Herbs, Spices & Other Botanical Ingredients in Today’s Beer Recipes

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Objectives

• Some historical perspective
• Explain Stone Brewing Co.’s approach to using botanicals
• Addition techniques
• Share some of our successes
• Share some of our misses
• Review some interesting botanicals
Use of Botanicals in Brewing History

Prehistory:
- Spices and fruits used in grain beverages in Middle East
- Heather Ale in Scotland

Middle Ages
- = start of using botanicals in beer in England
- Gruit in Europe: Bog Myrtle, Wild Rosemary, Yarrow, Caraway

Common botanicals:
- Mugwort, bog myrtle, sage, yarrow, wormwood, sweet gale, caraway
- Licorice, ginger, cinnamon, capsicum, coriander found in many Porter recipes
Use of Botanicals in Brewing History

• England brewers continued brewing with only malt, or with botanicals
• Hop usage began in Europe in the 1000s-1100s, perhaps as early as the 6th -9th centuries AD
  • 1st hopped beer in England mid 1300s
• Reinheitsgebot 1516
• 1500s-1600s England:
  • Unhopped “ale” vs hopped “beer”
• 1600s and 1700s-botanical additions become more rare
  • Traditional beers like Sahti persevered-kind of…
  • Kennet Ale, Reading Ale, Dorchester Ale, Windsor Ale all became extinct
  • Hop substitutes like Quassia, Grains of Paradise, etc.
The Stone Approach

• Adding botanicals can add an interesting flavor twist to classic beers styles
• Flavors can be complementary, or can change the beer profile completely - both can work if you can avoid flavor clashes
• Culinary experience helps!
• Our Cask Program
• Special Creation approach
Beer Style Considerations

- **Belgian Styles**
  - Lend themselves well to botanical additions of all types
- **Dark Beers**
  - Surprisingly fantastic for all kinds of botanicals
- **IPAs**
  - Tread cautiously
  - Hop vs botanical: Clash or Synergistic?
- **General addition rates:**
  - Pungent, aromatic: 5 grams/gallon or less
  - Milder: Start with 10 grams/gallon
Addition methods

• Hot Side vs Cold Side - We like to do both!
  • **Hot side**: Add late (whirlpool) to avoid excessive flavor volatilization
  • **Cold Side**: Sanitation concerns
• Fresh vs dried vs powdered/ground
  • Best is to grind whole/dried spices just before use.
• “Dry-hop” method
• Bags vs direct addition
• Alcohol extraction
Some interesting botanicals:
Anise and Star Anise

- **Anise** = aniseed. More intense licorice character
- **Star Anise** = Star shaped seed pods. More complex.
  - Very savory when cooked
- Works well at low levels in dark beers and in Belgians.
- Typical addition rates:
  - 0.5-2 grams/gallon
Cacao Liquor/Cocoa Nibs

- Cacao or chocolate liquor=
  - Fermented beans, dried and roasted, separated from skins and ground into a paste and formed into blocks or sheets
  - Pure cocoa and cocoa butter, contains no dairy or sugar.
- Usually added hot side. Nibs can be added cold side too
- Wonderful in stouts and porters, surprisingly good in pale beer styles
- Addition rates:
  - 20-60 grams/gallon.
Caraway

- Aka Meridian Fennel or Persian Cumin.
- Fruit used in rye bread
- Plant related to carrot
- Works great in rye ales (in moderation)
Cardamom

- Seeds found in pods.
- Related to Grains of Paradise
- Has exotic, peppery and citrusy flavor
- Used in Indian cuisine and European Christmas desserts
- Lots of varieties available
- Typical usage rates:
  - 0.3-1 gram/gallon
Chamomile

- Common addition to Belgian Wit beers (though not well-known)
- Apple spice, hay/grass and fruity flavors
- Add to boil or whirlpool
- Typical addition rates:
  - 4-6 grams/gallon
Cinnamon

- Cinnamomum Cassia-classic cinnamon-hot cinnamon
- True cinnamon = Cinnamomum verum
  - More subtle, less heat
- Works great with cocoa additions, pepper additions, roast malt character (dark ales) and in Belgians.
- A little goes a long way.
- Addition rates:
  - 1-2 grams/gallon
Citrus Peel

• All citrus works well in many Belgian and IPA styles. Also works well in dark beers-”orange-chocolate”
• Lots of orange variations:
  • Bergamot
  • Blood
  • Valencia
  • Curacao
  • Moroccan
• Tangerine enhances orange flavors
• Typical addition rates:
  • 2-10 grams/gallon.
  • Fresh is more intense than dried
Coffee

- So many options-dark beers, golden ales
- Addition methods:
  - Adding hot side-steep in hot wort, beware of bitterness and harshness pick up if boiled
  - Add whole beans to mash
  - Cold side: Steep ground beans or make cold press-smoother and cleaner flavor
- Typical addition rates:
  - 10-20 grams/gallon total
Cilantro

- Adds green herbal, citrusy (and soapy?) character
- Use sparingly
- Pairs well in IPA and Belgian beers
- Can pair well with other herbs or peppers
Coriander

• Seed of the cilantro plant
• Common European pickling spice
• Mexican vs. Indian
• Common in Belgian Wit styles
• Spicy, peppery, citrusy contributions—very unique and easily identifiable
• Elevates citrusy character of hops
• Typical addition rates:
  • 3-6 grams/gallon
Dandelion

- Root or flower can be used.
- Flower additions can be floral, slightly grassy and bitter
- Root additions provide more grassiness and bitterness
  - Common chicory substitute, enhances roasted malt character
- Works well in stouts, porters, and in some IPAs
- Recommended addition rates:
  - Dried flowers and greens: 1-5 grams/gallon
  - Root: 0.5-3 grams/gallon
Elderberry

- Earthy, fruity flavor contributions.
- Works well in hot side additions to ales.
- Recommended addition rates:
  - 2-5 grams/gallon
Elderflower

- Used in many drinks
- Adds bitterness, astringency, and a delicate floral aroma.
- Must be boiled
Fennel

- Seeds or leaves can be used
- Major spice in Italian sausage
- Pleasant licorice like flavor, much less intense than anise.
- Addition rates:
  - 1-4 grams/gallon
Fenugreek

- Traditionally used in curries and other Indian cuisine
- Toasted = maple
- Recommended addition rates:
  - .25-.5 grams/gallon
Ginger

- Danger Will Robinson!
- Powder easily overdone-becomes dominant
- Works well in pale/amber beers, and Belgian styles
- Typical addition rates:
  - Whole: 10-15 grams/gallon
  - Powdered: 0.05-.2 grams/gallon
Grains of Paradise

- Member of the ginger family
- Also called Alligator Pepper, Paradise Seed, Guinea Pepper
- Provides complex peppery flavors, heat, and piney
- Great for use in Saisons
- Typical Addition rates:
  - 0.25-1 gram/gallon
Heather

- Shrub related to rhododendron, cranberry and blueberry
- Branches historically made into brooms
- Flowers are traditional Scottish beer ingredient
- Honey, floral taste
- Should be added to boil (late)
Hibiscus

- Flower
- Adds pink tinge to beer
- Adds a floral, citrusy and fruity character to beer
- Can drop pH of beer-adds tartness, refreshing character
- Great in Belgian styles and in lighter ales
- Addition rates:
  - 15-25 grams/gallon
Jasmine

- Japanese origin flower
- Adds a floral, honey like flavor
- Works great in IPA, dark beers and Belgian styles!
- 3.5-10 grams/gallon
Juniper Berry

- Used in Gin
- Used in Sahti - uses juniper branches loaded with berries as a wort filtration device
- Dried berries in most other applications
- Typical addition rates:
  - 1-5 grams/bbl
Lavender

- Floral
- Works well in lighter Belgian styles
- Surprisingly good in a Berliner Weisse
- IPA!
Lemongrass

- Member of the grass family.
- Related to Citronella
- Adds herbal and lemon flavors
- Fairly mild
Lemon Verbena

- Leaves release pungent lemon (citral) flavor and aromatics
- Also nerol (rose) and geraniol (floral)
- Great in IPAs and Belgians
- Typical addition rates:
  - 0.5-1 gram/gallon
Mint

• Leaves are used
• Hard to get expected flavor intensity using fresh leaves.
  • Dried leaves work better
  • Extract works best
• Typical addition rates:
  • 4-10 grams/gallon fresh
  • 1-5 grams/gallon dry
Mugwort

- Traditional brewing herb, used for adding bitterness to ales in England and Central Europe
- Also medicinal-used to prevent fatigue.
- Complex, peppery and bitter contributions
Nuts

• Impact on foam?

• Can be added in mash, boil/whirlpool and post ferment

• Typical addition rates
  • 20-40 grams/bbl
Quassia

- Caribbean tree
- Bark sometimes added to provide bitter to tonic water-50 times more bitter than quinine
- Medicinal uses-bark extract for treating digestive ailments
- Used in beer in the 1700s and 1800s as a hop substitute
Sage

- Perennial evergreen shrub
- Used in historical England,
- Popular in British Cuisine
- Tread lightly with white sage
- Pineapple sage has a unique, milder sage note and hints of fruit and citrus
- Not all types of sage leaves work in beer.
- Typical addition rates
  - 0.25-2 grams/gallon
Sarsaparilla

- Central and North American origin
- Root used originally for medicinal purposes
- US Sarsaparilla made originally sometimes from birch and sassafras root
- Indian Sarsaparilla is a different plant, but provides a similar minty root beer note.
Tea

- Wide variety of flavors
- Flavored Teas
- Crystal, Amarillo hops pair well with tea additions
- Addition rates:
  - 20-30 grams/gallon
Woodruff

- Syrup for Berliner-Weisse-Waldmeister
- May Wine
- Provides a pleasant green tea and cinnamon type flavor. Apple Spice.
- Must be dried to release flavor
Vanilla Bean

- Works great in many styles
- Can enhance other flavors
- Hot side and cold side work well
- Bourbon Vanilla-aka Madagascar Vanilla most common
- Ugandan, Mexican
- Tahitian-different species of orchid
- Grade B +C vanilla
- Typical addition rates: 2-2.5 grams/gallon
References, Further Exploration

- Radical Brewing by Randy Mosher
- Upcoming book by Drew Beechum and Denny Conn from the Maltose Falcons: Experimental Homebrewing