

# OGrain Conference 2018

## Specialty Grains for Food and Feed



**"[A] quotation is a handy thing to have about, saving one the trouble of thinking for oneself, always a laborious business."**

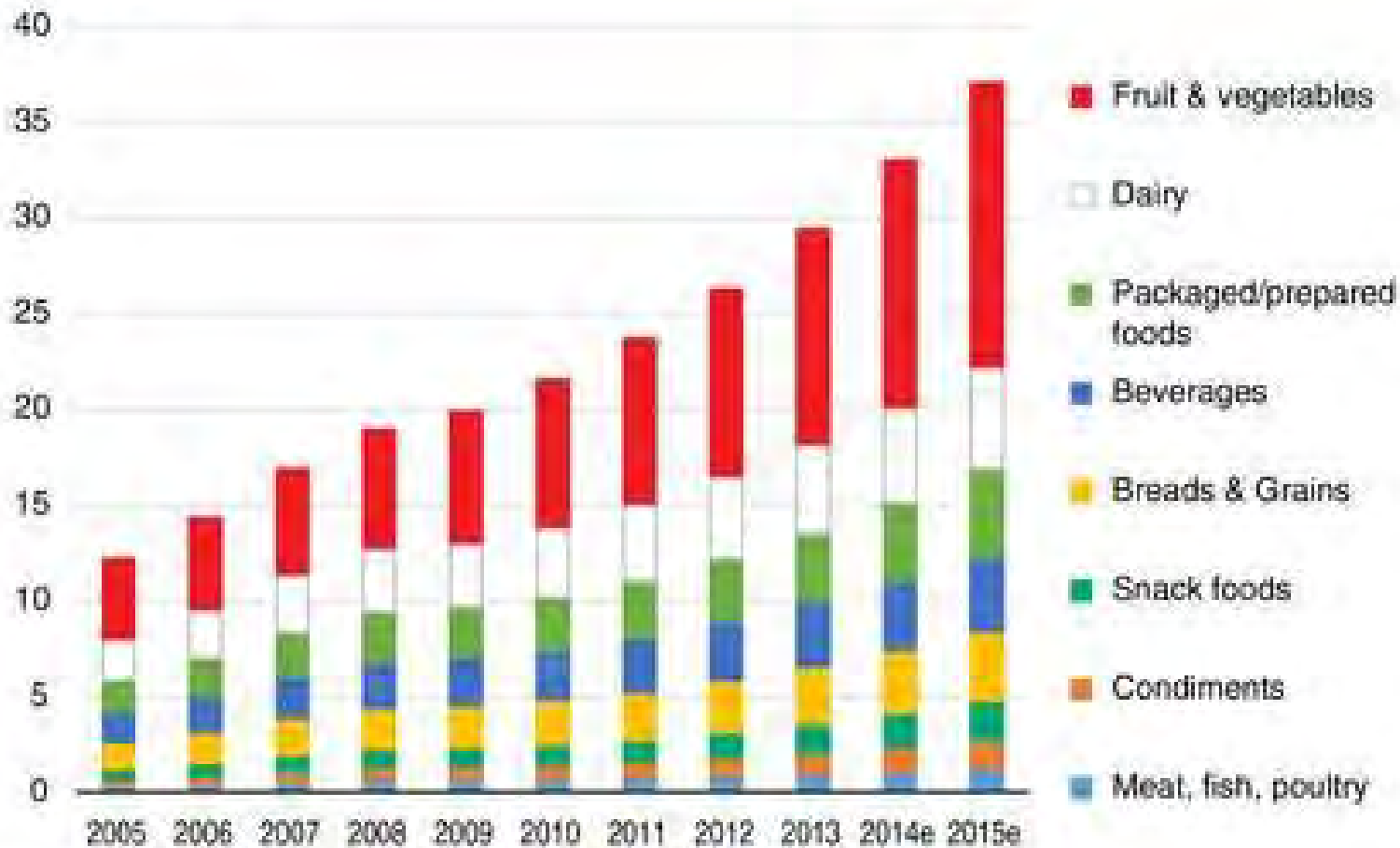
**- A.A. Milne**



- 1) Organic grains and Specialty Grain Markets**
- 2) Oats (Sumo)**
- 3) Barley (Winter)**
- 3) Peas (Winter)**
- 4) Hybrid Winter Rye**
- 5) Ancient Grains (Emmer / Spelt / Einkorn)**
- 6) Perennial Wheat and Rye**
- 7) Millets**
- 8) Hemp**
- 6) Soybeans (Human consumption)**

## U.S. organic food retail sales

Billion dollars

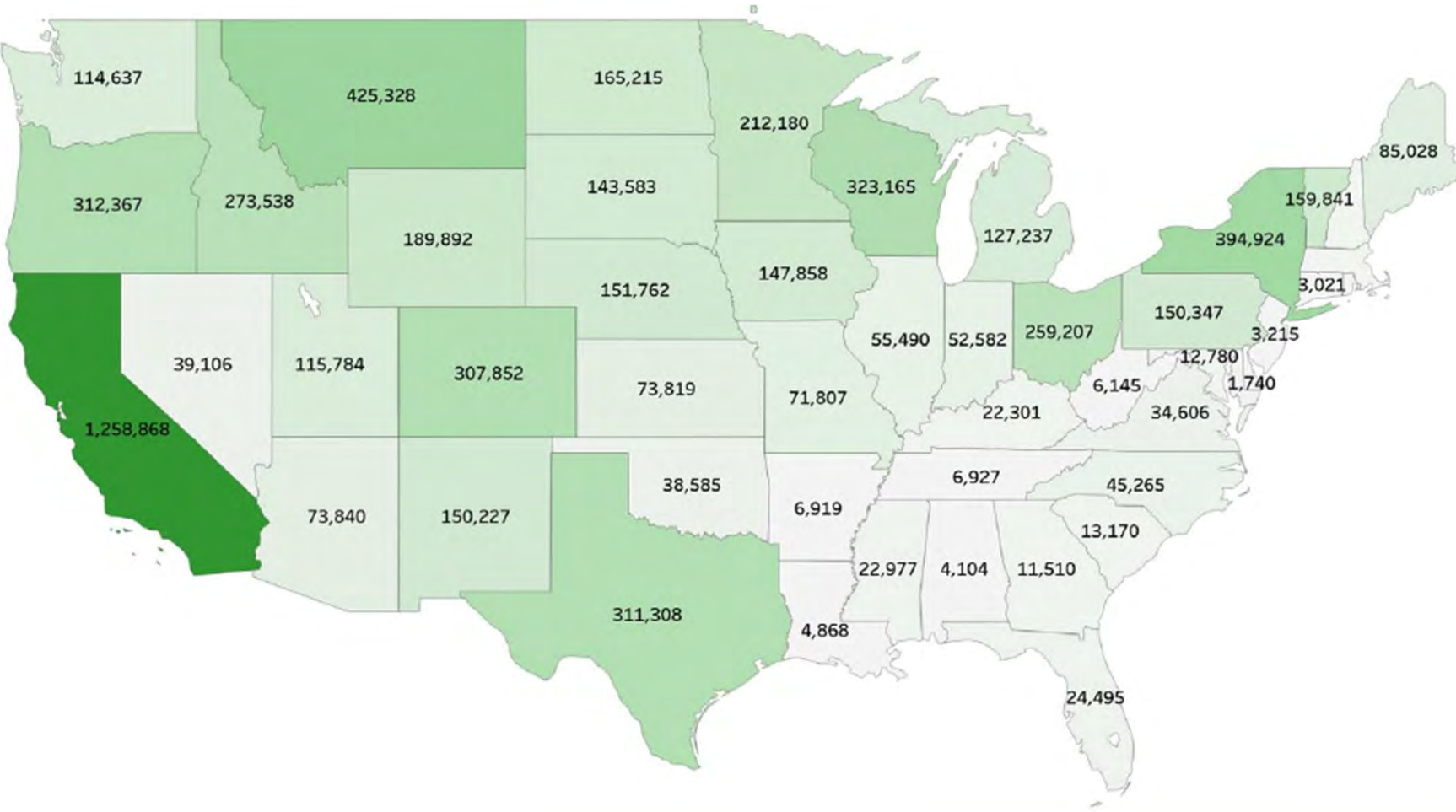


Note: e = estimated

Source: USDA, Economic Research Service using data from the Nutrition Business Journal (NBJ), 2015.

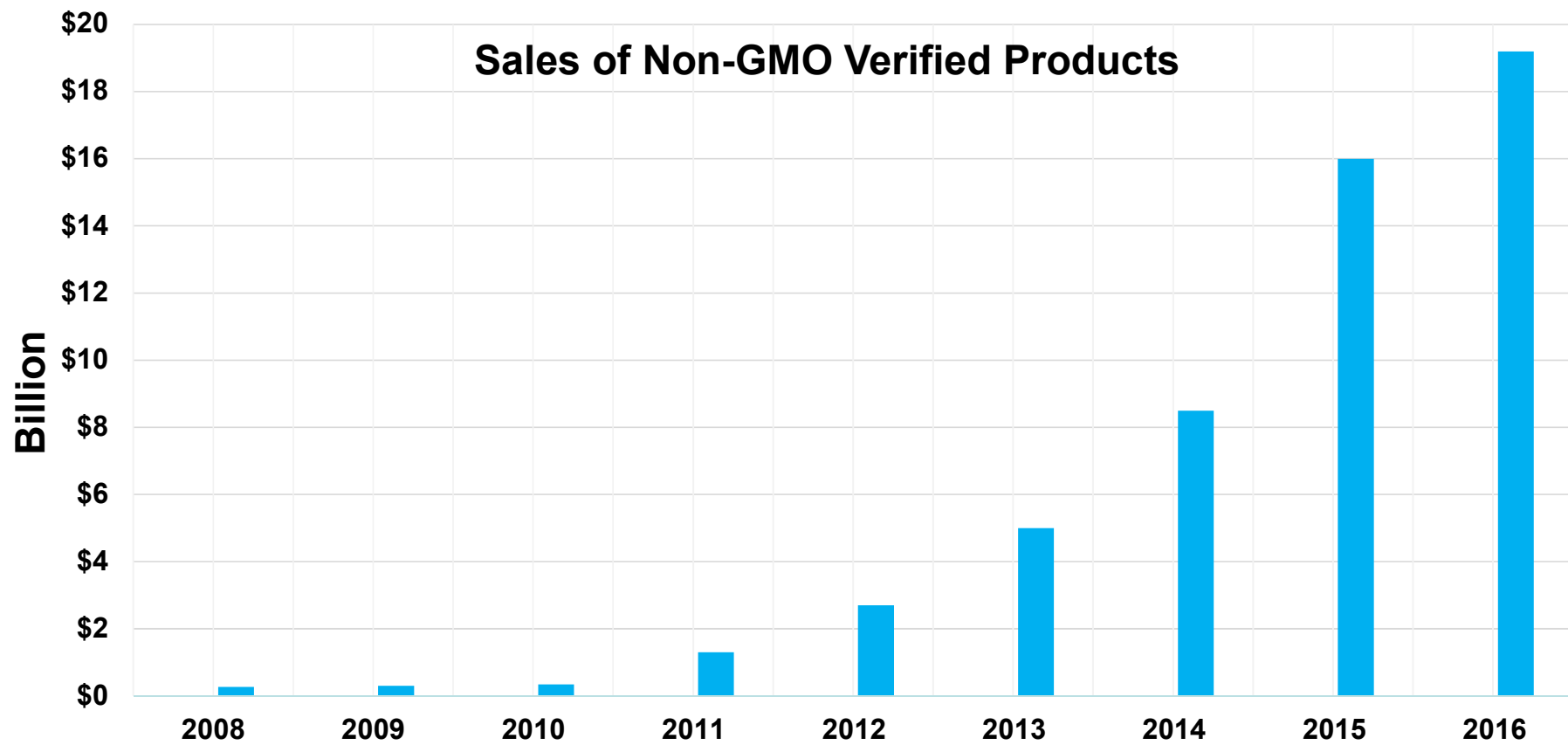


### Mercaris Estimated 2017 Total Organic Acreage (1,000 Acres)



**ALBERT LEA  
SEED  
ORGANICS**

Currently demand continues to grow.





## St. Ansgar, IA

- 290 miles away
- Largest mill
- Mill 6 different small grains
- Organic & Conventional
- Recent expansion of 2 million bushels in storage
- Employ about 160 people



## St. Ansgar, IA grain usage



- Oats – 66%
- Organic oats – 23%
- Barley – 4%
- Organic soft white wheat – 1.8%
- Soft white wheat – 1.5%
- Red wheat – 1.3%
- Rye – 0.82%
- Organic barley - 0.5%
- Organic rye – 0.17%
- Organic red wheat - 0.15%

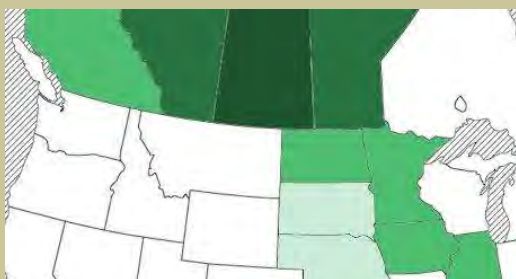


## TOTAL ORGANIC OAT ORIGINS 08/09-15/16

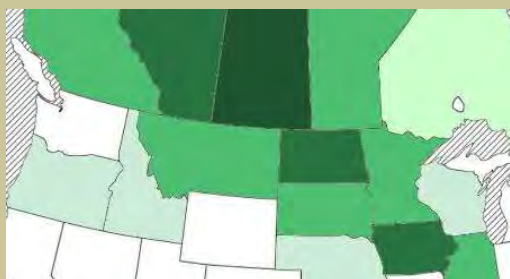


- While SK remains our most significant source of organic oats (71% of supply in 2012-13), the volume we source from AB, BC, and the US have all grown considerably.

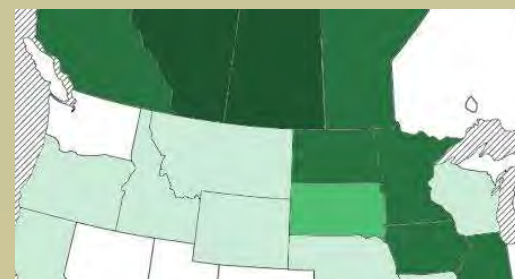
2008-09



2012-13



2015-16



MT	% change 08/09 to 15/16
BC	+148%
AB	+311%
SK	+21%
MB	+23%
USA	+378%
Imports	N/A

<500
500-2000
2000-10000
>10000



## Current prices

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- Oats - \$3.10/bu DLVD through March
  - \$3.25/bu April-June
  - New Crop - \$3.00/bu August-October
  - Transitional – extra .15/bu premium
- Rye - \$5.50/bu through May
- Barley - \$4.25/bu food & \$4.00/bu pet food
- Hard red wheat (spring or winter) - \$6.25/bu
- Triticale \$7.00/bu
- Jessie VanderPoel – 952-983-1277 or [jessie.vanderpoel@grainmillers.com](mailto:jessie.vanderpoel@grainmillers.com)
- Spec sheets and variety lists here
- Can get you a picked up on the farm (FOB) bid
- AOG
- Get used to sending samples



# Organic Prices

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- Organic oats –
  - \$6.00/bushel DLVD and \$6.25/bushel DLVD April – June
- Organic barley –
  - \$9.25/bushel DLVD indication
- Organic hard red wheat –
  - \$15.00/bushel DLVD indication
- Organic soft white wheat –
  - \$15.75/bushel DLVD
- Organic rye –
  - \$9.00/bushel DLVD indication
- Organic corn –
  - \$9.75/bu DLVD to St. Peter, MN Jan-Sept
- Jessie VanderPoel – 952-983-1277 or [jessie.vanderpoel@grainmillers.com](mailto:jessie.vanderpoel@grainmillers.com)
- Corn - Amanda Eustice – 952-983-1282 or [amanda.eustice@grainmillers.com](mailto:amanda.eustice@grainmillers.com)



# Oats



## Breeding work:

- More breeding work being done in recent years
- Breeding for Organic systems
- Melanie Caffé-Treml - SDSU (Sumo Oats)



Some of the main constraints of organic oat production include **weed management and test weight and thins for marketability**. A significant proportion of organic producers use **underseeding** as a mean to control weed. With its open architecture, I believe Sumo will allow the underseeded crop to develop optimally. It is also very early (about 2 days earlier than Reins). This allows the underseeded crop to develop. As far as marketability.

**Crown rust** can really affect yield and test weight in susceptible and moderately susceptible varieties. Sumo has excellent crown rust resistance likely due to Pc94





©GARY MUNKVOLD

**Table 12. Disease characteristics of oat varieties.**

Variety	Crown Rust <sup>1</sup>	BYDV <sup>1</sup>	Loose Smut <sup>1</sup>
	----- (1-9) -----		
Antigo	2	7	3
Badger	6	5	1
Betogene	4	6	1
Colt	6	7	1
CS Camden	4	-	2
Deon	3	4	1
Esker	5	5	1
Goliath	5	2	3
Hayden	5	3	1
Horsepower	6	7	3
Jury	5	5	3
Natty	6	4	1
Newburg	5	3	4
Reins	6	-	1
Rockford	6	3	2
Ron	4	6	1
Saber	6	6	6
Shelby 427	6	6	1
Souris	6	5	1
Streaker	5	-	1
Sumo	5	-	1

<sup>1</sup> 1 = most resistant and 9 = most susceptible



**Table 11. Origin and agronomic characteristics of oat varieties in Minnesota in multiple-year comparisons (2015-2017).**

Variety	Origin <sup>1</sup>	Year of Release	Legal Status	Seed Color	Days to Heading (days)	Plant Height (inches)	Straw Strength <sup>2</sup> (1-9)	Test Weight (lbs/bu)	Groat <sup>3</sup> (%)	Grain Protein (%)	Oil <sup>4</sup> (%)
Antigo <sup>5</sup>	WI	2017	PVP(pending)	Yellow	59	37	2	38	-	14.2	5.2
Badger	WI	2010	PVP	Yellow	58	35	3	36	68	13.1	4.5
Betogene	WI	2015	PVP(pending)	Yellow	62	38	4	35	72	12.9	4.8
Colt	SD	2010	PVP(94)	White	58	37	4	38	70	13.8	4.6
CS Camden <sup>6</sup>	Meridian Seeds	2013	PVP(pending)	White	64	39	2	35	67	13.0	5.0
Deon	MN	2014	PVP(94)	Yellow	64	42	4	37	68	12.6	5.1
Esker	WI	2006	PVP	Yellow	61	38	3	36	69	13.8	4.4
Goliath	SD	2013	PVP(94)	White	64	47	6	37	69	12.9	4.9
Hayden	SD	2015	PVP(94)	White	63	41	5	38	69	12.5	5.7
Horsepower	SD	2012	PVP(94)	White	61	35	5	36	70	12.7	4.8
Jury	ND	2012	None	White	64	43	5	37	70	12.4	5.6
Natty	SD	2015	PVP(94)	White	61	42	4	38	72	13.8	4.1
Newburg	ND	2011	PVP	White	64	44	6	35	67	12.0	5.4
Reins <sup>6</sup>	IL	2016	PVP(pending)	White	60	33	2	38	69	14.1	4.4
Rockford	ND	2008	PVP	White	65	41	4	37	68	13.0	6.0
Ron	WI	2014	PVP(94)	Yellow	63	40	4	36	69	13.9	5.1
Saber	IL	2010	PVP(94)	Yellow	59	36	4	37	72	14.1	4.6
Shelby 427	SD	2011	PVP(94)	White	60	40	4	38	69	13.2	5.5
Souris	ND	2008	PVP	White	63	38	5	36	69	12.6	4.6
Streaker <sup>7</sup>	SD	2016	PVP(94)	Hulless	61	40	5	-	-	-	-
Sumo <sup>5</sup>	SD	2017	PVP(pending)	White	58	38	1	37	-	14.8	4.2

# Barley



## **Breeding work:**

- . More breeding work being done in recent years
- . Kevin Smith: University of MN (spring and winter barleys)
- . Pat Hayes: OSU (Naked barley)
- . Lima Grain (2 row winter barleys – Violetta and Calispo)
- . Other private breeding companies – SB 151 (6 row Winter Barley)

# Barley

## Kevin Smith: U of MN

- Kevin Smith: University of MN  
(spring and winter barleys)



### Research

Our research is aimed at (1) understanding the genetics of traits that will make barley profitable and sustainable in the Midwest and (2) applying that genetic understanding to develop improved varieties through breeding. Our breeding program develops **spring-sown and fall-sown (winter) barley varieties**. Our spring breeding program has been in place since the early 1920's and has been focused on varieties suited to the malting and brewing industries. As such, the **primary traits of interest** are **yield, malting quality traits, and disease resistance, in particular Fusarium head blight**. Our winter breeding program started in 2009 and the major emphasis is to **improve winter hardiness, yield, and malting quality**. Introducing winter barley in Minnesota cropping systems could help increase crop diversity, improve ecosystem services such as improved soil conservation, nutrient cycling, and weed suppression in addition to increasing yield and facilitating earlier harvest.



# Barley

## . Pat Hayes: OSU (Buck Naked barley)



### Research

Our basic and applied research endeavors intersect on the following themes: low temperature tolerance, quantitative disease resistance, and input use efficiency – all within a framework of facultative growth habit. Realizing our goals in a timely and efficient fashion involves continuous improvement of breeding and selection procedures. We are currently implementing doubled haploid genomic selection schemes for malting and food quality. For **malting and brewing, we are shifting our program from six-row to two-row** and pursuing novel traits, such as processing flexibility and flavor. The thrust of **our food program is on flavor and aroma within the context of whole grain products**. Our germplasm and varieties are tested and grown throughout the world under a **range of management scenarios, from organic to input-intensive**. Our germplasm and variety release procedures are tailored to the product and range from public releases to exclusive licenses. Royalty income will help support our continued breeding efforts and initiatives.



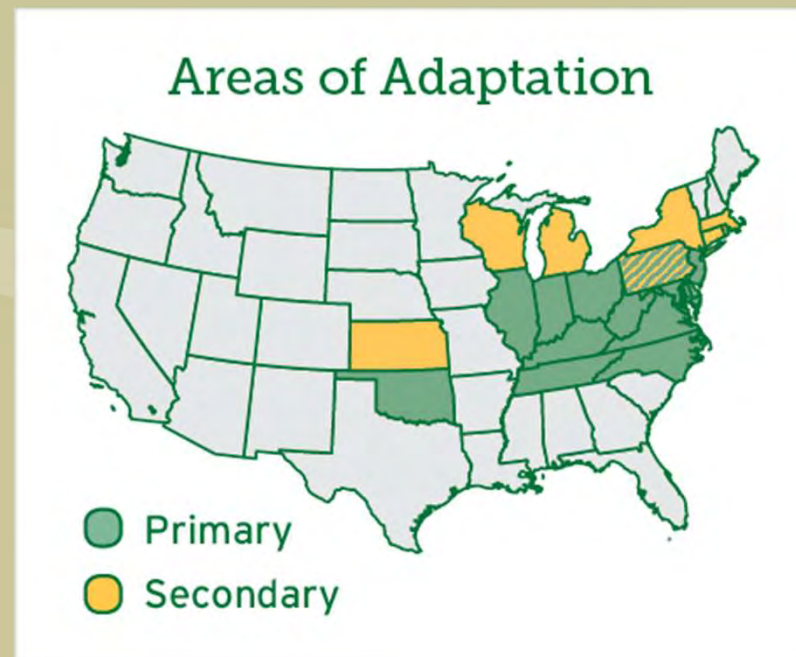
<https://www.agronomy.org/science--news/new-buck-naked-barley-food-feed-brew>



# Barley



## Lima Grain (Violetta and Calypso)



# Barley



## **NEW** Organic SB151 Winter Barley

- Early maturing, medium height with excellent standability and disease resistance
- Awnless for improved feed quality
- Excellent yield potential for animal feed
- Produced in Wisconsin
- We recommend early planting for best chance of surviving the winter. Winter barley has historically struggled to survive the winter in the Upper Midwest.

# Barley



## Seeding Recommendations:

- **Plant 2-3 Bu. (96 – 144 lbs)** of seed per acre. Higher planting rates on more productive soils.
- Good seed-soil contact. A firm seedbed for germination and seedling development.
- **Drill about 1 to 1½ inches deep**, depending on soil moisture and soil texture.
- A grain drill with press wheels is the best because it places the seed at a uniform depth and gives good soil-seed contact. Seed placed deeper than two inches may result in reduced emergence and reduced yields.
- Can be seeded with an end-gate seeder (or fertilizer spreader) and dragged but establishment may be uneven.
- Avoid fields rotating from Corn, oats or wheat





**Table 9. Relative grain yield of barley varieties at several locations in Minnesota in single-year (2017) and multiple-year comparisons (2015-2017).**

Variety	Crookston		Morris		Stephen		St. Paul		Roseau		State	
	2017	3 yr	2017	3 yr	2017	2 yr <sup>1</sup>	2017	2 yr <sup>2</sup>	2017	3 yr	2017	3 yr
-----(% of mean)-----												
<b>2-row</b>												
ABI Balster	87	91	114	106	87	96	101	113	105	108	99	103
ABI Growler	85	94	99	89	82	88	98	110	107	106	94	97
Conlon	94	98	79	92	98	93	77	85	83	92	86	92
ND Genesis	99	100	103	104	95	103	120	126	82	100	100	105
Pinnacle	81	86	101	102	75	89	102	102	111	93	94	94
<b>6-row</b>												
Celebration	101	98	89	93	99	96	94	86	105	94	98	94
Innovation	112	109	121	110	109	110	99	101	102	109	109	108
Lacey	110	107	103	111	119	115	113	98	96	96	108	105
Quest	110	106	92	96	106	100	90	91	97	95	99	98
Rasmusson	114	110	119	105	110	116	110	106	120	112	115	110
Robust	99	99	90	93	113	92	97	86	96	97	99	94
Tradition	106	101	96	100	109	103	98	95	102	100	102	100
<b>Mean (bu/acre)</b>	<b>154</b>	<b>131</b>	<b>73</b>	<b>80</b>	<b>108</b>	<b>117</b>	<b>96</b>	<b>97</b>	<b>123</b>	<b>112</b>	<b>111</b>	<b>108</b>
<b>LSD (0.05)</b>	<b>12</b>	<b>6</b>	<b>18</b>	<b>9</b>	<b>11</b>	<b>12</b>	<b>19</b>	<b>10</b>	<b>20</b>	<b>10</b>	<b>7</b>	<b>4</b>

<sup>1</sup> Only two years of data, 2015 and 2017

<sup>2</sup> Only two years of data, 2016 and 2017



# Spring Peas



## DS-Admiral

### Yellow Field Pea



DS-Admiral has been our “tried and true” variety for many years. Its popularity stems from several of its characteristics: stands better than most yellow field pea varieties, very broadly adapted with consistent yields and many processors ask for it by name. Its unmatched food quality comes from its near perfect round seed shape making it highly efficient for splitting. DS-Admiral will equal or out-perform the vast majority of varieties in lower-yielding environments and compete with or exceed varieties in higher-yielding environments.

**Key Attributes:** Broadly adapted, unmatched food quality

**Adaptability:** All pea-growing regions of the Midwest

**Yield:** Above Average

**Growth Habit:** Upright vine type, semi-leafless

**Physiological Maturity:** Early-Medium

**Plant Height:** Medium

**Seed Size:** Medium (1,900-2,200 seeds/pound)

**Seed Color:** Yellow

**Disease Resistance:** Resistant to powdery mildew

# Winter Peas



## Austrian Winter Peas



### Advantages

Produces 60-120#/acre N

Mixes very well with brassicas

Relatively inexpensive to use as a cover crop

Generally Winterkills

### Disadvantages

Aerial application provides challenges for stand establishment- but has worked!

Generally Winterkills

Needs 5-6 weeks growth for best results

Only one grazing/harvest can be expected



# Winter Peas



## Icicle

## Winter Pea



**Icicle is a new winter pea variety for 2017. It has strong winter hardiness, excellent root system and high biomass production after dormancy is broken in the spring. Icicle has a very small seed size with great seedling viability, which makes your seed cost per acre much lower than other varieties. Icicle is free of anthacyanin, allowing it to produce a white flower. As a result, the forage from Icicle is more digestible and sweeter tasting to livestock and wildlife, compared to Austrian Winter peas.**



Hybrid rye USA

Claus Nymand  
Product Manager Hybrid Rye  
USA and Canada

SEEDING  
THE FUTURE  
SINCE 1856



- 1) Albert Lea Seed has committed \$50,000 to supporting the University of MN Cereal Rye evaluation trial for the next 5 years.
- 2) We are co-sponsoring an on-farm hybrid rye feeding trial with PFI.
- 3) KWS is sponsoring a 4-year Cereal Rye feeding study at the University of IL.





Tom Frantzen, New Hampton IA

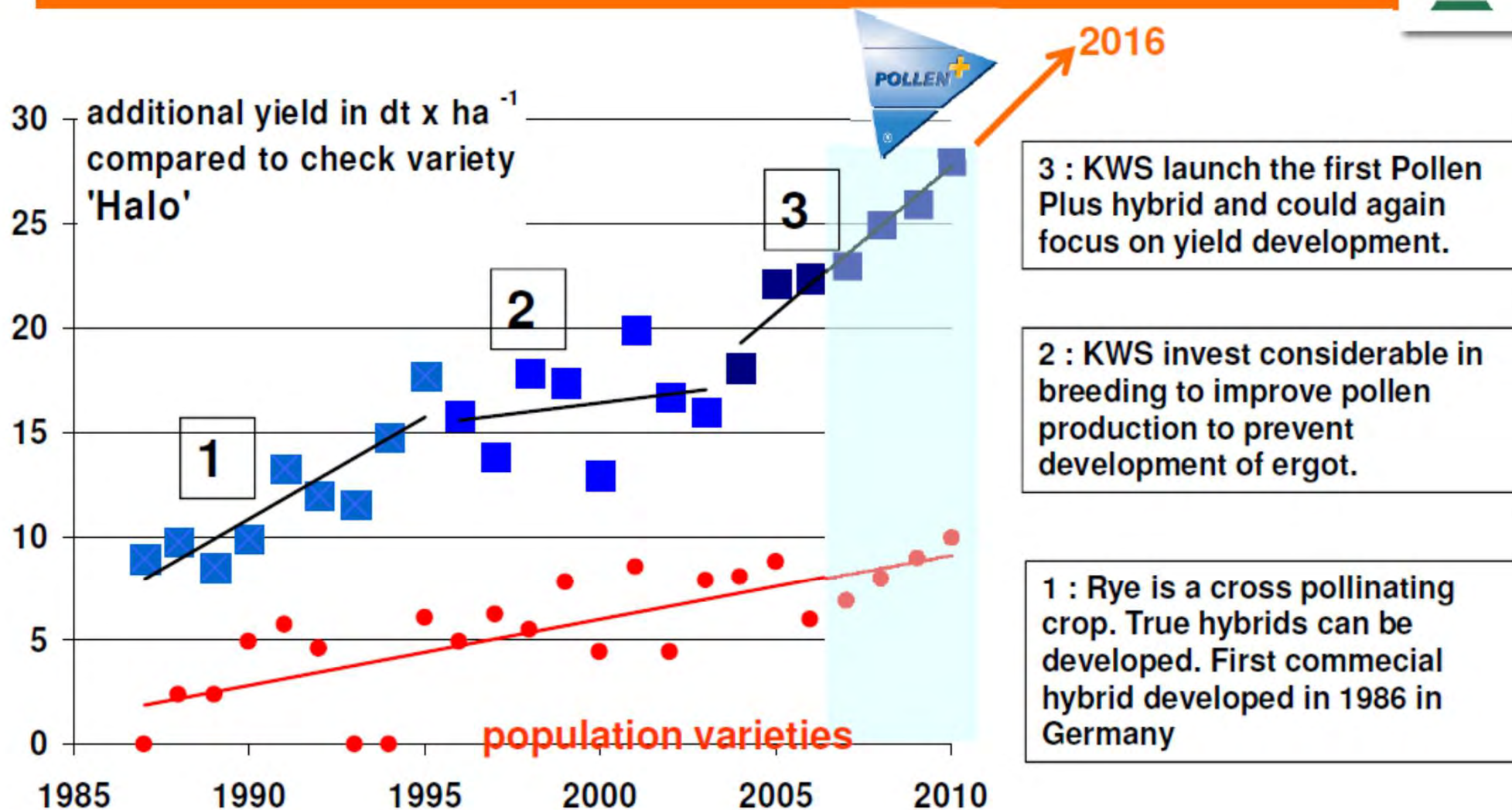
“The straw is very strong and the crop withstands windstorm that severely damaged our corn crop. This storm tore the roof off a house next door!.”

“The crop is VERY responsive to soil fertility and we are doing testing today to get some idea of what exactly this nutrient demand is.”

“We did not see the grain falling off the heads. Now this may have happened and we just did not notice yet.”

“SARA CARLSON I WANT TO THANK YOU AND ALSO A THANKS FOR GREAT SUPPORT FROM ALBERT LEA SEEDS HOUSE. **THIS HAS BEEN A GREAT EXPERIENCE !!!!!!!!!**” - Tom

# Genetic improvement – hybrids and pop varieties





# Prevent development of ergot!



- Use Pollen Plus varieties (All KWS Hybrids are Pollen Plus®)
- Follow the growing recommendation given.
- Be careful with hormone herbicides in spring
  - Also some herbicides against grasses can be damaging to the rye crop.
- No spraying during flowering
- No damage of plants after first elongation



# Crop development at same stage Wheat versus Rye



## Hybrids have the ability to tiller



4 -10 tiller depending on seeding rate, planting depth and time of planting





## Seed rate



1.6 mill seed/acre (1,6 unit/acre)



- increased plant height  
➤ + 10-15 cm
- Risk for lodging – thin straw
- Smaller ears
- Smaller kernels lower TKW

0,8 mill seed/acre (0,8 unit/acre)



- Better straw stability
- Shorter crop
- Bigger ears
- Bigger kernels
- Even maturity





# Correct establishment is the most important



- Establishment the most important at low seeding rates
- Correct planting depth is max 1 inch!



Effect of planting depth in hybrid rye , avr. of 9 trials in 2013-2014 (0,6 mill pl. pr. acre)

Planting depth	Yield, lbs/acre	Difference, lbs/acre
0,8 inch	8345	-
1,6 inch	8141	-204
2,4	8007	-338

Be carefull with speed at low seeding rates.

- Even distribution of seeds is very important





**Table 1. Origin and agronomic characteristics of winter rye varieties in Minnesota in single-year (2017) and mutiple-year comparisons (2015-2017).**

Cultivar	Agent or Breeder <sup>1</sup>	Year of Release	Type <sup>2</sup>	Legal Status <sup>3</sup>	Primary Use	Seed Color	Winter Hardiness	Days to Heading <sup>4</sup>	Plant Height <sup>5</sup>	Straw Strength <sup>6</sup>	Ergot <sup>7</sup>	Test Weight <sup>8</sup>		Grain Protein <sup>9</sup>	
												1 Yr	3 Yr	1 Yr	3 Yr
----- (1-9) -----															
Aroostook	USDA-NRCS	1981	OPV	None	Grain	Blue/Grey	6	1	5	9	4	5	4	1	3
Elbon	OK	1956	OPV	None	Forage	Green	4	1	4	7	5	2	3	2	3
Hazlet	SeCan	2006	OPV	None	Grain	Blue/Grey	2	7	4	4	1	2	1	8	9
KWS Bono	KWS	2013	Hybrid	N/A	Grain	Green	1	6	1	1	1	1	1	9	9
KWS Brasetto	KWS	2007	Hybrid	N/A	Grain	Blue/Grey	1	7	1	1	1	5	4	9	9
Maton II	Oklahoma Genetics, Inc.	2006	OPV	None	Forage	Green	9	1	5	7	7	3	4	2	3
Musketeer	SeCan	1981	OPV	None	Grain	Green	6	3	3	9	2	2	2	6	6
ND Dylan	NDSU	2016	OPV	None	Grain	Green	—	6	5	9	2	3	—	6	—
Oklon	OK	1993	OPV	None	Forage	Green	9	1	5	6	6	4	3	2	3
Prima	SeCan	1984	OPV	None	Grain	Green	3	6	6	6	1	3	3	6	7
Rymin	MN	1973	OPV	None	Grain	Blue/Grey	1	6	4	8	2	2	1	6	7
Spooner	WI	1992	OPV	None	Grain	Yellow	5	4	5	6	1	4	2	5	6
Wheeler	MI	1972	OPV	None	Forage	Yellow	5	9	9	8	9	8	9	1	1
LSD(0.1)							4	2	1	2	2	1	1	1	1

<sup>4</sup>1-9 rating with 1 = earliest and 9 = latest.

<sup>5</sup>1-9 rating with 1 = shortest and 9 = tallest.

<sup>6</sup>1-9 rating with 1 = strongest and 9 = weakest.

<sup>7</sup>1-9 rating with 1 = most resistant and 9 = least resistant.

<sup>8</sup>1-9 rating with 1 = highest and 9 = lowest.



**Table 2. Relative grain yield of winter rye varieties in five Minnesota locations in single -year (2017) and multiple year comparisons (2015-2017).**

Cultivar	Lamberton		Le Center		St. Paul		Kimball <sup>2</sup>	Crookston		State	
	2017	3 Yr	2017	3 Yr	2017	3 Yr	2 Yr	2017	3 Yr	2017	3 Yr
Aroostook	81	78	53	70	53	77	70	78	68	73	67
Elbon	84	84	86	78	55	73	78	77	72	78	73
Hazlet	116	115	120	119	155	132	119	120	129	123	125
KWS Bono <sup>1</sup>	153	160	249	190	210	173	190	165	172	175	187
KWS Brasetto <sup>1</sup>	144	141	188	162	187	157	162	157	170	162	167
Maton II	80	77	70	73	62	75	73	68	64	72	63
Musketeer	95	95	69	89	83	81	89	100	105	92	96
ND Dylan	100	—	88	—	105	—	—	99	—	100	—
Oklon	83	78	66	72	65	80	72	65	65	76	68
Prima	99	110	66	93	97	95	93	113	110	98	108
Rymin	102	105	96	108	97	103	108	114	108	103	111
Spooner	88	99	86	100	89	108	100	102	96	84	101
Wheeler	74	60	64	47	43	47	47	42	41	63	35
<b>Mean (bu/acre)</b>	<b>100.2</b>	<b>82.3</b>	<b>59.9</b>	<b>76.7</b>	<b>56.2</b>	<b>65.6</b>	<b>76.7</b>	<b>71.1</b>	<b>60.3</b>	<b>71.7</b>	<b>56.1</b>
<b>LSD (0.1)</b>	<b>6</b>	<b>13</b>	<b>35</b>	<b>17</b>	<b>30</b>	<b>23</b>	<b>14</b>	<b>29</b>	<b>19</b>	<b>8</b>	<b>11</b>

<sup>1</sup>2016 and 2017 data (3 year data is predicted value).

<sup>2</sup>2015 and 2016 data.

# Lots of usage possibilities of hybrid rye.



For hogs

For Dairy

For dairy and cattle

Grassing for cattle

Biomass

Milling and beverage





# Ancient Grains





# Ancient Grains





# Black Emmer



# Perennial Wheat (Kernsa)



Wes Jackson: Land Institute

"Natural ecological systems are self-sustaining."



[Patagonia Provisions](#) was the first company to develop a commercial retail product made from Kernza® perennial grain for the mainstream marketplace. Patagonia took a significant risk, breaking through the initial barrier to new product development and market entry. That first-to-market product is [Long Root Ale](#).





Winter Wheat: Right

Perennial Wheat: Left



# Perennial Rye Grain



Perennial cereal rye developed at AAFC Lethbridge -  
at the University of Manitoba





# Millets

## Proso Millet



Gluten Free, High in Protein





# Millets



## Pearl Millet



# Hemp



# Soybeans for Food



- IA State: Walt Fehr lines (Aphid Resistance)
- Protein and Seed size
- Hilum color
- GMO contamination

## IA State Soybean Lines

IA2104  
IA2104RA12  
IA3051RA12  
IA2112RA12  
IA2113RA12  
IA1029





# WISCONSIN

## Soybean Variety Performance Trials

### 2017



Brand	Entry	Herbicide Trait <sup>1</sup>	Maturity Group	2017 Chippewa Falls						2016 Chippewa Falls			
				Maturity Date	Yield (bu/A)	WMP (%)	Lodging (1-5)	Protein (%)	Oil (%)	Yield (bu/A)	Lodging (1-5)	Protein (%)	Oil (%)
Viking	0.1202N	CN	1.2	25-Sep	65	10	1.5	37.1	17.2	69	2.8	36.8	18.5
Viking	0.1572N	CN	1.5	25-Sep	50	1	1.0	38.1	17.2	--	--	--	--

Brand	Entry	Herbicide Trait <sup>1</sup>	Maturity Group	Maturity Date <sup>2</sup>	2017 Arlington <sup>1</sup>			2017 Composition <sup>2</sup>		2016 2-Test Average <sup>1</sup>		2016 Composition <sup>2</sup>	
					Yield (bu/A)	WMP (%)	Lodging (1-5)	Protein (%)	Oil (%)	Yield (bu/A)	Lodging (1-5)	Protein (%)	Oil (%)
Viking	0.2023N	CN	2.0	16-Sep	71	1	1.0	37.9	17.2	--	--	--	--
Viking	0.2188AT12N	CN	2.5	20-Sep	*76	13	1.0	36.4	17.4	80	3.1	36.4	18.5
Viking	0.2446N	CN	2.5	17-Sep	*81	1	1.0	36.1	18.1	--	--	--	--
Viking	0.3018N	CN	2.9	2-Oct	65	38	1.0	36.8	16.4	--	--	--	--

# 2017 Viking Replicated Soybean Data



				Ormsby	Blue Earth	Hayfield	Austin	Nashua	LuVerne	Yield
Brand	Variety #	Trait	RM	Yield	Yield	Yield	Yield	Yield	Yield	Avg.
Viking	O.3018N	Organic	2.8					65.8	60.2	63.0
NorthStar	NS 1911NR2	RR2	1.9	54.0	64.2	71.9	61.6	66.1	58.9	62.8
Viking	O.2188AT12N	Organic	2.2	58.9	62.8	69.2	55.7	70.2	59.9	62.8
NorthStar	NS 62002N XR2	Xtend	2.0	55.6	62.8	68.4	56.8	66.9	63.1	62.3
NorthStar	NS 2031NR2	RR2	2.0	53.0	64.8	70.1	55.7	66.4	59.0	61.5
Viking	2518N	None	2.7					62.3	59.9	61.1
NorthStar	NS 2403NLL	LL	2.4	53.2	61.1	71.8	52.1	66.6	60.9	61.0
Viking	2018N	None	2.0	55.0	61.4	69.6	56.2	65.2	57.9	60.9
NorthStar	NS 61882N XR2	Xtend	1.8	53.9	60.6	69.8	60.8	64.1	56.1	60.9
Viking	2299N	None	2.3	57.0	59.7	63.0	55.7	70.4	57.5	60.5
Viking	O.2399NAT12	Organic	2.4	52.4	63.2	68.1	54.6	66.3	57.7	60.4
NorthStar	NS 2362NR2	RR2	2.3	51.7	65.9	68.3	53.4	68.3	54.3	60.3
Exp.	Exp.	None	2.7					60.0	60.3	60.2
Viking	2155N	None	2.1	53.3	63.1	64.8	58.9	62.1	58.3	60.1
Pioneer	P.19T39R2	RR2	1.9	49.3	62.8	66.0	59.7	65.7	55.3	59.8
Pioneer	P.22T73	RR	2.2	47.7	63.3	68.2	60.0	61.1	57.5	59.6



# Viking Pure & Ultra-Pure Corn & Soybeans



## Purity Projects

1. Soybean Single-Row Purity increase
  - a. U.S.
  - b. Chile
2. 2-acre purifications of soybeans

# Soybean Single-Row Purity increase





# Soybean Single-Row Purity increase



## 2-acre purifications of soybean parent seed







## Albert Lea Seed

1414 West Main, PO Box 127, Albert Lea, MN 56007  
800-352-5247 ♦ [www.alseed.com](http://www.alseed.com)



## Buyers of Non-GMO Corn, Soybeans, & Grain

**Note:** This list is provided as a resource only. Inclusion on this list does not imply an endorsement by Albert Lea Seed. It is the responsibility of the producer/seller to contact the buyer(s) of their choice and to negotiate a price for their product.

\* = Buyer Handles only non-GMO grain (no organic). \*\* = Handles both non-GMO and organic grain. ^ = Handles organic only

### Brushvale Seed, Inc.\*

(Soybeans, Corn, Wheat)  
1656 280<sup>th</sup> St.  
Breckenridge, MN 56520  
Phone: (218) 643-2311  
Contact: Paul Holmen  
[pholmen@brushvalseed.com](mailto:pholmen@brushvalseed.com)  
[www.brushvalseed.com](http://www.brushvalseed.com)

### Buckwheat Growers\*\*

(Corn, Small Grains, Buckwheat, Peas)  
206 Aldrich Ave  
Wadena, MN 56482  
Phone: (218) 631-9212  
Contact: James Crook  
[www.buckwheatgrowers.com](http://www.buckwheatgrowers.com)

### Bunge Milling\*\*

(Corn only)  
11720 Borman Dr.  
St. Louis, MO 63146  
Phone: 800-528-4633  
Contact: Katy Repa  
[Katy.repa@bunge.com](mailto:Katy.repa@bunge.com)  
[www.bungenorthamerica.com](http://www.bungenorthamerica.com)

### CHS-Main Office\*

(Corn only)  
5500 Cenex Dr.  
Inver Grove Heights, MN 55077  
Phone: (651) 355-6551  
Contact: Kealan Griffin  
[www.chsinc.com](http://www.chsinc.com)

### CHS – Winona, MN\*

(Corn only)  
988 Riverview Road  
Winona, MN 55987  
Phone: 800-372-8154  
Contact: Brian Brauch  
[Brian.brauch@chsinc.com](mailto:Brian.brauch@chsinc.com)  
[www.chsinc.com](http://www.chsinc.com)

### CHS – Savage, MN\*

(Corn only)  
6200 West Hwy 13  
Savage, MN 55378  
Phone: 800-652-9727  
Contact: Clint Gergen  
[www.chsinc.com](http://www.chsinc.com)

### Cogdill Farm Supply

Dunlap, IA, Harrison Cty  
Phone: (712) 643-5360  
Contact: Rob Cogdill  
[www.cogdillfarmsupply.com](http://www.cogdillfarmsupply.com)

### Consolidated Grain & Barge-Gladstone\*

IL-164  
Gladstone, IL 61437  
Phone: (309) 457-4800  
Contact: Kody Mefford  
[www.cgb.com](http://www.cgb.com)

### Consolidated G&B-Fayette\*

701 King Street  
Fayette, IA 52142  
Phone: 800-632-5952  
Contact: Russ Lueck  
[www.cgb.com](http://www.cgb.com)

### Consolidated Grain & Barge\*

Multiple locations in IL, IN & OH  
Phone: (985) 867-3500  
[www.cgb.com](http://www.cgb.com)

<http://www.alseed.com/UserFiles/Documents/ALSH%20Non-GMO%20Grain%20Buyers%202016.pdf>



***Thank You!***

