Supplementary Material

Fertilisation with P, N and S requires additional Zn for healthy plantation tree growth on low fertility savanna soils

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Table S1. Mean heights and D_{BH} (cm) of the main treatments of the Humpty Doo experiment in the second phase, and mean main effect N, P and S concentrations in needles and tips.

	Height (m)			D_{BH} (cm)			Needle tips
Age (year)	5.91	6.54	7.57	5.91	6.54	7.57	5.91
							Foliar N (mg g^{-1})
N_0	5.61	6.15	7.46	6.47	6.97	8.10	8.85
N_1	6.41	6.93	8.09	7.51	8.03	9.11	9.33
N_2	6.74	7.30	8.46	7.89	8.47	9.63	9.25
	**	**	*	**	**	**	ns
							Foliar P (mg g^{-1})
P_0	6.06	6.59	7.76	7.12	7.66	8.66	1.02
P_1	6.47	7.01	8.30	7.48	8.04	9.29	1.36
P_2	6.24	6.78	7.95	7.26	7.76	8.88	1.53
	ns	ns	ns	ns	ns	ns	***
							Foliar S (mg g^{-1})
S_0	5.32	5.85	7.07	6.22	6.77	7.99	0.59
S_1	6.60	7.13	8.34	7.64	8.13	9.16	0.82
S_2	6.84	7.40	8.60	8.00	8.57	9.69	0.88
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ns, not significantly different; *, $P<0.05$; **, $P<0.01$; ***, $P<0.001$

Table S2. Mean tree D_{BH}, height and stem volume above breast height ($V_{c,BH}$) at Humpty Doo in response to the main treatments, in the second phase.

	Height (m)			D_{BH} (cm)				$V_{c,BH}$ (m^3)		
Age (year)	5.91	6.54	7.57	5.91	6.54	7.57	8.79	5.91	6.54	7.57
$N_0P_0S_0$	4.22	4.78	6.33	4.62	5.15	6.39	7.73	0.0026	0.0037	0.0075
1 of N, P or S	5.62	6.16	7.45	6.60	7.12	8.13	9.31	0.0063	0.0082	0.0133
2 of N, P or S	6.06	6.63	7.82	7.16	7.66	8.69	9.90	0.0085	0.0108	0.0164
N+P+S	7.34	7.93	9.09	8.41	8.94	9.95	11.05	0.0135	0.0165	0.0238
Best treatment	$N_2P_1S_2$			$N_2P_2S_2$	$N_2P_1S_2$			$N_2P_2S_1$	$N_2P_1S_2$	
N				*				*	*	*
P				*				*		*
S	**	**	**	***	**	**	***	***	***	***

*, $P<0.05$; **, $P<0.01$; ***, $P<0.001$