

TECHNICAL NOTE

STRAIGHT TREES OF *PROSOPIS JULIFLORA* (MESQUITE)
FOR DESERT AFFORESTATION

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The Mesquite, *Prosopis glandulosa* and locally known as Walayati kikar is indigenous to west tropical and sub-tropical north and south America especially in Mexico and Texas, Brazil, Argentina and Chile. It has been introduced in Australia and South Africa. In the provinces of Punjab and Sind, it was introduced in 1878. On account of its low requirement of water it has done well in parts of Baluchistan and Punjab. The species is now naturalized in almost all parts of the country. *Prosopis juliflora* was introduced in 1912 and has been planted in Lahore (Compounds of the old forest office) etc. While *Prosopis glandulosa* is occasionally a tree of 6 m high with a trunk of one meter in girth. *Prosopis juliflora* is the commonest tree form in the country.

In the beginning the Mesquite proved to be a blessing in the Punjab for clothing dry and bare hill sites in low rainfall zones but subsequently it became a weed not only in the plantations but also in the adjacent agricultural fields. The poor rate of growth in irrigated plantations such as Pirawala has been primarily attributed to stiff competition for water by Mesquite. In fact several attempts have been made to remove Mesquite from the irrigated plantations but it has defied almost all attempts being costly on one hand and on the other tenacity of the seed to remain dormant but viable and to sprout whenever overhead shade is removed and some water is available. Chemical eradication has been attempted by several scientists but it had to be abandoned due to heavy cost involved. Mechanical removal is possible but only when the people are allowed to take away the roots and shoots free of cost otherwise that too becomes very expensive. Nevertheless the species has its own advantages for cheap, fast growing fuel and charcoal which is primarily made out of the roots after stubbing out. Pods are also eaten by the cattle. That in fact is responsible for natural spread in different parts of the country as sheep and goats eat the pods and spread the seed through their dropping while roaming about in the country side.

The PFI has made an attempt to raise tree variety of Mesquite by collecting the seed from large trees growing on the roadside in Mianwali. The seed was received from DFO in 1983. It was sown in the polythene tubes in February. There was cent percent germination. It is rather difficult to get the clean seed from the pods due to sticky pulp. The pods should therefore be dried in the sun. Afterwards these should be beaten with a wooden mallet and broken into pieces. The next step is to put the individual seeds which still have a stubborn coating of pulp, into 50% H_2SO_4 for about 20–30 minutes followed by washing with tap water for about half an hour to take away all the traces of acid. The seed then should be sown in tubes just like other nursery practices.

Transplanting was done on 25-3-1983 at 2x2 m and 2 rows of 21 plants each were planted in the PFI research garden. In the beginning pruning upto breast height was done in the month of June, 1985. Also thinning was done in June 1986 leaving 16 plants in the first row and 14 plants in the second row. The plants have shown excellent form. Height and diameter recorded in 1988, on the average are 7.8 m and 9.3 cm. The seed from these straight growing trees has now been collected and more plants are being raised for further propagation. It is hoped that the seed will breed true to its parents and it would be possible to raise a large number of plants of tree variety of Mesquite for planting in arid and semi arid areas.

The Mesquite (*Prosopis glandulosa* and locally known as *Wajay*) like is indigenous to west tropical and sub-tropical north and south America especially in Mexico and Texas, Brazil, Argentina and Chile. It has been introduced in Australia and South Africa. In the provinces of Punjab and Sind, it was introduced in 1872. On account of its low requirement of water it has done well in parts of Baluchistan and Punjab. The species is now naturalized in almost all parts of the country. *Prosopis juliflora* was introduced in 1912 and has been planted in Lahore (Compounds of the old forest office) etc. While *Prosopis glandulosa* is occasionally a tree of 6 m high with a trunk of one meter in girth. *Prosopis juliflora* is the commonest tree form in the country.

In the beginning the Mesquite proved to be a blessing in the Punjab for clothing dry and bare hill sites in low rainfall zones but subsequently it became a weed not only in the plantations but also in the adjacent agricultural fields. The poor rate of growth in irrigated plantations such as Faisalabad has been primarily attributed to stiff competition for water by Mesquite. In fact several attempts have been made to remove Mesquite from the irrigated plantations but it has failed almost all attempts being costly on one hand and on the other tenacity of the seed to remain dormant but viable and to sprout whenever overhead shade is removed and some water is available. Chemical eradication has been attempted by several scientists but it had to be abandoned due to heavy cost involved. Mechanical removal is possible but only when the people are allowed to take away the roots and shoots free of cost otherwise that too becomes very expensive. Nevertheless the species has its own advantages for cheap fast growing fuel and charcoal which is primarily made out of the roots after stubbing out. Pods are also eaten by the cattle. That insect is responsible for natural spread in different parts of the country as sheep and goats eat the pods and spread the seed through their droppings while roaming about in the country side.

The PFI has made an attempt to raise tree variety of Mesquite by collecting the seed from large trees growing on the roadside in Multan. The seed was received from DFO in 1983. It was sown in the polythene tubes in February. There was cent percent germination. It is rather difficult to get the clean seed from the pods due to sticky pulp. The pods should therefore be dried in the sun. Afterwards these should be beaten with a wooden mallet and broken into pieces. The next step is to put the individual seeds which still have a stubborn coating of pulp into 50% H₂SO₄ for about 20-30 minutes followed by washing with tap water for about half an hour to take away all the traces of acid. The seed then should be sown in tubes just like other nursery practices.