

PIGMENTED HIGH YIELDING GENOTYPES FOR WILD RICE INFESTED WET LANDS

There are many rice growing areas heavily infested by the awned wild rice (*Varinellu*). Wild rice can be considered to have originated as a result of introgressive hybridisation between cultivated species *Oryza sativa* L. and the wild species *Oryza perennis* Moench. This weed in rice fields corresponds to *Oryza sativa* var. *fatua* (Nair *et al.*, 1964).

Removal of wild rice from paddy fields is very difficult due to many reasons. Identification of the seedlings of this weed being difficult, its elimination in the early stages becomes impossible through hand weeding. Very early shedding of wild rice grains does not allow complete elimination even by the adoption of costly operation of rousing. Now, with the use of weedicides in paddy fields, wild rice is becoming a major problem. Weedicides are not effective against wild rice (*Oryza sativa* var. *fatua*) which closely resembles cultivated rice (*Oryza sativa*). This problem is now greatly felt in the potential rice areas of Kerala like Kole and Kuttanad.

Cultivation of high yielding pigmented rice varieties for a few seasons coupled with hand weeding can be effectively employed in wild rice eradication without costly investments. Some traditional rice varieties of Kerala like Thavalakkannan, Chenkayama etc. have purple pigmentation on their leaf blade and sheath which will help for easy identification of wild rice. None of the popular high yielding varieties exhibits such total or partial pigmentation. With this background, a breeding programme was initiated at the Regional Agricultural Research Station, Pattambi to evolve high yielding pigmented rice varieties.

IR 1552, a fully pigmented dwarf variety was introduced from IRRI and was

used in the breeding programmes. Crosses were effected using high yielding varieties like Annapoorna and Jyothi as female parents and purple variety IR 1552 as male parent during 1983. Plants with varying degrees of pigmentation were observed in the F₂ population. Jones (1930) and Ahmed and Das (1990) have reported similar variability for pigmentation in the F₂ population. Single plant selection and progeny testing were continued till uniformity was achieved for all the selected characters. Fully pigmented cultures with red kernel colour were evaluated in replicated yield trials adopting a spacing of 15 cm between plants and 10 cm between rows. The fertiliser schedule adopted was 70:35:35 kg N, P₂O₅ and K₂O per hectare respectively.

Twelve fully pigmented genotypes with red kernel colour were evaluated during kharif season of 1988-89. From these, two cultures viz., Cul.8732 and Cul.8736 with grain yield significantly superior to that of the purple parent (IR 1552) were selected for further testing. Grain yield and yield attributes of these selected genotypes were studied during kharif seasons of 1991 and 1992. In these trials also the two selected cultures recorded significantly higher grain yield than the purple check variety. Cul 8736, from the cross Jyothi/IR 1552 recorded grain yield on par with that of the popular high yielding variety, Annapoorna (Table 1). This is a fully pigmented, short duration, dwarf rice culture with long earheads having bold grains and red kernel colour. In addition to the high yield potential, these cultures have acquired the desirable character of red bold grains which is highly preferred in some part of the country.

These high yielding purple genotypes can be effectively utilised in

areas infested by wild rice to eradicate this noxious weed, simultaneously ensuring

high yield and minimum ecological pollution.

Table 1. Mean grain yield and yield attributes of promising purple genotypes at the Regional Agricultural Research Station, Pattambi

Genotype	Parentage	Grain yield kg ha ⁻¹	Earhead length (cm)	Number of grains per panicle	1000 grain weight (g)	Grain shape	Grain colour
Cul 8732	Annapoorna/ IR 1552	3005	22.5	108	28.0	Short bold	Red
Cul 8736	Jyothi/ IR 1552	3690	24.2	128	27.0	Long bold	Red
IR 1552	Check	2045	24.2	126	25.5	Long slender	White
Annapoorna	Check	4035	22.4	115	26.3	short bold	Red
Jyothi	Check	5492	23.5	136	27.8	Long bold	Red
CD (O.D5)		710					

* Mean of three seasons

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