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FORESTRY PLANNING & DEVELOPMENT PROJECT
Government of Pakistan-USAID

**ASSESSMENT OF POPLAR CLONES IN
THE FORESTRY PLANNING AND DEVELOPMENT PROJECT
KISSAN NURSERIES**

Research Report No.4

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INTRODUCTION

Initially the project's main emphasis was placed on eucalypts. This was in part due to the fact that the project was primarily confined to rainfed areas in the country where eucalypt was well adapted to a variety of adverse environmental conditions viz low rainfall, salinity, water logging, comparative immunity to grazing and still had a fast rate of growth inspite of these difficulties.

With the extension of the project to irrigated areas and given the availability of water from canals, tube wells and natural springs within barani areas, Poplars were considered for introduction at appropriate sites. Consideration of poplar was motived by the fact that farmers were looking for another fast growing multipurpose species and the sports goods industry had indicated its keen desire to have good quality poplar available closer to their factories.

The project decided that the best way to accomplish the introduction of poplar would be through the establishment of clonal banks and archives of desirable clones by farmers in selected areas of the project. These farmers would then make cuttings available to others in their area.

In December 1990 and January 1991, 20 different clones of poplar which had demonstrated good performance during the past were collected from the clonal archive and nurseries of Pakistan Forest Institute, Peshawar. These clones were planted at six different sites; one on government land in Khaliqdad District Attock by the project staff and at five other places by farmers. These farm sites were Samon, Fatehpur, Kulian Chak Lavera, Dogri Ghumman and Randhawa farm in Sialkot district. Detailed locations for each site are given in Appendix 1.

Except for one site, Kulian Chak Lavera, the farmers meticulously followed the instructions for management of poplar nurseries including site preparation, planting, weeding, hoeing, pruning, etc. Because of their care, the nurseries were excellent.

After one year, the performance of the clones at the six different sites was assessed. Appendix 2 illustrates the assessment form and gives all the criteria which were considered.

RESULTS:

Table 1 summarizes this performance based on the criteria of survival percentage, and diameter and height growth for selected clones at each location.

1. In general the following observations have been recorded:
 - o S7C2, S7C3, S7C4, S7C20, AY-48 by and large gave excellent performance at most of the sites. The others were rated good.

2. It has been shown that a particular clone may be excellent at one site but give only fair or average results at other sites due to one or more of the following factors:
 - o Poor site selection including hard, compact, sandy, saline or water logged soils.
 - o Lack of proper soil working, limited or no weeding, hoeing.
 - o Use of poor quality cuttings.
 - o Inadequate watering.
 - o No protection from live stock.
 - o No preventive/remedial measures against insect/fungal attacks.

RECOMMENDATIONS:

Clones Nos: AY-48, S7C2, S7C3, S7C4, S7C20, I-24/64, I-63/51 and I-72/51 should be propagated by Punjab farmers. A sufficiently large archive or clonal bank of these clones should be maintained by the Project staff of Punjab. These clones have been tested in Peshawar and Mardan valleys and have demonstrated excellent growth. Therefore they can be distributed to farmers in these areas by Project staff.

TABLE 1. ASSESSMENT OF POPLAR CLONES PLANTED IN JAN - FEB 1991 AT DIFFERENT SITES ASSESSED IN JAN 1992

KHALIQAD					SAMON				FATEHPUR					
Sl. No. of the Clone	Survival %	Growth		Assessment	Sl. No. of the Clone	Survival %	Growth		Assessment	Sl. No. of the Clone	Survival %	Growth		Assessment
		*Dia(inches) Maximum	Ht.(ft.) Maximum				*Dia(inches) Maximum	Ht.(ft.) Maximum				*Dia(inches) Maximum	Ht.(ft.) Maximum	
1 AY-48	98	1.15	14.3	Excellent	1 AY-48	99	3.5	14.0	Excellent	1 AY-48	98	1.2	12.4	Excellent
2 S7C2	99.9	1.2	12.0	Excellent	2 **S7C2	99	2.0	6.0	Average	2 **S7C2	95	0.9	9.4	Average
3 S7C3	98.6	1.2	14.0	Excellent	3 S7C3	100	2.5	10.5	Excellent	3 S7C3	99	0.7	12.0	Excellent
4 S7C4	98	1.5	15.6	Excellent	4 S7C4	100	3.0	11.0	Good	4 S7C4	99	0.8	11.0	Excellent
5 S7C20	99	1.3	12.2	Excellent	5 S7C20	98	3.0	11.5	Excellent	5 S7C20	99	1.0	12.0	Excellent
6 I-24/64	99	1.6	13.0	Excellent	6 I-24/64	98	2.75	11.0	Good	6 I-24/64	99	0.9	11.0	Good
7 I-63/51	99	1.4	14.0	Excellent	7 I-63/51	Not planted				7 I-63/51	Not planted			
8 I-72/51	98	1.2	14.7	Excellent	8 I-72/51	98	3.25	12.25	Excellent	8 I-72/51	Not planted			
9 A-65/127	100	0.8	12.0	Good	9 A-65/127	98	2.50	10.50	Good	9 A-65/127	100	0.7	13.1	Good
10 I-69/55	100	1.2	13.2	Good	10 I-69/55	Not planted				10 I-69/55	Not planted			
11 I-69/234	99	1.0	11.3	Good	11 I-69/234	95	2.75	7.5	Good	11 I-69/234	99	1.2	14.4	Excellent
12 I-72/58	99	1.5	11.0	Good	12 I-72/58	98	2.25	9.3	Good	12 I-72/58	Not planted			
13 I-262	100	1.6	13.6	Good	13 I-262	98	2.25	9.25	Good	13 I-262	Not planted			
14 ST-92	99	1.6	13.0	Good	14 ST-92	98	3.0	12.25	Good	14 ST-92	99	1.1	12.2	Good
15 Y-539	100	1.2	14.0	Good										
16 Y-517	99	1.0	10.6	Good										
17 Y-518	99	1.0	12.0	Good										
18 Y-718	92	1.1	12.5	Good										
19 Y-708	98	1.0	11.9	Good										
20 Y-514	97	1.0	10.2	Good										

DOGRI GHUMMAN					KULIAN CHAK LAVERA				RANDHAWA FARM					
Sl. No. of the Clone	Survival %	Growth		Assessment	Sl. No. of the Clone	Survival %	Growth		Assessment	Sl. No. of the Clone	Survival %	Growth		Assessment
		*Dia(inches) Maximum	Ht.(ft.) Maximum				*Dia(inches) Maximum	Ht.(ft.) Maximum				*Dia(inches) Maximum	Ht.(ft.) Maximum	
1 AY-48	95	1.3	14.0	Excellent	1 AY-48	90	0.8	9.0	Good	1 A-Y/48	98	1.1	13.7	Excellent
2 S7C2	100	1.1	11.8	Excellent	2 S7C2	Not planted				2 S7C2	96	1.0	11.3	Good
3 S7C3	100	1.2	14.0	Excellent	3 S7C3	90	0.7	9.0	Good	3 S7C3	99	1.0	13.0	Excellent
4 S7C4	100	1.3	13.8	Excellent	4 S7C4	85	0.8	7.4	Good	4 S7C4	98	0.8	12.2	Good
5 S7C20	100	1.1	14.1	Excellent	5 S7C20	95	0.8	11.5	Good	5 S7C20	Not planted			
6 I-24/64	100	1.1	10.3	Excellent	6 I-24/64	80	0.8	11.4	Good	6 I-24/64	97	1.0	13.0	Good
7 I-63/51	Not planted				7 I-63/51	Not planted				7 I-63/51	Not planted			
8 I-72/51	100	0.7	11.5	Good	8 I-72/51	Not planted				8 I-72/51	Not planted			
9 A-65/127	93	0.5	9.4	Good	9 A-65/127	98	6.8	10.2	Good	9 A-65/127	99	0.8	13.1	Excellent
10 **I-69/55	78	0.8	8.0	Fair	10 I-69/55	Not planted				10 I-69/55	Not planted			
11 I-69/234	100	1.1	12.0	Excellent	11 ***I-69/234	80	0.4	5.0	Below average	11 I-69/234	99	0.9	12.4	Good
12 I-72/58	100	1.4	11.6	Excellent										
13 I-262	100	0.8	12.1	Excellent										

* Dia. taken at 1 ft. above ground.
 ** Poor planting stock.
 *** Below average due to poor site selection and subsequent bad management.

**LOCATION OF GOVERNMENT AND KISSAN NURSERIES
OF NEW POPLAR CLONES**

1. Khaliqdad 65 Km from Rawalpindi on Rawalpindi Peshawar
G.T. Road.
2. Samon Off Wah, 10 Km bypass from Wah - Haripur Road
going through the Wah factory from Taxila.
3. Fatehpur 18 Km from Gujrat on Defence Road. Approach
from Gujrat Bhimber Road.
4. Kulian Chak 22-25 Km from Budiana (on Sialkot Pusrur Road).
Lavera Approach from Budiana to Daska Road.
5. Dogri Ghumman 12-13 Km from Sialkot-Pasrur Road.
6. Randhawa Farm 3 Km from Sambrial City on Sambrial Daska
Road.

DATA COLLECTION ON PERFORMANCE OF POPLAR CLONES IN THE PROJECT AREA

Sl. No.	No. of the clone	Survival		Growth		Habit				Stem			Subserous ribs on stem's bark		
		Total	% age	Dia Inches	Ht. Ft.	Exce-llent	Good	Fair	Poor	Very straight	Fairly straight	Wavy	Strong	Light	Absent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Fasti-gate	Growth		Branch density		Branch dimension		If the crop is uniform		Leaf shape			Leaf size			
	Open	Spread-ing	Clear	Dense	Big	Thin	Yes	No	Delto-ides	Hybrid	Inter-mediate	Very large	Large	Medium	Small
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

Leaf fall		Diseases		Vegetative vigour			Assessment				Action to be taken	Other observations		
Very early	Early	Inter-mediate	Late	Leaf	Others	Excellent	Good	Poor	Extraor-dinary	Excellent			Good	Poor
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47