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R F. Brennan

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EFFECTS OF RATES OF NITROGEN ON COPPER CONCENTRATIONS, DRY MATTER PRODUCTION AND GRAIN YIELD OF WHEAT GROWN ON A RESIDUAL COPPER TRIAL

67E8/2247 EX

Aim: The trial was originally designed to measure the residual effectiveness of rates of copper fertilizer drilled in 1967.

Location: Esperance Down Research Station

Soil: Caitup gravelly sand

Sown: June 11, 1987

Harvested: December 23, 1987

Basals: Super 190 kg/ha  
Aroona 50 kg/ha  
Nitrogen T.D. 10/7/87

Table 34. Grain yield (kg/ha)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	1,788	1,538	1,075	750
2. Cu SO <sub>4</sub> 1.1 kg/ha	1,913	1,725	1,413	950
3. Cu SO <sub>4</sub> 2.2 kg/ha	2,113	1,975	1,675	1,225
4. Cu SO <sub>4</sub> 4.4 kg/ha	2,325	2,513	2,275	1,625
5. Cu SO <sub>4</sub> 8.8 kg/ha	2,363	2,463	2,388	2,475

Table 35. Plant weights (g/plant) at 27/7/87 (Z14.5)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	0.14	0.15	0.15	0.15
2. Cu SO <sub>4</sub> 1.1 kg/ha	0.15	0.15	0.16	0.16
3. Cu SO <sub>4</sub> 2.2 kg/ha	0.15	0.16	0.16	0.16
4. Cu SO <sub>4</sub> 4.4 kg/ha	0.15	0.16	0.16	0.15
5. Cu SO <sub>4</sub> 8.8 kg/ha	0.16	0.16	0.16	0.16

Table 36. Dry matter production (kg/ha) at 27/7/87 (Z14.5)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	174	181	185	186
2. Cu SO <sub>4</sub> 1.1 kg/ha	185	182	192	195
3. Cu SO <sub>4</sub> 2.2 kg/ha	182	191	193	192
4. Cu SO <sub>4</sub> 4.4 kg/ha	178	182	195	186
5. Cu SO <sub>4</sub> 8.8 kg/ha	190	193	192	194

Table 37. Plant weights (g/plant) at 14/8/87 (Z16.5)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	0.43	0.48	0.58	0.56
2. Cu SO <sub>4</sub> 1.1 kg/ha	0.39	0.46	0.53	0.59
3. Cu SO <sub>4</sub> 2.2 kg/ha	0.47	0.50	0.53	0.57
4. Cu SO <sub>4</sub> 4.4 kg/ha	0.43	0.52	0.56	0.61
5. Cu SO <sub>4</sub> 8.8 kg/ha	0.48	0.55	0.56	0.66

Table 38. Dry matter production (kg/ha) at 14/8/87 (Z16.5)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	517	571	690	673
2. Cu SO <sub>4</sub> 1.1 kg/ha	470	552	640	708
3. Cu SO <sub>4</sub> 2.2 kg/ha	565	603	635	679
4. Cu SO <sub>4</sub> 4.4 kg/ha	518	626	677	736
5. Cu SO <sub>4</sub> 8.8 kg/ha	574	660	673	793

Table 39. Plant weights (g/plant) at 28/8/87 (Z32)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	0.80	0.95	1.05	1.20
2. Cu SO <sub>4</sub> 1.1 kg/ha	0.70	0.93	1.02	1.14
3. Cu SO <sub>4</sub> 2.2 kg/ha	0.83	1.00	1.19	1.28
4. Cu SO <sub>4</sub> 4.4 kg/ha	0.73	1.02	1.20	1.34
5. Cu SO <sub>4</sub> 8.8 kg/ha	0.78	1.05	1.25	1.36

Table 40. Dry matter production (kg/ha) at 28/8/87 (Z32)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	962	1,149	1,270	1,453
2. Cu SO <sub>4</sub> 1.1 kg/ha	912	1,125	1,234	1,375
3. Cu SO <sub>4</sub> 2.2 kg/ha	995	1,207	1,431	1,537
4. Cu SO <sub>4</sub> 4.4 kg/ha	875	1,226	1,447	1,615
5. Cu SO <sub>4</sub> 8.8 kg/ha	946	1,266	1,503	1,641

Table 41. Plant weights (g/plant) at 11/9/87 (Z40)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	1.44	1.72	1.93	2.17
2. Cu SO <sub>4</sub> 1.1 kg/ha	1.49	1.73	2.04	2.24
3. Cu SO <sub>4</sub> 2.2 kg/ha	1.58	1.95	2.05	2.23
4. Cu SO <sub>4</sub> 4.4 kg/ha	1.66	1.96	2.21	2.52
5. Cu SO <sub>4</sub> 8.8 kg/ha	1.61	2.02	2.26	2.56

Table 42. Dry matter production (kg/ha) at 11/9/87 (Z40)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	1,745	2,085	2,340	2,631
2. Cu SO <sub>4</sub> 1.1 kg/ha	1,799	2,096	2,477	2,716
3. Cu SO <sub>4</sub> 2.2 kg/ha	1,908	2,368	2,483	3,086
4. Cu SO <sub>4</sub> 4.4 kg/ha	2,014	2,371	2,672	3,054
5. Cu SO <sub>4</sub> 8.8 kg/ha	1,951	2,449	2,740	3,104

Table 43. Plant weights (g/plant) at 25/9/87 (Z61)

TRS	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	2.73	2.94	3.31	3.44
2. Cu SO <sub>4</sub> 1.1 kg/ha	2.81	3.09	3.35	3.42
3. Cu SO <sub>4</sub> 2.2 kg/ha	2.85	3.18	3.49	3.51
4. Cu SO <sub>4</sub> 4.4 kg/ha	2.71	3.31	3.55	3.60
5. Cu SO <sub>4</sub> 8.8 kg/ha	2.88	3.45	3.58	3.68

Table 44. Dry matter production (kg/ha) at 25/9/87 (Z61)

TRS .	Urea (kg/ha)			
	0	50	100	200
1. Nil Cu	2,967	3,189	3,594	3,736
2. Cu SO <sub>4</sub> 1.1 kg/ha	3,048	3,358	3,636	3,710
3. Cu SO <sub>4</sub> 2.2 kg/ha	3,098	3,449	3,784	3,816
4. Cu SO <sub>4</sub> 4.4 kg/ha	3,257	3,590	3,854	3,914
5. Cu SO <sub>4</sub> 8.8 kg/ha	3,123	3,748	3,883	3,993