



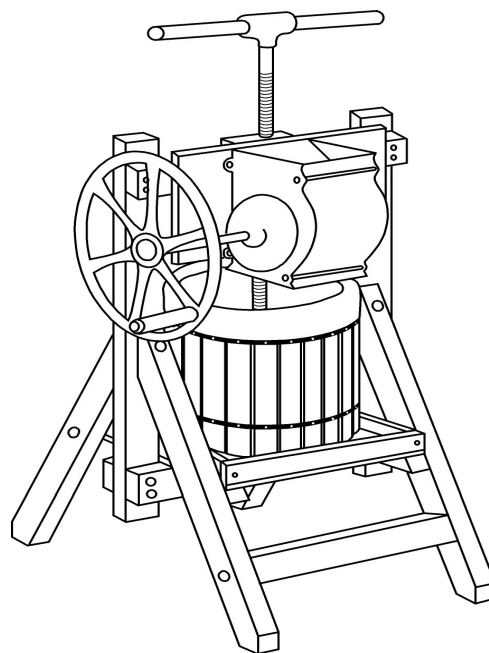
MAKING APPLE CIDER

Drinking fresh apple cider is a great way to warm up after raking autumn leaves. Making it yourself at home can be an even greater treat.

People have been enjoying cider since at least 55 BC, when Romans arrived in England and found locals drinking a cider-like liquid. Later, English settlers introduced cider to America by bringing apple seeds specifically for cider production.

In the United States, fermented alcoholic apple juice is called "hard cider," while freshly pressed, non-alcoholic cider is called "sweet cider." Cider is made from fermenting apple juice, which relies on natural yeast present in the apples for fermenting.

Fresh or unpasteurized apple juice or cider can cause food borne illness from bacteria. The directions below are for making and storing apple cider safely.



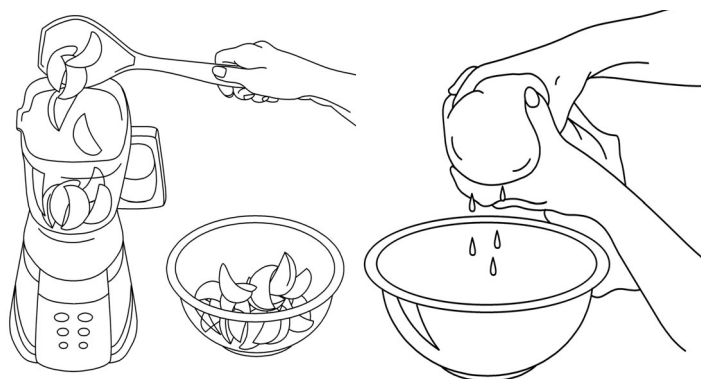
Fruit Press

Selection of Apples

Apples used for cider don't have to be flawless. They do, however, have to be free from spoilage. You can use blemished apples and small sized apples. You can mix apple varieties together or use all one variety. The only rule is to cut out any spoilage areas on otherwise good apples.

Spoiled areas will cause the juice to ferment too rapidly and will ruin the cider. Don't use apples that appear brown, decayed or moldy.

Apples should be firm and ripe. Green, undermature apples cause a flat flavor when juiced. The best cider comes from a blend of sweet, tart and aromatic apple varieties. A bushel of apples yields about 3 gallons of juice.



Getting Ready

Before juicing apples, sort and wash apples well under clean running water. Discard spoiled apples. Core and cut the apples into quarters or smaller pieces.

Wash glass jars or bottles that will be used to hold your pressed apple juice in warm, soapy water. Rinse thoroughly so no soap remains.

Prepare a clean muslin sack or jelly bag for juicing the apples. If using a new muslin sack or pillowcase, wash first to remove any sizing. Be sure all soap is rinsed out. An old, but absolutely clean pillowcase will work.

Always, as with any food preparation, start by washing your hands and forearms thoroughly with hot water and soap for at least 20 to 30 seconds before beginning preparation of the product. Utensils and equipment can be easily sanitized after washing and rinsing by filling with or soaking in a mixture of 1 tablespoon household bleach per gallon of warm water for at least 1 minute.

Juicing Apples

Small household appliances can be used to juice your apples. Apples should be cored and cut and then processed through a food chopper, blender or food processor. Put the crushed apple pulp into a clean muslin sack, or jelly bag, and squeeze out the juice. If you want to drink the juice now without making cider, pasteurize it by heating to at least 160 degrees Fahrenheit. Then, pour juice into clean glass jars or bottles and refrigerate.

For larger quantities, consider using a fruit press. Follow the directions that accompany your press for juicing apples.

Making Sweet Cider

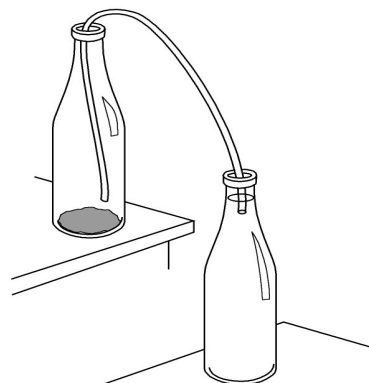
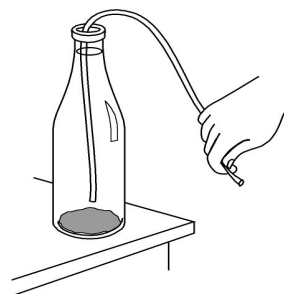
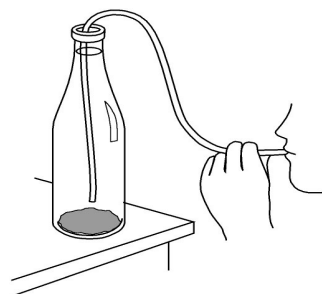
Begin with freshly pressed juice (not pasteurized). If clear cider is what you want, let the bottled cider stand at 72 degrees Fahrenheit for 3 to 4 days.

Clean bottles should be filled to just below the brim and stoppered with new, clean cotton plugs instead of a regular lid or cap. The cotton plug is used for safety. If pressure builds up during the fermentation that occurs, the cotton will pop out and release the pressure. If a cap is placed on the bottle, the bottle will explode.

After 3 or 4 days, sediment will begin settling on the bottom as fermentation bubbles rise to the top. Now is the time to stop fermentation if you want sweet, mild cider. Extract the clear liquid from the sediment by "racking off" the cider.

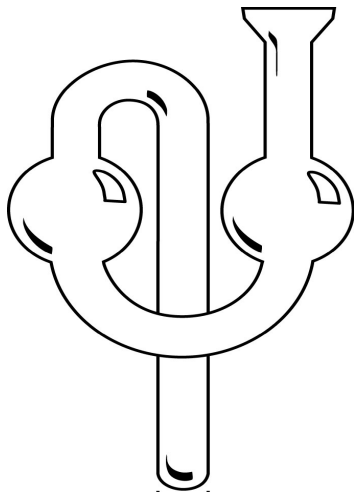
"Racking off" is done by inserting one end of a clean rubber tube, about 3 feet long, into the liquid and sucking at the outer end with your mouth, like a straw. As soon as you feel liquid in your mouth, pinch off your end with your fingers and insert the tube into an empty, clean and sterilized bottle, which should be placed well below the filled one. Liquid will flow from one bottle into the other, leaving the sediment behind.

Pasteurize the cider to ensure its safety by heating to at least 160 degrees Fahrenheit. Store the cider in the refrigerator at 40 degrees Fahrenheit or lower and drink within 5 days. Freeze, after pasteurization, for longer storage.



Fermenting Dry or Hard Cider

If you are seeking a dry cider, with more ‘zip’ or bite’ to it, ferment the cider longer at room temperature. Use an air lock, a curlicue glass cork, as your plug instead of cotton wool. (This can be purchased at home brewing supply stores.) If you can’t locate a supply store, substitute three-thicknesses of clean muslin, tightly stretched over the bottle opening and secured well around the neck. Be sure to use strong, sound glass or the bottle may burst from pressure due to the increasing fermentation.



A glass or plastic fermentation lock -a curlicue stopper- fits into the neck of the bottle and prevents air from contaminating the cider while allowing fermentation gasses to escape.

In about 10 days the cider will begin looking quite frothy and may foam over the top. This is normal, simply wipe off the bottle, replace the muslin with clean fabric and let frothing continue until the foaming stops fermentation is complete.

Fermentation turns all the sugars in the cider into alcohol; therefore, this cider will no longer be a sweet drink. The cider is dry, or hard, alcoholic cider.

Pasteurizing and Storing Cider

Unpasteurized, or fresh, cider may contain bacteria that cause illness, such as *E. coli O157:H7* or Salmonella. Harmful bacteria must be killed by a pasteurization process prior to drinking the cider.

To pasteurize, heat cider to at least 160 degrees Fahrenheit, 185 degrees Fahrenheit at most. Measure the actual temperature with a cooking thermometer. It will taste less ‘cooked’ if it is not boiled. Skim off the foam that may have developed and pour the hot cider into heated, clean and sanitized plastic containers or glass jars. Refrigerate immediately.

To freeze, pour hot cider into plastic or glass freezer containers, leaving ½ inch headspace for expansion. Refrigerate until cool and then place in the freezer.

Tips for Safe Homemade Apple Cider

- ▶ Avoid using apples that have visible signs of decay or mold growth.
- ▶ Wash apples thoroughly before pressing or grinding to make cider.
- ▶ Use a fruit press or small kitchen appliances to crush the fruit.
- ▶ Start by washing your hands and sanitizing equipment. Place washed and rinsed utensils and equipment in a mixture of 1 tablespoon household bleach per gallon of water for at least 1 minute.
- ▶ Squeeze juice through a clean, damp muslin cloth.
- ▶ Pasteurize cider to ensure safety. Heat to at least 160 degrees Fahrenheit and pour into warm jars to prevent breakage.
- ▶ Store cider in the refrigerator for immediate use, or up to 5 days. Put cider in the freezer if you want to keep it longer.
- ▶ Be sure to use strong, sound glass bottles that will not break during fermentation.

Caution: Young children, elderly and immunocompromised individuals should never drink fresh apple cider unless it has been heated to at least 160 degrees Fahrenheit.

Turning Apple Cider into Vinegar

To turn apple cider into vinegar you simply allow the cider to ferment past the stages of sweet cider and dry cider until it becomes vinegar.

Pour the strained, fresh apple juice into a clean crock, dark-colored glass jar or jug. Be sure to leave 25 percent of the container empty to allow for foaming during fermentation. Cover the container with something that will keep dust and insects out but will let air in, such as a triple layer of cheesecloth, or clean tea towel. Stretch the material over the top of the jar and tie it tightly with a string. Store the juice in a cool, dark place, like an unheated basement or garage. Fermentation will take from 4 to 6 months.

After 4 months, remove the cover and taste the vinegar. If it is strong enough, strain it through a triple layer of cheesecloth. Then heat the vinegar to 170 degrees Fahrenheit and hold it at that temperature for 10 minutes. Pour into bottles and seal with caps or lids. If the vinegar is too weak, after the first 4 months, test it every week until desired flavor is derived.

While vinegar is fermenting, a jelly-like layer forms on top that is called the "mother of vinegar." The mother is trapped and removed during straining. It can be carefully saved and refrigerated for use as a starter with your next batch of vinegar.

Caution: Homemade vinegars should not be used for home canned pickled foods. It will not have the same carefully controlled acidity as store bought vinegars.

Elizabeth L. Andress, Ph.D. and Judy A. Harrison, Extension Foods Specialists

The University of Georgia and Ft. Valley State University,
the U.S. Department of Agriculture and counties of the state cooperating.

The Cooperative Extension Service and the University of Georgia College of Agricultural and Environmental Sciences offer educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or disability.

**An Equal Opportunity Employer/Affirmative Action Organization
Committed to a Diverse Work Force**

FDNS-E-91

November 2003

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, The University of Georgia College of Agricultural and Environmental Sciences and the U.S. Department of Agriculture cooperating.

Gale A. Buchanan, Dean and Director