

Palmarosa

Harvesting

The essential oil is distributed in all parts of the grass, viz., flower heads, leaves and stems, the flower heads containing the major portion. It is recommended to harvest the crop 7-10 days after opening of flowers. The number of harvest depends upon the climatic condition of the place of cultivation and method of crop management. During the first year, usually one crop is obtained in October-November, whereas 2-3 crops are obtained in the subsequent years in subtropical areas in the North Indian plains. Four harvests are taken in tropical areas of South and North-East.

Usually, the grass is cut at a height of 5-8 cm from the ground level and the whole plant is used for distillation. The maximum yield of oil is obtained when the entire plant is at a full flowering stage. The harvested herbage is spread in the field for 4-6 hours to reduce its moisture by 50% and such semi-dry produce can be stacked in shady cool space for few days without much loss of its oil.

Yield

Palmarosa plantation remains productive for about eight years. However, the yield of grass and oil starts decreasing from the fourth year onwards. It is, therefore, recommended that the plantation be kept only for four years.

Normally 200-250 q/ha of fresh herbage is obtained in first cutting and between 250-320q/ha in second and subsequent harvests upto three years under irrigated conditions. On an average, 200kgs of oil are received during the growing period of 15-16 months.

The yield of oil for the first four years is as under :

1st year 60kg/ha

2nd year 80kg/ha

3rd year 80kg/ha

4th year 80kg/ha

Uses

Oil of Palmarosa is used in perfumery, particularly for flavoring tobacco and for blending of soaps due to the lasting rose-note it imparts to the blend. It also serves as a source for very high grade geraniol.

Geraniol is highly valued as a perfume and as a starting material for large chemicals, viz., geranyl esters that have a permanent rose-like odour.

Distillation

The grass is either distilled afresh or is allowed to wilt for 24 hours. Wilting reduces the moisture content and allows a larger quantity of grass to be packed into the still, thus economizing the fuel use.

The current method of distillation adopted in Kerala is primitive and obsolete and gives oil of poor quality, as it is based on hydro-distillation or direct-fired still. For good quality oil, it is advisable to adopt steam-distillation.

The equipment for distillation consists of a boiler to produce steam, a distillation tub, a condenser and one to three separators.

The distillation tub is made of mild steel and has a perforated bottom over which the grass rests. The tub has a steam inlet pipe at the bottom. A removable lid is fitted on to the top. Charging and discharging can be done in perforated cages with iron chains, which can be lowered in the tub with the help of a chain- pulley block. Different types of condensers are available, but tubular condensers are better than others. The condenser is provided with an inlet and outlet by means of which cold water is made to flow through the chamber to cool the pipes when the distillate flows through them.

To obtain the maximum yield of oil and to facilitate release of oil, the grass is chopped into shorter lengths. Chopping the grass has further advantages that more grass can be charged into the still and even packing is facilitated. The grass should be packed firmly as this prevents the formation of steam channels. The steam is allowed to pass into the still with a steam pressure from 18 to 32 kg in the boiler. The mixture of vapours of water and Palmarosa oil passes into the condenser. As the distillation proceeds, the distillate collects in the separator. The oil being lighter than water and insoluble floats on the top of the separator and is continuously drawn off. The oil is then decanted and filtered.

Small cultivators can use direct-fire stills, but in such cases, properly resigned stills should be used. These stills are provided with a boiler at the bottom of the tub. This is separated by a false bottom from the rest of the tub. Water is poured at the bottom of the tub and grass is charged in the top portion. In the still, the water does not come in contact with the grass.

The oil is stored in containers, preferably of glass or well-tinned iron. Containers should completely be filled to exclude any air and protect from sunlight as they affect the oil content.

