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NITROGEN RATES ON THE MAIN COPPER PLOTS OF THE LONG TERM COPPER RESIDUAL TRIAL
AT NEWDEGATE RESEARCH STATION (66 N 14)

87N23/2247 EX

Aim: To determine the effects of rates of nitrogen on the copper status of plants.

Location: Newdegate Research Station

Soil: Yellow gravelly sandy loam

Sown: June 10, 1987

Harvested: December 13, 1987

Basals: Wheat - Aroona at 50 kg/ha
Cu Rates in 1967
P at 15 kg/ha

Sampling: Germination counts
Youngest leaves (YL) from 4th leaf stage onwards
Whole tops from 4th leaf stage onwards
Dry matter production 4th leaf stage onwards
Heads - grain weight
Yield

Analysis: Copper and Nitrogen in whole tops for each sampling time
Copper in Y.L. for each sampling time
Copper in grain from head sampling
Complete nutrient analysis whole tops for CSBP comparisons versus the youngest leaf method.

Table 1. Grain yields (kg/ha) (13/12/87)

Main plot Cu TR (1967)	Urea rates (kg/ha)			
	40	80	160	240
Nil	893	759	647	513
0.70	1,388	1,473	1,563	1,643
2.75 + 0.125 YRLY	1,518	1,786	1,987	2,165

Table 2. Dry matter production (kg/ha) first sampling (3/8/87) (2.15.5)

Main plot Cu TRS	Urea (kg/ha)			
	40	80	160	240
Nil	165	177	186	190
0.7	171	169	175	177
2.75 + 1/8 YRLY	149	157	183	189

Table 3. Dry matter production (kg/ha) (24/8/87) (Z31)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	668	751	764	802
0.7	685	766	770	826
2.75 + 1/8 YRLY	697	808	853	929

NB: No chemical data back

Table 4. Plant weights (g/plant) at 24/8/87 (Z31)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	0.79	0.90	0.91	0.95
0.7	0.81	0.88	0.91	0.96
2.75 + 1/8 YRLY	0.85	0.96	1.01	1.10

Table 5. Plant weights (g/plant) at 8/9/87 (Z37)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	1.30	1.33	1.34	1.43
0.7	1.31	1.36	1.66	1.64
2.75 + 1/8 YRLY	1.27	1.45	1.78	2.00

Table 6. Dry matter production (kg/ha) on 8/9/87 (Z37)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	1,098	1,115	1,129	1,205
0.7	1,107	1,152	1,397	1,387
2.75 + 1/8 YRLY	1,071	1,222	1,504	1,692

Table 7. Dry matter production (kg/ha) (21/9/87) (Z50)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	2,140	2,229	2,121	2,343
0.7	2,146	2,883	2,777	2,656
2.75 + 1/8 YRLY	2,457	2,638	3,004	3,247

NB: No chemical data back

Table 8. Plant weights (g/plant) at 21/9/87 (Z50)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	2.53	2.64	2.51	2.77
0.7	2.57	3.41	3.28	3.14
2.75 + 1/8 YRLY	2.90	3.12	3.55	3.84

Table 9. Plant weights (g/plant) at 5/10/87 (Z64)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	3.54	3.56	3.81	3.33
0.7	3.61	4.15	4.67	5.02
2.75 + 1/8 YRLY	4.59	5.24	5.75	5.95

Table 10. Dry matter production (kg/ha) at 5/10/87 (Z64)

Main plot Cu treatments	40	Urea rates (kg/ha)		
		80	160	240
Nil	2,995	3,014	3,224	2,814
0.7	3,054	3,494	3,944	4,247
2.75 + 1/8 YRLY	3,883	4,428	4,464	5,034