NMSU Hop Workshop
Farmington, NM
07/12/2013

Berkeley Merchant
Abbey Brewing Company
Monastery of Christ in the Desert

Monastery of Christ in the Desert
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• A contemplative monastery of 30+ monks who live a life of prayer and work (Ora et Labora)
• Located in the middle of the Chama River Canyon Federal Wilderness Area on 300 acres in northern New Mexico
• Off the electrical grid with independent water system and green (adobe and straw-bale) buildings
• Goal is to be financially self-supporting
  – Guesthouses accommodate overnight visitors
  – Other businesses help support the Monastery
  – Abbey Beverage Company, started in 2005, is a core business with a brewery and tap room on the grounds of the Monastery

About the Benedictine Order

• Saint Benedict of Nursia (ca. 480 – 547) the father of western monasticism, wrote “The Rule of Saint Benedict” that still guides monks and nuns monastic life today for the Benedictine, Cistercian, and Trappist orders
  ❖ 1098 - Cistercians
  ❖ 1656 - Trappists
• Benedictines have a 1,400+ year brewing tradition in Europe!
  ❖ Hospitality in written into the Rule of St. Benedict
  ❖ Safety, shelter, and nourishment (liquid bread) are guaranteed
• 1836 – 1850 - Trappist monks at Westemalle, Orval, Westvleteren, Achel, & Chimay start brewing in Belgium
• 2005 – Benedictine monks of the Monastery of Christ in the Desert start brewing commercially in the United States
• Only a small handful of monasteries brew beer today! Several more US monasteries will start commercial brewing soon
Hops Workshop
Brewers Side

July 12, 2013

Abbey Brewing Company

• Real beers from real monks – made with care and prayer
• Started in 2005
• Packaging brewery for Monks’ Ales
• Breweries at the Monastery and in Moriarty
• Production to 1200 bbls in 2013
• Ship into New Mexico + 8 states
• Monks own the brewery and are active daily in the brewery
Graining In

Adding Hops & Conferring on the Brewing Deck
Grinding Spices & Graining Out

Preparing to Bottle
Racked Monks’ Ale

Cleanup
Brewery View

• Use of whole versus pellets
  – Storage space and temperature
  – Engineering of brewing systems
  – Consistency of brewing process

• Supply chain continuity
  – Assurance of ongoing supply
  – Ability to deal with current and new contracts
    • Most brewers hold 1 to 3 year contracts today for 90% to 100+% by variety
    • Breweries always juggle existing beer styles with the need for new styles – so the hops get juggled as well as the grain bill and to a lesser extent the yeasts
    • Brewers are averse to risk of a new, unproven key supplier except at the margins

Brewery View

• Brewers demand consistency and quality
  – HSI (hop storage index)
  – Key chemistry – alpha acid percentage – effects the quantity of hops and thus the costs of production
  – Secondary chemistry – has a big impact of quality of the product
    • Beta acids
    • Add other key acids ....
    • Add picture of the sign taken in the hop yard in Yakima
Data Desired by Brewers

- Purpose – Aroma, Bittering, or Cross
- Aroma – scent description
- Alpha Acids - %
- Beta Acids - %
- Alpha:Beta Ratio
- Cohumulone - % of alpha acids
- Total Oil – ml/100 gr
- Caryophyllene - % of total oil
- Farnesene - % of total oil
- Humulene – % of total oil
- Myrcene - % of total oil
- Storability – Poor to Excellent
- General Trade Perception
- Possible Substitutes
- Typical Beer Style Use

**Desired Data by Brewers**

![Citra™ Data Chart](image)
### Cohumulone - % of Alpha Acid

- One of 5 alpha acid analogs in hop resin
- All analogs serve as precursors to iso-alpha acids – predominate contributors to bitterness
- Along with humulone, can vary between 20% and 50% of total alpha acids – based on variety
- It is believed that iso-cohumulone contributes a higher, harsher quality of bitterness than other iso-alpha acids
- Low cohumulone = associated with aroma hops and finer quality of bitterness
- High cohumulone = associated with bittering hops but harsher quality of bitterness
- Oxidation produces isobutyric acid with associated rancid, cheesy, sour odor