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Chia (*Salvia hispanica*) Cultivation in India

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Abstract

Chia is native to central and southern Mexico and Guatemala. It is member of Lamiaceae family. Chia seeds are rich in omega-3 fatty acids. It also contains α-linolenic acid. Chia seeds are propagated from both the seeds and seedlings. Chia seeds require light to medium clay or sandy soils for cultivation. Chia seeds require moistured soil for seedling establishment. Chia can be cultivated under low fertilizer input. Chai crop is not affected by major pests or diseases. Chia seeds start sprouting within 7-10 days. The yield from Chia can be 2,300 kg ha^{-1}; it depends upon the level of field management.

Introduction

Chia is a flowering plant from the mint family, Lamiaceae, which is native to central and southern Mexico and Guatemala. It is considered a pseudo cereal, mainly cultivated for its edible, hydrophilic Chia seed, grown and commonly used as food in several countries of western South America, western Mexico, and the South-western United States. Chia is grown commercially for its seed, a food rich in omega-3 fatty acids since the seeds yield 25-30% extractable oil, including α-linolenic acid. Typical composition of the fat of the oil is 55% ω-3, 18% ω-6, 6% ω-9, and 10% saturated fat (Ullah *et al*., 2017). Chia seeds are popularly known as "Sabja" in Hindi in India.

Propagating Chia Seeds

Chia seeds are propagated from both the seeds and seedlings, growing Chia plants from seeds can be the best job. Prepare the soil for the crop; just sprinkle the seeds over the soil. And stab them gently and cover them with soil. Watering should be done at regular intervals. Chia seeds start sprouting within 7-10 days. After the seedling grows up to 4-5 m tall with 5-6 pairs of true leaves, thin them as they grow (Arya and Kumar, 2021).

Soil for Chia Seeds Cultivation

The cultivation of Chia seeds requires light to medium clay or sandy soils. The crop can give good yields in well-drained, moderately fertile soils; it can also resist acid soils and moderate drought. For Sowing Chia seeds, you need fully moistured soil for seedling establishment, while the maturing Chia plant cannot resist wet soils during growth. Traditional cultivation techniques of *S. hispanica* include soil preparation by disruption and loosening followed by seed broadcasting. In modern commercial production, a typical sowing rate of 6 kg ha^{-1} and row spacing of 0.7-0.8 m (2.3-2.6 ft) are usually applied.

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Fertilization and Irrigation

S. hispanica can be cultivated under low fertilizer input, using 100 kg ha^{-1} nitrogen or in some cases, no fertilizer is used.

Irrigation frequency in Chia production fields may vary from none to eight irrigations per growing season, depending on climatic conditions and rainfall.

Diseases and Crop Management of Chia

Chia crop is not affected by major pests or diseases that affect Chia production. Essential oils in Chia leaves make them more resistant to insects, making them suitable for organic cultivation. Virus infections, sometimes transmitted by whiteflies, may occur.

Weeds can create a major problem during the early growing period of the Chia crop until its canopy closes, but because Chia is sensitive to the most commonly used herbicides, mechanical weed control is preferred.

Some viruses that infect the genus Salvia are Cucumber mosaic virus, the Broad bean wilt virus, Mungbean yellow mosaic virus, the Tomato yellow leaf curl virus, and other putative golden mosaics. These viruses can affect crop production to a greater extent. Take necessary action as soon as the crop is infected with these viruses.

Harvesting Chia Seeds

The harvesting period depends on the days required to separate the seeds from flowers, some farmers store dried flower heads in a large calico bag till the next seed separating session. A Successful collection of Chia seeds will take a lot of time. For mass harvesting, you do it manually or by using a harvester. You should wait until the flower head turns brown, you risk losing the seeds.

Seed Yield and Composition of Chia

The yield of Chia seeds varies on cultivars, mode of cultivation, and growing conditions by geographic region. For example, in commercial fields, the yield ranges from 450-1,250 kg ha^{-1}. In small-scale cultivars grown the yields are up to 2,300 kg ha^{-1}, the most favorable growing environment and cultivar interacted to produce higher yields.

Conclusion

Chia is a flowering plant from the mint family, Lamiaceae. The grains of Chia rich in omega-3 fatty acids since the seeds yield 25-30% extractable oil, including α-linolenic acid. Typical composition of the fat of the oil is 55% ω-3, 18% ω-6, 6% ω-9, and 10% saturated fat. It is easily digestible food. Chia seeds are popularly known as “Sabja” in Hindi in India. The seed rate of Chia is 6 kg ha^{-1} and row spacing of 0.7-0.8 m (2.3-2.6 ft) are usually applied. Harvesting of Chia can be done manually or by harvester. The yield of Chia depends upon the cultural practices and yield of Chia can be vary from 450-2,300 kg ha^{-1}.

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