

AMARANTH PRODUCTION GUIDE

INTRODUCTION: Vegetable amaranth (*Amaranthus* spp.) otherwise known as African spinach is widely grown in the tropics and is one of the most important leafy vegetables in the lowlands of Africa and Asia. There are many species of African spinach and can be distinguished by either the size of the plant, the colour of the leaves or flowers, the presence or absence of spines. Amaranth is an annual, fast growing plant which is easily cultivated in gardens and fields. Its leaves are highly nutritious and contains high protein, iron, and vitamin A content. Amaranth grows fast and can be harvested 4 weeks after sowing. Its local name is 'tete' (Yoruba) Aleho (Hausa).

CLIMATE AND SOIL REQUIREMENTS:

Amaranth thrives well in both hot humid and hot dry climates. The plant prefers temperatures between 25 C and 30 C. amaranth is photoperiod sensitive and most species will flower when day length are shorter than 12 hours. It grows best in a loam or silty loam soil with good water holding capacity. It tolerates a soil PH from 4.5 – 8.0.

CHOOSING A VARIETY

Among the indigenous tropical leafy vegetables, Amaranth has the largest number of species and varieties. Varieties promoted by National Horticultural Research Institute include:

NHAC (Green leaves)

- it grows to about 0.5 to 1.5 m in height
- it produces a relatively high number of leaves
- it is moderately branched from the main stem
- it flowers and seeds along the stem
- it has intermediate growth habit
- it tolerates poor fertility and drought
- its average leaf yield is up to 10t/ha
- it is a black seeded vegetable

Grain Amaranth

- it grows to about 1.5 to 2m in height
- it forms large loose panicles at the tip of the stem
- it produces moderately higher leaf yield of about 15t/ha
- it is also drought tolerant
- it produces light seeds with off-white to pale yellow colour

CULTIVATION

Amaranth requires good land preparation and raise beds in order to enhance good growth. During the dry season, the bed may be 90cm wide and 20cm high while the height might be 30cm or higher during raining season. Amaranth can be planted in three ways:

- Seeds can be sown directly into the soil (using broadcasting),
- Seeds can be sown in shallow rows of 50cm apart,
- Seeds can be planted in trays and transplanted at 3-4 weeks (using a spacing of 50cm between rows and 30cm within row on a well prepared seed bed. This may vary depending on the variety).
- Due to the small size of its seed, Amaranth must be mixed with sand in a seed to sand ratio of 1 to 10 by volume
- The recommended seed rate is 2.7kg/ha
- After broadcasting, the seeds must be covered lightly or with dry grasses to aid germination.

RAISING SEEDLING FOR TRANSPLANTING

Raising seedlings in the nursery on raised beds before transplanting to the field is recommended over direct seeding in that, it shortens the cropping period on the field, assures a better and more uniform stands, and ensures economy of seed usage.

SEEDLING PRODUCTION

- Seeds can be sown in a nursery on seed beds
- The soil can be partially sterilized by burning rice husks or other dry organic matter on the seedbed prior to sowing. This adds minor amounts of P and K to facilitate the establishment of the seedlings.

FIELD TRANSPLANTING:

- This can be carried out at about 3-4 weeks after sowing in the nursery, when seedling have 4-7 true leaves.
- Spacing varies depending on variety and harvest method.
- Wide spacing are used for tall varieties with broad leaves and multiple harvests (plant density 20 -100 plants /m) while narrow spacing are used for ort varieties with narrow leaves and single harvest (plant density 100- 400 plants m).

FERTILIZER APPLICATION:

- Although amaranth can grow in poor soils, yields are notably enhanced with fertilizer or manure.
- Amaranth responds well to organic fertilizers which can be applied at the rate of 20 t / ha.
- On poor soils, a complementary mineral fertilizer application of 250 to 400 kg/ ha of NPK 20-10-10 is often recommended.
- Soil test is highly recommended to determine the available N.P and K and the amount to add to the soil.

IRRIGATION

- Although some amaranth species are relatively drought tolerant, lack of water will lead to early flowering, a decrease in marketable leaf yield.
- Watering is very important after sowing or transplanting to ensure good stand.
- During the raining season, drainage is essential for plant survival and growth.

WEED CONTROL

- Weeds compete for light, water and nutrients, thereby resulting in reduced crop yield.
- Though land preparation is essential for effective initial weed control.
- Weeds may be controlled using a combination of methods e.g. manual weeding with the use of hoes or roguing (removal of unwanted plants using hand roguing).
- Mulching is recommended to reduce weed competition, soil compaction, erosion and to conserve soil moisture.

CONTROL OF DISEASES AND INSECT PESTS

- Insect pests and diseases must be controlled to ensure good marketable yield.
- Regular weeding also reduces the infestation of insects and rodent attack.

HARVESTING

- Amaranth is ready for harvesting by 35-45 days after planting or sowing depending on variety and harvesting methods.
- Plants may be harvested once or multiple times, while for wider spacing repeated cutting is the preferred harvesting method.

NOTE: Feasibility report on amaranth cultivation is available on request.

For further information, contact

Office of the Executive Director
National Horticultural Research Institute
PMB 5432, Jericho GRA
Idi-Ishin, Dugbe, Ibadan
info@nihort.gov.ng, nihortinfo@yahoo.com
www.nihort.gov.ng