



# From Field To Glass

Brewing Beer With Local Grains

Presented by Andrea & Christian Stanley





## The Grain of Beer

- All beer contains malted Barley or malted wheat
- Some beers use raw, unmalted barley or grain as an adjunct in addition to the malted grain.
- Malt gives beer color, taste, body, aroma, head, and with yeast alcohol.





## The Malting Process

- ▣ Steeping
- ▣ Germination
- ▣ Kilning
- ▣ Additional Kilning or Roasting of Specialty Grains



# Maltsters



- ▣ Traditionally a local, value added producer. Regions would have farmers growing barley, maltster and brewers.
- ▣ Since prohibition ended, malt houses have grown to malt factories – minimum batch size on the order of 150,000 pounds at a small facility.
- ▣ Our intention with Valley Malt is to bring malting back to the local level.
  - ▣ We are not the only ones, but probably the only ones in the Northeast.
  - ▣ On the West Coast, breweries such as Sierra Nevada, and Rogue are looking into growing and malting barley.
  - ▣ Small malt houses are also popping up: Rebel Malting in Nevada, and Colorado.



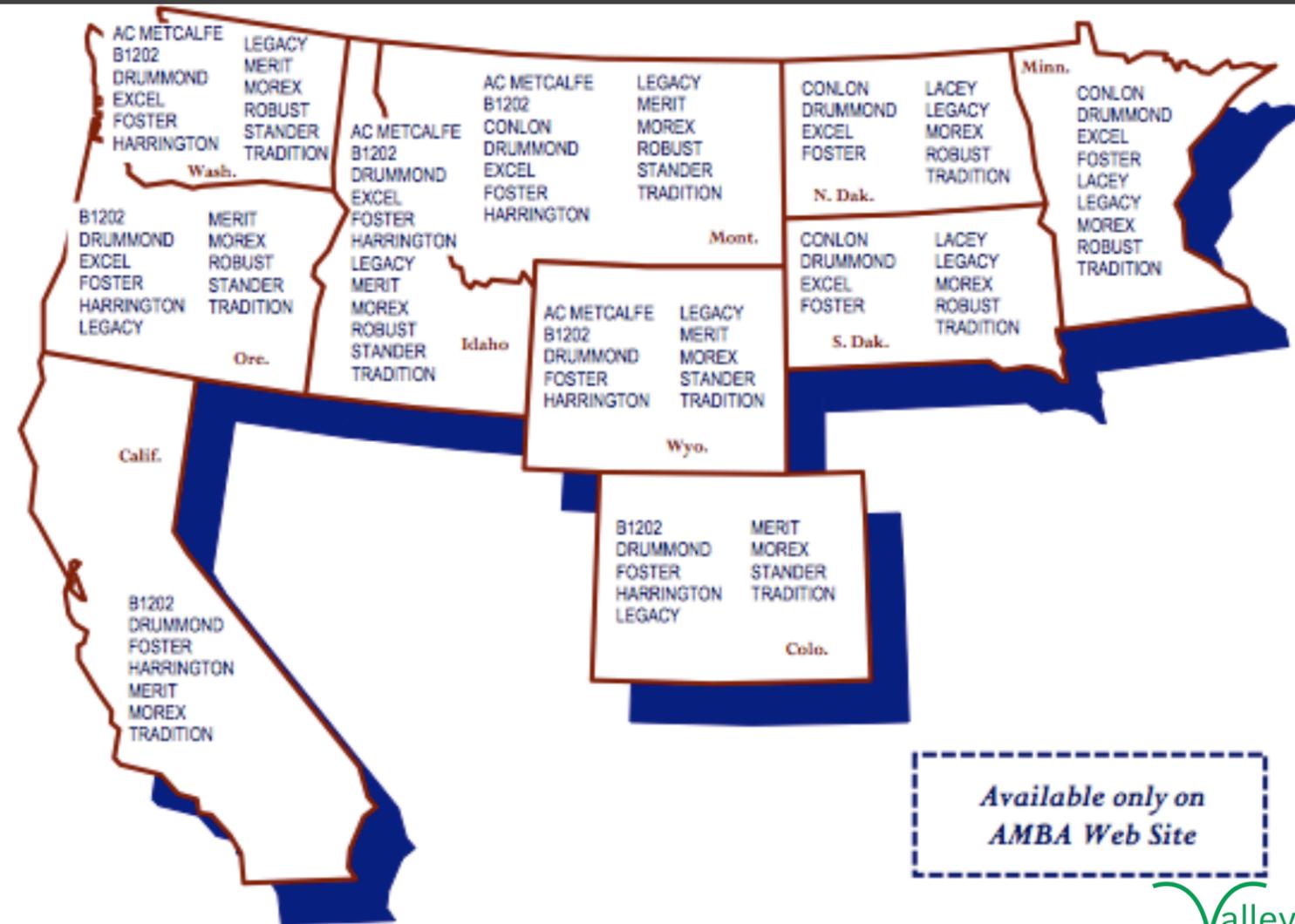
## Our Vision



- Start with a 10 lb, Home Brew system today.
- Design and build a larger system over the course of the next 6 months to malt grains for the end of the year.
- Work with farmers and universities to develop compatible varieties for New England, and sustainable farming practices.
- Release our own beer line at the end of the year utilizing the malted barley that was grown and malted locally.



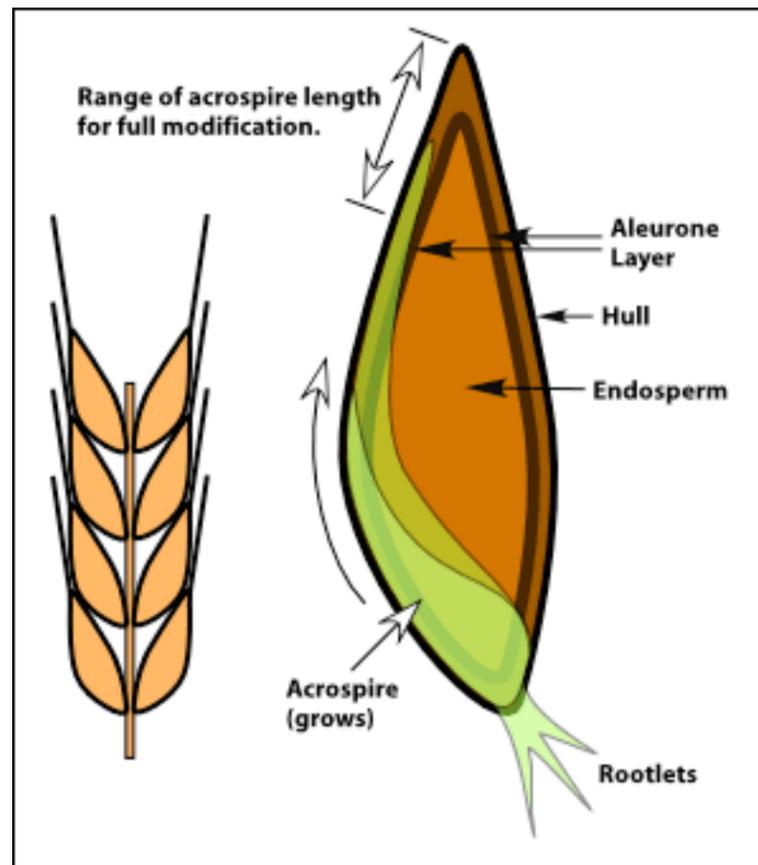
# Barley Grown Today in the US



Available only on  
AMBA Web Site



# Barley



# Specifications of Malting Barley

Criteria	Viable For Malting	Not Suitable For Malting
Kernel Size	Plump (6/64" Dia.) – Uniform	< 5/64" Diameter
Color	Light and Tan	Dark Brown to Black
Odors	Fresh – Grainy	Moldy
Husks	In-Tact	Cracked or Peeled
Endosperm	Mealy and White	Glassy and Grey
Moisture Content	11 – 13.5%	> 13.5%
Protein Content	Low to Moderate (11 – 12.5%)	High (>12.5%)
Nitrogen Content	Low	High
Germination Rate	95% Viable Kernels	< 95%
Free of...	Disease, FHB, Insects, Chemicals, Frost/Heat Damage	



# Benefits of Growing Barley

- Offers erosion control
- Recycles nutrients
- Suppresses weed
- Tilt improving organic matter – Winter variety roots can be over 6'
- Can be used as a nurse crop
- Can be successfully no tilled
- Prefers a cool, dry growing season
- Can help to reclaim over worked, weedy or over eroded fields.
- Can be inexpensive to grow
- Yield from 2,000 to 3,000 pounds per acre



# Malting Barley Varieties



- Winter Varieties
  - Planted in fall, harvested in summer (9 to 10 month growing season)
  - Could prevent FHB
- Spring Varieties
  - Planted in spring, harvested in fall (4 to 5 month growing season)
- Facultative
  - Planted in spring or fall
- What we see is needed
  - Variety Trials
  - Farmers, Farmers, Farmers
  - Land with Farmers
  - Farmers with combines

# Growing Malting Barley

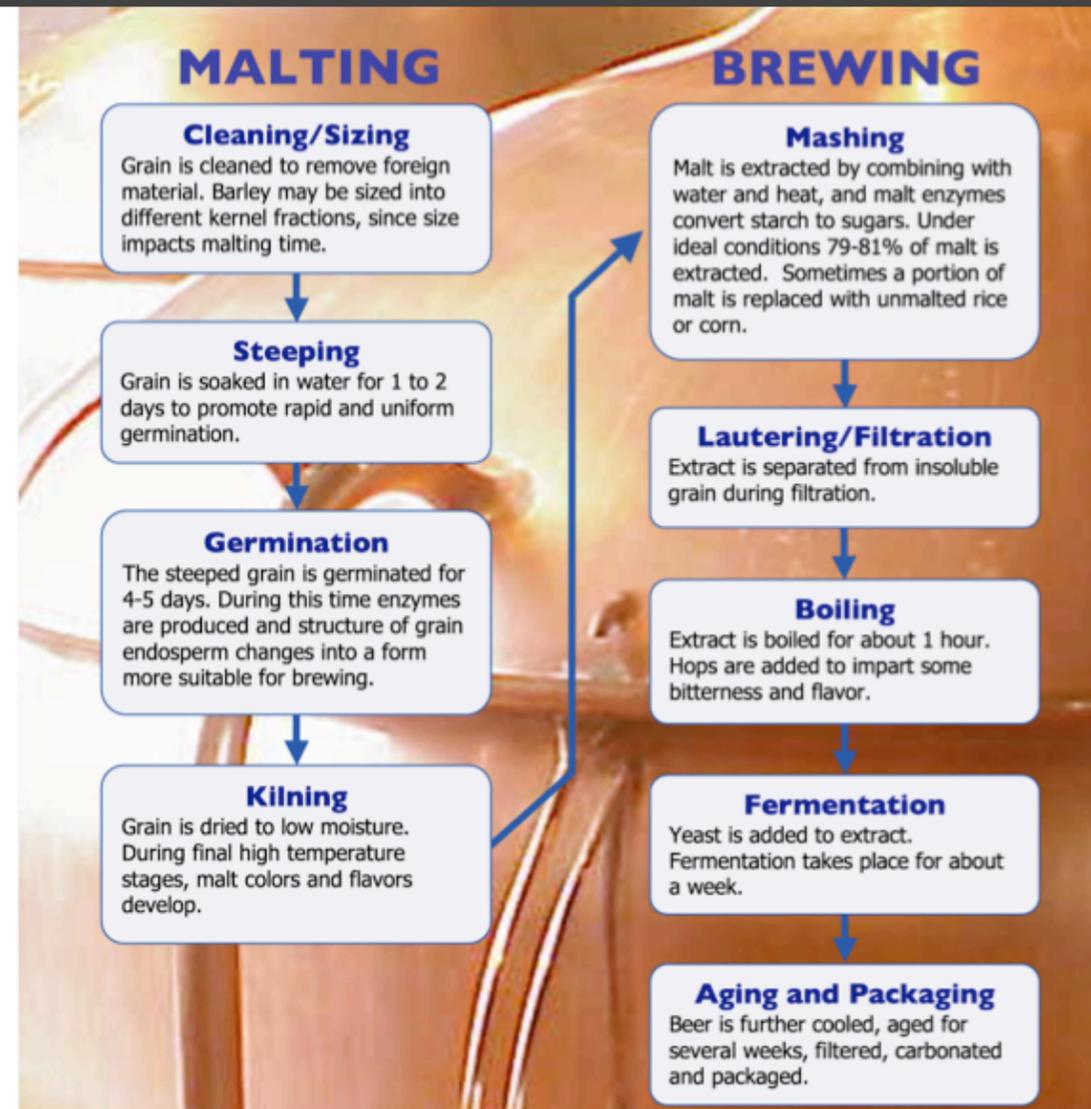
- Soil
  - Medium texture
  - Loam, clay loam or silty-clay loam ideal
  - Can tolerate slightly acidic soils (> 6.0 pH)
- Seed
  - Certification and varietal purity
- Planting
  - Shallow (1 in.) seeding into a firm moist seed bed – early
  - 1.5 to 2 Bushels seed per acre/ 25 plants per square foot
  - Thin seeding results in heavy tillering and large heads in seeds
- Fertilization



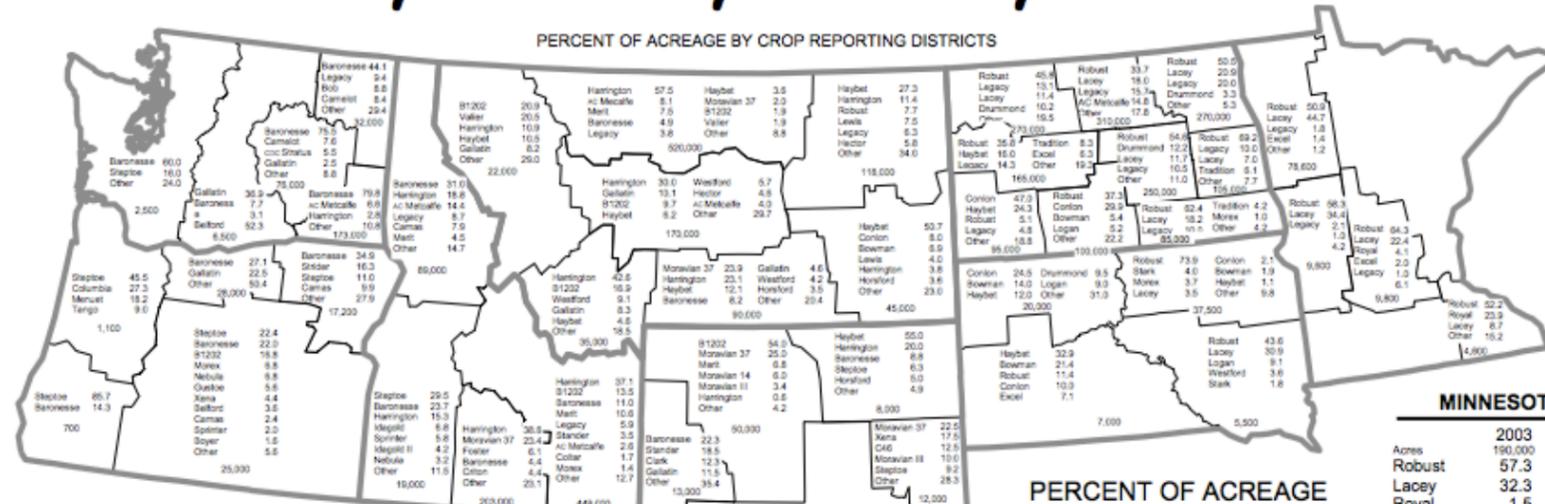
- Harvesting
  - Must be fully mature
  - At least 18% moisture (13.5% moisture ideal)
  - Low cylinder speed – check regularly for skinned or broken kernels
- Storage
  - Cool, dry, clean – Insect and rodent free
  - Less than 70° F
  - Aerated



# Malting to Brewing



# Barley Variety Survey - 2004



August, 2004

STATISTICS ABSTRACTED FROM USDA STATE BARLEY SURVEY REPORTS 2004 Preliminary 2003 Revised BARLEY ACREAGE PLANTED IN EACH DISTRICT IN 2004 IS INDICATED BENEATH THE DISTRICT LIST OF VARIETIES.

MAP PREPARED AND DISTRIBUTED BY: American Malting Barley Association, Inc. 740 N. Plankinton Ave., Suite 830 Milwaukee, WI 53203 / (414) 272-4640

Compiled by United States Department of Agriculture/National Agriculture Statistics Service and cooperating state agencies. Supporting funds provided by American Malting Barley Association, Inc.; Idaho Barley Commission; Montana Wheat & Barley Committee; North Dakota Barley Council; Oregon Grains Commission; and Washington Barley Commission.



American Malting Barley Association, Inc.

**MONTANA**

Acreage	2003	2004
1,100,000	1,000,000	1,000,000
Harrington	47.1	40.3
Haybet	9.9	9.9
AC Metcalfe	0.7	5.0
Merit	3.8	4.4
Baronesse	4.1	3.9
B1202	4.9	3.9
Gallatin	2.9	3.4
Moravian 37	3.9	3.2
Legacy	1.0	2.8
Hector	1.8	2.4
Other	19.9	20.8

**IDAHO**

Acreage	2003	2004
750,000	750,000	750,000
Harrington	32.6	34.8
Baronesse	13.9	11.9
B1202	8.0	8.1
Merit	7.6	6.8
Moravian 37	6.1	6.3
Legacy	4.3	4.6
AC Metcalfe	1.0	3.2
Stander	2.2	2.1
Foster	1.3	2.0
Criton	1.0	1.7
Other	22.0	18.5

**WASHINGTON**

Acreage	2003	2004
320,000	290,000	290,000
Baronesse	68.1	72.9
AC Metcalfe	3.4	5.0
Camelot	4.6	3.0
CDC Stratus	1.5	2.6
Harrington	5.6	2.4
Legacy	---	2.1
Xena	2.0	1.7
Gallatin	2.4	1.6
Bob	---	1.3
Boyer	0.3	0.9
Other	12.1	6.4

**COLORADO**

Acreage	2003	2004
85,000	80,000	80,000
Moravian 14	54.1	47.5
Moravian 37	30.0	26.1
Alexis	5.9	11.3
Steptoe	2.4	4.3
Otis	2.0	1.8
Baronesse	1.6	1.5
Moravian 69	---	1.5
Schuyler	1.5	1.4
Other	2.5	4.8

**NORTH DAKOTA**

Acreage	2003	2004
2,050,000	1,850,000	1,850,000
Robust	54.9	44.1
Legacy	6.6	13.0
Lacey	15.8	12.1
Conlon	11.9	7.7
Drummond	1.4	5.3
Haybet	2.1	3.5
Tradition	---	3.4
AC Metcalfe	---	2.8
Excel	2.0	1.9
Bowman	0.5	0.7
Other	4.8	5.5

**OREGON**

Acreage	2003	2004
70,000	72,000	72,000
Baronesse	29.4	26.7
Steptoe	7.9	12.2
Gallatin	9.0	9.6
Camas	16.1	9.2
Harrington	4.7	7.9
B1202	1.5	5.8
Strider	2.3	5.6
Belford	5.6	2.6
Morex	3.0	2.4
Kold	0.4	1.9
Other	20.1	16.1

**MINNESOTA**

Acreage	2003	2004
190,000	110,000	110,000
Robust	57.3	52.4
Lacey	32.3	39.5
Royal	1.5	1.8
Legacy	1.3	1.5
Excel	2.2	1.2
Other	5.4	3.6

**SOUTH DAKOTA**

Acreage	2003	2004
75,000	70,000	70,000
Robust	41.1	46.4
Conlon	13.5	9.1
Haybet	4.9	7.3
Bowman	6.9	7.1
Stark	5.2	4.6
Lacey	1.9	4.3
Logan	9.9	3.9
Drummond	---	2.7
Morex	---	2.0
Other	16.6	12.6

**WYOMING**

Acreage	2003	2004
90,000	85,000	85,000
B1202	37.6	32.8
Moravian 37	24.1	17.9
Haybet	4.0	6.9
Moravian 14	2.9	4.7
Merit	2.2	4.5
Baronesse	6.4	4.4
Harrington	3.7	4.0
Xena	3.3	4.0
Moravian III	1.1	3.4
Stander	---	2.9
Other	14.7	14.5

# Detailed Barley Physiology

