

# QUAIL GRASS

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## ECHO TECHNICAL NOTE

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### DESCRIPTION

Quail grass is not actually a grass; it belongs to the Amaranth family and shares many features with members of the genus *Amaranthus*, such as broad edible leaves with high protein content and flowers and seeds produced in dense spikes. Some members of the genus *Celosia* are well-known ornamentals called "cockscombs." Asiatic in origin, quail grass is heavily cultivated as a source of spinach in Indonesia, and is an important vegetable in parts of Africa, especially in Nigeria, Benin and Congo (Zaire). Quail grass also may be grown with success in temperate regions.

The plant grows 100-150 cm (40-60 in) high. Like its ornamental relatives, quail grass is attractive in its own right. When the days become shorter in late August in Florida it is covered with purple blooms. The inflorescence becomes longer and longer, remaining purple at the tip. The basal end turns brown and contains ripe seeds while the tip continues to bloom (and attract bees and other insects).

Quail grass is a good warm-weather spinach substitute. Even in temperate regions spinach only does well in the cooler part of the season and certainly will not grow in the hot tropics. Quail grass, on the other hand, will grow to about 2.5 m (8 ft) when spaced about 30 cm (1 ft) apart and has leaves that taste very much like spinach. (It might be more productive to plant much more closely than that, however). Roy Danforth, a long-time member of ECHO's network, tried it in Congo (Zaire). He wrote that he was very pleased that it tasted so much like spinach. More important, the local farmers were quite interested in it also.

### USES

The leaves, tender stems and young flower spikes are eaten as a potherb in sauces or soups or with a main dish. The seeds also are edible. Chopped plants have been used as a food source for poultry and other animals. Flowers are good ornaments fresh or dried.

A first thinning can be done when the leaves are about 15 cm (6 in). The whole uprooted plant can then be eaten. The first leaf harvests can be made after about four to five weeks in tropical environments, when the plants reach a size of about 50 cm (20 in). The tops can also be cut off, allowing side shoots to grow as well.

Young growing tips or older leaves are cooked by boiling for about five minutes to soften the material and to remove oxalic acid and nitrates. The water is strongly discolored by the plant pigments, and should be discarded because of the dissolved oxalates and nitrates. The leaves do not discolor. The taste is pleasant, spinach like and very mild with no trace of bitterness sometimes found in amaranth leaves.

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Some people like to cook greens in a steamer. When staff at ECHO cooked quail grass that way, the leaves became black and had an unpleasant taste that they had not noticed before. Apparently the black pigment and the oxalic acid that are normally removed in the cooking water were all left in the steamed leaves.

Quail grass is best eaten as a vegetable before it begins flowering. After flowering, the new leaves are too small and unappealing to be worth eating.

Nutrient content in different varieties of quail grass is variable. Quail grass is claimed to be similar nutritionally to amaranth, but lower in protein content. The leaves should be high in vitamins A and C, iron and calcium. Calcium is not available, however, because it is tied up by the oxalic acid. The oxalic acid and accumulated nitrates should pose no danger unless leaves were eaten in unusually large quantities.

Peace Corps volunteer Jessica Jacklet tested a packet of quail grass at her site in Panama. Few vegetables were grown in that area, as most vegetables performed very poorly. The foliage was rich and dark with lovely purple flowers. Those who started growing quail grass are very proud about its exceptional growth. She introduced the plant as "purple spinach" to the villagers, who are learning ways to incorporate the leaves into their recipes. So far, people have added the leaves to a rice and lentil dish, and one containing eggs and tomatoes. This very productive plant is hardy and attractive, and it merits trial in more areas.

### CULTIVATION

Seed can be planted directly into the soil at a depth of 0.75 cm (0.25 in) or started in a seedbed. Seedbeds should be well-manured and kept moist. The seedlings should be thinned to 25-30 cm (10-12 in) apart, or they may be transplanted from a seedbed into the field when 5-8 cm (1-3 in) tall, using the same spacing.

Getting a good, properly spaced stand can be difficult, and weed competition may be serious for awhile because the seeds and resulting seedlings are so small. A rich organic soil is the best for growing quail grass. It likes full sun. Quail grass is killed by standing water or freezing temperatures, but does quite well during Florida's cool winter as well as the hot summer.

Quail grass and other amaranth relatives tend to reseed themselves abundantly, leading to potential weed problems. In many places so few plants will grow without special care that this might be an advantage that it will grow with such little care and produce an edible product. However, caution should be taken that quail grass does not become a problem due to its weediness.

### HARVESTING AND SEED PRODUCTION

First seed harvests in tropical environments may be expected 3 1/2 to 4 months after sowing. To harvest seed, cut off whole seedstalks after the flowers fade and place them in a bag that allows in air until they are dry, then thresh. Alternatively, you can collect seed weekly by holding a container under the seed head and rubbing or tapping it gently.

### PESTS

Although relatively pest-free in temperate regions, leaf-curl damages the flower stalks and upper leaves in Nigeria. Also reported in Nigeria are the variegated locust, which attacks immature seed capsules and a beetle, *Baris planetes*, which feeds on green capsules causing seed loss. Spider mites have also been reported as a problem.

Quail grass is moderately susceptible to nematode infection and should be planted in lots of organic matter and a mulch used if nematodes are a serious problem. A white rust fungus, which produces white pustules on leaf

undersides, seriously damages Nigerian-grown quail grass. Destruction of infected plants is recommended to reduce the incidence of infection in subsequent quail grass crops.