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Effect of seed phosphorus levels in three wheat varieties and fertilizer P supply on their growth and grain yields.

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Experiment 89WH74. Effect of seed phosphorus levels in three wheat varieties and fertilizer P supply on their growth and grain yields.

M. Riley, M.D.A. Bolland and K. Adcock.

Location

Wongan Hills Research Station, Field 4W.

Treatments

1. Soil P - 0, 300 kg superphosphate/ha drilled at sowing.
2. Cultivars and seed P level - Kulin (from 88WH45) - 0.24, 0.34% P.
- Canna (from 88BA36) - 0.18, 0.27% P.
- Aroona (from 88BA36) - 0.15, 0.28% P.
3. Replicates - 3.

Sowing details

Wheat sown at 50 kg/ha two days after weed control with Logran (35 kg/ha) and Roundup (750 ml/ha). Basal fertilizers topdressed at sowing (kg/ha) - 100 gypsum; 3 CuSO₄; 1 ZnO; 0.2 Na₂MoO₄. Urea topdressed across plots on 29/6/89 at 50 kg/ha.

Sown on 1/6/89.

Harvested on 30/11/89

Table 3. Effect of seed P concentration, fertilizer P treatment and on shoot dry matter (DM) at tillering and heading, and on seed DM at maturity of three wheat cultivars at Wongan Hills Research Station in 1989

Fertilizer P (kg superphosphate/ha)	Cultivar	Seed P (%)	Shoot DM (kg/ha)		Seed DM (kg/ha)
			Tillering	Heading	
0	Kulin	0.24	118	3200	2000
		0.34	137	3360	2116
	Canna	0.18	138	3520	1934
		0.27	156	3190	2060
	Aroona	0.15	124	3150	1916
		0.28	125	3430	1931
300	Kulin	0.24	246	4600	2814
		0.34	216	4650	2790
	Canna	0.18	287	4730	2517
		0.27	288	4440	2559
	Aroona	0.15	268	4410	2585
		0.28	213	4970	2533
Soil P			**	**	**
Cultivar			**	NS	**
Seed P			NS	NS	NS
Soil P x cultivar			NS	NS	NS
Soil P x seed P			*	NS	NS
Cultivar x seed P			NS	*	NS
Soil P x cultivar x seed P			NS	NS	NS

Comments

1. Increasing seed P concentration had no effect on shoot DM during crop growth or on seed DM at maturity in either of the three wheat cultivars.
2. Omitting superphosphate depressed wheat yield by about 20% but had no effect on wheat response to seed P levels.
3. Cultivar Kulin yielded more seed (5-10%) than the other cultivars in soil treated with and without superphosphate.