

Beer and Wine Brewing Compendium

By

Helga von Schweinitz

Introduction

This compendium a collection of recipes and notes from Hans. Brewing beer and wine was one of Hans' hobbies. In the family home, there would often be something brewing on the kitchen counter. And once bottled, special friends would be invited to taste the resulting brews. Hans started to brew beer while stationed in Roswell New Mexico in 1962-1966. He continued to brew beer and also started to brew wine. He even brewed beer and wine while the family lived in Saudi Arabia.

When Hans' daughter, Bettina, wrote her Master's Thesis in 1991 on Microbrewery Business, she wrote in her father was a partner in the business venture.

Full size copies of the recipes and documents are included at the end of this compendium.

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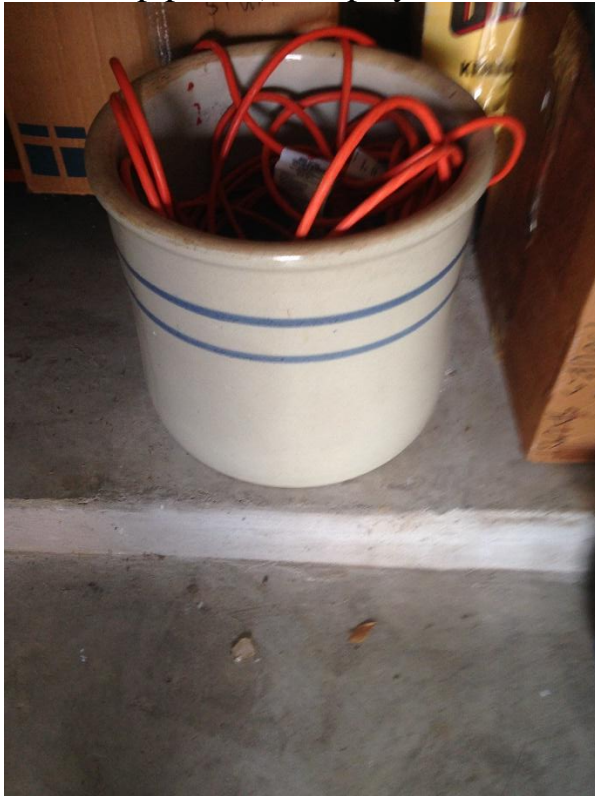
Photos



Hans brewing about 1963 in Roswell New Mexico



Bottle cap press (as display in house 2022)



Brewing vat (as container in Garage 2022)

History

In 1963 Hans brewed beer. Paper was in short supply, so he typed a recipe on the back of letter written on 13 February 1963. Then he modified the recipe twice on the same paper. The original used 7 pounds of sugar, the second version used 10 pounds of sugar, and the third version used 4 pounds of sugar. There were other modifications, but this is an example. The pot would sit in the kitchen until it was finished brewing. Then the whole family would help in sterilizing the bottles. They had collected glass beer bottles from the big brewing companies. The brew would be poured into the bottles, and a cap would be pressed on. Then all the bottles would be stored in the bathroom. After two weeks the beer is ready.

Things did not always go well. Once, the bottles were either not sterilized enough, or they got hotter than the recommended 70 degrees Fahrenheit. While in the bathroom, they started to explode. That was exciting.

HOMER BEER RECIPE

<u>Utensils Needed</u>	<u>Ingredients</u>
Bottle Capper	7 lbs. sugar
Caps	2 pkgs. dry yeast
Bottles	Blue Ribbon Malt
Crock (10 gal.)	hops
Beer Hydrometer	1 handful of rice
	1 sliced potato
	2 tblsp. salt

Beer's doing alone 2 hops.

The key to making good home brew is in the sterilization of the utensils used. Bacteria in the initial stages of the brew will make the beer taste rotten or green.

Bring water to the boil and fill crock about 2/3 full. In a separate container of water, mix 7 lbs sugar, 1 can of malt (I sometimes use only a can if a lighter brew is desired), 2 tblsp. salt. Cook this mixture for about 10 minutes and add to water already in the crock. In still another container of about a quart of water, immerse a strainer into which you have put about 2 or 3 tblsp. of hops. Brew the hops at a low boiling point as if you were making tea. Take out strainer with the hops leaves and add hops tea to water in crock. Now, if any foam is in at the top of the crock, fill with boiling water and stir the whole mixture. Add a handful of rice and 1 sliced potato. Cover the mixture and let it cool until water is no longer hot. Add 2 pkgs. of dry yeast and insert beer hydrometer. Store in a room temperature of 65 to 75 degrees.

When the hydrometer shows the red line at the water level, brew is ready to cap. Make sure bottles are sterilized. Add one heaping teaspoon of sugar to each quart bottle before filling with brew. Then cap bottle and store in 50 to 70 degree temperature for about 2 weeks. Refrigerate and then, finally, oh boy.

10 gal. Water
10 lbs Sugar
1 can malt
1 cube yeast
1 Potato peeled and 1/4
1 1/2 gallon Water and Sugar + salt cook,
cool and add yeast and Potato
when after 12 hours,
ready to bottle in about 80 hrs.
let set for 2 weeks.

5 gal
4 lb Sugar
1/2 can Malt
5
2 Tbl spoon Salt
2 "
1 "
Yeast 1 Ph.
1 Potato
1 Rice handful

boiled

A veteran of nearly 20 years, Colonel Martin's assignments in the Air Force include: as medical AFB, La., from 1945 to 1947; Typical AFB, Fla., from 1947 to 1948; Canal Zone from 1948 to 1950; Lake Charles AFB, La., from 1950 to 1954; Keesler AFB, Japan from 1954 to 1956; and Norton AFB, Calif., from 1956 to 1960. Colonel Martin is married to his home town sweetheart, the

Activation Task Force.

Air Materiel Area detachment which supported the Walker Site

assigned since September 1960 as commander of the San Bernardino

Before assuming the position as BDCM, Colonel Martin was

Johnson, retired last November.

(BDCM) at Walker AFB. His predecessor, Lieutenant Colonel Milton B.

Martin has taken over the job as base deputy commander for materiel

WALKER AIR FORCE BASE, N. M. -- Lieutenant Colonel Charles A.

OFFICE OF INFORMATION

5th Strategic Aerospace Wing

Walker Air Force Base, N. M.

Firebase 8-6690

February 13, 1963

Release No. WAI-63-25

00292

In 1977 Hans and his family were living in Saudi Arabia. Although Saudi Arabia is a dry country (no alcohol), you are allowed to brew and consume within your own home. If a Saudi or another Muslim is a guest in your home, then the brewing must be hidden from view. Home brewing was a popular hobby with many expats. And there were many invitations to each other's home, for taste testing.

Hans found a wine and a beer recipe. He might have received it from friends already in Saudi Arabia. It was important that proper information was disseminated, because poorly brewed alcohol could lead to medical problems (blindness). Hans arrived in Saudi Arabia in November 1977, and by 22 December 1977 he started to brew beer. His notes indicate that he brewed beer again in January 1978, February 1978, and 13 Jan 1979. Wine was also popular, and was made from grape juice. Hans brewed wine on 22 January 1978 and January 1979.

WINE RECIPT
 8 BOTTLES RED GRAPE JUICE (1 lt.)
 12 lt. WATER
 6+ kg. SUGAR (VARIES WITH S.G.)
 1 PACKET OF YEAST (APROX 1 TABLESPOON).
 1/4 CUP OF ~~CONDENSED~~ LEMON OR LIME JUICE, LIKE BOTTLED REAL LEMON ETC.
 MIX WATER AND JUICE, ADD LEMON JUICE, NOW ADD SUGAR TO A POTENTIAL OF ALCHOL OF 16%. MAKE SURE ALL SUGAR IS DISSOLVED. THIS MIXTURE WILL BE ADGITATED DAILY FOR THE FIRST FIVE DAYS, SO IT IS A GOOD IDEA TO USE A CONTAINER LIKE A PLASTIC TRASH CAN TO HOLD IT FOR THE FIRST PART OF THE FERMENTING. SPRINKLE THE YEAST ON THE TOP OF THE MIXTURE AND COVER FOR 24 HOURS, THEN FOR THE NEXT FOUR DAYS STIR THE MIXTURE, AND RECOVER. ON THE FIFTH DAY, PUT THE MIXTURE INTO A CONTAINER THAT WILL ALLOW FOR THE USE OF AN AIR LOCK. ALLOW THE MIXTURE TO WORK DOWN TO 0% POTENTIAL, THEN BOTTLE. IF YOU WANT SPARKLING WINE, BOTTLE AT .75% POTENTIAL. THE WINE IS DRINKABLE AT THE BOTTLING, BUT AFTER ABOUT ONE WEEK IN THE BOTTLE, IT IS MUCH SMOOTHER.
 STERILIZE EVERYTHING YOU USE THAT COMES IN CONTACT WITH THE WINE, AND USE NO METAL.

BLUE RIBBION BEER RECIPT
 1 BLUE RIBBION SYRUP
 40 lt. WATER
 6 1/2 LBS SUGAR
 1 PACKET BREWERS YEAST (APPROX ONE TABLESPOON)
 20-30 DROPS HOPS EXTRACT

HERE AGAIN THE BY WORD IS STERILIZED EVERYTHING THAT WILL COME IN CONTACT WITH THE BEER, AND USE NO METAL IN CONTACT WITH THE MIXTURE ONCE THE YEAST HAS BEEN ADDED.

IN A LARGE POT, ADD ABOUT 1 1/2 LBS. OF THE SUGAR AND THE BLUE RIBBION KIT AND SOME OF THE WATER AND BRING TO A BOIL AND THEN ALLOW TO SIMMER FOR ABOUT 5 MINUTES. ADD TO THE REMAINING WATER, IN A SUITABLE CONTAINER, THE REST OF THE SUGAR, STIR UNTIL COMPLETELY DISSOLVED. AFTER THE SYRUP HAS BOILED AND IT IS SIMMERING ADD TO IT THE HOPS EXTRACT. NOW ADD THE SYRUP MIXTURE TO THE WATER AND SUGAR. ALLOW THE MIXTURE TO COOL TO AMBIENT ROOM TEMP., THEN ADD THE YEAST BY SPRINKLING IT ON TOP OF THE MIXTURE, COVER AND WAIT APPROX 7-10 DAYS, CHECK THE S.G. AND LOOK FOR 1.000, THEN BOTTLE, CHARGING EACH 10oz. BOTTLE WITH 1/8 TEASPOON SUGAR (LEVEL), CAP AND LET STAND FOR ONE WEEK, FIVE DAYS IF YOUR IMPATIENT.

22 Dec 77
 6 lbs sugar 1 can dark stout all boiled, sweet water
 1 lb spoon yeast 1/2 table spoon sugar warm water 4 hrs
 added and mixed
 placed in warm water storage room
 23 Dec 72°F 1000 hrs. # S.G. 5 1/2 %
 28 Dec 75°F S.G. 2 2100 hrs good foam
 25 Dec 75°F S.G. 3% 1630 hrs skinned off foam
 27 Dec 80°F S.G. 2 1/2 % 1700 hrs, foaming again still working
 28 Dec 80°F S.G. 2 1/2 % 0530 hrs, skinned off foam
 29 Dec 80°F S.G. 1 3/4 % 0530 hrs, slow bubbles
 29 Dec 82°F S.G. 1 3/4 % 0900 hrs moved to kitchen
 29 Dec Bottles was used in washing scale + bleach
 once, mixed with tap water Boiling water
 boiled rubber seals.
 Syrup and off and returned.
 added 3 egg whites mixed with 300cc hours
 29 Dec 68°F S.G. 1 1/2 1030 PM skinned off foam.
 30 Dec 60°F S.G. 1 1/4 1030 PM " " "
 31 Dec 68°F S.G. 1 1/8 1030 PM " " "
 31 Dec 65°F S.G. 1 1000 PM skinned. Bottled 2
 2 Jan 65°F S.G. 1 2800 PM added 1/2 teaspoon sugar
 each bottle dissolved
 one flat spoon sugar
 per bottle

12 Jan 78
sterilized can with sodium meta.

2 Paks Hops boiled 10 min
1 can light Bulls malt } 5%
5 Paks sugar
7 gallons water
1 Package Beer yeast.

19 Jan 78 added Fining 18kg
21 Jan 78 bottled 1st spoon sugar
good taste to be but low pH

6 Feb 78

1 Pak Hops boiled 10 min
2 cans light Bulls malt + Papst
2 kilos ~~of~~ sugar
8 gallons water
1 table spoon salt
1 Package Beer yeast
14 Feb. added fining
16 Feb bottled 1 flat table spoon sugar

22 Jan 78
10 btl white grape juice
1/2 can frozen orange
1 table spoon yeast
SG 1090, 12%
4 Camden tablets
stirred 2x daily
26 Jan siphoned, air lock
6 Feb 78 resiphoned into one bag SG 1090

6 Jan 79
9 btl white grape juice
4 Camden tablets
37 kg sugar
SG. 17%
1/2 can frozen orange
Siphoned into air lock container
9 Jan 79
Siphoned into one bag 1 Feb 79

1 can Pabst Blue Ribbon
4 kg sugar
10 Gallons water

13 Jan 79

The largest issue while brewing in Saudi Arabia was getting supplies and ingredients. Luckily there was a company, DeFalco Wine Makers, in Austin Texas that could provide the necessary items and also knew how to label the boxes. Any marking on the shipping box that indicated that contents was alcohol or alcohol supplies would be confiscated by customs. And any words on the customs label that indicated alcohol would also result in confiscating. Not only did this supplier know how to sell to expats in Saudi Arabia, it also included articles in the box that explained how the brewing process actually worked. A couple of these articles are included in the back of this compendium and they explain how the Hydrometer works and how concentrates are made.

More Brewing Recipes

Hans collected a few more recipes while in Saudi Arabia. There is no indication if he ever tried these. They have been attached to the end of this compendium. Collecting recipes for beer and wine brewing was just as popular as collecting cake recipes. Brewing was not just a man's hobby, but wives also tried (women were not hired to work in Saudi Arabia and could only come into the country if they were wives or children of men that were hired).

Recipes through the years and notes

1963 original recipe and notes page 1

HOME BREW RECIPEUtensils Needed

Bottle Capper
Caps
Bottles
Crock (10 gal.)
Beer Hydrometer

Ingredients

7 lbs. sugar
2 pkgs. dry yeast
Blue Ribbon Malt *Four's drug store 2 lbs.*
hops
1 handful of rice
1 sliced potato
2 tblsp. salt

The key to making good home brew is in the sterilization of the utensils used. Bacteria in the initial stages of the brew will make the beer taste rotten or green.

Bring water to the boil and fill crock about 2/3rds full. In a separate container of water, mix 7 lbs sugar, 1 can of malt (I sometimes use only 1/2 can if a lighter brew is desired), 2 tblsp. salt. Cook this mixture for about 10 minutes and add to water already in the crock. In still another container of about a quart of water, immerse a strainer into which you have put about 2 or 3 tblsp. of hops. Brew the hops at a low boiling point as if you were making tea. Take out strainer with the hops leaves and add hops tea to water in crock. Now, if any foam is left at the top of the crock, fill with boiling water and stir the whole mixture. Add a handful of rice and 1 sliced potato. Cover the mixture and let it cool until water is no longer hot. Add 2 pkgs. of dry yeast and insert beer hydrometer. Store in a room temperature of 65 to 75 degrees.

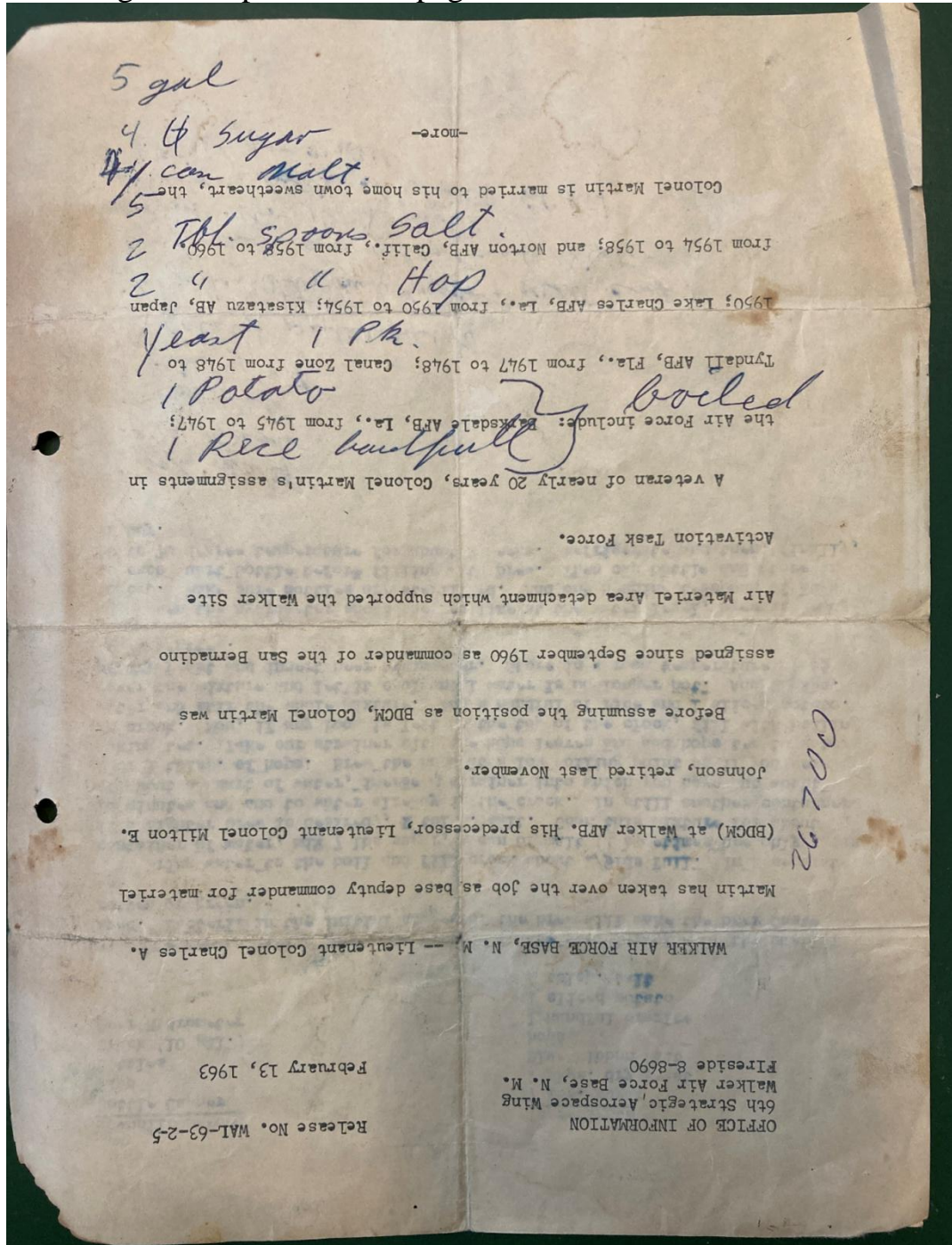
When the hydrometer shows the red line at the water level, brew is ready to cap. Make sure bottles are sterilized. Add one heaping teaspoon of sugar to each quart bottle before filling with brew. Then cap bottle and store in 50 to 70 degree temperature for about 2 weeks. Refrigerate and then, finally, oh boy.

10 gal. Water
10 lbs Sugar
1 can malt
1 cube yeast

1 Potato peeled and 1/4

1 1/2 gallon Water and Sugar + malt cook,
cool and add yeast and Potato
skim after 12 hours.
ready to bottle in about 80 hrs.
let set for 2 weeks.

1963 original recipe and notes page 2



WINE RECEIPT

8 BOTTLES RED GRAPE JUICE (1 lt.)

12 lt. WATER

6+ kg. SUGAR (VARIES WITH S.G.)

1 PACKET OF YEAST (APROX 1 TABLESPOON).

¼ CUP OF ~~CONCENTRATED~~ LEMON OR LIME JUICE, LIKE BOTTLED REAL LEMON ETC.

MIX WATER AND JUICE, ADD LEMON JUICE, NOW ADD SUGAR TO A POTENTIAL OF ALCHOL OF 16%. MAKE SURE ALL SUGAR IS DISOLVED. THIS MIXTURE WILL BE ADGITATED DAILY FOR THE FIRST FIVE DAYS, SO IT IS A GOOD IDEA TO USE A CONTAINER LIKE A PLASTIC TRASH CAN TO HOLD IT FOR THE FIRST PART OF THE FERMENTING. SPRINKLE THE YEAST ON THE TOP OF THE MIXTURE AND COVER FOR 24 HOURS, THEN FOR THE NEXT FOUR DAYS STIR THE MIXTURE, AND RECOVER. ON THE FIFTH DAY, PUT THE MIXTURE INTO A CONTAINER THAT WILL ALLOW FOR THE USE OF AN AIR LOCK. ALLOW THE MIXTURE TO WORK DOWN TO 0% POTENTIAL, THEN BOTTLE. IF YOU WANT SPARKLING WINE, BOTTLE AT .75% POTENTIAL. THE WINE IS DRINKABLE AT THE BOTTLING, BUT AFTER ABOUT ONE WEEK IN THE BOTTLE, IT IS MUCH SMOOTHER.

STERILIZE EVERYTHING YOU USE THAT COMES IN CONTACT WITH THE WINE, AND USE NO METAL

BLUE RIBBION BEER RECEIPT

1 BLUE RIBBION SYRUP

40 lt. WATER

6½ LBS SUGAR

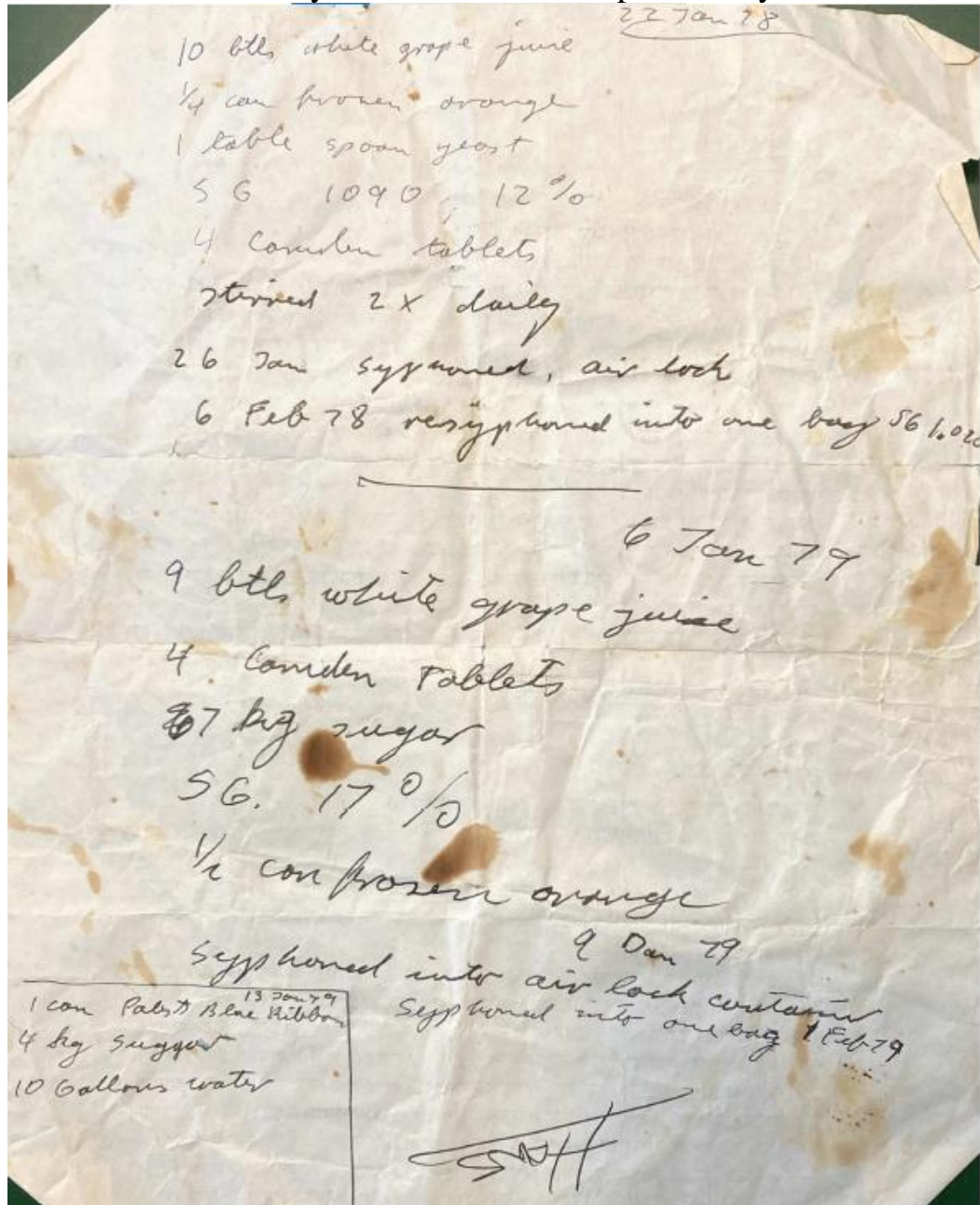
1 PACKET BREWERS YEAST (APPROX ONE TABLESPOON)

20-30 DROPS HOPS EXTRACT

HERE AGAIN THE BY WORD IS STERILIZE EVERYTHING THAT WILL COME IN CONTACT WITH THE BEER, AND USE NO METAL IN CONTACT WITH THE MIXTURE ONCE THE YEAST HAS BEEN ADDED.

IN A LARGE POT, ADD ABOUT 1½ LBS. OF THE SUGAR AND THE BLUE RIBBION KIT AND SOME OF THE WATER AND BRING TO A BOIL AND THEN ALLOW TO SIMMER FOR ABOUT 5 MINUTES. ADD TO THE REMAINING WATER, IN A SUITABLE CONTAINER, THE REST OF THE SUGAR, STIR UNTIL COMPLETELY DISOLVED. AFTER THE SYRUP HAS BOILED AND IT IS SIMMERING ADD TO IT THE HOPS EXTRACT. NOW ADD THE SYRUP MIXTURE TO THE WATER AND SUGAR. ALLOW THE MIXTURE TO COOL TO AMBIENT ROOM TEMP., THEN ADD THE YEAST BY SPRINKLING IT ON TOP OF THE MIXTURE, COVER AND WAIGHT APROX 7-10 DAYS, CHECK THE S.G. AND LOOK FOR 1.000, THEN BOTTLE, CHARGING EACH 10oz. BOTTLE WITH 1/8 TEASPOON SUGAR (LEVEL), CAP AND LET STAND FOR ONE WEEK, FIVE DAYS IF YOUR IMPATIENT.

1978 and 1979 January Wine and Beer Recipe notes by Hans



1977 December Beer Recipe notes by Hans

22 Dec 77

6 lbs sugar 1 can dark malt all boiled, sweet water
 1 tb spoon yeast $\frac{1}{2}$ table spoon sugar warm water 4 hrs
 added and mixed
 placed in warm water storage room

23 Dec 72°F 1000 hrs. # S.G. 5 $\frac{1}{2}$ %23 Dec 75°F S.G. 2 2100 hrs. good Foams25 Dec 75°F S.G. 3% 1630 hrs, skimmed off foam27 Dec 80°F S.G. 2% 1700 hrs, foamy again28 Dec 80°F S.G. 2% 0530 hrs, skimmed off foam still working29 Dec 80°F S.G. 1 $\frac{3}{4}$ % 0530 hrs, slow bubbles29 Dec 82°F S.G. 1 $\frac{3}{4}$ % 0900 hrs moved to kitchen

29 Dec Bottles washed in Bucking Soda + Bleach

once, rinsed with tap then boiling water
 boiled rubber seals.

Seythorst off and returned.

added 3 egg whites mixed with 300cc beer

29 Dec 68°F S.G. 1 $\frac{1}{2}$ 1030 PM skimmed off foam.30 Dec 60°F S.G. 1 $\frac{1}{4}$ 1030 PM " " "31 Dec 68° S.G. 1 $\frac{1}{8}$ 1030 PM " " "

31 Dec 65° S.G. 1 1000 PM skimmed. Bottled &
 added 1/2 teaspoon sugar
 each bottle dissolved
 2 Jan 65° S.G. 1 2000 PM Bottled aside
 one flat spoon sugar
 per bottle

12 Jan 78

sterilized can with sodium meta.

2 Pads Hops boiled 10 min
1 can light Bulls malt
5 Pounds sugar
7 gallons water
1 Package Beer yeast. } 5%

19 Jan 78 added Fining 1 Pkg

21 Jan 78 Bottled 1 tea spoon sugar
good ~~taste~~ taste but low fire

6 Feb 78

1 Pad Hops boiled 10 min
2 cans light Bulls malt + Papst
2 kilo ~~of~~ the sugar
8 gallons water
1 Table spoon salt
1 Package beer yeast

14 Feb. added fining

16 Feb Bottled 1 flat Table spoon sugar

x



"Everything for the home winemaker"

HYDROMETER CHART

Full Range 0.900 — 1.170 Potential Alcohol Scale 0-22%

The hydrometer has been specifically designed for the amateur winemaker. It covers the full wine range and therefore saves you money by not having to purchase instruments of lesser degrees. This instrument also gives you an accurate indication of alcohol present in your wine.

WHAT IS A HYDROMETER?

It is an instrument for testing the specific gravity (all liquids have a certain gravity in relation to water). Water is given the arbitrary figure of 1.000, other liquids are compared to this and the result is said to be their Specific Gravity (S.G. for short).

HOW TO USE A HYDROMETER.

The hydrometer is used initially to determine the natural sugar content of the "must". In most instances additional sugar should be added to this "must" to assure that the potential alcohol content is sufficient to produce a wine with lasting qualities. By determining the natural sugar content you can then adjust the sugar content to the desired S.G. reading. In most cases a S.G. of 1.090 is desired to begin the "must" as this gives a potential alcohol by volume of 12%.

PROCEDURE:

1. After sterilization, the hydrometer test stand is filled 3/4 full of "must". The hydrometer is placed carefully in the test stand and spun gently to remove air bubbles clinging to the sides. When the hydrometer has settled, take the S.G. reading with your eye at the surface level of the liquid. This reading is the natural sugar content of the "must".

2. To determine how much additional sugar is necessary to bring the "must" to the desired S.G. of 1.090, use the attached chart.

For example: If the natural sugar content is S.G. 1.040 and you desire a S.G. of 1.090:

In a S.G. of 1.090 there is 2 lbs. 6 oz. sugar
In a S.G. of 1.040 there is -1 lb. 1 oz. sugar
1 lb. 5 oz.

By subtracting the two sugar contents, you determine how much additional sugar should be added.

In this example you should add 1 lb. 5 oz. sugar for **EACH** gallon of wine you are making. After dissolving the sugar, take another hydrometer reading to verify the 1.090 S.G.

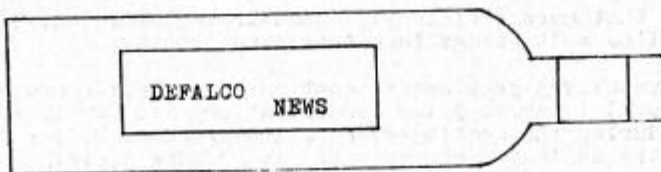
3. The fermentation is complete when you have a hydrometer reading of 1.000 or lower. This tells you that all the sugar has been transformed into alcohol and carbon dioxide gas. You have made a dry wine.

4. To determine the alcohol content of your wine, simply subtract your final alcohol potential from your initial alcohol potential.

For example: If you started your wine at a S.G. of 1.090, the potential alcohol by volume is 12%. If your wine finished at S.G. 1.000, the potential alcohol by volume is 0%. Thus, 0% subtracted from 12% equals 12% and you have made a 12% wine.

5. If your S.G. is less than 1.000, you have made a completely dry wine. Since alcohol is lighter than water, at a S.G. of 1.000 there is still a small percentage of sugar present in the wine. Many wines will continue to ferment until this last percentage of sugar has converted to alcohol. It is recommended that you let your wine ferment to its ultimate dryness. After that point has been reached, the wine can be sweetened to taste if it is too dry.

S.G.	Potential % Alcohol by Volume	Amount of Sugar in the Gallon	
		lb.	oz.
1010	0.9		2
1015	1.6		4
1020	2.3		7
1025	3.0		9
1030	3.7		12
1035	4.4		15
1040	5.1	1	1
1045	5.8	1	3
1050	6.5	1	5
1055	7.2	1	7
1060	7.8	1	9
1065	8.6	1	11
1070	9.2	1	13
1075	9.9	1	15
1080	10.6	2	1
1085	11.3	2	4
1090	12.0	2	6
1095	12.7	2	8
1100	13.4	2	10
1105	14.1	2	12
1110	14.9	2	14
1115	15.6	3	0
1120	16.3	3	2
1125	17.0	3	4
1130	17.7	3	6
1135	18.4	3	8



HAPPY HOLIDAYS!

1512 Lavaca
P. O. Box 1721
Austin, TX 78767
(512) 478-0680

2435 University Blvd.
Houston, TX 77005
(713) 523-8154

12215 Colt Road
The Olla Podrida
Dallas, TX 75251
(214) 233-7895

No. 27

December, 1977

Dear Winemakers and Brewers:

Since the new shipments of 1977 concentrates are arriving, we thought it might be helpful to explain something about the process used to convert grape juice into grape concentrate.

The grapes are usually stemmed, crushed, pressed, and juice is sent to the concentrator. In some cases, the skins are left in contact with the juice to gain flavor or color. The concentration process is essentially the removal of water by the application of heat. In its most elementary form, it would be like boiling the water off a sugar solution to leave a syrup. Due to the fact that we are using grape juice, which is heat-sensitive, efforts are made to minimize the problems associated with high temperatures. If grape juice were boiled openly to remove the water and concentrate the juice, the concentrate would suffer from sugar caramelization, loss of flavor and aroma, and actual decomposition of some of the juice.

Many of the problems associated with open boiling can be minimized by concentrating the juice below normal boiling point. This can be accomplished by using a vacuum because the higher the vacuum - the lower the boiling point needed to evaporate the water. Instead of 212°, the water can be boiled off under a vacuum at 85 - 110°. The concentration apparatus usually consists of a boiling chamber, something to condense the product, and auxiliary equipment such as pumps and gauges. The boiling chamber is usually fitted with a steam jacket which houses large coils (tubular calandria) to heat the juice. A large opening at the top of the chamber is connected to a vapor condenser and vacuum sources.

The calandria was the traditional heating device used to boil the juice. The internal tubes are heated by steam or hot water and the juice is pumped through the mass of tubes. The heat plus the vacuum evaporates the water and leaves the heavier grape juice extract. The lighter water vapor is pulled by the vacuum, condensed, and circulated out of the system. The heavier concentrated extract falls to the bottom of the chamber and is also pumped out. Many types of vacuum sources are used: wet & dry vacuum pumps, steam driven pumps, or water-jet driven pumps.

Some newer concentrators now use a more efficient heating system than the older style calandria. The more efficient condenser system operates on the principle of differences in barometric pressure, and has facilities to allow the juice to be circulated through a series of evapora-

page 2

tion steps that more efficiently concentrate the juice. These are usually called multi-stage long-tube evaporators.

There are usually 3 problems to contend with (beside how much heat & vacuum to use) in grape juice concentration: 1. The loss of volatile aromatics during the heating-evaporation process; 2. The problem of excess tartrates in the concentrate; and 3. The decision on how heavy to concentrate the juice. While concentrating in a vacuum, the juice boils and some of the volatile aroma constituents still escape as a vapor. In most new concentrators these aroma vapors are separated (fractionally condensed) from the water vapor and added back into the concentrate. The process is efficient but not perfect, so some aroma components may be lost. Since the juice is concentrated, the acids & acid tartrates are also concentrated and could fall out into the concentrate and make it overly thick and difficult to work with. Some of the tartrates may be chemically changed (ion-exchanged) to a more soluble form so that they stay in solution or the concentrate may be cold stabilized so that the tartrates fall out before packaging. The decision on how heavy to concentrate depends on economy, time allowed for concentration, and customer demands. The higher the concentration the higher the heat or the longer the concentration process. Concentrates made below 68 Brix oxidize and turn brown quickly while those over 72 Brix run the risk of grape sugar crystallization which make the product into a pasty mass.

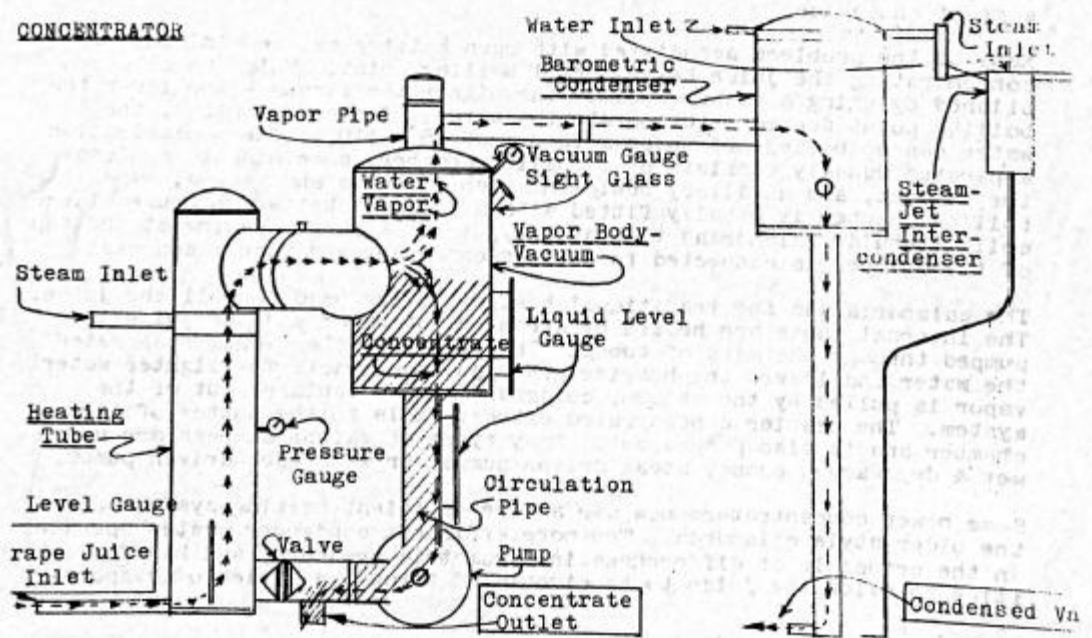
The main advantages to concentrates compared to fresh grapes are:

1. Availability of a wide range of grape types throughout the year
2. Convenience in winemaking - less steps & problems than fresh grapes
3. Stability of concentrates for a number of months.

The disadvantages include:

1. Loss of a small amount of aroma components
2. Dependence on the integrity of the producer to use high quality grapes & to not heavily blend varietals with cheaper varieties.

CONCENTRATOR



1977-79 Donald's Wine

Donald's Wine
6 ltr Juice Grape
7 1/2 lbs Sugar
make ~~up~~ 5 gallons with water
1 table spoon yeast
airlock
30 days
rack it
return bottle
add 1/4 cup lemon juice
let set for 1 week
bottle
release pressure every day
for 3 days

St + Guadalupe
Weeksville coops for yeast

"Market Truth" How to deal with
the IRS 1-800-553-6458

Also includes another source for yeast from Austin.

The IRS phone number is because Hans was having issues with the IRS.

1977-79 Betty's Veenoo and Broo
 Brewing was not just a man's hobby

BETTY'S VEENO

Required: 2 5gal jerry cans
 6 bottles (liters) red grape juice or sour
 cherry juice. (not Welches)
 73/4 lbs sugar
 10 tablespoons lemon juice
 2 tsps yeast

Pour juice into jerry can. Dissolve sugar in hot water and pour into can. Pour yeast in with lemon juice and set aside in a bowl. Fill remainder of jerry can with cold water. Pour yeast and lemon juice into can. (Be sure that juice in can isn't too hot before pouring in lemon juice and yeast.)

Cap jerry can tightly with fermentation air lock or a small diameter plastic hose epoxied to the cap with the other end in pop bottle filled with water. (No air should be able to reach the mixture.)

Siphon wine into the other can after three weeks, or when air bubbles cease to pass thru air lock, whichever is later. Leave about three inches of fluid in the original jerry can to reduce sediment transfer. Put airlock on the second can and set for another week before straining into bottles. Transfer of wine from one container to another every week, plus patience and a supply already on hand, will produce the best in clarity and flavor.

LIKE THE WIFE, THE OLDER IT GETS, THE BETTER IT BECOMES!!!!

BETTY'S BROO

Water: 50 liters or approximately 10 gallons
 Sugar: 6 lbs - 5 lbs plus 2 cups
 Malt: One 3 lb. can - Blue Ribbon Malt Extract Hop Flavored
 Pale Dry
 Yeast: Bottom Fermenting Lager Beer Yeast - Pilsner type
 1 pkg.
 Bottles and Caps: 7 Pepsi cases and about 150 caps each time.
 Also needed: 1 Brew Tester
 1 Jet Bottle Capper
 1 Auto. bottle filler

Mix yeast in 1 cup of warm water. Let stand 15 mins. Put water in can up to 45 liter mark or approx. 10 gals. Add sugar. Malt should be placed in a pan of hot water before opening in order to loosen it. Add malt and yeast. Stir well. Let stand until next day. Stir one more time and add water to 50 liter mark. Use mostly sweet water. You may put in some tap water to excite the bacteria. Remove scum twice a day with strainer. Beer should be ready to bottle in a week. Test with a brew tester after 3rd day. Check daily. When on "B" it's ready to bottle. Put 1/4 tsp. sugar in each 12oz bottle before bottling. Make sure bottles are clean. Wash with Chlorox 1st time, rinse well. Don't use soap as it cuts down on the "head". Leave approx. 3" of liquid in the bottom of the can. Leave room in the bottles for fermentation gases.

To double production, use the remaining sediment in the can and use the same recipe. This batch should take only four days to be ready for bottling.

BREWING OF BEER AT HOME

Equipment needed

One 8 gallon crock
Beer Tester (Hydrometer)
Siphon
Bottle Capper
Bottle Caps
Bottles

Ingredients needed for 8 gallon batch

2½-lbs. Malt Syrup (DCL)
6-lbs. Cane or Corn Sugar
1 Package Home Beverage Settler
1 Package of Beer-Yeast
2-oz. Hops Compressed
(Omit HOPS when hop-flavoured Malt Extract is used).

For 6 gallon batch use 4-lbs. sugar and less water

PROCEDURE:

1. Pour one gallon of warm water into crock, add Malt Syrup and sugar, stir until dissolved. (Mix Home Beverage Settler with sugar before adding the sugar to mash in crock.)
2. Hops: Place hops in cloth sack and tie securely. Place sacked hops in pan with enough water, say 2-4 pints, to cover it, allow to simmer for about 20 minutes. Then remove sacked hops and let hop solution cool. Now add solution to home brew mix in crock.
3. Place crock on platform about 2 feet off ground. This will facilitate siphoning into bottles when brew is ready. Add lukewarm water for a total of 7 gallons liquid.
4. Beer-Yeast: Dissolve yeast in a cup of lukewarm water, stir in 1 teaspoon of sugar. Let stand in warm place for ½ hour, then add to mash in crock and stir until mixed. Maintain even temperature of 70°F.
5. Place beer tester in mash, take reading from alcohol percentage scale at the surface of the mash. This reading gives you the percentage of alcohol the brew will have after it is fermented out. Keep crock covered with cheese-cloth.
6. Fermentation cycle will take from 2 to 4 days depending on the conditions.
7. When beer tester sinks to the red line marked "B" fermentation is completed and brew can be siphoned off into bottles.
8. Add a pinch of sugar to each bottle to produce the "FIZZ". Then close and cap bottles.
9. Store bottles in place with about 70°F. for 10 days to 2 weeks. Store in cool place before serving it.

NOTE:

Recipes on or inside VIERKA Beer Yeast packages do not mention sugar. In Germany it is not allowed to add sugar to beer. They go heavy on the malt therefore.

Be guided by American recipes in this respect.

LAGER BEER
with added hops

MINIMUM EQUIPMENT:

7-10 gallon primary fermenter
5 gallon secondary fermenter
syphoning equipment
fermentation lock and bung
hydrometer
54-12 oz. bottles; capper; caps

INGREDIENTS:

1 - 3½ lb. can Munton & Fison Malt Extract - Unhopped
5 cups Corn Sugar
1 pkg. Hallertauer Hops
1 pkg. Dried Beer Yeast

PROCEDURE:

NOTE: All equipment should be thoroughly sterilized either with a solution of sodium metabisulphite or some other manner of sterilization.

1. Fill the primary fermenter with 4 gallons of cold water. Pour 1 more gallon of water into a large saucepan, bring to a boil and turn off the heat. Add 1 can of unhopped malt extract (or 3 lbs. of Dried Malt Extract) and 4 cups of corn sugar and stir until completely dissolved. Any undissolved malt would burn on the bottom of the saucepan and this is the reason for turning off the heat when adding ingredients. Add pack of hops except set aside 1 level teaspoon to be added later. Re-heat mix to a boil. Allow to remain at moderate boil for 45 minutes. Add remaining teaspoon of hops during the last 15 minutes of boiling. (When mix reaches a boil initially, it will tend to foam up so watch for this and reduce heat when the foam rises. It will fall within a minute and not rise again.)

2. Pour the beer mix into the primary fermenter and stir to mix. Scoop out 1 cup of the beer mix from the primary fermenter and pour 1 pkg. of beer yeast into the cup. Allow to sit for 10 minutes, then stir the yeast entirely into solution in the cup. Pour the yeast mixture into the beer solution in the primary fermenter and stir. Cover the primary fermenter and allow to ferment until the foam recedes, usually 2-3 days.

3. Syphon the beer into a sterilized secondary fermenter and attach the fermentation lock. Allow to ferment until fermentation ceases - Specific Gravity of 1.000 (at least 5-10 days).

4. Syphon the beer back into the sterilized primary fermenter. Add 1 level cup of corn sugar and stir to dissolve completely (for more carbonation, it is safe to use up to 1½ cups corn sugar). Bottle and cap the beer and allow to age upright at room temperature for at least 15 days. Longer aging improves the flavor. Chill prior to serving. Pour carefully into chilled mugs to remove the clean beer from the yeast sediment.

NOTE: Give each bottle a sharp twist after 10 days of aging to settle any yeast adhering to the neck and sides.

More Photos



Hans and daughter Bettina enjoying beer samplers at a Microbrewery in Austin.



Bettina, Aunt Renate, and son Kirsken at Austin Microbrewery

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