The Bee's Lees

A Collection of Mead Recipes

Joyce Miller, Editor
Version 1.0, June 1994

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Introduction:

Welcome to the first edition of *The Bee's Lees*. Most of the recipes in this collection are taken from issues of the *Mead Lover's Digest*, an electronic mail forum for discussion of mead brewing. Like the other brewing-related electronic forums (*Homebrew Digest*, *Cider Digest*, etc.), archives of the back issues exist on various ftp servers around the country. As the number of back issues of these digests grows, it becomes quite time-consuming for the average reader to go through all of them, looking for recipes. This is probably what prompted the development of *The Cat's Meow* (TCM), the brewing recipe-book culled from the archives of the *Homebrew Digest* (among other sources). TCM is huge, and contains several hundred recipes covering just about every style of beer-type fermentable. It even has some recipes for making mead.

So if TCM is so comprehensive and also contains mead recipes, why is there a need for a separate mead recipe book? The recipes in TCM come mostly from *The Homebrew Digest*, a long-established electronic digest for ..... beer brewers! Most of the readers of the digest brew beer, and some make a mead occasionally. Very few mead recipes get posted there, and for a mead brewer, the "signal-to-noise" ratio, as it's called, is extremely low. Also, a lot of serious mead-makers are not interested in beer at all, and never read *Homebrew Digest*. And last (but not least!), many people, though electronically connected, simply can't afford the time it takes to sift through everything coming down the information highway.

Disclaimer (Please read this!):

Though many recipes have been posted on the *Mead Lover's Digest*, not all of them made it into this book. I only chose ones where the contributor stated QUITE CLEARLY that the resultant concoction was at least "pretty good". I did not select lists of ingredients that someone had just put into their carboy the night before, for instance.

Of course, even using the best recipes and ingredients is no guarantee of success. This recipe book assumes that the reader has a basic understanding of the extract brewing process. To find out about the general procedures involved in making mead, please read The Mead-Lovers README File, the Mead FAQ, which is available at the same place as the Mead Digest archives. To receive the FAQ, send (by e-mail) the following message: GET PUB/MEAD MEAD.FAQ to: LISTSERV@SIERRA.STANFORD.EDU

Many thanks to the people who have shared their recipes. More recipes are always welcome, as well as questions, comments, and (constructive) criticisms. My e-mail address is: jmiller@genome.wi.mit.edu.

-- *Joyce*

Chapter 1: Basic Mead

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Basic Mead

Source: Scott James (scojam@scojam.Auto-trol.COM)
Mead Lover's Digest #18, 16 October 1992

Ingredients:

10 lbs honey (clover honey, processed. From local super market chain)
1 can concentrated white grape juice
     (condensed for reisling wine; from homebrew shop)
5 gal. water
5 grams dry "Pasteur Champagne yeast"

Procedure:

I let it ferment for 3 months in primary (70F), then bottled; priming
with 1 lb honey disolved in 4 cups boiling water.

Comments:

After six months we (college roomies) couldn't stand the wait and broke
into the stuff.  Due to a bitter taste, we mixed most of it into a wine
cooler at a party (no flames, please).  Just recently I tried one of the
two remaining 1 year old bottles.  It was fantastic!  Smooth and
sparkley!  I have one bottle left, I'm saving it to share with that
special some one...

postscript: I tried the last 2 1/2 year old bottle -- Absolutely
pristine and crisp.  Lots of bubbles like champagne (less priming honey
next time) and left a very subtle sweet taste on the lips. (She loved it
too :).


Chapter 1: Basic Mead
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Traditional Mead and Maple Wine

Source: John Gorman (john@rsi.com)
Mead Lover's Digest #19, 17 October 1993

Ingredients:

5-6 qts honey or 7-8 qts maple syrup (bulk grade B dark)
5 tsp yeast nutrient
15 gm white wine yeast

Procedure:

Relax, don't worry, have some mead.

Hydrate the yeast and dissolve the yeast nutrient _separately_ in warm water for 30 minutes. Mix the honey, maple syrup, or both with first hot and then cold tap water in a large open container to almost 5 gallons at your target specific gravity. Splash or spray the water to oxygenate the must so that the yeast will multiply. Pour the must into a glass carboy, then pitch in the hydrated yeast and dissolved yeast nutrient, dregs included.

Use a blow off tube for the first few days and then switch to a water trap. In a month or so, the alcohol will kill the yeast before it runs out of sugar. If not, and the mead turns out too dry, add some more honey. It is ready to drink as soon as fermentation stops.

Maple wine becomes crystal clear with a beautiful sherry color within 60 days. Mead will sometimes clarify in 90 days. If you choose to bottle the mead before it is clear, it will clarify in the bottles, leaving an unsightly but delicious sediment.

Use Bentonite (clay) to quickly clarify a mead anytime after fermentation stops. Boil 12 ounces of water in a saucepan. While simmering, slowly sprinkle and stir in 5 tsp of bentonite. Cover and let stand for 24 hours. Add during racking. It may be necessary to rack and bentonite twice. The result is crystal clear.

Comments:

Traditional Meads and Maple Wines have an alcohol content of 12-15%. Always use yeast nutrient and plenty of yeast for a strong start. The fermentation will take off with a bang and the rapidly rising alcohol content will quickly kill off any wild yeast. There is no need to sulphite, heat, or boil the must. Why ruin good honey? I have never had a bad batch of mead, except when I added acid.

Chapter 2: Methyglyn -- Mead with Spices

Citrus Mead

Source: Michael Tighe (tighe@inmet.camb.inmet.com)
Mead Lover's Digest #211, 21 September 1993

Ingredients:

10 lbs. honey
Citrus peel
sliced ginger
yeast

Procedure:

Make a basic mead with 2 lbs of honey per gallon. Use a clover honey or a light wildflower honey for this recipe. Just before taking the must off the boil, add a small amount of sliced ginger (about the size of one's thumb for a 5-gallon batch) and then add the thinnest peel of orange skin (about 3/4 of the skin of the orange). Be careful not to get the white pith of the skin, it leaves a bitter/soapy after-taste.

Let it cool naturally about 3/4 hour (longer for larger batches) and then remove the ginger and orange peel. Put in a carboy to cool, then add yeast and let it go for three to six weeks (I usually let it go till it starts to clear). Bottle, let sit for another week or two (to charge the bottles) and then chill and serve.

Comments:

I've made this with lemon peel, grapefruit peel as well as orange peel, and all taste great! If you use orange blossom honey, use orange peel rather than some other citrus fruit - it really enhances the flavor! Grapefruit is the strongest flavor, and the most likely to be bitter/harsh, so use less of it than for orange or lemon. Leave some of the ginger and the skin in the must during fermentation for stronger flavor.

Use less ginger and less citrus skin for the first batches, and then increase the amounts till you get the exact flavor you want. (One friend used a pound of ginger per gallon! And he LIKED IT!)

The slow-cool method (rather than using a chiller) is supposed to be part of what makes the flavor great.

I prefer mead yeasts if possible, but champagne or general purpose wine yeast works fine.

This should create a slightly sweet mead with an alcohol content of three or four percent.

Chapter 2: Methyglyn -- Mead with Spices

Earl Grey Metheglin

Source: J. Hunter Heinlen (STBLEZA@grove.iup.edu)
Based on a wine recipe by Tom Gressman
Mead Lovers Digest #171, 10 July 1993

Ingredients:

4 gal. grape juice
8-10 lbs. honey
4 largish oranges, sliced into eigths or sixteenths
other citrus fruits usable to taste
8-12 packets of Earl Gray tea
Your Favorite Wine or Mead Yeast (I use Montrachet)

Procedure:

Simmer juice and honey together until honey is dissolved (skimming dross, etc.) If you normally boil, then, by all means, boil. When you turn the heat down, add the oranges and tea in a clean hop bag or something similar (I used a clean cotton sock). Let them steep in warm must for five minutes. Transfer into carboy, let cool to a comfortably warm temp, add yeast, and lock the carboy. Let ferment as a normal wine at a cool temp.

Comments:

Needs to age at least 6 months. Should not need additional sugars or yeast nutrient. Before cutting fruit, dip in sulfite solution or similar to sanitize, and then rinse. Can ferment out fast (11-14 days).

I've tried rasberries with excellent results (though it was a bit beerish until about six months), and cherries, apples, or grapefruit with mixed results.

Chapter 2: Methyglyn -- Mead with Spices

Lavender Mead

Source: Leigh Ann Hussey (leighann@sybase.com)
Mead Lover's Digest #5, 1 October 1992

Ingredients (1 gallon):

4lb honey
1/4t citric acid
1 pint lavender flowers
1/2t tannin powder
1/2t champagne yeast
1t yeast nutrient

Procedure:

Boil together honey and 1/2gal water for 5 min. Put flowers with citric acid and tannin in a gallon jug and pour the hot liquid over. Let cool in a sink of cold water to room temperature, then add yeast and nutrient and further water to make a gallon plus a pint. Add the airlock. Let ferment 1 week, then strain out flowers. Set the lock on again and ferment until all quiet. Bottle and age.

Second Ferment: 112 days

Based on H.E. Bravery's Rose Mead, from HOME BREWING WITHOUT FAILURES.

Chapter 2: Methyglyn -- Mead with Spices

Nutmeg Metheglin

Source: Ken Schramm, communicated by
Daniel F. McConnell (Daniel_F_McConnell@mailgw.surg.med.umich.edu)

Ingredients:

15 lb honey
28 gr whole nutmegs, freshly ground and infused in the boil
2, 3-inch cinnamon sticks
2T ascorbic acid
2T citric acid
1/2T yeast nutrient
1/2t Irish moss
water to make 5 gallons
10 gr Epernay II yeast
5 gr Pasteur Champagne yeast

Procedure:

Boil 35 minutes, chill to 80F, then pitch yeast. When fermentation is complete, prime with 3/4 c dextrose.

Comments:

Use FRESHLY ground whole nutmeg.

This requires at least 2 years in the bottle to be at its best. After 2 years the mead is vinous and semi-dry, pale yelow in color with a good sweet/acid balance. Cinnamon appears first in the nose, followed by the nutmeg. There is an almost citrus aftertaste. Spices are balanced and subtle rather then assertive.
Best served at 45-50F.

Specifics:

OG 1.104
FG 1.000

Chapter 2: Methyglyn -- Mead with Spices

Vanilla (Float like a butterfly, Sting like a
bee)

Source: Microburst Brewery (Forrest Cook (cook@stout.atd.ucar.edu)) and
Jon Corbet)
Mead Lover's Digest #123, 1 May 1993

Ingredients (7 Gallons):

9 Lbs of mesquite honey from Tempe, AZ
2 Tbsp gypsum to harden up the water a bit
1 4 ounce bottle of Madagascar vanilla extract

Procedure:

Vanilla extract added after the must cooled. I think the yeast was a Canadian champagne yeast with a french name.

The unfermented beverage tasted great, it's been bubbling away for over a month. I don't know how many vanilla beans are in one bottle, but I've heard that they are rather potent.

Comments:

The inspiration for this recipe came from a mead that was poured at the "Beer and Steer", a large outdoor homebrewers party held in Colorado occasionally.

As this mead has aged, the vanilla flavor has become more pronounced. For the next batch, we will probably increase the vanilla extract to 6 oz. At 9 months the flavor is still improving, I project that it will be incredible at 18 months if there is any left :-)

Chapter 3: Melomel -- Mead with Fruit

Apricot Melomel

Source: Mike Lindner (mpl@cmprime.att.com)
Mead Lover's Digest #190, 11 August 1993

Ingredients:

9 lbs. wildflower honey
4 oz. grated ginger root
1 1/2 t. gypsum
1 t. citric acid
1 T. yeast nutrient
1/2 t. irish moss
3 lbs. apricots
2 pkgs. Red Star Pasteur champagne yeast
5+ gal. Poland Springs bottled water (my tap water tastes AWFUL)

Procedure:

I basically used Papazian's "Barkshack Ginger Mead" recipe, with some variations. Heated 2.5 gal. of water, added all ingredients up to the fruit. Brought slowly to 210 degrees F., skimming off the foam (and much of the ginger). Washed, pitted, and "juiced" the apricots to produce 1 1/2 quarts of delicious juice - added to hot must and turned off the heat for about 1/2 hour. Temperature was 190 degrees after

adding fruit - dropped to about 180 degrees. Ran the must through my (new, counterflow) wort chiller - in 15 minutes brought the temperature down to 80 degrees - and into 7 gallon glass carboy. Pitched yeast and fit the carboy with a fermentation lock.

Comments:

The must looks like raw apple cider at this point - cloudy and orangy/brown. I drank the must used for the gravity sample, and had a hard time stopping myself from sampling more - it was sweet, with a strong tartness of ripe apricots and undercurrents of ginger complimenting it nicely - tastes much better than beer wort! I was worried about too little fruit or too much ginger, but it seems very well balanced at this point - I hope the finished product keeps the same blend of tastes. Next morning: vigorous fermentation (3-5 bubbles/second) and about 1/2 inch of "kreusen" on the must. The smell is heavenly - like concentrated apricots, a little bit yeasty. I plan on racking to a secondary after a week, at which time I'll take another sample for gravity and tasting.

Since then I have racked it off the fruit pulp and junk (after a week) and, bottled (I debated letting it age longer in the carboy, but since there was considerable head room, I didn't want problems with oxidation, so I figured I'd let it age in the bottle). I primed with 3/4 cup corn sugar dissolved in 2 cups of boiling water (let it cool before adding to the mead, or course), and filled and capped 50 12 oz. beer bottles. The mead at this point smells and tastes rather alcoholic, but if you can get past that, there is a wonderful bouquet of apricot and ginger. It's pretty undrinkable right now, but we'll see how it is in six months. I'm not worried - I'm drinking homebrew.

As of 1/1/94, it smells heavenly, but still tastes a bit mouthwashy. I'm still waiting for it to age.

Specifics:

O.G. 1.052
F.G. unknown (last estimated at 1.000, a couple of days before bottling. Since my hydrometer only measures down to 1.004, I didn't bother with any later readings.)

Chapter 3: Melomel -- Mead with Fruit

Blackberry Mead

Source: Kirk Williams (williams@tsasa.lanl.gov)
Mead Lover's Digest #289, 10 April 1994

Ingredients (1 gallon):

1.5 lbs black honey
1 lb clover honey
1 lb blackberries (frozen)
pectic enzyme
ale yeast
bentonite

Procedure:

I used a black honey, a honey which bees cultivated from I believe thistle (which grows in abundance in the fall monsoons here in Los Alamos). Boiled for 20 minutes, skimming the surface. Added 1 lb blackberries (used frozen), pectic enzyme, let ferment 2 weeks, strained, let ferment some more, maybe for 2 months or so (high fermenting temps, roughly 70+), added 1 lb of clover honey and fermented to completion.

Comments:

I carbonated this, and it has a fantastic effect. The final color is a reddish-rose tint, clear as a bell. Oh, 2 wks before bottling, I used bentonite to help settle out the little bit of particulate left, and the yeast.

It's fantastic now, I can't wait to pour a glass of this after an ultimate practice this summer, and watch a sunset behind the Jemez... :)

Chapter 3: Melomel -- Mead with Fruit

Blackberry Mead

Source: Chuck Stringer (cstringe@nickel.ucs.indiana.edu)
Mead Lover's Digest #289, 10 April 1994

Ingredients (2 gallons):

1 gallon ripe blackberries
4 1/2 lbs clover honey from Kroger (grocery)
acid blend and yeast nutrient according to package directions
Montrache wine yeast

Procedure:

We picked about a gallon of good ripe berries, rinsed and froze them. Since the patch wasn't huge, we picked some every few days freezing a pint or two at a time. During this time I started a simple mead with 2 1/2lbs of clover honey from the grocery and enough water to make a gallon. I used Montrache wine yeast and added yeast nutrient and acid blend according to the directions on the package. Fermentation stopped after three weeks. We defrosted the berries in a small wastebasket I use for a primary, then mashed them with a sterilized wine bottle. The mead was then added. Two weeks later we racked the liquid off of the fruit and into a carboy. Another 2 lbs of honey and enough water to fill it up to 2 gallons. It was bottled a month later and now at eight months, it's perfect. The only thing I would do differently is leave out most of the acid blend.

Comments:

Up through six months of aging, it wasn't very good, but at eight it was wonderful. It turned out like a really good red wine with a blackberry nose and aftertaste.

Chapter 3: Melomel -- Mead with Fruit

Blueberry-Jasmine Mead

Source: Alan Derr (aderr@BBN.COM)
Mead Lover's Digest #122, 1 May 1993

Ingredients:

10 lb clover honey (basic, grocery store variety)
2-12oz bags of frozen Maine wild blueberries
1/4 c jasmine tea (dry)
3 tsp. pectic enzyme
3 tsp. yeast nutrient
1 pkg. Red Star Champagne yeast

Procedure:

The honey, blueberries, pectic enzyme, and yeast nutrient were added to about 2 gal. of water and raised and held at 170F for 25 minutes. I squished the blueberries and strained them about halfway through the heating process. This mixture was then poured into a carboy with water to make a bit less than 5 gal. I then boiled about 2 cups of water, steeped the tea for several minutes and strained it into the carboy. When cool, I pitched the dry yeast (I know, I should know better than to use dry yeast...).

OK. Time passes. Fermentation happens. It stops. I taste the result. The jasmine was a bit too heavy, but I figure it will probably mellow with age. The blueberry smell, flavor, and color was kind of underwhelming. The main problem was, the resulting mead was thin-bodied and dry as a bone. Now I want a fairly dry mead, but this WAY too much so.

So next, I heated:

2 lb clover honey
12oz of frozen wild blueberries
1 tsp. yeast nutrient
1 tsp. pectic enzyme

in a quart or so of water, squished and strained, and added this mixture to the carboy.

Fermentation started again (slowly) and has continued for the past couple of months. It is now crystal clear, has a beautiful purple color, nice blueberry and jasmine aromas, and a very nice mouth feel (not to mention a fairly high alcohol content!).

1st O.G.: 1.067
1st F.G.: 0.990 (before 2nd addition of honey)
2nd O.G.: 1.004 (after 2nd addition of honey)
2nd F.G.: 0.996

Chapter 3: Melomel -- Mead with Fruit

Brew 4: Mead

Source: John E. Abraham (jabraham@acs6.acs.ucalgary.ca)
Mead Lover's Digest #143, 1 June 1993

Ingredients:

7 cloves (cracked)
2 sticks cinnamon (broken)
12 lbs clover honey
2 pckgs champagne yeast (saccharomyces beyanus)
1 L Just Pikt(tm) frozen florida grapefruit juice (NOT from concentrate)
2 tsp Diammonium phosphate (yeast nutrient)

Procedure:

Spices simmered for 20 min, honey and Nutrient added. Much later, full boil for 15 minutes (partial boil for about 40 min), some scum and spices skimmed off. Bunch of cups removed to brew vessel to make room for grapefruit juice. Grapefruit juice added, held @ about 90degC for 15 min to pasteurise grapefruit juice. Thrown into brew vessel, water added to 26L (about 5 gallons). At 75degF, SG 1.073, pitched yeast

Comments:

93 04 19 SG 1.054 man, this stuff is churning
93 04 27 Racked, SG 1.007, cloudy peachy colour, kind of like honey&/or grapefruit. Lots of CO2. Champagne taste.
93 05 30 SG 0.996 clear, delicious smelling, a little strong tasting, needs to smooth out a bit in the bottle.

The mead changed significantly (for the better) between 6 months and 8 months after it was first started.

The grapefruit is hardly noticeable at all, but the cinnamon and cloves can be tasted.

The fermentation speed was very high - the grapefruit probably provided a good pH and additional nutrients.

Chapter 3: Melomel -- Mead with Fruit

Cran of Creation

Source: Jay Hersh (hersh@x.org)
Mead Lover's Digest #244, 12 December 1993

Ingredients (3 gallons):

6 lbs Raw Clover Honey (from Haber Apiary in Troy, NY)
1 tsp water crystals
1 tsp yeast nutrient
3/4 oz Cascade leaf hops
Irish Moss
24 oz crushed cranberries (crushed in blender)

1 pkg red Star Champagne Yeast

Procedure:

This was one of my earlier mead concoctions. I used to boil down the water
crystals, yeast nutrient, hops and irish moss first, to make a sort of perservative like base liquid, then add the honey to this and steep at 180F for
45 minutes (along with the fruit). This would get added to enough cold water to
bring the mixture to 95F or so and I'd add the yeast and let it ferment.

Comments:

This concoction was OK, but strongly on the dry side, and the cranberries
make it pretty tart.

Specifics:

OG 1.068 FG 0.997

Chapter 3: Melomel -- Mead with Fruit

Cranberry Mead

Source: John (The Coyote) Wyllie (SLK6P@cc.usu.edu)
Mead Lover's Digest #243, 9 December 1993

Ingredients (2 gallons):

1 gal Oceanspray cranberry juice. (good jug too!)
5 lb vernal honey (clover-alphalpha...)
Palmful raisins, chopped
1 tsp yeast nutrient
1/2 tsp acid blend
Champagne yeas.

Procedure:

Heat the honey with some water (1:1 is fine) Pasteurize or boil. I campden treated the juice. Shouldn't really need it though. Add the rest of the goods, divide the juice between two gallon jugs. Divide honey mixture. Pitch yeast, bring up to a full gallon. (10/17/92)

I fermented one in a closet upstairs (60's) and one in the basement at lower 50's. They both fermented forever. In January I transfered to a secondary- 1.010. Added 2 cups/gallon dissolved corn sugar to top it up. The upstairs one was bottled 1/31. It was and is still cloudy. The downstairs one was bottled 7/5. It was clearer, sweet and strong. It did finally clear. and was significantly better than the first.

Comments:

Some of this broth lasted a full year. The last bottle disappeared with

my folks at x-mas, celebrating their survival of the Pasadena fires. It is very sweet, and tasty. Nicely balanced. It has become lightly carbonated- even though it's corked. Nice touch though. Light red/orange color, clear, fruity nose. It has a full body, almost syrupy, and quite strong!

I have a bunch of cranberries in the freezer, and have considered (planned)
on doing a batch again, with fresh cranberries. Chop up 24 oz's frozen cranberries (cuisinart), and mix in with the honey mixture. Pasteurize. Substitute for the cranberry juice. Perhaps up the honey by a pound or 2.

Chapter 3: Melomel -- Mead with Fruit

Crazy-Good Mead

Source: Dave Polaschek (DaveP@county.lmt.mn.org)
Mead Lover's Digest #230, 26 October 1993

Ingredients:

10 lbs light clover honey
2 lbs blueberries (I used frozen)
1 gallon apple cider (pasteurized)
1/2 oz Saaz hops
yeast nutrient to instructions on package
1 packs champagne yeast (I used WYeast on this one)

Procedure:

Bring 2.5-3 gallons of water to a boil. Add honey, bring to a boil again. Toss in the yeast nutrient and hops and boil for about a half-hour, skimming off any scum that forms on the surface during the boil. Put berries into a hop-boiling bag. Lower heat to a very low simmer, and toss in the berries, mashing the bag around to break them up some. Continue to steep the fruit for about 10-15 minutes while you get the fermenter ready. Put the gallon of apple cider into the fermenter when the boil is about done, and then add the hot wort. Add water to bring the total up to 5 gallons. Let cool, and pitch yeast.

When the gravity has dropped below 0.980, bottle and wait. 3 months wait makes for eminently drinkable stuff, but the longer you can wait, the better. Final color is a light delicate pink, not unlike some white zins, so you may want to store bottles on their head and then freeze the neck to get the sediment out of the bottles, but I've just been very careful decanting into glasses with pretty good results.

Specifics:

SG: 1.075
FG: 0.965!
Alcohol content: 23 proof

Comments:

This is something I whipped up last winter, and I sure wish more of it had survived until now (I'm down to my last 3 bottles, and it just keeps getting better).

Chapter 3: Melomel -- Mead with Fruit

Grapefruit Melomel

Source: John (The Coyote) Wyllie (SLK6P@cc.usu.edu)
Mead Lover's Digest #214, 24 September 1993

Ingredients:

7 lb Clover Honey
6 (med) grapefruit
1 Tbsp fresh grated ginger
Dash of acid blend. (Worth doing an acid test. Didn't have a kit then)
1/2 oz cascade hops used as finishing hops in a light ale
Pectic Enzyme (tbsp) and sparkalloid added to secondary
Champagne yeast

Procedure:

Mix honey into a couple gallons heated water. Bring to a boil. Skim scum. Grate peel from grapefruits and juice them. Add peel, hops and acid blend to boil. Add juice when heat goes off. Cool by adding cold water. Pitch yeast. Ferment for a month. Rack to secondary. Rack again, and bottle with 3/4 cup corn sugar.

Comments:

It was a Grapefruit Melomel Mead brewed in Feb, '92. I didn't take gravity readings, but it was a pretty light mead. It was bottled maybe 2 or 3 months later. After a month or two in the bottle it had carbonated, but smelled like vomit. Had a sour citrusy aftertaste. Not pleasant.

I put it away for a LONG time, and a year later it was clear, sparkling, and smelled nicely citrus. The puky smell had cleared. It did taste like grapefruit, but more gently so. It may have been a bit too acid. A nice champagne-like presentation. You could even make raisin submarines in it. (if you've never tried this, drop a wrinkly raisin in a glass of clear sparkly mead, and be amazed!!! Fun for the whole family! Up and Down!) The take home lesson here was- Age is a GOOD THING. Be patient! Some meads are very harsh young, but can age beautifully, and become quite enjoyable.

Chapter 3: Melomel -- Mead with Fruit

Jamaica Blue Mead

Source: Guy McConnell (guym@exabyte.com)

Ingredients:

6 lb. Cover Honey
1 lb. Orange Blossom Honey
1.5 lb. Corn Sugar
2 oz. Fresh, minced Ginger Root
3 tsp. Ground Cinnamon
3 tsp. Yeast Extract
1 gal. Fresh Blueberries
2 ea. Lemons, halved
WYeast #1214 Belgian Ale Yeast
0.5 cup Orange Blossom Honey (bottling)

Procedure:

Put honey, corn sugar, and yeast extract in brewpot with water. Simmer for 10 minutes, skimming foam with kitchen strainer. Add ginger root and simmer for 10 more minutes without skimming. Remove from heat, squeeze in lemons, and throw into brewpot. Cover and let stand for 15 minutes. Strain out lemon halves and ginger, add blueberries, chill, pour mixture (blueberries and all) into primary fermenter, and pitch yeast. After 7 days, rack off of fruit into secondary and age for 1 - 2 months. When fermentation is complete, prepare a "tea" by simmering cinnamon and honey in water for 15 minutes in a covered pot. Cool, add to bottling bucket, and quietly siphon in must. Bottle and age for a couple of months or so.

Comments:

This makes a nice, light, sparkling beverage that is a brilliantly clear rose-purple color. The flavor is of blueberries kissed with cinnamon. A wonderful change of pace for a summer drink at about 5% alcohol by weight.

Specifics:
O.G. 1.050
F.G. 1.005

Chapter 3: Melomel -- Mead with Fruit

MeadBerry Mead

Source: RON.admin@admin.creol.ucf.edu (RON)
From: Mead Lover's Digest #269 22 February 1994

Ingredients:

1/2 gal Motts apple juice
1/2 gal Fresh Apple Cider
10 lbs Clover Honey
5 tsp yeast nutrient
3 tsp acid blend
1 - 12 oz pkg frozen Blueberries
1 - 12 oz pkg frozen Raspberries
2- 12 oz pkg frozen Blackberries
1 lb fresh Strawberries
1 lb+ fresh Cherries - pitted
juice of 1 orange

1/4 orange peel (boil)
1/4 orange peel (fin)

Procedure:

Macerated fruit and cider in blender, boiled everything for 45 min, added yeast nutrient and acid blend last 5 min. Ice bath for around 30 min. Poured the wort (must?) through cheese cloth and ran boiling water through it and squeezed the remainder out. Used a M&F Ale yeast starter. 4 weeks racked - tasted like cough syrup, acidic. 8 weeks bottled with 1 cup same Clover Honey above to 4.1 gal of secondary - had a dry fruity port taste. 6 months later - low carbonation, fruity, very tasty. 1 year - carbonation varies from bottle to bottle, very tasty has a Lindermans Framboise Lambic (sp?) taste and carbonation. 2 years & 2months later had last one. Carbonation was little low for my liking but a very good after dinner mead with desert. A must to repeat, no pun intended.

Specifics:

OG: 1.070
FG: 1.000

Chapter 3: Melomel -- Mead with Fruit

Mulberry Mead

Source: Thomas Manteufel (thomas@ct.med.ge.com)
Mead Lover's Digest #148, 6 June 1993

Ingredients (1 gallon):

2# wildflower honey
12 ozs. frozen mulberries
water up to 1 gallon
Red Star Montrachet yeast

Procedure:

Pasturized and skimmed honey at 170F for 1/2 hour. Added frozen mulberries at end of heating. Pitched with rehydrated Red Star Montrachet yeast. Used NO nutriment.

Racked to secondary after 9 days, as berries were beginning to bleach. Bottled when 2 months old.

Comments:

This mead recently (March 20) won a first in the mead/cider category of the Brewer's Of South Suburbia (south suburban Chicago) regional homebrew competition. It's a simple recipe that lends itself well to many different melomels. This was a medium mead. If I want a sweeter taste, I use 3 pounds of honey, and a pound of fruit, varying according to the fruit's strength.

Time in bottle when judged: 6 months

Judges comments:
nice honey aroma, with a little solventy (higher alcohol) finish
[may be due to not having aged enough]
beautiful color [a red, deeper than a ros'e] nice honey flavor. metallic
finish [could be due to a rust spot in the
brew kettle or our famous Waukesha mineral water] score 37/50
nice fruit nose
nice appearance
nice honey and fruit balance
score 40/50

Specifics:

IG - 1.082
FG - 1.002

Chapter 3: Melomel -- Mead with Fruit

Mulberry Mead (Morat)

Source: John (The Coyote) Wyllie (SLK6P@cc.usu.edu)

Ingredients:

6 lb fresh picked mulberries
5 lb Snowberry honey
3 lb corn sugar
2 cups Raisins- chopped
2 tsp Na-bisulfate
Pris-de-Mouse yeast

Procedure:

Pick through berries, remove leaves, grubs...etc. Process berries. Add HOT water to honey to dissolve. Add sugar and processed raisins. Mix processed berries and sugar mix. Add Na-bisulfate (campden), mix well and leave overnight. Next day, add water to bring up to 5 gallons. Pitch yeast (7/1/93). Racked a couple of times. Bottled on 9/2/93 with 3/4 cup corn and demererra sugar (mixed).

Comments:

My girlfriend has a tree outside her house. Birds eat the fallen berries, become intoxicated and get hit in the road. So I thought I should remove some of the berries, save a couple birds. They were deep purple to red. The mead tasted good at bottling. It slowly became sparkling, and now is like a light sparkling burgundy. Quite fruity, but has a wine-like quality. It is fairly dry, but does have a berry-sweetness I find very enjoyable. It cleared beautifully, and has a deep red color, but easy to see through. The thing that surprised me was how good it was young. I rarely have meads taste GOOD young (see grapefruit recipe!), but this one did!

Specifics:

OG: 1.070
FG: 0.990

Chapter 3: Melomel -- Mead with Fruit

Peach Melomel

Source: John (The Coyote) Wyllie (SLK6P@cc.usu.edu)
Mead Lover's Digest #214, 24 September 1993

Ingredients:

3/4 bushel of fresh peaches
6 lb. Clover honey
6 lb. corn sugar
2-1/2 tsp. Pectic enzyme
2 0z. Acid blend
1/2 tsp. Tannin
1 oz. yeast nutrient
Epernay yeast

Procedure:

Wash and pit peaches. Remove "bad" fruit. Chop into pieces and freeze overnight packed in zip lock bags. Thaw. Pasteurize the honey/sugar in a few gallons of water. Add pectic enzyme, acid blend, tannin, nutrient. Skim any scum. Turn off heat, and add peaches. Cool and pour into a bucket primary (ideally w/ a spigot). Pitch yeast starter. Ferment. Rack off sediment after primary subsides. Smelled very sulfury. Addition of campden will help stabilize the color of the peaches. Add a day before pitching yeast. I lost a fair bit of volume through rackings, but it ended up very clear, and "peachy" in color.

Comments:

I made one of these last year, and it was VERY yummy after 6 months. There are now 2 bottles left and it IS a year old (peach wine is better not aged too long, I've heard). I started a new one, but juiced the peaches. This left me with 2.5 gal nicely fermented peach wine, and 2.5 gal of alcoholic pulp! So I recommend chopping and freezing. Should be adequate. The first one became very dry, and benefited from sweetening at bottling. No carbonation resulted. I'm sure the yeast had pooped out by then. It was pretty strong! Nice peach color, and aroma. Good dessert wine.

Specifics:

OG: 1.112
FG: 0.990

Chapter 3: Melomel -- Mead with Fruit

Peach Mead

Source: Gordon Olson (glo@lanl.gov)

Mead Lover's Digest #195, 16 August 1993

Ingredients:

12 pounds of blended clover honey
1/2 tsp. Irish moss
11 pounds of pitted, pureed, peaches
2 pkgs. Red Star Pris de Mousse yeast

Procedure:

Boil honey and irish moss with 2.5 gallons of water for 15 minutes. Turn off the heat, and add the peaches. Soak at 160 F for 15 minutes to pasteurize. Then I cooled the mead with a counterflow wort chiller. (I am switchingto the immersion-type of wort chiller.) Because of the high gravity and the fact that tiny pieces of peach were sucked into the wort chiller, this took a long time. After the initial run off, I stirred hot water into the peach mush in my kettle and drained that water through the wort chiller.

2 Redstar Prise de Mousse yeast packages were rehydrated in hot water and added to the 69 F mead. With all the nutrients from the peaches, it fermented fast, I actually had some peach pieces blown out through the blow-off tube attached to the 5 gallon carboy.

After two weeks I added 2 tsp. of pectic enzymes. Unfortunately, a thick layer of sediment formed and a thick layer of floating peach pieces formed. Only a band in the middle was relatively clear. Agitating, by spinning the carboy didn't seem to help, so, after three weeks, I siphoned out this middle 3 gallons into a clean carboy (SG=0.994). In retrospect, what I should have done was finish fermenting this mead in a 3 gallon carboy. Since I didn't have one at the time, I boiled 3 pounds of honey in 1.5 gallons of water and topped up the 5 gallon carboy.

Two months after starting, I racked the mead into a clean carboy (SG=0.994, again). I added 5 Stabilizing Tablets to kill off the yeast and two pounds of boiled honey to sweeten the mead.

Three months after starting, I added 2 tablespoons of polyclar in 1/2 cup of hot water. This clarified the mead and I bottled three days later. It was bottled straight from the carboy with nothing added.

Comments:

At the AHA's national competition (1993) in Portland, OR, my peach mead was given first place in the non-traditional mead category. The first place in the traditional category was from Canada and used a very tasty and aromatic wild flower honey. The brewer of the traditional mead was given the Mead Maker of the Year award.

Things I would do differently:
1) Next time I will pasteurize rather than boil the honey. (Actually, this was the last time I boiled honey for a mead.) 2) Use local raw, unfilterred honey rather than store bought blended clover honey. (to enhance honey aromas and flavors) 3) Freeze the pureed peaches first to break up the cells and improve utilitation of the peach sugars and flavors. 4) Try harder to keep the peach pieces out of the primary. 5)

Use a less attenuative yeast. Prise de Mousse has consistently given me dry meads. Lalvin's K1V-1116 wine yeast gives me meads with SG > 1.004 that seem less alcholic. So I am switching to it as my primary mead yeast.

The main comments/criticisms that I received from the judges were that the mead was alcoholic (higher alcohols present) and that the peach and honey aromas and flavors were delicate or understated. But it was very clean, no off flavors. These comments guided, but did not completely determine my list of changes for next time.

I hope you have enjoyed the saga of this mead. A less detailed summary should appear in the next Zymurgy.

Chapter 3: Melomel -- Mead with Fruit

Pear/ginger melomel/metheglin

Source: Eric Urquhart (eurquhar@sfu.ca)
Mead Lover's Digest #11, 8 October 1992

Ingredients (2 gallons):

5 lbs pears, seeds and flower end removed
5 lbs raw new honey (wildflower/raspberry/blackberrry blend)
3 oz. finely ground fresh young ginger (more lemony than mature ginger)
1 primed package Wyeast belgian #1214
1/2 tsp. pure ascorbic acid (to keep the pears from going brown and because it tastes like lemons)
1/2 tsp. Difco yeast nitrogen base (yeast nutrient)
16 cups water

Procedure:

Everything but the yeast nitrogen base was put into a big pot and brought up slowly to 200 F and kept there for 20 minutes to pasteurize and extract the ginger flavour and allowed to cool down naturally (about 2 - 3 hours). Next time, I'll extract the same ginger pulp repeatedly with boiling water a few times to get more ginger flavour out and add as part of the water used (the ginger flavour is only sparingly soluble in water). YIELD: about 2 gallons in the primary.

...p.s. It was bubbling like crazy 24 hours later and the banana was evident when I opened the yeast envelope. This weekend ginger beer!

Comments:

It turned out reasonably well. Slight bitter taste but nice ginger/fruit flavour when finished. It was abused so if racked at the proper times etc. it likely would have been better. The Belgian yeast fermented out well with a high % alcohol and likely would taste better if more residual sugar remained. This formula yields a very good young mead as when 3 months old (after the second racking). It was very tasty but quite sweet. Off-flavours seem to be reduced and fruit flavours maintained when using this yeast if the fermented product is stored at a cool (below 60 F) temperature once the initial rapid fermentation is

complete.

Specifics:
OG: 1.100
FG: ~1.020

Chapter 3: Melomel -- Mead with Fruit

Plum Melomel

Source: Roger Locniskar (loc@bostech.com)
Mead Lover's Digest #11, 8 October 1992

Ingredients:

7.5lbs Citrus Honey (Orange Blossom is the best or whatever)
25-30lbs Plums (halved and pitted is best, but at least halved)
3-4 tsp. Yeast Nutrient
1 pkg Pectic Enzyme
1 pkg Champagne Yeast
Acid Blend (you'll need an Acid Testing Kit too)

Procedure:

The Day Before:
Start the yeast the day before you start the mead using a standard yeast starter of orange juice, water, sugar and yeast nutrient.

The Day of:
Make sure the plums are at room temp. Do not heat them to do this, just let them come up to room temp naturally. Dissolve the honey in 2 gallons of water, do not let it boil, just get the water hot enough to dissolve the honey. Combine the plums, honey water, yeast nutrient, pectic enzyme and 2 more gallons of water in a large open primary fermenter. Mix well. The original gravity reading should be between 1.080 and 1.090. Add the yeast, stir it up, and cover lightly. Stir the fruit down twice a day.

Some Days Later:
Check the gravity after about 5 days. When the gravity reaches 1.020, rack and press the must into a sulfited glass secondary fermenter and add 1/2 camden tablet per gallon of must to prevent oxidation. Fit a fermentation lock on the bottle and let it rip.

When the gravity reaches 1.000 rack again into a clean sulfited carboy, again adding 1/2 camden tablet per gallon for the same reason.

When the fermentation stops, let it sit for a few days to let the lees settle out. Rack into a clean sulfited carboy adding 1 camden tablet per gallon of product and fine with a Bentonite mixture. Let this sit for 10 days. Rack the final product (leaving the lees behind as usual) into a clean sulfited carboy and let bulk age for three months. Test the acid level at this point using an acid testing kit and adjust the acid to a level of .55. The kit will tell you given what your acid level is at how much to add. If you have a spare frig you can put the carboy in, the last month of the bulk age put the mead in the frig to

chill proof it.

Bottling:
Filter the mead with fine filters and bottle. Let bottle age for at least 6 months (1 year is better). Enjoy.

Comments:
If you want the end product to be sweeter you can add more honey. But do not get the original gravity above 1.100 or you will have problems with stuck fermentation or sluggish fermentation. You can add as much as 50lbs of plums if you want this to be _really_ plummy. The higher the gravity the longer the product will need to bottle age.

If you can freeze the plums for a couple of weeks before you use them you'll get a better juice yield because freezing breaks down the cell walls.

Chapter 3: Melomel -- Mead with Fruit

Raspberry Melomel

Source: Mark A Fryling (fryling@magnus.acs.ohio-state.edu)
Mead Lovers Digest #171, 10 July 1993

Ingredients:

10-12 lbs of light honey
4-5 gal good brewing water
15 lbs of Black Rasberries
1.25tsp yeast nutrient
2 pkgs (10g) Lalvin #71B-1122 S. Cerevisiae Narbonne

Procedure:

Before brewing, pick, wash and freeze the fruit you are going to use. The freezing makes sugars more accessible. I think 10-15 lbs is a good amount for 5 gal of mead. Take the fruit out of the freezer the morning before you brew to thaw. I find it particularly convenient to put the fruit into large ziploc freezer bags about 1/3 to 1/2 full. That way you can crush the fruit in the bags after it's thawed and avoid a mess.

Dissolve honey into 2-3 gallons of water and bring to a boil. Boil 20 min or so. Cool to appx. 70 F and pour into primary fermenter. Dilute to 5gal and add 1.25 tsp yeast energizer (pectic enzyme and acid blend are optional). Pitch a good wine yeast. I have had very good luck with Lalvin 71B-1122 S. cerevisiae. It's an epernay type yeast that ferments quickly and leaves just a bit of residual sweetness.

When the fermentation of the honey must is nearly complete, rack it onto the thawed and crushed berries in a second bucket type fermenter. Allow the fermentation to continue to completion and rack the melomel off the fruit pulp and yeast into a glass carboy (tertiary?).

When the melomel is clear and no longer bubbling, bottle it. If the S.G. has gone all the way down to 1.000 or below, you probably have not exceeded the yeast's alcohol tolerance and carbonation is an option. I

primed this batch with 3/4 cup of corn sugar and it is now lightly carbonated after about 4 months in the bottle.

Comments:

Because the alcohol content of the honey must is already fairly high and there is an enormous yeast population, I have found that pasteurization of the fruit is unnecessary. My experience is that this is the most satisfactory way to make melomels. I think that one preserves more of the fruit aroma and flavor by fermenting the honey first and then adding that to the fruit. I'm pretty sure of this because we did two 5 gal batches of this last year which were identical except one batch had the fruit added to the hot must just after the boil for pasteurization and the other was done as above. Even though both are great, side by side comparison reveals more berry aroma in the batch where the fruit was added after the honey was fermented.

This is really a pretty generic Melomel recipe. Just substitute your favorite fruit to make whatever you like. I will say however, that after trying strawberry, mulberry (Morat), peach, kiwi, apple (Cyser), and black rasberry melomels, the black rasberry is the favorite of myself and my friends and family. The resulting drink is an intense magenta color, with strong rasberry aroma and flavor. Absolutely wonderful stuff! Would also make a very fine ice-brandy though I would never do something so dangerous and irresponsible. 8*)

Enjoy!

Chapter 3: Melomel -- Mead with Fruit

Royal Colors Melomel

Source: Dave Suda (suda@vrg.toronto.edu)

Ingredients (7 gal):

19 lbs. alfalfa or other lightly flavored honey
10 pints blueberries
4oz lemon juice
10g Flor Sherry yeast

Procedure:

Heat 5gal of water to 160F (70C), add the honey, mashed blueberries, and lemon juice. Raise the must to 180F (80C), hold for 15min, and chill. Rehydrate the yeast in 1 cup of 90F (35C) water for 5 min. Divide the must into two 4-gallon food grade plastic buckets and pitch half the yeast in each. Ferment for one week and rack off the fruit into a 5gal carboy and two 1-gallon jugs. Allow to ferment to completion and clear (in my case this took 8 months), racking every 4 months. Bottle with 1/2 cup corn sugar per 5 gal.

Comments:

This is a semi-dry blueberry melomel that took a first place at the 1992 Mazer Cup. The mead is a beautiful purple with an intense blueberry

aroma when young. As it ages, the fruit aroma becomes more brandy-like.

Specifics:
OG: 1.099
FG: 1.009

Chapter 3: Melomel -- Mead with Fruit

Strawberry Melomel

Source: Dick Dunn (rcd@raven.eklektix.com)
Mead Lovers Digest #171, 10 July 1993

Ingredients:

6 lb clover honey
4 lb alfalfa honey
12 lb strawberries
Red Star Prise de Mousse yeast
4 oz dextrose (bottling)

Procedure:

Start the yeast in about a pint of water with a few tablespoons of dextrose. Be sure the starter solution and jar are sterile, and at 70-80F before adding yeast. This yeast should start quickly--a few hours at most.

Clean and hull the strawberries; chop into a few pieces. (Don't crush them or you'll have an impossible mess at racking.) Put them into a sanitized plastic-pail primary.

Bring 4 gallons of water to a full boil. Remove from heat and immediately add the honey; stir thoroughly. (This will sterilize the honey without cooking the flavor out of it.) Cool to about 150-160F, pour over the berries in the primary fermenter. Cool to pitching temperature (below 80F) and add yeast starter. Stir thoroughly to mix and aerate.

Every day or two, push the floating mass of strawberries down into the fermenting mead (the equivalent of a winemaker's "punching down the cap").

After the strawberries have become very pale--probably ten days or more-- strain out as much of the strawberry mass as possible, then rack into a glass carboy. Be prepared for the racking tube to clog. (A stainless "Chore Boy" over the bottom end of the tube will help.)

Ferment to completion. If necessary, fine with gelatin. Prime with the 4 oz (by weight) of dextrose dissolved in water; bottle using crown caps.

Comments:

12 lb strawberries in a 5-gallon batch seemed like a lot at first, but it has worked out right. This gives a pronounced strawberry nose and

taste, nothing subtle about it. You could use as much as 15 lb (3 lb/gallon) fruit. I used frozen strawberries...naturally, these are mushier and more likely to create pulp that's hard to manage in the primary, but they also release juice more readily.

The blend of honey was intended to be such as not to mask the strawberry flavor. This turned out not to be an issue; you could shift the balance more toward the alfalfa or other stronger honey.

Keep in mind that strawberries don't have a lot of sugar in them. They contribute flavor but not much fermentable.

The mead fermented out in about 8 weeks. I have no real idea what the true starting gravity was; it's just not possible to get a useful number with the fruit in it. It finished at 0.991.

We were serving the mead and getting good reviews at 16 weeks from the start of fermentation (8 weeks after bottling). After almost a year from start, the strawberry character is still holding true.

Chapter 3: Melomel -- Mead with Fruit

Strawberry Melomel

Source: Robert Crawford (betel@camelot.bradley.edu)
Mead Lover's Digest #2, 27 September 1992

Ingredients: (for one gallon)

2.5 lbs Clover Honey
1 lb frozen strawberries
acid blend (dosage as per the package's instructions)
grape tannin
1 Campden tablet
pectic enzyme
Montrachet yeast

Procedure:

I boiled and skimmed the honey with nine pints of water, put the strawberries in a must bag, then poured the hot honey water over the strawberries, Campden, tannin, and acid blend. A day later I added the pectic enzyme, and a day later the yeast.
After a week in the primary, I removed the horribly changed strawberries and siphoned into a secondary. Three weeks later the fermentation had stopped, and it had cleared. (Honestly -- I've never had the year-long ferments that others have mentioned.) I stabilized it with potassium sorbate, sweetened it with table sugar, and bottled it.

Comments:

It's only been two months, but it's already very nice. In fact, it's half gone :-)
I'm planning another batch, this one with three pounds of honey and two pounds of strawberries. Needless to say, this one will have more strawberry flavor and more alcohol...

Chapter 3: Melomel -- Mead with Fruit

Strawberry Spiced Mead

Source: Scott James (scojam@scojam.Auto-trol.COM)
Mead Lover's Digest #18, 16 October 1992

Ingredients:

10 lbs honey (clover honey, processed. From local super market chain)
5 lbs frozen strawberries
2 oz. grated ginger root.
5 gal. water
5 grams dry "Pasteur Champagne yeast"

Procedure:

I let it ferment for 3 months in primary (with fruit) at about 70F, then bottled, priming with 1 lb honey disolved in about 3 cups boiling water.

Comments:

Now, (6 months later), I'm a half case shy of the nectar and it's betting better. I had the last bottle after 19 months of aging. Pure and clear, a slight diacetyl aftertaste. The strawberry was almost gone, but the ginger apparent and subtle. It had a slight honey aftertaste. Way over carb. like champagne, use 1/2 lb next time.

I'm thinking of using a Wyeast ale yeast next time. Maybe more honey. Both have been extremely dry, and I would like to try a sweeter version.

postscript:
I tried the Belgian wyeast strain with lots of success! I used raw honey from a local supplier, and didn't boil. Add 1/2 tsp. acid blend. Rack after 1 month at about 65F (Colorado basement), bottle with 2 Cups honey. Quite sweet, subtle banana aroma (great!). 6 months: has young 'listerine' taste.

next time:
use energizer for faster ferment. Monitor temp to keep below 60F, try to ferment faster and rack of trub, bottle with 2 Cups honey.

Chapter 4: Pyment -- Mead with Grapes

Chablis Pyment

Source: Bill Holman (jwh7k@virginia.edu)
Mead Lovers Digest #171, 10 July 1993

Ingredients:

10 lbs. clover honey
4 lbs. Alexanders premium chablis grape juice concentrate
2 tsp. yeast nutrient, DIFCO
.25 tsp. Irish Moss
10 gms. Lallemand Lalvin EC-1118, Saccharomyces bayanus wine yeast, dry

Procedure:

1) Boil 4 gallons, cut heat to simmer, add honey, grape juice, & Irish Moss.
2) Simmer 30 minutes skimming foam off top, add yeast nutrient last 5 minutes.
3) With wort chiller cool ~5 gallons for 20 minutes.
4) Pitch at 80F, O.G. 1.095 @ 60F for 5 gallons.
5) Ferment at 72F.
6) Rack to glass secondary within 10 days.

Comments:

Notes: since the grape juice is concentrated, I would up the weight for grapes a couple of pounds. Any yeast nutrient will work, but the DIFCO ferments faster with less taste. This batch is still fermenting, but at the second racking it had a nice balance of honey/grape flavor.

Chapter 4: Pyment -- Mead with Grapes

Pyment

Source: Mark Taratoot (SLNDW@CC.USU.EDU)
Mead Lover's Digest#119, 27 April 1993

Ingredients:

1 gallon local honey (gift from a friend)
10 pounds of concord grapes (from my back yard)
2-3 tsp acid blend
3-5 tsp yeast nutrient
campden tablets
Redstar Champagne yeast

Procedure:

I started this stuff on November 1. We had already had a couple of frosts, so the grapes were really sweet. When I pitched the yeast I had three gallons. I used one of the gallons for topping off after each racking (and the occaisonal sample) and by the time I bottled it I had less than 2.5 gallons. The stuff was deliceous right out of the fermenter. After about a month I took an 8 ounce bottle to a party for all to sample. It really is yummy.

Comments:

My question is, How in the hell am I supposed to let this stuff age when it is so good even now? What can I expect to happen to the flavors

during the next year or two? I assume it will become drier, which would probably be an improvement.

Chapter 4: Pyment -- Mead with Grapes

Pyment

Source: Daniel F McConnell
(Daniel_F_McConnell@mailgw.surg.med.umich.edu)
Mead Lovers Digest #171, 10 July 1993

Ingredients:

100 lbs Red Wine grapes crushed
Add Honey to 21 Degrees Brix
Yeast Lab dry mead yeast (M61)-500ml starter

Procedure:

Ferment as wine, racking off 10 gallons of free run and reserving the pomace. To the pomace add 5 gal. distilled water and 12.5 lb. of honey. Adjust acid to 0.60. Ferment and press to secondary. Rack at 1 week and again at 6 months to oak if possible. Bottle the following fall.

Comments:

I make this every year, usually with Chambourcin or Chancellor grapes. I'm sure it would also work well with white grapes. Taste is that of a dry red wine with plenty of honey notes to add complexity.

Chapter 4: Pyment -- Mead with Grapes

Sweet Pyment

Source: Daniel F McConnell
(Daniel_F_McConnell@mailgw.surg.med.umich.edu)

Ingredients:

5 Gal Riesling juice (TA=1.10, Bx=19, pH=2.99)
7 lbs Clover Honey
Yeast Lab dry Mead yeast (M61), 1-liter starter

Procedure:

Add the honey to the sulfited grape juice to raise the OG to 29 Bx. Adjust the acid if needed with acid blend. The following day pitch the yeast starter and let it ferment at ambient basement temperature leaving in primary 12 months. Rack off the sediment and bottle when completely clear.

Comments:

Wonderful sweet sour balance with a tremendous honey/sweet Riesling aroma. Should be stunning after a few years of bottle age. Taste is

reminiscent of a late harvest Riesling with honey flavors and aroma very evident.

Specifics:

O.G.: 1.120 (29 Bx)
F.G.: 1.019 (5 Bx)

Chapter 5: Cyser -- Mead with Apples

Apple Mead-pagne

Source: John (The Coyote) Wyllie (SLK6P@cc.usu.edu)

Ingredients:

4 gal Fresh pressed cider (from an orchard)
5 lbs Honey (used local clover/alfalfa)
1 tsp acid blend
Handful chopped raisins, or 1/4 tsp grape tannin
1 Tbsp yeast nutrient
Irish moss (or other clarifier)
2 tsp Pectic Enzyme
4 campden tables (sodium metabisulfite)
Epernay Yeast (or champagne)

Procedure:

Pour the cider to a sterilized 5 gal carboy. Allow it to splash to aerate. Treat overnight with campden tablets. Crush and predissolve. Add the raisins to the carboy. Next day heat the honey in < 1 gallon of water (160 deg 1 hr, or boil if you choose). Add all other ingredients to the syrup. Add to the fermenter. Use some of the treated juice to hydrate the yeast, and pitch the starter after it bubbles. After a few weeks, rack to a secondary. Add more finings if needed (isinglass is good). Top up with juice, or honey syrup. I've generally liked to let cysers, and ciders age for a pretty long time. Most have been in fermenters for at least 4 months. You can bottle still, or sparkling. Use 1/2 to 3/4 cup corn sugar and champagne bottles for a nice sparkle. These have taken a long time to gain a good bubble level. They have been stored cold (55). But well worth the wait!

Comments:

A potent and pleasing fruity wine. Once mature, a clear, bubbly champagne-like mead. My dad really enjoyed this one, and he usually drinks nicer wines. I was flattered. He kept grabbing the bottle at dinner! :)
If you rack several times you can eliminate most of the sediment, and only have a fine layer in the bottle. I prefer to keep the priming down, because they seem to continue fermenting slowly for a long time.

I've had a batch carbonate w/o priming! So much for a still wine! You could stabilize and sweeten to taste if you choose. Bottling with teas is a nice addition. I've used cinnamon, but I'd bet ginger, or a tad of clove would be nice.

Specifics:

OG: ~1.070 Will vary depending on source of cider.
FG: 1.000.

Chapter 5: Cyser -- Mead with Apples

Dangerous Cyser

Source: Chuck Cox (chuck@synchro.com)
Mead Lover's Digest #5, 1 October 1992

Ingredients (7 gallons):

10 lb clover honey
10 lb wildflower honey
5+ gallons cider
6 tablets Campden/Metabisulphate
Ale Yeast

Procedure:

Mix everything except the yeast.
Let sit in loosely covered fermenter for 24 hours. Add yeast.
Rack to secondary when fermentation slows. Rack to keg when still.
Force carbonate if desired.
Condition for as long as you can stand it.
Drink liberally.
Fall over.

Comments:

These days I am not adding the Campden tablets. That step is optional.

Chapter 6: Other

Honey-Maple Mead

Source: Joseph Nathan Hall (joseph%joebloe@uunet.uu.net)
Mead Lover's Digest #7, 3 October 1992

Ingredients:

(recipe for 2 gallons or maybe a little more)
2 quarts maple syrup (that hurt$, as Charlie Papazian says)

2 to 2-1/2 lbs light honey (I used clover)
acid to taste--I think I used a little less than 1 tsp of acid blend for this batch.
Pasteur Champagne yeast

Procedure:

Bring honey and maple syrup to boil in enough water to liquefy. Add acid and a bit of nutrient if desired. (I don't think you *need* yeast nutrient--the maple syrup seems to have the necessary stuff in it.) Skim for a minute or two, enjoying the flavor of the yummy foamy stuff. :-) Cool. Then add water to make a 1.120 SG must. Pitch with working Pasteur Champagne yeast. Prepare for a moderately vigorous fermentation. Rack off after primary fermentation, and once again if it isn't clear in a few more weeks. I topped off the gallon jugs with boiled water after the first racking--that seemed to help settle the yeast.

Both batches I made this summer (the first with about half this much syrup) fermented out to almost exactly 1.000. They fermented and cleared at 70-72F in 6-8 weeks.

The result (that's what you've been waiting for): a beautiful, crystal-clear brilliant straw-colored liquid, slightly sweet, with a monster alcohol palate and strong bourbon notes. Smoooooth.

Then, for a stellar, absolutely world-class result, take the three month old young mead and prime with a small quantity of fresh yeast (1/4 pack or less) and about 1.25 x (or perhaps a little more) what you consider a normal dose of sugar for beer. Bottle quickly and carefully, and let age for at least 6 months, turning and shaking gently a few times during the first weeks.

The sparkling honey-maple mead will wow absolutely anyone. Serve it ice cold in your best champagne flutes. I rather like the still mead on the rocks. Is this heresy?

Chapter 6: Other

Maple Mead

Source: RON.admin@admin.creol.ucf.edu (RON)
From: Mead Lover's Digest #269 22 February 1994

Ingredients:

6 lb Canadian Honey
32 oz container of Canadian Grade A Dark Amber Maple Syrup
1 tsp. gypsum
3/4 tsp. pectin
1 tsp. yeast nutrient
1 tsp. table salt
1 tsp. acid blend
1 pkg. M&F ale yeast in 2 cup wort - yeast starter
1 oz. Saaz cube hops (1/2 boil, 1/2 fin)

Procedure:

Added gypsum and salt to 1.5 gal filtered water, boiled, removed from heat, added honey and maple syrup, back to heat, hops added (10 min), pectin, yeast nutrient, acid blend added (25 min), yeast starter started, boiling well, skimmed off albumin, heat off and fin hops(45 min), chilled in ice bath (~30min), put in 6 gal carboy, pitched yeast and enough water to make 5.5 gal. Racked in 2 weeks. Bottled 10 weeks later w/ 1/3 cup corn sugar + 1/2 cup Florida Orange Blossom Honey.

Comments:

3 weeks after bottling had a dry - light "Bristol Cream" taste. Now has a great light mead flavor with a tangy maplish dry undertone.

Now I think 10 lbs of honey, light boiling and a different yeast to sweeten it up a bit and would make for a more flavorful maple mead.

Specifics:
OG: 1.080
FG: 1.005

Chapter 6: Other

Simha

Source: Gary Shea (shea@cs.ukans.edu)
Mead Lover's Digest #241, 7 December 1993

Ingredients (for 1 gallon):

1 cup white sugar
1 cup brown sugar
water to make a gallon
two lemons
yeast

Procedure:

Combine sugars, add water to make 1 gallon, boil. Squeeze two lemons into the mix and throw them in, quartered. When it's cooled enough add 1/8 tsp of yeast (I used bread yeast). Allow to ferment for a day or two at ~65-70F. Bottle, adding a few raisins and a tsp of sugar to each bottle. Allow to sit at ~65-70F until the raisins are sitting at the top (< 1 day). Refrigerate or place in quite cool place

Comments:

Drink in a couple weeks. So far I have only done one batch and I drank it over the course of two weeks. It keeps getting better and better. Plastic Calistoga bottles are what I've been using, they work great and seem to have no flavor.

This is a Finnish drink called 'sima' or maybe 'simha', made only for May Day celebrations. The recipes for it that I've seen (and made) are all pretty much like this.

Chapter 6: Other

Honey Bucket Bracket

Source: Richard B. Webb
Mead Lover's Digest #313, 30 May 1994

Ingredients (for 8 gallons):

25 lbs Honey Malt
39 grams Saaz hop flowers
130 grams shredded ginger root
1 tbl Irish Moss
12 lbs. blackberry honey
1 tbl acid blend
Red Star Montrachet dry yeast

Procedure:

It was a dark and stormy New Year's Eve. 25 lbs of Honey Malt (17 degreesL) were mashed at 156 degrees until starch test showed complete saccrification. The mash was sparged at 164 degrees. This wort was brought to a boil. The color contribution of this malt was estimated at approximately 60 degrees SRM. 39 grams of Saaz hop flowers (at 6.0% acid) was added for a proposed 60 minute boil. 130 grams of shredded ginger root was added for a proposed 15 minute boil. 1 TBL of Irish Moss was added for a proposed 10 minute boil.

At the end of the 60 minutes, I added 12 lbs of Schneider's blackberry honey. Heat continued, even though the wort wasn't boiling. After 25 minutes, the boil resumed, and I added 1 TBL of acid blend. After another 10 minutes of boil, the heat was turned off, the imersion cooler was inserted, and cooling was begun.

I used Red Star Montrachet dry yeast in this batch. The first package was added when the wort was still too hot (oops!), so another package was added later, before obvious signs of fermentation had begun.

All of the above yielded about 8 gallons of wort, whose specific gravity was 1.112. The actual hopping rate was estimated at 22 IBU, not including the acid added. The final gravity reading was 1.052, with the resulting alcohol at approximately 6.4%.

Racking occured on 13 Jan 94. Bottling took place on 25 Jan 94, giving just under one month of fermenting. Priming sugar consisted of 1/2 cup corn sugar, 2 cups of water, and 1 tsp ascorbic acid.

Never having had a Bracket/Braggot before, the taste was rather interesting. It is an exceedingly sweet beer, not mead-ish at all!

Because I used Honey malt, I called this brew Honey Bucket Bracket. Dark as the night, and thicker than sin!

Comments:

Michael Hall, who was one of the judges at the Duke's of Ale Spring

Thing competition held recently in Albuquerque, New Mexico, wanted the recipe of the mead that I had entered. It took honors for the best mead of the competition. This is my attempt at supplying the recipe.

It's not actually a mead, but something called a bracket or braggot. The American Mead Association is of very little use in supplying a definition of the style, only saying that the mix has to have at least half of its fermentables comming from the added honey.

The idea was to make a batch of beer and a batch of mead and slam the two together. Thus a beer was made (at a very low hopping rate), and a lot of honey was added to it.

Judges comments:
Michael Hall gave it 42 points.
Good honey expression! Roasted malt comes throught too! Fairly clear, good head retention. Good honey taste. Good roasted malt taste. Nice complex taste. This is the most interesting mead we've tasted! Nice balance of mead and beer. Very good idea! I could drink a lot of this (slowly...) on a winter night.

Bill Terborg gave it 45 points.
Complex nose. Very nice. Great color and very clear. Very nice - complex, malt strong, yet honey in background. Good balance - sweet & acid. Great mead! Publish the recipe so we can all enjoy!

William deVries gave it 37 points.
Good solid honey/malt aroma. Nicely balanced, almost smoky. Honey exudes throughout, bitter component masks the modifying sweetness, but not too badly. Malt flavor aids the complexity. Nice even flavors cause a pleasant and lasting impression.

Bibliography

Acton, Bryan, and Peter Duncan (1984) Making Mead. G.W. Kent, Inc., 3691 Morgan Road, Ann Arbor, MI, 48108, USA. ISBN 0-900841-07-9. ~$8.95.
An uneven book, at best. They approach the subject from a winemaking point of view: everything is loaded up with sulfites, citric acid and tannin mixtures. The ideas that they put forth in the sections on the history of meadmaking are downright odd, and sometimes plain wrong. But they're mostly harmless, and there are lots of recipes, and they use a wide variety of fruits. Even if you don't ever intend to use sulfites, this book is a good way to get an idea of how much fruit or juice to use in brewing a particular mead.

Gayre, Lt. Col. Robert (1986) Brewing Mead: Wassail in Mazers of Mead. Brewers Publications, Boulder, Colorado.

Morse, Roger A. (1980) Making Mead (Honey Wine). Wicwas Press, Ithaca, NY.

Papazian, Charlie (1991) The New Complete Joy of Homebrewing. Avon Books, New York. $11.00. ISBN 0-380-76366-4.
This is the well-known general book on how to brew. Appendix 5 covers mead, and serves as a pretty good introduction to the topic. It also includes three recipes.

Appendix 1: Mead Yeast Starter

Mead Yeast Starter

Source: Joyce Miller jmiller@genome.wi.mit.edu

Ingredients (makes 1/2 gallon):

1 cup honey
1 cup cane sugar
1 tsp lemon juice
1/4 tsp yeast nutrient (or however much your directions call for)
6-2/3 cups water

Procedure:

Bring all of the ingredients to a boil, then shut off & let sit (covered) 20-30 minutes to pasteurize. Force cool in a cold water bath, if you wish. Pour dry yeast into a sanitized 1/2-gallon container. When the starter solution has cooled to below 80F (27C), pour it on top of the dry yeast. Shake & swirl to dissolve the yeast. Attach an airlock. When the airlock shows regular activity, it's time to brew. Anywhere from 2-4 cups of active starter can be added to 5 gallons of mead must. Swirl the starter before "inoculating" your mead must so as to get the yeast into suspension.

Comments:

I have used this recipe for starting beer, wine, and champagne yeasts, and it seems to be very good for acclimating the yeast to the "mead environment".

A half gallon is quite a bit of starter, so it might be a good idea to cut the recipe in half. I only make the full amount when I plan to brew several batches of mead. Since yeast ferments honey relatively slowly, you can easily use up a batch of the starter on several batches made across 2-3 weeks. The starter will just keep on bubbling in between your brewing sessions! If you want to keep it going even longer, you can pour off half the starter, and add a few cups of fresh must for the yeast to chew on.

Appendix 2: Honey and Maple Syrup Tables

Honey Table
Courtesy of John Gorman

Volume (quarts and cups) of Honey to add to 5 Gallons to Achieve a Particular Specific Gravity:

S. G.	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000	0q,0c	0q,0c	0q,0c	0q,1c	0q,1c	0q,1c	0q,1c	0q,1c	0q,1c	0q,2c
1.010	0q,2c	0q,2c	0q,2c	0q,2c	0q,3c	0q,3c	0q,3c	0q,3c	0q,3c	0q,3c
1.020	1q,0c	1q,0c	1q,0c	1q,0c	1q,0c	1q,0c	1q,1c	1q,1c	1q,1c	1q,1c
1.030	1q,1c	1q,2c	1q,2c	1q,2c	1q,2c	1q,2c	1q,2c	1q,3c	1q,3c	1q,3c
1.040	1q,3c	1q,3c	2q,0c	2q,0c	2q,0c	2q,0c	2q,0c	2q,0c	2q,1c	2q,1c
1.050	2q,1c	2q,1c	2q,1c	2q,2c	2q,2c	2q,2c	2q,2c	2q,2c	2q,2c	2q,3c
1.060	2q,3c	2q,3c	2q,3c	2q,3c	2q,3c	3q,0c	3q,0c	3q,0c	3q,0c	3q,0c
1.070	3q,1c	3q,1c	3q,1c	3q,1c	3q,1c	3q,1c	3q,2c	3q,2c	3q,2c	3q,2c
1.080	3q,2c	3q,3c	3q,3c	3q,3c	3q,3c	3q,3c	3q,3c	4q,0c	4q,0c	4q,0c
1.090	4q,0c	4q,0c	4q,1c	4q,1c	4q,1c	4q,1c	4q,1c	4q,1c	4q,2c	4q,2c
1.100	4q,2c	4q,2c	4q,2c	4q,2c	4q,3c	4q,3c	4q,3c	4q,3c	4q,3c	5q,0c
1.110	5q,0c	5q,0c	5q,0c	5q,0c	5q,0c	5q,1c	5q,1c	5q,1c	5q,1c	5q,1c
1.120	5q,2c	5q,2c	5q,2c	5q,2c	5q,2c	5q,2c	5q,3c	5q,3c	5q,3c	5q,3c
1.130	5q,3c	6q,0c	6q,0c	6q,0c	6q,0c	6q,0c	6q,0c	6q,1c	6q,1c	6q,1c
1.140	6q,1c	6q,1c	6q,1c	6q,2c	6q,2c	6q,2c	6q,2c	6q,2c	6q,3c	6q,3c
1.150	6q,3c	6q,3c	6q,3c	6q,3c	7q,0c	7q,0c	7q,0c	7q,0c	7q,0c	7q,1c

Volume (quarts and cups) of Honey to add to 1 Gallon to Achieve a Particular Specific Gravity:

S. G.	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000	0c,0o	0c,0o	0c,1o	0c,1o	0c,1o	0c,1o	0c,2o	0c,2o	0c,2o	0c,3o
1.010	0c,3o	0c,3o	0c,3o	0c,4o	0c,4o	0c,4o	0c,5o	0c,5o	0c,5o	0c,5o
1.020	0c,6o	0c,6o	0c,6o	0c,7o	0c,7o	0c,7o	0c,7o	1c,0o	1c,0o	1c,0o
1.030	1c,1o	1c,1o	1c,1o	1c,1o	1c,2o	1c,2o	1c,2o	1c,3o	1c,3o	1c,3o
1.040	1c,3o	1c,4o	1c,4o	1c,4o	1c,5o	1c,5o	1c,5o	1c,5o	1c,6o	1c,6o
1.050	1c,6o	1c,7o	1c,7o	1c,7o	2c,0o	2c,0o	2c,0o	2c,0o	2c,1o	2c,1o
1.060	2c,1o	2c,2o	2c,2o	2c,2o	2c,2o	2c,2o	2c,3o	2c,3o	2c,3o	2c,4o	2c,4o
1.070	2c,4o	2c,4o	2c,5o	2c,5o	2c,5o	2c,6o	2c,6o	2c,6o	2c,6o	2c,7o
1.080	2c,7o	2c,7o	3c,0o	3c,0o	3c,0o	3c,0o	3c,1o	3c,1o	3c,1o	3c,2o
1.090	3c,2o	3c,2o	3c,2o	3c,3o	3c,3o	3c,3o	3c,4o	3c,4o	3c,4o	3c,4o
1.100	3c,5o	3c,5o	3c,5o	3c,6o	3c,6o	3c,6o	3c,6o	3c,7o	3c,7o	3c,7o
1.110	4c,0o	4c,0o	4c,0o	4c,0o	4c,1o	4c,1o	4c,1o	4c,2o	4c,2o	4c,2o
1.120	4c,2o	4c,3o	4c,3o	4c,3o	4c,4o	4c,4o	4c,4o	4c,4o	4c,5o	4c,5o
1.130	4c,5o	4c,6o	4c,6o	4c,6o	4c,6o	4c,7o	4c,7o	4c,7o	5c,0o	5c,0o
1.140	5c,0o	5c,0o	5c,1o	5c,1o	5c,1o	5c,2o	5c,2o	5c,2o	5c,2o	5c,3o
1.150	5c,3o	5c,3o	5c,4o	5c,4o	5c,4o	5c,5o	5c,5o	5c,5o	5c,5o	5c,6o

Note: q = quarts, c = cups, o = fluid ounces

Appendix 2: Honey and Maple Syrup Tables

Maple Syrup Table

Courtesy of John Gorman

Volume (quarts and cups) of Maple Syrup to add to 5 Gallons to Achieve a Particular Specific Gravity:

S. G.	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000	0q,0c	0q,0c	0q,0c	0q,1c	0q,1c	0q,1c	0q,1c	0q,2c	0q,2c	0q,2c
1.010	0q,2c	0q,3c	0q,3c	0q,3c	0q,3c	1q,0c	1q,0c	1q,0c	1q,0c	1q,1c
1.020	1q,1c	1q,1c	1q,1c	1q,2c	1q,2c	1q,2c	1q,2c	1q,3c	1q,3c	1q,3c
1.030	1q,3c	2q,0c	2q,0c	2q,0c	2q,0c	2q,1c	2q,1c	2q,1c	2q,1c	2q,2c
1.040	2q,2c	2q,2c	2q,2c	2q,3c	2q,3c	2q,3c	2q,3c	3q,0c	3q,0c	3q,0c
1.050	3q,0c	3q,1c	3q,1c	3q,1c	3q,1c	3q,2c	3q,2c	3q,2c	3q,2c	3q,3c
1.060	3q,3c	3q,3c	3q,3c	3q,3c	4q,0c	4q,0c	4q,0c	4q,0c	4q,1c	4q,1c
1.070	4q,1c	4q,1c	4q,2c	4q,2c	4q,2c	4q,2c	4q,3c	4q,3c	4q,3c	4q,3c
1.080	5q,0c	5q,0c	5q,0c	5q,0c	5q,1c	5q,1c	5q,1c	5q,1c	5q,2c	5q,2c
1.090	5q,2c	5q,2c	5q,3c	5q,3c	5q,3c	5q,3c	6q,0c	6q,0c	6q,0c	6q,0c
1.100	6q,1c	6q,1c	6q,1c	6q,1c	6q,2c	6q,2c	6q,2c	6q,2c	6q,3c	6q,3c
1.110	6q,3c	6q,3c	7q,0c	7q,0c	7q,0c	7q,0c	7q,1c	7q,1c	7q,1c	7q,1c
1.120	7q,2c	7q,2c	7q,2c	7q,2c	7q,2c	7q,3c	7q,3c	7q,3c	7q,3c	8q,0c
1.130	8q,0c	8q,0c	8q,0c	8q,1c	8q,1c	8q,1c	8q,1c	8q,2c	8q,2c	8q,2c
1.140	8q,2c	8q,3c	8q,3c	8q,3c	8q,3c	9q,0c	9q,0c	9q,0c	9q,0c	9q,1c
1.150	9q,1c	9q,1c	9q,1c	9q,2c	9q,2c	9q,2c	9q,2c	9q,3c	9q,3c	9q,3c

Volume (quarts and cups) of Maple Syrup to add to 1 Gallon to Achieve a Particular Specific Gravity:

S. G.	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000	0c,0o	0c,0o	0c,1o	0c,1o	0c,2o	0c,2o	0c,2o	0c,3o	0c,3o	0c,4o
1.010	0c,4o	0c,4o	0c,5o	0c,5o	0c,6o	0c,6o	0c,6o	0c,7o	0c,7o	0c,7o
1.020	1c,0o	1c,0o	1c,1o	1c,1o	1c,1o	1c,2o	1c,2o	1c,3o	1c,3o	1c,3o
1.030	1c,4o	1c,4o	1c,5o	1c,5o	1c,5o	1c,6o	1c,6o	1c,7o	1c,7o	1c,7o
1.040	2c,0o	2c,0o	2c,1o	2c,1o	2c,1o	2c,2o	2c,2o	2c,2o	2c,3o	2c,3o
1.050	2c,4o	2c,4o	2c,4o	2c,5o	2c,5o	2c,6o	2c,6o	2c,6o	2c,7o	2c,7o
1.060	3c,0o	3c,0o	3c,0o	3c,1o	3c,1o	3c,2o	3c,2o	3c,2o	3c,3o	3c,3o
1.070	3c,4o	3c,4o	3c,4o	3c,5o	3c,5o	3c,6o	3c,6o	3c,6o	3c,7o	3c,7o
1.080	3c,7o	4c,0o	4c,0o	4c,1o	4c,1o	4c,1o	4c,2o	4c,2o	4c,3o	4c,3o
1.090	4c,3o	4c,4o	4c,4o	4c,5o	4c,5o	4c,5o	4c,6o	4c,6o	4c,7o	4c,7o
1.100	4c,7o	5c,0o	5c,0o	5c,1o	5c,1o	5c,1o	5c,2o	5c,2o	5c,2o	5c,3o
1.110	5c,3o	5c,4o	5c,4o	5c,4o	5c,5o	5c,5o	5c,6o	5c,6o	5c,6o	5c,7o
1.120	5c,7o	6c,0o	6c,0o	6c,0o	6c,1o	6c,1o	6c,2o	6c,2o	6c,2o	6c,3o
1.130	6c,3o	6c,4o	6c,4o	6c,4o	6c,5o	6c,5o	6c,6o	6c,6o	6c,6o	6c,7o
1.140	6c,7o	6c,7o	7c,0o	7c,0o	7c,1o	7c,1o	7c,1o	7c,2o	7c,2o	7c,3o
1.150	7c,3o	7c,3o	7c,4o	7c,4o	7c,5o	7c,5o	7c,5o	7c,6o	7c,6o	7c,7o

Note: q = quarts, c = cups, o = fluid ounces

Appendix 3: Potential Alcohol Table

Percent Alcohol Table
Courtesy of John Gorman

Potential Alcohol by Volume:
(D.G. = Difference in Gravity = Original Gravity - Final Gravity)

D. G.	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
1.000	0.0%	0.1%	0.3%	0.4%	0.5%	0.6%	0.8%	0.9%	1.0%	1.2%
1.010	1.3%	1.4%	1.6%	1.7%	1.8%	2.0%	2.1%	2.2%	2.4%	2.5%
1.020	2.6%	2.7%	2.9%	3.0%	3.1%	3.3%	3.4%	3.5%	3.7%	3.8%
1.030	3.9%	4.0%	4.2%	4.3%	4.4%	4.6%	4.7%	4.8%	5.0%	5.1%
1.040	5.2%	5.4%	5.5%	5.6%	5.8%	5.9%	6.0%	6.1%	6.3%	6.4%
1.050	6.5%	6.7%	6.8%	6.9%	7.1%	7.2%	7.3%	7.4%	7.6%	7.7%
1.060	7.8%	8.0%	8.1%	8.2%	8.4%	8.5%	8.6%	8.8%	8.9%	9.0%
1.070	9.2%	9.3%	9.4%	9.5%	9.7%	9.8%	9.9%	10.1%	10.2%	10.3%
1.080	10.5%	10.6%	10.7%	10.8%	11.0%	11.1%	11.2%	11.4%	11.5%	11.6%
1.090	11.8%	11.9%	12.0%	12.2%	12.3%	12.4%	12.6%	12.7%	12.8%	12.9%
1.100	13.1%	13.2%	13.3%	13.5%	13.6%	13.7%	13.9%	14.0%	14.1%	14.2%
1.110	14.4%	14.5%	14.6%	14.8%	14.9%	15.0%	15.2%	15.3%	15.4%	15.6%
1.120	15.7%	15.8%	16.0%	16.1%	16.2%	16.3%	16.5%	16.6%	16.7%	16.9%
1.130	17.0%	17.1%	17.3%	17.4%	17.5%	17.6%	17.8%	17.9%	18.0%	18.2%
1.140	18.3%	18.4%	18.6%	18.7%	18.8%	19.0%	19.1%	19.2%	19.4%	19.5%
1.150	19.6%	19.8%	19.9%	20.0%	20.1%	20.3%	20.4%	20.5%	20.7%	20.8%

Appendix 4: Clarifying Meads

How to Clarify Mead with Bentonite

by John Gorman (john@rsi.com)

1) What is Bentonite?

Bentonite is pure powdered clay and is used in wine and mead making. It is inert and tasteless. You can get it at your local homebrew shop or by mail order quite inexpensively.

Bentonite is used during racking to flocculate out the leftover yeast so that it settles to the bottom, leaving crystal clear mead behind. The clay particles are tiny flat sheets of mineral with minute electric charges sticking out at the edges. These charges attract the yeast cells, which then stick together in visible clumps that settle out rapidly.

The time to bentonite is any time after active bubbling ceases. If you bentonite while there is still fermentation activity, the yeast that settles to the bottom will keep bubbling and re-cloud the mead. If you use a yeast nutrient, fermentation will proceed rapidly and cease in a month or so. By using bentonite, your mead will be clear and ready to bottle in a few days, freeing your carboy for more mead!

2) Bentonite Preparation

Use 1/2 tsp bentonite per gallon of mead to be clarified. To prepare the bentonite for 5 gallons, boil 1 cup of water in a small saucepan. Pre-measure 2 1/2 tsp of bentonite granules into a small bowl. As the water boils, SLOWLY sprinkle in the bentonite, stirring occasionally with a fork.

If you sprinkle it in too fast, the granules will stick together as they absorb water, making large thick clots, which is not what you want. If that happens, just throw it out and try again.

If you sprinkle just right into the boiling water, it will stay soupy. Take it off of the heat and store covered for 24 hours while the clay goes completely into suspension.

3) Racking Procedure

Fill a clean pot with water, and bring it to a rolling boil for 10 minutes to drive off all of the oxygen. This water will be used after racking to fill up the head space. If you leave a head space after racking, the oxygen in the head space air will get into the mead and produce flat off flavors.

Stir the bentonite mixture with a fork to get it all into suspension. Pour the bentonite mixture into the second (empty) carboy. Then rack from the first carboy into the second. Avoid splashing, which will oxygenate the mead. Top off the head space with the boiled water. Stir the mixture thoroughly without splashing by rotating your J-tube in the carboy.

The bentonite will bind with the yeast into visible particles and flocculate out fairly quickly. After two days or so, it will all be resting in the bottom 1/2 inch of the carboy.

Sometimes there is so much yeast in a mead that the first bentonite cannot flocculate out all of the yeast. In that case, do it again. The result will be crystal clear.

How to Clarify Mead with Gelatin

by Joyce Miller (jmiller@genome.wi.mit.edu)

Clarifying mead with gelatin is similar to using bentonite. Powdered unflavored gelatin is available in most grocery stores (the Knox brand is probably the most widely known). I generally dissolve a packet of the powder into 1 cup of cold water in a pot. Heat this on the stove, swirling gently, until it's all dissolved. Cover it and let it sit 20 minutes to pasteurize it. Warning: do *NOT* let this stuff boil over! It's very difficult to clean up!

Put the pot somewhere where you can grab it easily, and start siphoning your mead into an empty carboy. When there's a gallon or so in the new carboy, take the gelatin solution, and slowly drizzle it in (if you dump

it directly into the empty carboy, it will just coagulate on the bottom in a useless lump). Finish siphoning, and stir if necessary to distribute the gelatin evenly throughout the carboy.

Appendix 5: Units of Measure and Miscellaneous Information

How to use these tables:

1: Read from the top down to find out how many "X" units there are in "Y". For example, to find out how many cups there are in a barrel, find the "cups" column, and read down until you reach the "barrels" row, and you'll find that there are 496 cups in a barrel.
2: To convert back and forth between units, "divide down and multiply across". Find the number at the intersection of the row and column of the two units you're interested in. If you're reading down a column to get to that number, you'll have to divide by that number to convert to the other unit. If you find yourself reading across, you'll have to multiply.
For example, to convert from cups to barrels, you'll be reading down the cups column to get to barrels, so take the number of cups you have and divide by 496 to get barrels. To convert from barrels to cups, read from barrels across to cups, and multiply the number of barrels by 496 to get cups.

Note The units are listed in the leftmost column, and their abbreviations are listed across the top row of each table.

Liquid (Volume) Measure Equivalents:

U.S. Measures:	tsp	tbl	fl.oz.	c	pt	qt	gal	bbl.
teaspoon								
tablespoons	3							
fluid ounces	6	2						
cups	48	16	8					
pints	96	32	16	2				
quarts	192	64	32	4	2			
gallons	768	256	128	16	8	4		
barrels	23808	7936	3968	496	248	124	31	

Metric:	ml	cl	dl	l	dal	hl
milliliters						
centiliters	10					
deciliters	100	10				
liters	1000	100	10			
dekaliters	10000	1000	100	10		
hectoliters	100000	10000	1000	100	10	

Note A cubic centimeter (cc) is the same as 1 milliliter (ml).

U.S. / Metric Conversions:

	ml	cl	dl	l	dal	hl
teaspoon	4.93	0.49	0.05	0.005	0.0005	0.00005
tablespoons	14.79	1.48	0.15	0.01	0.001	0.0001
fluid ounces	29.57	2.96	0.30	0.03	0.003	0.0003
cups	236.59	23.66	2.37	0.24	0.02	0.002
pints	473.18	47.32	4.73	0.47	0.05	0.005
quarts	946.35	94.64	9.46	0.95	0.09	0.009
gallons	3785.41	378.54	37.85	3.79	0.38	0.03
barrels	117377.71	11737.77	1173.78	117.38	11.74	1.17

quarts / 1.057 = liters
gallons x 3.7854 = liters

U.S. / English Conversions:

	U.S. tsp.	U.S. tbl.	U.S. cup	U.S. pint	U.S. gal.
Eng. teaspoon	1.2500	0.417	0.026	0.013	0.002
Eng. tablespoon	3.7500	1.250	0.078	0.039	0.005
Eng. cup ("gill")	57.600	19.20	1.200	0.600	0.075
Eng. pint	115.20	38.40	2.400	1.200	0.150
Eng. gallon	932.60	307.2	19.20	9.600	1.200

Dry Measure Equivalents:

U.S. Measures:	pt	qt	peck
pint			
quart	2		
peck	16	8	
bushel	64	32	4

Weight Measure Equivalents:

U.S. Measures:	drams	oz.	lb.
ounces	16		
pounds	256	16	

Metric:	mg	g	kg
milligrams			
grams	1000		
kilograms	1000000	1000	

U.S. / Metric Conversions:

	ounces	pounds
grams	0.03527	0.0022
kilograms	35.2736	2.2046

kilograms x 2.2046 = pounds
pounds / 2.2046 = kilograms

U.S. / English Conversions:

	U.S. ounces	U.S. pounds
Eng. ounces	1	0.063
Eng. pounds	16	1

Temperature Conversions:

Degrees Centigrade = 5/9 x (Degrees Fahrenheit - 32)
Degrees Fahrenheit = (Degrees Centigrade x 9/5) + 32

Miscellaneous Factoids:

A gallon of honey weighs about 12 pounds.
Water weighs 8.3454 pounds per gallon (U.S. units).
Pasteurization: hold at 160 degrees Fahrenheit for 15 - 30 minutes.

U.S. standard beer bottles: 12 fl. oz.
U.S. large beer bottles: 22 fl. oz.
Grolsch & Jubel swing-tops: 1 pint (16 fl. oz.)
Fischer swing-tops: large: 22 fl. oz.
small: 11.5 fl. oz
5-gallons: 640 fl. oz.
1 gallon: 128 fl. oz.

Formula to Compute Target Starting Gravity:

$$h = \frac{V \times (Gs - 1)}{(Gh - 1)}$$

where:
h = the total volume of honey required to achieve the desired starting gravity,
V = the total final volume (5 for a 5-gallon batch, etc.),
Gs = desired starting gravity,
Gh = the specific gravity of your sweetener (honey's is 1.445)

For example:
If you wanted a 5 gallon batch with a starting gravity of 1.120, the formula would look like:

h = 5 gallons x (1.120 - 1) / (1.445 - 1)
= (5 x 0.12) / (0.445) = 0.60 / 0.445 = 1.35 gallons

To get the required amount of honey in pints, just substitute 40 pints for the 5 gallons.

Desktop/Console-Only Content: This information applies only to the Desktop and Console versions of Terraria. The Bee's Knees is a bow that has a 33% (1/3) chance of being dropped by Queen Bee. When fired using Wooden Arrows, the bow instead emits a special projectile resembling a line of bees. On impact with an enemy or solid block, the projectile breaks apart, spawning 3 to 5 bees that quickly break formation and begin to home in on nearby enemies. Similar to Meteor Shot, the individual bees can each The Bee's Knees is a bow dropped by the Queen Bee. When fired, it turns wooden arrows into a column of damaging bees that on hitting an enemy, break into five separate, homing bees that will actively seek out enemies. Each individual bee can either pierce once, or bounce off a surface once. The best modifier this weapon can get is Unreal. This weapon would benefit most from the use of the Endless Quiver, rather than individual arrows.