

INDIGENOUS MANAGEMENT PRACTICES OF HOGLA (*Typha elephantina* Roxb.) IN LOCAL PLANTATIONS OF FLOODPLAIN AREAS OF BANGLADESH

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ABSTRACT

An explanatory study was conducted on the indigenous management practices of *Hogla* (*Typha elephantina* Roxb.) in Noakhali Sadar upazila locating in the south-eastern part of Bangladesh over a ten-month period from February to November 2005. A multistage random sampling method was applied for the study. The study mainly focuses on the cultivation of *Hogla*, its processing, marketing, using patterns and potentialities for socio-economic upliftment in rural areas. The farmers used three different sites for *Hogla* cultivation i.e., fallow land, low-lying land and agricultural land. Planting materials usually used for propagations are rhizomes (98%) and seeds (2%), which are mainly collected from the farmers' previous *Hogla* plantation, neighbors and markets. *Hogla* is an annual crop and requires low investment and labor compared to other agricultural crops. In addition *Hogla* fields can simultaneously also be used for the production of other agro crops. No specific rules were found for cutting *Hogla*. After harvesting *Hogla* leaves are sorted, dried and gathered, bundled and transported to local markets for sale. Standing *Hogla* fields were also found to be purchased by the traders. Farmers can earn on an average US\$5/decimal of land by *Hogla* cultivation and thus it can play a significant role for socio-economic upliftment in rural floodplain areas of Bangladesh.

Key words: *Hogla* (*Typha elephantina* Roxb.), Floodplain areas, Bangladesh and Indigenous management practice.

INTRODUCTION

Bangladesh, possessing an area of 14.75 million hectares, is mostly composed of flood plains (80%) except some hilly areas (12%) concentrated in the east and southeast of the country. From land use point of view, 9.12 million ha are under cultivation, 1.91 million ha under public forest, 0.27 million ha under village groves and 1.64 million ha remain constantly under water. The other land areas (1.81 million ha) are occupied by tea gardens, fallow lands, rural and urban houses, ponds etc. (Kibria *et al.*, 2000). The increasing population, food shortage, poverty and unemployment in Bangladesh, are exerting tremendous strains on the country's scarce resources, especially cultivable lands and forests (Planning Commission, 1998). About 85% of the total population lives in rural areas of the country (BBS, 1997), among whom 56% is effectively landless (World Bank, 2000). So, the rural people seek supplementary production systems for the enhancement of their income on a sustainable basis to support their livelihoods (Anon, 1991). Due to the low productivity, higher investment requirements and uncertainty in the traditional crop cultivation, the rural people are now searching for non-traditional crops in their agricultural lands. *Hogla* cultivation is one of them. *Hogla* collection, transport, trading, weaving and the marketing of finished products provide a source of income and livelihoods to the poor people in rural areas.

Hogla, local name for a bush-like small plant, *Typha elephantina* Roxb. of family Typhaceae (Dey, 1995). The plants look like grasses and may attain heights from two to five meters. The leaf blades are flattened and composed of aerenchymatous spongy tissue. The plant produces huge quantity of pollens. These grasses have fibrous root systems. *Hogla* grass is extensively used to make mats. Baskets, ropes and different kinds of handicrafts are also made out of the dried materials. Naturally *Hogla* is widely grown in Bangladesh, India, and Myanmar (Khair, 2004). In Bangladesh it is frequently seen in the Northeastern part of the country especially along the banks of rivers and canals. It is an abundant

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NWFP species found in the mangroves and tidal forests of coastal belts adjoining the Sundarbans (Basit, 1995).

Till now, no extensive study has been carried out to identify the indigenous management practice of *Hogla* cultivation in the rural areas of Bangladesh. For a rural development practitioner the knowledge of indigenous practice in *Hogla* cultivation is of immense importance in order to find out the potentials and limitations of this cultivation system. We hypothesized that the farmers of the low-lying rural areas of Bangladesh practices a particular pattern of indigenous *Hogla* cultivation. The study identified the distribution of *Hogla* in village landscape, planting materials and their sources, cultural operation, processing, marketing and its using patterns in the rural areas of Bangladesh.

MATERIALS AND METHODS

The study was conducted in Noakhali Sadar upazila (sub-district) of Bangladesh, over a ten-month period from February to November 2005. The upazila lies between 22°44' and 22°55'N latitude and 91°01' and 91°14'E longitude (Khan and Hossain, 2003). The total annual average rainfall of the area is 3205 mm. July is being the wettest having an average of about 781 mm of rain, while December is the driest with no rainfall. May is the hottest month having an average maximum temperature of around 42.2°C, while January is the coldest when the minimum temperature drops to about 6.7°C. The relative humidity is about 74% during December while it is over 90% during July-August. Soil is loamy with a pH of neutral to slightly basic. Drainage facility is poor having a waterlogged condition (SRDI, 1999).

A multistage random sampling method was applied to locate the village and households for the study with upazila as the primary sampling unit and the households of the villages as the ultimate sampling unit. From a total of 18 unions in the upazila, two unions were selected randomly. From every union, two villages forming a total of four were selected. The total number of households in the four villages was obtained from the District Census published by the Bangladesh Bureau of Statistics. Then a preliminary socio-economic survey administering a pre-tested questionnaire was conducted to search out the socio-economic status of the households in the villages. From the result, the whole households were then categorized into four land holding groups, i.e., landless (<0.21 ha), marginal (0.21-0.50 ha), small (0.51-1.00 ha) and medium (1.01-2.00 ha). A total of 40 households (10 from each land holding category) possessing *Hogla* plantations were selected randomly from all of the four villages. Data were collected both by the interview and from direct observation. A semi-structured questionnaire was used to collect data from the respondents as the head of the households. On each topic the respondent was free to express his/her views. New avenues of questioning were pursued as the interview developed.

RESULTS AND DISCUSSION

Distribution of *Hogla* in the village landscape

Choice of planting site was reported to be the major criteria for *Hogla* cultivation in the study area. Three different sites namely fallow land, low land and agricultural land were reported as the planting sites (Fig 1). Irrespective of farm category, the farmers opined that the suitable land for *Hogla* production is low-lying agricultural land and the least suitable one is the fallow land. Basit (1994) also recognized the fact that *Hogla* grows in plenty in the low-lying areas of Noakhali, Comilla, Barishal, Khulna, Sylhet and in beels and haors throughout Bangladesh.

Planting materials and their sources

The study revealed that all the farmers in the study area used rhizome and seeds as planting material. Rhizomes (98%) were found to be used extensively by the farmers over the seeds (2%) (Fig. 2). The study identified three different sources of planting materials: the owners' previous *Hogla* fields, their neighbors and the markets (Fig. 3). The principal source of the planting materials was reported to be the owners' previous *Hogla* fields (94%) followed by the neighbors (4%) and the market (2%). Long

tradition of *Hogla* cultivation in the study area guaranteed the supply of planting materials from the farmers existing *Hogla* fields. They usually collect the planting materials free of cost from their neighbors.

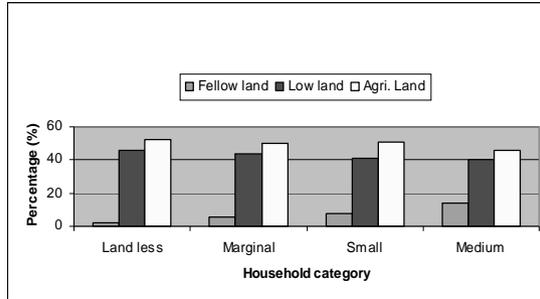


Figure 1: Planting site used for *Hogla* cultivation in the study area.

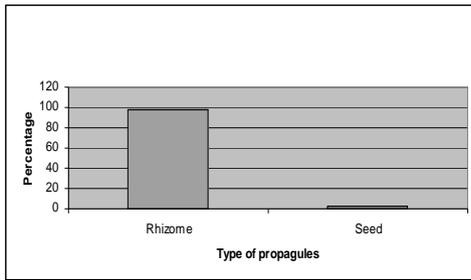


Figure 2: Planting materials used for *Hogla* cultivation in the study area

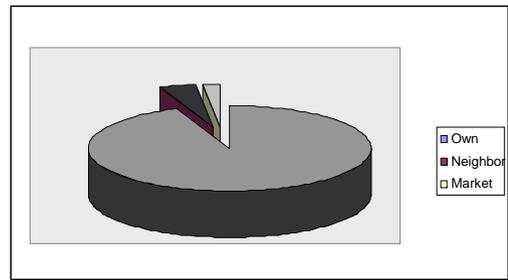


Figure 3: Source of planting materials of *Hogla* in the study area

Cultural operations

The farmers were found to practice some cultural operations for the management of their own *Hogla* fields: viz., ploughing (92%), sub soiling (22%), weeding (62%), fertilizing (12%) and pest and disease control (6%) (Fig. 4). Only landless farmers and sometimes marginal and small farmers were reported to tend their *Hogla* fields, while medium farmers didn't tend the *Hogla* fields and gave little attention to it as their livelihoods are not primarily dependent on *Hogla* husbandry.

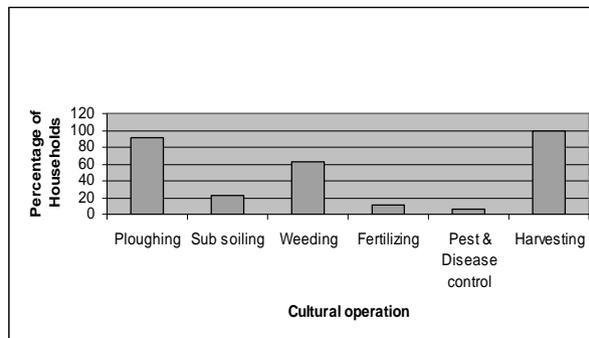


Figure 4: Cultural operation in *Hogla* plantation in the study area

Farmers usually plough their fields during the February to March when their fields completely dries up. Sub-soiling is done when *Hogla* plant attains a height of 15-20 cm. Almost cent percent of the farmers in the study area was found to conduct weeding. No regular weeding in prescribed form is practiced. Fertilizing is done rarely by the farmers. They usually apply Triple Super Phosphate (TSP) @ 1Kg/6 decimal of land containing *Hogla* Plantation. The farmers didn't consider the pest and disease as great problem in the *Hogla* fields.

Table 1: Seasonal calendar of *Hogla* plantation in the study area.

Cultural operations	Time of operation
Ploughing	February-March
Sub-soiling	April
Weeding	May-June
Fertilizing	June-July
Early Harvesting	October-Early November
Final Harvesting	Late November-January

Harvesting is usually done two times by the farmers: early harvesting is done between October and early November and late harvesting is done between late November and January (Table 1). Generally early harvesting is done to fetch a better price of *Hogla* leaf. To preserve the rhizome for the next season farmers cut the *Hogla* just over the water level of the field when field is in waterlogged condition. They were found to cut the *Hogla* leaves at 5-10 cm above the land in dry condition of the field. However, Basit (1995) reported that there are no specific rules for cutting *Hogla* at all.

Processing

After harvesting, the farmers were observed to arrange the leaves on the basis of height and quality of the leaves. The sorted leaves are allowed to dry for 3-5 full sunny days. Usually they use the roadside or other open fields for drying the leaves. After drying, leaves are bundled and carried to the local market for sale. Weaving is mainly done by women. Men purchase the raw materials, splitting and extracting the mid-rib and selling the finished product in the market.

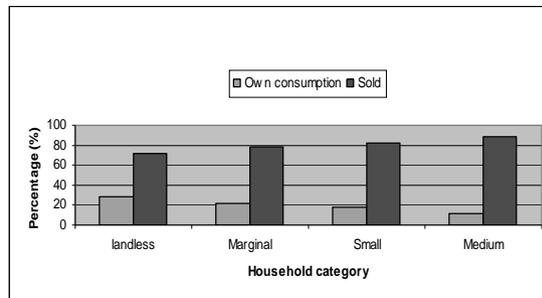


Figure 5: Percentages of households on consumption and sell of *Hogla* in the study area

Marketing

The processed leaves are reported to be the principal product for marketing. Farmers usually produce *Hogla* leaf both for own consumption and for sale (Fig. 5). Several intermediaries, operating in between the producer and the end users, acted in the marketing of leaves. Generally the leaves moved from producer through middleman to retailers and finally to end-users (Fig. 6). *Hogla* production contributes to incomes of the farmers, though *Hogla* cultivation is not the primary profession of any of these farmers. Other incomes are derived from other agricultural practice, business, from timber and other non-timber products from the homesteads.

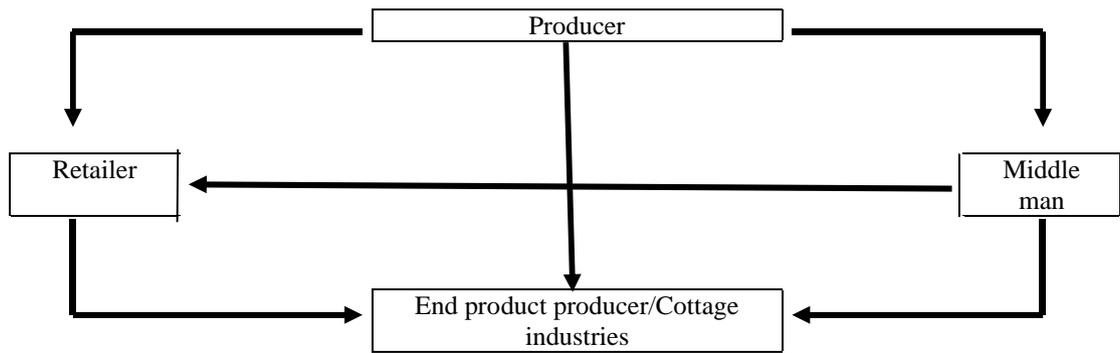


Figure 6: Flowchart of marketing channel of *Hogla* leaves in the study area

Using pattern

In the study area it was found that, *Hogla* leaves (Fig. 7 & 8) were mainly used for making mat (94%) followed by roofing/thatching purposes (14%) and partition/fencing (32%). The pollen grain of *Hogla* flowers were also found to be extracted for making home-made cakes (12%). Tender leaves of *Hogla* were found to use as fodder (22%) and the defective dry leaves were used as fuel (56%) for cooking purposes (Table 2). Such using pattern is also evident from Basit (1995). He reported that *Hogla* leaves are usually oven into mats that are used for beds, to dry crops on and for prayer mats. They are also used for making storage containers and hut walls. The young succulent leaves are a palatable forage crop for animals. *Hogla* pollen grains are collected and sold in the markets or used to make homemade cakes.



Figure 7: A *Hogla* plantation in study area



Figure 8: Sorting and drying of *Hogla* leaves in study area

Table 2: Using patterns of *Hogla* in the study area.

Purpose	Parts used
Fodder (22%)	Tender leaves
Fuel (56%)	Defected dry leaf
Roofing / Thatching (14%)	Dry leaf
Partition / Fencing (32%)	Dry leaf
Mat (94%)	Mature dry leaf
Food (12%)	Pollen grain

CONCLUSION

Hogla cultivation may be a very effective tool for poverty reduction in rural areas as it requires the least supervision, technical knowledge and involves minimum or no additional cost like agricultural crops. Besides, other commercial agricultural crops can also be cultivated in *Hogla* fields in its initial growing stage or dormant stage. From the study it was clear that, farmers can easily earn US\$5 from one decimal *Hogla* plantation and thus it can contribute to income generation of rural households as well as strengthen the country's national economy. It is supported by the fact that the value of *Murta* (*Schumannianthus dichotoma*) and *Hogla* production together was Taka 8.3 million in the year 1992 (Basit, 1995). A detailed study of *Hogla* should be undertaken examining its production, cultivation and management, in order to ensure a sustained yield sufficient to support the rural cottage industries dependent on it. Side by side, emphasis needs to be given to improve the market structure and marketing of both the raw *Hogla* and the processed products. Because marketing is an insurmountable problem besetting the development of the plant based industry in developing countries and marketability will be a crucial factor in determining the failure or success of such non-timber forest products based industries.

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