

## COMPARATIVE PERFORMANCE OF DIFFERENT WHEAT VARIETIES UNDER SALINE WATER IRRIGATIONS IN MARWAR TRACT OF RAJASTHAN

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Double cropping is becoming common in *Marwar* tract with the increasing irrigation facilities in Rajasthan. Environmental conditions viz. temperature and radiation have been shown to influence the growth, development and yield of wheat (Singh and Narang, 1976, Khalifa *et al.*, 1977 and Singh *et al.*, 1978). The average yield of wheat is low due to climatic limitations like high temperature during the crop growth period (November to April), unsuitable irrigation water and cultivation of low yielding varieties. Joshi and Singh (1983) reported that varieties influence the wheat yield considerably. Surface soils in the region are generally alkaline in reaction with pH 7.5 to 9.0. Irrigated soils are highly saline with EC generally ranging between 0.9 to 26 mmhos/cm and sodium absorption ratio (SAR) value varied between 2.2 to 49.6 (Jain, 1979). Occurrence of highly saline waters in the region has also been reported by Shankarnarayan *et al.*, (1965) and Dhir and Bhatiya (1975). In order to evaluate the productivity of different wheat varieties under saline water irrigations, a varietal trial was conducted at CAZRI Regional Station, Pali-Marwar, during rabi 1982-83 in Randomised Block Design with 3 replications. The trial was laid out at two farm wells having 2.5 and 7.5 mmhos/cm EC waters. The wheat varieties were Kalyan sona, Sonalika, HD-2009, J-24, HD-2189, Kanak (local), Raj-1114 and Kharchea-65. The soils of the experimental plots were yellowish brown in colour, shallow to moderate deep, medium to fine in texture, underlain by calcareous (Kankar) pan and partially granitic material belonging to the red desertic soil groups of loam to clay loam texture.

The maximum grain yield of 27.21 and 18.87 q/ha was recorded with variety HD-2189 and HD-2009 and straw yield of 81.29 and 37.13 q/ha with Kharchea-65 and Kanak at 2.5 and 7.5 mmhos/cm EC irrigation waters, respectively (Table 1). Grain and straw yield, plant height, 1000-grain weight at both the salinity levels and ear length at 2.5 mmhos/cm water increased significantly. The higher grain yields in varieties HD-2189 and HD-2009 may be attributed to higher test weight. These varieties produced 40.55 and 17.94% more grain yield, respectively, over well established variety Kharchea-65. The variety Raj-1114 produced maximum number of tillers while minimum tillers were recorded with Sonalika at both saline water levels (Table 1).

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Table 1. Yield and yield attributes as influenced by saline irrigation waters

Variety	Grain yield (q/ha)		Straw yield (q/ha)		Tillers/plant		Ear length (cm)		1000 grain weight (g)	
	2.5EC	7.5EC	2.5EC	7.5EC	2.5EC	7.5EC	2.5EC	7.5EC	2.5EC	7.5EC
Kalyan Sona	21.35	15.73	33.64	24.30	4.87	2.87	9.78	5.02	39.32	28.30
Sonalika	21.12	13.47	25.25	25.83	4.63	2.47	10.75	6.34	39.80	30.50
HD-2009	18.29	18.87	20.48	21.13	4.68	2.67	10.28	5.72	35.42	34.65
J-24	21.20	16.13	40.82	28.87	4.93	3.23	13.22	6.26	34.25	30.15
HD-2189	27.21	18.20	41.13	25.10	5.43	3.16	11.42	6.36	39.88	34.23
Kanak (local)	23.98	16.13	37.83	37.13	6.08	2.97	8.22	7.30	39.10	32.86
Raj-1114	9.78	8.20	20.83	11.87	6.92	4.03	10.30	6.36	39.20	30.96
Kharchea-65	19.36	16.00	81.29	33.80	4.85	3.43	7.85	6.72	34.88	33.72
CD 5%	7.46	4.29	10.57	12.52	NS	NS	0.60	NS	2.50	1.35

NS = Non-significant

It was observed that the crop matured 5-6 days earlier at EC 7.5 than at EC 2.5 mmhos/cm.

The wheat variety HD-2189 was found as good as var. HD-2009 for the high saline waters. On the whole wheat var. HD-2189 was best adapted, productive and suitable for cultivation in the *Marwar* tract having salinity levels between 2.5 to 7.5 mmhos/cm of irrigation waters.

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