



# Hop and Barley Production for the Wisconsin Craft Beer Industry

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**Malting Barley: Easy-to-grow crop, hard-to-grow quality**

**Malting Barley – Options for Malting Production**

**Malting Barley: Can We Do Small Scale Production and Does it Pay?**

**Notes:**

**There are a number of titles for this presentation. We would really like to see if malting on a small scale can be done commercially, or if it just fits with hobby brewers.**

# Malz ist ein Produkt mit vielen Anwendungen

Sachgebiet Rohstoffqualität pflanzlicher Produkte



**Notes:**  
Malted barley is used in a lot of different products

**History – best guess – started  
around 2500 BC**

**Egyptians – wells**

**Floor malting – Europe**

**Salidin Boxes**

**Modern systems**

# History

Wisconsin was a major producer of  
malting barley

Malt Research Institute was founded in  
Wisconsin in 1938

Other farm enterprises became more  
profitable industry moved west and north

# Malting Barley

## **Purpose**

Convert the starch in grain to high amounts of enzymes, complex carbohydrates and sugars necessary for fermentation

## **Process**

Steeping 36 – 48 hours

Germination 4 – 5 days

Dry & Kiln 180 – 190 degrees for 2 – 4 hours

# Malting Barley

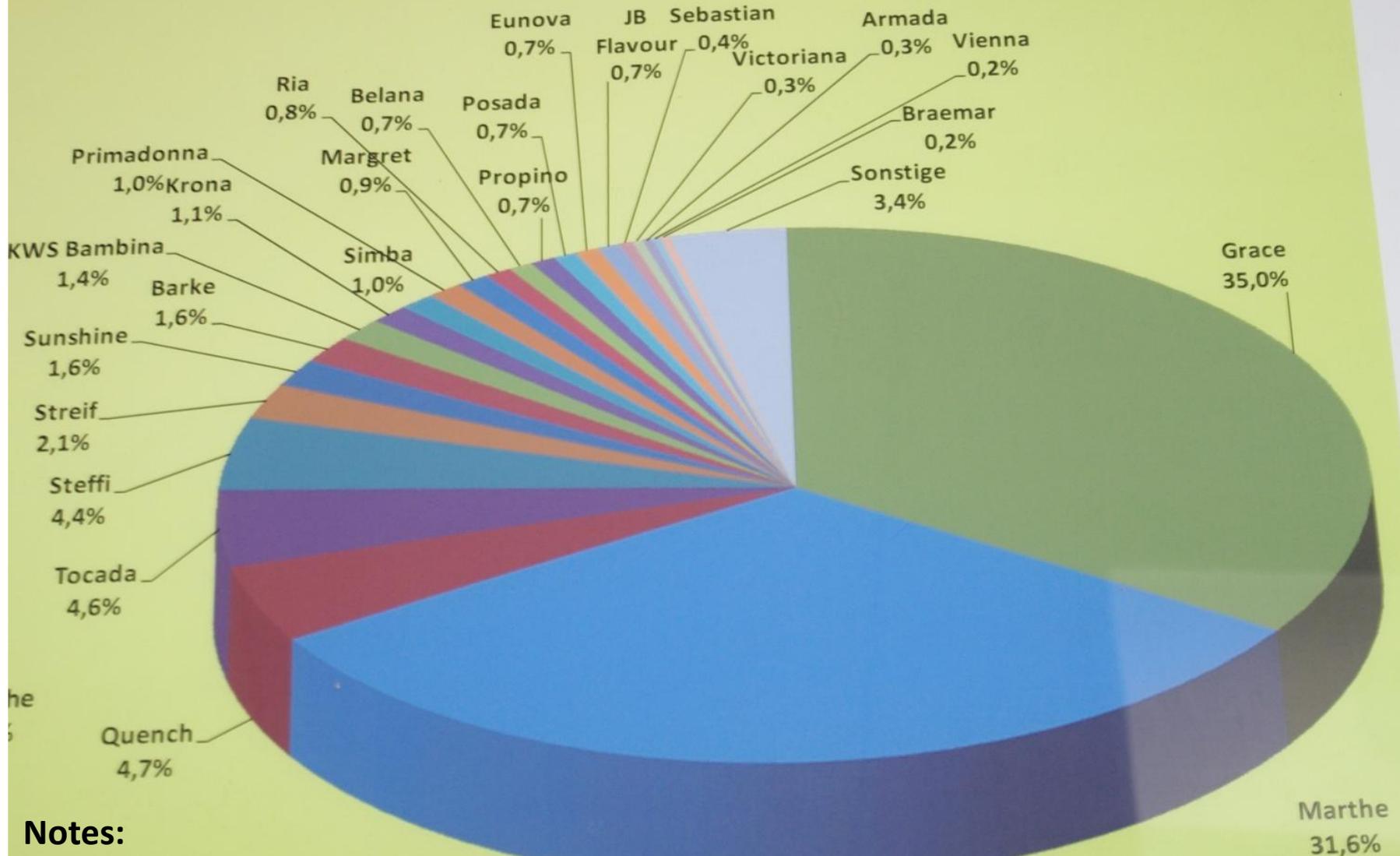
## Current Extension Project

Look for options to large commercial malting structure – local food/beverage

Is it economical?

Is it practical?

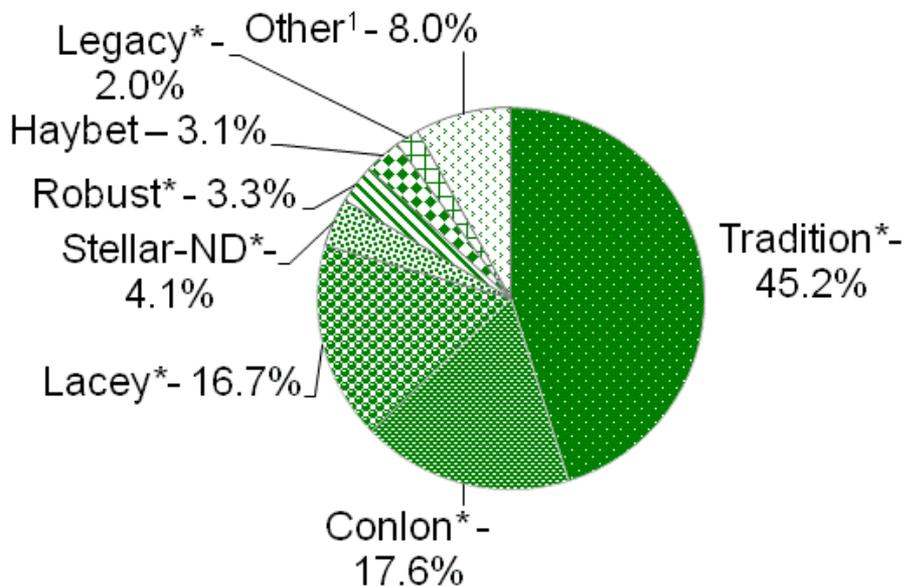
# Vermehrungsfläche 2010



## Notes:

German production dominated by 2 varieties – other varieties are for specific markets

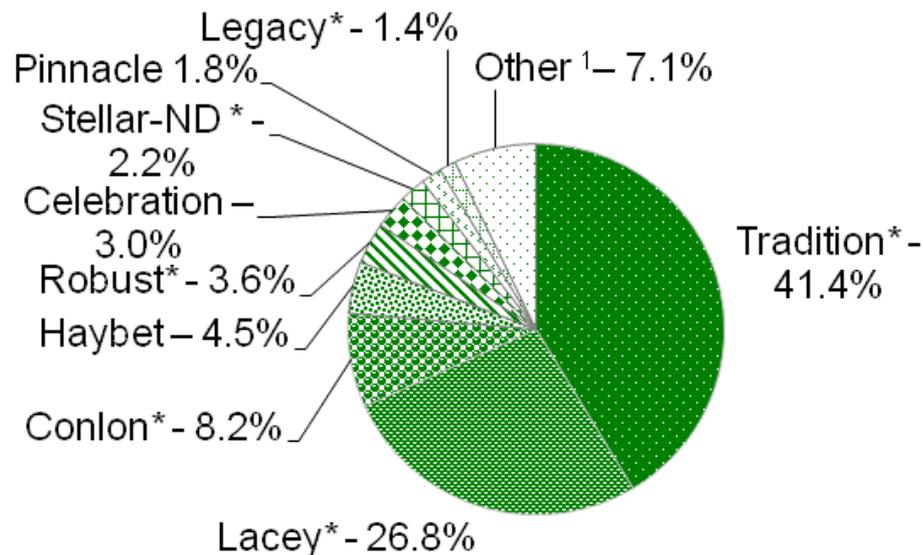
## Barley Varieties Percent of Acreage Planted North Dakota, 2009



<sup>1</sup> Other includes varieties not listed and unknown varieties.  
\*Recommended for malting by the American Malt Barley Association for 2009.

Notes:  
U.S. production varieties change somewhat quickly

## Barley Varieties Percent of Acreage Planted North Dakota, 2010



<sup>1</sup> Other includes varieties not listed and unknown varieties.  
\*Recommended for malting by the American Malting Barley Association for 2010.

50kg / 110 Lbs



**Import a lot of malt from Germany**

- **Barley is grown in a climate very similar to ours in Wisconsin**
- **Movement for local food and local products**

# Malting Systems





Shakopee, MN



Alix, Alberta



Taft, ND

## **Rahr Malting Co.**

Notes:

Most malting planting in the world are very large – well over 100,000 tons per year.



Notes:  
Schmidt-Seeger is the world's largest manufacturer of modern malting equipment.



Notes:

Modern malting plants are totally automated and climate controlled.



Research System  
\$300,000

Pilot Malt System  
\$750,000

Notes:

We explored the pilot malt system – very nice, but still priced too high for small commercial I malting.





**Notes:**

**Per Kloster (Denmark) had the system we really wanted to study. Per grows his own hops, grows his own barley, malts his barley and brews and markets his beer.**



**Notes:**  
**Steep tank – old bulk tank**

**Notes:**  
**Putting steeped barley on**  
**germination floor**





**Notes:  
Germination Floor**

**Notes:  
Drying Floor**

Table top floor malthouse for the home brewer



# Questions Needed to Answer:

- Quality of Barley – 2-row for Craft Industry
  - Can barley compete – other crops?
- DACTP requirements for small malting system(s)
  - Food Product ?

# Questions Needed to Answer (con't.):

- Where does local barley and local malting fit with the malting plants that currently exist?
- Cost of malting barley (and other grains) on a small scale
  - Labor vs. Capital
  - Price – premiums
  - Business Agreements