Agronomic characteristics of five spring wheats

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This study investigates the agronomic characteristics of five genotypes of spring wheat and their effects on grain yield. Yield, components of yield and agronomic traits are reported.

Materials and Methods

Five spring wheat (Triticum aestivum L.) genotypes, Banks (B), Hartog (H), Sunelg (SE), Sunstar (SS) and Sun 109A (SA), were grown in the open in plastic pots containing a mixture of peat and sand, with adequate fertilizer and water. There were five plants per pot. Plants were harvest at tillering, jointing, anthesis and maturity.

Results and discussion

Four of the five cultivars had similar times to anthesis and maturity viz. 84 and 134 days after sowing respectively; Hartog was earlier than the average values for all cultivars by 2.2 and 4 days at anthesis and maturit respectively. Banks and Sunstar had greater grain yields than other genotypes (Table 1). Although there were significant differences in the number of spikelets per head and seeds per spikelet among five cultivars, similar numbers of seeds (56) per head were produced. There was no significant difference in 100 seed weight (mean 3.6 g).

Table 1. Grain yield and agronomic traits of five spring wheats

CV	Grain yield (g/ plant)	Rate of LA		No. of L/shoot		Rate of TD	No. of PT/ plant	TS (%)	LAD (cm^2. week)	Harvest index (%)	NR (%)
		MS	T	MS	T						
B	8.7	1.08	.43	10.4	4.9	1.72	4.2	54	1116	53.9	71.6
H	7.0	1.08	.38	8.6	4.2	1.38	3.4	54	891	49.6	69.8
SE	7.0	1.01	.32	9.2	3.8	1.44	2.4	38	1087	46.9	72.8
SS	8.5	1.12	.47	10.9	5.1	2.05	4.2	45	1195	51.7	69.9
SA	6.5	1.10	.37	9.8	4.2	1.43	2.6	41	910	48.6	61.2
LSD5%	.9	-	-	.4	.4	-	.4	8.8	113	3.8	6.4

LA, MS, T, L, TD, PT, TS, LAD and NR = Leaf appearance (leaves/100 degree -days), Main shoot, Tillers, Leaves, Tiller development (tillers/week), Productive tillers, Tiller survival, Leaf area duration after anthesis, Nitrogen remobilization from leaves plus stems to grain respectively

Cultivars with higher yields were associated with significantly higher rates of tiller development, a greater number of leaves and tillers, longer LAD and higher harvest indices. Banks and Hartog had a higher percentage tiller survival than Sunelg, Sunstar and Sun 109A. Four cultivars showed very similar amounts and percentage nitrogen remobilization from the straw presumably to the grain; Sun 109A had less absolute movement of nitrogen. McNeal et al. (1) found that about 60% of the total nitrogen in leaves and stems was translocated to the grain. Therefore the cultivars examined here are quite efficient in remobilizing nitrogen to the grain.

1. McNeal,F.H.,Berg,M.A.,and Watson,C.A.(1966), Agron.J.58,605-608.