

UMD Outdoor Program Activity

An Apple-a-day...Apple Cidering Lesson Plan for Adults

This lesson is designed for general audiences that are registered for Outdoor Program's Apple Cidering activity. Groups of 12 or less are typically college students and community members.

I. Goal - Familiarize participants with apples, the process of apple cider making, and apple cider history

II. Objectives - Participants will:

- a. Recall the origin of apples – from a natural history perspective
- b. Describe stories and myth associated with apples.
- c. Participate in the process of apple cider making
- d. Explain apple cider making history in the mid-west.

III. Length: 90 minutes

IV. Materials

- a. cider press
- b. apples – apples cannot be collected from the ground due to potential salmonella poisoning! - depending upon the variety, it takes a little less than a bushel for a gallon of juice
- c. cups/mugs for all
- d. stove – to heat hot drinks
- e. first aid kit
- f. pot
- g. buckets for water, washing the press

V. Background

a. Apple Biology

- i. An apple, otherwise known as a *pome*, is a member of the fleshy pericarp grouping in a subfamily of Rosaceae. It is a simple fruit which means it is derived from a single ovary of a flower. The apple itself is actually the ripened ovary of the flower. It's purpose is to protect the seeds, aid in their dispersment, and may be a factor in timing their germination (p 140, Rost). Therefore, in order to understand the fruit we must first look at the flower.
- ii. The apple blossom is the initial reproductive structure of an apple tree. It appears in the springtime, like most flowering plants. An apple blossom has structures in fives. In other words, it has five petals, five sepals, as well as five styles and stamens. The petals usually start out pink and turn white as they open up to reveal the important inner structures. The five stamen are made up of a filament and an anther - which is the sack-like tip containing the pollen. Within the ring of stamen are the five styles which connect to the inner ovary of the flower. The tip of the style is called the stigma and is sticky in order to attract pollen. The pollen, then, is transferred from the anthers of a flower by means of wind or an insect for example, and sticks to the stigmas. This step is called pollination. From here it travels down the style into the inner ovary where it fertilizes the ovule. This step is likewise called fertilization. Once the ovule is fertilized a seed begins to form. The petals fall off and the ovary

swells bigger and bigger until it forms the apple - the fruit. If all the ovules are fertilized, there will be 10 seeds in the core of the apple.

- iii. So we know the fruit serves to protect the seeds, but what are the seeds for? The seeds are the rest of the reproductive cycle. If allowed to fall to the ground or planted in the right spot, the seeds will soon germinate and turn into another apple tree. There are probably many different ways the an apple seed can be planted. One way is by the apples falling from the tree and rotting on the ground. Eventually the seeds will be exposed and begin to grow. Another means is by animals taking and eating the apples, but leaving the seeds. This method allows the seeds to travel further away from the parent tree because the animal will usually carry it off somewhere else to eat it. Another way, which is how we get most of our apple trees, is to simply take the seeds out of the core and plant them/ burry them in the ground. An interesting fact about apple seeds is that they actually contain a poison (cyanide). But we would not be affected by it unless we ate a whole cupfull or more of seeds.

b. Apple History

- i. Apples have a long history going back thousands of years. It is thought that apples originated more than 10,000 years ago in Western Europe. Carbonized apple seeds of around that age have been discovered in prehistoric dwellings in Switzerland. And fossil imprints of apple seeds found in Britain prove that the Romans did not introduce apples to Britain as was commonly believed. It is currently believed that apples, in a form similar to what we see today, originated from the Caucasus region of Russia.
- ii. Apples have also played an important part in many cultures. Greek mythology is loaded with references to apples such as the golden apples of the Hesperides grew on a tree given to Hera when she married Zeus, and Paris presented the “apple of discord” to Aphrodite, the goddess of love.
- iii. Throughout history apples have been associated with love and romantic powers. “In ancient Greece, if a young man tossed an apple to a maiden, it meant that he was proposing marriage. If she caught it, she was accepting his proposal. In the Sicilian town of Mount San Giuliano, every young girl would toss an apple from her window into the street on St. John’s Day. If a woman retrieved it, the girl knew that she would not be married for at least another year. If a priest picked the apple up, she would die a virgin. But if a young man did the honors, she would marry him shortly. More recently, Lancashire youths also used apples for a love test. A young man would squeeze an apple core while chanting a little ditty - “Pippen, pippin, paradise, tell me where my true love lies...” The seeds would spurt out toward the east, west, north, or south, pointing the way to his true love’s house. Young romantics weren’t the only ones to attribute magical powers to apples. Scandinavians, we’re told, believed that apples contained the fountain of youth. Druids used apples in harvest rites in somewhat the same way we bob for them at Halloween. And superstitious Cornish farmers, in order to ensure bountiful crops, would go into their apple orchards on Christmas Eve and sprinkle the trees with cider” (J. Anderson, “Comfort Me With Apples”, 1985).
- iv. Apples came to North America with the early English settlers and quickly flourished. In the early 19th century a man by the name of John Chapman, better known to us as Johnny Appleseed, spent 40 years traveling around the midwest planting apple seedlings and giving them to farmers. Other influential people in spread of apples in America include Henderson Luelling and William Meek who are responsible for launching the Pacific Northwest’s apple industry. Because of men like these, the United States is now the leading apple producer in the world.

c. History of Making Juice and Cider

- i. There was a time, here in the Middle West, when almost every farmstead had an orchard. It often included a few peach, pear, plum and cherry trees but most of them were apples. A few kinds, such as the Early Harvest apple, ripened in midsummer at about threshing time and were soon eaten, but most varieties ripened in late autumn. Some -- firm, hard and with an acid flavor -- were used principally for cooking. Others, more mellow, were "eating" apples and the choicest of these were hand-picked, carefully wrapped, packed in barrels or boxes and stored in cool cellars for winter use. The windfalls and culls were used to make "the farmer's champagne": Cider.
 - ii. Some farmers had a small hand-operated cider press -- especially where the wife was very finicky about the cider which was served as a beverage to her guests and which was such an important ingredient in the quantities of mincemeat, apple butter and vinegar she made each fall. Her cider was stored in a cool place and in tightly-corked jugs to keep it from fermenting. Usually, those ladies would use only sound well-ripened apples of two or three choice varieties, insisting that apples which were blemished, damaged, or had spots of decay, ruined the flavor of the cider and were fit only for hog feed.
 - iii. In many communities there used to be a cider mill where farmers, for miles around, brought their surplus apples as well as their windfalls and culls unsuitable for sale or storage. Such mills were of two types. In one, the grinder which crushed the apples into a pulpy mass called "pomace", was turned by a horse plodding round and round at the end of a long heavy pole called a "sweep". In the other type, the power was furnished by a big water wheel rotated by the current in a millrace just below a dam.
 - iv. In the larger mills, the grinder was mounted above the press. At intervals, a quantity of pomace was allowed to fall onto a heavy cloth laid on a table. The cider man folded the cloth over to contain tub-like "cheese" which he put in the press. Over it he placed a slatted wooden cover. This was repeated until the press was full and then, using one or sometimes two huge jacks like house jacks, the mass was compressed and the juice flowed out.
 - v. With few exceptions, gasoline engines have replaced the horses and water wheels. There are a few water-powered cider mills still operating in the northeastern states and one in Michigan. Nowadays, most cider is made in large processing plants which produce vast quantities of pasteurized apple juice in addition to an unfermented cider sold as a beverage and used to make vinegar.
 - vi. Those old-time cider mills attracted people -- both old and young. They had a rare spicy smell. They were fascinating to watch. And it was a treat to sample the aromatic amber-colored sparkling liquid that ran in rivulets from the press into jugs and barrels or into a storage vat.
 - vii. Many farmers used to age some of their cider: let it ferment in casks until it was a pleasant but somewhat alcoholic beverage called "hard" cider. Others, particularly in the eastern states, went a step farther: they allowed a barrel of hard cider to freeze until the alcohol was concentrated in the center. "But if you really want a drink that's neat, Take the durn stuff when it's sweet."
- d. The Cidering Process - Traditionally cider was made from some of the choicest apples of only two or three varieties, especially that cider which was to be served to company. Nowadays most cider is processed from several different varieties to enhance the flavor. The actual process of making apple cider is really quite simple and involves six basic steps: Picking, Washing, Grinding, Waiting, Pressing, and Filtering.

- i. Step One: Picking or Harvesting the apples - There are different ways to harvest the apples, but the traditional way is to pluck the apples from the trees and place them in a canvas apple sack collector worn by the harvester or else simply collecting them in baskets or some other container.
- ii. Step Two: Washing the apples - This is a very important step in the process because it removes harmful pesticides/insecticides that may have been used or bacteria that may be residing on the surface of the apple.
- iii. Step Three: Grinding or Milling the apples - Apples are placed into the box at the top of the press which contains a metal toothed cylinder. When rolled, the cylinder grinds the apples into a mash, other wise called “cheese” or “pomace”. This mash then falls through the bottom of the chamber into the basket waiting below.
- iv. Step Four: Waiting for the pomace to oxidize - Oxidation is a chemical reaction that occurs when the inner pulp of the apple is exposed to oxygen in the air. The bitter pomace is turned into a sweet brownish liquid (sugar solution). This is the key step in differentiating between apple juice, cider, and hard (alcoholic) cider. Juice is squeezed right away without allowing time for oxidation. Hard cider is allowed to ferment longer which eventually turns the sugar solution into an alcohol.
- v. Step Five: Pressing or Squeezing the pomace - The basket filled with the pomace is moved over to the pressing side. A round wooden top for mashing the apples is placed on top of the brown mash. As the handle crank is turned the apple cider squeezes out through the hole in the stage or platform to a waiting bucket below.
- vi. Step Six: Filtering the cider - After squeezing the cider through the press it must be filtered to remove any sediment or larger chunks of pomace that made it through the press. This is accomplished by pouring the contents of the bucket into a jar covered with cheesecloth. The cider is now ready for drinking.

VI. Intro – you are meeting the group in the lobby of the Sports and Health Center – This is where your lesson starts off on the right foot. Develop a rapport with the group before you start. Get to know names.

- a. On behalf of the Outdoor Program I would like to welcome you to
- b. Introductions and expectations – who are you, have you ever made any apple cider before, what do you want to learn today?
- c. Explain the plan for the activity
- d. Walk out to the Bagley Trail Shed

VII. The Apple – go to the apple tree by the west end of Oakland Apts.

- a. Identification – how do you identify apple trees
- b. Origin of apples – where did they come from? Our only native apple is crab apple.
- c. Mythology of apples
- d. Johnny Appleseed – was he a real guy? Go into detail of him and why the work he did was valuable to the mid-west.
- e. Explain how apples should be collected

VIII. Making Cider – go back to the Shed

- a. Explain cider press process
 - i. Harvesting apples - pick a variety to enhance flavor

- ii. Washing - important to remove pesticides/bacteria
 - iii. Grinding - turn crank that moves cylinder and crushes apples into a mash called "pomace"
 - iv. Pressing - wooden top mashes pomace as handle is turned. Juice squeezes out onto platform and into waiting bucket
- b. Steps that can be added to the process
- i. After grinding - wait for oxidation to occur. This is when the apple pomace comes into contact with the air, turning it a brown color and making the flavor sweeter (more of a cider, less of a juice)
 - ii. After pressing, filter juice in order to get a more "pure" product.
- c. While participants grind and press, TALK!
- i. Late autumn was the time for cider making – when most types of apples would be ripe.
 - ii. There was a time in the Midwest when every farm had an orchard.
 - iii. Choicest, hand picked apples made the "farmer's champagne". Bruised apples were believed to have a bad flavor.
 - iv. Farmers either had their own press, or brought their apples to the local cider mill. Mills drew people from miles around because of their rich smells and free samples.
 - v. Mills either mashed apples using a horse to turn a grinder, or were located on a river and harnessed water-power.
 - vi. Some water-powered mills still exist, the closest in Michigan.
 - vii. Farmers who had their own press were very finicky about their cider. It usually wasn't for drinking - it was used in mincemeat, apple butter, and vinegar. Some farmers let the juice ferment into an alcoholic beverage.
- d. Apple biology – cut one open sideways
- i. What is an apple?
 - ii. How does it produce offspring? - Most apples are hybrids, so apple seeds are not viable. Apples, commercially, are reproduced through cuttings.
- e. Enjoy drinking the juice! You can heat a small pot on the stove if the temperature outside is cool/cold.

IX. Conclusion

- a. Review what was covered in the lesson
 - b. Question the participants for understanding
 - c. Give out Evaluations
 - d. Mention of upcoming OP events, thank you
- X. Clean-up – this lesson is not done until everything is cleaned and disinfected: Rinse everything off with buckets of water (there is a spigot on the outside of Oakland near the shed). For the final rinse, put 1 capful of bleach into the bucket of water and douse the cider press and let air dry.