

Cultivation of Java Citronella

Botanical Garden: *Cymbopogon winterianus*

Introduction: *Cymbopogon winterianus* (Java Citronella) is used extensively in the perfumery industry and is an important source of high grade aroma. Oil of citronella is a raw material for manufacturing of aromatic chemicals such as citronellal, hydroxy citronellal, Ester of geraniol and is therefore considered more important. This oil is mainly used in manufacturing of soaps, cosmetics and mosquito repellent creams. The oil is found to be effective against certain micro and macro organisms. The deoiled grass is used in mulching, as fuel in distilling the oil and manufacture of rough paper boards. This multicut crop provides around 5 to 6 cuttings with an essential oil yield of about 200 kgs from one hectare.



Citronella



A clump of Citronella

Climate: It thrives well under tropical and sub-tropical climate with a relatively high rainfall (200 - 250 cm) and high humidity. Abundant moisture and sunshine are the two factors that influence the plant growth, yield and quality of oil favourably. When grown at temperate condition might retard the growth and yield.

Soil and land preparation: Citronella grows best in sandy loam soils with abundant organic matter and ideal pH of 5-7. Well-drained soils are highly suitable for this crop. In nutrient poor soil, 10-15 tonnes of FYM may be applied at the time of ploughing. The ideal time for planting is May-June in case of rainfed condition and can be extended up to September if enough rainfall is received during this period. Planting during heavy rainy days should be avoided to reduce mortality of the crop.



Farmers preparing the land for plantation

Planting: The slips are planted at a spacing of 50x40 or 60x30 cm line to line and plant to plant. However, in areas where the soil is highly fertile and the climatic conditions support luxurious growth, a spacing of 90 cm x 90 cm may be followed. One slip can be planted in each hole. However two to three slips planted in each pit enhances the growth rate of the crop. The slips should be taken from healthy, vigorous and young clump and should be planted soon after the clumps have been dug up and the slips have been separated out. If the planting is delayed, the slips may partially dry up resulting in poor plant population. Soil moisture should be maintained till the crop establishes. 66000 slips are required to plant on one hectare area.



Nurseries



Slips



Newly planted slips

Weeding: The Citronella plants are susceptible for weeds competition during the first month after plantation. This problem is more severe in rainy season. The plants should be kept weed free for 60-75 days for good growth.



Citronella plantation in plain area



Citronella plantation on the hills

Harvesting: First harvesting, after 4-5 months from planting and in subsequent second or third year, after 3 months interval. Harvesting is done 6"-8" above the ground level. Harvesting is done by sickle and cut at 15 cm above the ground. Cutting close to the ground results into mortality of the plant.



Harvesting

Distillation: It takes around 3-4 hours to distil the oil from the herb in field distillation units.



Citronella Oil after distillation



Distillation unit

Yield: The annual crop yield is around 20-22 tonnes biomass from one hectare. The average oil recovery is 1%. Hence the oil yield is about 200-220 kg/ha/year. A crop under average management should not yield less than 200 kg oil/ha/year.