

Making Mead 101 – Let's get started!



Not just for Vikings Anymore!



- Goals for this mead presentation:

- What is mead?
- Cover the basics of honey
- Sourcing your ingredients
- Basic process for making meads
- Dispelling some myths and old practices
- Leave you with a plan to make your first (good) mead

Disclaimer...



- We are just covering the basics tonight, but in an expert way so you can get started more easily
- Mead is very much like many homebrewing topics, there is a lot more to know than meets the eye, this is the tip of the iceberg
- We could spend hours discussing the finer points of just about every single item this evening and still not get very deep
- (I'm not promising you I won't go off on a tangent however...)

World's oldest fermented beverage?

- Earliest archeological evidence of production of mead is about 2000 BC
- However pottery vessels around 9000 BC have shown evidence of honey and fermentation



How is Mead making more advantageous or easier than making beer?

- Almost no equipment needed: fermenter and basic utensils
- Very little time to get started: can start a batch during halftime
- The raw ingredient itself is all you need to start

How is it very similar?

- Sanitation
- Temperature control
- Fermentation, fermentation, fermentation!!
- Unlimited creativity

How is it awesome?

- The deeper you get, the more the science, art, and technique become addictive
- We are turning bee spit into tasty yeast pee
- A well made mead is a magical substance...

BJCP definitions and descriptions of mead:

2008 Guidelines:

- **Category 24 – Traditional Meads**
 - A. Dry
 - B. Semi Sweet
 - C. Sweet
- **Category 25 – Melomels/Fruit Meads**
 - A. Cyser
 - B. Pyment
 - C. Other Fruit Melomel
- **Category 26 – Other Mead**
 - A. Metheglin
 - B. Braggot
 - C. Open Category

BJCP definitions and descriptions of mead:

2015 Guidelines:

- **M1 – Traditional Meads**

- A. Dry
- B. Semi Sweet
- C. Sweet

- **M2 – Fruit Meads**

- A. Cyser
- B. Pyment
- C. Berry Mead
- D. Stone Fruit Mead
- E. Melomel

- **M3 – Spiced Meads**

- A. Fruit and Spice
- B. Spice, Herb, Vegetable

- **M4 – Specialty Meads**

- A. Braggot
- B. Historical Mead
- C. Berry Mead
- D. Experimental Mead

BJCP descriptions of what to expect: DRY



Overall Impression

Similar in balance, body, finish and flavor intensity to a dry white wine, with a pleasant mixture of subtle honey character, soft fruity esters, and clean alcohol.

Complexity, harmony, and balance of sensory elements are most desirable, with no inconsistencies in color, aroma, flavor or aftertaste.

The proper balance of sweetness, acidity, alcohol, and honey character is the essential final measure of any mead.



Aroma

Honey aroma may be subtle, although not always identifiable.

Sweetness or significant honey aromatics should not be expected.

If a honey variety is declared, the variety should be distinctive (if noticeable). Different types of honey have different intensities and characters.



Flavor

Subtle (if any) honey character, and may feature subtle to noticeable varietal character if a varietal honey is declared (different varieties have different intensities).

Residual sweetness levels are minimal to none. Dry finish.

May have more noticeable acidity due to low sweetness levels. Tannin levels may make a sweeter mead seem dry.

Sulfury, harsh or yeasty fermentation characteristics are undesirable.



Mouthfeel

Standard description applies, although the body is generally medium to light (but not watery). Note that stronger meads can have a fuller body.

Sensations of body should not be accompanied by noticeable residual sweetness.

BJCP descriptions of what to expect: Semi



Overall Impression

Similar in balance, body, finish and flavor intensity to a semi-sweet (or medium-dry) white wine, with a pleasant mixture of honey character, light sweetness, soft fruity esters, and clean alcohol.

Complexity, harmony, and balance of sensory elements are most desirable, with no inconsistencies in color, aroma, flavor or aftertaste.

The proper balance of sweetness, acidity, alcohol, and honey character is the essential final measure of any mead.



Aroma

Honey aroma should be noticeable, and can have a light sweetness that may express the aroma of flower nectar.

If a variety of honey is declared, the aroma might have a subtle to very noticeable varietal character reflective of the honey (different varieties have different intensities and characters).



Flavor

Subtle to moderate honey character, and may feature subtle to noticeable varietal character if a varietal honey is declared (different varieties have different intensities).

Residual sweetness levels are subtle to moderate.

Medium-dry to lightly sweet finish. Tannin levels may make a sweet mead seem medium-dry.

Sulfury, harsh or yeasty fermentation characteristics are undesirable.



Mouthfeel

Standard description applies, although the body is generally medium-light to medium-full.

Note that stronger meads can have a fuller body. Sensations of body should not be accompanied by a residual sweetness that is higher than moderate.

BJCP descriptions of what to expect: SWEET



Overall Impression

Similar in balance, body, finish and flavor intensity to a well-made dessert wine (such as Sauternes), with a pleasant mixture of honey character, residual sweetness, soft fruity esters, and clean alcohol.

Complexity, harmony, and balance of sensory elements are most desirable, with no inconsistencies in color, aroma, flavor or aftertaste.

The proper balance of sweetness, acidity, alcohol, and honey character is the essential final measure of any mead.



Aroma

Honey aroma should dominate, and is often moderately to strongly sweet and usually expresses the aroma of flower nectar.

If a variety of honey is declared, the aroma might have a subtle to very noticeable varietal character reflective of the honey (different varieties have different intensities and characters).



Flavor

Moderate to significant honey character, and may feature moderate to prominent varietal character if a varietal honey is declared (different varieties have different intensities).

Residual sweetness levels are moderate to high. Sweet and full (but not cloying) finish.

Balanced acidity and/or tannin helps keep the sweetness agreeable to the palate without being overwhelming.

Sulfury, harsh or yeasty fermentation characteristics are undesirable.



Mouthfeel

Standard description applies, although the body is generally medium-full to full.

Note that stronger meads will have a fuller body. Many examples will seem like a dessert wine.

Sensations of body should not be accompanied by cloying, raw (unfermented) residual sweetness.

Resources to learn more about mead:

- **Got Mead!** Forum & Podcast (www.gotmead.com)
- MeadMakrs Podcast (www.meadmakr.com)
- American Meadmakers Association website & Facebook pages
- Reddit Meadery (<https://www.reddit.com/r/mead>)
- “The Brewing Network” & “Basic Homebrewing” podcasts
- Most homebrewing forums have a mead subsection
- Lots of websites, Facebook groups dedicated to mead making
- National Homebrewers Conference recorded sessions (AHA)
- The Compleat Meadmaker. Ken Schramm (2003)
- The Complete Guide to Making Mead. Steve Piatz (2014)

Where to buy honey?

- Local farmers market or beekeeper - \$6-8/lb
- Local specialty craft food stores - \$6-8/lb
- Grocery stores –
 - buy a defined varietal (i.e. clover, alfalfa), look for minimal processing
 - Costco sells 5 pound jug of clover for ~\$15.50, good price and decent product
- Internet HBS/retailers
 - Usually great selections, paying for shipping. Honey weighs 12#/gallon
- Bulk!

Where to buy honey? Bulk option

- Dutch Gold!
(www.dutchgoldhoney.com)
- Can buy 1lb, 5lb, 60lb, 650lb...
- In 60 pound pail (5 gallons) the cost per pound is ~\$2.30*
- Reduces cost per 5 gal batch from \$120 to \$35
- I have 240 pounds at home right now... 😊

*OB, Clover, Alfalfa, etc \$148. Wildflower \$132.60. Shipping \$27.23 per pail

Bulk Honey & Maple Syrup



Dutch Gold Honey and McLure's Honey & Maple Products sell honey and maple syrup in bulk packaging. Whether you need to buy one pail or a truckload, we can provide you with the best quality honey and maple syrup available at very reasonable prices. And don't forget, all of our honey is True Source certified to ensure you are buying the best ingredient available.

Bulk packaging includes:

- 60 lb pail (5 gallon bucket) available in [Alfalfa](#), [Baker's Special](#), [Buckwheat](#), [Clover](#), [Orange Blossom](#), [Wildflower](#), [100% Organic](#) & [Raw](#) (Pail Price: See honey varietal page or click on the individual variety on this page)
- 650 lb Drum of honey or 610 lb Drum of maple syrup - call for pricing
- 3200 lbs Totes (returnable or one way) - call for pricing
- Tanker Trucks (48,000 lbs) - call for pricing

“Common” Honey Varietals We Can “Easily” Purchase Include:

- Alfalfa
- Avocado
- Basswood
- Blueberry
- Buckwheat
- Clover
- Cranberry
- Clover
- Wildflower
- Orange Blossom
- Raspberry
- Tupelo

More Exotic Types Include:

- Cotton
- Fireweed
- Goldenrod
- Macadamia
- Mesquite
- Palmetto
- Pumpkin
- Sage
- Star Thistle
- Sunflower

Honey.

**Naturally sweet.
Incredibly versatile.
Deliciously diverse.**



Water white	Extra white	
Amber	Dark amber	White
Light amber	Extra light amber	

There are more than 300 different types of honey in the United States, each with a unique flavor and color profile influenced by the types of blossoms the bees visit when searching for nectar.

Floral source, location and climate factors all affect the taste, color and texture (viscosity) of honey. Its colors range from nearly colorless to deep dark browns. Each has its own distinct flavor ranging from delectably mild to impressively bold.

Such unique flavor nuances lend themselves to different pairings, as well as cooking and baking applications. This National Honey Board Varietal Guide features descriptions of floral sources, tasting notes and preferred pairing suggestions for 21 of the most popular honey varietals.

For information on the other varietals, visit honey.com.

ALFALFA

Alfalfa's violet-purple flowers bloom throughout the summer because it is usually harvested several times a year for hay. Its honey is white or extra light amber in color with a mild flavor and aroma similar to beeswax. A very important honey source in most western states, it produces a honey that is ideal for baking and cooking, or for daily table use. It is also perfect for mildly sweet marinades for fish or chicken.



AVOCADO

A subtropical fruit that requires bee pollination, the avocado is the source of a unique honey that is dark amber in color with a smooth, velvety texture and rich flavor featuring notes of caramelized molasses. Its robust flavor and dramatic coloring make avocado honey a great choice for use in rich desserts such as chocolate and nut tarts or as a welcome accompaniment for pancakes, waffles and ice cream.



BASSWOOD

The basswood tree grows quite well in northern states throughout the U.S. and is renowned for its shade and fragrant, cream-colored flowers. Its honey has a fresh taste similar to that of green, ripening fruit and can be identified by its water white color, warm herbal notes and clean finish. Basswood honey subtle complementary sweetness pairs well with green apples, vanilla ice cream and fromage blanc.



BLUEBERRY

More than 20 species of low blueberry shrubs with bell-shaped white or pinkish flowers are often found in the eastern U.S. and Canada. Blueberry honey has an aroma reminiscent of green leaves with a touch of lemon. Moderately fruity in flavor with a delicate, slightly buttery finish, it is light to medium amber in color. Blueberry honey's excellent flavor pairs well with yogurt, walnuts, melons, sour cream and crème fraîche.



BUCKWHEAT

Buckwheat is a summer annual that blooms late into fall. Its nectar produces a dark flavorful honey with marked molasses and malt flavors, and a lingering aftertaste. The color and flavor of the honey may vary by region. Its strong flavor makes it a popular ingredient in hearty baked goods and barbecue sauces. It also pairs well with strong cheeses, grapefruit, or as a maple syrup replacement.



CLOVER

One of the country's favorites and found on pantry shelves around the world, clover honey has a sweet, flowery aroma and pleasingly mild taste that hints at the plant's delicate blossom. Made from several different types of clover plants including White Dutch, Red, Sweet, and White varieties, honey from the different species is often blended to produce a mild honey that excels at the table and as a key ingredient in many cooking and baking situations.



RASPBERRY

The raspberry is a thorny shrub that produces just one crop of fruit per year. Its springtime clusters of white, 5-petaled, rose-like flowers give way to red raspberries that mature in summer. Raspberry honey is light amber in color with a mellow, smooth flavor and unique raspberry finish. This sweet honey pairs well with vanilla flavors, champagne, chocolate, and with fresh fruit such as pears and peaches.



TUPELO

Tupelo Gum trees grow in southern wetlands and bloom during April and May. Florida beekeepers place their apiaries on high platforms or even boats in the wetlands to avoid losing their colonies to frequent floods. Smooth in texture, light amber in color, with complex floral, herbal and fruity flavors, tupelo honey is very sweet, making it an excellent choice for baked goods. It is also the only honey that never granulates. Tupelo pairs well with Blue, Aged Pecorino and other robust cheeses.



ORANGE BLOSSOM

A leading honey plant in southern Florida, Texas, Arizona and California, orange trees bloom in March and April and produce a white to extra light amber honey with a pronounced aroma of orange blossoms. It has a sweet, fruity taste with a flowery perfume aftertaste. A great table honey, it also excels in fruit and vegetable salad dressings, and in marinades for fish and poultry. It also pairs, particularly, well with custards, vanilla and chocolate.



CRANBERRY

Cranberry shrubs are an important cultivated crop in the northeast. They also grow wild in some areas. Cranberry honey is available in limited quantities because individual cranberry bogs bloom no more than two weeks annually. The honey is medium amber in color with a light red tint and a strong berry flavor.

While cranberries are known for their tartness, its honey is delightfully sweet and pairs well with apples, pork, poultry and dark chocolate.



WILDFLOWER

The term "wildflower honey" is often used to describe honey from miscellaneous and undefined flower sources. Wildflower is amber to dark amber in color with mild floral overtones. The color and flavor of wildflower honey can vary depending on the region in which it is produced. Available throughout the U.S., it is extremely versatile. Wildflower honey is delicious in fruit and vegetable salad dressings, excellent in baked goods and makes a delicious table honey.



Let's make some mead: HONEY

Vital Statistics:

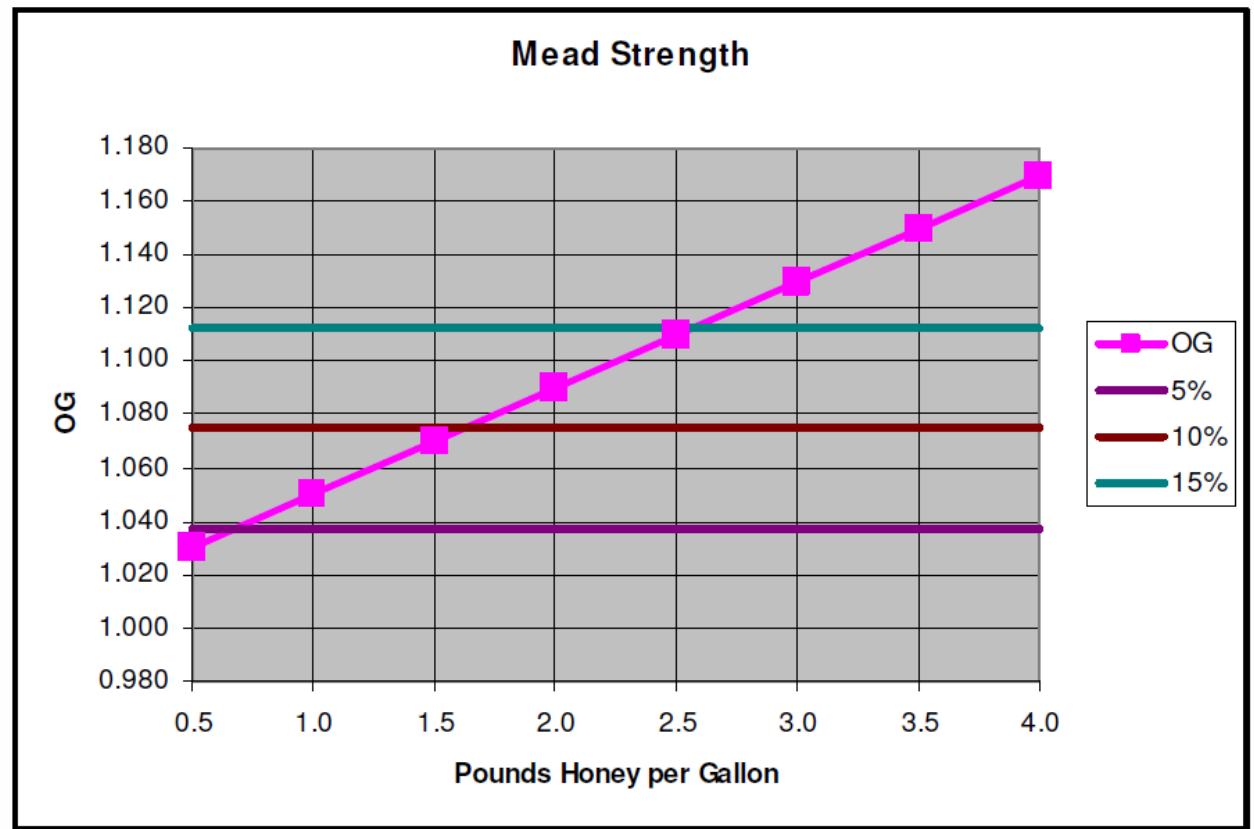
OG: hydromel: 1.035 – 1.080
standard: 1.080 – 1.120
sack: 1.120 – 1.170

ABV: hydromel: 3.5 – 7.5%
standard: 7.5 – 14.0%
sack: 14.0 – 18.0%

FG: dry: 0.990 – 1.010
semi-sweet: 1.010 – 1.025
sweet: 1.025 – 1.050

Carbonation: still
petillant (lightly carbonated)
sparkling (highly carbonated)

How much honey



3 Simple Recipes for 5 gallon batches

Dry traditional mead: OG 1.080 / FG 0.998

- 10# high quality varietal honey
- Enough water to make 5 gallons (~4 total)

Semi-sweet traditional mead: OG 1.094 – 1.112 / FG 1.010

- 12.5-14# high quality varietal honey
- Enough water to make 5 gallons (~4 total)

Sweet traditional mead: OG 1.120 – 1.135 / FG 1.025

- 15-18# high quality varietal honey
- Enough water to make 5 gallons (~4 total)

Let's make some mead: WATER

What kind of water?

- Any type of good tasting, clean, potable tap water will do
 - No chlorine or chloramines, heavy metals, iron, etc. Buy bottled spring water instead.
- WHAT???? I don't have to boil it for an hour, add a bunch of minerals, adjust it 12 different ways first? Nope...
- What temperature water?
 - You can mix honey with warm tap water to loosen the honey and dissolve faster, or soak jars in hot water first
 - WHAT???? I don't have to boil the honey. NO! (R.I.P this poor old practice)

Let's make some mead: OTHER INGREDIENTS

Fruit:

- Very popular, melomels are very forgiving and can be made relatively quickly
- Best results if you put the fruit(s) into the primary for the full ferment
- Freeze first, thaw, add whole or pureed
- Can use whole, canned, juice, concentrate, mixture of any/all

Cider:

- Use instead of water to mix with honey to make a cyser
- Take into account OG of the raw cider (~1.050-1.060)

Spices:

- Better if added to secondary so you won't lose the aromatics
- Mix with water, make a tincture, experiment

Let's make some mead: YEAST

- In theory, any yeast will work... some are better than others
- Wine yeasts > beer yeasts > bread yeasts
- Current favorite amongst meadmakers:



Lalvin 71B-1122 Narbonne White Wine Yeast

FLAT RATE
ELIGIBLE

SKU# Y101  | [Read 5 Reviews](#) | [Write a Review](#)

A semi-dry white wine yeast that will enhance fruit flavors and add fruity esters. Use for whites, roses, nouveaus and concentrates. Also known as the "Narbonne" strain.

Total: **\$0.99**

Qty:

1

[ADD TO CART](#)

Availability: **IN STOCK**

[Add to My Brew List](#)

Our old friends – yeast truisms:

- Alcohol is the normal byproduct of fermentation
 - Add more honey = more booze
 - Hotness = higher alcohol content
- Fermentation temperature plays a role
 - Most faults are derived here
 - Boozy = alcoholic
 - High temperature
 - Solvent = acetone, lacquer thinner
 - Optimum temp = ~60-75F
 - Lower = more fruit esters

So, what's all this new stuff about yeast?

Staggered nutrients

- It's all about getting the yeast:
 - what they need
 - when they need it
 - in the most useable form
 - at the right time of their fermentation cycle
- YAN: yeast assimilable nitrogen
 - Correct amounts at the right time allow yeast to smoothly move through fermentation cycle with minimal stress, temperature rise, and metabolic transformations = better tasting mead, quicker!
 - Danger... here lies part of the iceberg... 😊

Yeast methods have evolved...

A 100% honey must is extremely challenging environment, almost no yeast nutrients!

Traditional method: pitch yeast, wait. Wait some more. Keep waiting...

- Might have something drinkable in a year or so
- Very, very, long and arduous ferment.
- Left lots of higher alcohols, byproducts
- Had to 'age out' the fermentation flaws

Semi-modern approach (~15 yrs ago):

- Rehydrate yeast strategy, use 'some' nutrients
- Generic named "yeast energizer", "yeast nutrient", specifics and timing varied
- Much better utilization of yeast and ferment, but not quite perfect yet

Yeast methods have evolved...

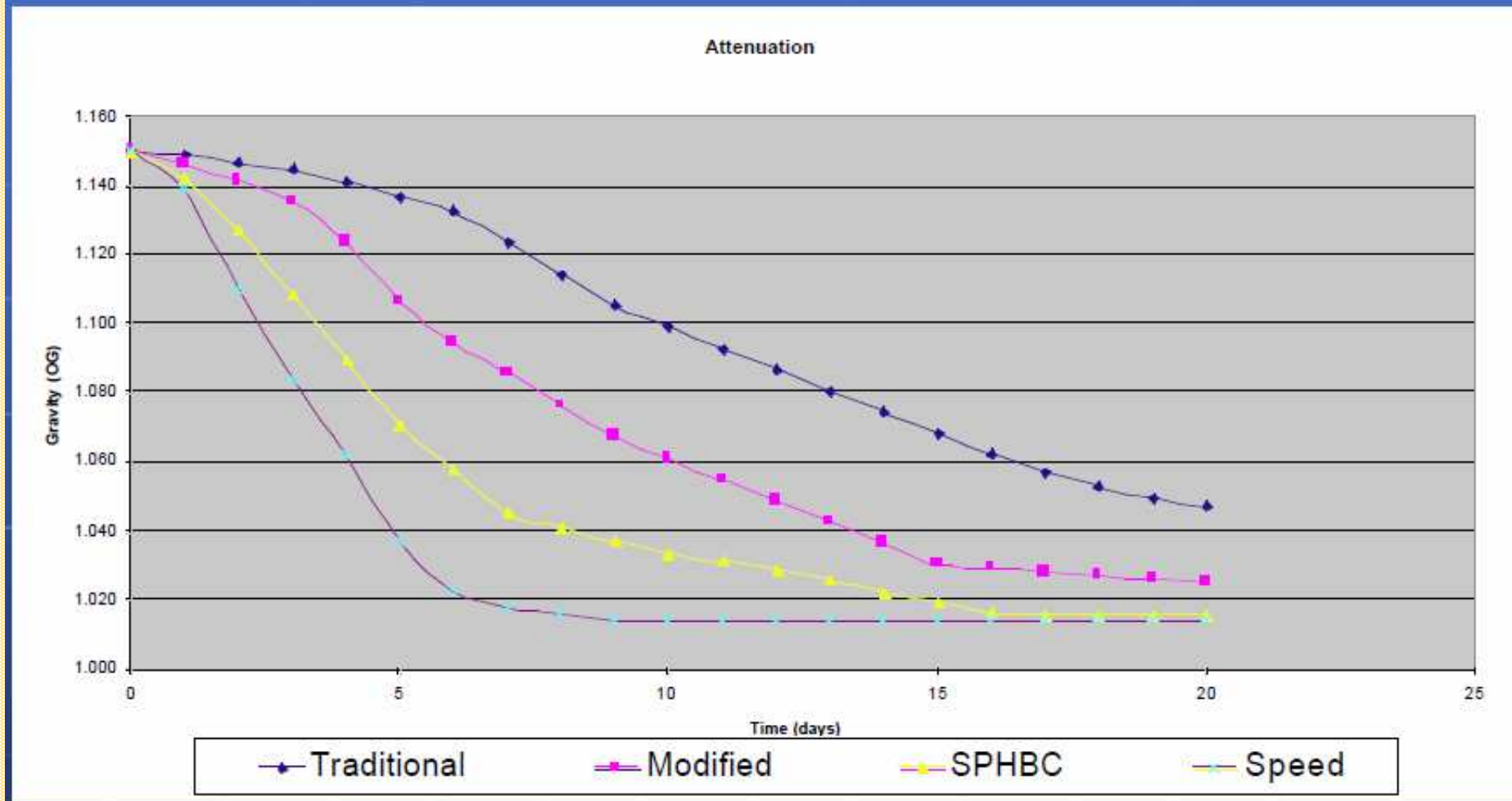
Staggered Nutrient Additions (SNA):

- Rehydrate yeast with **GoFerm**
- **Fermaid-K** and **DAP** (di-ammonium phosphate), added in 2-4 divided doses over first week
- Specific methods, timing varies. Dramatic reduction in time to ferment and drink (2-3 months vs. 1-2 years)

Cutting edge of SNA theory:

- “*Even Speed*” regimen, *Tailored Organic SNA (TOSNA)*, and others
- Replacing Fermaid-K with organic form of nitrogen in **Fermaid-O**, or mixing
- Reduced use of DAP and limited to mid stages only
- Some eliminated DAP entirely

Sweet mead comparison



Credit to Kristen England's NHC Presentation. Shows relative time to reduce gravity (Y axis) over time (X axis)



Remember me?

- This debate of what to use, when, and why is the current ‘hot topic’ amongst amateur and pro mead makers and constantly evolving.
- Lots of organic chemistry and yeast physiology, absolutely fascinating but beyond the scope of this initial talk.
- Perhaps we’ll pick this back up later, after you’ve all made a few batches using the info from tonight...

Tonight's take away: a proven, effective, and very simple method for making great mead **NOW.**

Based off the *TOSNA* method (Sergio Moutela, Melovino Meadery)

*(several discussions with Sergio, Michael Fairbrother, and lots of internet debates)

- Modified yeast rehydration calculations using GoFerm
- Uses only one nutrient (Fermaid-O) in a simplified regimen
- A 'cookie cutter' format for new and experienced mead makers alike

Step 1: Yeast rehydration process

- How much **yeast** to use?
 - 1gm of yeast per gallon for must gravities < 1.100
 - 2gm/gallon if OG > 1.100
- How much **GoFerm** to use?
 - 1.25 x amount of yeast
 - 5gm yeast = 6.25gm, 10gm yeast = 12.5gm
- How much **water** for rehydration?
 - 20x weight of GoFerm. 1gm water = 1ml water
 - 5gm yeast = 6.25gm GoFerm = 125 ml water
 - 10gm yeast = 12.5gm GoFerm = 250 ml water

Step 1: Yeast rehydration process

Process:

1. Measure water in a beaker, measuring cup, whatever works for you
2. Bring to quick boil in microwave
3. As it starts to cool add GoFerm to dissolve, cover
4. @104°F – sprinkle yeast onto water, cover
5. @15 minutes – stir rest into water
6. Temper yeast with small qty of must (~tsp/tbsp) every 2-3 min until within 10 degrees of bulk must
7. Don't let rehydration process take longer than 30 min
8. Pitch yeast & oxygenate well

Tips and tricks:

Dissolve and mix the honey with warm water in a wider mouth bucket, much easier to pour honey into & stir, and easier to pour into your fermenter through a funnel



Buy a wine-whip, a plastic or metal drill attachment for stirring the honey into the water, aerating the must, and degassing later.
JUST DO IT! Trust me...



Step 2: Fermaid-O calculations

TARGET NITROGEN LEVELS		
Brix range of must	S. G.	Target YANC* Level
21	1.087	200 ppm
23	1.096	250 ppm
25	1.106	300 ppm
27	1.115	350 ppm

REFERENCE: Bisson and Butzke
SG Conversions: USDA Tables

*YANC is Yeast Available (assimilable) Nitrogen Content, which combines all available nitrogen from both organic (amino acids) and inorganic (ammonia or urea) sources.

- Nutrient needs are based on starting gravity
- Convert SG to Brix using a chart or the decimal portion of specific gravity $\div 4$ (gets close enough)
- Fermaid-O = 50ppm N/L. Divide your target YANC level by 50 to get #gms of Fermaid-O per gallon needed
- Example:
 - 5 gallon batch of starting gravity 1.106 must, need 300ppm YANC per chart (pick closest)
 - $300 \div 50 = 6\text{gm/gal}$ of Fermaid-O
 - So a 5 gallon batch needs 30 gm total of Fermaid-O

Step 3: Fermentation regimen

- Pitch, aerate, start fermentation at controlled temp (low 60's)
- Mix 1/4th of Fermaid-O powder with small amount of must, add at:
 - 24hrs after start
 - 48 hrs after start
 - 72 hrs after start
 - Day 7 or 1/3rd sugar break, whichever comes first
- De-gas twice a day for first week (swirl carboy, wine whip, etc)
- Keep in primary for 1 month, rack to secondary to clarify
- Should be ready to package and modify in 2-3 months

Step 4: Post Fermentation options

More in the “Mead 201” class later, but here are some things to make your finished mead taste better:

- Age: bulk aging will clarify and meld flavors, it keeps getting better...
- Stabilizing: 0.5-0.75gm/gal potassium sorbate, 0.33gm/gal potassium metabisulfate
- Clarity: time is your best friend, but can use clarifiers or filter it
- Adjust sweetness: blend in a drier or sweeter mead to adjust as needed
 - Try not to use raw honey, can taste the difference
- Acid balance: add small doses of acid (tartaric, citric, malic)
 - Adds a sharpness to the flavor, ‘brightens’ it up
- Add tannins: small doses of wine tannin, adds mouthfeel and complexity
- Oak ageing: cubes, chips, spirals. Adds some tannin, vanilla, complexity
- Flavorings
- Blending
- Carbonation

Step 5: DRINK!

Tonight's samples:

Traditional mead (silver caps): Orange Blossom honey

OG: 1.100 (standard) FG: 1.012 (semi-sweet) ABV: 11.5%

Slight acid & tanning adjustments

Cherry Melomel (black caps / large bottle): Wildflower honey

OG: 1.090 honey (standard) FG: 1.014 (semi-sweet) ABV: 10%+

Tart Montmorency cherries (10#) in primary, touch of concentrate to taste in secondary. 2nd round NHC score 39.5

Other Staggered Nutrient Options:

As many SNA regimens exist as there are mead makers using SNA, two popular methods include:

- Michael Fairbrother & others' popular method:
 - GoFerm rehydration
 - 5gm Fermaid-K & 7.5gm DAP
 - Divide into 4 doses, add on days 0, 2, 4, 6
- Ken Schramm's original method:
 - GoFerm
 - 3gm Fermaid-K + 4gm DAP at onset (add 25% for OG > 1.125)
 - 1gm Fermaid-K + 1gm DAP at 12 hr intervals until 50% sugar break or 5 days