

VETIVER - AN ECONOMIC MIRACLE GRASS FOR SMALL-SCALE FARMERS IN BANGLADESH: THE PROSHIKA EXPERIENCE

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Abstract

Proshika (*pro* = training; *shi* = education; *ka* = action) is a national NGO working in Bangladesh with the poor and hardcore poor of different categories, farmers, fishermen and petty traders of both sexes. Poor farmers have limited agricultural land for cultivation. We organize them to make them aware of the social and economic implications of their situation. As vetiver is an economic grass which needs a small area for propagation, Proshika has the opportunity to develop vetiver cultivation in Bangladesh. This paper will show how familiar poor farmers are with vetiver, the genetic characteristics of vetiver for various agro-ecological zones, soil and land types, the purpose of vetiver cultivation, the economic uses of vetiver for agriculture and industry and the environmental aspect. Vetiver is an economic crop for housing material for poor farmers in Bangladesh. As vetiver needs special care for development, researchers and extension and social development workers should promote its extensive cultivation. Some social and motivational works will be initiated in Bangladesh as in Thailand and India. Zonal, national and international networks are needed for vetiver cultivation.

Introduction

Vetiver grass (*Vetiveria zizanioides*) is a plant with a deep-root system penetrating straight into the soil and spreading like an underground barrier capable of filtering sediments and protecting the soil surface from runoff, but it is incapable of propagating itself by seed. It is a perennial densely tufted grass found throughout tropical and subtropical plains and lower hills, particularly along riverbanks and over marshy land. It is ideal for soil and moisture conservation, to prevent the worsening of the environment in eucalyptus plantations or other social or reserve forest areas. In Bangladesh, this native plant is commonly known as *khus khus*, *gondhabena*, *bennashoba* or *ecorban*. The ecological situation of the country is favourable for vetiver cultivation and the plant is known to all farmers.

Background of Vetiver Grass

From ancient times vetiver grass has been found in nature in different forms or species. But modern agricultural knowledge has accelerated the popularization of vetiver grass. In the old days people or agricultural farms used vetiver as a wild grass for various purposes. Large grazing fields and perennial water bodies were covered with vetiver grass as natural vegetation. In Bangladesh wild vetiver grass is found in the boundary of agricultural lands, both in the hilly region and in the coastal belt. The marshy perennial water bodies are covered with vetiver in the upper part of the lowland. Due to population increase and to land pressure, however, vetiver grass is disappearing from some parts of the country. In modern agriculture, the economic use of land and the cropping intensity are unfavourable to vetiver growing. The farmers now use vetiver in their fallow lands and for land demarcation.

Although vetiver has been known in India since ancient times, vetiver grass was first found in Bangladesh. Unfortunately, the development of this valuable grass was not recognized in this part of the subcontinent and its growth in this country is very limited in comparison with other parts of the world. Vetiver grass is not yet recognized as a routine crop like rice, jute or wheat. The wild species are grown in cultivated lands and used as fodder and fuel.

Propagation of Vetiver Grass in Bangladesh

With modernization of agriculture, land-use patterns have changed due to the high pressure of food grains needed to feed the large and growing population of the country, and the cultivation of vetiver is not given any priority. The extension departments and research organizations have not given due importance to vetiver cultivation. The NGOs working with landless and poor people, on the other hand, are trying to emphasize the benefits of vetiver. The poor people can use vetiver as housing or fencing material, fuel and fodder for their animals; some use vetiver in cottage industries. Propagation of vetiver grass depends on the nature of the soil, land formation and economic needs. In the hill tract area farmers grow vetiver for landslide control; in the coastal areas vetiver is grown for tidal flood control; in the marshy lands, it is grown for fish production.

Economic Uses of Vetiver Grass

In the main land vetiver is grown as boundary of paddy fields to protect rice from water action during the rainy season. Engineers use vetiver for newly constructed roads or dumps for erosion control. The roads and newly raised platforms are always fenced with vetiver for soil conservation. On the riverbanks vetiver grass is propagated both for erosion control and as housing material. Small farmers use vetiver as roofing material, as fodder and for protection of their fields from water runoff or from marauding animals.

Most poor people live in *kuchha* (huts) houses made of vetiver that is readily available in the cluster villages. They use the older sticks of vetiver as fuel. Some poor women farmers use vetiver to make toys and other handicrafts at home with little capital. Hats and other domestic articles are also made from vetiver. So vetiver can create an additional source of employment and income for a poor family.

Industrial use of vetiver is not common in our country but it is becoming popular in some sectors: to make perfume, as litter in dairy farms and to protect the homesteads in low-lying areas against erosion or wave action. In the char lands the vetiver is known as *ecorban* and used as litter in big boats to carry animals.

Mechanical propagation is done by seedling, transplanting or by side extension in the same area. The propagation of vetiver grass in Bangladesh depends upon several factors: agro-ecological zone, land type, soil type, purpose of cultivation and species available (Table 1).

Table 1. Comparison of vetiver propagation in Bangladesh

Species	Agro-ecological zone	Land type	Soil type	Purpose of cultivation	Remark
<i>Benna-shoba</i> (vetiver)	Flood plain (Central part)	Highland & medium high land	Loam, silt loam, sandy loam, silt clay, silt clay loam	Land demarcation and plant protection	Not so important as cash crop
<i>Khus Khus</i> (<i>Vetiveria zizanioides</i>)	Flood plain and embankment area	Medium high land, medium low land, lowland	Silt clay loam, silt clay, clay, sandy clay	For thatching as housing and fencing material	Cash crop exchange crop or chance crop
<i>Gondhabena</i> (vetiver)	Bottom of hill area or rolling topography or plain land	Sloping land, undulated land	Clay loam, silt clay, clay, silt loam, very fine sandy loam	As fodder, fuel material, commercial use industry	High return by cash selling and soil and land conservation
<i>Ecorban</i> (vetiver)	Char land, tidal flood plain, marshy water	Unstable alluvial, lowland and	Sand, sand loam, silt loam, very fine sandy loam, loamy	For river erosion control, land	High environmental control value,

	bodies	unfilled river channel	soils.	formation, fuel, litter, fodder	for soil and land reclamation
<i>Vetiveria zizanioides (dwarf ecotype)</i>	Roadside, raised platform, embankment, pond embankment	Miscellaneous both highland and medium land or low land	Any type of soil	Newly constructed road, dam, embankment or raised platform for house	Low economic value but high value for land and soil conservation

Environmental Aspects of Vetiver

The most important part of vetiver cultivation in our country is for environmental aspects, to protect roads and dams from erosion. Fertility enhancement is sometimes done by cultivating vetiver and mixing it with alluvial deposits in newly raised char lands.

In Bangladesh vetiver grass has not yet been recognized for routine or regular crops. The agricultural research organizations such as the Bangladesh Agricultural Research Institute, the Agriculture Extension Department and the Bangladesh Agricultural Research Council do not have strong linkage with the farmers. So the further cultivation or propagation of vetiver needs strong networking.

Recommendations for Future Cultivation of Vetiver

I would like to make the following recommendations:

- Vetiver grass may be a high-value regular crop for poor farmers.
- Fallow or vacant land can be used for vetiver cultivation.
- In some areas with seasonal or perennial crops, vetiver can be cultivated for additional income.
- New varieties can be discovered by breeding local and high-yielding varieties by tissue culture.
- Commercial use of vetiver should be introduced in Bangladesh.

Conclusion

In a country like Bangladesh, where agricultural land is limited, per capita income of the poor farmers is minimum, and human resources are available and cheap, we can capitalize on this resource through an integrated approach for vetiver cultivation, extension, commercial and local uses, and to increase the production and income of the people, especially poor women. I would like to propose to undertake some pilot project for vetiver cultivation by poor women in Bangladesh.

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