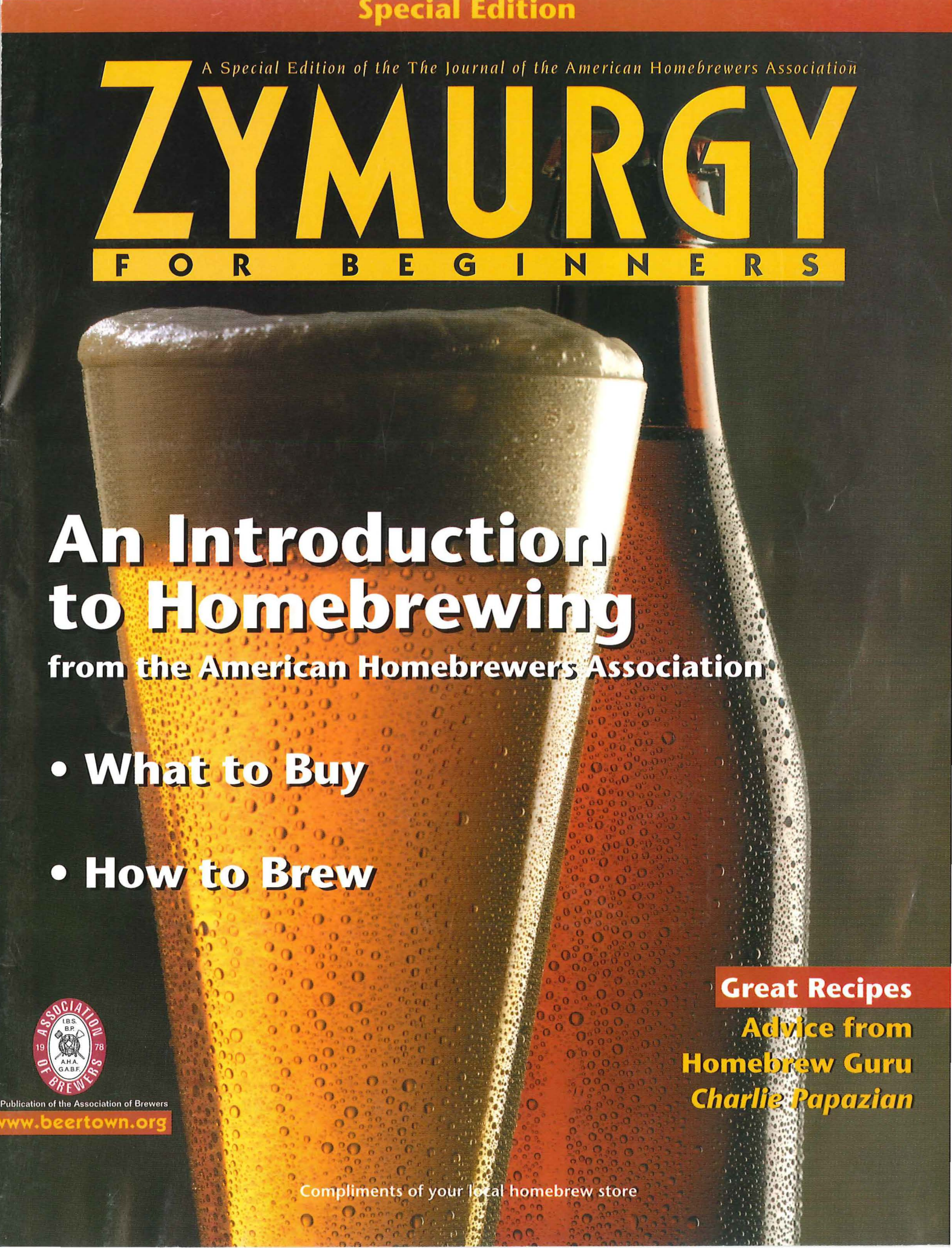
Special Edition

A Special Edition of the The Journal of the American Homebrewers Association

# ZYMURGY

## FOR BEGINNERS



# An Introduction to Homebrewing

from the American Homebrewers Association

- What to Buy
- How to Brew

**Great Recipes**

**Advice from Homebrew Guru *Charlie Papazian***

Publication of the Association of Brewers
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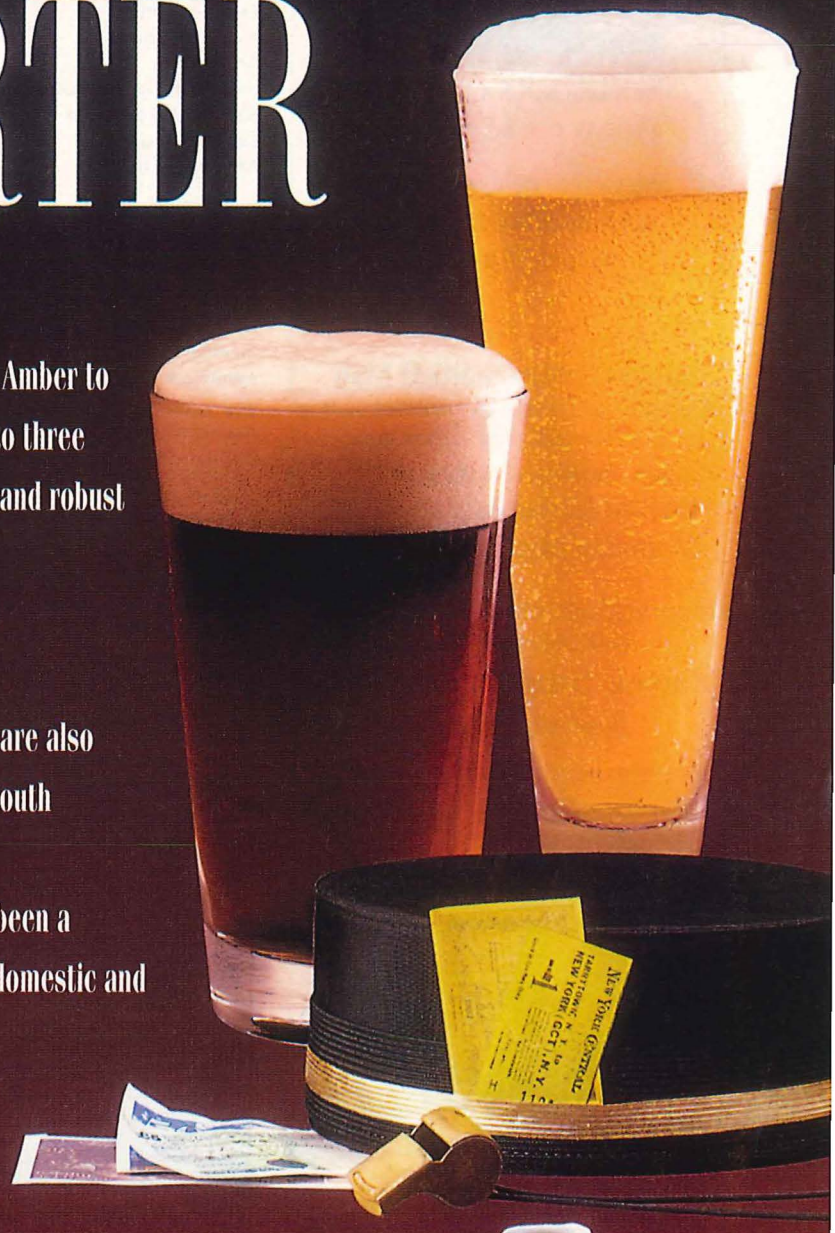

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FOR THE HOMEBREWER AND BEER LOVER

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**The American Homebrewers Association® Mission Statement**

To promote public awareness and appreciation of the quality and variety of beer through education, research and the collection and dissemination of information; to serve as a forum for the technological and cross-cultural aspects of the art of brewing; and to encourage responsible use of beer as an alcohol-containing beverage.

**Association of Brewers Inc.**

**The Association of Brewers Inc.** is a Colorado not-for-profit corporation for literary and educational purposes to benefit brewers of beer and all those interested in the art of brewing. The Association of Brewers is a not-for-profit trade Association under Section 501(c)(6) of the Internal Revenue Code.

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# Want to Brew Your Own Beer? Start Here.

Hello and welcome to homebrewing! This magazine is a special issue of ***Zymurgy*** (zī' mûr jee)—a publication that is dedicated to the interests of the homebrewer. While this special issue is devoted to new brewers, it also includes some of our regular columns and departments. Through these, we'll tell you a bit more about the hobby, give you some recipes to try and point you toward other resources to help you learn more about the hobby and meet others who brew.

These pages contain all the information you need to get started brewing your own beer at home. We'll start by walking you through your first batch with all the details you need to make a great-tasting beer. Everything you need is contained in the section called "Brewing Your First Batch of Beer" beginning on page 10. It's easy and you'll have fun both making it and enjoying the finished product.

**So, if you are standing in the homebrew store right this minute, with an itch to get started, buy the basic starter kit recommended by your store plus the ingredients given for the first recipe on page 11.** Then you can go home, do about 15 minutes of reading and be ready to brew. Go ahead, do your shopping—you can read the rest of the articles when you get home!

Brew On!

Charlie Papazian,
President, Association of Brewers

Paul Gatza,
Director, American Homebrewers Association

Ray Daniels,
Editor-in-Chief, ***Zymurgy*** magazine

### How Long Does it Take?

Just so you know what to expect, it will be about four weeks before you can drink the beer you make. Here's a basic map of how the process works:

**Brewing**
- Get the equipment and buy ingredients (20-30 minutes)
- Clean and sanitize the equipment (10-15 minutes)
- Brew the beer and start the fermentation (60-90 minutes the first time)

**Fermentation**
- Here you just wait . . . (usually about a week)

**Bottle Your Beer**
- Takes about an hour once fermentation is complete

**Bottle conditioning**
- Here you wait . . . wait . . . wait (usually two to four weeks)
- Chill and drink your beer!! (all depends: how fast do you drink?)

AHA Since 1978

# ZYMURGY®

FOR BEGINNERS

SPECIAL EDITION

*Zymurgy* \ zī'mər jē \ *n: the art and science of fermentation, as in brewing.*

## COLUMNS



## DEPARTMENTS





## MAKING YOUR FIRST BATCH FROM BEGINNING TO END

*We have included five short articles to teach you the basics of brewing and help you brew your first batch. We recommend that you read the first four articles completely before you start brewing. (Hint: we have found that you can read them in about the time it takes to drink one beer.) Then when you are ready to brew, follow the instructions in each section to make sure you don't forget anything or leave out a critical step.*



## ADDITIONAL BREWING INFORMATION

# HOMEBREWING.

## Making great beer doesn't have to be as difficult as putting a man on the moon. Let the American Hombrewers Association (AHA) be your ground control.

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**AHA Sanctioned Competition Program:** Sanctions hundreds of homebrew competitions throughout the country.

### AHA Sponsorship Opportunities:

The strength of the AHA is you. We need your support to make this your Association. As a sponsoring member you will receive a sponsor's certificate and your name, club or business listed in the six issues of Zymurgy as an active supporter of the AHA. Membership includes a subscription to Zymurgy. Choose from: **One-Year Sponsorship** ($51): One-year membership to the AHA and an honorary certificate. **One-Year Family Sponsorship** ($60): One-year membership to the AHA and an honorary certificate. **Two-Year Sponsorship** ($103): Two-year membership to the AHA and an honorary certificate. **Five-Year Sponsorship** ($230: five-year membership to the AHA and honorary certificate. **Lifetime Sponsorship** ($460): distinguished recognition and lifetime membership to the AHA, T-shirt (please indicate size) and an honorary certificate.

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AHA
Since 1978

BY PAUL GATZA

# Welcome to Homebrewing

This special edition of ***Zymurgy*** is brought to you by the American Homebrewers Association. The American Homebrewers Association, more familiarly known as the AHA to homebrewers, is the national not-for-profit educational organization for homebrewers. The AHA is made up of thousands of members from the U.S. and around the world with a small staff in Boulder, Colorado that administers and furthers AHA programs and work. I invite you to join the AHA and dive right in to the wonderful hobby of homebrewing.

The members, volunteers and staff work on two sides of homebrewing—we organize and run programs for homebrewers and we promote the hobby of homebrewing to the general public and the media. When more people are homebrewing, ingredients stay fresher in homebrew supply shops and homebrewing communities stay lively and vital. We

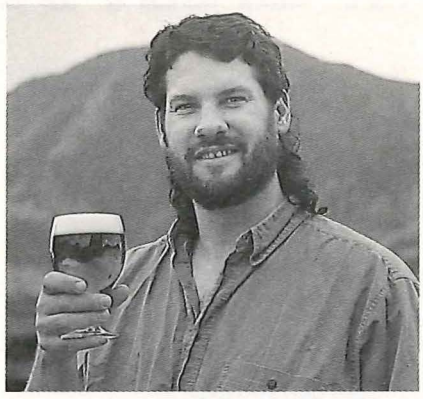


PHOTO BY BOB GOLDMAN

are the only national organization representing the interests of homebrewers in the U.S.

When you become a member of the American Homebrewers Association, you tap into a network of other homebrewers and homebrew clubs. You can sign up for our free email forum "TechTalk." You can enter homebrew competitions to get feedback on your beers and technique from expert homebrew judges. You can attend our educational National Homebrewers Conference. Best of all you get six issues per year of ***Zymurgy*** magazine. Regular issues of ***Zymurgy*** are 64 pages chock full of information on products, techniques and recipes that keep homebrewing fun with new ideas and information. Visit *www.beertown.org* for more information on ***Zymurgy*** and other AHA programs.

Membership in the American Homebrewers Association is $33 for the year. I consider this expense a bargain for the beer and brewing education, camaraderie and fun that the AHA brings to homebrewing. There is a membership application on page four. I invite you to fill it out and send it in to unlock the wide world of homebrewing.

**Homebrewer and former homebrew shop owner Paul Gatza is the director of the AHA.**

BY RAY DANIELS

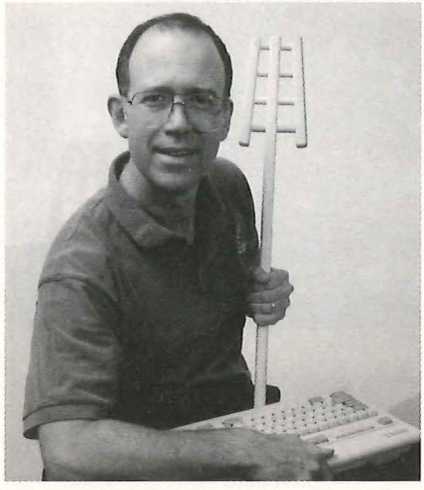
# Yes, You Can Brew Your Own Great Beer

People often laugh in disbelief when I tell them that some of the finest beers available today are made in people's homes. It's hard to believe, I know. But it is true.

I'm not saying that every homebrewed beer is a world-class concoction, but many are better than what you can buy on the shelf of your local store or from the taps at your favorite bar. If you like beer—any kind of beer—you can make it, and make it well at home.

It is legal, by the way. Jimmy Carter saw to that back in 1979. In the process, he unleashed a force that led to today's microbrewery movement as evidenced by beers like Sierra Nevada Pale Ale, Samuel Adams Boston Lager and many more.

Brewing is like many other activities that people find rewarding as hobbies: cooking, photography, gardening, home improvement, model building, and car repair just to name a few. Like these, brewing produces a rewarding product—and one that reflects the effort and craftsmanship of the creator.



But some people feel that home brewing offers even more. They find that brewing is just down-right **fun**. It's obvious that consumption of the finished product is usually enjoyable. But those bitten with the homebrew bug relish the many opportunities it presents for creativity, culture and companionship.

Creative outlets abound in brewing. From the naming of your first beer to the design of your first recipe, you'll have endless opportunities to call the shots. Perhaps you've already got a magic name like Dick's Elixer, Whama Jama Stout, or Sweet Cheeks Cream Ale just waiting for a beer that deserves it. Then, after a batch or two, you'll discover the world of offbeat ingredients that can be included in beer from cherries to chocolate and carrots to cardamom. Once you know the basics, it's up to you to experiment with these and many more.

Then there is the culture of beer, stretching back more than 4,000 years. This culture encompasses scores of different beer styles and sub-styles. Each has a distinct flavor—as well as a unique history. From Martin Luther and the monasteries to Martha Washington and the Mayflower, beer has been a part of man's endeavors. By brewing beer, we establish connections to the past and a heritage that we all share.

In the present day, the culture of beer traverses the world, from Prague to Portland and from Portsmouth to Peking. Each one of the thousands of beers out there has a unique flavor fashioned by its brewer. Homebrewing equips you with the knowledge needed to explore and understand these products and to talk intelligently with brewmasters about their wares.

As a brewer, you'll also take on a new identity. For starters, your beers will impress your family and friends. Also, with your brewing skills comes admission into a club of folks who love to brew—and drink—good ales and lagers. Likely as not, you'll find them meeting monthly in your own hometown. Then you will find them nearly everywhere you look: from the next locker or cubicle at work to the next barstool in a bar far from home. Among these brewers you'll find that all like to talk about your shared hobby and many are just like you—no matter who you are!

**Ray Daniels is Editor-in-Chief of *Zymurgy* magazine and the author of several books on brewing.**

PHOTO COURTESY OF RAY DANIELS

BY PROFESSOR SURFEIT

**Each issue of *Zymurgy* carries wisdom and advice on homebrewing from our own world-famous brew guru, Professor Surfeit (a.k.a. Charlie Papazian). Here are some of our favorite letters from this popular column. If you want to send the Professor your own brewing-related questions, see the submission information at the end of this article.**

## Damn the Instructions—Full Speed Ahead

Dear Professor,

I have been making beer for about a year now. I just received my first copy of ***Zymurgy*** and it didn't take me very long to realize that I could improve on the recipe that comes with a can of malt. Still, I have quite a large supply of malt extract on hand, so I wonder if you could suggest a better recipe than the sugar one that comes with the malt. Meanwhile, I'll continue to read ***Zymurgy*** and learn more about homebrewing.

Thank you,
Bill Tyson
Neaton, TX

*Dear Bill,*

*Well, it won't take you very long to discover that improving on the sugar recipes supplied with many malt extracts is a pretty easy thing to do. It doesn't take a whole lot of reformulation!*

*For starters, just substitute extract for sugar, pound for pound. That is the simplest thing you can do. If the extract you are using is hop flavored and the straight substitution turns out too bitter for you, then buy the plain, unhopped version of that malt extract and substitute that.*

*Don't worry too much about over-bitter beer when you first try the recipe though. Although you are adding more bitterness by substituting hopped extract, you are also adding more body and malt.*

*Sweetly,*
*The Professor, Hb.D.*

## Puckered and Bitter

Dear Professor,

I'm all puckered up and I don't like it.

It's been about a year and a half since I started brewing and reading your magazine (both with great enjoyment). With each new batch it seems like I'm getting closer to that perfect brew. I get a nice malty aroma, a clean taste, just a hint of hops and then whammo, this astringent aftertaste. It's driving me nuts.

Mostly I do extract ale brews with various amounts of grain adjuncts and hop pellets. After two to three days, I rack to a secondary and then bottle within two weeks. I'm trying to relax but I'm so puckered up it's hard to drink a homebrew. I'm desperate, so no shuck and jive. What can it be?

A proud backdoor brewer,
Rick Pauly
Charlottesville, VA

*Dear Rick,*

*I'm glad you sent a bottle of beer for me to taste. What I surmise is that the astringent pucker you refer to seems to be nothing more than a bad case of overdosing with hops. Mostly. Your beer is very bitter.*


ILLUSTRATION BY JOHN MARTIN

*Yes, there is some astringency. When steeping your grains, don't steep above 150° F (65.5° C). That will help.*

*But mostly it's an intense lingering bitterness you have in your beer. If your water is very hard, with a high pH or high carbonate content, this could also contribute to the problem.*

*Sincerely,*
*The Professor, Hb.D.*

## Detrimental Light Damage

Dear Professor,

In recent months I have been getting increasingly paranoid about the oft-mentioned damaging effects of light on my precious inventory. Like most homebrewers, I use clear glass carboys that sit for weeks or months in my basement before I get around to bottling. When I do bottle, I tend to prefer using my large collection of half-liter Grolsch bottles because of their reusable wire and ceramic closures. (I find caps a nuisance.) These bottles are green. Although my beer is not exposed to direct sunlight, I am concerned about the fluorescent lighting in my basement, both during fermentation and after bottling. Can long-term exposure to this lighting damage the beer and, if so, what are the telltale signs?

Kent Lancaster
Ottawa, Canada

*Dear Kent,*

*Yesiree Bob, exposure to sunlight or fluorescent light can do damage to your beer. The effect is a not-so-neat skunklike aroma. If you don't get my drift then simply put a green-bottled commercial beer out in the sun for an hour and then compare it to one that hasn't been out of the house. There's no mistake about it. Sunlight is* *(continued on page 24)*

# Basic Brewing Equipment:

## What You'll Need for Your First Beer

In order to make beer at home, you'll need a few items of equipment in addition to the ingredients. Some of the equipment can be found in your kitchen—things like spoons and pans. But you will need to purchase several additional items as well. Here's a list of what we recommend.

All of these items can be acquired at your local homebrew store. To find one near you, check your Yellow Pages under "brewing" or "beer."

### Things you usually have already

- A stove. Running water. (You can brew without these, but it's not recommended for your first batch!)
- A pan with 1.5 to 2 gallons (5.68 to 7.57 L) capacity. (Do not use anything with visible rust on the inside.)
- Cooking spoon—plastic, wood or metal. (Again, no rust!)
- Can opener
- Measuring cup—one cup capacity or larger
- A clean cup or small bowl—used for mixing up the yeast.

### Things You'll Buy From the Homebrew Store: The Basics

Most stores offer a starter kit for homebrewers that contains the basics listed below. Additional nice-to-have items may also be included as detailed in the "Options and Accessories" section that follows.

**Fermenter**

Usually a 6.5 to 7 gallon (24.6 to 26.5 L) food-grade plastic tub with a tight fitting top. The top will have a small hole where the air lock will be inserted. Veteran brewers often use a glass carboy instead, but the recipes given in the articles that follow assume the use of a plastic fermenter.

**Air lock and stopper**

This allows carbon dioxide to escape during fermentation while keeping room air out. You will insert this in the hole in the fermenter top using the proper-sized stopper and then fill the air lock chamber about one-half full with water.

**Transfer or racking cane and tubing**

Clear or white plastic cane and tubing used for transferring the beer from one vessel to another and during bottling. The cane should have a pointed thimble attached to the straight end to keep it elevated above the bottom of the fermenter while it is being used.

**Bottling or racking bucket**

An open-topped plastic bucket used during bottling. Beer will be transferred into this bucket from the fermenter and then from here into the bottles.

**Bottle Filler**

A section of hard plastic tubing fitted with a spring-loaded plunger at the end. Used to transfer beer into beer bottles by pressing the plunger end against the bottom of the beer bottle.

**Bottle Capper**

A device used to affix bottle caps to the filled bottles of beer.

**Sanitizing Agent**

Your homebrew shop can recommend various alternatives or you can use plain unscented household bleach.

**Bottles**

You can purchase clean, new bottles from many homebrew stores. Alternately, you can acquire empty returnable bottles and clean them yourself. You'll need nearly three cases for each five-gallon batch of beer.

**Bottle cleaning brush**

For cleaning bottles. You'll need this eventually to clean your used bottles, even if you buy clean, new bottles from the store to start with.

### Options and Accessories

The equipment listed above will allow you to make beer, but a few additional items will make the process easier or improve the quality of your product. Some suppliers sell these items as part of a basic set up and in most cases, you will be happy you got them.

**Hydrometer**

This is used to measure the specific gravity or density of the beer before and after fermentation. Knowing this allows you to determine the alcohol content and monitor the progress of your beer. Highly recommended.

**Glass carboy and accessories**

Using a 6.5 to 7 gallon glass carboy for your initial fermentation requires a bit more care and effort. One caution: do not pour hot wort into a glass fermenter as it will probably cause it to break, ruining your beer, your fermenter and your day. For each carboy, you will want a cap or stopper, a carboy brush for cleaning the vessel and a handle or web harness . You will also need a large funnel for pouring liquids into.

**Thermometer**

Used to check the temperature of the beer before adding the yeast and later for grain steeping or mashing.

**Grain/hop bag**

Used when grains are a part of the recipe. A household strainer can be substituted, but the bag is easier, faster and often does a better job.

# Homebrew Sanitation:

## An Essential for Good Beer

Beer is created when brewer's yeast converts malt sugar into alcohol and carbon dioxide. Thus, the whole purpose of brewing is to create the perfect food for micro-organisms.

Unfortunately, what is perfect food for brewers yeast is also attractive to other organisms commonly found in foods such as the bacteria that make vinegar and yogurt. Obviously, you want your beer to taste like beer and not old milk or spoiled wine. Thus, the only way to make good-tasting beer is to make sure that brewer's yeast is the only organism that gets a significant chance to eat the food that you prepare for it. That's where sanitation comes in. To make sure that yeast has the upper hand, you need to clean and sanitize everything that will come in contact with the beer. (See sidebar for a list of these items.)

Before each item is used, it should first be cleaned of all visible soil or residue and then soaked in sanitizing solution for at least ten minutes. Cleaning is best done with a normal dish cleaning sponge (no scratchy pads please!) and plenty of hot water. Then, when all of the items are clean, fill the fermenter or racking bucket with your hottest tap water and mix in the appropriate amount of sanitizer. (Two fluid ounces in five gallons, or 59 mL in 19 L is the normal rate if you are using household bleach. For other sanitizers, follow the package directions.) Then put all the other items that need to be sanitized into that bucket to soak. These items should soak for at least ten minutes and longer soaking periods will generally not hurt them.

When you are ready to use an item, take it out of the bleach solution and rinse it once with very hot tap water. Other sanitizers may not require a rinse—again, follow the manufacturer's directions.

While you are doing all of this, think like a bug. Think about where you could hang out to avoid the sanitizer and still get into the beer. When you find those places, clean 'em!

By the way, if you fail to clean effectively, the worst that can happen is bad-tasting beer. There are no known human pathogens (i.e. bugs that cause disease) that can survive in beer, so you don't have to worry about poisoning yourself or your friends.

### Items to Clean and Sanitize

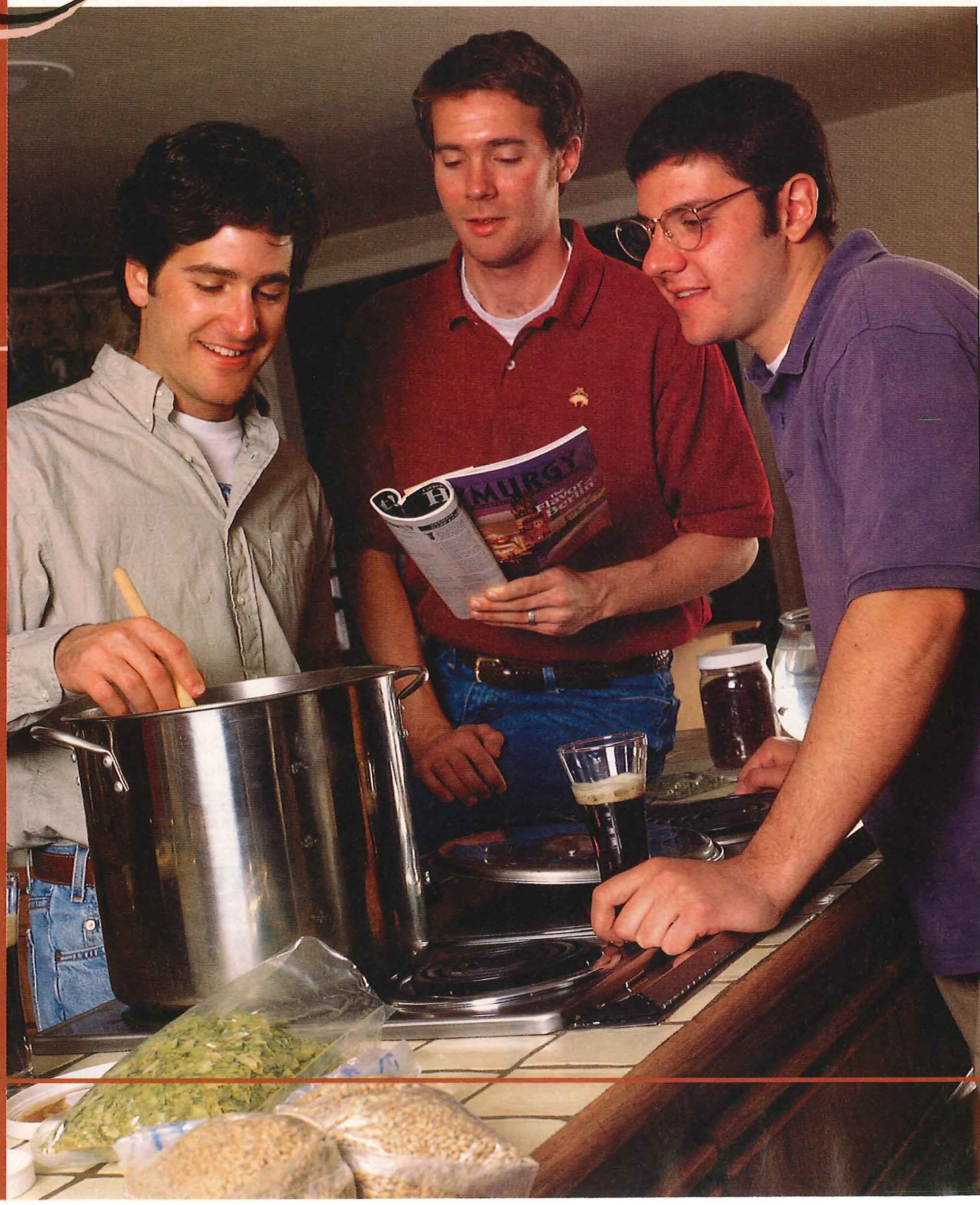
On brewing day, this includes the following items:

- Fermenter
- Fermenter lid
- Air lock parts and stopper
- Thermometer
- Hydrometer
- Funnel (if applicable)
- Cup or bowl used for mixing the yeast

On bottling day, this includes:

- Racking or Bottling Bucket
- Racking cane and transfer tubing
- Bottle filler
- Measuring cup used for priming sugar
- Hydrometer and hydrometer jar or tube
- Bottles and bottle caps
- Any other object that comes into contact with the beer

# Brew Your



# First Batch of Beer:

## There's (No) Trouble Brewin'

This is an American-Style Microbrewed Pale Ale that is easy to make and easy to drink. It provides an excellent introduction to the art of brewing for the first time brewer.

Before beginning to brew this recipe, you'll need to make sure you have all the required equipment and ingredients. You should also have read the previous article on sanitation. Now, before you begin, read the whole procedure so you see how things are going to work out and then you'll be ready to dive in and brew.

### Ingredients

**Shopping List**

- **1 can (3.75 lb) Coopers "Bitter" Brewing Kit (includes a packet of yeast)**
- **2 lb gold or light Munton's dry malt extract**
- **1 oz Cascade hops (pellets)**

These items, along with the basic equipment needed, can be purchased at any homebrew store.

Once you have all the needed equipment, you are ready to make the first batch. It shouldn't take more than 90 minutes from start to finish.

### Procedure

**A.** Bring one gallon of water to a boil in an uncovered pan large enough to hold 1.5 to 2.0 gallons.

**B.** While heating the water:

1) Remove the plastic lid and yeast packet from the top of the Coopers kit. Immerse the unopened can in very hot tap water so that the thick syrup inside will soften.

2) Clean and sanitize your brew day equipment according to the directions found in our article on sanitation. (See page nine for a list of what to sanitize.)

**C.** When the water has come to a boil:

Turn off the burner under the pan—this will keep the extract from scorching when you add it. Next, open the can of extract and add its contents to the pot of boiled water. (Scrape out with a spatula, rinse with a small amount of hot water.) Stir the pot until the extract has dissolved. Now add the dry malt extract and again stir until dissolved. Now turn on the burner again and when this comes to a boil, add the hop pellets and boil for five more minutes.

**D.** During the boil, fill the already-sanitized plastic fermenter about one-half to two-thirds full (approximately three gallons, or 11.36 L) with cold tap water. (See noteson page 14 if you happen to be using a glass carboy fermenter.)

## Making Authentic Irish Stout

The ebony blackness of stout somehow seems to attract attention among beer drinkers and many have grown to love the flavor that goes with it. This beer moves beyond malt extract to include the use of grains in the brewing process. The procedure is still very simple and you'll love the results.

**Equipment**

In addition to the basic equipment used for the first batch, you will need a grain bag, approximately seven inches by seven inches (17.8 cm by 17.8 cm) or larger, OR a large kitchen strainer to complete this recipe.

**Ingredients**

- **1 lb pre-crushed roasted barley***
- **1 can (3.3 lb) Munton's Hopped Amber Malt Extract**
- **2 pounds of light or gold dry malt extract (Munton's or other)**
- **1 packet dry ale yeast**

* **Brewing grains must be crushed or ground before use. At most stores, you can usually buy them whole or pre-crushed. Until you are buying a lot of grain and want to acquire your own grain mill, buying pre-crushed malt makes the most sense.**

- **Expected Original Gravity: 1.043**

**Procedure**

Put 1 gallon of hot tap water in the pot.

Put the crushed roast barley in the grain bag and close securely. Put the grain bag in the water and begin heating the water on the stove. Stir every three to five minutes until the water comes to a boil. (If you don't have a grain bag, you can add the grains directly to the water and remove them later with a strainer.)

Remove the grain bag as the water begins to boil. Drain the bag into the pot and—if you can—put on dish washing gloves to gently squeeze out the liquid. (If you are not using a grain bag, use a strainer to fish out as much grain debris as possible.)

Once the grain is removed, allow this liquid to boil for about 15 minutes.

Turn off the burner and add Munton's Hopped Amber Malt Extract and dry malt extract. Stir until dissolved.

Turn on fire and boil for 5 more minutes.

Fill the fermenter one-half full with cold tap water.

Turn off fire and allow the hot wort to stand for at least five minutes before adding to the fermenter.

Add the hot wort to the cold water in the fermenter and allow to cool to 80° F (27° C) or less, then follow the instructions shown in "Managing Fermentation" to prepare the yeast and conduct the fermentation.

For additional recipes see "Winners Circle" on page 23.



**Your beer will stay in the fermenter for about a week. But you'll want to keep an eye on it, so you know what is going on.**

**E.** At the end of the boil time, turn off the fire under the kettle. The strong, unfermented beer now contained in the pot is called "wort."

**F.** Carefully pour this wort into the plastic fermenter containing the cold water. If your fermenter is marked in gallons, add additional cold water, if needed, to bring the total volume to five gallons (19 L). Otherwise just try to leave two to four inches (five to ten cm) of headspace above the liquid in the fermenter.

**G.** Put the clean, sanitized floating thermometer into the fermenter so that you can check the temperature. Set the lid for the fermentation bucket loosely on top while the wort is cooling.

**H.** When the temperature of the wort drops to less than 80° F (27° C), you are

PHOTO BY BOB GOLDMAN

ready to take a hydrometer reading and add the yeast.

**I.** Assuming that you have purchased a hydrometer, this is the time that you want to use it. To do this, you can set the clean, sanitized hydrometer gently into the wort. Most of it will sink, leaving a portion of the thin stem sticking out of the liquid. Give it a minute to settle and then take a reading. This is what is known as your "original gravity" or OG. For this recipe, the expected OG is about 1.046, but this can vary considerably and maybe between 1.038 and 1.058 depending upon the exact volume of wort that you have in the fermenter. Don't worry too much about this, just make a note of your actual OG reading.

**J.** For purposes of this first recipe, you can take the simple approach to adding yeast by simply sprinkling the dry yeast powder on the top of the wort. Don't worry that it appears to just sit on the top and by all means resist the temptation to stir it in. In good time, the yeast will dissolve and go to work. Of course there are better ways to handle the yeast and we'll tell you about that later.

## Authentic German Wheat Beer (Weizen)

Those who have sampled the wonders of German brewing often come away with a love for the malty, spicy flavor of an authentic Bavarian wheat beer, known as a "Weizen" This basic recipe allows you to produce that flavor right in your own home brewery.

**Ingredients**

- **2 cans (6.6 lbs) Alexander's Wheat Extract (without yeast packet)**
- **1 ounce Perle or Liberty Hop Pellets**
- **1 tube of White Labs WLP300- Hefeweizen ale yeast**
  **(Note: If you prefer the softer flavor of American-style wheat beers, you might prefer WLP320—American Hefeweizen ale yeast instead.)**

- **Expected Original Gravity:**
  **1.050-1.051 for five gallons**

**Procedure**

Put one gallon (3.79 L) of hot tap water in the pot and bring to a boil.

Turn off burner, add the malt extract. Stir until dissolved and then turn burner back on. Add the hops. Turn on heat and boil for 30 minutes.

Fill the fermenter one-half full with cold tap water.

Allow the hot wort to stand for at least five minutes before adding to the fermenter. (If using glass fermenter, follow instructions given on page 14 to avoid breakage.)

Add the hot wort to the cold water in the fermenter and let cool to 80° F (27° C) or less, then add the yeast. Follow the instructions shown in "Managing Fermentation" to monitor the fermentation.

**K.** Once you have added the yeast, attach the lid and snap it into place. After this is done, you can attach the fermentation lock. And be sure to add a bit of water to the fermentation lock so that it will let carbon dioxide out without allowing air to circulate back into the fermenter.

**L.** Store the fermenter some place where the temperature will stay around 65°-75° F (18°-24° C). If you are able to control the temperature of the room, the cooler end of this range is better than the warmer end.

Your beer will stay in the fermenter for about a week. But you'll want to keep an eye on it, so you know what is going on. For now, take a break and enjoy a beer to toast your hard work in your own home brewery. When you get a chance, read the next article on managing fermentation to help you monitor and assess the progress of your first fermentation.

## Notes on the Use of Glass Carboys

The procedure for the first beer has been written assuming the use of a plastic fermenter with a removable top. Use of a glass fermenter will change some of the steps. First, it is not safe to pour hot wort into a glass fermenter, even when it is partially filled with cold water. Thermal expansion could cause the fermenter to break. Second, you will not be able to float your thermometer or hydrometer in the fermenter to take readings.

To adjust, you will want to cool the wort in the pot you use for boiling. When the boil is finished, turn off the fire and remove the pot from the hot burner. Rather than adding cold water to the fermenter, you can add cold water to the pot to help cool the wort. Add as much as the pot will hold while still being manageable. Then float your sanitized thermometer in the pot, cover it and set it in a cool place. This cool place might include a sink partially filled with ice water, a refrigerator or freezer or even a snowy porch step or chilly basement corner. When the temperature has dropped to 100° F (38° C), it is safe to pour the wort into the fermenter and fill it up with cold water.

To take a hydrometer reading, you will have to remove some wort from the fermenter after the water has been added. Handling full glass carboys is a bit hazardous, so if you don't feel you can do so safely, it may be best to skip this step. But if you can manage it, shake or swirl the fermenter a bit to make sure things are well mixed inside and then carefully tip it enough to pour out about a cup of the wort. This wort can be put in the hydrometer tube for a reading of your original gravity or OG. (Do not return any of this wort to the fermenter, you'll risk contamination of the whole batch.)

Once this is done, you are ready to attach the cap or stopper and the fermentation lock and place the fermenter in a suitable location for fermentation as mentioned above. The only other factor you'll want to consider is that glass carboys sometimes overflow during fermentation. Normally, you'll have little headspace below the neck of the fermenter, so you'll want to place the fermenter in a box lined with a garbage bag or something similar so that it will be easy to clean up any spills that will likely occur. (Later you'll learn how to manage this with a blow-off tube.)

# Managing Fermentation,
## or the Art of Yeast Wrangling

While brewers like to claim that they make beer, it is actually the yeast which turn our prepared sugar solution into an alcoholic beverage. During this process we brewers mostly wait—although some amount of watching is useful as well. This article discusses fermentation and your role as the brewer. It begins by describing a more desirable technique for preparation and pitching of dry yeast and then continues with a discussion on fermentation itself. After the fermentation is over, you'll be ready for bottling.

**Pitching Dry Yeast**

Each time that you make beer, you'll be adding yeast once the temperature of the wort drops to 80° F (27° C) or less. While you can sprinkle dry yeast on top of the cool wort as we did in the first recipe, you'll improve the probability for success if you take a few minutes to prepare the yeast for the feast it is about to receive.

To do this, you'll run warm (body temperature, or about 98-100° F or 37-38° C) water into a clean and sanitized cup, bowl or measuring cup. Open the yeast packet and pour it on to the warm water without stirring. Allow the yeast to dissolve in the warm water for about 10 minutes then stir in any remaining chunks with a clean spoon.

Once prepared, this yeast slurry can be added to the cool wort in the fermenter. Then you will attach the lid and fermentation lock. (Don't forget to put some water in the fermentation lock to serve as an airflow barrier.) Fermentation will now start to get underway. During fermentation, you'll want

to store the fermenter some place where the temperature will stay around 65° to 75° Fahrenheit (18°-24° C). If you have any control over it, the cooler end of this range is better than the warmer end.

By the way, if you buy a package of dry yeast and don't use it, toss it in the refrigerator until you do need it. This will help to sustain the freshness and vitality of the yeast.

### Liquid Yeasts

Many homebrewers use liquid yeast preparations as an alternative to the packages of dry yeast. These liquid yeasts cost substantially more than the dry packages, but they can be well worth it in terms of beer quality and brewing convenience. Most homebrew shops carry a line of liquid yeasts that are available in a variety of types. Each type produces slightly different characteristics in the finished beer and often you must use a special yeast type when you want to copy a particular commercial beer that you like.

These days liquid yeasts come in packages that contain enough yeast for a five gallon batch. One style comes in a gold foil pouch. To use it, you slap the pouch to break a small wort package inside and then wait one to two days for it to puff up. These expanded packs are ready to be pitched into the beer. Another brand of liquid yeast comes in a vial about the size of a small safety flare. The contents of these vials can be pitched directly into the wort.

The downside to liquid yeast packages is that they have a limited shelf life. Most carry a date indicating when they were filled by the manufacturer. Ideally you'll buy liquid yeast as close to this date as possible. Properly stored liquid yeasts used within a month of the fill date will work great. Beyond that, they begin to lose some of their potency and may be more sluggish. Advanced brewers can deal with this minor challenge, but for beginners, we suggest that you stick with the fresh stuff.

### Fermentation

If it is convenient, you'll want to check the fermenting brew every 12 to 24 hours for activity. If all goes well, you should see vigorous activity within the first day. This will

**Check the fermentation lock every day or so and when you can see no more visible bubbling, wait another three to five days before proceeding to bottling.**

be indicated by rapid bubbling of carbon dioxide out of the fermentation lock and also by the development of a ring of gunk around the edge of the fermenter at the top of the liquid level. This is usually visible from the outside even with opaque white plastic fermenters.

Once this has happened, you know that everything will be OK. In a week or so, your beer will be ready to bottle.

If you don't see any signs of fermentation activity within the first 48 hours, there may be trouble. Generally, the best approach is to wait it out. If you've been away for a couple of days or forgot to check for activity during the first 48 hours, it may have done its thing while you were away. In this case you should still see the big ring of gunk around the top edge.

If you get a quick initial fermentation (within 48 hours), you'll most likely be ready to bottle five to seven days after the brew day. Follow the instructions for bottling on page 18. If your fermentation starts more slowly, you must wait until all activity has ceased before you think about bottling. Check the fermentation lock every day or so and when you can see no more visible bubbling, wait another three to five days before proceeding to bottling.

If you fail to notice any signs of fermentation after a week, you may open the fermenter and check on things. Before you do this, clean and sanitize both the inside and outside of a measuring cup or other scoop-like vessel. Use this to collect about a one-cup sample of the beer or wort once you have removed the airlock and lid. Once the sample is collected, replace the lid and airlock. Now you have a sample of your beer and you can assess its condition. First, if you have a hydrometer, fill the hydrometer sample jar and take a reading. If the reading is at or below 1.020, then you've had a successful fermentation.

Whether you have a hydrometer or not, you can also taste the beer. If it is thick and tastes very sweet and syrupy, then it most likely has not fermented. If it has the general properties of beer (minus the carbonation at this point), then you are on the right track. In either case, don't return the sample to your fermenter—it can infect the batch. If you are in doubt, save the sample in the refrigerator and ask the folks at your local homebrew shop at your earliest convenience—they'll be glad to help out.

## Additional Resources

**Membership in the American Homebrewers Association—This includes a subscription to *Zymurgy* plus Tech Talk, book discounts and other benefits. See www.beertown.org and click "Join the AHA" or call 1-888-822-6273.**

- ***The New Complete Joy of Homebrewing***, by Charlie Papazian—An excellent guide to both beginning and advanced brewing techniques and the standard text for every homebrewer.

- **Homebrew Digest** - See www.hbd.org—a daily digest of homebrew topics ranging from simple to quite advanced.

- **Join a Homebrew Club**—Clubs welcome new members—especially if they are carrying a few bottles of homebrew! Check www.beertown.org for a list of the clubs near you.

- **Your Local Homebrew Shop**—A valuable resource for both supplies and advice.

# Bottling

# Your Beer

A few days after fermentation is complete, you are ready to bottle your beer. Here's a checklist of the things you'll need on bottling day.

**Equipment**

Measuring cup, one cup (237 mL) or larger capacity, capable of measuring 0.75 cup (177 mL).
Small pan for boiling water
Racking or bottling bucket (7 gallon (26.5 L), plastic)
Racking cane and transfer tubing
Bottle filler
Hydrometer (optional)
Bottle capper

**Supplies**

55 to 60 12-ounce bottles
55 to 60 bottle caps
One cup of priming sugar (purchased from your homebrew supply shop)

**Overview**

First, if you haven't used a bottle capper before, experiment with it a bit on an empty bottle or two. Once you've got the hang of it, just use a bottle opener to remove the practice caps from the empty bottles. (Just think, you'll soon be doing that to bottles of beer that you brewed yourself!)

Now, here's the overview of the bottling process. First, you'll sanitize everything to make sure that you will wind up with good tasting beer! Next, you'll transfer the beer from the fermenter to the racking bucket in order to separate it from the spent yeast and other debris. Then you add just a bit of sugar to the beer so that it will carbonate in the bottle. After that, you are ready to fill the bottles and cap them.

Throughout this process, you want to minimize splashing, foaming and aeration of the beer as this can have undesirable flavor effects. This isn't a huge deal, but just remember that "quiet is cool" when dealing with fermented beer.

**Sanitize the equipment and bottles**

The first step in bottling is cleaning. All of the equipment that will touch the beer—no matter how briefly—must be cleaned and sanitized as described in our article on sanitation. See page nine for a list of the things you need to sanitize on bottling day. In addition, all the bottles must be cleaned and sanitized as well. Fortunately, if you are using new bottles, you can usually go straight to the sanitizing step.

**Racking the Beer**

"Racking" is a brewer's term for transferring or moving the beer from one vessel to another. In this case, we'll rack

## Please Don't Suck!

Once your beer has fermented, you'll need to transfer it from the fermenter to the bottling bucket. This will probably be the first time that you have occasion to use the racking cane and tube. Of course, it needs to be filled with sanitizer before use and then you'll need to get it full of beer so that it will flow by siphon action for the racking.

When trying to get the racking cane and tubing started, your natural inclination is to stick the cane into the sanitizer or beer and then suck on the tube end to draw the beer into the tube. Bad idea. The human mouth is full of nasty bacteria—even after treatment with an anti-bacterial mouthwash. To get around this, you can fill the cane and tube once at the beginning of your day and then keep them filled with some fluid until you are done. Here's one approach.

At the beginning of the day, fill the whole racking tube and cane assembly with water. You can suck on it here if you want, but better yet, hold the open end of the tubing up against the faucet and let the pressure of the water fill the device. Then drop the cane end into your racking bucket when it is filled with sanitizer. Using siphon action, open the clamp on the end of the tubing and use a measuring cup or other small container to run solution through the racking cane and tubing until they are full of sanitizer. Close the clamp and throw the clamp end into the bucket of sanitizing solution along with the cane end so that both can soak.

When the soaking is done, you will have a sanitized racking cane and tube that are full of sanitizing solution. For the rest of the day, you'll want to keep that tube and cane full of liquid—that way you'll always be ready to start the flow of liquid and you'll never have to suck on the end. Violá!

the beer from the fermenter to the racking bucket using the sanitized racking tube and cane. (If you haven't already, see the sidebar on how to start the transfer without sucking on the tube!)

To achieve the racking, we'll use the magic of siphon action to move the beer. Put the fermenter on the counter, with the racking bucket below it on a chair set immediately in front of the counter. (Alternately, you can put the fermenter on a chair and the racking bucket below it on the floor.)

Now put the racking cane in the fermenter and the tube end in the racking bucket itself. Ideally, the height of the racking bucket should be such that the tube rests on or against the bottom. If the tube does not reach the bottom, use a phone book or a small box to raise the level of the racking bucket until it does. Now you are ready to transfer. Release the clamp on the hose so that the beer flows into the racking bucket. To minimize splashing at the beginning of racking, you may want to tip the racking bucket to keep the tube end submerged in beer.

Siphon power depends on keeping the level of the hose end and the liquid in the bottom container lower than the level of liquid in the top container. Keep this in mind and adjust things during the racking process if you need to.

Near the end of racking, you will want to tip the fermenter to keep the end of the racking tube submerged in beer for as long as possible and minimize beer loss. Then, as the thimble on the racking cane is about to emerge from the last of the beer, close the clamp on the tube end so that the racking tube and cane remain filled with beer.

You are now ready to prime the beer.

### Priming

Right now your beer is flat: it has no carbonation. Rather than using some mechanical or industrial process to carbonate it, we will do this naturally using the fermentation power of the yeast.

When yeast ferment sugar, they turn it into alcohol and carbon dioxide. The carbon dioxide produced by fermentation inside a bottle dissolves into the beer and thereby carbonates it. Even if your beer looks perfectly clear when you rack it, it still contains enough yeast to carbonate your beer. All we have to do is to add a measured amount of sugar before bottling.

The standard quantity of sugar used for priming five gallons of beer is 0.75 (177 mL) of a cup. You must use corn sugar (also known as dextrose) or perhaps dry malt extract for this purpose. You should **not** use ordinary table sugar.

Measure the sugar into your measuring cup and then mix it with 0.33 to 0.66 cup (75 to 156 mL) of boiling water. This will sanitize the sugar solution. Once this is prepared, you can pour it into the beer in the racking bucket. Next, take the racking cane and gently stir the beer for 30 seconds or so to mix in the sugar solution. Remember, no splashing!

### Bottling

First set the racking bucket on the counter or a chair and make a work area for yourself at a lower level so that siphon power will move the beer for you.

Next, arrange the bottles nearby. You may find it convenient to leave them in the case boxes to make them easier to handle.

With the racking tube clamp still closed, affix the bottle filler to the end of the tube. Now use the empty priming sugar cup to practice. With the racking cane in the beer and the bottle filler in your priming cup, open the clamp on the racking tube. Then press down on the bottle filler so that beer flows into the cup. If you want, put six ounces or so (177 mL) of beer into the cup and use this to measure the gravity with your hydrometer. The gravity recorded at this point is known as "final" or "terminal" gravity and usually abbreviated as "FG" or "TG." (Oh, and you can drink the beer you collect for the hydrometer reading—don't add it back to the stuff you are going to bottle.)

You are now ready to fill those bottles! Insert the bottle filler into a bottle and press it against the bottom of the bottle to start the flow of beer. Continue until the liquid level reaches the very top of the bottle. As soon

PHOTO BY BOB GOLDMAN

**Throughout this process, you want to minimize splashing, foaming and aeration of the beer.**

as you release the pressure on the filler the flow of beer will stop. Then, as you remove the filler from the bottle, the level of beer will drop. When the filler is removed, the beer will be about two inches (5 cm) from the top of the bottle.

At this stage, you may find it easiest to fill a whole case of bottles before you begin capping. There is no rush to get the capping done as long as it happens within an hour or so of when you add the priming sugar to the beer.

As you fill, keep an eye on the level of beer in the racking bucket. When it starts to get low, tilt the bucket so that you can draw out most of the beer without sucking up any air.

Once the beers are filled and capped, they need to rest for two weeks to a month before they'll be ready to drink. Ideally, you will keep them at room temperature, 65 to 75° F (18 to 24° C) during this time so that the priming fermentation and aging processes can take place properly.

I know that it is hard to wait, but patience is usually rewarded with better tasting beer. (Of course to prove this, you might have to taste one bottle after two weeks.) If you are that anxious, go ahead and make another batch of beer so that you'll have a steady supply coming once you taste the first batch.

By the way, this is the stage where you start thinking about that old bugaboo of homebrewing—the exploding bottle. The techniques we use today make this an extremely rare occurrence. Nonetheless, it is a good idea to keep your bottled beer stored inside cardboard case boxes with the lids closed. That way, if one does happen to explode the glass will be contained inside the box.

After the beers have aged, throw a couple of bottles in the refrigerator to chill them down. Open and enjoy.

**Labeling Your Brew**

If you drink all of one batch before you make another, you'll never have any need to label your beers. But often batches overlap, so some system of labeling comes in handy.

The easiest is to take a china marker and mark a batch number on the top of each bottle. If you want more than that, you can get some of the small, round, self-adhesive labels sold at office supply stores and affix them to the tops of the bottles. With these, you can write out some additional information including the name, style, bottling date, etc. if you want to.

Another fun thing to do with your homebrew is to have some labels made up to go on the front of the bottle. If you are artistic or have some skill with a computer, this can be easy to do. Homebrew shops often offer gummed paper that is pre-cut or perforated to produce normal bottle-sized labels. But whatever you do, remember the three most important rules of bottle labels: 1) Have fun, 2) Go wild, and 3) Show off.

# Going Beyond the Basics

Just about any kit or extract beer can be made using the basic equipment you buy to make your first beer. But as you advance, the following items may prove useful.

**Wort Chiller**

This is a long section of copper tube that has been coiled up to fit inside your brew pot. Water is run through the coil while it sits in your hot wort in order to quickly chill the wort after boiling. If the volume of wort you boil is more than two gallons, we strongly suggest you acquire this piece of equipment.

**Grain Mill**

Many homebrew shops will grind grain for you. If you want to have greater control over the grind that you get, you can grind your own. A number of grinders designed specifically for homebrewing can be purchased at the homebrewing stores. These aren't cheap, with prices ranging from $85-$140.

**Carbon Water Filter**

Carbon filtration removes chlorine from your brewing water. This is important because chlorine can form unpleasant-tasting compounds when included in your brewing water. A simple faucet-attached unit can be installed in 10 minutes without requiring any changes in your plumbing.

**Glass Carboy**

Five to seven gallon glass carboys are the fermenter of choice among more experienced homebrewers. For each carboy, you will want a cap, a handle, and a carboy brush for cleaning. The basic carboy is $15-20, depending upon size; accessories are a few bucks more.

**Stainless Steel Brew Pot**

Under ideal circumstances, the entire volume of wort that will go into the fermenter should be boiled. To do this, you will need a brew pot that will hold at least six gallons of liquid for extract-based brews. Prices range widely depending upon the size and type of construction: $44.95 - $180.

**Jet Burner**

Few domestic stoves are powerful enough to boil six or seven gallons of wort in a reasonable time period. As an alternative, you might buy a propane-fueled jet burner or Cajun cooker. These connect to readily available propane tanks and they put out enough heat to quickly produce a rolling boil. Just remember, these burners must be used outdoors! Prices run from $50-$80.

**Electric Brew Bucket**

If you can't brew outdoors, you might consider a brew bucket fitted with a high-powered electrical heating element. These systems work best with 220-volt power, which is available in the laundry room of many homes. These can be used successfully for all types of brewing. About $90.

**Good Reading**

If you haven't already, check out your homebrew store or **www.beertown.org** to find out about books for homebrewers.

Every year, the American Homebrewers Association organizes the AHA National Homebrew Competition, in which thousands of beer entries from all over the country are judged. Awards are given to the top three beers in each of 29 beer style categories. Many of these recipes use malt extract and follow simple brewing procedures like those you have already learned. The following beers were brewed by people just like you, just making beer at home for the fun of it—yet their finished product was rated by experienced beer judges as being the best homebrew in the country. These represent a few of the very best of the best, from competitions in 1991, 1994 and 1999. We hope that these gold medal-winning recipes will inspire you to try your hand at reproducing their championship creations. And who knows, maybe one day soon your own favorite hand-crafted beer recipe will find its way into the elite ranks of ***Zymurgy's*** Winners Circle.



## Colorado Weizen

***GOLD MEDAL***
***AHA 1991 NATIONAL HOMEBREW COMPETITION***
**Michael Croddy, Colorado Springs, CO**
**"Colorado Weizen"**
**German Wheat Beer**

**Ingredients for 5 US gal (19 L)**

- **6.6 lb wheat malt extract (3 kg)**
- **1 lb rice malt extract (0.45 kg)**
- **4 oz maltodextrin (113 g)**
- **2 oz Tettnanger hops (57 g) (45 minutes)**
- **1 oz Tettnanger hops (28 g) (1 minute)**
- **Wyeast No. 1028 British ale yeast**
- **0.5 cup corn sugar (118 mL) to prime**

- **Original specific gravity: 1.050**
- **Final specific gravity: 1.010**
- **Boiling time: 45 min.**
- **Primary fermentation: 3 days at 65-70° F (18-21° C) in glass**
- **Secondary fermentation: 17 days at 65-70° F (18-21° C) in glass**

**Brewer's Specifics**

[Maltodextrin is a white powder that adds a little bit of body to this beer. You should be able to find it at your local homebrew shop, but if you can't, the beer will still be outstanding without it.]

**Judges' Comments**

"Nice clovelike aroma. Nice color and clarity. Little head, lacks retention. Distinct wheat flavor and lots of clove flavor. Very spicy but well-balanced. Medium bodied. Very nice example of German weizen."

"Very good balance. Good conditioning. Very good, fruity aftertaste. Body is full, appropriate to style. Overall, and excellent weizen. Very drinkable—I love it."

## Spice Beer

***GOLD MEDAL***
***AHA 1994 NATIONAL HOMEBREW COMPETITION***
**Dan Rabin and Gabriella Hess, Boulder, CO**
**"Chautauqua Holiday Ale"**
**Amber Ale with Spices**

**Ingredients for 6 U.S. gal (22.7 L)**

- **8 lb pale malt extract syrup (3.63 kg)**
- **2 lb dark dry malt extract (0.91 kg)**
- **1 lb honey (0.45 kg)**
- **3.5 oz finely chopped ginger**
- **2 oz Northern Brewer hops, 7.4% alpha acid (57 g) (60 minutes)**
- **1 oz Willamette hops, 4.8% alpha acid (28 g) (15 minutes)**
- **1 Tbs whole cloves (14.8 mL)**
- **0.5 Tbs ground coriander (7.4 mL)**
- **8 medium grated orange peels**
- **7 3-inch (7.6 cm) cinnamon sticks**
- **Wyeast No. 1056 American ale yeast**
- **1 cup corn sugar (237 mL) to prime**

- **Original specific gravity: 1.052**
- **Final specific gravity: 1.020**
- **Boiling time: 60 minutes**
- **Primary fermentation: 1 week at 65° F (18° C) in glass**
- **Secondary fermentation: 4 weeks at 65° F (18° C) in glass**

**Brewer's Specifics**

To make a spice tea, boil one gallon (3.79 L) of water and turn off heat. Add honey, orange peel, and all spices. Cover and steep for 60 minutes. Add to boiled wort.

**Judges' Comments**

"Effervescence on tongue. Nice marriage of spices. They all blend together with one spice dominating. Sweet finish. A great beer to sip by the fireplace."

## Glossary

**Clean**—Denotes the absence of visible soil or debris.

**Dried Yeast**—A powdered or granular form of yeast which has been dehydrated.

**FG**—Final Gravity. The same as terminal gravity.

**Hops**—The green, cone-like flowers of a rapidly growing vine properly called *Humulus lupulus*. Hops impart bitterness to beer and, depending upon how they are used, can also confer a range of flavors and aromas to on the finished product.

**Malt**—Short for "malted barley," the cereal grain from which beer is made. Raw barley is malted by wetting it and allowing it to germinate. The grain is then dried so that it can be stored and transported for use by brewers.

**Malt Extract**—A solution of sugars and other compounds extracted from malted barley and used in the making of beer.

**Mash, mashing**—A thick combination of crushed malt with hot water designed to extract malt sugars and flavors. Unlike steeping, this process strives to activate the natural malt enzymes in order to maximize the conversion of starch into sugar.

**OG**—Original Gravity. The specific gravity of the wort prior to fermentation.

**Pitch, pitching**—In brewing we add or "pitch" yeast to wort to initiate fermentation.

**Rack, racking**—The process of transferring wort or beer from one container to another.

**Sanitize**—To treat with solutions that dramatically reduce the number of microorganisms present on a surface.

**Steep, steeping**—Soaking of crushed grains in hot water to extract flavor components.

**TG**—Terminal Gravity. The specific gravity of beer after fermentation.

**Wort**—the boiled solution containing malt sugar and hops that is cooled and pitched with brewer's yeast to produce beer.

**Yeast**—The single-celled organism responsible for converting sugar into alcohol and carbon dioxide during the making of beer and other alcoholic beverages.

**Dear Professor** *(from page 7)*

*the worst.*

*But cheeses, don't worry. Don't forget you're a homebrewer. There are some really easy solutions. Wrap your carboy in a towel or put a paper bag over the whole thing. Put your green bottles in a box and close it up. There are any number of things you can do to protect your precious brew.*

*Made in the shade,*
*The Professor, Hb.D.*

The Professor stands ready to answer your beery questions. Stuck on a problem? Can't find an answer? Just write the Professor, Hb.D. and your question will be answered. Send your homebrewing questions to "Dear Professor", PO Box 1679, Boulder, CO 80306-1679; FAX (303) 447-2825 or professor@aob.org via email.



**Winners Circle** *(from page 23)*

"This is a smooth brew that goes down easy and is followed by some very nice spice flavor. The aftertaste is packed with clove and some ginger. Very clean. I enjoyed this brew. Good job!"

## India Pale Ale

***GOLD MEDAL***
***AHA 1999 NATIONAL HOMEBREW COMPETITION***
**Jim Buckett, Chagrin Falls, OH**
**"Brown Bagger IPA"**
**India Pale Ale**

Ingredients for 5 U.S. gal (19 L)

- 7 lb light dry malt extract (3.18 kg)
- 1 lb 40° Lovibond crystal malt (0.45 kg)
- 0.5 lb Munich malt (0.23 kg)
- 3 oz Northern Brewer hop pellets, 8.6% alpha acid, (85 g) (51 minutes)
- 1 oz Cascade hop pellets, 4.7% alpha acid, (28 g) (14 minutes)
- 1 oz Cascade flower hops, 5.5% alpha acid, (28 g) (2 minutes)
- Wyeast No. 1028 London ale yeast

- Original specific gravity: 1.060
- Final specific gravity: 1.011
- Boiling time: 60 minutes
- Primary fermentation: 2 days at 68° F (20° C) in plastic
- Secondary fermentation: 20 days at 68° F (20° C) in glass

### Brewer's Specifics

Steep Munich and crystal malts at 165° F (71° C) for 30 minutes. Strain out grains, add extract and boil.

### Judges' Comments

"Good all around."

"Very nice British style India Pale Ale. Good job."

ILLUSTRATIONS BY JOHN MARTIN

# BREWFERM®

## THE beerkit to make superb beers without a hassle!

If you don't have the time nor the inclination to brew your beers starting from the raw grain, or perhaps you think that brewing is as difficult as brain surgery but you don't have a high opinion of beer from beer kits, we recommend you try a BREWFERM home brew kit. The results may well surprise you! BREWFERM use nothing but the finest ingredients in their kits, and their beers are tailored to demanding Belgian tastes.
Your own homebrewed Abdijbier, Tripel, Tarwebier, Grand Cru, Diabolo, ... 13 types in all. Thanks to BREWFERM without a hassle !

- The only kits using genuine Belgian recipes and ingredients!
- 13 different types
- Very straightforward to use
- Makes 9-15 litres of absolutely TOP QUALITY BEER!

**DARK ABBEY** type for 9 l.
Starting specific gravity : 1.070 Alcohol content : 8 %.
One of the most known Belgian specialties : an Abbey style beer with vinous character due to its high alcohol content. Deep amber, full flavoured with lots of malt aroma with caramel notes. Very thick and long lasting head (lacy). Improves with long maturation times and can be kept for several years !

**AMBIORIX** type for 15 l.
Starting specific gravity : 1. 060 Alcohol content : 6,5 %.
Amber beer with a red copper tint. Slightly acidic palate at first but with a nice fruity aroma. Moderate hop bitterness. Comparable with the well known beer of Roeselare.

**DIABOLO** type for 9 l.
Starting specific gravity : 1.071 Alcohol content : 8 %.
Belgian specialty beer : Strong, golden coloured beer with a thick and long lasting head (lacy). Characteristic aroma of devil type Belgian Beers, soft palate with a slightly sweet aftertaste. Improves with long maturation times and can be kept for several years !

**KRIEK** type for 12 l.
Starting specific gravity : 1.053 Alcohol content : 5,5 %.
Kriek is the best known of the famous Belgian fruit-Beers. Kriek is made by macerating cherries in beer. A slightly acidic, sweet aromatic beer with a red topper tint. Each kit contains pure cherry juice of at least 3 kg of cherries. This beer gives you the perfect balance of fruitiness without tasting like grenadine as some commercial kriek's do.

**OLD FLEMISH BROWN** type for 12 l.
Starting specific gravity : 1.060 Alcohol content : 6 %.
A dark brown beer with a woody notes flavor a slight liquorice aftertaste that also compares with the Dutch Bock-beers. In Belgium Oud Bruin (Flemisch for Old Brown) type Beers are strong aromatic with long keeping properties.

**CHRISTMAS** type for 7 l.
Starting specific gravity : 1.065 Alcohol content : 8%.
Dark, strong and full-bodied Belgian beer, sweeter than Abbey style Beers. Strong malt fla-vour and aroma. Christmas type Belgian Beers (brewed with top-fermenting yeast) are beers with long keeping properties which get better and better after long maturation period. Thick and lacy head with extraordinary head retention.

**WHEATBEER** type for 9 l.
Starting specific gravity : 1.053 Alcohol content : 5%.
This was the first wheatbeer kit available ! It is very similar to the well known Belgian "Witbieren" : very pale, opaline colour with low alcohol content. A real summer beer with a pleasant aroma, mild hops and a smooth malt character. Slightly acidic and thirstquenching. Based on an old recipe using barley, wheat, oat flakes and a secret herb mixture with coriander and sweet orange-peel.

**GRAND CRU** type for 9 l.
Starting specific gravity : 1.075 Alcohol content : 8%.
Gold opaline coloured, with strong flavour of grains and even bread. Very little hop aroma. Very mouthfull with light fruit notes and a pleasant sweetness. Also this kit contains wheat malt and a special herb mixture.

**TRIPLE** type for 9 l.
Starting specific gravity : 1.075 Alcohol content : 8%.
Triple is a well known, deep golden coloured, Belgian specialty. Due to its high malt contents it has a very pleasant aroma and taste, mouthfull, full bodied and even a bit herbaceous. High alcohol content.

**FRAMBOOS** type for 12 l.
Starting specific gravity : 1.053 Alcohol content : 5,5%.
FRAMBOISE or raspberry beer, is a Belgian specialty. Together with the BREWFERM KRIEK, this FRAMBOISE is the only fruitbeer kit available in the world. Each kit has an equivalent of 2 kilo of raspberries. This FRAMBOISE beer han a very delicate aroma and is ideal as a refreshing summerbeer or as a surprising aperitif !

**PILSNER** type for 15 l.
Starting specific gravity : 1.042 Alcohol content : 4,6 %.
Light, blond beer, with a moderate bitterness and dry finish, comparable with the commercial Lager or Pilsner beers. Low alcohol content.

**GOLD** type for 12 l.
Starting specific gravity : 1.053 Alcohol content : 5,5 %.
A real deluxe pilsner type with more malt flavor than the normal Lagers. Moderate hop bitterness. Comparable with the Scandinavian deluxe-Beers.

**GALLIA** type for 12 l.
Starting specific gravity : 1.055, Alcohol content : 5,5 %.
The latest addition in our range: A thirstquenching pale amber beer with a refined bitterness and a soft finish, a worthy alternative to the commercial Belgian ales.

BREWFERM®

THE beerkit to make superb beers without a hassle!


**BREWFERM PRODUCTS**
Korspelsesteenweg 86 - B-3581 Beverlo - Belgium
info@brewferm.com – www.brewferm.com


*"I wouldn't have believed that a kit beer could be so good"*

Roy Bailey - Beer Correspondent
CAMRA's 'What's Brewing' magazine (April 2000)

In Roy Bailey's local Good Beer Guide Pub, the customers' reaction was ***"uniformly complimentary"*** and ***"most of them thought it was a full-mash ale"***

*"I'm really impressed! This is better than many pints I've had in the pub"*

BBC Radio 4 food & drink programme
(July 2000)

This man loves brewing. But he also loves life.

Bored with spending most of his time at home laboring over a brew he decided it was time to get out more. And now he can, thanks to Smugglers Special Premium Ale, Old Conkerwood Black Ale and Midas Touch Golden Ale - the Premium Gold range of brewkits from Muntons.

Because we use only the finest English 2-row barley and water, our kits give the same result you get from full grain mashing - except, it comes in a can, is a whole lot more convenient and frees up time to pursue life's other pleasures.

Since switching to kits our man has never looked back. He's still brewing great beer and enjoys sharing a round with friends. But his life has changed for the better with Premium Gold.

If you're a slave to full grain mashing, don't be! Switch to Muntons today.


Ask for Muntons Premium Gold at your nearest brew store.

Muntons
A World of Difference

Grain Malts • Liquid Malts • Spray Dried Malts • Brew Kits • Plain & Hopped Malt Extracts