

PROSPECTS OF BAMBOO CULTIVATION IN N.W.F.P.

by

A.R. Beg*

Occurrence of Bamboo in Pakistan. *Dendrocalamus strictus* (Roxb.) Nees is a tropical species. As a natural growth, it is extremely rare and is known to occur only at a very few places in Pakistan. It was recorded so far in the Margalla Hills, Nurpur Hills and Chattar, Islamabad-Murree Road, in eastern Salt Range and Shahpur, Kandi and in Billawar, Mirpur, Udhampur and Jammu upto an altitude of 800 m (Stewart, 1972). During a recent visit to Buner, the present author spotted a few clumps growing in nature also at Ambela, Maskipur and Bagra in Buner at about 800 m. The first two spots lie on raised stream banks with some damp soil and the third on a field border. A few more clumps are also reported to occur in the lower Buner. These are the only known remnants of natural bamboo in the country. This new record thus extends the western geographical limit of this bamboo from Margalla Hills to lower Buner.

All these sites lie at the lowermost altitudinal limit of chir pine at 700-800 m. This indicates that bamboo used to grow as a scattered undergrowth in forest zones, lying immediately below the chir pine forests, viz. tropical dry deciduous forests and subtropical broad-leaved forest, occupying altitudes between 350-800m, now much degraded and modified. The bamboo was, therefore, much more widespread in the country in olden times than it appears today. In its eastern geographical area in Bangladesh, too, bamboo occurs as an undergrowth in different tropical forests.

It appears that people in Pakistan are not familiar with its innumerable uses, nor do they have the sense for its utilisation. In the Buner area, it is totally neglected and even large size bamboos are not exploited. They simply fall and rot. Bamboo probably never had any utility in the area.

People not being aware of its importance, bamboo was removed ruthlessly from its habitat for some reason. Fires, too, might have contributed towards its elimination. Once expelled cut of its home, it could not get re-established due to degradation of the habitat through frequent fires, grazing and increasing drought. Whatever be the reason, bamboo suffered greatly at the hands of man, his agents and drought. The few clumps still found in area do indicate the prospects bamboo has in the country.

Prospects of Cultivation of Bamboo in N.W.F.P. Bamboo is a commodity which is available in short supply but has a great demand. Gap in demand and supply being great, prices of bamboo have gone exorbitantly high. This situation is in spite of the fact

* The author is Forest Botanist at the Pakistan Forest Institute, Peshawar.

that bamboo is coming from the Punjab where it is raised on experimental basis in irrigated plantations. It, however, meets with only some of the demands of the country. Bamboo supplies formerly used to come from Bangladesh.

There is no bamboo cultivation in the whole of N.W.F.P. where-as it has great prospects for development and economic exploitation. There is no other plant which renders as many services to man as the bamboo. Their importance is due to strength of the culms, their straightness, smoothness and lightness combined with hardness, their hollowness and facility and regularity with which they can be split and finally due to the great variety in size.

Bamboo is extensively used in place of timber, in those parts of the world where it is available in sufficient quantities. Bamboos have the qualities required for the production of good quality pulp, paper and rayon industry in large quantities. It is used in rafts, fishing, construction of bridges, in fences, yokes, axles, brushes, pipes, knives, fans, umbrellas, toys, kites, musical implements, ladders, spear and lance shafts, bows and arrows and tent poles.

As a living plant it is used in raising hedges and as an ornamental. Tender shoots are used as pickles. Seed is also ground into flour for making bread. Leaves are much valued as fodder.

As at present, it is grown only as an ornamental here and there, at and around Peshawar, viz. Nahaki Markaz, Daudzai, Pakistan Forest Institute nursery, Governor House and the Company Bagh. It is doing very well as in nature in the Buner area. It is nearly in its natural habitat in Peshawar. Its natural range is from 350-800 m in the monsoon area. It can, therefore, easily be grown under irrigation at these elevations.

It can easily and quickly be grown and cut on a very short rotation period basis varying from two to four years. It produces sufficient new shoots every year and thus ensures a sustained annual yield under proper management. It does not require the costly operations of replanting after cutting. It is also very convenient to handle and cheap to transport.

There is another bamboo, *Arundinaria falcata* Nees growing as an ornamental at quite a few places in Peshawar. This small bamboo has been reported from Nakial near Mirpur at 1200-2400 m on shady slopes by Dr. R.R. Stewart. It may also be tried along with *Dendrocalamus strictus*. It is doing well in Peshawar wherever it grows.

Methods of Propagation. In connection with cultivation of bamboo, it is extremely essential to know how to raise them. The following account is, therefore, given for ready reference.

Dendrocalamus strictus multiplies itself in nature from seed or rhizome buds and the latter result in clump expansion. Seedlings neither like heavy shade nor can withstand heavy growth of weeds. Light shade is helpful in protecting them from drought and



Fig. 1. A clump of *Dendrocalamus strictus* (Roxb.) Nees at Maskipur, Buner.

frost. As the present subject deals with cultivation of bamboo emphasis is, therefore, laid mainly on methods of artificial propagation. They include propagation from seed, stump, rhizomes, culm cuttings, layering and transplants. These methods are briefly described below:

1. *Seed and sowing*:—Bamboo seed is not available in sufficient quantity every year because of long flowering cycle. Only mature seed is good. The maturity of the seed can be ascertained from change in colour of seed from green to yellow and finally drying out. It ripens in April/May and retains fertility, if carefully stored, for 3-4 years. It is light in weight and in the average number 950 to an ounce.

Sowing direct under forest conditions in Pakistan is not advised. If at all it is to be done, patch sowing under shade may be attempted in its habitat at the commencement of monsoon rains. The seedlings should, however, be protected from cattle and weeds. In plantations, early sowing in April is suggested as soon as the irrigation water is available. Sowing may be done in 10-15 cm deep or deeper pits either in lines 3-4.5 m apart or in patches 3 m \times 3 m and 4.5 m \times 4.5 m and cleaned of all weeds.

The nursery should be located near a source of adequate supply of water. Seed beds should not exceed 0.9 m in width for easy weeding. Soil should be loamy, well-drained, well worked and cleaned of all weeds. Sowings should be done in 1.5 cm deep rills laid 15 cm apart and covered lightly with loose soil. Repeated irrigation of seed beds and seedlings is essential for success of nurseries. Controlled irrigation of the beds is, however, necessary to ensure that the seed is not washed out. Another method is to flood the seed bed and let the water soak in and then sprinkle seed on wet soil so that it sticks. Hoeing should be done as early as possible in March/April.

2. *Transplants*. For transplanting, 1-2 year old seedlings, raised in the nursery, should be used. One year old seedlings attain a height of 0.9-1.2 m while 2 year old seedlings 1.5-2.25 m depending upon the growth conditions. Transplanting should be done with as little disturbance as possible. Nursery grown stock can give 100% success if proper care is taken. Seedlings may be planted at 6 m \times 6 m spacing in the field or closer spacing along the outer boundaries of the fields or irrigated plantations.

3. *Stump planting*:—From among the culms produced on 3-year old seedlings the most suitable ones are selected for stump and planted after monsoon rains. The method gives high degree of success.

4. *Rhizomes and offsets*:—A fresh culm with rhizome in tact is called an off-set. Offsets are prepared, from one season old culms having a portion of the rhizome with a bud, and planted. It is the only method of vegetative propagation which gives high degree success in *Dendrocalamus strictus*. The method has certain advantages over sowing and is suitable where weeds are expected in abundance.

5. *Culm cuttings*:—Cuttings from young culms with two nodes may also be tried. Success with culm cuttings is usually quite low. The method is being mentioned here, as under the present conditions, there is a great paucity of planting material.

6. **Layering**.—Burying the whole length of the stem including rhizome may be tried. It has given some success in favourable localities.

Financial Implications. No financial figures are available to support the suggestion except one. According to Masrur (1975) a plot less than one kanal at Changa Manga Research station under the control of Silva. Division, Lahore fetched a revenue of almost Rs. 9000.00 during the year 1974-75.

The proposal aims at producing the bamboo locally in large quantities, for various purposes, especially for pulp, paper and rayon. This will build up the local economy and save the foreign exchange involved in import of bamboo, if any.

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