

PERFORMANCE OF POPLAR CLONES IN PAKISTAN

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Introduction

It was possible to get some new clones from USA and China in 1980. In order to compare their performance it was decided to start a study in Peshawar in the Research Garden.

Review of literature

Even since the introduction of poplars in Pakistan comparison of clones has been continued to find out the best ones for different ecological zones. These studies have remained primarily confined to Peshawar valley in the north, irrigated plantations in the central Indus plain and in the southern part of the country. Sheikh and Hussain (1972) based on their work in Jallo near Lahore have recommended propagation of *Populus euramericana* CV-I 214, *P. deltoides* 63/51 and I-18/62. In Peshawar P x E Sacrau 79/234, P x E I-262 and *P. deltoides* I-69/55 were considered better than the rest. In Chichawatni *P. deltoides* I-63/51, P x E I-488 and P x E Sacrau - 79/234 turned out to be good ones. Sheikh (1972) recommended continued planting of P x E I-214 in the north western part of the country but suggested that *P. deltoides* clones such as I-63/51, I-18/62, I-69/55 and I-90/60 should be given a fighting chance. This turned out to be a good prophecy when Sheikh (1983, 1985) indicated from his trials in Chichawatni that I-69/55, I-4/64, I-90/60 and I-72/58 were suitable ones for hot climate, especially I-69/55. Sheikh (1973, 1974, 1980) has reported superiority of I-63/51 over I-214 and I-021 at Changa Manga. While comparing several *P. deltoides* clones with I-214 Sheikh (1977, 1978) again found I-63/51 the best although closely followed by I-214 both in diameter and height. Sheikh (1978, 1980) planted 15 clones in Bhagat reservoir plantation in 1975. After eight years he found that diameter and height were highly significant, the above-average clones being I-69/55, I-77/51, I-63/52, I-18/62, I-214 and I-65/27. Some clones from Yugoslavia Y-511, Y-509 also did well. A number of new clones were introduced from Texas, USA in 1978 and planted in a comparative study at Peshawar. Sheikh (1982) reported that S4C1 performed better than I-18/62, S7C3 and S7C4, although it was not significantly superior.

Layout and design

Following six clones were selected for this study:

<i>Populus tomentosa</i> (China	ST 92 USA
S7C3 USA	ST 67 USA
S7C20 USA	ST 109 USA

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The experiment was replicated in complete block design with 8 replications, 30 plants in each replication. The total number of plants planted were 240. After thoroughly ploughing the area and levelling it, one year old plants raised in second stage nursery were planted on 16.2.1981 at a spacing of 3.6 x 3.6 m. The soil is deep well drained, silty clayey loam with pH around 8.0 - 8.4. Irrigation was done immediately after planting. Every year about 16 irrigation were applied, giving 10 cm depth of water each time. The following data were collected in January, 1986.

Results

Height: Means are arranged in ascending order:

	<i>P. tomentosa</i>	S 7C3	S 7C20	ST 67	ST 109	ST 92
Height (m)	8.70	11.05	11.20	11.62	11.74	12.15

1. Clones S7C3, S7C20, ST67, ST109 and ST 92 are mutually non significant but significant at 1% level when compared with *P. tomentosa*.

Diameter (cm): Means arranged in ascending order are:

	<i>P. tomentosa</i>	ST 67	ST 92	ST 109	S 7C3	S 7C20
	8.8	12.3	14.3	15.3	15.7	16.2

1. Underlined clones are mutually non significant.
2. S7C20 and S7C3 have shown the best diameter growth although they are non significant when compared with ST 109 and ST 92.

Recommendations

Propagation of S 7C20 is recommended for large scale planting in Peshawar valley.

Poplar Clonal Study of Research Garden No. II

Diameter (cm) Height (m) Data collected on 26.1.1986.

China			S7C3		S7C20		ST 92		ST 67		ST 109	
Dia.	Ht.		Dia.	Ht.	Dia.	Ht.	Dia.	Ht.	Dia.	Ht.	Dia.	Ht.
R. I	10.7	9.75	15.0	10.67	12.7	8.53	13.2	10.36	6.3	9.14	12.0	8.84
R. II	8.0	7.92	11.5	11.58	11.7	10.36	15.2	11.28	11.4	9.75	15.8	13.41
R. III	9.4	7.62	13.9	10.36	18.1	10.97	13.8	10.97	11.4	8.84	15.9	14.02
R. IV	8.2	8.23	13.9	11.28	16.5	10.97	14.8	12.19	14.5	13.11	15.5	12.19
R. V	6.2	7.62	17.3	12.19	14.7	13.41	12.1	10.67	13.3	12.80	15.1	11.58
R. VI	8.5	9.14	15.1	8.53	18.0	11.28	14.2	14.02	15.4	14.32	17.1	11.89
R. VII	7.2	7.12	17.6	12.50	15.9	11.89	14.2	13.72	11.2	11.28	13.9	11.89
R. VIII	12.4	12.19	21.0	11.28	21.7	12.19	16.9	14.02	14.8	13.72	16.8	10.06
Total:	70.6	69.59	125.3	88.39	129.3	89.60	114.4	97.23	98.3	92.96	122.1	93.88
Average:	8.8	8.70	15.7	11.05	16.2	11.20	14.3	12.15	12.3	11.62	15.3	11.74

REFERENCES

- Sheikh, M.I., and R.W. Hussain, 1972: Poplar clonal trials in W. Pakistan. Pak. Jour. For. 22(3): 301-309 illus.
- Sheikh, M.I. 1972: Poplar clones for large scale plantation. For. Res. Series Tech. Note 2 : 2.
- Sheikh, M.I. 1973. Study report on fast-growing species project, Italy. May-September, 1973: 75 illus.
- Sheikh, M.I. 1974: Interim results of poplar clonal trials in the Punjab. Pak. Jour. For. 24(3): 300-303.
- Sheikh, M.I. 1977: Comparison of six poplar clones for growth and survival. Pak. Jour. For. 27(2): 101-118.
- Sheikh, M.I. 1978: Sopravvivenza Ed Accrescimento Di pioppo in Pakistan. Estrata da Cellulosa Carta" N.% Marzo 1978: 17.22. illus.
- Sheikh, M.I. 1978: Performance of poplar clones under irrigated conditions in the Punjab. Pak. Jour. For. 28(2): 120-122.
- Sheikh, M.I. 1980: Performance of some exotic poplar clones in Pakistan. Proc. Int. Forestry Seminar Kuala Lumpur, Malaysia, 11-15 November, 1980.
- Sheikh, M.I. 1980: Deltoides clone of poplar grows better than hybrids. IUFRO/MAB Conference: Research on Multiple use of Forest Resources, May 18-23, 1980. Flagstaff. Arizona, Page 152.
- Sheikh, M.I. 1982: Comparison of four clones of Poplar at Peshawar. A Tech. Note.
- Sheikh, M.I. 1985: Water requirement for optimum growth of Poplars. Pak. Jour. For. 35(3): 119-123.