

Supplementary Materials

Sustainability of nutrient management in grain production systems of south-west Australia

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Supplementary material

Table S1. Elemental concentrations in the 0–10 cm layer of soil preceding sowing for each land use and region.

Land use or Region	NH4 (mg/kg)	NO3 (mg/kg)	P (mg/kg)	K (mg/kg)	S (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Mn (mg/kg)	Zn (mg/kg)	Al exc. (meq/100g)	Ca exc. (meq/100g)	Mg exc. (meq/100g)	Na exc. (meq/100g)	B exc. (meq/100g)	Cl exc. (meq/100g)	Tot N (mg/kg)	OC (%)	pH (CaCl2)
Barley	8.4 (0.8)	29.4 (2.4)	42.3 (2.3)	136 (10)	25.1 (3.1)	0.73 (0.05)	58.9 (3.4)	11.1 (1.3)	1.12 (0.08)	0.12 (0.01)	4.25 (0.28)	1.03 (0.09)	0.34 (0.04)	0.72 (0.04)	75.5 (7.1)	37.7 (2.6)	1.77 (0.14)	5.2 (0.06)
Canola	6.3 (0.4)	23.0 (1.5)	35.2 (1.5)	147 (15)	18.9 (1.8)	0.72 (0.05)	44.7 (3.3)	10.3 (0.8)	0.85 (0.04)	0.08 (0.01)	4.14 (0.29)	0.87 (0.08)	0.24 (0.02)	0.59 (0.04)	66.0 (6.6)	29.3 (1.6)	1.33 (0.07)	5.5 (0.06)
Lupin	5.4 (0.5)	22.8 (2.1)	27.6 (1.8)	117 (21)	13.1 (1.0)	0.63 (0.05)	32.2 (3.1)	9.6 (1.0)	0.88 (0.06)	0.08 (0.01)	3.28 (0.31)	0.58 (0.07)	0.15 (0.02)	0.44 (0.04)	51.3 (7.3)	28.2 (2.2)	1.21 (0.11)	5.4 (0.06)
Other	6.8 (0.8)	26.1 (3.0)	41.0 (2.9)	303 (72)	18.1 (2.9)	1.06 (0.15)	41.6 (5.9)	15.5 (3.3)	0.75 (0.07)	0.06 (0.01)	5.56 (1.07)	1.29 (0.23)	0.27 (0.04)	0.82 (0.12)	89.5 (24.5)	32.9 (3.0)	1.31 (0.09)	5.5 (0.06)
Pasture	7.3 (0.4)	24.7 (1.4)	39.3 (1.8)	172 (15)	19.2 (2.4)	0.78 (0.05)	50.2 (2.5)	8.7 (0.7)	0.90 (0.05)	0.10 (0.01)	4.35 (0.29)	1.32 (0.12)	0.35 (0.03)	0.92 (0.06)	75.3 (6.1)	31.9 (1.6)	1.69 (0.08)	5.3 (0.13)
Wheat	6.3 (0.2)	21.3 (0.7)	36.5 (0.7)	188 (9)	19.1 (1.3)	0.77 (0.03)	41.5 (1.4)	12.7 (0.6)	0.82 (0.02)	0.08 (0.01)	4.02 (0.14)	0.96 (0.05)	0.24 (0.01)	0.65 (0.02)	67.9 (3.0)	27.6 (0.7)	1.31 (0.03)	5.4 (0.03)
F prob	0.004	0.007	<0.001	<0.001	<0.001	0.014	<0.001	0.004	<0.001	<0.001	0.04	<0.001	<0.001	<0.001	0.100	<0.001	<0.001	0.003
NAR	5.6 (0.2)	19.4 (0.7)	29.8 (0.6)	213 (14)	17.2 (1.3)	0.70 (0.03)	24.5 (0.9)	13.6 (0.7)	0.73 (0.03)	0.06 (0.00)	3.95 (0.2)	0.82 (0.05)	0.15 (0.01)	0.57 (0.02)	59.9 (4.0)	24.8 (0.7)	0.92 (0.03)	5.6 (0.03)
CAR	7.0 (0.3)	25.4 (0.9)	38.5 (0.9)	138 (5)	17.9 (1.2)	0.79 (0.03)	51.3 (1.6)	10.0 (0.5)	0.87 (0.02)	0.08 (0.00)	3.59 (0.1)	0.76 (0.03)	0.24 (0.02)	0.58 (0.02)	67.3 (3.4)	32.3 (1.0)	1.36 (0.02)	5.3 (0.02)
SAR	7.2 (0.3)	24.9 (1.2)	45.9 (1.3)	156 (6)	23.0 (1.8)	0.86 (0.04)	69.3 (2.5)	9.8 (0.6)	1.11 (0.04)	0.13 (0.01)	5.10 (0.2)	1.62 (0.09)	0.46 (0.02)	0.98 (0.04)	83.0 (3.5)	32.1 (1.3)	2.33 (0.07)	5.2 (0.04)
F prob	<0.001	<0.001	<0.001	0.003	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
F Prob Int	0.683	0.461	0.493	0.454	0.020	0.648	0.709	0.374	0.637	0.074	0.434	0.328	0.012	0.236	0.372	0.191	<0.001	<0.001
Grand mean	6.4	22.7	36.2	173	18.6	0.76	43.7	11.2	0.85	0.084	4.01	0.96	0.25	0.66	67.2	29.1 (0.6)	1.34 (0.26)	

Figure S1. Fertiliser nitrogen applied at seeding to wheat for each year and region; northern agricultural region (NAR), central agricultural region (CAR) and southern agricultural region (SAR).

