



An Introduction to Amaranths

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History and Overview

The Amaranth plant family (Amaranthaceae) originated in the Americas and is thought to be one of the oldest food crops in the world. Since the Stone Ages, hundreds of species have provided sustenance in the form of grain and leafy greens. Amaranth species used for grain production, such as *Chenopodium quinoa* (commonly known as quinoa), are characterized by having thousands of seeds the size of a pinhead per plant. The *Amaranthus* genus, or Amaranth, has many similarities to the genus *Chenopodium*, but is not as commonly consumed in the United States today. The cereal-like grain from Amaranth is very nutritious: it is high in protein, fiber and minerals (particularly calcium and iron). Like quinoa, Amaranth is consumed in many cultures around the world as a whole grain, is popped, and is baked in patties or muffins. It also has the benefit of being gluten free.

Amaranth greens serve as an additional crop that can be harvested from the same plant, but some species are better suited for leaf production than others.

Improved cultivars of species such as *Amaranthus tricolor* have been developed in modern times to produce more leaves. Young leaves can be eaten raw in salads or as a garnish, while more mature leaves can be baked, steamed, or boiled. Amaranth is one of the most widely consumed boiled greens in the humid lowland countries of Africa and constitutes an important part of many diets in that region, as well as in many parts of Asia and South and Central America. Amaranth leaves are rich in vitamins (particularly Vitamin A), dietary fiber and protein, and they have been found to have considerable antioxidating potential.

Amaranth in the Americas: Interesting Fact #1

Amaranth cultivation was outlawed by the Spanish monarchy after their conquest of the Aztec Empire in the 16th century. The Spanish believed Aztec rituals, which involved eating Amaranth grain, to be blasphemous and a threat to their Christian religion. Other historical interpretations state that the ban on Amaranth production was simply a way of weakening the indigenous people by eliminating their most

important staple crop from the diet.

Growth Characteristics

Most Amaranth species have annual life cycles, meaning an individual plant does not live longer than a single growing season. Plants grow 2-8 feet erect and have relatively deep roots that, along with leaves adapted to growing in high temperatures, allow them to be very drought tolerant. Amaranth seeds are about the size of a pinhead, but germinated seedlings grow rapidly once they emerge from the soil. Plants grow best in full sun when temperatures are between 70°F and 85°F and cannot survive in temperatures lower than 40°F. There are species of Amaranth growing on every continent in the world aside from Antarctica. In the U.S., Amaranth can be grown in nearly every USDA Plant Hardiness Zone: from 2a to 11b.



Amaranth grain, from species such as *Amaranthus cruentus*, can be found in most major grocery stores and can be cooked in boiling water or used in baked goods.



Amaranth species produced for leafy greens, such as *Amaranthus tricolor*, are shorter growing and have more foliage.



Amaranth greens can be steamed, boiled, blanched, wilted or eaten raw.



Amaranth in the Americas: Interesting fact #2

In the United States today, Amaranth is mostly associated with being an agricultural weed. For example, Palmer Amaranth (*Amaranthus palmeri*) is ranked as one of the most economically damaging weeds on crop farms nationwide. Due to its speed of growth and adaptability, this Amaranth species has been found to reduce corn, soybean and cotton yields by over 50% by consuming water, light and nutrients. Amaranth's resilience as a fast-growing, drought-tolerant and heavy seeding plant has made it a very strong competitor even when it is being actively combatted by farmers. As of 2022, Palmer Amaranth populations are known to have developed resistance to 8 different herbicide sites of action—spray as you might, they may not die!

Production Potential

The Food and Agriculture Organization of the United Nations broadly refers to Amaranth as an orphan crop with little international trade but of great importance as a food source. In comparison to corn, which originated in the same part of the Americas, Amaranth species have been little researched and improved varieties are much less available. The production potential, however, is considerable. Published grain and leaf yields, despite limited varietal development, range from 0.3-2 and 11.6-26.3 tons/acre, respectively. One of the reasons leaf yields have such high potential is because harvesting can be done multiple times throughout the year without replanting. This cut-and-come-again method of harvesting is well-suited for small farmers and gardeners—particularly during summer months when most leafy greens do not grow well. There is also potential for growing Amaranth as an ornamental plant. Additional economic considerations for Amaranth grain and greens production in Kentucky can be found on the University of Kentucky's Center for Crop Diversification's website at the link below.

<https://www.uky.edu/ccd/production/crop-resources/gffof/amaranth>

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