



CROPS IN CRISIS: BANANA

ORIGIN OF THE BANANA

Edible bananas are believed to have originated in the Indo-Malaysian region, reaching to northern Australia. Most wild varieties contain hard seeds that make them inedible for human consumption. They may have been the world's first cultivated fruit, with archeologists finding evidence of cultivation in New Guinea dating back to 8,000 B.C. People with bananas are also depicted in some ancient Egyptian hieroglyphs. Bananas were first mentioned in literature in the 6th century B.C. Southeast Asians may have introduced bananas to parts of the "new world" around 200 B.C., and they were also transported by Portuguese and Spanish explorers in the early 16th century.

The banana plant is classified as a giant perennial herb, and its fruit is technically a berry. Bananas are propagated from underground rhizomes, also known as runners or pups. These runners can be cut from a clump and planted elsewhere to mature. The moisture-laden stalks are comprised of tightly overlapping leaves. The leaves unfurl as the plant grows. The plants typically grow to a height of 15 to 30 feet, and can reach full size in a year. There are also dwarf varieties. The true stem emerges from the stalk and produces the inflorescence that later bears the fruit. Each stem produces one large flower stalk and dies. The fruit starts out green, then turns yellow or red as it ripens. The entire stalk is cut to harvest the bunch. When freshly cut, the stalks and hands produce a sticky, milky sap that can stain clothing and irritate skin.

Bananas are the fourth largest fruit crop and an important food source around the world. They grow in all warm, humid, tropical regions, where they are cultivated primarily for local consumption. Just 15 percent of the world's production is for export.



WHY IS THE BANANA A "CROP IN CRISIS"?

There are some 50 recognized species of banana, but much of the commercial product is cloned from the Cavendish variety. They have largely replaced the Gros Michel variety, which is highly susceptible to Panama wilt, a fungal disease. It decimated plantations in central and south America, and is now spreading across South Asia, Africa, the Middle East, and Australia. Because the Cavendish originate from one plant and have the same genome, they are also highly vulnerable to a single disease that could be capable of killing them all.

Bananas are adversely affected by many diseases. One of the most serious is Sigatoka, which is caused by three types of fungi. These include black leaf streak disease, which can reduce yields by 50 percent, and leaf spot. Some Sigatoka is showing resistance to the fungicide treatments used by commercial growers.



Developing new cultivars is an expensive and time-consuming process. Scientists are currently using the tools of biotechnology to develop varieties that are resistant to the banana bunchy top virus. They might also be able to develop varieties resistant to fungal diseases.

Bananas are easily toppled by gophers, nematodes, and strong winds, which makes them vulnerable to damage from the extreme storms associated with climate change. Other pests include weevils, thrips, scarring beetles, and sap-sucking insects. Birds and rodents also damage the fruit.

NUTRITIONAL INFORMATION ABOUT THE BANANA

Bananas are a nutritional powerhouse. They are one of the few foods that contain all six major vitamin groups. They are an excellent source of potassium, a mineral electrolyte important for cardiovascular health. Bananas are also high in pectin, a form of fiber, and antioxidants, which can provide protection from cell-damaging free radicals. A medium-sized banana provides about 10 percent of the daily requirement of fiber. They are a good source of magnesium and vitamins C and B6, with the latter helping to strengthen the nervous system, boost production of white blood cells, promote brain function, and protect against developing type-2 diabetes. They also provide fructooligosaccharides — nondigestive carbohydrates that encourage digestive-friendly probiotics and enhance the body's ability to absorb calcium. Some studies indicate bananas may also be helpful in preventing kidney cancer because they contain high levels of antioxidant phenolic compounds, which also provide protection against free radicals. The peels, which are eaten in many parts of the world, are also nutritious, containing vitamins B6 and B12, as well as magnesium and potassium.



FUN FACTS

- A bunch is called a hand, a single banana is a finger, and the stringy bits are phloem.
- The sweet fruits are generally known as bananas, while the starchier cooking varieties are called plantains.
- India is the world's top producer of bananas, growing 23 percent of the crop. Most of its production is for domestic consumption.
- Bananas have been featured in popular music, including the 1923 hit "Yes, we have no bananas!" and Harry Belafonte's version of the "Banana Boat Song."
- A medium-sized banana has only about 100 calories.
- Miss Chiquita debuted on a banana label in 1963.
- Americans consume about 27 pounds of bananas per person each year..

CROPS IN CRISIS: A ROLE FOR BIOTECHNOLOGY?

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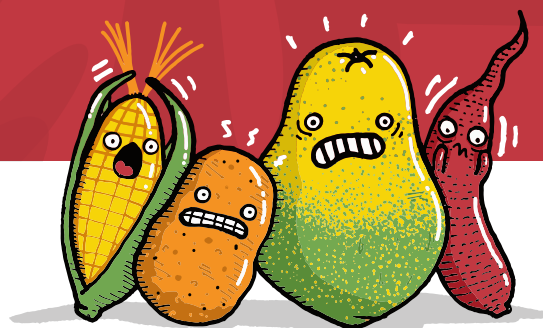
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