

Callaloo

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Introduction

Callaloo and or Chinese spinach (*Amaranthus* spp) is consumed in the Caribbean and in other areas of the tropics. The amaranth crop is grown extensively as a green leafy vegetable, or as spinach. In fact, the leaves are a good source of fiber, protein, vitamins and minerals.

Vegetable amaranths are upright branching annuals with broad leaves. For production purposes, callaloo is grown to a height of 2-4 feet, even though it can grow to above 6 feet. The crop is tolerant to nematodes, fungal and bacterial wilt—factors that make it a suitable crop for limited-resource and beginning farmers.

Seedling production

Amaranth can be planted either via direct seeding or transplanting. In the Northeast region, greenhouse production is beneficial to maximize the short growing season. Planting media should have good drainage and be free of soil-borne pests, diseases and weed seeds. Commercially-graded soilless materials can be used to grow amaranth seedlings. Alternatively, sterilized soil, compost, manure and mulch can be used to prepare the planting medium.

In greenhouse production, seeds are sown in trays at a rate of 2 seeds per cell to a depth of $\frac{1}{4}$ inch. Nutrient management requires that the soil remains wet at all times and N: P: K fertilizer be applied once per week.

Seedlings germinate in 2-3 days and can be ready for the hardening process within 2 weeks. Seedlings may be transplanted into the field in as little as 3 weeks from sowing.

Land Preparation

Amaranth requires thorough, well prepared beds made by a plough and bed shape for good growth. Furthermore, callaloo can be planted on raised beds that incorporate the use of plastic mulch and drip. Organic material such as compost and fully cured manure can be incorporated into the soil prior to planting. A soil pH of 6.0 – 7.0 is ideal for optimum callaloo growth, even though it can tolerate growing in a range of 4.0 – 8.0. Liming may be applied if needed.

Planting

Amaranth can be planted either via direct seeding or via transplant. If direct seeding is used, seeds are sown in rows to a depth of $\frac{1}{2}$ inch or less. Seeds are sown at 5 cm apart within the row and covered with a layer of compost or grass. Thinning out of the crop will be required at a later stage. When transplants are set in the field, spacing depends on the variety. Recommended spacing for new amaranth farmers is 12 inch within rows and 24 inches between rows to a depth of 2 to 4 inches. This spacing allows for 2 rows of amaranth per bed. Soil and air temperatures between 77 and 86° F. are ideal for field production of callaloo. Beds and holes in which the amaranth is planted should be wetted and fertilized with a complete foliar fertilizer just prior to planting. Soil temperature below 60°F. restricts growth germination as well as seedling growth.

Nutrient Management

Amaranth is a low management crop and can grow in poor soil. However, it responds well to fertilizer application. The main fertilizers required to grow the crop are Nitrogen Phosphorus and Potassium. Table 1 illustrates a suitable fertilizer program for callaloo production.

Nutrient application can be adjusted based on the nutrient status of the soil at planting. A soil test is highly recommended and the use of organic matter such as compost or cover crops can reduce the fertilizer requirement for this crop.

Table 1 Fertilizer program for callaloo production

Stage	Formulation	Quantity per acre(lbs.)
Preplant	Compost and N:P:K	4000 and 48-64-48
10 days after transplant	N:P:K	30-8-15
20 days after transplant	N:P:K	8-8-8
30 days	N:P:K	8-8-8

Although amaranth is tolerant to drought, a constant supply of soil moisture results in increased yields. If plants are wilting during the day, then increased irrigation may be necessary. Drip irrigation is recommended, but is not required. Drip irrigation has several advantages to overhead and ridge and furrow irrigation. Liquid nutrients can be applied through the drip as opposed to the other types of irrigation. When used with plastic mulch, drip facilitates weed, pest and disease control. Lastly, fertigation calculation makes it possible to feed each plant individually with the desired amount of nutrient and water. This results in less nutrient loss to the environment and promotes good agricultural practices.

Weed Control

Weeds can be controlled using a combination of methods in amaranth production. Good land preparation is necessary in the early season, especially when the crop is direct seeded. This allows the seedling to grow vigorously and establish a canopy that will shade out emerging weed seedlings. Mulching works well in amaranth that are transplanted, as it reduces weed competition. Weed control can be done chemically, but the adoption of IPM guidelines is highly recommended. Hand weed or hoe weeding may be necessary from time to time.

Pest and Diseases

Insect pests and diseases should be minimized to ensure good yield and marketable quality. Pests include foliar insects such as leaf minor, leaf rollers, cutworm, aphids, flea beetles and mites. Follow IPM guidelines when administering a pest control program. Amaranth is tolerant to most diseases.

Harvesting and Post Harvesting

Ideally, Amaranth can be harvested 45 days after sowing and can be harvested once or several times. Harvest is limited by cool weather conditions. The plants are harvested when the leaves are young and succulent. Stalks are severed below the node. After harvesting, the bud emerges and grows into a new leaf stalk or stem. After harvest, the amaranths are placed in bundles and refrigerated for storage or shipment. Harvesting delays the onset of seeding. Mature seeds are later collected and can be used as planting material for next season's crop.

References

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