Make apple brandy

http://mapassionduverger.fr/transformation/faire-une-eau-de-vie-de-pomme/

Presentation

If we say to you: Apple brandy, we immediately think of Normandy and its famous Calvados.
Normandy being famous for its natural pastures and its bocage which are usually planted with apple trees intended to produce cider, the majority of the farms produced until recently their own cider and their calvados. Stills crisscross the countryside to make these distillations.

Apples for calvados

Calvados is distilled from over 200 named varieties of apples. It is not uncommon for a grower to use more than 100 specific apple varieties to produce his calvados.
T he varieties of apples used are called “cider apples”. They are either sweet (like the red variety hardness) , sour (like the variety Rambault) or bitter (like put, the saint-martin , the Frequin or binet red) , the latter category is composed of varieties non edible . The reason we use bitter apples is that with sweet apples the alcoholic drinks would be too sweet.A typical Calvados recipe might have 30% sweet apples, 40% tart apples, and 30% bitter apples, another recipe might include 40% sweet , 20% tart and 40% bitter .

Manufacturing process

The fruit is harvested (most often by hand) and squeezed into a juice which is fermented in a container of dry cider. It is then distilled into eau-de-vie. After two years of aging in oak barrels, it can be sold as Calvados. The older it is, the smoother the drink becomes. Usually, maturation continues for several years. A half-bottle of twenty-year-old Calvados can easily be worth the price of a full ten-year-old bottle.

Old-fashioned pressing.

Aging in oak barrels.

Distillation

The double distillation is carried out by means of an iron still in a copper still in two successive toasts. The first heating is carried out from the cider to obtain the " brouillis ", or "small waters", which has a content of 28 or 30 ° and whose "heads" (the lighter products, first arrived in the distillation) and " tails ” (the heavier products, arrived at the end of the distillation) will have been eliminated, because they are of little interest for the final product. The second heating consists in distilling the small waters by separating the heads and tails again, to give the "good toast". To be entitled to the appellation “calvados”, this “good toast” must not exceed 72 °.

Other appellations: lambig , Fine Bretagne.

Lhe cider brandy from Brittany, called lambig in Cornouaille, is an alcohol of Controlled Designation of Origin (AOC) obtained by distillation of ciders from varieties of cider apple, harvested and processed inside 'a specific geographic area.
After fermentation of the must, followed by distillation by means of a still, the aging process begins in oak barrels which extends over several years. During this decisive step, the breeder or cellar master decides on periodic brewing and blending with other alcohols of the same type from different terroirs and vintages. Its choices depend on the subtle balance between the alcohol content (around 45 %) and the expression of fruit aromas.

Apple brandy

With us, in Lorraine and Alsace, as in other regions, apple brandy is often used for maceration. Because depending on the apples we use, we obtain a neutral alcohol, tasteless and which is recommended, so as not to influence the result, in the manufacture of liqueurs. To make this neutral eau-de-vie, use very sweet and tasty juice apples, such as Querina , cloche apple, Estival, Rambour d'hiver, Akane , etc. You must use only clean fruits, healthy, ripe and very sweet.

You should not use apples that are still green to make your alcohol.

How to make neutral apple alcohol

It is necessary to make a pressing of the apples, to keep only the apple juice. This juice will be put in barrels and will have to ferment for 4 to 8 weeks, depending on the conditions and the fruits used. The fermented apple juice will then be distilled, in the cider category, because the yield is higher than in the apple category (2.5 liters of pure alcohol for cider and 1.5 liters , for apples)

My two barrels with 55 liters of apple juice. (21.09.2015)

How to press apples

You can carry your fruit very well in a private press. In many farms, there are arboricultural associations, juice workshops or facilities where apples can be processed.

My apple brandy

This year, with an exceptional harvest of apples, whether in quality or in number, 2015 was for me a very good year with fruit. Very sweet apples, admittedly small on some trees or varieties, because of the lack of rain this summer, but to make my brandy, it does not matter. You also need a little more apples than in other years, because the extraction rate is very low this year, due to the drought in 2015. The yield is around 50%, that is to say , that for 100 kg, there are only 50 liters of apple juice. Otherwise, we turn between 65 and 75 liters for 100 kg of apples, see 80 to 85 for modern industrial presses.

So I prepared about 200 kg of apples, most of them picked from the tree. (healthy and clean)

An hour later, 105 liters of apple juice, already pressed in the village workshop. (It takes around 20 € for pressing, or 2 cents per liter).

Just ferment, like cider. (No need to necessarily add yeasts)

Natural fermentation

Fermentation is a natural phenomenon, which will transform fermentable sugars into alcohol and carbon dioxide (CO2). The alcohol that one seeks to isolate is ethanol. Fermentation produces other potentially dangerous alcohols such as methanol (highly toxic) that we will rule out during the distillation.

Alcoholic fermentation takes place in the absence of oxygen. It will therefore be necessary to prevent our materials from coming into contact with air, which could lead to other reactions that would adversely affect the yield and taste of the desired product. To prevent the must from coming into contact with the air, it is necessary to check the tightness of its container and place the bubbler or breather with a little water, at the location provided on the cover. This aseptic bung allows the evacuation of carbon dioxide, but prevents the entry of air harmful to our fermentation. This plug can be "homemade" but it is essential to avoid an explosion of the container.

Close the drums and put a bung. You can leave a few hours in the sun, to start the fermentation, if the juice is too cold.

Homemade bubbler manufacture, based on a photo by Jean-Luc Lett (Arboriculteurs Hambach) Just attach a pipe with a fitting on the cover and put it in a bottle of water.

Controlled fermentation of juice

This step aims to optimize the fermentation conditions, we speak of controlled fermentation. The following steps do not have the same degree of importance depending on the type of fruit processed. Not absolutely necessary, but it's better.

With very cool nights, the apples were very cold, so the juice was only 7 to 8 °, temperature too low to ferment. It is enough to leave a few hours in the sun and to stir from time to time, to raise the temperature.

Acidification of musts and pH control

The acidification of the must limits the risk of the development of bacteria harmful to the quality of our product. It is only useful for musts which are naturally low in acidity. To find out, you need to measure the pH of your must using a test strip. This should ideally be less than 3.2. Acidification is also recommended for musts which will remain stored for a long time before distillation.
These pH strips reliably indicate pH values between 2.5 and 4.5 by means of a color change. Thanks to the color scale supplied with it, you can quickly recognize the exact pH value of your fruit puree.
For the production of alcohol you will need pH strips, in order to regulate the pH value of your must or your marc. The ideal pH value for optimal fermentation should be between 3 and 3.2 . If your wort has a higher value, we recommend that you reduce it by adding the combined MS Simaco acid, special for wort.

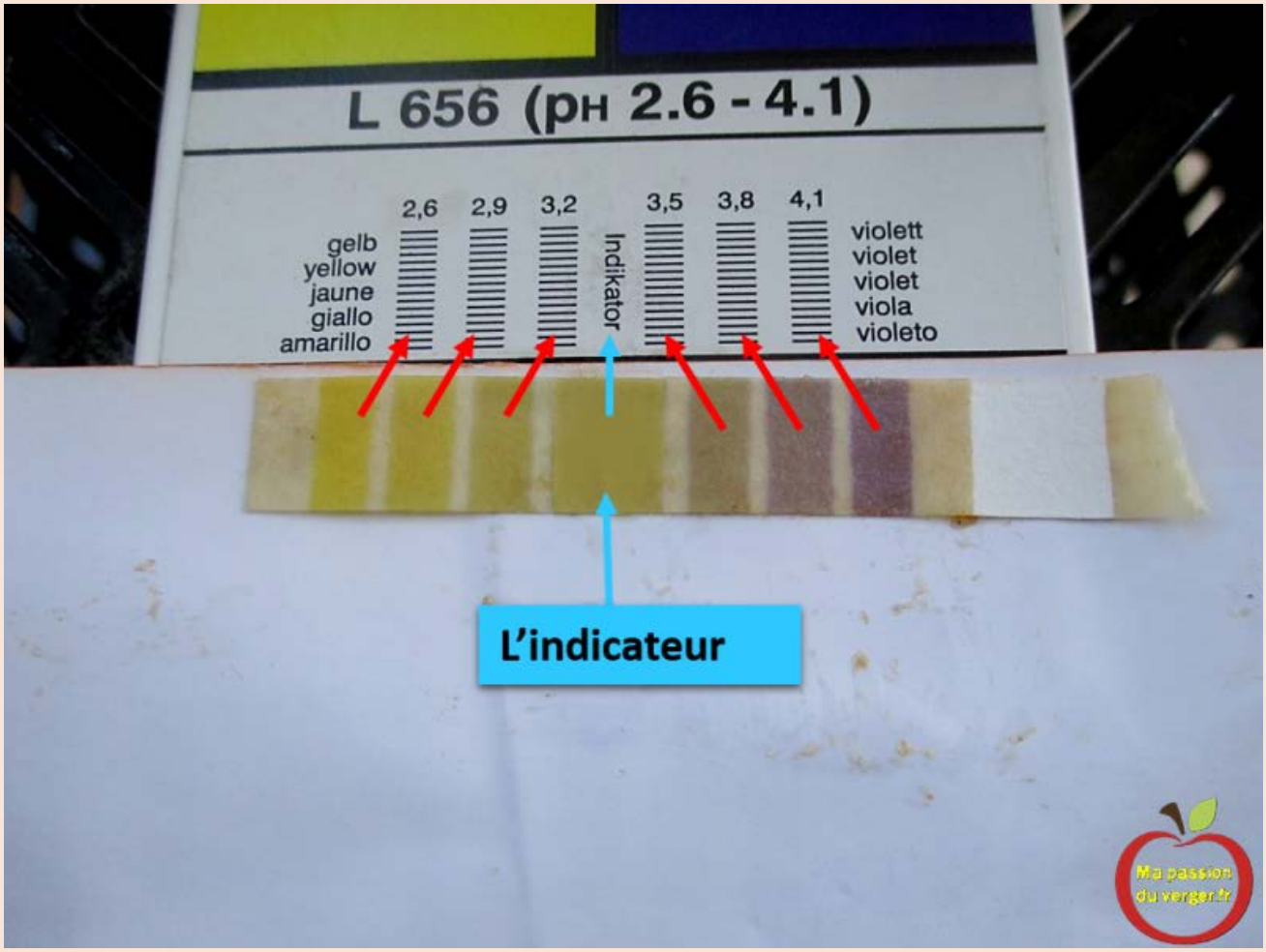
Where to buy: http://www.simaco-shop.com/fr/controles-et-mesures/161-papier-ph.html

Indispensable to any good vintage boiler, pH paper allows you to determine with certainty and precision the acidity of the must. PH strip. Scale from 2.5 to 4.5 - Special Distillation

Measure the pH of your must using a test strip. Soak in the mash for at least 2 seconds. Thanks to the color scale supplied with it, you can quickly recognize the exact pH value of your fruit puree. (Simaco strip)

If you want to make a controlled fermentation, you have to measure the pH. Soak in mash or juice for about 2 seconds.

The test strip shows me a ph of 3.2 and therefore no need to add a combined MS Simaco acid, because the ph is good.



Indicator shows a pH of 3.2. (Other supplier of pH strips)

Combination of MS acids

The acidification fruit musts with a combination of acids MS performed on time at the beginning of maceration musts block the formation of undesired and harmful bacteria and their metabolic waste (lactic acid, acetic acid, butyric acid, acrolein)
The combination of MS acids makes it possible to obtain flavoring and odorants specific to the fruits as well as a clear fermentation of taste. During acidification with sulfuric acid, the formation of volatile sulphates (taste of rotten eggs) is sometimes observed , this does not appear when using the combination of MS acids .
The combination of MS acids is suitable for the acidification of musts obtained from pome fruits, stone fruits, berries and Jerusalem artichokes. The quantity of acids sufficient for effective protection of the must depends on the type of fruit as well as on the biological fluctuations of the constituent materials of the fruit. After acidification (stir well) , the PH value should be checked , using a PH stick (available on our site) or an electronic ph-meter. Sufficient protection is achieved at a pH of 3.0 - 3.3.
In practice, this corresponds to 1 to 2 liters of MS acid combination / 10 litersof must. (**Dosage : 1 to 2 l / hl)**

The dosage of combined MS acid depends on the type of fruit and its quality. The storage of combined MS acid does not require any special requirements.

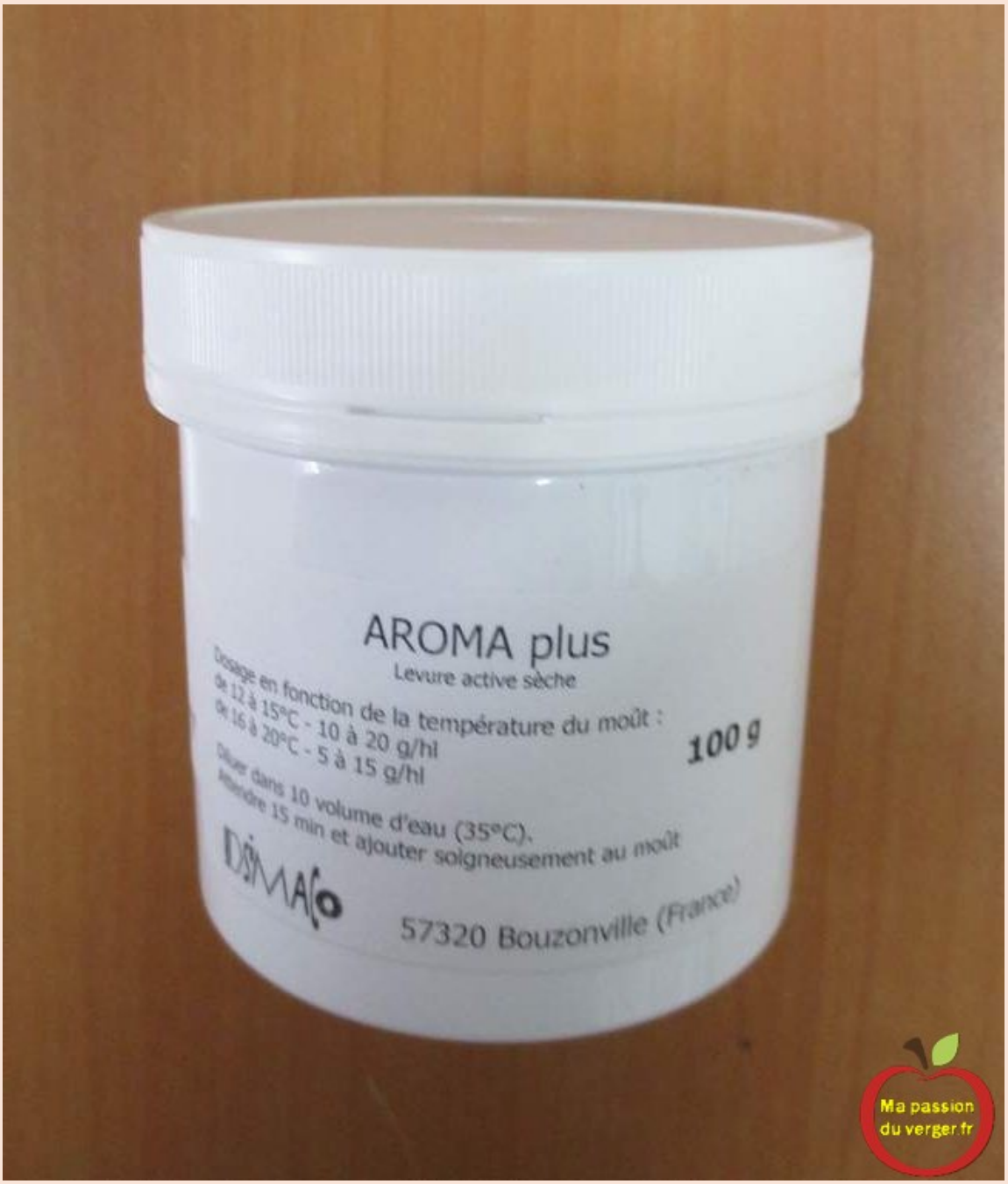
Where to buy: http://www.simaco-shop.com/fr/en-eau-de-vie/103-combine-d-acide-ms.html

Available in 1 liter bottle, 10 liter canister, 20 liter canister and 120 liter barrel.

Aroma Plus yeasts

The must naturally contains various yeasts responsible for spontaneous fermentation . However, the addition of selected yeasts has many advantages: high alcohol production, good temperature resistance, low production of fermentation by-products (fusel, glycerin, etc.).
The yeasts selected are more and more often in dehydrated form, which allows better preservation. It is recommended to dilute these yeasts in 10 times their volume in water at around 35 ° C (be careful, too hot water can kill the yeasts!). Let them stand for 15 minutes at this temperature before mixing them evenly with your must. The dosage is specified by the supplier. The yeasts selected must be added before any spontaneous fermentation starts, which would negate their effect.
Aroma Plus is a particularly active dry yeast. Special enzymatic activities facilitate the development of bouquet and aromas. Aroma Plus is particularly suitable for the gentle fermentation of William pears and other fruits. The medium fermentation speed prevents excessive heating of the musts and thus acts against the loss of slightly volatile flavor components during fermentation.

Dried yeasts must be stored in a closed (airtight) packaging and stored in a cool room away from humidity.
Or buy :
In 100 g: www.simaco-shop.com/fr/preparation-des-mouts/96-aroma-plus-boite-de-100g.html
In 500 g: www.simaco-shop.com/fr/preparation-des-mouts/95-aroma-plus.html



Available in 100g box and 500g bag.

Or the new Opti-fruits yeast revealing aromas

Mixture of pure yeasts allowing secure fermentation of fruit musts, fruit wines, mead and molasses, intensely revealing the aromatic bouquets.
Dosage: approx. 15 to 25 g / hl at an ideal temperature of 16 to 20 ° C
Dilute the necessary quantity of yeast in 10 volumes of water and after 15 minutes maximum, incorporate carefully into the product to be fermented.
.
Where to buyr:
In 100 g: www.simaco-shop.com/fr/preparation-des-mouts/410-opti-fruit-plus-100-g-levure-seche-revelateur-d-aromes-schliessmann.html
In 500 g: www.simaco-shop.com/fr/preparation-des-mouts/411-opti-fruit-plus-500-g-levure-seche-revelateur-d-aromes-schliessmann.html
.

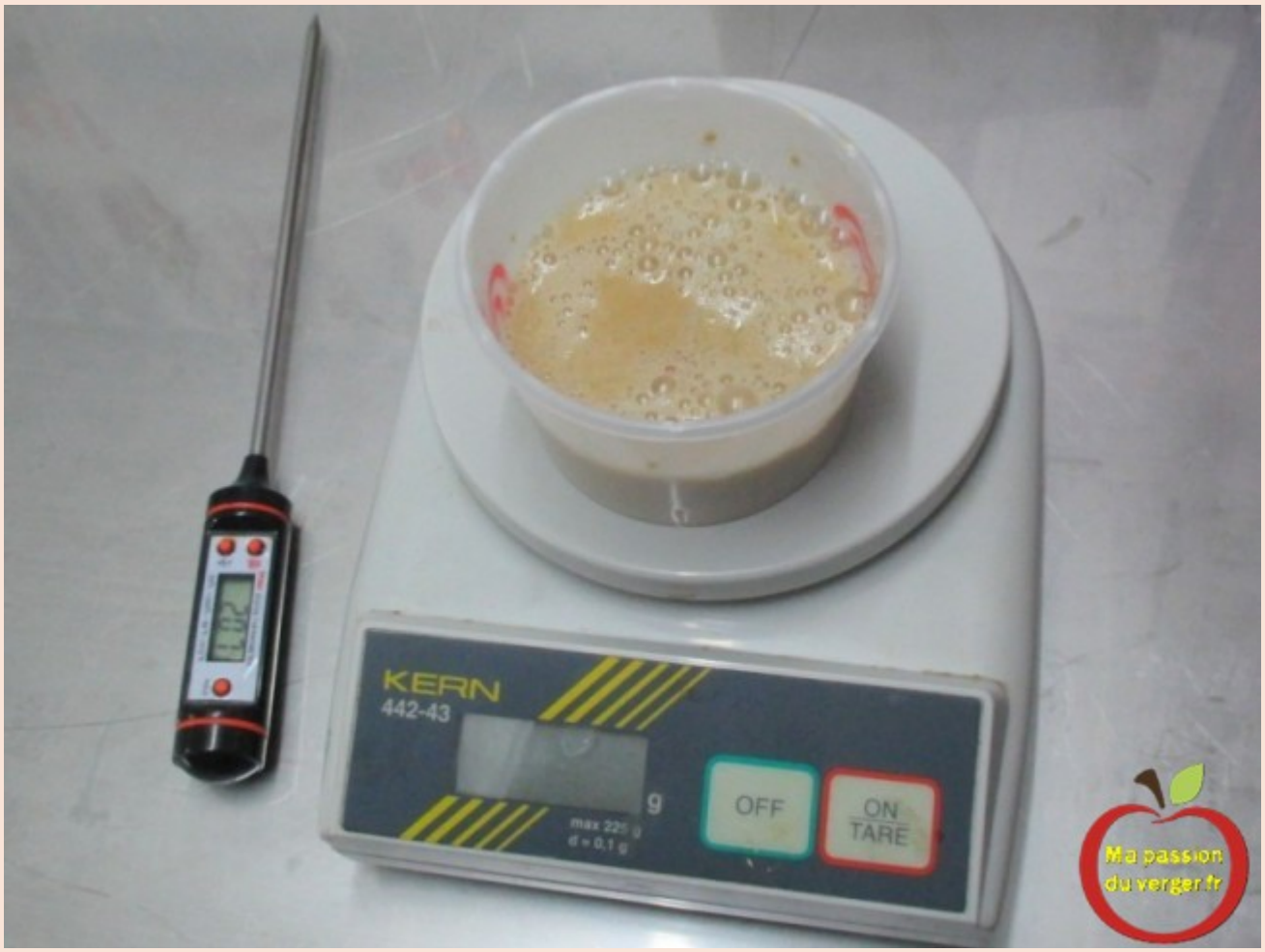
Dry yeast revealing Schliessmann aromas. Available in 100 g box or 500 g bag.

Preparation of the dosage of dry yeast according to the temperature of the must and according to your product. (Dosage: 15 to 25 g / hl from 12 to 15 ° C or 5 to 15 g / hl from 16 to 20 ° C)

It is recommended to dilute these yeasts in 10 times their volume in water at 35 ° C maximum.

Add the yeasts.

Mix to dissolve in water.



Let stand for 15 minutes at this temperature to start the yeasts.

Add to apple juice.

And mix evenly.

Close the cover and put the drain in place.

Direction the cellar, where it is 19 °, optimum temperature, for fermentation.

Make a good apple brandy

To make a good apple brandy, it is advisable to use only one variety, with specific aromas, which you will find in your schnapps. The most commonly used types are: The Gravenstein , the Transparent Croncels , the Cox orange , Jonagold, Juliet, Queen of Reinettes the Boscoop ... , from which one extracts of brandies fine. Each eau-de-vie will have a specific taste, compared to the apple used.

To make a good apple brandy, it is advisable to use only one variety, with specific aromas.

How to make this apple brandy

To get all the flavors and aromas of the apple, it must be crushed, or grated as finely as possible and without cutting the seeds, to put it in barrels.

Or with a specific grinder, as in the juice workshops, leaving it to be done.

Or with a small, home-made grinder.

Or with a purchased small grinder.

Or simply, with the means at hand.

Ultra Fruit Enzyme

The use of pectic enzymes allows the hydrolysation of pectins, one of whose roles is to keep plant tissues together. As the fruit ripens, this skeleton relaxes naturally. The enzymes accelerate this natural phenomenon and allow faster liquefaction of the must, which promotes our alcoholic fermentation. Enzymes are only effective at a sufficient temperature of the material. The enzymes are assayed according to the manufacturer's instructions.

ULTRA FRUIT is an enzymatic preparation which is used to carry out a complete liquefaction of pome and stone fruit musts in the small distillery. It contains, in addition to pectinases, other very effective enzymatic activities. Ultra fruit enzymes break down pectins, as well as the binding substances responsible for the cellular maintenance of fruit. They act on polysaccharides. These enzymes have optimum activity at a temperature of 20 to 40 ° C and at a pH of 3 to 4, of the must. They are perfectly suited to acidified musts, with combined MS acid.

In the case of crushed apples, the Ultra Fruits enzymes must be added, but not necessary in the pressed apple juice.

ULTRA FRUIT (fermentation under protection against acids). Enzymes must be stored in their properly closed (waterproof) packaging and stored in a cool room.

Dosage:

Apple 6ml / hl, Quince 8ml / hl, Pear 4ml / hl, Plum 2ml / hl, Rowan fruit 10ml / hl

Where to buy: http://www.simaco-shop.com/fr/en-eau-de-vie/100-ultra-fruit.html

Available in a 100 ml bottle or a 1 liter bottle.

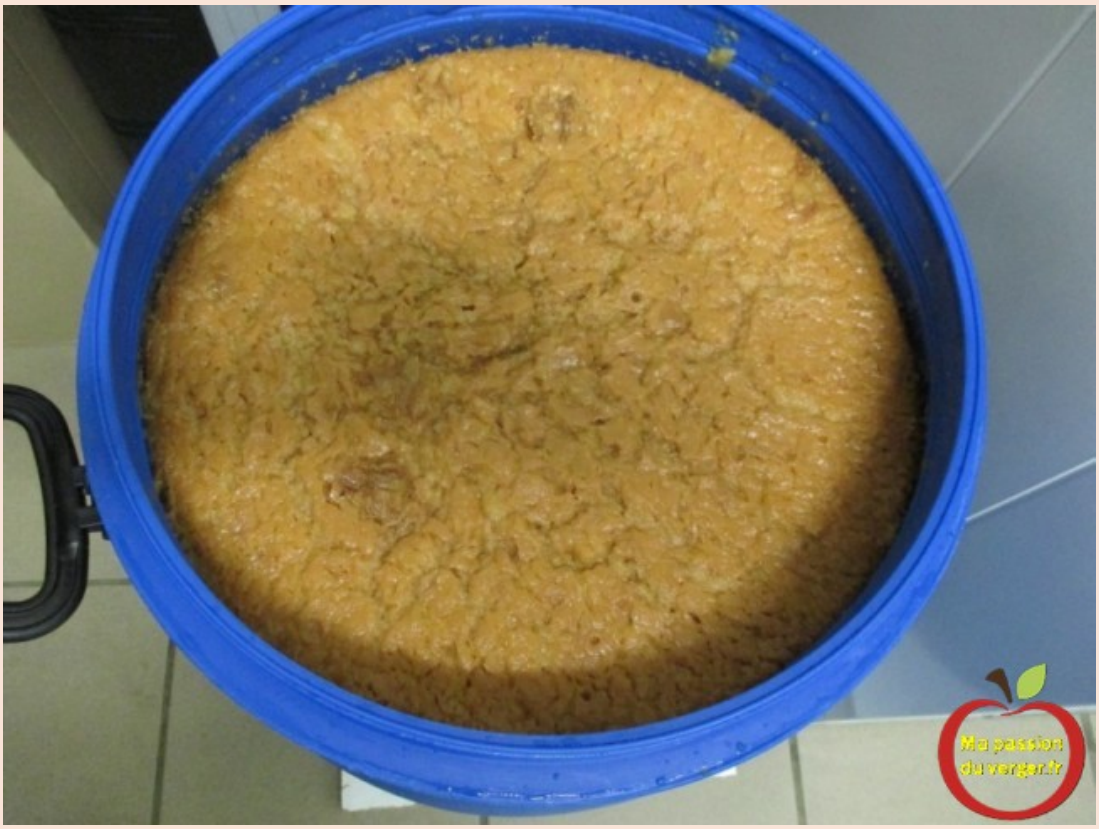
Dosage according to your product and diluted in 10 volumes of water.

Add to the must.

Mix well and close the keg.

Fermentation process

I stirred the material on the third and sixth day of fermentation, limiting contact with air as much as possible. The fermentation time, which depends on the temperature and the nature of the fruit, is normally between 2 and 4 weeks.



Opening of the barrel.

Mix the wort

The aim is to prevent the dry matter from rising to the surface, to get the maximum amount of aromas out of it and to improve fermentation.

Immediately close the barrel.

Storage of barrels before distillation

Fermented musts can be stored for 7 to 8 weeks without major risks. It is advisable to distill the materials quickly to limit the risks of bacterial and microbial development

It takes about 4 to 6 weeks of fermentation, before being able to distill.

Bad fruit casks

In this photos, you can clearly see the things not to do when putting your fruit in barrels to ensure good brandy.

- Barrel of still green fruits.
- Fruits are never added if fermentation has started. (after 12 noon)
- We remove the stems, leaves, grass and fruits with rotting.
- The barrel is hermetically sealed for fermentation.

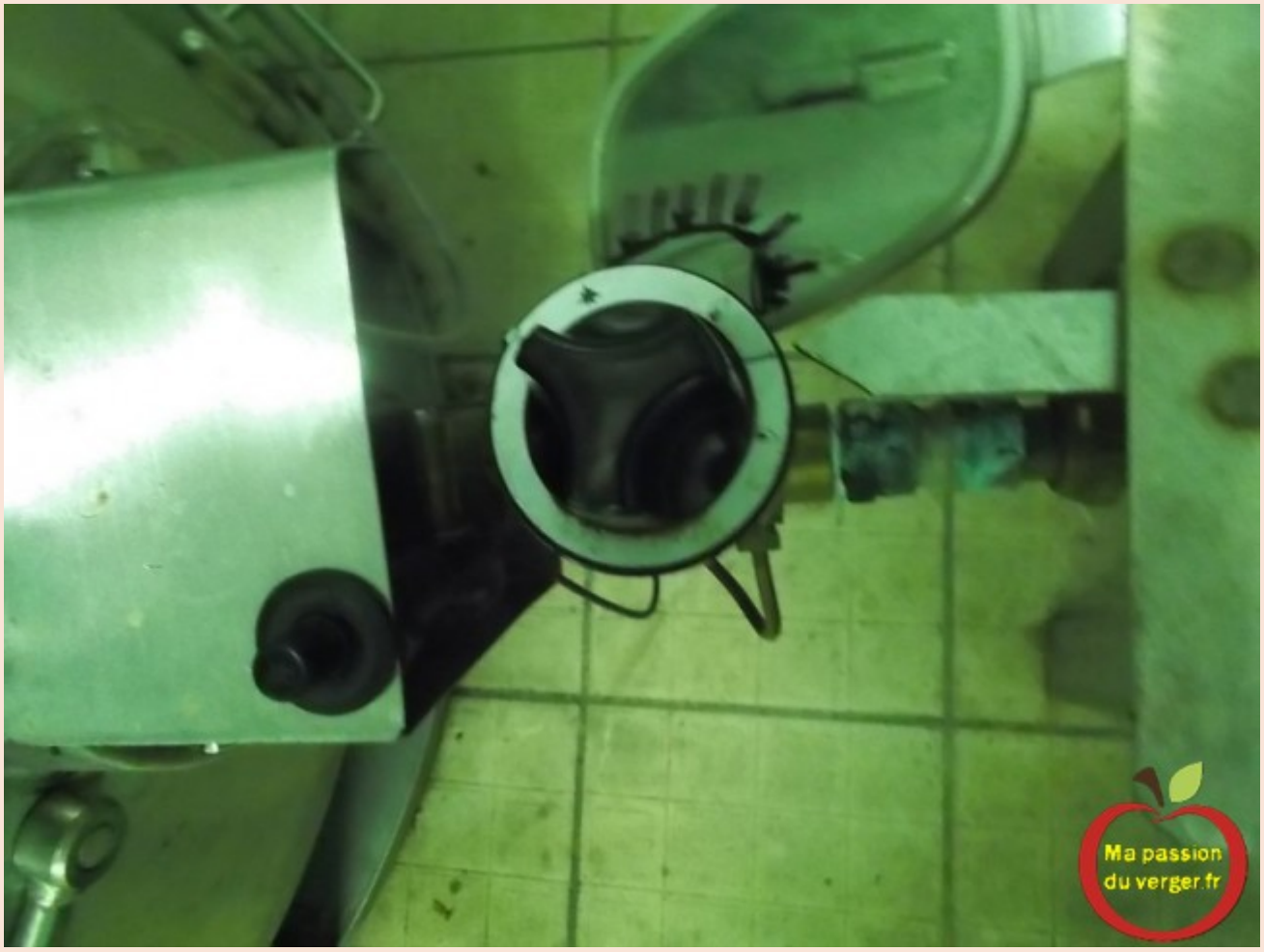
Poor casing of fruit. (photo source Jean-François)

One-pass still.

A real gem of technology, which we now find more and more in certain arboricultural associations or unions in our region. Modern methods, coupled with the knowledge of correct artisanal processing, guarantee first-class results.
The refined construction of the columns attached to efficient cleaning methods for rock-solid cleanliness of the copper surfaces, as well as the unique and patented spiral catalysis technique, guarantee cutting-edge distillates rich in aromas. The result is quite impressive.
Another essential factor is the expertly executed hammering technique, which ensures high compression of the copper and maximum strength of a surface of unmatched smooth structure.

Distillation

Just turn on the burner, fill with my 100 liters of wort and let heat. Very quick and easy to do, it's the best of the best. Without this still, I would never have been able to distill with 100 liters of must. You have to try it to believe it and never want to distill the old fashioned way again. It is a very good investment that Guy Grosse and his team have made and which will allow this tradition of artisanal brandy production from our region to continue. The new generations who no longer plant so many trees can now process the surplus of their small harvest. (Already with 30 liters of fruit, which was not possible with a 2-pass still)

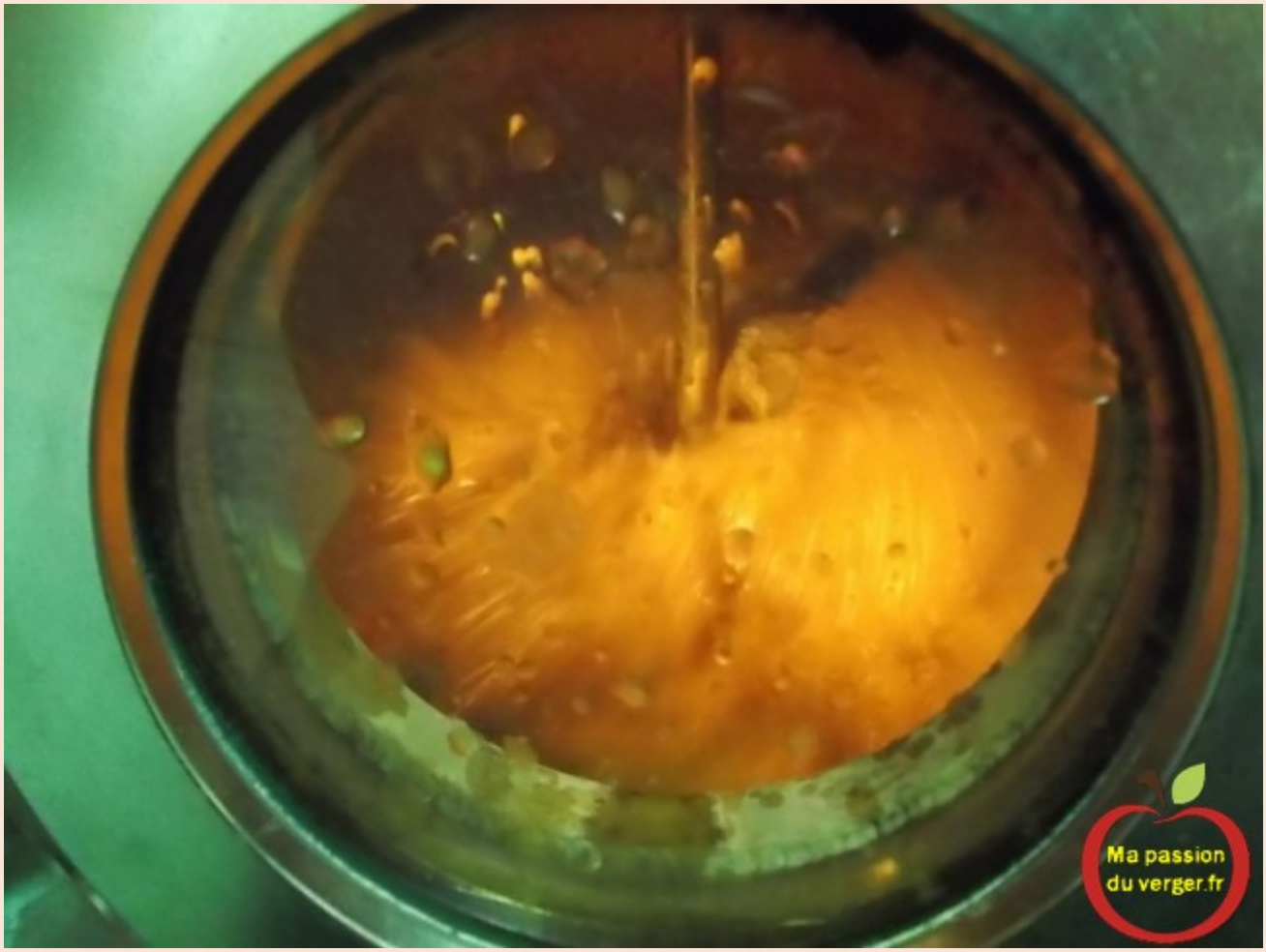


Ignition of the burner.

Commissioning of the control box.

Filling the still.

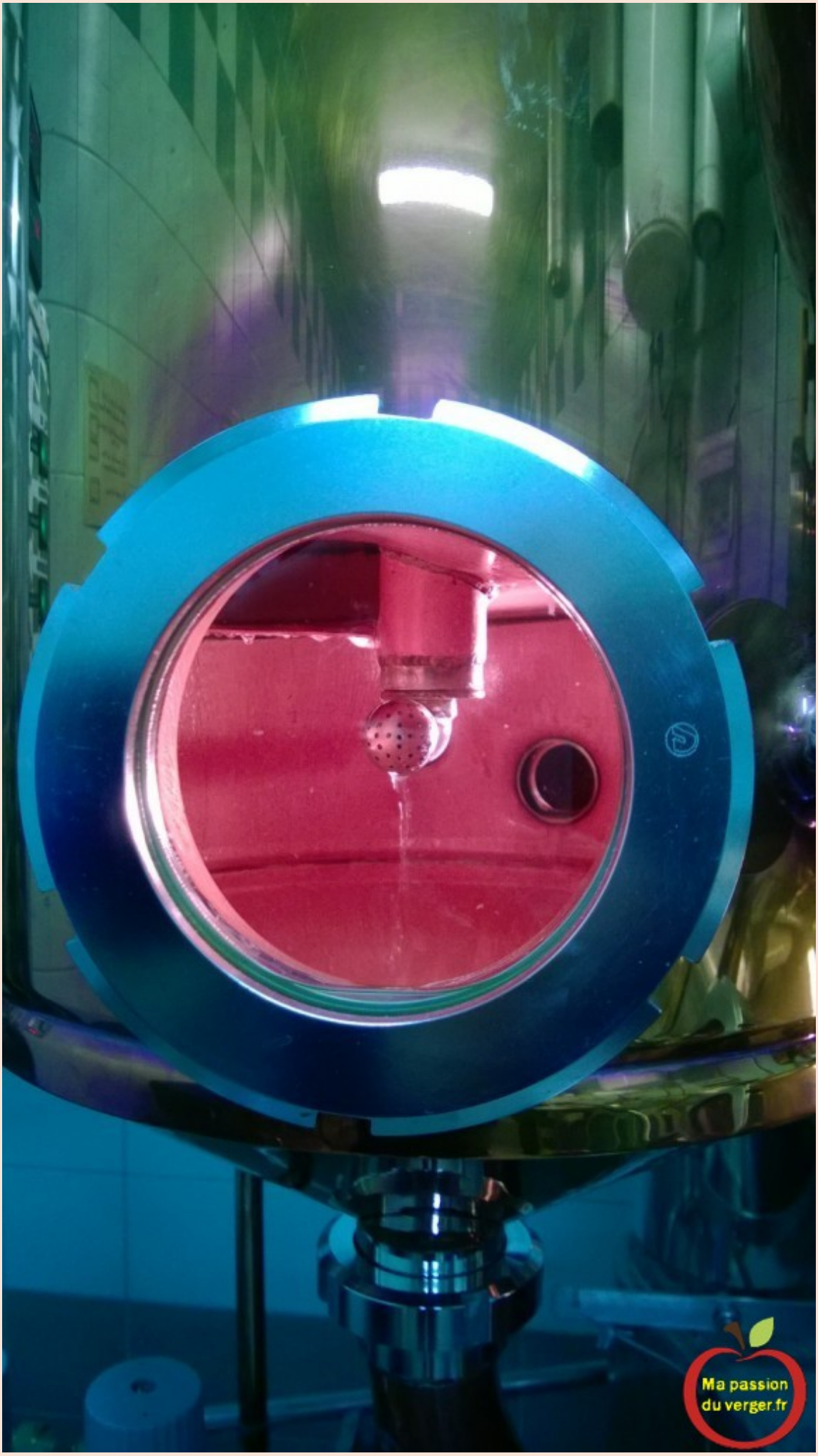
116 liters of must max.



Start the mixer.

Wait for the raw material to heat up.

When the alcohol vapor temperature display shows 42 ° the burner must be lowered.



The condensation will start.

Head products are more volatile than alcohol:

- Acetic aldehyde - Prussic acid - Ether - Acrolein - Methyl alcohol - Ethyl acetate -
(A smell of nail polish remover and an unpleasant taste)
A little ethyl alcohol (heart) towards the end of the head products, if a separation is made according to the rules of the art.

All head products flow up to a temperature of 75.1 ° and must be removed.

The heart is the only fine brandy in the mouth

Brandy with only a few traces of impurities from the head and tail products.
We are therefore looking for ethyl alcohol, ethyl oils, the bouquet and aromas,….

The heart is between 75.1 ° and 80 °. The only fine eaux-de-vie.

Stop the distillation before the tail products, because they are less volatile than alcohol.

Fusel oil - Higher fatty acids, isopropyl alcohol, butyl, acetic acid, amyl alcohol, ethyl ester,…. (Unpleasant taste)

Rendement minimum pour la distillation		
Quantité	**Matières (Fruits)**	**Rendement**
1 hl	Abricots	3 litres
1 hl	Autres baies	2 litres
1 hl	Autres fruits à noyaux	3 litres
1 hl	Autres fruits à pépins	1,5 litres
1 hl	Baies de genièvre	1,5 litres
1 hl	Cassis	2 litres
1 hl	Cerises	4,5 litres
1 hl	Cidre	2,5 litres
1 hl	Coings	1,5 litres
1 hl	Framboises	2 litres
1 hl	Groseilles	2 litres
1 hl	Jus fermenté de pommes	2,5 litres
1 hl	Lie de cidre	2 litres
1 hl	Lie de vin liquide	3 litres
1 hl	Lie de vin pressuré	2 litres
1 hl	Marc de fruits à pépins	1 litre
1 hl	Marc de raisin	1,5 litres
1 hl	Mirabelles	5 litres
1 hl	Mûres	2 litres
1 hl	Nèfles	1,5 litres
1 hl	Pêches	3 litres
1 hl	Prunelles	3 litres
1 hl	Prunes	3 litres
1 hl	Quetsches	4 litres
1 hl	Raisins	4,5 litres
1 hl	Reine-claude	4 litres
1 hl	Sorbier	1,5 litres
1 hl	Sureau	2 litres
1 hl	Topinambours	3,5 litres

How to increase the sugar level in fruits?

Our ancestors took sugar, to start fermentation faster, but this is prohibited by law. Sugar, honey, jam, were used to make more alcohol, but will thus dilute the aromas of the fruits. For information, sucrose in sugar is detectable in the laboratory, even after fermentation. So no need to add sugar.

To increase the sugar in your fruit, it is enough to make a good manure in autumn at the foot of the trees. Potash allows twigs and flowers to form. The sugar content of the fruit also depends on the potash. Every 2 to 5 years, depending on the richness of the soil, in the fall, bring compost or manure (not fresh) in sufficient quantity (one wheelbarrow per tree) at the foot of the tree (weed beforehand) . The earthworms will take care of gradually burying it.


Ma passion
du verger.fr

Washing of barrels

After distillation, the barrels must be washed and disinfected. By putting a little alcohol at 95 ° or the head product during storage, until the next use.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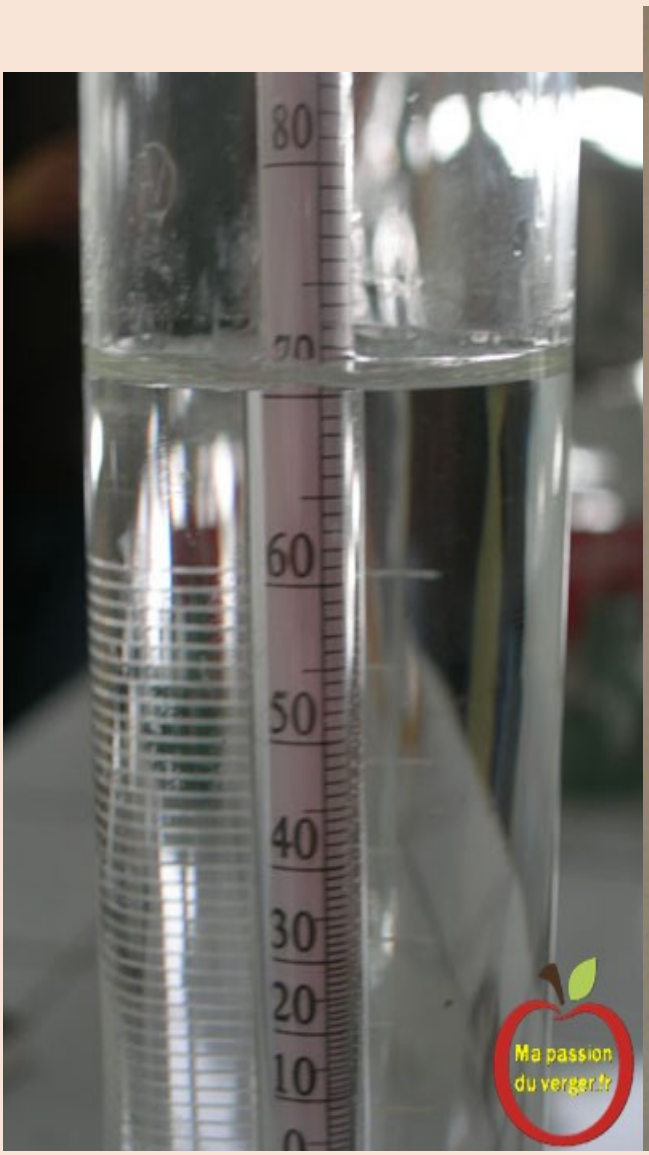
Reduction of alcohol content

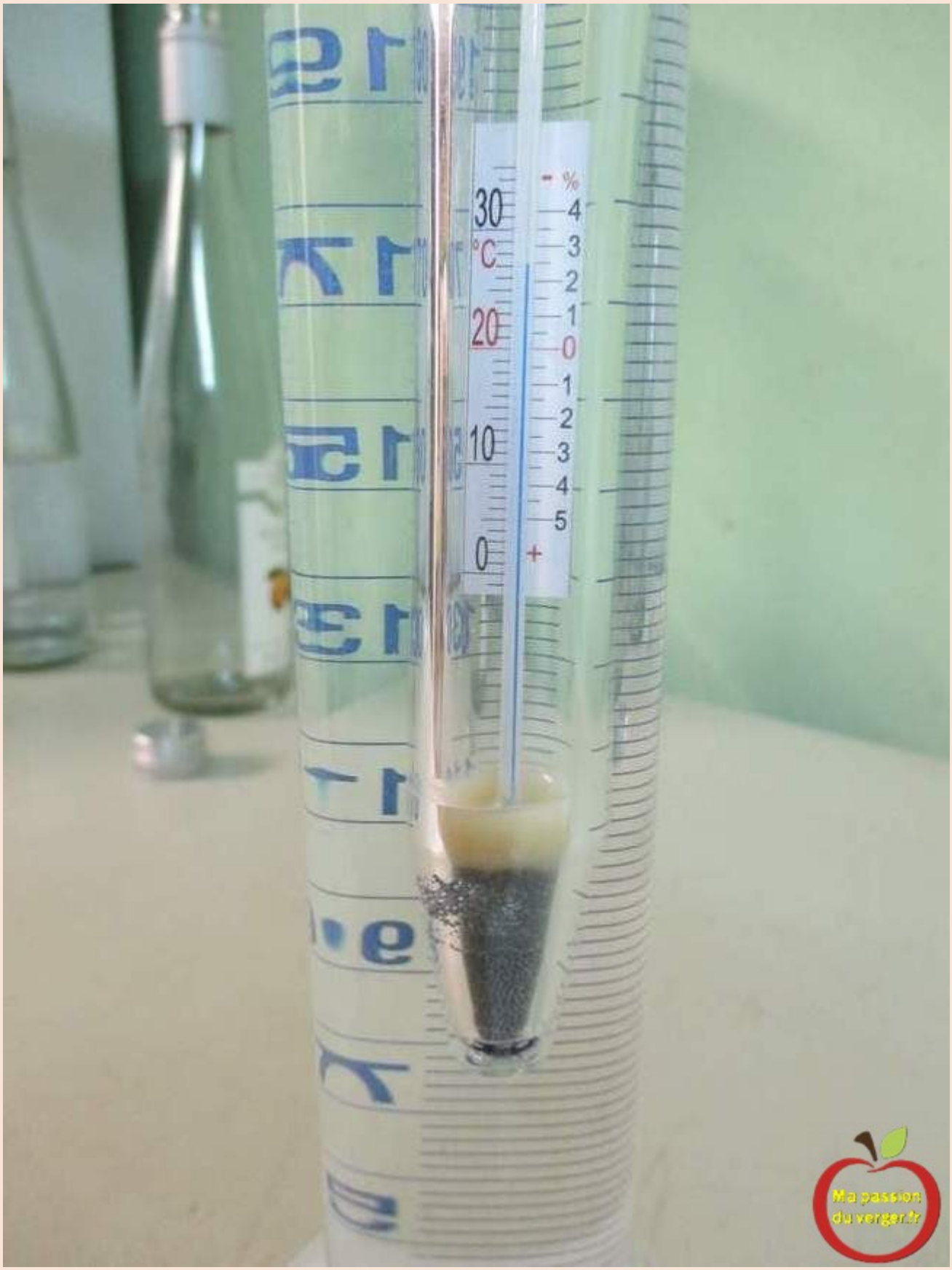
The brandy resulting from the distillation has a very strong alcohol content, the heart of the distillation for example, is between 60 and 90% vol, which makes it obviously undrinkable both for health reasons and for reasons of taste and aroma. If the alcohol level is too high, the precious aromas of the fruits are marked, making the brandy too strong and too spicy. With insufficient alcohol content, eaux-de-vie have a bland taste. To make it consumable, we must lower its alcohol level by cutting it with "pure and neutral" water. For fruit alcohols, the alcohol level will most often be between 45 and 47% vol.
To obtain a precise alcoholic strength by volume, a precise quantity of water must be added, this quantity of water varies according to the volume of the initial substance, the initial alcoholic strength by volume and the final alcoholic strength by volume.

Details of the reduction of eaux-de-vie on this page : http://mapassionduverger.fr/transformation/la-reduction-des-eaux-de-vie/

Very precise, this Simaco thermo alcoholometer.
Accuracy 0 to 100 ° with correction scale of the alcoholic degree according to the temperature.

Where to buy: http://www.simaco-shop.com/fr/controles-et-mesures/162-themo-alcoolmetre.html





The Simaco thermo alcoholometer allows you to correct the apparent alcoholic strength on the upper graduations of the alcoholometer according to the action of the temperature of your brandy. As in this photo, we can see that it is a brandy at 27 ° C (left) and that it is necessary to remove - 2.5 ° because of the too high temperature. (right graduation).

Water used

The distillate must be cut with water, the hardness of which is less than 7%, avoiding the calcium and magnesium it may contain. I use Mont Roucous, because it works very well and avoids a cloudy result in my brandy.

Apple brandy with several varieties.

Why not mix and grind several varieties of sweet , tart, bitter apples to make an excellent apple schnapps . (As to make a good apple juice, you have to mix as many varieties as possible) It's up to you to test.

Aging in oak barrels

You can buy a small oak barrel, but you already need a minimum of 5 liters or 10 liters to fill it. Another solution is to add a small piece of oak in the bottle, or to buy a bottle with an oak figurine, to give the taste.

Aging bottled apple brandy with a piece of wood.

Good tasting, but always in moderation

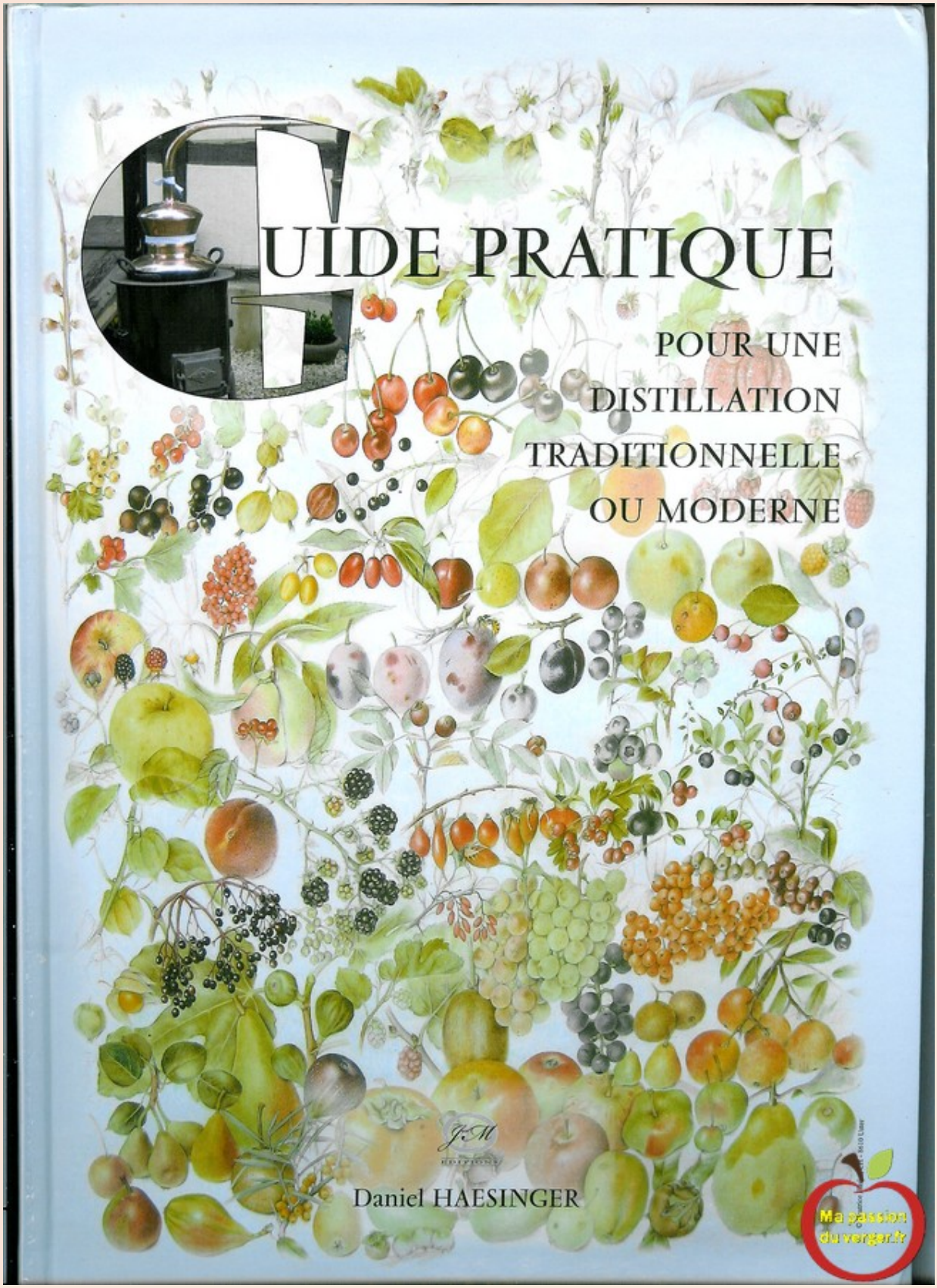
My collection of fruit brandy from my orchard

... to your health,

Practical guide for traditional or modern distillation

To produce a brandy of impeccable quality, distilling cannot be improvised. Combining tradition and modern techniques, the practical guide to distillation provides all the information you need. The best distillers have their secrets. This is how they manage to produce an exceptional eau-de-vie! This book is astonishing, every lover of brandy must have it in his library.

Author: Daniel HAESINGER . Daniel makes his expertise, which is internationally recognized, available to all amateurs through this book and also thanks to the many training courses he provides in the Grand-Est of France.
Format 210 x 297, 264 pages, Four -color printing, hard cover, 33 €
Available from the author daniel.haesinger@orange.fr and from Simaco: http://www.simaco-shop.com/fr/librairie/19 -practical-guide-for-traditional-or-modern-distillation.html



In volume 1, you will find all the basics necessary to approach distillation (Basic training in first level distillation) This guide will be useful to distillers in improving the often limited possibilities in the production of their brandy. -life.

PRACTICAL GUIDE FOR DISTILLATION (VOLUME 2)

New for 2017:

Ten years after the release of volume 1, “Practical guide for a traditional or modern distillation” accessible to all, conceived and based on a fundamental knowledge of the distillation of fruits and berries, useful to make understand to the layman as to the most distiller seasoned, the bases and the techniques to extract and find the best aromas in a natural eau-de-vie, a volume 2 under the same title is available.
It is a work which completes the approached aspects of the general properties of materials, of their transformation, which seem off-putting, but necessary.

A memory for the specificity of our region that is Alsace, beautiful, diverse, lively like other regions of France and elsewhere in the world so that a natural brandy of family production is good for use.
In volume 2 are developed:
- The history of distillation, from the past to the present day, anecdotes and stories of brandy, from Babylon to Alexandria to the present day …….
- The preparation of materials for distillation, the history on the botany of fruits and berries, sources of spirits …… ..
- Distillation through time to the present day, the invention of the plate distillation column, new distillation techniques …… ..
- Thealcoholometry through the ages, from aerometers to eaux-de-vie alcoholometers and to new technical innovations and measurement processes ……
- Finishing of eaux-de-vie, storage and reduction of distillates to the desired degree, the aging of distillates in barrels of different woods ……
- Regulations over time, constantly evolving, the alcohol monopoly, Regulation (EC) N ° 110/2008 of the European Parliament and of the Council of 15 January 2008 …….

The book is available in 210 x 240 format, 596 pages, four-color printing, hard cover, € 45.00 which deserves to have its place in beautiful libraries.
Available or to order from: The publisher under "printing. ruge @ wanadoo ”. From the author
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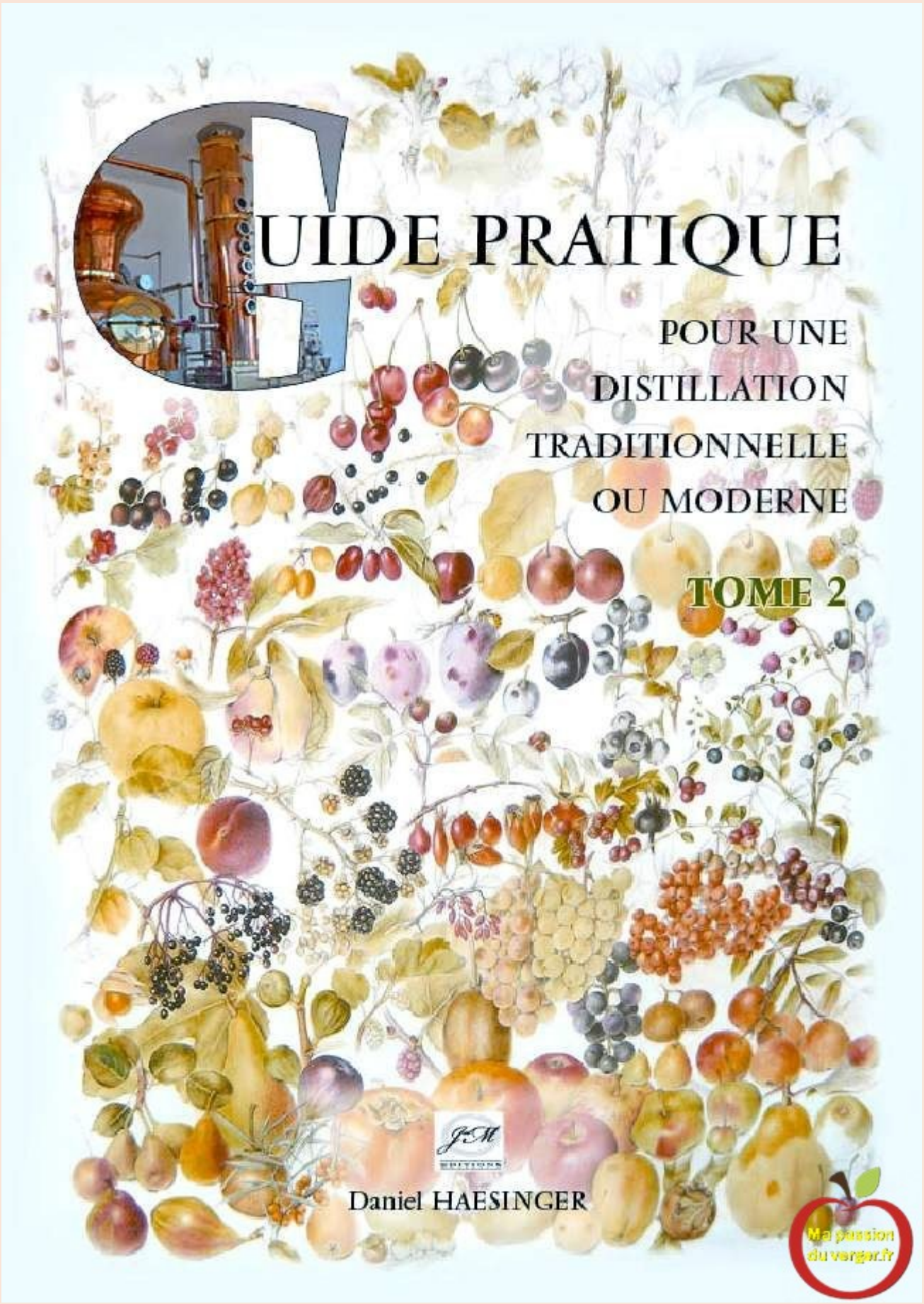

Volume 2 is additional information from the first book (basics of its second and third level training), to improve your skills in distillation.