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98/W/CS/428 Metal-amended Liquid Sludge - Grass

Rothamsted Research

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98/W/CS/428

METAL-AMENDED LIQUID SLUDGE

Object: To study the effects of zinc, copper and cadmium on soil microbial activity with low organic matter inputs - Woburn, Butt Close West.

Sponsor: S.P. McGrath, A. Chaudri.

The fourth year, grass.

Design: 3 randomised blocks of 13 plots.

Whole plot dimensions: 1.2 x 3.5.

Treatments:

SLUDGE

T21	None (duplicated)
T22	Uncontaminated (duplicated)
T23	Zinc, rate 1
T24	Zinc, rate 2
T25	Zinc, rate 3
T26	Copper, rate 1
T27	Copper, rate 2
T28	Copper, rate 3
T29	Cadmium, rate 1
T30	Cadmium, rate 2
T31	Cadmium, rate 3

Experimental diary:

10-Sep-97 : B : Gallup at 6.0 l in 200 l.
31-Oct-97 : T : Sludges applied as treatment.
31-Mar-98 : B : Muriate of potash at 120 kg. 34.5% N at 145 kg.
03-Apr-98 : T : **SLUDGE** T21: Triple superphosphate at 64 kg.
27% N at 370 kg.
08-May-98 : B : PDQ at 4.0 l in 200 l.
12-May-98 : B : Raked. Mixed ryegrass broadcast at 40 kg. Raked.
05-Oct-98 : B : Cut.

NOTE: Soils were sampled in spring and the grass in summer for chemical analysis.

98/W/CS/428

1ST AND ONLY CUT (5/10/1998) DRY MATTER TONNES/HECTARE

***** Tables of means *****

SLUDGE

T21	1.12
T22	2.63
T23	1.97
T24	2.61
T25	2.65
T26	2.47
T27	3.03
T28	3.00
T29	2.40
T30	2.10
T31	2.84
Mean	2.35

*** Standard errors of differences of means ***

SLUDGE

0.470 min.rep
0.407 max-min
0.333 max.rep

SLUDGE

max-min T21 or T22 v any of the remainder
min.rep Any of the remainder
max.rep T21 v T22 only

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	26	0.576	24.5

1ST CUT MEAN DM% 14.0

PLOT AREA HARVESTED BETWEEN 0.00020 and 0.00024