State of Franklin Homebrewers

Mead Makers Handbook

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Preface

This *Mead Making Handbook* was prepared by Jace Crouch of the Brewerâ€™s Guild. It is designed to spread the word about Mead-making, and to guide both neophyte and more experienced brewers through the Mead-Making process. This internet edition is based on the third printed edition (1992).

The Brewerâ€™s Guild is an Association of Mead-makers who seek to establish a fellowship among brewers, share what we know about brewing, learn from one another, and foster good Mead-making wherever we can. Permission to reproduce this Mead Making Handbook is hereby granted to all brewers *provided that all copies are distributed free of charge*.

Introduction

Making their own Mead is one of the most satisfying things that homebrewers can do. Whether it be for private use or for social purposes, home-brewed Mead is something special. With it, we warm our souls, toast our friends and neighbors, and greet our fellows. This handbook will teach you to make Mead, step by step, stage by stage, and problem by problem. It is not difficult to make a good Mead, even an excellent Mead, the very first time you brew. Like everything, there are a few rules: three to be exact. Rules one and two are best remembered as the two Pâ€™s: Purity and Patience.

Purity is essential for making fine Mead. All the ingredients of your Mead must be the finest you can obtain. Use the best honey, one locally produced if possible. Avoid honey blends (many of which are made with Argentine honey), and above all avoid honey that is over- processed. Many commercial honeys are strained, filtered, boiled, blended, and Pasteurized so much that they are little more than aromatic sources of sugar. There is nothing wrong with buying honey in a supermarket, but a good general rule is to avoid all national or super-regional brands, since they are usually guilty of most of the adulterations mentioned above. Buy a honey that is collected locally, by a small operation. These honeys usually come in mason jars, with two-color labels, and bear the name of a family rather than that of a corporation. Buy these honeys; they are the next best thing to dealing directly with a beekeeper.

For several years now I have bought almost all of my honey directly from local bee-keepers. Beekeepers are neat folks, and they are generally quite interested in just what it is I intend to do with all the honey that I buy. I tell them about Mead, pass on some recipes, and usually make a friend in the process. They then sell me their best honeys, which they have collected with love and pride. My favorite beekeeper has a large stock of varietal honeys, and I am able to treat myself to pale clover honey, amber wildflower honey, and dark blackshade bean honey. What I buy is strained (but not filtered), not Pasteurized, and comes complete with flower pollen and an occasional bee leg. It contains all the aromatics, all the volatile flavoring constituents, and pleases me to no end. I feel lucky. It shouldnâ€™t be too difficult to find a beekeeper in your area. Check out the honey labels in your local grocery store, and try to find the address of an apiarist that way. More fun still is to check out local farmerâ€™s markets or county fairs and find a local beekeeper selling his wares from the tail-gate of a battered red pick-up truck. Real people sell real honey; itâ€™s that simple.

As you are careful about the purity of your honey, so too should you be careful about other ingredients. Use fine quality springwater, bottled if need be. Avoid city tap water, and generally avoid distilled water as well (since it lacks sufficient minerals). Generally speaking, if a water tastes good, it will probably make a good Mead. Likewise use care in selecting a yeast. Donâ€™t use baking yeast, first of all, even if it says “brewerâ€™s yeast” on the packet. Buy your yeast from a wine-making supply shop, being sure to purchase the best you can get. I generally buy American packaged yeasts, simply because I suspect that they are much fresher than imported yeasts. More later on what *kind* of yeast to buy.

Whether you use lemons and tea to balance the brew, or add measured amounts of malic acid and grape tannin, once again you should keep purity uppermost in mind. When using lemon peel, soak the whole lemon in hot water beforehand to take off any residual insecticides. If you prefer the chemical recipes, keep all chemical additives tightly closed to shut out any contaminants. This is surely commonsense stuff, but well worth mentioning nonetheless.

Purity includes equipment as well as ingredients. Keep everything sparkling clean. Use brewerâ€™s bleach or a household bleach, followed by a thorough rinsing. Donâ€™t use jugs or hoses with stains, cracks, scratches, etc. Forget all about that gallon jug out there in the garage next to the lawn mower: get a new one. If you can avoid it, donâ€™t “make do” with anything less than first rate. You and your Mead deserve the very best.

Rule number two is *patience*, and is perhaps the hardest rule of all. Yeast may be only a single-celled creature, but it has been around a long time: it knows what it is doing. Mead brews at its own rate; trying to hurry the process will usually result in an inferior Mead, a lesser product than you could have brewed otherwise. Once the Mead starts to ferment, aside from watching it, and occasional rackings leave it alone! Mead takes a long time to brew if a fine beverage is to be obtained, and Mead benefits from much aging. Iâ€™ve drunk my share of raw Meads, and even Meads that were still fermenting. It was fun at the time, but I cheated myself. Let the Mead work itself to perfection: unless you have made an error in the brewing process, Mead needs almost none of your help at all.

How long should you be patient? After pitching, most Meads will not be ready for bottling for at least three months. Wait until all signs of fermentation, such as bubbles working their way through the air lock, have ceased. There will be a couple of times when the Mead clarifies to a striking degree, but it usually clouds up once more after the yeast has regrouped, and then continues with secondary fermentation. Donâ€™t bottle your Mead until it is so clear that you can read a newspaper through a gallon jug of it, and until it has been that clear for at least two weeks. If you bottle sooner you will probably wind up re-bottling the Mead, which has renewed fermentation and begun to throw sediment. If the Mead is dark (like my Leather Nun), you obviously canâ€™t read a newspaper through it, but you can shine a flashlight into the jar and ascertain that the hooch has a gem-like clarity. Then, and only then, is it time to bottle.

After bottling, let the Mead age for a few months, at a minimum. If youâ€™re impatient, drink maybe one bottle for a cheap thrill, but age the rest. This, more than anything else, will make for an excellent Mead, and can even improve a poor Mead. Some people go so far as to insist that Mead does not hit its peak until it has aged for at least fifty years. I wonâ€™t go quite that far, but remember: Patience!

Rule number three is one that I crib from the Dean of American Homebrewers, Charlie Papazian: “Relax, donâ€™t worry, have a homebrew.” Mead is alive, like the earth itself. If you worry, your Mead senses it, and it worries too. All will out in the end. If you did your job, worrying wonâ€™t be necessary. If you blew it, worrying wonâ€™t help. Relax. Mead knows what to do all by itself–it doesnâ€™t need you to do anything but keep it warm. I repeat: Relax, donâ€™t worry, have a homebrew.

Ingredients

Before you begin brewing Mead, consider your environment. That is, think about just where you are

going to keep the frothing vat for the several months of fermentation. Find an area in your house where the temperature is relatively stable (55-85 degrees F), where you can get at the Mead readily, and where it will not be in the way. Once you start brewing youâ€™ll do a lot of it, so stake a claim on this area and advertise the fact in your household.

YEAST. Having decided on a place to ferment, consider the ambient temperature in the area. Different strains of yeast work best at different temperatures, and the ambient temperature of your brewing area should be taken into account when you select yeasts. Mead yeast, imported from Belgium or Germany, might seem the obvious choice, but there are problems with Mead yeast. 1) Itâ€™s hard to find in most places in north america, since the suppliers only import it once a year, and in limited quantities. 2) There are often serious freshness problems with imported Mead yeast; it doesnâ€™t keep well on the shelf (or in your cooler), and is often dead when you buy it. Unless you have a dependable source of *fresh* Mead yeast, I would not use it at all. For convenience, stick to three readily available commercial wine yeasts: Champagne yeast, for temperatures 55-70; Montrachet wine yeast, for temperatures 65-85; and Tokay wine yeast, for temperatures of 80 and above (it can even survive 110!). Most commercial brands are OK, but donâ€™t skimp.

Each of the above-mentioned three yeasts enhances a different aspect of the finished Mead. This will also be a factor in choosing which yeast to use. Champagne yeast enhances the sweetness and flowery taste of Mead, ferments slowly, and requires the longest aging. Montrachet yeast emphasizes the floral aromas, ferments moderately slowly (but to a high octane), and requires less aging. Tokay brings out the acidic tang of Mead, ferments and clears extremely quickly, and requires the least aging of them all. Tokay yeast is somewhat tricky to use, requiring both a high temperature, and an occasional stirring: the yeast settles to the bottom a little too quickly.

HONEY. The kind of honey you use will greatly affect the finished Mead. I have spoken briefly about the need for pure local honey already, and will now consider varieties of honey. Generally speaking, the darker the honey the more full-bodied and aromatic the Mead will be. Pale clover honeys make for pale, dry, champagne-like Meads. I use a clover honey when I make a sparkling Mead, for the Meads I plan to fortify through freezing or distillation, and for all herbal Meads. Amber colored wildflower honeys are excellent for “regular” Meads: Meads that you drink often, or Meads that you brew for friends and family. Wildflower Mead is medium bodied, golden in color, and pleasantly aromatic. It is hard to beat.

The darker honeys brew up into a full-bodied and highly aromatic Mead. My favorite is blackshade honey, which is so dark that when I hold a six pound jar of it up to the sun, I canâ€™t see the sunâ€™s disc through it. This makes a heavy (but not sweet), somewhat spicy, reddish-gold Mead. I have even used buckwheat honey a time or three. This black nectar is quite expensive to use, but makes a reddish, highly aromatic, sweet Mead that is slightly nutty in taste. Other honeys are available in the South and the Southwest, such as Orange blossom honey and Tupelo honey, but these are quite expensive outside of their area of origin, and Iâ€™ve not worked extensively with any of them.

ADDITIVES. For simplicity, letâ€™s call anything that primarily aids fermentation an additive and anything that affects flavor, color, or texture an adjunct. Additives are such things as lemon peel, lemon juice, tea, malic acid, grape tannin, etc. There is an ongoing controversy among Meadmakers concerning whether one should use “all natural” additives, such as lemon peel and strong tea, or use “chemicals, such as malic and tartaric acid. I have brewed with both recipes, and have changed my position in this controversy several times. Eventually I came to the conclusion that all-natural recipes are the best way to go. You will have to decide for yourself which is best to use. One thing is certain: there is a tremendous difference in the finished product.

If you use malic acid, Tartaric acid, citric acid, etc., your Mead will be ready for consumption after only three or four months of aging. Chemical Meads reach their peak in less than a year, but they donâ€™t improve much beyond that initial peak (actually a low plateau). This makes for a pretty good Mead, but not a great one. If you want your Mead quickly, the chemical recipes will do that for you. In the long run, however, youâ€™ll probably be more satisfied with the all-natural recipes.

Naturally brewed Mead ferments and clears extremely quickly, but a freshly brewed all- natural Mead can taste like gasoline at first. Natural additives such as lemon peel and strong tea can take a year or more to mellow out, but their use will result in a Mead that is cleaner in taste and much more aromatic. After a year of aging an all-natural Mead will beat out a chemical Mead hands down. Better yet, naturally brewed Meads will continue to improve with age almost indefinitely.

In the end each brewer will have to decide for himself. I suppose that chemical recipes are a good place to start, because you can taste your wares much more quickly, and maintain your initial enthusiasm a little more easily. Donâ€™t let anyone tell you that chemical Meads donâ€™t taste good, because they do. It is just that eventually most people will develop a palate that prefers all-natural Meads, which do taste better. Aside from that, you pays your nickel and you takes your choice.

ADJUNCTS. I put lots of different adjuncts into my Meads, from fruits and molasses to herbs and grains. Strictly speaking, once you add an adjunct to it, Mead becomes something else. Add fruit, and itâ€™s a melomel. Add grapes and itâ€™s pyment. Add herbs or spices and itâ€™s metheglin. Add spices and grapes and itâ€™s hyppocras. Add hops and itâ€™s ale-Mead. So much for technical names. As long as I brew with more honey than adjuncts, I call it Mead.

When you add fruit or grapes, the resulting Mead matures more quickly, and is often a fine beverage after as little as three months. That is why there are so many fruit-based Meads at amateur homebrewerâ€™s shows such as the annual American Homebrewers Association contest in Colorado. Aside from fruits, the most popular adjunct seems to be grated ginger root, added at the rate of two ounces per five gallons of Mead. This makes a spicy gingery Mead with a champagne-like taste. Corn sugar is very useful to lighten the body of a Mead, or to increase fermentable sugars without unduly sweetening the Mead. Use one pound of corn sugar (*not* cane sugar!) in place of one pound of honey to lighten the finished Mead.

My infamous , varietal" Meads use cranberries (Northern Cardinal), roast barley and licorice (Leather Nun), Szechuan peppers (Northern Fire) and fresh dill flowers (Uff-Da Dill). Add the fruits, corn sugar, malt syrup, molasses, etc., when brewing on the stove and strain off any solid residue after a day or so of fermentation. If you use grain or hops, be sure to strain them off immediately after brewing; donâ€™t let the Mead cool on top of them or youâ€™ll extract too much bitterness. Herbs can be added during the brew, but I usually steep them in the Mead while it is cooling. If you use strong herbs, steep them in the near-finished Mead just before bottling, and remove them when you like the taste. My only advice is to be inventive here, but donâ€™t make too big a batch the first time: it takes a long time to drink five gallons of acorn Mead!

Equipment

You donâ€™t need a lot of equipment to brew Mead, just a few basic items will get you started. If you already make beer or Wine you undoubtedly have the necessary items already. Mead making requires nothing special or unusual. The basic items include:

- one 6 quart brewing pot
- one 6 quart clear glass primary fermenter
- one gallon jug
- one air lock and stopper
- one long handled brewing spoon
- one wire mesh tea-strainer
- one 3′ length of siphon hose

- one racking cane

You can get a lot more elaborate than this, but these are the basic items. You will use the same equipment when you move up to five gallon batches, except for a larger brewpot and five gallon carboys. With these few items, a good recipe, and careful brewing, you can brew a Mead that is as good as any you have ever tasted, and superior to all commercial Meads. Letâ€™s talk a little about each item: The brew-pot should be copper, steel, or enamel. I donâ€™t recommend using aluminum. The acids in Mead can react with the aluminum and release aluminum oxide into the brew. I use an oversized pot, because I boil my Mead before fermentation, and if I use too small a pot the froth will spill over, making a mess.

I recommend cooling the brew in a primary fermenter before pitching the yeast rather than pouring the hot liquid directly into your gallon jug. Most gallon jugs just are not designed to hold up to boiling liquids. The brewing method I recommend generates a “cold break” in the Mead, and a lot of the suspended solids settle out during the cooling process. If you use a clear glass primary fermenter you can siphon the clear Mead off the sediment (trub) before you pitch the yeast, which will result in a Mead of exceptional clarity. Thatâ€™s why I suggest a clear glass primary fermenter.

When transferring Mead from one container to another, donâ€™t pour it. Pouring the Mead allows too much air to come into contact with the brew, air that can carry bacteria, wild yeast, and acetobacteria (a vile organism that eats alcohol and pisses vinegar!). Siphoning keeps aeration to a minimum, and greatly decreases the chance of contamination. Use a clear, food-grade siphon hose, and discard it if it gets stained or scratched.

I always attach the siphon hose to a plastic racking cane, one of the best inventions since the stone age. A racking cane, which is available at all brewing supply shops, has a cap on the tip and a hole about one inch from the end. This configuration makes it easy for you to siphon the clear Mead off the spent yeast and other sediment. Without a racking cane you will find it much harder to siphon the Mead without disturbing the sediment. For that reason, I consider it an essential piece of equipment. Most racking canes are long enough to work with a five gallon carboy, but I suggest that you cut the cane down so that it is handier to use with a gallon jug. When you move up to five gallon batches, buy another racking cane.

The wire-mesh tea-strainer is used to skim the froth from the Mead when you boil it, or for spargeing the brew if you use hops or grain. Donâ€™t use a strainer that has been lying around the kitchen for years; buy a new one and keep it with your brewing equipment. You might think that nothing needs to be said about a long-handled brewing spoon, and youâ€™re almost right. What does need to be said is this: donâ€™t use a wooden spoon. Wooden spoons are charismatic, back to nature, and all of that, but they are also extremely hard to keep sanitized. Sure, you can soak them in bleach, but then you get Mead that smells like Roman Cleanser and wonâ€™t ferment. Stop by the brewing supply shop and buy a cheap, long-handled plastic brewing spoon. Once again, throw it away if it gets scratched; thereâ€™s just no sense in maintaining a germ-motel any longer than necessary.

As regards air locks, I suggest using the one-piece plastic ones. Theyâ€™re so cheap that you wonâ€™t mind pitching one out if it gets stained. Be sure to scrape the molding lines from the outside of the lower tube so that itâ€™s completely round. The injection molding process leaves little ridges along the edges of the mold and these ridges can prevent you from getting a good seal with the stopper. If your Mead is fermenting, but no bubbles are coming through the airlock, check for leakage around the lower stem.

Aside from such basics as brushes, wine bottles, and corks, the above items are all that you really need to brew an excellent Mead. There are a few other items, however, that can make brewing a little more fun, and more convenient. One of my favorite brewing toys is a bottling cane. This is a two foot length of plastic tubing that has a valve on one end. I hook it to the "bottle" end of my siphon at bottling time. Once you have started the siphon, slip the valve onto the tip of the cane and it will stop the flow. You put the cane into the bottle, press the valve down, and the Mead flows out. Fill the bottle to the top and when you remove the cane the bottle will be filled to the correct level. Handy.

Another item I use whenever I brew is a “blow-off” tube, or “thumper.” This is a short tube that is inserted into a rubber stopper and then connected to a length of siphon hose. You put it on your fermentation jug after pitching the yeast and all of the froth and excess yeast are driven out of the jug by air pressure. I donâ€™t think you can buy these, but it is easy to make one. Cut the curved top off a racking cane, stick it into a stopper, and attach a two foot length of hose to the plastic tubing. Put the end of the hose into a jar, of course, or youâ€™ll have froth and yeast on the carpet. Also, be sure that the plastic tube does not protrude below the stopper into the Mead itself, otherwise youâ€™ll pump out brew instead of foam as the pressure builds.

I also use a hydrometer once in a while, but it is not really necessary for Mead making. A hydrometer is merely a measuring device that tells you the specific gravity of your brew or allows you to determine the approximate alcohol content. They’re cute, and can be extremely useful to the advanced brewer, but there is not much reason for a Mead maker to buy one right off the bat. p>There are also a few items you should have on hand for bottling. I have already mentioned a bottling cane. Here are a few other useful tools:

Bottle washing can get to you when you have to scrub out and sanitize five gallons worth of bottles. I have made my life much easier at bottling time by buying an inexpensive bottle washer. I hook this little brass wonder onto a faucet, turn on the hot water, and away I go. The washer shoots a high pressure spray into the bottle or jug, and even has an automatic shut-off that turns off the water pressure when I take the bottle away. It works for carboys as well, and has saved me a lot of time over the years (especially when I bottle two cases of home-brewed beer!). Once you get one, you’ll wonder how you lived so long without it.

You’ll also want a bottle capper, one that will do double duty with crown caps as well as with corks. Make sure that it comes with a cork compressor. The arbor press design is the best, even though it will set you back about thirty dollars. You can spend less money on a capper, but will get one that will be slower, clumsier to use, and which will not last as long. When you buy one, be sure to take along a wine or champagne bottle and test the capper for height. Some of the arbor press types are designed for beer bottles only and will not accommodate taller bottles. Measure before you buy, otherwise you might wind up with a capper that does not do all that you need it to.

Procedure

Now for the real thing. Lets make some Mead!

First off, choose a recipe. Several are listed at the end of this handbook. If you have never brewed before, I strongly suggest using the recipe for Magic Mead. It will work every time if you do your part, and will give you an excellent Mead. This is a tried and true recipe, and it is the recipe used in the following description.

Pour two quarts of water into your brew-pot and stir in the honey. If you are using the “all-natural recipe, stir in the lemon peel and strong tea (brewed, not leaf) at this time. If you are using the "chemical" recipe, stir in the malic acid and tartaric acid. When the brew gets hot, carefully stir in the grape tannin and the Yeast energizer. The grape tannin will tend to clot together, so you will have to stir it quite a bit even when the Mead is hot. At this point, bring the Mead to a boil, let the froth rise to the top, and then skim off all the froth that you can. The boiling lets the grape tannin and tea do their job more easily. The skimming gets out most of the suspended solids such as bee legs, pollen, etc., and also gets out coagulated proteins. As the Mead cools, even more suspended solids and coagulated proteins will settle out of the Mead, just like during the cold break in beer making, and you can siphon the brew off these before pitching the yeast. The end result will be a Mead that quickly clears to a gem-like brilliance.

However, many experienced Meadmakers prefer not to boil the Mead, and firmly discourage people from doing so. Their reasons are as sound as the easons for boiling it. First off, if you have gone to the trouble of obtaining non-Pasteurized honey, you will undo your work if you boil the Mead.

In fact, if you want to avoid Pasteurization, you should not heat the brew above 170 degrees. A second objection is that boiling cooks off some of the volatile aromatic and flavoring components of honey. It does indeed do this, and if you choose boiling, boil only long enough to skim the froth. A third objection is that boiling needlessly complicates the Mead-making process: it necessitates skimming the brew, and forces you to rack the Mead from the sediment before you pitch the yeast. All of these are valid objections, and some of the best Meadmakers refuse to boil their Mead.

Once the ingredients have been dissolved, and the Mead either boiled and skimmed or simply heated, rack the Mead into your primary fermenter. If you are using any herbs, stir them in at this point and let them steep. Cover the Mead and let it set overnight to cool. Next morning, rack the mead into your gallon jug or carboy. Prepare a Yeast starter by stirring one packet of yeast into four ounces of warm (ca. 80 degrees) water. This will rehydrate the yeast, and make for a more healthy and rapid fermentation than simply dumping the dry yeast into the Mead. Let the yeast rehydrate for about ten minutes, and then stir it into your Mead. Attach the blow-off tube or air-lock at this point. Fermentation will begin in a few hours, and will really take off in a day or so. This done, leave the Mead to itself. Go away. If you want to watch, OK, but donâ€™t interfere!

Fermentation will slow down in a few days. At that time you should replace the blow-off tube with an air lock. Fermentation will proceed at a reduced rate until either all the fermentable sugars are consumed or until the alcohol content gets too high for the yeast to live. With Magic Mead fermentation will finish in a few weeks and the Mead will begin to clear. Other recipes can take much longer, especially if you use herbs of any sort in the brew. Some recipes will even take nine months to a year to ferment to completion. Here is where it pays to be patient.

Once the Mead has begun to clear and has thrown a lot of sediment, rack the Mead into a new container, being careful to leave behind the sediment. Top up the Mead with purified or distilled water and put the fermentation lock back on. Rack the mead a second time when there is a gem-like clarity to it, or after it has thrown a lot of sediment. When fermentation has finished, and all bubbling has stopped, the Mead will clarify quite quickly.

You donâ€™t want the Mead to sit on the sediment for too long, especially in a warm climate, because the spent yeast will begin to feed on the sediment (a process called autolysis), and this will give your Mead an unpleasant taste. If your Mead takes a long time to ferment, rack it every month or so if it keeps throwing sediment.

When the Mead has not thrown any sediment for a month, and has ceased all fermentation, itâ€™s time to bottle. I generally dissolve a sulfite tablet into the Mead a day before bottling to kill off any wild yeast, bacteria, or acetobacteria, just in case. The best way to do this is to crush the tablet between two spoons, stir it into 1/4 cup water, and then stir this into the gallon of Mead. Let the sulfited Mead set overnight so that the purifying (and toxic!) gasses can escape and then bottle your brew. You should have no problems with vinegar bacteria or wild yeast if you do this. If using sulfite is offensive to you, you can skip this process, but be aware that any gap in your sanitizing process may result in disaster a few months down the road. Sulfite gives you an added measure of security.

Once fermentation has come to an end you can drink the Mead right away if you so desire, but Mead is best after aging. Some newly finished, or "raw" Meads, are pleasant. Some raw Meads taste like gasoline! The taste of newly fermented Mead generally has little to do with what the properly aged product will taste like. Give your brew at least a month and preferably several months before getting into it. The wait is worth it, even if your friends are beating on your cellar door.

Problems

Most problems arise from improper sanitation. You do everyone a favor if you pay close attention to cleanliness. Be careful to wash out all of your equipment with a sanitizer such as bleach, but then be sure to wash out the sanitizer. Rinse until there is no residual chlorine or sulfur smell. Bleach or soap or sulfite residue does extremely unpleasant things to Mead. Contaminated Mead is almost impossible to remedy, so have a care.

Slow fermentation is usually the result of either a poor nutrient balance or a weak strain of yeast. If fermentation does not take off after five days, prepare a new yeast starter, rack the Mead off the old yeast, and start over. If fermentation slows down shortly after the rapid primary fermentation and then slogs along at a snailâ€™s pace for several months, try adding 1/2 tsp. of yeast nutrient per gallon of Mead. Slow fermentation may simply be a problem with the particular recipe you are using, and if so then yeast nutrient wonâ€™t help, but a quick jolt of vitamins often prods the yeast to finish up quickly. If you fool around a lot with recipes, changing ingredients either according to whim or plan, be prepared for an occasional slow fermentation. If it happens to you, rack monthly and be patient. Try another recipe next time.

Another potential problem is temperature. If your brewing area is too warm or too cool for a particular variety of yeast, then either change your ambient temperature or change yeasts. When too cool, most yeasts go dormant. When too warm, they die and decompose before you know what hit you. Check out your ambient temperature, and then choose a yeast according to the guidelines set out in the section above on yeast types. If you simply canâ€™t find a place to brew where it is warm enough, build a brew-warmer, as described in *The Frothing Vat* # 11 (1987). If geographical location is just too hot for brewing, and you donâ€™t have air-conditioning, try buying an old refrigerator and see if you can get it to stay at 72-80 degrees.

Itâ€™s been six months since fermentation stopped, you say, and the Mead still has not cleared. Well, cloudy Mead wonâ€™t hurt you, but there are ways to clarify the Mead. Let it set for sixty years or so and it will clear up just fine. Your grandchildren will love you for it. On a more practical level, try this: Boil 1/2 tsp. of grape tannin in 1/4 cup of water. Add this solution to your Mead while the tannin solution is still pretty hot. If the problem is suspended yeast or suspended solids, this should clear it up. The tannin will work as a clarifying agent, causing suspended solids to stick to it and slowly settle to the bottom. It will look like a dirty brown snowstorm for a day or so. Sometimes you may have to do this twice.

Grape tannin will darken your Mead somewhat, and give it a reddish tint, so go easy on it. Sometimes the Grape tannin will not settle, but will instead form a gray-brown glop that floats in the middle of the jug. If your Mead looks like a lava-light after using grape tannin, just stir it up by shaking the jug. The sediment should settle out. Since tannin induced sediment is very easily disturbed, be especially careful when racking your Mead after this sort of treatment: no sense in undoing all the work by stirring the sediment up at racking time. Once you go through all this, think about how much easier it would have been simply to boil the Mead in the first place and get out all of those suspended solids.

Your Mead has been bottled for a month and now it is clouding up again and throwing sediment? You probably bottled too quickly. Siphon everything back into the jug and put an air- lock on it. Stir in some sulfite just in case you have a vinegar infection. Mead that is bottled too quickly will not only cloud up in the bottle, but the pressure can cause weak bottles to explode! Learn patience.

Your Mead was great when bottled, but the taste has changed dramatically for the worse after only a few weeks? What you probably have is a vinegar infection. Smell the Mead and look for any hint of an aspirin or vinegar smell. If you catch it right away, you can often save a batch by treating it with sulfite tablets, but the odds are not very good. You can only stop further damage, not reverse what has already occurred. Worse, if a vinegar infection got into your Mead, itâ€™s undoubtedly living in your brewing system somewhere. Go after it with a vengeance. Sanitize everything post haste, maybe even throwing out all of your siphon hoses (acetobacteria loves to hide there). Make sure there is a good seal on your air-locks.

If you have done all of this, and your Mead still tastes terrible after six months, try again. Examine all of your sanitation procedures, especially bottle washing. Make sure that any herbs or raisins or whatever that you might have added were not a source of bacterial infection. Most foul tastes are the result either of sterilizer contamination or bacterial infection. If you used an exotic ingredient, such as papaya peel, maybe you should try a new recipe. Maybe aging will solve the problem,

maybe not. At a meadmakers gathering back in 1986 there was a Mead that everyone agreed had been the meanest they had ever tasted just the year before, but which had improved dramatically after a year of aging.

A final admonition: Brew lots, share your wares, and laugh often.

Summary of Techniques

1. Stir together Honey & Water, heat slowly
2. Stir in lemon peel & tea or Malic & Tartaric acid
3. When brew is hot, stir in tannin & nutrient
4. Boil & skim, if desired
5. Rack into primary fermenter & let cool overnight
6. Rack into fermentation jug
7. Pitch yeast & attach air-lock or blow off tube
8. Wait until fermentation has ceased
9. Rack into clean jug
10. Bottle
11. Age 1-6 months
12. Enjoy!

Recipes

MAGIC MEAD [one gallon]

- 2 1/2 lbs honey
- handful of lemon peels [or 3 tsp malic acid]
- 1 tablespoon strong tea [or 1 1/2 tsp tartaric acid]
- 1/4 tsp grape tannin
- 1 tsp yeast energizer
- 1 packet Mead Yeast

MAGIC MEAD [5 gals]

- 12 lbs honey
- peels of 5 lemons [or 15 tsp malic acid]
- 5 tablespoons strong tea [or 7 1/2 tsp tartaric acid]
- 1 1/2 tsp grape tannin
- 4 tsp yeast energizer
- 1 packet Mead Yeast

NORTHERN CARDINAL [one gallon]

- 2 1/2 lbs honey
- 1 pound fresh cranberries
- 1/2 tsp pectic enzyme
- Peel of one lemon
- 2 tablespoons strong tea
- 1/4 tsp Grape Tannin
- 1 tsp yeast nutrient
- 1 packet Montrachet Yeast
- [Boil all ingredients until liquid is bright red, and berries have burst.]

SWAMP WATER ALE MEAD [1 gal]

- 1 1/2 lbs honey
- 1/2 oz Fuggles Hops (pellets OK)
- Peel of one lemon
- 1 tbsp strong tea
- 1 tsp yeast energizer
- 1 packet Muntona Ale Yeast
- [Boil all ingredients except hops. Add hops during the last 5 minutes.]

LEATHER NUN MEAD-STOUT [1 gal]

- 2 1/2 pounds dark honey
- 1/4 cup roast barley
- 1/4 stick brewerâ€™s licorice
- 1/2 ounce Cascades hops
- 1/4 tsp Irish Moss
- peel of one lemon
- 1 tbsp strong tea
- 1/4 tsp grape tannin
- 1 tsp yeast nutrient
- 1 packet Montrachet Wine Yeast
- [Crush barley & licorice & add to brewpot with honey, lemons, tea, etc., reserving hops & Irish moss. Bring to boil. Add Irish moss & boil for 10 minutes. Turn off heat & stir in hops. Let steep for 10 minutes. Sparge.]