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EVALUATION OF TOBACCO HYBRIDS FOR PRODUCTION OF HIGH SEED AND OIL YIELD UNDER TAMIL NADU CONDITIONS

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Tobacco seed contains about 35 to 40% oil and the refined oil is being used for edible purposes in Turkey and Tunisia (Chari, 1995). It satisfies most of the nutritional requirements for edible purposes (Thakur *et al.,* 1998). To make tobacco as an oil seed crop, there is a need to improve the seed yield as well as oil content through genetic manipulations and input modulations. The present day tobacco cultivars, directed for leaf yield, may not be suitable for high seed yield. Hence, there is a need to develop specific varieties endowed with appropriate plant frame and ideotype for maximizing seed and oil yield. The present study is proposed to find out suitable cross combination for higher seed and oil yield.

Ten germplasm accessions showing promise for higher seed yield in replicated evaluation (2006-2008) viz., A-119, A-145, Beinhart, GT-6, HP6-11, Madranski, Manila Gold, Penswar, Regional Connecticut and TN Palayam comprising chewing, bidi and cigar types were crossed with the popular chewing tobacco cultivars Bhagyalakshmi and Abirami and the resultant 22 hybrids were evaluated in a replicated trial along with Bhagyalakshmi and Abirami as check varieties during 2008-2009. Fertilisers were applied @ 75 kg N, 100 kg P_2O_5 and 50 kg K_2O/ ha. The seeds were harvested plot-wise from five randomly selected plants in both leaf unprimed and leaf primed conditions and the yield data were computed statistically. The seed oil was estimared by NMR technique.

All the hybrids exhibited significant differences among themselves as well as with check varieties for seed yield. The hybrid A-119 x Abirami recorded significantly highest seed yield of 2213 kg/ha against the check varieties Bhagyalakshmi and Abirami under unprimed condition, followed by hybrids A-119 x Bhagyalakshmi, A-145 x Bhagyalakshmi which recorded 2153 and 2042 kg/ha, respectively (Table 1).

Under primed condition, hybrid A-145 x Bhagyalakshmi registered significantly highest seed yield of 1916 kg/ha over the check varieties Bhagyalakshmi and Abirami.

The hybrids A-119 x Abirami and GT-6 x Abirami recorded significant seed yield of 1412 and 1139 kg/ha, respectively in panicle while hybrids A-119 x Bhagyalakshmia and A-145 x Bhagyalakshmi recorded significant seed yield of 1060 and 1051 kg/ha, respectively in suckers under unprimed condition. In primed condition, Madranski x Bhagyalakshmi and A-119 x Abirami, recorded seed yield of 1148 and 1065 kg/ha, respectively in panicle whereas in suckers, the hybrids A-145 x Bhagyalakshmi and Regional Connecticut x Bhagyalakshmi recorded significant seed yield of 958 and 843 kg/ha, repectively over the check varieties.

It was generally observed that most of the hybrids recorded higher seed yield in unprimed condition. Hybrids having narrow dark green leaf recorded the highest seed yield compared to broad medium green to light green leaf.

Seed oil percentage

PateI *et al.* (1998) reported that seed oil percentage in different types of tobacco varied between 35 and 39 %. In the present study, it is observed that all the promising crosses recorded oil percentage of around 31% under both primed and unprimed conditions except the cross A-145 x Bhagyalakshmi which recorded lower oil percentage of around 29% under unprimed condition (Table 1). It is concluded that hybrids

Table 1: Performance of tobacco hybrids for seed (kg/ha) and oil yield (%)

Sl. No.	Entry/Variety	Unprimed			Primed			Oil yield	
		Main	Sucker	Total	Main	Sucker	Total	P	UP
1.	A-119x Bhagyalakshmi	1093	1060	2153	861	412	1273	31.5	31.8
2.	A-145 x ,,	991	1051	2042	958	958	1916	31.0	28.8
3.	Beinhart x ,,	778	930	1708	847	440	1287	31.1	30.8
4.	GT-6 x ,,	963	667	1630	861	611	1472	31.4	31.5
5.	HP 6-11 x ,,	898	565	1463	880	361	1241	31.2	31.5
6.	Madranski x ,,	935	403	1338	1148	537	1685	31.0	31.6
7.	Manila Gold x ,,	870	718	1588	1065	593	1658	31.5	31.6
8.	Penswar x ,,	819	477	1296	801	444	1245	31.5	32.0
9.	Reg.Connecticut x ,,	681	565	1246	694	843	1537	30.6	31.0
10.	TN Palayam x ,,	843	824	1667	796	486	1282	31.3	31.6
11.	A-119 x Abirami	1412	801	2213	1065	611	1676	30.9	30.9
12.	A-145 x ,,	1000	583	1583	778	491	1269	31.0	30.4
13.	Beinhart x ,,	671	463	1134	532	319	851	29.8	29.5
14.	GT-6 x ,,	1139	616	1755	963	472	1435	31.6	30.1
15.	HP 6-11 x ,,	1014	569	1583	875	255	1130	31.2	31.1
16.	Madranski x ,,	727	671	1398	727	366	1093	31.4	31.1
17.	Manila Gold x ,,	750	435	1185	875	778	1653	31.7	31.1
18.	Penswar x ,,	917	324	1241	843	421	1264	31.5	31.5
19.	Reg.Connecticut x ,,	681	694	1375	745	556	1301	31.6	31.7
20.	TN Palayam x ,,	833	500	1333	843	644	1487	31.1	31.5
21.	Bhagyalakshmi (C)	815	370	1185	653	449	1102	31.3	31.4
22.	Abirami (C)	773	477	1250	6 67	333	1000	30.8	28.7
	SEm±	**88**	**121**	**186**	**87**	**103**	**84**		
	CD (P=0.05)	**243**	**335**	**515**	**240**	**286**	**233**		
	CV (%)	**17**	**33**	**21**	**18**	**34**	**11**		

Note: UP = Unprimed P = Primed

A-119 x Abirami, A-145 x Bhagyalakshmi and A-119 x Bhagyalakshmi are promising in reaping higher seed and oil yield under Tamil Nadu conditions. It is suggested that varieties A-145 and A-119 can be used as one of the parents in hybridization programme for achieving higher production of seed and oil.

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