

Table 3. Performance of VCP 8 (Vamban 1) in adaptive research trials during 1994-95

Districts	Mean grain yield (kg/ha)		
	VCP 8	CO 6	P 152
Dharmapuri (5)	527	463	439
Coimbatore (7)	1058	928	872
Periyar (8)	1482	1368	1421
Salem (8)	888	791	730
Madurai (4)	570	535	492
Pudukkottai (4)	873	672	640
Pasumpon (4)	653	368	634
Mean	864	732	746
% increase over	-	18.0	-
% increase over	-	-	15.8

mean grain yield of 735 kg/ha as against 612 and 529 kg/ha recorded by Co 6 and P 152 respectively. The percentage of increase was 20 over Co 6 and 39 over P 152 (Table 1).

This selection was tested in MLT along with check varieties. It recorded an average grain yield of 647 kg/ha as against 537 and 563 kg/ha recorded by Co 6 and P 152 respectively (Table 2). In ART, VCP 8 recorded an average grain yield of 864 kg/ha with 18.0 and 15.0 per cent increase over Co 6 and P 152 respectively (Table 3).

Table 4. Quality aspects of VCP-8 (Vamban-1) cowpea (mean score for acceptability 9-1)

Characters	VCP 8	CO 6	P 152
Colour	9.00	8.50	9.00
Appearance	9.00	8.50	9.00
Flavour	9.00	8.50	9.00
Texture	9.00	8.27	9.00
Taste	9.00	8.50	9.00
Protein content (%)	24.50	23.50	23.00

It matures in 55-65 days with high yield potential. It is an erect type with an average height of 25 to 30 cm. Flowers are white in colour. Pods are 18 to 23 cm long with 13-18 seeds. Seeds are white with pre-dominant brown tinge surrounding the hilum. The average grain yield is 749 kg/ha under rainfed condition. White seeded type is highly acceptable to the farmers and consumers and hence it fetches higher market price than other types. Protein content of the seeds is 24.5 per cent which is 1.0 and 1.5 per cent increase over Co 6 and P 152 respectively (Table 4). Cooking quality of the culture is also rated high. Being early maturing, high yielding, white seeded type and suitable for rainfed conditions it was released as Vamban-1 cowpea variety for commercial cultivation in Tamil Nadu.

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X7: A NEW PEARL MILLET HYBRID FOR TAMIL NADU

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ABSTRACT

The pearl millet hybrid ABH 219 (I 111A x PT 1890) was developed at Millet Breeding Station, School of Genetics, Tamil Nadu Agricultural University Coimbatore. This hybrid recorded an overall mean grain yield of 2513 kg/ha (12.4% over X6) under rainfed conditions and 3295 kg/ha (12.8% over X6) under irrigated conditions. It is resistant to downy mildew (3%), and possesses 4-7 productive tillers, high protein content (13.8%), synchronised flowering and medium grain size. The cytoplasmic background of the new hybrid is different from that of the already existing hybrid X6. Hence it was released as X7 for general cultivation in Tamil Nadu.

KEY WORDS : Pearl millet hybrid, X7, Tamil Nadu

Tamil Nadu occupies seventh position both in area and production of pearl millet (*Pennisetum glaucum* (L.) R.Br) in the country with an estimated area of 2.98 lakh ha. and production of 2.86 lakh tonnes annually. The major problem encountered

with the pearl millet hybrid is its susceptibility to downy mildew. This poses a bottleneck for increasing the yield and productivity in this crop. To overcome this problem, production of hybrid (Burton, 1958) with different cytoplasmic

Table 1. Overall mean performance of ABH 219

Details	No. of trials	Season	ABH 219	X 6	CO 7	ICMS 7703
Station trials	9	Irrigated	4190	3484	3253	3103
		Rainfed	3497	2902	2537	2542
Multilocation trials	8	Rainfed	2350	-	1885	1700
Adaptive research trials	48	Irrigated	2399	2356	2262	2297
		Rainfed	1691	1561	1631	1552
Mean	270	Irrigated	3295	2920	2757	2700
		Rainfed	2513	2232	2018	1931
% over respective check		Irrigated		12.8	20.0	22.0
		Rainfed		12.6	24.5	30.0

background (Athwal, 1965), is one of the solutions and was intensified at Millet Breeding Station. The male sterile line L 111A is stable, short in stature with long earhead and resistant to downy mildew. An attempt was made to develop high yielding downy mildew resistant hybrid using this male sterile line with proven restorers.

MATERIALS AND METHODS

Hybrid combinations were made during 1985 summer involving the male sterile line L 111A (developed at PAU, Ludhiana and homozygous inbred lines PT 1890) selected for phenotypic superiority, abundance of pollen production and downy mildew resistance. This combination was designated as ABH 219, after its superiority was found out in initial hybrid trial. (IHT). It has been evaluated extensively under multilocation trials (MLT) 8 centres) adaptive research trials (ART) (48 trials in irrigated and 270 trials in rainfed condition) and All India Coordinated programme from 1989 - 1995). The hybrid was tested for its reaction to downy mildew and ergot disease at Coimbatore.

RESULTS AND DISCUSSION

The overall mean grain yield performance of the hybrid X7 in comparison with the hybrid X6 and composites Co7 and ICMS 7703 is detailed in Table 1. In station trials, the hybrid was tested during 1985-1990 in summer and *kharif* seasons. The hybrid recorded a mean yield of 4190 and 3497 kg/ha in summer and *kharif* seasons. The increase in yield was 20.3 to 37.8 per cent over X6, Co7 and ICMS 7703 respectively. During 1988-90 under MLT yield increase of 24.7 per cent and 38.2 per cent was recorded by X7 over Co7 and ICMS 7703, respectively. A total of 318 ART (948 irrigated

+270 rainfed) were conducted with this hybrid and the results revealed that the overall superiority under rainfed situations. The overall performance of the new hybrid recorded 12.6 per cent to 30 per cent. Increased yield over the hybrid X6 and the composites Co7 X ICMS 7703 under rainfed situations and 12.8 per cent to 22 per cent under irrigated conditions. Hence, this hybrid can be recommended both for the irrigated and rainfed conditions.

The downy mildew reaction was tested under sickplot condition and it was found to be resistant by recording a score of 3 per cent whereas the susceptible check HB 3 has recorded 90 per cent. Sequential release of hybrids is a safe measure to tackle downy mildew. Hence, this hybrid can be recommended as an alternate to X6. Synchronised flowering was observed in both male and female parents. As abundant pollen is produced in male parent, the ratio of planting female and male in hybrid seed production can be altered as against 4:2. The pearl millet hybrid, X7 is early maturing in 90 days with synchronized flowering of 4-7 tillers and mean 1000 grain weight of 80-90 g. Its high protein content (13.8%), medium grain size and drought tolerance are added advantages.

In the light of the above desirable attributes, the hybrid ABH 219 has been released as X7 for general cultivation in Tamil Nadu.

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ASD20 (AS89044) : A SHORT DURATION HIGH YIELDING RICE VARIETY FOR TAMIL NADU

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ABSTRACT

ASD 20, derivative of IR 18348-38-3/IR 25863/IR 58 was released in January 1997 for general cultivation in Tamil Nadu. It recorded a mean yield of 6.7 t/ha in 110 days with 6.0 (ASD 16) to 21.2 per cent (IR 50) increased yield in *Kar* season. During late *Pishanam*, ASD 20 recorded a mean yield of 5.6 t/ha in 108 days with 12.9 (ASD 16) to 25.4 per cent (ADT 36) increased yield over checks. Its overall mean yield in 320 trials (1988-1996) was 5.7 t/ha with 5.6 (ADT 36) to 9.6 per cent (IR 50/ASD 18) increased yield over checks. The biological yield of ASD 20 was 18.5 t/ha (6.7 t/ha of grain; 11.8 t/ha of straw) and its potential grain yield was 9.7 t/ha. It is semidwarf in stature with long slender white rice. ASD 20 is resistant to stem borer, leaf folder, sheath rot and moderately resistant to blast and RTV. ASD 20 can be sown in April-July, October-November and December-January throughout Tamil Nadu and is the best alternative to IR 50.

KEY WORDS : Rice, early duration, high yielding long slender rice

IR50 is a high yielding long slender white rice variety with good cooking quality. But it is highly susceptible to blast and brown planthopper and not suitable for late *Pishanam*/late *Thaladi* seasons. Hence, to have a better variety to replace IR50 with high yield coupled with resistance to pests and diseases and suitable for late planted situations, a project was initiated at the Rice Research Station, Ambasamudram. International Rice Testing Programme (IRTP) co-ordinated by the International Rice Research Institute (IRRI), Philippines, provides World's elite germplasm around the world either for direct introduction or for use in hybridisation programme to develop varieties for specific conditions. Among the elite germplasm received through 16th IRYN(E) 1988, IR 44595-70-2-3-3 was identified as promising entry against IR 50, subjected to further selection and AS 89044 was identified.

MATERIALS AND METHODS

ASD 20 (AS 89044) is a derivative of IR 18348-38-3/IR 25863-61-3-2/IR 58 and the cross was effected at IRRI Philippines and the culture IR 44595-70-2-3-3 received through IRTP in 1988 was subjected to further selection at the Rice Research

Station, Ambasamudram and AS 89044 was identified. The culture AS 89044 was evaluated for its performance from 1988 to 1996 and also tested in multilocation trial (MLT), adaptive research trial (ART), minikit trial (MKT), and in national trial (NT).

RESULTS AND DISCUSSION

At the Rice Research Station, Ambasamudram, ASD 20 recorded a mean grain yield of 6.7 t/ha in 110 days during *kar* season (June - September 1989 to 1996) registering an increase of 21.2, 17.9, 14.0, 6.0 and 8.1 per cent over IR 50, ASD 18, TKM 9, ASD 16 and ADT 36 respectively. During late *Pishanam* (October - February), ASD 20 registered a mean yield of 5.6 t/ha in 108 days (1990-91 to 1995-96) which was 25.4, 20.4, 12.9, 19.9 and 19.5 per cent over ADT 36, ASD 18, ASD 16, TKM 9 and IR 50 respectively (Table 1).

ASD 20 was compared under different levels of nitrogen viz., 50, 100, 150 and 200 kg/ha for four years in *Kar* season (1991 to 1994). The results showed that 150 N/ha was the economical dose for ASD 20 since the recorded mean yield was 6.4 t/ha (1991-1994) which was on par with 200 kg N/ha (6.7 t/ha) (Table 2.)