



Mead: Recipe Formulation and Advanced Techniques

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Author: The Complete Guide To Making Mead

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Mead – A Plethora of Options

- A large variety of honeys to start with
- Virtually any fruit
- Virtually any spice
- Braggot – virtually any base beer style
- Experimental and historic types
- Combinations of the above
- A range of common mead characteristics
 - Strength, sweetness, carbonation, balance

Recipe Formulation Preliminaries

- What kind of mead do you want to make?
 - Dry, semi-sweet, sweet?
 - Strength (alcohol level); hydromel, standard or sack?
 - Traditional mead, metheglin, melomel, other?
- Showcasing some special ingredient?
 - May require recipe adjustment to showcase it
- Batch size considerations?

Background

- Virtually all the sugars in a mead are fermentable
- Most yeasts will ferment until they hit their alcohol limit or until they run out of fermentable sugars
- Target OG is driven by target strength and target FG
 - If the difference between OG and FG is less than the yeast's alcohol limit you will have to do something to stop the fermentation early
 - Potassium sorbate
 - Pasteurization

Alcohol Limit

If you start with the listed SG and your yeast has the shown alcohol limit you will ferment the mead down to 1.000 or below (i.e., very dry).

Limit - % ABV	SG	Limit - % ABV	SG
8	1.061	14	1.107
9	1.069	15	1.115
10	1.076	16	1.122
11	1.084	17	1.130
12	1.092	18	1.137
13	1.099	19	1.145

Which Honey?

- Aroma and flavor works with other ingredients
 - Reinforces perception of other ingredients
 - A pleasant contrast to other ingredients
 - Plays a secondary role to other ingredients - a mild honey
 - A varietal honey that dominates
 - Complex but indistinct aromas/flavors
- A honey that is locally available?
- Wild flower honey is NOT a varietal honey, each source hive and even season is different

Honey Flavor Wheel

From the UC Davis Honey and Pollination Center

<http://honey.ucdavis.edu/products>



How Much Honey?

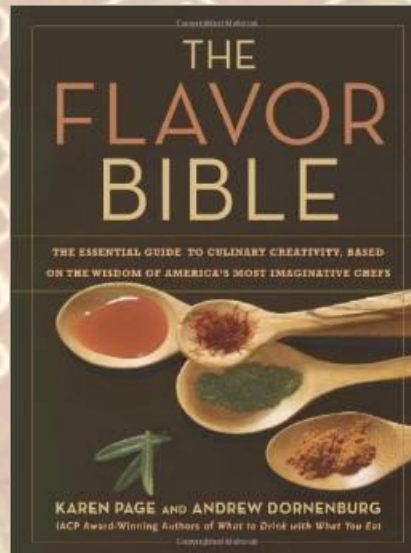
- Honey weights about 12 pounds per gallon, it is usually sold by weight not by volume
- Typical honey is about 17% water by weight but that may vary
 - Some varieties may have more water; clover is about 23%
 - Honey is hygroscopic – absorbs water from the air
 - Keep containers sealed air tight
- Average honey will add about 38 points per pound per gallon

If Not Traditional Mead

- All mead styles other than traditional mead have other ingredients in them:
 - Fruits
 - Vegetables
 - Spices
 - Specialty
 - Malt/grain
 - Historic/indigenous
 - Experimental

Looking For Ideas

The Flavor Bible by Page & Dornenburg provides many interesting combinations but not ratios or amounts



How Much Fruit?

- Generally 3–4 pounds of whole fruit per gallon of mead is a good starting point
 - For fruits with faint flavors use even more
 - For fruits with really intense flavor use less
- For non-concentrated juices that works out to about $1\frac{1}{3}$ to $1\frac{3}{4}$ quarts of juice per gallon of mead.
 - Based on the average fruit being about 85% water
- For concentrated juices you need to know the concentration factor

Using Fruit

- Fruit is mostly water - average is about 85% by weight
- Fruit has very little sugar - typically under 10% by weight
- 8.33 pounds of water is one gallon of water
- The water in fruit may not show up initially on your hydrometer
 - Fruit's water may distort your effective target OG
 - Freezing the fruit before use helps release the water
 - The cellular structure of the fruit holds the water until later in the fermentation when the fruit structure starts to breakdown

Fruit Considerations

- Fruits that are high in malic acid can benefit from fermentation by yeast strains that metabolize malic acid into softer lactic and citric acids.
 - Lallemant 71B-1122
 - Vinter's Harvest MA23
- Fruits high in tannins may require a mead that finishes sweeter to achieve a good balance
- Fruits that are high in acids may require a mead that finishes sweeter to achieve a good balance
 - Avoid going overboard – can become a “sweet tart”

Spices – How Much

- Hard to give a rule of thumb due to the broad range of characteristics
 - Spices deteriorate with age
 - Source and storage conditions have major impacts on characteristics
- If starting out with a new spice combination initially use a lot less than you think you need. You can always add more but can't remove them later if you used too much.
 - You can blend with an unspiced version to reduce the characteristics
- Spices may extract differently in a mead than in other foods. Extraction of some characteristics may be dependent on heat, water, fat, sugar or even alcohol

Spices – How Much (2)

- Consider using a tincture to supplement the spice characteristics after fermentation
- A tincture can be made from the spices and some solvent
 - Solvents may be cold water, hot water, ethanol (e.g., vodka) or even a mead
 - Sanitation is important
 - A tincture also works for extracting wood characteristics

Yeast Choice

- Things to consider
 - Alcohol tolerance
 - Nutrient requirements
 - Temperature tolerance
 - Aroma and flavor characteristics
 - Special aspects
 - E.g., reduces malic acid of fruit
 - Traditional strain given the ingredients

After Fermentation Tips

Post Fermentation Sweetening

- You can “backsweeten” with more honey, by blending with a sweeter mead, or even by adding more fruit. However, you probably don’t want to restart fermentation.
- Standard approach is:
 - Clarify – remove as much yeast as possible
 - Sulfite addition – inhibit any microorganisms still left
 - Potassium sorbate addition – stop yeast reproduction
 - Sweeten
- Pasteurization also works well to stop fermentation and to inhibit leftover microorganisms

Balance Adjustments

- You can adjust some aspects of the balance of the mead by post fermentation additions
 - Increase the acidity with acid additions
 - Acid blend, citric, malic, tartaric, ...
 - Various forms of tannins to add structure. Many forms do NOT have an immediate impact
 - Reducing acid or tannin levels is harder than additions
- There are limits to how far you can shift the balance without destroying the mead. Work with small samples and move in small steps.

Blending

- Blending with other meads or even beers/wines can greatly expand your options
- Pearson's square works well for defined adjustments like adding alcohol or water to a mead
- For sensory based blending it is best to work with small quantities and to hone in on the proper ratio over several stages of blending
- Some blends may take time to stabilize/meld together

The background of the slide is a close-up photograph of a honeycomb structure. The hexagonal cells are filled with a golden-brown liquid, likely honey, and are covered with numerous clear water droplets of various sizes. The lighting is bright, creating highlights on the droplets and the surface of the honey.

- Questions

I do have copies for sale

