

FACTORS AFFECTING ROOTING OF *POPULUS DELTOIDES* CLONES

by

ABDUL ALEEM*—MAHMOOD IQBAL SHEIKH*

Summary. A study carried out in Peshawar to find out the factors responsible for low rooting of certain clones of *P. deltoides* indicates that season of planting plays the most important role in root formation in cuttings; sandy loam soil is better than sand and clayey loam; frequency of irrigation, weekly or fortnightly has no significant effect.

Introduction. Poor rootability of some *P. deltoides* clones is well known. Some studies were conducted in 1972 in the Pakistan Forest Institute to investigate certain factors which could influence rooting. These included different soil media, position of cutting on the plant, wax coating of cuttings, frequency of irrigation and season of planting. This experiment indicated that February was the best time for raising nurseries and field plantations. (Hafiz and Sheikh, 1973). The work was continued in 1974 and 1975.

1974 Experiment

Method. Six *deltoides* clones were selected for the study on the best time for planting of cuttings, using *Populus euramericana* CV.I-214 as control:

A-65/31	I-63/51	I-72/51
I-69/55	I-90/60	I-18/62

The experiment was laid out in a randomised complete block design in the research garden at Peshawar, with four replications, keeping ten cuttings as the unit of treatment. The cuttings were planted on February 8, 16, 23; and March 2, 9, and 16.

Results. In June, 1974, the percentage of rooted and established plants for different planting dates was as follows:

Planting date Clone	February			March		
	8	16	23	2	9	16
Percentage established						
<i>P. deltoides</i> A 65/31	100	100	100	98	98	95
„ I 18/62	80	93	98	93	85	93
„ I 90/60	93	98	98	98	85	88
„ I 69/55	93	98	100	98	83	98
„ I 72/51	98	93	95	88	88	90
„ I 63/51	95	88	98	85	95	98
<i>P. euramericana</i> I-214	98	100	100	100	95	100

*The authors are Junior Silviculturist and Director, Forestry Research Division respectively at the Pakistan Forest Institute, Peshawar.

The highest percentage of establishment was for February 23, followed by February 16 and then by March 2. The results were highly significant. There was no significant difference in the rootability of the clones used.

1975 Experiment

Method. Based on the results obtained in the previous experiment, another study was started in the last week of February using the same clones. The following treatments replicated four times were applied in the form of a split plot design using 10 cuttings for each treatment:

Major treatment: 3 planting media; clayee loam, sand, and sandy loam soils.
 Minor treatment: 2 frequencies of irrigation; weekly and fortnightly.

The area was prepared for 3 soil media. Ordinary soil at Peshawar is classed as the clayee loam. For sand, soil was removed upto a depth of 45 cms. and filled back with pure sand. For clayee loam, sand and soil were mixed in a ratio of 1:1. Cuttings were planted at a spacing of 1 m \times 8 cm. The plots were irrigated at 7 and 15 days intervals, according to the experimental design.

Data on establishment were collected in June, 1975.

Results. Soil medium: As indicated by the following data, establishment was significantly superior in sandy loam (1% level) as compared to sand and clayee loam. The difference between sand and clayee loam soil was not significant:

Replication	(Soil Medium) Success percent (rounded)		
	Clayee loam	Sand	Sandy loam
1	39	37	59
2	46	46	63
3	42	41	64
4	54	52	78
Average	45	44	66

Frequency of irrigation, weekly and fortnightly, did not influence establishment significantly. Also, there was no significant difference in the rootability of the clones tried.

Reference

HAFEEZ, M. and M.I. SHEIKH, 1973. Effect of Various Factors on Rooting of Poplars in Pakistan. Pakistan J. For. Vol. 23, No. 3 July, 1973.