



Spinach (*Spinacia oleracea*) Cultivation in India

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Spinach belongs to family of "Amaranthaceae" and it is native of central and western Asia. It is perennial vegetable and cultivated throughout the world. Spinach is also known as "Palak" in Hindi. It is a rich source of iron, vitamin and anti-oxidants. It has many health benefits. It helps to increase immunity. It is good for digestion, also good for skin, hair, eyes and for brain health. It has anti-cancer and anti-ageing property. Andhra Pradesh, Telangana, Kerala, Tamil Nadu, Uttar Pradesh, Karnataka, Maharashtra, West Bengal and Gujarat are leading producing states of spinach in India.

Soil

It can be grown on any type of soil having good drainage capacity. But it gives good result when grown on sandy loam and alluvial soil. Avoid acidic soils also water logged soils for spinach cultivation. pH of soil should be in range of 6 to 7.

Popular Varieties with their Yield

Punjab Green: Plant is semi erect with dark shining leaves. Ready for first cutting in 30 days after sowing. Gives average yield of 125 qtl/acre. It has low oxalic acid content.

Punjab Selection: Foliage is light green color, thin, long and narrow. Leaves are lightly sour in taste. Purple pigmentation present on stem. It gives average yield of 115 qtl/acre.

Other state variety:

Pusa jyoti, Pusa Palak, Pusa harit, Pusa Bharati

Land Preparation

Soil should be prepared by ploughing 2-3 times. After ploughing do levelling of soil for uniform bed formation. Prepared bed and irrigation channels.

Sowing

Time of sowing: Spinach is sown throughout the year. For winter season, best time for sowing is from September to October. For spring season complete sowing from Mid-February to April.

Spacing: Use row to row spacing of 25-30 cm and plant to plant spacing of 5-10 cm.

Sowing Depth: Sow seeds at depth of 3-4 cm.

Method of Sowing: Sowing can be done by line sowing and broadcasting method.

Seed Rate: For winter season use, seed rate of 4-6 kg and for summer crop use seed rate of 10-15 kg per acre.

Seed Treatment: Before sowing soaked seeds in water for 12-24 hours. It will increase germination percentage.

Fertilizer

For good yield, apply well decomposed cowdung@100 qtl and Nitrogen@35 kg (in form of Urea@75 kg), Phosphorus@12 kg (in form of Superphosphate@75 kg) per acre. Apply whole amount of well decomposed cowdung and phosphorus along with half amount of nitrogen before sowing. Apply remaining amount of nitrogen in two equal splits after each cutting. After fertilizer application provide light irrigation.

Weed Control

To keep check on weeds along with to provide aeration to soil two - three hoeing are required. To control weed chemically, use Pyrazone@1-1.12 kg/acre as pre-emergence herbicide. Do not use weedicide afterwards.

Irrigation

For proper seed germination and good growth soil should have enough moisture content. At time of sowing if proper soil moisture is not present in soil then provide pre-sowing irrigation.

First irrigation should be given after sowing. In summer month, apply irrigation at interval of 4-6 days where as in winter month apply irrigation at interval of 10-12 days. Avoid over irrigation also care should be taken not to water on leaves, as it will leads to occurrence of disease and deterioration of quality. Drip irrigation is proves to be beneficial for spinach cultivation.

Plant Protection

- **Pest and their control:**

Aphid: If infestation is observed, take spray of Malathion 50EC@350 ml/ 80-100 ltr of water. Do not harvest crop immediately after spraying of Malathion. Harvest seven days after spray.

- **Disease and their control:**

Cercospora Leaf spot: On leaves, small circular to semi-circular spots with grey centre and red margins appeared. On seed crop, if infestation is observed, take spray of Carbendazim@400 gm or Indofil M-45@400 gm in 150 ltr of water per acre. If necessary, repeat spray with intervals of 15 days.

Harvesting

Depending upon variety, crop is ready for first cutting 25-30 days after sowing. For harvesting, use sharp knife or sickle. Depending upon variety and season, subsequent cutting should be done at interval of 20-25 days.

Seed Production

For seed production, use spacing of 50 cm x 30 cm. Keep isolation distance of 1000 m around palak seed plot. Skip one row after every five rows; it is essential for field inspection. Remove disease plant; also remove plant showing variation in leaf characteristic. Harvest crop when seed stalks turn brown. After harvesting keep plant in field for curing and drying purpose for a week. After proper drying, for seed purpose, threshing of crop is to be done.