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The final book on creating quality beer at home is available here, on the Internet, in the menu on the left. Whether you want simple, correct instructions for cooking your first beer, or you're looking to take the next step with mashing, this book has something for you. How Brew covers the full range of brewing possibilities - accurate, clear and simple. This is a book that has launched a thousand breweries around the world. Surprising to consider, but it is literally the most recommended brewing book in the world. I hope you enjoy it and my best wishes for your beer. This version of How to Brew (1st edition) is free. You can read it in full, and print out pages for personal use. However, this is not in the public domain and all publishing rights are reserved. The latest edition of How to Brew is now available from Brewers Publishing, Amazon, Barnes and Noble, and fine house brewing supply stores all over the world! This latest edition was completely revised from the 3rd edition in 2006, and contains another 200 pages, 5 new chapters, and more photos and diagrams than each before. But, it's still the easiest-read tutorial on brewing available. The online first edition has all the information you need to get started in this wonderful hobby, but the 4th edition has a lot more that allows you to really take control of your beer. Let me hear from you! If you have brewing questions or suggestions for the site, send them john@howtobrew.com 推荐 Thank you for the interest in our services. We are a non-profit group that runs this website for document sharing. We need your help to maintain this site. To keep our site running, we need your help to cover our server costs (about $400/m), a small donation will help us a lot. Please help us share our service with your friends. How to brew: Everything you need to know to brew a great beer every time is the perfect book for those interested in making beer at home. The book begins in detail the most important thing for novice brewers, it answers the question of what to do in order to make the main beer and steps to succeed in it. This format is perfect because most of us want to know how to start a hobby in the first place; How to brew: Everything you need to know to brew a great beer every time is the perfect book for those interested in making beer at home. The book begins in detail the most important thing for novice brewers, it answers the question of what to do in order to make the main beer and steps to succeed in it. participation and troubleshooting later in the book. This format is perfect because most of us want to know how to start a hobby in the first place; then if we like it, we want to know more This is. According to Palmer, cleaning and disinfection could not be more stressed in the beer production process. It examines different products and goes into their use, advantages and disadvantages. Buying equipment and ingredients for beer production, whether as components or as a kit, is discussed in detail. This detailed script gives the reader the knowledge they need to enter the homegrown store and ask intelligent questions about the products on offer. After buying the ingredients needed to produce beer, you should know how to extract essences from grains and hops. The author gives detailed instructions on how to do this. He also continues to explain the chemistry behind the extraction process he recommends. After that, a careful explanation of the fermentation stage, including yeast buying guidelines. The only other book I've read how to cook is Daniel Pambianchi's book on home winemaking. In this book, the author also stressed the importance of cleanliness and sanitation and, again, like Palmer, talked about process and chemistry. While the processes are different, the chemistry behind the two different products is similar. For me, both books serve as reference books. My only regret with How Brew is that I purchased it digitally. I highly recommend you buy it as a physical book as it will be easier to navigate as a guide. Where Palmer stands out in How to Beer in his approach to the issue. His letter leans toward a man new to the hobby of home brewing. In my opinion, this is the best aspect of Palmer's book, and that's the reason I'll recommend it to everyone contemplating home brewing. ... More Better Reviews Recent Reviews How Brew Your First Beer Rev. F This document is intended for free use and can be copied for personal use. Image copyright © 2000 By John J. Palmer All Rights Protected. For a more thorough guide to homebrew, see my full book how to cook in www.howtobrew.com Introduction These instructions are designed for the first time Brewer. Below you can be considered an annotated recipe for wacky beer ale. Why ale? Because ale is the easiest thing to cook. There are two main types of beer: ale and lager. Ales can be cooked in a relatively short period of time at room temperature. The camps require longer time (month or more) and low temperatures. Brewing beer is simple and complex, easy and difficult. Compare it to fishing - sit at the end of the dock with a can and a can and you will fish. Go after a certain type of fish when fishing becomes difficult. Brewing a certain kind of beer can get challenging too. There are many different styles of beer and many methods to brew them. Brewing is a combination of several simple processes. First, mixing and the solution (wort) (wort) Boil. Second, cooling the wort to fermentation temperature. Then the wort is transferred to the fermenter and the yeast is added. After fermentation, the beer is pumped out of yeast deposits and bottled with a little extra sugar to ensure carbonation. These are simple steps, but there are three important things to keep in mind every time you cook: cleanliness, preparation and good accounting. Cleanliness - Cleanliness is the brewer's main concern. Providing good conditions for growing yeast in the must also provides good conditions for growing other microorganisms, especially wild yeast and bacteria. Cleanliness to prevent pollution should be maintained at all stages of the brewing process. Prepare - Take the time to prepare your brewing area. Cook the ingredients on the counter. Prepare the yeast. They ice bath is ready to cool the wort when it is made boiling. Make sure all the equipment is clean and ready to go before you start. Patience and planning are necessary. Keeping records - Always keep good notes on what ingredients, quantities and times have been used in the brewing process. You should be able to repeat good parties and learn from the poor. Brewing conditions: The following terms will be used in these instructions. Ale - Beer brewed from highly fermented yeast with relatively short, warm fermentation. Alpha Acid Unit (AAU) is a homely measurement of hops that quantifies the amount of alpha acids (bitter agents) going into beer before fermentation. Equal to the weight of hops in ounces multiplied by a percentage of alpha acids. Fading - the degree of conversion of sugar into alcohol and CO2. Beer - Any drink prepared by fermenting malted barley and seasoning with hops. Cold Break - Proteins that coagulate and fall out of the solution when the wort cools quickly after boiling. Conditioning is an aspect of secondary fermentation in which yeast refines the taste of beer. The air conditioning continues in the bottle. Fermentation - Conversion of wort into beer, defined here as three parts, Lagtime, Primary and Secondary. Gravity - As a density, gravity describes the concentration of malt sugar in a must. The specific gravity of the water is 1,000 at 59F. Typical beer wort ranges from 1,035 to 1,055 before fermentation (Original Gravity). Gravity Ready Beer (FG) will range from 1,005 to 1,015, depending on OG and yeast type. Hops - Hop vines are grown in cool climates and brewers use cone-shaped flowers to add bitterness and balance the sweetness of malt sugar. Dried cones are available in pellets, corks or whole. Hot Break - Proteins that coagulate and fall out of the solution during the boiling of the wort. Iodophor - iodine-based disinfectant solution that does not require rinsing. International Bitter Units (IBU) - a more accurate method measuring hop bitterness. IBU is a measure of the amount of alpha acid in beer after fermentation. Different equations have been developed to evaluate MU VIOs in beer based on AAUs and factors for percentage use, wort volume and wort severity. Krausen (cut-zen) - Used to refer to a frothy head that is built on top of a beer during primary fermentation. Also an advanced method of priming. Lager - beer brewed from bottom fermentation yeast and given prolonged cool fermentation. Lagtime - The period of time from yeast pitching to primary fermentation is obvious. Delays should preferably be less than 12 hours. Pitching - The term for adding yeast to the fermenter. Primary fermentation - High activity phase, marked by the evolution of carbon dioxide and krausen. Most of the nakedness takes place at this stage. Priming - A method of adding a small amount of fermented sugar before bottling to give the beer carbonation. Racking - Careful pumping of beer from the pipe. Secondary fermentation - the period of conditioning and settlement of yeast after primary fermentation and before bottling. Pipe (pipe or trob) - sediment at the bottom of the fermenter, consisting of hops, hot and cold tear material, and dormant (sometimes dead) yeast. Wort (warp or twirl) - malt sugar solution, which is boiled with hops before fermentation. Wintering - The science of brewing and fermentation. Airlock Equipment Required - Multiple Styles are available. Fill to the water line with water and cover it (if it has one). Gateways prevent air pollution during fermentation. Boiling pot - should be able to comfortably hold at least 3 gallons; The more the better. Use aluminum, stainless steel or ceramic (enamelled) steel. If you use a new aluminum pot, don't use it brightly shiny; You can get metallic outside of taste. Boil some water in it first. Bottles - You will need a 48 re-cappable 12 ounce bottle. Use bottles that are thicker, like those used by microbreweries and imports. Twist-offs don't re-cap well. Used champagne bottles are perfect if you can find them. The Capper bottle is either a Capper hand or a Capper bench. The Cappers bench are more versatile and essential for champagne bottles, but are more expensive. Bottle caps - like standard (crown) caps and oxygen-absorbing caps are available. Bottle Filler - rigid plastic (or metal) tube with a spring charged valve on the tip to fill the bottles. Bottle brush - Necessary for the initial thorough cleaning of used beer bottles. Fermenter (s) - 6 gallons of edible plastic bucket is recommended for beginners. They are very easy to work with. Glass carboys are also available, in 5, 6 and 7.5 gallon sizes. Racking Cane - Hard plastic tube with Confrontation. Siphon/Hose - Available in several configurations, consisting of clear plastic pipes with additional racking cane and and Filler. Note on siphoning: Don't suck the hose to start the siphon. This will contaminate the hose with Lacto Bacillus bacteria from the mouth. Fill the hose with a disinfectant solution before putting it in the beer. Keep the end pinched or otherwise closed to prevent the solution from draining. Place the socket in another spare container and release the stream; The drainage solution will trigger the siphon. Once the siphon is up and running, transfer it to the right container. Stirring paddle - Food variety plastic paddle (spoon) to stir the wort while boiling. Thermometer - Get a thermometer that can be safely immersed in a wort and has a range of at least 40F to 150F. Floating milk thermometers work well, as do lcd to dial thermometers. Optional but highly recommended bottling bucket - 6 gallons of food class plastic bucket with an attached faucet and filling tube. The finished beer breaks into this for primer before bottling. Racking in a bucket of bottling allows for clearer beer with less rainfall in the bottle. Setting up the faucet is used instead of filling the bottle above, allowing for greater level control of the filling and no hassle with the siphon during bottling. Hydrometer - Hydrometer measures the relative specific gravity between clean water and water with dissolved sugar. Hydrometer is used to assess fermentation by measuring one aspect of it, fading. Fading is the conversion of sugar into ethanol yeast. Water has a certain gravity of 1,000. Beer usually has a final gravity between 1.015 and 1.005. Champagne and mids can have a gravity of less than 1,000, due to the high percentage of ethyl alcohol, which has a density of less than 1. By the way, the readings of the hydrometer are standardized to 59F, as liquid gravity (density) depends on temperature. Temperature correction tables are usually sold using a hydrometer or are available from the Chemistry Handbooks (e.g. CRCs). Here's a short patch table: 50F -.06006 -.0006 55F qgt; -.0003 59F qgt; 0 65F qgt;0006 70F qgt;.0012 75F No. 0.0018 80F No.0026 85F No qgt;0033 How to use hydrometer Hydrometcenter is a useful tool in the hands of an experienced brewer who knows what he wants to measure. Different books or recipes can give Original and/or Final Gravities (OG and FG) beers to help the brewer in evaluating its success. For medium beer yeast, the rule is that FG should be about one 44 OG. For example, a regular beer OG 1.040 should end around 1.010 (or below). A couple of dots anyway is a typical scattering. It should be emphasized that the stated FG prescription is not the goal. The goal is to make a good beer tasting. Hydrometer should be considered only as one tool available to the brewer as a means to assess the progress of fermentation. Brewer should be only high in hydrometer when when The fermentation seems to be over, and the reading is about half OG rather than par one up. By the way, if such a situation arises, two remedies are possible. First, agitate or swirl the fermenter to wake the yeast from below. The fermenter should remain closed without aeration. The goal is to re-suspend the yeast so they can get back to work. The alternative is to pitch some fresh yeast. Hydrometers are needed when making beer from scratch (all-grain brewing) or when developing recipes. But for the first time a brewer using a known amount of extracts usually doesn't need one. Ingredients Commercial beer kits always provide 3-4 pounds of malt extract and instructions Ften say to add another couple of pounds of table sugar. Don't do this! As a result, beer will have an unpleasant taste of cider. Use more malt extract instead. Below is the main beer recipe for pale ale: Soft pale ale 5-7 pounds of leaping pale malt syrup extract. (OG 1.038 - 1.053) 5 gallons of water 1-2 ounces of hops (if desired for a more hop character) 2 packets of dry ale yeast, plus 1 packet for backup time. 3/4 cup corn sugar for primer. It's a basic pale ale and is pretty tasty. You'll be amazed. Further descriptions of the ingredients follow. Malt extract: Using malt extract is what makes homebrew it simple. Malt extract is a concentrated sugar extracted from malt barley. It is sold in both liquid and powdered forms. The syrups are about 20 percent water, so 4 pounds of dry malt extract (DME) is approximately equal to 5 pounds of malt extract syrup. Malt extract is available in both hopped and non-cut varieties. Munton and Fison, Alexanders, Coopers, Edme and Premier are all good brands. Read the ingredients to avoid adding refined sugars, which are often added to Light Beer-style kits. Using an uncut extract requires you to add 1-2 ounces of hops during boiling for bitterness and taste. Hops can also be added to Hopped extracts to the end of the boil to add more hop character to the final beer. Rule thumb 1 pound of malt extract (syrup) per gallon of water for light beer. One and a half pounds per gallon produces richer, fuller beer. One pound of malt extract syrup usually gives a gravity of 1,034 to 38 when dissolved in one gallon of water. Dry malt will give about 1,040 - 43. Malt extract is usually available in pale, amber and dark varieties, and can be mixed depending on the style of beer desired. Wheat malt extract is also available and more new extracts for specific beer styles (e.g. Stouts) are released every year. With the variety of extract now available, almost no style that cannot be cooked using the extract alone. The next step in the difficulty for homegrown is to learn how to extract sugar from the malt grain yourself. This process, called Mashing, Mashing, Brewer to take control of wort production. This type of homegrown is called all-grain brewing, but it will not be discussed in this paper. Read my book, How to Cook If You Are Interested in This Brewing Technique. Water Water is very important for the beer received. After all, beer is mostly water. If tap water is delicious at room temperature, it should make a good beer. If the water has a metallic taste, boil and let it cool before use so that the excess minerals settle. A good bet for your first batch of beer is bottled water sold in most supermarkets as drinking water. Use 2.5 gallon containers. Use one container to boil the extract and set the other aside to add to the fermenter later. Hop is a related topic. There are many varieties of hops, but they can be divided into two main categories: Bitter and Aroma. Bitter hops high in alpha acids (major bitter agents) tend to be more than 10 percent. The aroma of hops is lower, about 5 percent. Several varieties of hops are found between them and are used for both purposes. Bitter hops are added at the beginning of the boil and are usually boiled for an hour. The aroma (or finish) of the hops is added to the boil end and is usually boiled for 15 minutes or less. Hops can also be added to the fermenter to increase the aroma of hops in a finished beer called Dry Jump, but this is best done during secondary fermentation. The mesh bag, called Hop Bag, can be used to help keep the hops while boiling and make removing the hops easier before fermentation. The tension or removal of hops before fermentation is not absolutely necessary and is largely a matter of personal preference. Beer recipes often include a hop schedule, with amounts and boiling times specified. Sometimes recipes indicate hops in terms of AAUs or IBUs. AAUs are a convenient unit for specifying the amount of hops when discussing hop supplements, as it allows for differences in the percentage of alpha acid between hop varieties or within the same variety from year to year. For the purposes of this recipe, 7 AAUs is recommended for boiling (60 minutes) and 4 AAUs for finishing (15 minutes). This involves the use of uncut malt extract; If you use a hopped extract, then only add 4 AAUs to the finish. In this recipe, these amounts correspond to 22 MBU on boiling and 1 IBU at the finish line. IBUs allow for a change in brewing practices between brewers, but provide the means to target the same final level of hop bitterness in beer. This recipe is not very bitter. For more information on hop varieties and IBUs scores, see my book, How to Boil Yeast There Are Several Aspects of Yeast; this is another important factor in determining the taste of beer. Different strains of yeast produce different beers when pitched into identical wort. Yeast is available both liquid and dried forms, as well as for different types of ales and lagers. For the first time brewer, dried ale yeast is highly recommended. Some of the leading and reliable brands of dry yeast are Yeast Labs (marketed by 5,000 G.W. Kent, produced by Lallemand Canada), Cooper, DanStar (produced by Lallemand), Manton and Fison Edme. Avoid using an untitled yeast packet that came taped to the top of the can extract. You don't know how old he is. Ale yeast is called top fermentation because most of the fermentation action occurs at the top of the fermenter, while the lager yeast would seem to prefer the bottom. While many of today's strains like confusing this generalization, there is one important difference, and that is temperature. Ale yeast, like warm temperatures, will be dormant below 55F (12C), while lager yeast will happily work at 40F. Using camp yeast at a laity temperature of 65-70F (18-20C) can lead to a mixed character, a lightly fruity tasting lager, called California common beer, the most notable example being the anchored steam beer. For more information, see my book on how to cook the preparation of yeast dry yeast should be re-hydrated before pitching; It will work much better. After rehydration, it can be proof by adding a little sugar to see if it is still viable. 1. Put 1 cup of warm (95-105F, 35-40C) boiled water in a sterile jar and stir in two packets of dry yeast. 2. Cover with plastic wrap and wait 15 minutes. 3. Boil one teaspoon of sugar in a little water and let it cool. 4. Add this sugar to the re-hydrated yeast, cover, and place in a warm area of direct sunlight. 5. After 30 minutes or so the yeast should be actively churning and churning. Now he's ready to serve. If it shows no signs of activity, repeat the process with another package. Liquid yeast is often favored compared to dry yeast due to the greater number and variety of yeast strains available. Liquid yeast allows you to adapt beer more to a certain style. Packages of liquid yeast should be kept in the fridge to keep the yeast dormant and healthy until they are ready to use. There are two types of liquid yeast pack: those with internal nutrient packets and those without. Packages that contain an internal bubble of yeast nutrients (i.e. a smack packet) are designed to work as a mini starter, but are not actually adequate. All liquid yeast should be pitched into a starter wort to ensure an adequate number of cells for good fermentation. Smack packs should be compressed and heated to 80F at least two days before brewing. The package will start to swell like wake up and start consuming nutrients. When the pack is completely swollen, it's time to break it down into a starter. The procedure is the starter of liquid yeast 1. To make a liquid yeast starter, dissolve 1/2 cup DME in a pint of boiling water. 2. Boil it for or two and let it cool to 75F (25C). Transfer the wort to a mason jar or other disinfected container. 3. Pour the liquid yeast out of the packet and add a quarter teaspoon of yeast nutrients. 4. Shake the starter vigorously to aerate it and encourage the growth of yeast. 5. Let it sit in the same warm place before brewing time the next day. Some churning or increasing the white yeast layer on the bottom should be obvious. The start-up process can be repeated to provide even more yeast for the wort to provide a strong fermentation. Most people prefer to drain excess liquid (beer) and only step yeast suspension from the bottom of the jar. Wort and Oxygen Use of Oxygen in Brewing is a two-pointed sword. Yeast uses oxygen in their growth processes, although they are not exactly breathing. Boiling wort kicks out dissolved oxygen, so before fermentation requires some aeration. Once the yeast use all the oxygen in the wort for growth and reproduction, they embark on an anaerobic business of turning sugar into alcohol and CO2, what we call fermentation. Pre-aration of wort is the best way to make sure that there are enough yeast cells for good fermentation. Aeration wort can be achieved in several ways: shaking the container, pouring the wort into the fermenter so that it sprays, or even connecting the airstone to the aquarium air pump and allowing that bubble for an hour. For the latter method, (which is popular) everything should be disinfected! Otherwise, welcome to Infectious City. These instructions recommend shaking the starter and pouring/shaking wort. More on that later. On the other hand, if oxygen is injected while the wort is still hot, the oxygen will oxidize the wort and that is the problem. This will cause the oxidation of the beer later, which can manifest itself as a wet cardboard taste after a few weeks. The key to preventing oxidation is not to aerate when the wort is above 80F. Also, if oxygen is injected after the start of fermentation, it cannot be fully used by the yeast and then cause off-flavors. This is why it is important to cool the wort quickly below 80F to prevent oxidation and then aerate it to provide the dissolved oxygen that yeast should help growth and reproduction. Rapid cooling between 90 and 130F is important because this region is ideal for the growth of bacteria to be installed in the must. See the Wort Cooling section for the methods on offer. Equipment Cleaning Tips clean up all equipment after use as soon as possible. It is very easy to get distracted and come back to find the syrup or yeast dried hard as the rock and equipment are painted. If you're pressed for a while, keep a large container of chlorine water on hand and just toss things up, clean up later. Rinsing beer bottles immediately after use eliminates the need for scrub scrub If your bottles are dirty or mouldy, soaking and washing in a soft solution of chlorine bleach water for a day or two will soften the leftovers. Brushing the bottle is a necessity to remove the stuck residues. Dish washers are great for cleaning the outside of the bottle and heat disinfecting, but won't brush inside where the beer is going to go; it should be done in advance. Sodium percarbonate-based cleaners (e.g. PBW, B-Brite and One-Step) work very well to clean bottles. Do not wash with fragrant detergents dish. This leaves leftovers that you can try. Never use any scented cleaning products, these odors can be absorbed into plastic buckets and manifested in beer. Pinesol's lemon-fresh flavored beer is not very good. Odorless soft liquid detergents for washing dishes are acceptable for routine cleaning, just be sure to rinse the items thoroughly. Finally, keep in mind that the dishwasher rinse agents will destroy the head delay on the glassware. If you pour beer with carbonation and without a head, it's a common cause. Sanitation So far, disinfection of ingredients and equipment has been discussed, but not much has been said about how to do it. The definition and purpose of disinfection is to reduce bacteria and contaminants to minor or manageable levels. Sterilization is actually impossible and not practical. The starting solution, mash and primer solution will all be boiled, so it's not a problem (usually). One note - Don't boil the yeast! You need them alive. The most affordable disinfectant solution is to add 1 tablespoon of bleach per gallon of water (4 ml per liter). A very popular disinfectant is Iodophor. Use 1 tablespoon per 5 gallons (4 ml/19 liters). Another excellent Star-San disinfectant, from PBW manufacturers. Use 1 ounce of liquid per 5 gallons. The disinfectant solution can be prepared in a fermenting bucket. Load all the equipment - gateway, hoses, paddles, rubber cork, fermenter lid and everything else, contact with beer. Let them sit for 20 minutes. Flushing is not really necessary in this concentration, but you can rinse with boiled water to avoid any chance of off-flavors. Ready to start? Okay, we have equipment, ingredients and drugs. Are you ready to start? Do you have everything cleaned and disinfected? Do you have ready-made ingredients? You don't need to have your bottles cleaned and disinfected at the moment, which step up to about two weeks. Now I will walk you through the brewing processes. Start boiling Bring 2 1/2 gallons of water to a boil in a large saucepan. Meanwhile, re hydrate the dry yeast if you haven't already already. When the water boils, remove it from the heat. Add the whole extract in hot water and stir until dissolved. Make sure there is no syrup stuck at the bottom of the pot. It is very important not to burn malt malt to the bottom when the pot returns to the heat. Burnt sugar tastes terrible. The next stage is crucial. The must tends to boil and needs to be constantly observed. If you add bitter hops, do it now. Return the pan to the heat and bring to the boil, stirring frequently. The beginning of the time is an hour. The foam can begin to rise and form a smooth surface. That's nice. If the foam suddenly heaves over the side, it is boiling (badly). At this point, the liquid is very unstable and remains so until it passes through the hot gap (when the wort stops foaming). This can take 5-20 minutes. The foam can be controlled by reducing heat and/or spraying water on the surface of the spray. Try to keep the boiling boiling. Continue rolling the boil for the rest of the hour. Stir from time to time to prevent scorching. There may be a change in color and aroma and there will be no hot break particles floating in the must. It is ok. If you add finishing transitions, do so in the last fifteen minutes. Add a few more in the last five minutes if more hop flavor is desirable. This gives less time for volatile oils to boil. Cooling the wort At the end of the boil, it is important to cool the wort quickly. While still hot, (above 140 F) bacteria and wild yeast are inhibited. But it is very susceptible to oxidation damage as it cools. There are also sulfur compounds that develop from the wort until it is hot. If the wort cools slowly, di-methyl sulfide will continue to be produced in the wort without boiling; causing off-flavors in the finished beer. The goal is to quickly cool the wort below 80 F before oxidation or contamination can occur. Rapid cooling also forms a cold rupture. This consists of another group of proteins that must be thermally shaken in deposition from the wort. Slow cooling will not affect them. A cold break, or rather a lack of it, is one of the reasons for Chill Haze. When the beer is cooled for drinking, these proteins are partially deposited, forming a haze. When the beer warms up, the proteins dissolve. Only by a quick cooling from almost boiling to room temperature, cold break proteins are constantly precipitated and do not cause a cold haze. Cold haze is usually seen as a cosmetic problem. You can't try it. To cool the wort effectively, place the pot in a sink or bath filled with cold/ice water that can be spread around a hot pan. While cold water flows around the pot, gently stir the wort into a circular pattern to allow the maximum amount of wort to move along the sides of the pot. The ousslo should cool to 80F after about 20 minutes. Make sure your thermometer is disinfected before you put it in the must. Pour the reserved 2.5 gallons of water into the The fermenter. Pour the cooled wort into it, allowing the energetic energetic And splashes. The acidity of the wort is minimal at present and it provides the dissolved oxygen that the yeast needs to reproduce. It is best for beer if the temperature of the wort is when the yeast is broken just like the fermentation temperature. In other words, the wort should not be noticeably warmer than the room in which it will be fermented. For yeast ale the preferred fermentation temperature range is 65-75F. High initial wort temperatures or fermentation temperatures above that of 80F can cause yeast to produce noticeable off-flavors. Note: Do not add commercial ice directly to the cooling wort. Commercial ice harbors a lot of dormant bacteria that would like the opportunity to work on a new beer. If you want, you can freeze the water bottle and submerge that in a must, but the outside of the bottle should be disinfected before dipping. Sticking yeast If the yeast starter is not churning or churning, use backup yeast. Repeat the rehydration procedure and then step the yeast starter into the beer, making sure to add it all. Put the fermenter lid in place and seal. Don't put the gateway in at all. Place a piece of clean plastic wrap over the hole in the lid and cover it with your hand. With the fermentation tightly sealed, pick it up, sit in a chair, put the fermenter on his knees and shake it for a few minutes to knock him down. This mixes the yeast into the wort and provides more dissolved oxygen that the yeast must grow. Wipe any wort around the hole with a paper towel that is wet with water bleach and place a disinfected gateway and rubber tube in the lid. The gateway must be filled to the water line. Active fermentation should begin within 12 hours. If no activity is observed for 24 hours, then add more yeast. Fermentation Put the fermenter in a protected area like a bathtub. If the foam escapes it will run down the drain and is easy to clean. The temperature here is usually about the most stable in the house. Beasts and young children are fascinated by the smell and noises from the gateway, so keep them away. The gateway should be ascending at twelve o'clock. Maintain a constant temperature if possible. Fluctuations in temperature strain the yeast and can disrupt fermentation. If the temperature drops overnight and the bubbling stops, just move it to a warmer room and it should pick up again. Yeast doesn't die, it just sleeps. You may have to swirl the fermenter to wake the yeast off the bottom, but don't shake the fermentation at this stage though. Bottom line - if the temperature deviates too much or goes above 80F, fermentation can be affected, which then affects the taste. If it goes too low, the ale yeast will go into hibernation. The fermentation process can be very vigorous or slow; or fine. The secret to good fermentation is to ensure active yeast. Fermentation time of the few variables with the most significant is probably the temperature. It is very common for ale with active fermentation to be done in a short time. It can last a few days, a week, maybe longer. Any of the above is acceptable. Two to three days at 70F is typical of the simple ale described here. If the fermentation is so vigorous that the foam pops

out the gateway from the lid, simply rinse it with a disinfectant and wipe the lid before replacing it. Pollution is not a big problem at the moment. With so much coming out of fermentation, not much gets inches after the bubbling slows down however, don't open the lid to peek. Beer is still susceptible to infections, especially anaerobic, like Lacto Bacillus, found in the mouth. Beer will only be fine if left alone for at least two weeks. Understanding the fermentation of malt sugars in beer is a complex biochemical process. This is more than just converting sugar into alcohol, which can be seen as a primary activity. Full fermentation is better defined as three phases: adaptation phase or lagtime, primary or faded phase and secondary or air-conditioned phase. Yeast does not finish phase 2 until phase 3, processes occur in parallel, but air conditioning processes are slower. As most simple sugars are consumed, more and more yeast will shift to eating more, more complex sugars and early yeast-by-products. This is why beer (and wine) improves with age to a certain extent, as long as they are on yeast. Beer that has been filtered or pasteurized will not benefit from aging. Lagtime Immediately after pitching, the yeast begins to adapt to the conditions of the wort and undergo a period of high growth. Yeast uses any available oxygen in the wort to facilitate their growth processes. They can use other techniques to adapt and grow in the absence of oxygen, but they can do it much more efficiently with oxygen. Under normal conditions, the yeast must undergo a phase of adaptation and begin primary fermentation within 12 hours. If 24 hours pass without visible activity, then a new batch of yeast should probably be broken. The primary phase of the primary or faded phase is characterized by the time of vigorous fermentation, when the beer's gravity falls by 2/3-3/4 of the original gravity (OG). Most of the toning occurs during the primary phase, and can last from 2-6 days for ale, depending on the conditions. The head of the frothy krausen will form on top of the beer. The foam consists of yeast and wort proteins and a light cream color, with islands of green-brown trash that are harvested and usually adhere to the fermenter's side. The decrepit consists of foreign wort proteins, tar hops, and dead yeast. These very bitter and, if stirred back into the wort, might in harsh aftertaste. Fortunately, these compounds are relatively insoluble and are usually removed by sticking to the fermenter side as the krausen subsides. Aftertaste is rarely, if ever, a problem. As the basic phase leads down, the majority of the yeast begins to set out and the krausen begins to subside. If you are going to transfer the beer from the pipe and the primary yeast cake, this is the right time to do so. Take care to avoid aeration of beer during the transfer. At this point in the fermentation process, any exposure to oxygen will only contribute to Stalin's reaction in beer, or worse, expose it to contamination. Many canned sets will advise bottling beer after a week or when the bubbling stops. This is not a good idea because the beer has not yet gone through the air conditioning stage. At this time the beer will taste a little rough around the edges (e.g. yeast flavors, oily tones, green apple flavors), but they will disappear after a few weeks of conditioning. Air conditioning Phase Reactions that occur during the air conditioning phase primarily function as yeast. The energetic primary stage is over, most wort sugars have been converted into alcohol, and many yeast cells go into hibernation - but some are still active. The secondary phase allows you to slowly reduce the remaining fermented. Yeast has eaten most of all easily fermented sugars and is now starting to turn its attention elsewhere. Yeast begin to work on heavier sugars and clean up some of the byproducts they produce during the fast-paced primary phase. However, it is often a good idea to get a beer from the pipe during the conditioning phase, especially if the beer will sit on the pipe for an extended period of time, as in the case of lager beer. See my book How to Cook for more information on lager brewing. Under certain conditions (e.g. excessively long time and/or high temperatures), yeast will also consume some compounds in the tube. Consumption of these compounds can produce several off-flavors. In addition, dormant yeast at the bottom of the fermenter will start to emit more amino acids and fatty acids. If after the primary beer stays on the pipe and yeast cake for too long (more than three weeks in some cases) soapy flavors may become apparent. Further, after a very long time in wort with low nutrient levels, the yeast begins to die and break down - autolysis, which produces a rubbery, sulphurous taste and smells. For these reasons, it may be important to get the beer from the pipe and sleeping yeast during the conditioning phase. There has been much debate in the homegrown community about the importance of shelving ales for secondary fermentation. While there is no doubt lagers, many seasoned homegrown have stated that there is no real real benefits for ale and that the danger of contamination and cost in extra time is not worth what little benefit can be. For your first beer, I advise you to use only one fermenter until you have gained some experience in racks and sanitation. Leaving a beer in the primary fermenter for a total of 2-3 weeks compared to one when using one fermentation stage (i.e. not using a second fermenter) will give time to condition the reactions and improve the finished beer. The extra time will also allow more precipitation to settle before bottling, resulting in clearer beer and easier pouring. The use of secondary fermenters (optional) The use of two stages of fermentation requires a good understanding of the fermentation process. At any time, beer racks can negatively affect it due to the potential effects of oxygen and the risk of contamination. Racking beer with yeast before the primary fermentation phase is completed can lead to stuck or incomplete fermentation. Below is the general procedure for using a secondary fermenter. 1. Allow the primary fermentation stage to roll. It will be 2 - 6 days after pitching when the upward speed drops sharply to about 1-5 per minute. Krausen will start settling back into the beer. 2. Using a disinfected siphon (without sucking or splashing!), strut the beer from the pipe into another pure fermenter and attach the gateway. The beer should still be quite cloudy with the yeast suspended. The rack from the primary can be done at any time after the initial fermentation is more or less completed. (Although, if it's been over 3 weeks, you can also bottle.) Most brewers will notice a short-term increase in activity after shelving, but then all activity can stop. This is very normal, it is not an additional primary fermentation per se, but simply dissolved carbon dioxide coming from the solution due to the violation. Fermentation (conditioning) is still going on, so just leave it alone. The minimum useful time in a secondary fermenter is two weeks. Too long in secondary (for light ale - more than 6 weeks) may require the addition of fresh yeast during bottling for good carbonation. Always use the same strain as the original. This situation is generally not a problem. Grounding and bottling This beer will be ready for the bottle for two to three weeks when the primary fermentation has completely stopped. There should be a few, if any, bubbles in the gateway. The taste will not improve due to bottling before. Some books recommend bottling after bubbling stops or after about 1 week. It is not uncommon for fermentation to stop after 3-4 days and start again after a few days due to falling temperatures. If the beer is bottled too early, the beer will become overly carbonated and the pressure may exceed the strength Exploding bottles are a disaster. Once the bottles have brushed, they need to be disinfected. Immerse them in a disinfectant solution or run them into a dishwasher with heat. When immersed, let the bottles drain completely before use. Rinse should not be necessary, but if you do, use only water that has been boiled. Hot tap water is not necessarily disinfected. Also sanitize the primer container, siphon unit, stirring spoon and bottle caps. But do not heat the lids of the bottles, as this can destroy the pads or denigrate them. Preparing Priming Solution Some books recommend adding 1 teaspoon of sugar to each bottle for primer. This is not recommended because it is time consuming and not accurate. Bottles can carbonate unevenly and explode. Instead, boil 3/4 cup of corn or table sugar, or 1 and 1/4 cup of dry malt extract in water, let it cool, and add it to the whole batch. Here are two ways to add it, I recommend the first: 1. Pour the primer solution gently into the disinfected bucket bottles, don't let it splash. Then use a disinfectant to transfer the beer to a disinfected bottling bucket. Place the siphon socket under the surface of the primer solution as it fills to prevent aeration. Don't let the beer splash as you don't want to add oxygen to the beer at this point. Keep the intake end of the tube racks inches from the bottom of the fermenter to leave the yeast and sediment behind. See The Note about Siphoning. 2. Open the fermenter and gently pour the primer solution into the beer. Gently mix the beer with a disinfected spoon, trying to mix it evenly, trying not to stir the sediment. Wait half an hour until the sediment will settle back down and allow more diffusion priming solution to take place. Then the siphon in the bottles. Fill the bottle Place fill the siphon tube or bottling the bucket at the bottom of the bottle. Fill slowly at first to prevent gurgling and hold the filling tube below the waterline to prevent aeration. Fill about 3/4 of an inch from the top of the bottle. Place the disinfected lid on the bottle and lid. Examine each bottle to make sure the lid is safe. The carbonation bottle will take about two weeks; The age of the bottle is somewhere from direct sunlight. Aging for one month will greatly improve the taste, but one week will do the carbonation job for the impatient. Different styles of beer benefit from different bottle airs lengths. Typically, the higher the original gravity, the longer the air conditioning time to reach the peak of the taste. Small beers, such as 1.035 Pale Ales, will peak in taste within a few weeks of bottling. Stronger/more complex ales like Stouts may require Or more. Very strong beers like Doppelbocks and barleywines will take 6 months to a year before they state their peak taste. (If oxidation doesn't take its first. When bottling the first few batches, it's a good idea to set aside six packs and leave it for a while. It's instructive to try a homegrown beer that has been two months old to bottle the state and compare it to what the batch originally tastes like. Other Storage Considerations Two common questions: How long will homegrown beer keep? and will it spoil? The answer is that homebrew beer has a fairly long shelf life due to the presence of yeast. Depending on the style and original gravity, the beer will be stored for more than a year. Sometimes I'm faced with a year six packs that I forgot about, and it tastes great. Of course, there are other cases where that year 6 package got very oxidized at the time and tastes pretty bad. It really depends on how thoroughly you've been with the bottling - the quality, the quality out. Finally, it is important to keep the beer away from direct sunlight, especially if you are using crisp or green bottles. Exposure to sunlight or fluorescent light will cause the beer to develop a mackerie character. This is the result of a photochemical reaction with hop and sulpher compounds. Contrary to popular belief, this is not the character that Heineken, Grolsch and Molson aspire to in their beer. This is simply the result of poor handling by retailers, and storing them under fluorescent lighting. Other beers like Miller High Life don't brew hops with mash, but instead use specially processed hop extract for bitterness, which lacks the compounds that cause skunking (and taste). Brown bottles are better if you don't make a point to keep the beer in the dark. Drinking your first homegrown One is the last item that no one can ever remember to tell new brewers before it's too late: Don't drink the yeast layer at the bottom of the bottle. People will say: My first homegrown was very good, but this last swallow was terrible! or His homegrown really gave me gas or it had to be spoiled, I had to go to the bathroom right after I drank it. Welcome to the laxative effects of live yeast! When you pour beer from the bottle, pour it slowly so as not to disturb the yeast layer. With a little practice, you will be able to pour out all but the last quarter of an inch of beer. The yeast layer can harbor many bitter flavors. Where did dregs come from. Some things to watch out for: Beer pollution can occur at any stage of the brewing process. Some of them are not obvious. But any problem that can be easily drunk will not cause physical harm. By the way, when brewing beer to produce poisonous methyl (wood) alcohol is absolutely impossible. Several infections that can cause severe gastric distress will first be marked by their terrifying odor. Here are some Signs: 1. Mould floating on top of fermented beer. Podihai. 2. Beer has slimy strands in it. Podihai. 3. Bottled beer has a milk layer at the top and/or small remnants of bumps clinging to the sides of the neck of the bottle in the airspace. It's a bacterial infection. Beer will smell rotten and taste disgusting. Don't confuse this with the dew that condenses near the bottle lid; The dew is normal. In addition, Priming with DME will leave a protein ring around the top of the bottle, just like what is left on the sides of the fermenter. That's okay, too. 4. Bottled beer has a very sweet smell like molasses. It is a sign of aceto (acetic) infection. Beer is on its way to turning into malt vinegar. Malt vinegar is good, but not what was intended. 5. Bottled beer deteriorates over time, stale, cardboard-like or sherry-like as the taste becomes noticeable. It's a symptom of oxidation. Drink beer early and try to avoid splashing hot wort next time. 6. Smell of skunk or cat musk. Beer is light. Always store beer in a dark or shaded area. Recommended reading: How to brew John Palmer's comprehensive home-grown book that covers everything you need to know to brew beer right from the first time, whether it's brewing with extract or all grains. Step-by-step instructions and illustrations are provided for each brewing method. Method. sony h.ear on mdr-100abn. sony wireless headphones mdr-100abn manual. sony wireless mdr-100abn. sony mdr 100abn pairing. sony mdr 100abn replacement ear pads. sony mdr-100abn price. sony mdr-100abn review. sony mdr-100abn battery replacement