



## LEMON GRASS

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#### Introduction

Lemongrass commonly known as “East Indian Lemongrass” is a perennial and multicut aromatic grass. The prefix ‘lemon’ owes to its typical lemon like odour, which is mainly due to the presence of citral, a cyclic monoterpene. Lemongrass is the source of Lemongrass oil, a good source of natural citral, which is used as a basic raw material for synthesis of  $\beta$ -ionone used for synthesis of a number of useful aromatic compounds and Vitamin- A. Lemongrass oil is thus used as a main substitute for ‘Cod liver oil’. Citral itself is used in perfumery for various grades of soaps detergents, cosmetics and flavour agent for soft drinks. Consumption of Lemongrass in Ayurvedic preparation like Balm is also increasing. The crop provides maximum herb yield from second and third year after planting and thereafter declines. The leaves yield essential oil on steam distillation containing 70-90% citral. **“Lemongrass Oil’ obtained from the leaves and shoot of the Lemongrass plant”**

#### Uses

Confectionery, Culinary Purposes, Drugs, Flavoring, Insect repellents, Liquors, Perfumery • The lemongrass oil is mainly used in the manufacture of perfume for soaps, hair oils, scents and medicines. It also has the antibacterial properties. • Ionone prepared from the Citral present in lemongrass oil is one of the most important raw materials for the preparation of vitamin ‘A’. In addition to its use in perfumery, Ionone is used in certain kinds of confectionery and liquors. Ionone can be prepared either directly from the lemongrass oil or from the citral obtained from the oil.

#### Soil & Climate

It flourishes in a wide variety of soils ranging from rich loam to poor laterite. In sandy loams and red soils, it requires good manuring. Calcareous and water-logged soil should be avoided as they are unsuitable for its cultivation. It flourishes in a wide variety of soils ranging from rich loams to poor laterite; also suitable to ‘jhum fallow’, hill slopes and flood free



degraded land, best suited to well drain sandy loam. Water logged conditions should be avoided as they are unsuitable for its cultivation.

### **CLIMATE**

It requires a warm humid climate with plenty of sunshine and a rainfall ranging from 200-250 cm well distributed all throughout the year. In area where rainfall is less, it can be grown with supplemented irrigations.

### **VARIETIES**

Sugandhi, Pragathi, Praman, PRL-16, CKP-25, OD-408, RRL-39, Kaveri, Krishna

For irrigated condition C.K.P-25 released by RRL, Jammu

Krishna developed by CIMAP both for irrigated and rainfed and also hill slopes

Nima a dwarf variety developed by CIMAP found promising. The citral content of Nima is much higher than Krishna. Oil recovery is in between 0.8-1.0 %.

Another suitable variety for NE region is Jor Lab L-2 developed by RRL, Jorhat.

### **Preparation of root slips**

It is propagated vegetatively by obtained from well-grown clumps. Tops of culms are cut off within 20-25 cm above ground. The culm (root portion) is divided into slips containing 2-3 tillers. The lower sheath is removed to expose young roots and the old roots are clipped off keeping the slip 25-30 cm long.

### **Spacing**

Spacing 45 x 45 cm in plains or 60 x 45 cm in sloppy land with a requirement of slips 45,000- 50,000/ha. Planting is done in May-June. However, with irrigation planting can be done during any month of the year except December-January. One or two slips are planted into each hole, about 5-8 cm deep. It is better to plant on ridges in high rainfall areas. Slips are transplanted firmly into the ground. Plants get established well within 25-30 days after planting. Manures and fertilizer application: FYM: 10 t/ha to be applied and mixed well at the time of final land preparation.

### **Fertilizer**

N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O-150: 60: 60 kg/ha/year should be applied along with adequate quantity of organic matter. Before planting, the field is thoroughly prepared and the full dose of phosphorus and potash is incorporated. The nitrogen is applied in six equal split doses at two monthly intervals. For economic use of fertilizers the soil should be analyzed first. Irrigation is given immediately after planting when planting is done in dry days. Thereafter two irrigations are given at 10 days interval to establish the crop. During dry season after each harvest one irrigation and subsequently application of recommended dose of fertilizers are to be followed for optimum herb production. For undulating areas sprinkler irrigation is advisable.



### Weeding and interculture

Lemongrass has the weed suppression capacity. One hand weeding at 25-30 days followed by one hoeing at 40-60 days after planting is enough to control weeds. After each harvest a nominal weeding and earthing up of plants is beneficial for the next flush.

### Mulching

Distillation waste (spent grass) applied as organic mulch @ 3 tons/ha in between the rows has been found very effective in controlling weeds and maintaining soil moisture as well.

### Pests and Diseases

Lemongrass may be attacked by leaf blight caused by *Carbularia veruciformis* that can be controlled by benzimidazole like Benlate 50 WP at 0.2% @ 550-750 litre/ha at 10 days interval. The most important pest is scale insect, which produces yellow spot on the stem and sucks the sap of the leaves and stem. The insect can be controlled by spraying 0.5 % Dimethoate.

### Harvesting and yield

- The plants are perennial in nature and can give crop uptown 5 years. Harvesting is done by cutting the grass 10 cm above ground level.
- During the first year of planting 30 cuttings and in subsequent years 5 to 6 cuttings are obtained. The first harvesting is done in about 90 days

after planting and subsequently at 50-60 days intervals.

- The harvested leaves can be stored under shade for three days without much adverse effect to the oil yield or quality of oil.
- They are then chopped into smaller pieces before distillation. We may obtain an herbage yield of 15 tonnes per harvest and a recovery of 0.5% oil from fresh grass.
- The yield of oil from second year onwards would be about 375 kg per hectare.