NMHS

National Mission on Himalayan Studies

GAURAS

Standard Operating Procedure (SOP)
RAMBANS (AGAVE) FIBRE MADE PRODUCES

NMHS Project: Conservation of local ecology, and degraded or wasteland management through Rambans (Agave) plantation and generation of availability of resources in villages for providing base to livelihood activities.

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In view of recent global environmental issues, scientists worldwide have begun to show interest in exploiting the full potential of natural fibers and their diverse uses. There are plenty of renewable resources obtainable from the plant kingdom and a vast resource for different natural fibers viz. Jute, Banana, Coir, etc., which are abundantly available in many parts of world. However, there are still a number of other vegetable fibers which have not been used as textile fibers. From the plant kingdom, one of the abundant sources of strong natural fiber is
"Agave Americana" (Rambans). Agave Americana fibers are also called "Pita Fibers". These fibers are cellulosic in nature

The leaves are ready for harvesting from the 3rd year onwards and the older leaves with length not less than a meter are harvested. Each plant yields 40–50 leaves/year. The life cycle of the plant is up to 8–30 years. Its strong and coarse fibers, which are superior and more flexible than Manila hemp.

Rambans (Agave) is xerophytes. Suitable temperature to grow Rambans plant is 0-50 degree centigrade. Grows in any kind of soil. Suitable to grow in sloppy and waste land of hill area Rambans (AGAVE) plant generally used for Prevention of Soil Erosion, Prevention of Land Degradation, Increase Forest Cover Area in the Region, Increase Green Belt in State Through Villages, Increase of Fibre yield in the Villages, Recently Rambans (AGAVE) plant is using to beautify waste land (sloppy, non suitable land for agriculture) near the villages in Uttarakhand. For future Rambans plantation will be beneficial to SHG's to create opportunity for income generation in villages of uttarakhand.

Developed Products - 14 bag, folder, hat, cap, traditional cap, p-cap, clutches, slings, pouches, passport holder, lamp shades, cushion cover, holders, hangings, souvenir, eco-jewelry, hammock, floor cover, handmade paper, etc.

Step 1: Nursery establishment to develop Ranbans suckers or Bulbils

L- D epend on field seize
B - 1 M – 1.5 M
Soil - Normal or 20% sand+ 60 soil + 20% organic compost (peoples can purchase from Farmers/ collectors of Rambans plants in Uttarakhand or can contact us)

Step 2: Plantation of Rambans plants

5000- 7000 plants per Hac Every type/kind of Waste land (land not used for agriculture),
Sloppy hill area, land slide prone area, soil erosion affected area, at boundaries of their agriculture land etc can be used for Rambans plantation

Step 3: Plantation Process-

Plant Species: Rambans "AGAVE' -Sislana, Americana,Cantula, etc
Plant Parts Utilization: Leaf/ Stum/ well developed bulb
Active Compound: Cellulose
Cost/ Plant: Rs 15/
Cost / suckers- bulbils: Rs 15 – Rs 5
Plantation / Hac: 5000-7000 plants
Conditions / Soil: 60 % Normal + 20% sand + 20% Organic Compost for nursery

- Normal soil for plantation (0- 50 degree centigrade temp. for plantation)

Growing Methods: Root depth as per bulb size,

- Monsoon session
- Generally no pesticides required

Weeding hoeing: Frequently in every 7 days during nursery time

- In every six months after plantation

Harvest crops: In every 8- 12 months

- Methods (in Step) less efforts required (save from domestic animals, Forest fire)

Management: post harvesting
Plant Yield: Life cycle of Rambans plant depends on climate (in hill area 10-14 years Life reported)

Step 4: Fibre Extraction machine Establishment

Decorticator for Single person operated Two person operated (Can purchase from market or we can develop advance version as per demand)

Step 5: Fibre Extraction/collection/ Fibre keeping

It required few technical training session

Step 6: Fibre collection

Fibre Extraction :
(A) Manual method/ Traditional method- Not in use
(B) Mechanical method - In use decortications process (through Decorticator machine)
Price of machine : Rs 60000 – Rs 80000 (for dual person capacity) 30-35 kg per day
Accessories : Shade / water tank / Dispose pit / Drying machine or open dry process/ Brushing machine/ Packing tools/ Gloves /Apron etc
Man power : 10-15 people (02person to operate double decorticator machine +01 for Cleaning pulp + 05-12 person for cutting the leafs (for five hactare)
Chemical/Tools : No chemical required/ Cutting/ collection & binding tolls required
Collection/ Keeping : manual collection method
Methods of fibre: Dry conditions required for keeping processed fibre
Per hectare agro - business:
Input: Rs 75000 – Rs 105000 one time investment in plantation
Output: Rs 50000- Rs 75000 per hac per Annum (for 10- 14 years) in terms (input–Output) of fibre collection **from waste land** (value addition could increase the income)

Step 7: Preparation of base material (SHEETS OR STRING)

It required several training session for making different types of Rambans fibre sheet, different type of string for different uses.

Step 8: Economic Valuation:

Rs 450000/ year/5 hac waste land after 2 year of plantation.

Step 9: Start production

Possible products: Handicraft /Paper/insulated material for furnishing etc.
Various type of bag, folder, hat, cap, traditional cap, p-cap, clutches, slings, pouches, passport holder, lamp shades, cushion cover, holders, hangings, souvenir, eco-jewelry, hammock, floor cover, handmade paper, etc.

Step 10: Marketing Strategies:

Collection/storage for nearby market
Collection/storage for exhibitions
Order base supply (domestic market& online market)