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NOTE

KRL 1-4 : Promising Salt Tolerant Wheat Variety

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Abstract

Trials were made in the saline soil zones with the wheat variety KRL 1-4. The variety gave better yield than the traditional variety Sonalika. The highest yield of 16.5 q/hectare and lowest of 12.5 q/hectare were obtained. This variety may be recommended as a saline tolerant high yielding wheat variety for salt affected areas of Orissa.

In India, the problem of soil salinity and sodicity covers about 4% of the total cultivated land. But considering a particular area for agricultural productivity, salinity poses a serious threat to the agricultural economy of the region. During *Kharif*, extremely low yield of paddy (*Oryza sativa* L.) is being encountered due to frequent flood, cyclone, poor management practices and use of low yielding tall local cultivars. Recently, creek irrigation net work has been widely expanded which renders wider scope for growing crops in the *rabi* season. Though mustard (*Brassica* sp.) as a second crop is more remunerative than wheat (*Triticum aestivum* L. emend. Fiori & Paol) farmers prefer the later as it provides ready made food grains. The current strategy of increasing wheat production includes expansion of area under high yielding varieties having tolerance to various biotic and abiotic stresses, intensive use of fertilizers, need-based plant protection measures, use of improved farm implements and machinery, good irrigation facilities and creation of increased awareness among the farmers by taking up appro-

priate demonstrations in farmers' fields and through organized training programs. However, in a developing country like India, application of full packages are beyond the capacity of the marginal and submarginal farmers, constituting the majority of the farming community, although they are aware of the modern practices. The farmers of the coastal Orissa are in practice of growing traditional varieties, but not a single traditional variety of wheat was found to be salt tolerant. Under these circumstances, replacement of a traditional variety by improved saline tolerant cultivar is the only alternative to address to the problem of wheat growing in saline prone areas of Orissa. Efforts were made to evaluate saline tolerant wheat varieties using creek water irrigation.

During *rabi*, 1990-91, 27 wheat minikit demonstrations were conducted with cv Sonalika and KRL 1-4 by the farmers of different hot-spots scattering around the saline research station, Motto, Bhadrak of Orissa University of Agriculture and Technology. farmer's practices for both the improved (KRL 1-4) and popular traditional variety (Sonalika) were followed. Generally the farmers broadcast the seeds with no manures and fertilizers.

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Table 1. Mean yield (q/hectare) of improved and traditional varieties of wheat under on-farm trials with farmers' practices.

Demonstration site	Area under each demonstration (Sq m)	Number of demonstrations	Average yield (q/ha)		Superiority over Sonalika (%)	Days to maturity	
			Sonalika	KRL 1-4		Sonalika	KRL 1-4
			Narendrapur	500		7	14.2
Nugaon	500	15	11.8	15.8	32.1	91.0	95.0
Itua	500	3	10.2	12.5	22.3	92.0	97.0
Mahaliksahi	500	1	9.9	16.5	63.3	91.0	97.0
Palashpur	500	1	11.0	15.5	40.9	87.0	90.0
Overall mean			12.2	15.5	27.0	90.3	94.5

Only 50 kg N per hectare is applied in two equal splits at the time of tillering and PI stage. Usually, farmers do not weed at all or make seldom one hand weeding if convenient. The plant-stand remains uneven because of heavy clay texture and resowing is not practicable. No plant protection measures is generally adopted. Three to four creek irrigations in practised by the farmers in general.

The above two varieties were also evaluated in the research station adopting improved technologies, involving recommended package of practices like seed treatment by fungicides, timely sowing, line sowing, maintaining adequate plant population, at least two weeding

(one at crown root initiation and another before foliar nitrogen application at pre-flowering stage), application of optimum doses of fertilizers and manures, six irrigations at different critical stages and plant protection measures as and when required.

In all the sites, the improved variety KRL 1-4 gave better yield than the traditional variety Sonalika (Table 1). Highest yield (16.5 q/hectare) of KRL 1-4 was recovered at Mahaliksahi and lowest (12.5 q/hectare) at Itua. Overall mean yield of 15.5 q/hectare with an advantage 27% increase may be ascribed to the inherent high yielding potential of improved variety under saline soil. KRL 1-4

Table 2. Contribution of varieties under farmers' practices and recommended package of practices in On-station trial.

Treatment	Area (Sq m)	Yield (q/ha)	Increases (q/ha)	Yield (%)	Cost-benefit ratio
Traditional variety (farmers' practices)	500	12.89			
Improved variety (farmers' practices)	500	16.53	3.64	28.2	1 : 17
Traditional variety + recommended package of practices	500	15.37	2.48	19.2	1 : 5.8
Improved variety + recommended package of practices	500	21.45	8.56	66.4	1 : 9

was at par or a bit later than Sonalika in maturity. The yield performance of improved and traditional variety under on-farm trials was at par with on-station trial with farmers practice. It is worth to note that replacement of traditional variety by improved one (Table 2) increased the yield by 28.2% as compared to 27% under on-farm trials and resulted in maximum cost-benefit ratio (1 : 17). A preliminary evaluation of available traditional and improved varieties under saline soil indicated higher yield potentiality of KRL-1-4. Similar beneficial effects of transfer of technology were recorded by Singh (1) in oil seeds with on-farm trials.

These on-farm trials were simple to demonstrate to the farmers and more easily adoptable as these involved simple replacement of traditional variety by improved one and bring about maximum economic return and cost-benefit ratio. Thus, the variety KRL 1-4 may be recommended as a saline tolerant high yielding wheat variety for the salt affected areas of Orissa and other parts of India as well.

Reference

1. Singh B. 1989. Transfer of technology and on-farm trials of rapeseed and mustard. Proc. of IDRC oil crop net work held at pantnagar and Hyderabad, India, 4-17, Jan. pp. 24-29.