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Spine Gourd Farming in India

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Abstract

Spine gourd is an important vegetable crop grown in different parts of India. It is a member of cucurbitaceous family. Spine gourd provides many types of health benefits like it works as anti-aging agent, maintain blood sugar level, reduces the chances of cancer and the kidney stone. It is mainly cultivated in Karnataka and West Bengal. Spine gourds are known with many types of local names like Kankoda in Rajasthan and Katwal in Gujarati. Two types of Spine gourd, Small kantola and bigger kantola are available in Indian Market. Indira Kankoda I (RMF 37) is a new commercial variety of Spine gourd. An average yield of 75-100 quintals ha⁻¹ of Spine gourd can be obtained with good crop management practices.

Introduction

Spine gourd also known as “Kantola or Kakrol and Kankoda (in Rajasthan)” is one of the famous and nutritious vegetables cultivated in India for centuries. Botanical name of spine gourd is “*Momordica dioica*” and belongs to the family of “Cucurbitaceous”. Kantola vegetable is closely resembles to bitter gourd features but not in taste. This vegetable is short in length and round in size. This vegetable is cultivated in tropical and subtropical regions as well. Basically this crop is a warm season crop.

Health Benefits of Spine Gourd

Spine gourd works as anti-aging. Spine gourd reduces blood sugar level. Spine gourd improves eyesight. Spine gourd reduces the chances of cancer. Spine gourd removes kidney stones. Spine gourd reduces excess sweating. Spine gourd may improve digestion. Spine gourd is home remedy to cure piles. Spine gourd treats coughing (Dubey, 2012).

Spine Gourd Cultivating States in India

It is commercially cultivated in Karnataka and West Bengal. In the states of Chhattisgarh, Orissa, Uttar Pradesh, Maharashtra and Jharkhand, improved/ hybrid variety Indira Kankoda I (RMF 37) is cultivated commercially and also produced by many areas of Meghalaya.

Spine Gourd Local Names in India

Spine gourd/ Teasel gourd (English), Kantola (Hindi), Barakarela/ kankera/ kankoda (Rajasthani), Katwal (Gujarati), Bhat korola/ Kankrol (Bengali), Karchi-balli (Kannada), Kartoli (Marathi), Adavikakara (Telugu), Meluku-pakal/ Palu-pakal (Tamil), Ben-pavel/ Erimapasel (Malayalam), Avandhya/ Bhat-kerela (Assamese), Phagil (Konkani).

Main Types of Spine Gourd in India

In Indian vegetable market, there are two varieties of kantola available. They are same in the appearance but with different sizes. Small kantola (local) has very good demand and price is higher compared to bigger kantola (hybrid).

Improved Commercial Varieties of Spine Gourd in India

Indira Kankoda I (RMF 37) is a new commercial variety of Kantola developed by Indira Gandhi Agricultural University. This hybrid variety can be cultivated in Uttar Pradesh, Orissa, Chhattisgarh, and Jharkhand and Maharashtra. This improved variety is resistant to all major pests and insects. This variety will be ready for harvesting (vegetable purpose) in 35-40 days, if it's grown from tubers and 70-80 days, if it's grown from seeds. This variety gives an average yield of 10 quintals ha⁻¹ in the first year, 15 quintals ha⁻¹ in the second year, 20 quintals ha⁻¹ in the third year.

Climate Required for Spine Gourd Farming

Kantola is a warm and low humid season crop. This vegetable can be cultivated in both tropical and sub-tropical regions. This crop requires good sunshine for better growth and yield. The optimum temperature of 27-32 °C is suitable for its cultivation (Arya and Kumar, 2021).

Soil Requirement for Spine Gourd Farming

Spine gourd/ Kantola can be grown on sandy loam to clay soils with pH value of 5.5 to 7.0. Soils with well drainage and good organic matter are best for its cultivation.

Propagation in Spine Gourd Farming

Propagation in spine gourd farming can be done through seeds or tubers.

Land Preparation in Spine Gourd Farming

Land should be levelled and well prepared by tractor or local plough. 3 ploughings are enough to get the soil to the fine tilth stage. In last plough, add 15-20 tonnes of farm yard manure (FMY) in the top soil to increase the soil fertility. Raised beds or ridges should be prepared along with furrows in between.

Seed Rate and Sowing Season in Spine Gourd Farming

An average seed rate in spine gourd cultivation is about 1.5-2.0 kg acre⁻¹ or 3,000-5,000 tubers ha⁻¹. Buy quality seeds from genuine producers or seed companies. Spine gourd/ Kantola can be cultivated as summer as well as rainy season crop in India. Usually, this crop is sown in tropical (plain) regions in the month of Jan to Feb as a summer crop and July to Aug as a rainy season crop. For tropical hills regions, sowing would be in April month. The best season of planting tubers is Feb-Mar months.

Sowing and Spacing in Spine Gourd Farming

Sow 2 to 3 seeds in the prepared beds @ 2 cm depth, Ridge-to-Ridge distance should be about 2 meters and Plant-to-Plant distance should be about 70 to 80 cm.

Irrigation in Spine Gourd Farming

Irrigation should be carried out immediately after sowing the seeds on the raised beds in the field. Thereafter, carry the irrigations on need basis. Irrigations are not needed in case of rainy season and soil has enough moisture. In dry spell weather conditions, 1 or 2 irrigations should be given in weekly interval. Make sure to have water well drained in rainy season or flooding stage.

Training in Spine Gourd Farming

Because of the climbing in nature, this crop requires proper support for vegetative growth. Available training materials (stake system or bower system) can be used for supporting the vines.

Manures and Fertilizers in Spine Gourd Farming

Organic fertilizers: Incorporate 15 to 20 tonnes of well rotten farm yard manure at the time of soil/ land preparation. **Inorganic fertilizers:** Application of NPK @ 120:80:80 kg ha⁻¹ should be added with full dose of P & K before sowing or planting tubers. In case of nitrogen (N) application, apply 1/2 dose at the time of vining and remaining 1/2 dose of N before flowering.

Weed Control in Spine Gourd Farming

In kantola farming, weeding should be carried out on regular basis. Hand hoeing and manual weeding methods are preferred in kantola cultivation.

Pests and Diseases in Spine Gourd Farming

Major insect-pests found in spine gourd farming are fruit flies & nematodes. To control fruit flies, use any mechanical method of catching flies (insect traps and baits) and to destroy them. Organic pesticides are also available in the market to control this. To control nematodes, incorporate neem cake in the soil at the time of land preparation. Intercrops like marigold may also be helpful in preventing this. Major diseases found in spine gourd farming are powdery mildew, anthracnose, downy mildew, angular leaf spot and mosaic. Using appropriate fungicides can control these diseases. Viral disease like mosaic can be prevented further by destroying impacted plants. Seed treatment before sowing can control any seed-borne disease.

Harvesting of Spine Gourd

These vegetables will be ready for harvesting after 75-80 days of sowing. In second year, they will become available for picking in 35-40 days. Pick the fruits when they are in tender stage (for vegetable purpose, not for seed purpose). Alternate days are recommended for harvesting to avoid over-matured vegetables. Hand harvesting can be carried out without disturbing the vine. If you are growing these for seed production, leave the fruits on the vine until they ripen fully. Usually, they turn the colour from green to orange. One can easily identify the matured seeds when the pulp inside the fruit turns into red colour.

Yield of Spine Gourd

An average yield of 75-100 quintals ha⁻¹ can be obtained with good crop management practices.

Conclusion

Spine gourd is a vegetable crop with various health benefits but is still not popular as other vegetable crops. Less information about its cultivation and good agronomical practices are also major reasons behind the less availability of this vegetable crop. Basically, this crop is a warm season crop. It belongs to the family of "Cucurbitaceae". Small kantola and bigger kantola are the two types of spine gourd available in the Indian market. An average seed rate in spine gourd cultivation is about 1.5-2 kg acre⁻¹ or 3,000-5,000 tubers ha⁻¹. In kantola farming, weeding should be carried out on a regular basis. Major insect-pests found in spine gourd farming are fruit flies & nematodes. Major diseases found in spine gourd farming are powdery mildew, anthracnose, downy mildew, angular leaf spot and mosaic. These vegetables will be ready for harvesting after 75-80 days of sowing. With proper cultivation practices, spine gourd can provide an average yield of 75-100 quintals ha⁻¹.

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