

A NOTE ON THE CAUSES OF MORTALITY OF BAMBOO AROUND SARGODHA

Two species of bamboo have been planted by the agriculturists around Sargodha. One of these is *Denderocalamus strictus* and the other one is yet to be identified, although it is indicated as *Denderocalamus* by the Forest Botanist. *Denderocalamus strictus* is a tropical species and its extreme limit is the Margalla Hills in Rawalpindi District. It also grows naturally in the salt range. Forest Department, Punjab has been trying this bamboo off and on in irrigated plantations and a few remnants can still be seen in the Daphar, Changa Manga and Chichawatni irrigated plantations.

Following locations were visited:

Name of the Chak	Name of the owner	Species planted
84 S.B. (I)	Ch. Bashir Ahmed	<i>Denderocalamus strictus</i>
84 S.B.	Ch. Zafarullah	<i>Denderocalamus</i> spp.
90 S.B.	Ch. Sardar and	<i>Denderocalamus strictus</i>
	Ch. Safdar	<i>Denderocalamus</i> spp.

It was not possible to exactly locate the source of the bamboo planted by the farmers. It was vaguely indicated that they got rhizomes from a village near Mona Remount Depot. This source, therefore, can ultimately be traced to Daphar plantation which is close by.

Method of propagation by the farmers. Offsets are prepared from one year old culms having a portion of the rhizome with a bud and planted. This method has given them a high degree of success. Cuttings from culms with 1 or 2 nodes are also being planted either like sugarcane when whole of the cutting is buried in the soil or these are planted vertically at an angle of 45°. Yet another method adopted is removal of the bud at the node alongwith a small portion of the internode and planting the same as such in the ground. In this case too the farmers have been able to get about 25 percent success.

Symptoms. Two major types of damage were noted on the 2 to 4 year old plants. In the first case the plants start dying back from the top resulting in almost total death over a period of one year. Also new culms which are supposed to become long bamboo shoots had rotten just after attaining the size of 4-8 inches. As a result of that current year's shoots were not there at all. In the second case the plants are completely defoliated in July and early August. Damage is attributable to fungi and insects.

Damage caused by fungi. In Chak 84 (I) where only *Denderocalamus strictus* has been grown, the major damage is dieback. As a matter of fact no significant insect damage has occurred there so far. The diseased plant material on examination revealed the presence of three species of fungi viz *Poria*, *Rhizoctonia* and *Polyporus*. The pathogen was found associated with a root rot, rhizome rot and dieback disease. In case of dieback the top shoots started drying from the tip downward as well as having similar symptoms on some of the lateral shoots. A creamy white crust formed by the fungus was observed on the soil surface. On digging, the infected rhizomes showed white spongy rot. Young shoots also appeared to have died of the same disease.

Whereas *Denderocalamus strictus* requires well drained soil, the species in the area is being raised in water-logged conditions. This situation predisposes the plant to the attack and consequent spread of the disease. Not only the soil was extremely wet even at this time of the year but it remained under 1-2 feet of water for a month or so during the monsoon. That made the tissue soft, spongy and highly vulnerable to the attack of the pathogen, water acting as a medium of dispersal.

Trenching and isolation of the infected plants is very difficult under flood irrigation. It is, therefore, necessary that the diseased crop should be harvested and rhizomes dug out and burnt on the spot as a sanitary measure. The rhizomes can, however, be treated with 1:300 formalin solution (dipping for 30 minutes). These can be used for further propagation immediately after the treatment.

Insect attack. There was no insect problem in the plantation owned by Ch. Bashir Ahmad in Chak No. 84 S.B. The plants were, however, severely damaged by fungi. The bamboo plantations owned by Ch. Sardar and Ch. Safdar in Chak No. 90 S.B. and Zafarullah Khan in Chak No. 84 S.B. were reportedly heavily defoliated by a lepidopterous caterpillar during the months of July and August. The top most leaves were found rolled and tied with silken threads which contained powdery frass and excreta of the caterpillar produced last year. All these rolls were found empty and there was no other sign of fresh insect damage on the plants. After a long search a few caterpillars were found pupating and hibernating in the soil below the bamboo plants. The caterpillars were tentatively identified as *Pyrausta bambucivora*, Family Pyralidae, order Lepidoptera.

Since there was no insect population available at the time of this visit, the farmers were requested to inform the Department as and when the insect appeared on the bamboo plants. Insecticidal trials particularly with the pathogenic insecticides will be conducted against the insect for evolving effective method of its control. A large collection of the insect will also be brought to Peshawar for recording any parasite or predators of the insect pest for possible biological control. The life and seasonal histories of the pest will also be studied at Peshawar for tracing any weak link in its biology which could be used against the pest for developing silvicultural or chemical measures.

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