AN OXFAM FUNDED INITIATIVE

FACTSHEET ON LEMONGRASS

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Why We Chose LEMONGRASS?

Lemongrass, barbed wire grass, silky heads, Cochin grass or Malabar grass, is a native from Sri Lanka and South India. Lemon grass is now widely cultivated in the tropical areas of America and Asia. In India Lemon grass (*Cymbopogan flexuosus*), is widely cultivated in the states of Kerala, Karnataka, Tamil Nadu in the southern region, parts of Uttar Pradesh and Uttaranchal in the northern region and Assam in the north-eastern region. At present, East Indian lemon grass (*C.flexuosus)* is mainly cultivated in the western part of India. India is the largest producer of lemon grass and about 80% of the produce is being exported. The essential oil is being traditionally exported to West Europe, U.S.A. and Japan.

The crop grows well in both tropical and sub-tropical climates. However, ideal conditions for growing lemon grass are warm and humid climate with sufficient sunshine and 250-330 cm rainfall per annum, evenly distributed over most part of the year. A temperature ranging from 20-30^0 C and good sunshine throughout the year is conducive to high crop yield. Lemon grass can also be grown in semi-arid regions receiving low to moderate rainfall. Lemon grass can grow well over medium fertile soils and moderate irrigation. Well drained sandy loam is most suitable for the growth of the plan. It can be grown on a variety of soils ranging from loam to poor laterite. The climate and the soil quality of Meerut district in Uttar Pradesh suits growing of lemon grass hence it was chosen to be grown.

Moreover, in India, oil of lemongrass is primarily used for the isolation of citral for manufacturing Vitamin-A and has a good market value. Citral is the starting material for the manufacture of ionones and is also used in flowers, cosmetics and perfumes. A small amount of oil is used, as such in soaps, detergents and other preparations.

Looking at the market value, we felt that growing lemon grass will improve the livelihood options of small and marginalized farmers in Western Uttar Pradesh. The farmers were also fed-up spending huge amounts on fertilizers and pesticides. This cost is often a great strain to small and marginalized farmers whose return farming often does not exceed Rs 1500 a month. Moreover, this will give an impetus to the farmers to come out of the practice of monoculture-growing only sugarcane. The soil condition and the overall environment will improve.

References:

- Binita Saha, Dr. Avdesh Mishra, Dr. Aashish srivastava, *Uttranchal me Javik Kheti,* Dr. K.L. Chadda, A Handbook of Horticulture, pages 618-619
- Handbook of lemongrass by NEDFI; http://www.Grolink.se/epopa/publications/lemongrass.pdf
- Judith C Evans, Container of gardening- growing of lemon grass.
- K.K. bakhru; Herbs that Heals, pages 218-219
- Organic Lemongrass- A guide for small holders
- Shadab, Q. Hanif, M. and Chaudhary (1992), Antifungal activity by lemongrass essential oils
- Simon, J.E., A.F. Chadwick and L.E. Craker, 1984, Herbs: the scientific literature on selected herbs and aromatic & medicinal plants of temperate zone, Archon Books, pp-770
- www.scribd.com.doc/548848/lemongrass
- http://assamagribusiness.nic.ie/NEDFi/map8.pdf
- *http://aaqua.persistent.co.in/aaqua/forum/viewthread?thread=8739*

United We Stand

At present almost 800 farmers are associated with the project. The farmers are from Rohta, Kharkhauda, Machra, Parikshitgarh, Hastinapur and Rajpura blocks and in Meerut district. We envisage that in the coming months more and more farmers will be drawn to growing lemongrass in the area.

The villages under each block are as follows:

Parikshat Garh	**Narangpur , Khatki, Ganwada, Aasifabaad, Meerpur, Amarsingh pur, Badhla 8, chitwana, samarpur, gasepur, dayalpur, kila, saundat, atalpur, ahmadpuri**
Kharkhoda	**Atrada, Khaspur, Atola, Kaili ,Sudama, Namanpura, Rajpura, Bagholi, Chawri, Khadkhodi, Bijoli**
Rajpura	**Samarpur, Naglamal, ganwadi, chilaura, Meghrajpura , Aalampura, Maukhas,**
Machra	**Bhattipura, maharajpur, khedawali, hasanpur, bahawarpura, khedawali, machra**
Rohta	**lauhar garh, raasna, mirajpur, kalian, pooth, ghirota, dalampur, balam, mahroli,**
hastinapur	**Malipur, Aidalpur,adalpur Kheda, Dandi, hastinapur, Chatwala, Jhakoda, saifpur,**
Nagala	**KhodRai, Jheelkar, Malipur , Ikwara, Pali, dayalpur, Dandi, Latifpur, Bhaiswala**

Step Towards Sustainable Agriculture: Organic Farming

Janhit Foundation has been assisting farmers in practicing organic farming. Presently, around 1500 farmers are associated with the organization in practicing organic farming.

Janhit Foundation distributed 100000 saplings amongst the farmers. Saplings are planted at a distance of 45 cm in rows, 50 cm apart. It is better to plant on ridges in areas receiving high rainfall. In case of rooted slips one or two slips are placed into each hole, about 15 cm deep. Slips are transplanted firmly into the ground. This is done on February and field is irrigated immediately after planting. Intercropping of lemon grass with sugarcane is successfully implemented.

Organic fertilizer used are Jeevamrit, Vermi Compost, NADEP Compost, FYM, Green Manure, Azatobactor and PSB. Bio Pesticides that are used are Bebaria Besiana, Trycoderma and herbal spray. There are no fixed intervals for spraying as there are no adverse impacts and is done as per requirement. So far there are no unmanageable pest attacks.

Along with growing lemon grass we introduced the concept of organic farming to the farmers helping them to see that farming is not just about growing a single crop-sugarcane but it envisages the entire farm. It leads to environment friendly methods of organic waste disposal. It will reduce environment pollution, toxic effects due to use of pesticides and minerals and problems in biodiversity conservation. We also introduced mulching, crop rotation, green manure, composting, organic recycling and use of animal wastes and bio fertilisers.

THE OUTCOME OF GROWING LEMONGRASS

- Provided new avenues of livelihood to rural youth through it's cultivation using intercropping
- Improved the socio-economic status of poor SC/ST community
- To protect the agriculture production through organic practices
- Janhit Foundation facilitated the sale of lemon grass oil along with neem products, ginger, garlic and turmeric and
- There was an income enhancement ranging from 15-30% amongst the farmers

The Distillation Unit

We set up a distillation unit at Atrada village in Kharkhauda block. The unit covers an area of 1 acre. 4 people are employed in the unit of which 2 are women. They are paid a monthly salary of Rs 12000.00 (3000 per month). Their main work is operating the boiler, putting the raw material during oil extraction, maintenance of the unit and nursery maintenance. The unit is also used for extraction of neem oil and citronella oil.

The fresh grass is first sorted. 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. Sometimes depending on market demand the grass is either distilled afresh or is allowed to wilt for 24 hours. The advantage of wilting is that it reduces the moisture content and allows a larger quantity of grass to be packed into the still, thus economizing the fuel use.

To obtain the essential oil of lemongrass, the fresh or semi dried herbage placed in a tank and treated with passing steam under pressure. The steam that comes out from tank is then passed through condenser. The condenser receiving the steam along with the oil extracted from the herbage in the tank is cooled by circulating cold water around it. The condensed oil and water (steam) mixture is collected in a bucket type receiver. The oil is lighter than water then it skimmed off and collected on upper portion of the receiver. For the proper separation from water to oil a separator or separator funnel is used. The process is highly sensitive to the realization of the potential yield of the crop. The total process of distillation takes about 3-4 hours for extraction of one batch.

Lemongrass Yield

We found out that depending upon soil and climatic conditions, plantation lasts on an average, for six years. We noticed that the yield of oil is less during the first year. It increases in the second year and we hope that it will further increase in the third and fourth years, after which it might decline. We intend to maintain the plantation for six years. On an average, 20-25 tonnes of lemongrass are harvested per acre per annum from 4 to 5 cuttings. This yields about 70-75 kg of oil.

Marketing of Lemongrass Oil

Lemon grass oil is sold for Rs. 550/ kg. The NGO organic outlet *Aaharam* provided market linkages to all 800 farmers. The farmers earned a profit of 15-20% through Aharam in the first year and 20-30% in the second year through the sale of lemon grass oil.

Another marketing strategy that Janhit Foundation adopted is linking the farmers to the local market. The oil is sold to different buyers in Ghaziabad and Dehradun on regular basis.

Technology We Adopted

Initially we purchased saplings to be distributed at a cost of 50 paisa per sapling. Later, Janhit Foundation found that it is advantageous to raise the plantation through transplanting of seedlings whenever there is assured source of water. The transplanting of nursery raised seedlings is found to be superior to direct sowing of seeds. The saplings were raised and maintained in the nursery which was then distributed to the farmers at the time of sowing.

The Changeover

Farmers in Uttar Pradesh are used to inorganic farming involving use of lot of pesticides and fertilizers. This has degraded the soil and contaminated the water. We understood that the changeover from inorganic to organic farming is to be carried out only systematically and carefully. Organic farming may be adopted slowly in crops by reducing the dose of inorganic fertilisers rather than an abrupt change over. Hence we advised the farmers to devote few acres of land to organic farming. In the first year 92% of our farmers understood the long term benefits of organic farming and decided to devote more land to organic farming.

Our 800 farmers had to be trained in all aspects of organic farming starting from cultivation to final harvesting and obtaining certification from associations that do the monitoring. As chemicals are not used as fertilisers and pest control agents, the cultivation is labour intensive due to high labour for hand weeding and other cultural operations.

Some Facts

Common and popular names of Lemon Grass around the world.

Languages/ Regions/ Countries	Names
Bengal	Gandhabena
Myanmar	Sabalin
Kanarese	Kavanche hullu, Purhalihulla, Vasanehullu
Chinese	Mao Hsiang
Colombia	Limancillo
English	Lemon grass, Melissa grass
French	Chiendent citronelle
Hindi	Gandhatrina, Nimbu ghas
Marathi	Hirvacha, Olancha, Olencha
Persian	Chaekashmiri, Hazarmasalah
Portuguese	Herba Cheirosa, Capim de Cheiro
Sanskrit	Abichhatraka, Atigandha, Badhira, Bhutina, Karenduka, Sugandha, Jambukapriya
Spanish	Grama de limon, Limon cillo
Sinhalese	Penquin, Saira
Tamil	Karapiurappillu, Vasanappilly
Telugu	Chippagadi, Nimmagaddi, Vasangaddi

Source: http://www.botanical.com/site/column_poudhia/120_lemongrass.html

How profitable is growing lemon grass? Our field experience

S. No.	Description
Yield of lemongrass per acre	15000 to 20000 Kg
Total area under lemon grass cultivation	258 Acres
Selling price of lemon grass oil per Kg	Rs 550 to Rs 600
Cost price per Kg of lemon grass oil	Rs 200
Profit per Kg	Rs 250 to Rs 300
Profit percentage per Kg	80% to 120%

The lemon grass growers in the area complain that for some varieties of the grass, growth and re-growth stops or slows down, and it take longer time to regain good vigour for the grass. Despite this, growing lemon grass is proving profitable for the farmers. The following table shows the profit the farmers are making.