

How to Grow Grain Amaranth

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Introduction

Grain amaranth (*A. hypochondriacus* and *A. creuntus*) is an early maturing (75-90 days), drought tolerant crop and has few pests and diseases. It has multiple uses as a vegetable, nutrient rich grains and livestock feed. Grain amaranth is highly nutritious and contains 16-20% protein, 5-10% oil and is rich in phosphorus, calcium, zinc, vitamins B, C and E. It has two times the amount of calcium found in milk. It is particularly rich in the amino acid lysine which is low in cereals like maize and wheat. Cooked grain is up to 90% digestible, an excellent weaning diet and is recommended for the elderly and people who have been through a long fast or starvation. Being an immune booster it is good for people with low immunity or severe malnutrition. The nutritive value of cereals is enriched when blended with amaranth. Grain amaranth is therefore a potential source of nutrition in the arid areas. Under good management, grain amaranth will give reasonable yields of about 500 kg per acre. The crop is therefore ideal for improving food security and nutritional status of the vulnerable groups.

Amaranth is a warm climate plant and thrives well in temperatures ranging from 22-35°C and a wide range of environmental conditions between 0-2400 m above sea level. It can be grown all-year-round under irrigation. The crop should be grown in deep well drained soils with high organic matter. The yield of grain amaranth under good management is about 500 kg per acre.

Land preparation

Grain amaranth seeds are small and therefore require a well prepared seed bed. For virgin land oxen or tractor ploughing followed by harrowing and levelling is recommended. On cultivated land, harrowing and levelling should be done.



Land preparation using animal-drawn plough



Ploughed land



Breaking of soil clods



Shallow furrows ready for planting amaranth

Planting and seed rate

Planting should be done at the onset of the rains. Make shallow furrows spaced at 75-90 cm apart.



Mixing amaranth seed with soil

Apply well decomposed farm yard manure (FYM) at the rate of 3-4 tons per acre. Thoroughly mix the FYM with soil using a stick. Apply DAP at a rate of 8 kg P_2O_5 per acre in moist soil for better yields. Compost manure can also be used 4-5 tons per acre.

A seed rate of 1 kg per acre is recommended. Mix grain amaranth seeds with dry sand or soil at the ratio of 1: 10-15 (1 part seed to 10-15 parts sand or soil; volume for volume) to avoid seed wastage and enable uniform drilling of the seed. For example one cup of amaranth seed should be mixed with 10-15 cups of dry sand.

Drill the seed mixture evenly and thinly in the furrows at a depth of 5 cm and cover the lightly with soil using a stick.

Thinning and weeding

Thin the crop three weeks after germination to attain a spacing of 30 cm (12 inches) between plants in a row.

Keep the field free of weeds. Water harvesting structures such as ridges can be constructed at weeding to aid in moisture conservation.



Amaranth crop before thinning (a) during thinning (b) and after thinning (c)