-570-1108
Little Miami Farms	Spring Valley	2,000 lbs (planned)	Base and custom	Cincinnati and Dayton	Planned to start Q3 2016	<a href="mailto:Jamie@littlemiamifarms.com">Jamie@littlemiamifarms.com</a> or 937-532-9569
Ohio Malting Company	Wakeman	4,000 lbs (planned)	Base	N/A	March 1 <sup>st</sup> , 2016	<a href="mailto:ohiomaltingcompany@gmail.com">ohiomaltingcompany@gmail.com</a> or 440-774-9463
Rustic Brew Farm	Marysville	2,000 lbs (planned)	Pilsner to Pale Ale	Columbus and shipment in Ohio	Q1 2016	<a href="mailto:Matt@RusticBrewFarm.com">Matt@RusticBrewFarm.com</a>
Sweet Acres Malt	Goshen	2,000 lbs (planned)	Base	Cincinnati and Dayton	N/A	<a href="mailto:camille29alexis@hotmail.com">camille29alexis@hotmail.com</a> or 513-763-0487



# Thanks for Listening

Q&A period after presentations