



Century Plants - Agaves

By Gertrud Konings

Agaves are not cacti. They are, however, like cacti, succulents, but cacti are only stem succulents, agaves also store water in their leaves—cacti have no leaves. The leaves of agaves grow on the stem in rosettes, which determines their round, mounted shape. The leaves' margins are often armed with sharply pointed teeth and their tips end in a needle point. The teeth of newly forming leaves form an impression on the older leaves, which results in a decorative pattern on the leaves.



Some agaves easily grow offshoots from spreading stolons (stoloniferous shoots), a feature that often leads to bed formation. The offshoots provide an easy way of propagation for the plants, since they flower only once at the end of their lives and then die, which led to their common name century-plant. They belong to the family Agavaceae (Century-Plant Family) and are indigenous to the Americas and common inhabitants of the Chihuahuan Desert. The stem base (heart) of agaves was used as food by Native Americans. The agave hearts were roasted in earth pits lined with flat rocks. The rocks were preheated with fire and after the agave hearts were loaded on top, everything was covered with dirt and left to bake for up to a day. They provided a carbohydrate rich energy food. The Mescalero Apaches received their name because of their habit of eating the Mescal, the New Mexico agave. The juice pressed from agave hearts can be turned into a syrup, which recently has become a favored alternative sweetener. It is much more potent than sugar and has a high content of fructose. Nowadays certain agaves (e.g. the blue agave, *Agave tequilana*) still play an important role in the economy of Mexico through the production of the alcoholic beverage Tequila.



Agave hearts used for Tequila production

Two types of flowering stalks are found among the agaves, a non-branching (spicate) and a branching type (paniculate). Both types are represented in the main two agaves growing around El Paso, TX, and Las Cruces, NM. The most common agave in the El Paso area (southwestern Texas and New Mexico) is the lechuguilla agave (*Agave lechuguilla*; common name: Tula ixtle), an indicator plant of the Chihuahuan Desert. It suckers easily and often grows in large beds that can be difficult to cross.



Because of the sharply pointed leaves they are disliked by hikers, bikers, and farmers alike. However they are providing plenty of food to wildlife that feasts on the young plants, flower stalks, flowers, and seeds. Trying to plant a young seedling can be a challenge when rabbits or deer are around. However some parts of the lechuguilla plant are toxic and therefore the plant should not be consumed. The sap was used by indigenous people to stupefy fish in the water, but also as arrow poison. The strong fiber of the plant (known as Tampico fiber) was widely used to make mats, bow strings, ropes, and sandals.



It can take 15 years until the plant forms a flower stalk that gets as high as 15 feet – an enormous size for a relatively small plant (1-2 ft). The stalk does not branch and the small tubular flowers of the lechuguilla develop on short pedicels on the stalk and have small red brown to yellow tepals. After the seeds have ripened the plant dies.



The New Mexico agave or Mescal (*Agave parryi* ssp *neomexicana*) is a very decorative plant of the El Paso area (West Texas and neighboring New Mexico). Its sword-shaped, teal colored leaves carry strong marginal teeth that leave a deep imprint on earlier leaves. The teeth and terminal spine can take on a reddish brown to almost black color and with the perfect rosettes of leaves this agave belongs to the jewels of the agaves. They are usually found in the higher elevations of the Franklin and Organ Mountains and other mountain ranges. The New Mexico Agave does not offshoot as easily as the lechuguilla and can take up to 20 years to develop a flower stalk. Its flower stalk is laterally branching (paniculate) and up to 10 ft high. The tubular flowers are first red brown, but yellow when fully opened. Flowers and seeds are formed only once in its lifetime. Then the plant dies, but several offshoots are already taking the place of the mother plant.



The lechugilla agave and the New Mexico agave sometimes hybridize and then display features intermediate to both species. The hybrids are called *Agave x gracilipes*. The flower stalks are branching into thin and short branches with less dense terminally arranged flowers.



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Agaves

Questions:

1. What do agaves and cacti have in common?
2. Why are agaves also called century plants?
3. What are the uses of agaves nowadays?
4. How did the Native Americans use the agaves?
5. Which two agaves are found in the American part of the Chihuahuan Desert?
How do they differ?
6. How do agaves reproduce?
7. To which family do agaves belong?
8. What is the name of the agave hybrid of the two discussed agaves?



Agaves

Questions & Answers:

1. What do agaves and cacti have in common?
 - a. They are succulents? (store water in their stems)
2. Why are agaves also called century plants?
 - a. Because they only flower once in their lifetime at the end of their life that lasts many years. They then die.
3. What are the uses of agaves nowadays?
 - a. A syrup made from the sap of the hearts is used as sweetener. The hearts of some agaves are used to produce Tequila.
4. How did the Native Americans use the agaves?
 - a. Some agaves could be used as food after baking the hearts in earth pits. Some agaves produce toxic saps, which were used as poison. The agave fibers were turned into mats, bow strings, ropes, and sandals.
5. Which two agaves are found in the American part of the Chihuahuan Desert? How do they differ?
 - a. *Agave lechuguilla* and *Agave parryi* ssp. *neomexicana*
 - b. The lechuguilla leaves are slender and green. Their flower stalk is unbranched. The agave neomexicana has sword-shaped, teal colored leaves with red brown to black marginal teeth and terminal spine.
6. How do agaves reproduce?
 - a. Sexually only once in their lives with many flowers on a flower stalk.
Asexually through shoots from stoloniferous shoots
7. To which family do agaves belong?
 - a. To the family Agavaceae
8. What is the name of the agave hybrid of the two discussed agaves?
 - a. *Agave Xgracilipes*