



Lemongrass (*Cymbopogon flexuosus*) Cultivation in India

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Lemon grass (*Cymbopogon flexuosus*) is also known as China grass. Lemon grass has wide range of therapeutic and antimicrobial value. Its leaves are mainly used for preparing various drugs. Drugs prepared from lemongrass are used to cure various problems such as headaches, tooth-aches and for fever. The chief constituent of the oil is the citral, It is starting material for the preparation of important ionone viz., a -lonone – used in flavours, cosmetics and perfume and b -lonone – used in the manufacture of synthetic vitamin A. Oil has bactericidal, insect repellent and medicinal uses. The spent grass is a source of good cattle feed and can be converted into good silage. It is an aromatic plant with average height 1-3m tall. The leaves are 125cm long and 1.7cm broad. It grows in India, tropical and subtropical parts of Africa, America and Asia. In India it is mainly grown in Punjab, Kerala, Assam, Maharashtra, Uttar Pradesh and Madhya Pradesh.

Soil

It can grow in varieties of soil ranging from clayey to sandy, alluvial soil and loamy soil having good drainage system. It gives best result when grown under loamy-sand soils with high organic content. It can even tolerate poor soil. Avoid cultivation in soil which have poor drainage system or have long water holding capacity. 5.0-8.5 pH soil ranges best for the growth of the crop.

Varieties

OD-19, OD-408, RRL-39, Pragathi, Praman, CKP-25, Krishna and Cauvery are popularly cultivated.

Land Preparation

For Lemongrass plantation, it requires fertile and irrigated land. Ploughing and harrowing should be done repeatedly. During land preparation mix Lindane powder @ 10kg/acre with soil at the time of last ploughing to protect the crop from the attack of termite. Transplantation of lemongrass is done on raised beds.

Sowing

Prepare nursery beds in March - April month. Depending upon growth habit 60 cm x 60 cm spacing for seedlings and 90 cm x 60 cm spacing for slips is required. Depth should be 2-3 cm. Two month old seedlings is ready for transplantation in main field. Use seed rate of 1.6 - 2 kg/acre. To protect crop from long smut disease, before sowing do seed treatment with Ceresan @0.2% or Emisan@1 gm/kg of seeds. After chemical treatment, use seeds for sowing.

Nursery Management and Transplanting

Sow lemongrass seeds on raised beds of 1m-1.5m width and of convenient length. After sowing cover the beds with cut grass material and then it is covered with thin layer of soil. Seeds are ready for transplantation in about 2 months when plant reaches the height of about 12-15 cm. field should be prepared first before transplanting. The planting should be done at the spacing of 15x19cm. Do not plant seedlings deep into the soil as this may cause root-rot to occur during rainy season.

Manures and Fertilizers

The Aromatic Plants Research Station Odakkali (Kerala) recommends 100 kg of N/ha. Under North East conditions, application of 60kg of N, 50 kg P and 35 kg K is recommended per hectare. In North India, Jammu lemon grass (*C.pendulus*) is cultivated under irrigated condition as a source of citral. The cultural practices are almost similar to East India lemon grass. It is propagated exclusively by slips, which are planted on flat beds. A spacing of 50 x 50cm is adopted. A dose of 260 kg N, 80 kg P₂O₅ and 120 kg K₂O per hectare is recommended in 3-4 split doses. The crop responds to irrigation especially during hot summer months.

Weed Control

Do hand weeding and hoeing to keep field weed free. Mulching is also an effective way to reduce soil temperature along with weed control. Application of organic mulch @1200 kg/acre. 2-3 weeding should be done in one year. Some organic control should be done such as UV radiation and flame weeding.

Irrigation

In summer season i.e. February to June, apply irrigation with interval of 4-6 irrigations are given. When rains are not in regular pattern then apply irrigation with interval of 3 days in first month and then with the interval of 7-10 days. 4-6 irrigations are necessary for the crop during summer months.

Plant Protection

• Pest and their control:

Stem boring caterpillar: The caterpillar makes hole in the bottom of the stem and they feed themselves on plant. Drying of centre leaf is the first symptom. Application of spray of Folidol E 605 is done to cure pests.

Nematodes: They infect the whole grass. Application of Fenamiphos @4.5 kg/acre is done to prevent crop from the pest.

Disease and their control:

Long smut: The flowers starts turning into cream colored sori. The disease starts infecting the flower from the tip and then slowly reaches the whole flower. To get rid of long smut apply spray of Dithane Z-78 @2% before flower initiation or treat the seeds with Cersan @0.2% or Emisan-6 @1g/kg before sowing.

Red Leaf Spot: This disease causes the brown spots having concentric rings appear on the lower side of the leaves. Later the spot become bigger and the whole leaf turns dry. Apply two sprays of Bavistin @0.1% at the interval of 20 days or 3 sprays of Dithane M-45 @0.2% at the interval of 10-12 days.

Leaf Blight: The disease causes circular and reddish brown spots on leaf tips and margins. They cause premature dying of leaves and make it infectious. To get rid of this disease spray Dithane Z-78 @0.2% at the interval of 10-12 days or spraying of Copper oxychloride @0.3% is to be done.

Rust: The disease causes brown and discrete uredinia on lower surface of leaves having chlorotic streaks. Spraying of Dithane @0.2% or Copper oxychloride @0.3% or Plantavax @0.1% at the interval of 10-12 days will help to kill the disease.

Little Leaf or Grassy shoot: It causes stunting and short leaf formation. Application of spray Dithane Z-78 before flowering at the interval of 10-12 days should be done to reduce the risk of disease.

Harvesting

Plants start yielding by 4-6 months after transplantation. Harvesting is done at the interval of 60-70 days. Sickles are used for harvesting. The harvesting start in May and ends in January month. With the help of sickle, grass is cut at 10-15 cm above from the ground level for harvesting.

Post-Harvest

After harvesting, distillation is done. Before distillation the lemongrass is dipped in sodium chloride solution for 24 hours as it will increase the citral content in crop. Then grass is stored in shady place and is packed in bags or packets for transportation in local markets. From mature lemongrass several products like lemon grass oil and lemon grass lotion are made after processing.