

Natural History of the Apple Tree

Apple trees have been cherished and cultivated for thousands of years by people of many cultures from every corner of the world.

The “common” apple tree, as we know it today, is a species known as *Malus domestica* or, synonymously, *Malus pumila*. This tree comes from a wild ancestor, *Malus sieversii*, that grows in the mountains of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, and northwestern China.

The amazing and generous apple tree has been one of humanity’s favorite trees – growing alongside us throughout most of recorded history. It was perhaps 10,000 years ago that farmers in the mountains of Asia first began growing and “domesticating” apple trees. From there, merchants transported apple trees and apple seeds along the legendary overland and maritime Silk Road trade routes into Europe and throughout the Western World. Greeks grew apple trees, as did the Romans after them, and long before the close of the First Century A.D., the beloved apple tree was dispersed to the far reaches of the known world.

Centuries later, colonists, bringing seeds from Europe, introduced apple trees to the North American continent. By the early 1600’s, North America’s first recorded apple orchard had been planted in Boston, and by the mid-17th Century, apple orchards were proliferating along American trade routes and on colonial farms. These early apple orchards were planted primarily to support cider production. North American colonists deemed apple cider safer to consume than water, and adopted it as the national drink. Consequently, cider became a highly valued and heavily traded commodity, and production of cider became foundational to the colonial

economy. Apples fit for eating (sweet and fine-textured and delicious, as we know them today) were not reliably produced in these early orchards. Tasty and valuable apple cider, however, could be counted on.

In modern times, the fruit and nursery industry has greatly colored people’s perception of apples and apple trees. Most apples in early America did not taste great. They were not particularly appetizing to look at either, appearing in odd sizes and shapes with inconsistently colored, often rough and russeted skin. Nowhere were the Gravensteins, Granny Smiths, Jonathans, Red Delicious, Honeycrisps, Pink Ladies, Galas, and Fujis so ubiquitous today. These well-known and loved modern apple varieties are all produced from trees sequestered by fruit farmers and reproduced using vegetative propagation and grafting to ensure perfect genetic consistency. Seed-grown apple trees will not produce a predictably delicious fruit. When apple growers in Washington State developed their multibillion-dollar fruit industry in the 20th Century, all the trees they used were carefully grafted cultivars of tried and true apple varieties with precisely known fruiting characteristics.

After thousands of years of cross-pollination, today’s seed-grown apple trees are genetically more related to crabapples than their wild ancestors. Apple trees are members of the rose family, and are generally small- to medium-sized trees which burst with lovely five-petaled white-to-pink blooms each spring and adorn themselves with ripening orbs of growing fruit throughout the summer. Apple trees are deciduous, losing their mid-sized serrated leaves each autumn. Apple trees typically grow to heights around 15 feet, but in the wild they can stretch to more than twice that height. While they can live to more than 100 years of age, apple trees have a typical lifespan closer to 50 years.

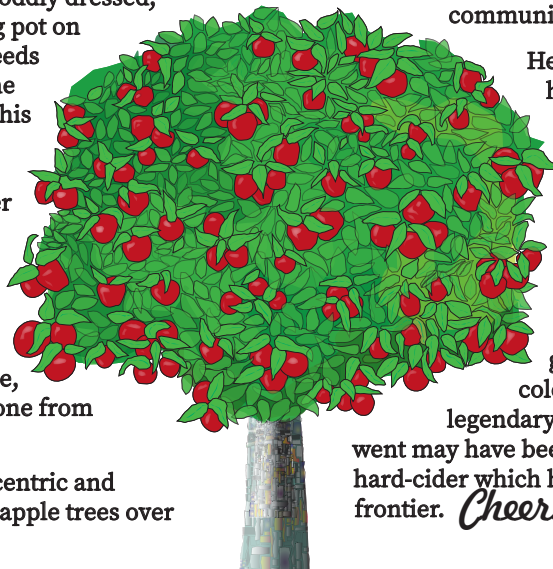
The Legend of Johnny Appleseed

Johnny Appleseed was a real person. His true name was John Chapman, and he lived in colonial America from 1774 to 1845.

Legend has it that Johnny Appleseed was an oddly dressed, bare-footed, nomadic traveler with a cooking pot on his head and a leather satchel full of apple seeds which he cast indiscriminately everywhere he traveled, leaving apple trees springing up in his path from coast to coast. He was said to be a caring and generous man, friend to Native Americans and settlers alike, vegetarian lover of all animals (even mosquitos), and devout Christian who carried with him his favorite book, the Bible, often preaching in the communities he visited and living a simple, ascetic life of generosity and goodness. He slept under the stars, bare feet toward the fire, dreaming that his apples would prevent anyone from going hungry.

In reality, while Chapman did have some eccentric and wonderful traits (and did plant thousands of apple trees over

his 50-year career), his story has been heavily mythologized. Chapman’s apple trees were not scattered willy-nilly along his path across America. Rather, he was an organized businessman and orchardist who worked primarily in Ohio, Pennsylvania, Kentucky, Illinois, Indiana, and West Virginia on tracts of land he bought and sold. His apple orchards were carefully set up, often protected with fencing, and strategically situated ahead of oncoming pioneer communities and their cider mills.



He retained ownership of the trees he grew, hired employees to care for his orchards as he traveled, and sold his apples to cider mills. Chapman was a follower of the mystical teachings of Emanuel Swedenborg, a Swedish theologian, and he did preach and proselytize as he traveled, espousing the virtues of a simple lifestyle, vegetarianism, and a love for all animals. He became a popular figure during his lifetime, and was generally welcomed by people throughout the colonies. One of the keys to Chapman’s legendary acceptance and popularity wherever he went may have been that he always traveled with plenty of hard-cider which he was quite generous in sharing across the frontier. *Cheers!*

APPLES! *Fruit of Legend!*

Apples are arguably the world's most famous fruit. They have been part of our human culture for millennia, and, as late as the 17th century, the word "apple" functioned as a generic term for all fruits (except berries). As the apple economy has evolved around the globe, this wonderful fruit has also taken on religious and mythological significance across many cultures and continents, through many epochs.

Apples have been called the "life-giving fruit of the other world," and have been revered as symbols of love, wisdom, and beauty. They have been lifted up as objects of desire, even representing desire itself, while, in contrast, they have also been seen as a tool of manipulation, seduction, death, and discord.

In the Renaissance, the apple became a symbol of knowledge, immortality, temptation, the fall of humankind into sin, and for sin itself. In the Christian tradition, apples have long been identified with the "forbidden fruit" of the Garden of Eden. The term "Adam's Apple" for the human larynx alludes to the Biblical story of Adam and Eve, suggesting that the "apple" Eve gave to Adam got stuck in his throat, forever marking human anatomy with a symbol of its rebellion against God.

References to apples are especially prominent in Greek mythology. Gaia (Mother Earth herself) presented an apple tree to Zeus and Hera as a wedding gift and symbol of their love.



The "Tree of Life" in Greek mythology was an apple tree adorned with golden apples in the center of the garden of Hesperides. Apples were said to be sacred to the goddess of love and attraction, Aphrodite. Tossing an apple at someone was thought to be a declaration of one's love for that person, and catching the thrown apple signaled the recipient's acceptance of the thrower's romantic overtures. In one myth, a golden apple, inscribed with the words "for the most beautiful," was used by Eris, the Greek goddess of discord, to create a dispute between goddesses which ultimately led to the Trojan War.

In Norse mythology, apples were the key to the gods' immortality and eternal youthfulness, as well as a symbol of fertility.

German storytellers, the Brothers Grimm, brought us the irresistible poison apple of the Snow White fable, which Disney further embellished and delivered to generations of American moviegoers. Disney also gave us a heavily mythologized version of John Chapman's life, cementing the legend of "Johnny Appleseed" and casting a romanticized spotlight on the apple's emergence in colonial America.

In the 19th century, an American folk-proverb touting the health benefits of apples came to prominence – an adage which remains popular today: "An apple a day keeps the doctor away."

In modern times, apples of thousands of varieties are cultivated on every continent, and some 100 million metric tons of this plentiful fruit are produced every year, with more than half of worldwide production occurring in China.

Indeed, across the centuries, you'd be hard-pressed (*ha, ha*) to find a fruit more culturally and economically significant than the legendary apple.

What kind of apples will my seed-grown apple tree produce?

That is a great question, and a great mystery! Only your tree itself holds the answer to this secret, and you will have to wait five years or so to taste your tree's first fruit and make this discovery. Every seed in every apple produces a whole new variety of apple. So, the good news is that your tree could produce apples that are so gorgeous-looking and delicious they become a worldwide phenomenon – the next Gala or Honey Crisp or perhaps a variety named after you! However, it's much more likely that the apples your tree produces will be...um...not great tasting – just like fruit from the trees planted by Johnny Appleseed in the 18th century. It will likely have you wondering, how in the world did apples become America's favorite fruit?

Welcome to the interesting world of plant genetics! Apple trees do not reproduce "true to type." They are extreme *heterozygotes* which do not self-pollinate and do not inherit parental characteristics. In other words, in the natural way of things, the kids are very different from the parents! That's why the massive apple fruit industry is based on carefully managed trees which are reproduced, not from seeds, but in labs through vegetative propagation, cloning, and grafting.

For your seed-grown tree, honey bees will simply bounce from bloom to bloom doing their wonderful work of cross-pollinating – and your tree's fruit lottery is begun. Only one thing is certain with a seed-grown apple tree: a profusion of lovely apple blossoms every spring to delight your eyes and your local pollinators!