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Scientific Cultivation of Ash gourd

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Introduction:

Ash gourd or Chinese watermelon is a plant native to South Asia. It grows on a vine and is spherical in shape with a fuzzy exterior. Ash gourd is normally grown is South East Asia, China and India. In India, it is grown in Punjab, Uttar Pradesh, Bihar, West Bengal, northeastern hill states, Odisha, Kerala and Tamil Nadu on commercial scale, however, it is grown sporadically throughout India. Mature fruits of ash gourd are used in making confectionery, i.e., candy, preserves, sweets and pickles and immature fruit (young) as culinary vegetable in West Bengal, Odisha, Kerala, Tamil Nadu and NEH Region of India. Generally, specific cultivars or land races are grown for vegetable preparation at immature stage and for the preparation of sweets and bare at mature fruit stage. The ancient medical systems believed that the Ayurvedic preparation of ash gourd, known as 'Kushmanda' in Sanskrit, had beneficial properties. When making cheese, the ash gourd enzyme could be used instead of calf rennet. The ash gourd is minimal in protein, fat, and calories. Given that 90% of it is made up of water, it has a percentage of water in it. Many nutrients, vitamins, and micronutrients, including antioxidants (flavonoids and carotenes), manganese, copper, phosphorus, iron, magnesium, and vitamin C, vitamin B, are abundant in it. Let us examine how to cultivate, grow, and maintain ash gourds.

Climate

Ash gourd requires relatively stable high temperature, long days, and moderate humid climate for good growth. The most optimum temperature range for its growth is from 24° to 30°C. The development of more pistillate flowers is stimulated by low night temperature, short days, and humid climate, while male flower production is encouraged by high temperature, long days and dry climate. It is frost sensitive, thus a frost-free period of around 120-135 days is required. High temperatures and extended day length are the most critical climatic conditions that delay flowering in ash gourd, although relative humidity and rainfall have minimal effect. Low temperatures, short day lengths, high

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relative humidity, and cloudiness all increase pistillate flower produce. Plants are susceptible to cold yet can withstand drought.

Soil

Deep, well-drained soil with sandy or sandy loamy texture is suitable. The pH of the soil should range between 5.8 to 7.5. The field should be prepared by ploughing at least 3 to 4 times. There is also a need for hand weeding as a method of weed control. However, once the crop is grown, weeds can also be controlled by mulching. Organic fertilizer should be provided to the field before to planting and final ploughing. Well-decomposed cow dung and neem cake assist to fine-till the soil and boost its nutritional content.

Fertilizer

Add 15-20 tonnes of farm yard manure/ha after the first ploughing. Apply the fertilizer 40-60 kg N, 50-60- kg P and 40-60 kg K in the shallow furrows made in the sowing channel and cover it with soil. Half quantity of Nitrogen applied at field preparation and the other half quantity as basal or topdressing at early vine growth stage. Organic manure and fertilizer are also added to the soil in the pits before seed sowing.

Seed Treatment

Soak the seeds in double the quantity of water for 30 minutes and incubate for 6 days. The seeds are treated with *Trichoderma viride* 4 g or *Pseudomonas fluroscens* 10 g or Carbendazim 2 g/kg of seeds before sowing

Sowing

Before sowing, the seeds must be soaked in water and treated with Carbendazim, Trichoderma varied, or Pseudomonas fluorescence to protect the seeds from soil-borne fungus. Direct sowing of the seeds into the ground is an option. An acre of land requires only two to three kilogrammes of seeds. The field should be divided into pits which are 30 cm × 30 cm × 30 cm at a spacing of 4.5 m × 2m. The topsoil in the pit has to be mixed with a well-decomposed fertilizer. Irrigate the soil before sowing as well. 5 to 6 seeds should be sown per pit at 1 to 2 cm depth. Avoid deeper seeding since it will cause a delay in germination. It typically takes 4–5 days for the seeds to sprout.

POPULAR VARIETIES

Kashi Surbhi: Fruits oblong, ellipsoid, rind greenish white, flesh white; Average fruit weight 10-12.kg; Fruits are suitable for long distance transportation; It has yield potential of 240 q/acre (Kharif season) and 210-200 q/acre (summer season).

Kashi Dhawal: This variety is derived from a local collection. The vine length is 7.5-8 m. Fruits are oblong, flesh white, thickness 8.5-8.7 cm, seed arrangements linear, average weight 11-12 kg crop duration 120 days and yield 230-240 q/ha. This is suitable for

preparation of Petha sweets due to high flesh recovery.

Other States varieties

CO 1, CO 2, Pusa Ujjwal, Kashi Ujwal, MAH 1, IVAG 502, Pusa Urmi, Mudliar, APAU Shakti, Pusa Subzipetha, Pusa Shreyali.

Irrigation

During the initial growth stage of the crop, it is advised to water the plant every 3 to 4 days or depending upon the climate. The crop should be watered every alternative day or frequently when the plants start bearing fruits and flowers. During the rainy season, check the soil for its moisture content and take rainfall frequency into consideration before irrigating the crop.

Interculture

The crop may require about 2-3 weeding and light hoeing during early stages of vine growth.

Harvest

Depending upon the market requirements and variety of the crop, the crop is ready to be harvested in 130 to 150 days after sowing. Usually, both immature and mature fruits are harvested. While immature fruit is sold for consumption, the mature fruit is stored for seed production purposes.

Yield

The average yield is about 25-30 tonnes per hectare.

Seed production

Sow seeds in the months of February and March to produce seeds. Crops with diseases or undesirable traits are eliminated during the flowering, fruiting, and mature stages. When fruits and stem surface give white waxy appearance, fruits are ready for harvesting. After sorting, seeds are given a water bath. Before storage, wash the seeds until they're dry and clean. Low humidity and low temperature are ideal for storing seeds. After sorting, seeds are given a soak in the bathtub. Before storage, wash the seeds until they are dry and clean. Low humidity and low temperature are suitable for storing seeds.