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Experiment 89SC23. Effect of seed phosphorus, seed size, and seeding density on the growth of wheat at two soil P levels.

Treatments

1. Soil P - 0, 300 kg superphosphate/ha.
2. Seed P - 0.15, 0.25% P (from 88SG24).
3. Seed size - approximately 34, 45 g/1000 seed.
4. Seeding rates - 30, 40, 53 kg/ha.
5. Replicates (4).

Sowing Details

Wheat cv. Gutha sown, Basal fertilizers topdressed before sowing (kg/ha) - 100 gypsum, 3 CuSO₄, 1 ZnO, 0.2 NaMoO₄ plus 120 Agran, drilled with seed.

Sown on 7/6/89.

Harvested on 30/11/89.

Table 2. Effect of soil P, seed P and seed rate on plant counts at 5 weeks, shoot dry matter (DM) at tillering and heading and on seed DM at maturity of wheat growth at South Carrabin in 1989

Super-phosphate (kg/ha)	Seed P (%)	Seed rate (kg/ha)	Plant counts/m ²	Shoot DM (kg/ha)		Seed DM (kg/ha)
				Tillering ^A	Heading ^B	
0	0.15	30	38	44	530	212
		40	53	69	644	260
		53	66	83	794	296
	0.25	30	43	62	667	258
		40	53	83	844	298
		53	66	97	800	366
300	0.15	30	44	243	2,980	1116
		40	49	321	3,130	1177
		53	65	349	3,260	1338
	0.25	30	39	266	3,150	1215
		40	51	312	3,130	1215
		53	69	393	3,390	1292
Soil P				***	***	***
Seed P				*	NS	NS
Seed Rate				***	*	***
Soil x Seed P				NS	NS	NS
Soil x Rate				**	NS	NS
Seed P x Rate				NS	NS	NS
Soil x Seed P x Rate				NS	NS	NS

A = 11 weeks after sowing; Zadoks 16.5-24.

B = 18 weeks after sowing; Zadoks 70.

Comments

1. Shoot dry matter (DM) at tillering, and heading and seed DM at maturity were strongly depressed by low soil P levels.
2. Low seed P depressed shoot DM at tillering in both low and high P soil but the effects only persisted at low soil P.
3. Increasing seeding rate from 30 to 53 kg/ha increased shoot DM and seed DM at both low and high soil P suggesting that the normal seeding rate of 40 kg/ha was sub-optimal.
4. Seed size had no effect on plant establishment, shoot DM or on seed DM, hence results presented were meaned across seed size treatments.