



Titan arum

Scientifically known as *Amorphophallus titanum*

Affectionately known as the “corpse plant”

In 1878, an Italian botanist named Odoardo Beccari found the titan arum in the dense equatorial rainforests of the island of Sumatra, in the Indonesian archipelago. He collected samples of the plant and sent them back to Florence to study. His live plant samples all died, but some seeds survived and grew. A single seedling was sent to the Royal Botanic Gardens, Kew. In 1889, this plant became the first titan arum cultivated indoors to successfully bloom. Recently the corpse plant has captured world attention, with botanic gardens across the country growing the plants indoors and sharing the bloom event with visitors and the general public.

The Chicago Botanic Garden obtained seeds for the titan arum in 2003. Eight plants were started and have been growing in the production greenhouses for twelve years. In August 2015, one of them began its bloom cycle, followed by another in September.

The Plant Structure & Life Cycle

The titan arum grows from an underground stem called a *corm*. A corm is a kind of starchy tuber that anchors the plant and stores food for the plant. Banana and shamrocks also grow from corms. Titan arums have the largest corms of any plant in the world, reaching more than 200 pounds in some older plants. Indonesian people harvest the corm to eat.

During the growing season, the corm sends up a tall, umbrella-like, individual leaf. This leaf can reach 15 feet in height and look like a small tree, but technically it is just one very, very big leaf whose job is to turn sunlight into sugars and starches to be stored in the corm. The leaf lasts a year to 18 months before it withers and dies back, and the plant becomes dormant for several months.

Every few years, the titan arum produces a flower bud instead of a leaf bud. The flowering event is quite a spectacle that doesn't happen very often in the wild *or* at botanic gardens. This is a not a true flower as we know it—it's actually a tall spadix (flower structure) wrapped by a spathe (a frilly modified leaf). Calla lilies are an example of this kind of structure. The average titan arum's bloom grows 6 to 8 feet tall, making it the largest unbranched inflorescence in the world.

If a titan arum is successfully pollinated, it will develop a seed cylinder at the base of the spadix. Yellow fruit starts to form in four to seven or more weeks after pollination. Roughly nine months after pollination, the ripened fruits will be fully mature, bright red, olive-shaped berries that may be eaten and dispersed by a bird called the rhinoceros hornbill. After fruiting, the remaining stalk dies back, and the plant goes dormant for about a year. It will emerge as a leaf for the next few cycles until it has stored enough energy in the corm to bloom again.



The Bloom Event

The most exciting event in the titan arum's life cycle is its bloom event. It begins with a flower bud emerging from the corm. It resembles a leaf spike but has a more dimpled surface. This bud begins to grow 4 to 6 inches per day. The leafy bract covering the bloom wilts and starts to shed. A tall spadix grows up, and as the bract sheds, the ruffly light green spathe surrounding the spadix is revealed. About two weeks into the process, growth slows, and the spathe turns a maroon color and begins to unfurl.

The bloom cycle is fast, often beginning in midafternoon and lasting for only 24 to 36 hours. The spathe opens in a few hours, revealing about 750 small female flowers at the base of the spadix. A titan arum has tremendous energy reserves (that starch stored in the corm) that enable it to heat up to 90 degrees Fahrenheit, vaporizing scent molecules, and blasting the smell of decaying animal flesh about a half mile for a few hours at the peak of its bloom.

This burst of scent usually occurs in the middle of the night. The stench attracts carrion beetles, flies, and other insects that are active at night, feeding on dead animals. If all goes well, these animals will be fooled by the scent, and they will visit the plant expecting to get a meal. Some will be carrying pollen from another titan arum, which will fall on the flowers.

By daybreak, the smell dissipates, and the titan arum begins to wilt. Some of the flies and beetles will still be hanging around the plant in the morning, when the 450 to 5,000 male flowers located in a ring above the female flowers, release pollen. As the day passes, the spathe closes, and the spadix withers and collapses.

We know some of these insects will carry that pollen to another blooming titan arum soon after being fooled by this one because titan arums are being pollinated successfully in the wild. However, scientists are not certain how the flower manages to keep hungry, unfed insects around through the morning long enough to be covered with pollen. They think that the insects may be trapped in the base of the spathe and released when the spathe falls away from the spadix, but this has not been observed to confirm the theory.

A Rare Event, a Rare Plant

Titan arum is considered "vulnerable" because of a shrinking habitat and other changes in the environment. A vulnerable species is likely to become endangered unless the circumstances threatening its survival and reproduction improve. The Chicago Botanic Garden and other institutions around the world are cultivating and studying the titan arum so that this very special plant will never face extinction.

For even more information about the titan arums that bloomed at Chicago Botanic Garden, visit our website at chicagobotanic.org/titan_arum_corpse_flower.