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00/W/CS/427 Contaminated Sludge Cake - Grass

Rothamsted Research

Rothamsted Research (2001) *00/W/CS/427 Contaminated Sludge Cake - Grass* ; Yields Of The Field Experiments 2000, pp 72 - 74 - DOI: <https://doi.org/10.23637/ERADOC-1-55>

00/W/CS/427

CONTAMINATED SLUDGE CAKE

Object: To test the effect of zinc, copper or cadmium enriched sewage sludges on soil microbial activity and agricultural productivity - Woburn, Butt Close West.

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

The sixth year, grass.

For previous years see 98-99/W/CS/427.

Design: 3 randomised blocks of 23 plots.

Whole plot dimensions: 6.0 x 8.0.

Treatments:

SLUDGE

T1	None (duplicated)
T2	Uncontaminated, digested low rate (duplicated)
T3	Uncontaminated, undigested low rate
T4	Zinc 150
T5	Zinc 250
T6	Zinc 350
T7	Zinc 450
T8	Copper 50
T9	Copper 100
T10	Copper 150
T11	Copper 200
T12	Cadmium 1
T13	Cadmium 2
T14	Cadmium 3
T15	Cadmium 4
T16	Uncontaminated, digested low rate + nitrogen (duplicated)
T17	Uncontaminated, undigested low rate + nitrogen
T18	Zinc 15 kg per annum
T19	Copper 7.5 kg per annum
T20	Cadmium 0.15 kg per annum

Experimental diary:

25-Sep-99 : B : : Treatments applied. Mechanical spade cultivated three times.

05-Oct-99 : B : : Rotary harrowed.

12-Oct-99 : B : : Broadcast Cotswold ryegrass Mix A at 40 kg. Rolled.

12-Nov-99 : B : : Spannit at 1.5 l in 100l.

25-Feb-00 : B : : Muriate of potash at 100 kg. 34.5% N at 116 kg.
: T : T1, T19, T20 : Triple superphosphate at 63.8 kg.

19-Mar-00 : T : : Legumex Extra at 7.0 l in 200 l.

07-Apr-00 : B : : Broadcast Danergo and Ligrane ryegrass 50:50 mix at 30 kg.

11-Apr-00 : B : : 27.0% N at 259 kg.

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Experimental diary:

13-Apr-00 : T : T16,T17,T18,T19,T20 : 27.0% N at 111 kg.
 : T : T1 : 27.0% N at 148 kg.
13-Jun-00 : B : : Cut.
17-Jun-00 : B : : Hay turned.
18-Jun-00 : B : : Hay turned.
19-Jun-00 : B : : Baled and carted.
23-Jun-00 : B : : Topped.
17-Jul-00 : B : : Azural at 4.0 l in 200 l.
25-Jul-00 : B : : Topped.

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1ST CUT (13/6/00) DRY MATTER TONNES/HECTARE

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

SLUDGE

T1	5.60
T2	6.38
T3	6.23
T4	6.05
T5	6.37
T6	6.80
T7	6.63
T8	6.62
T9	5.58
T10	5.90
T11	6.89
T12	5.58
T13	6.24
T14	6.35
T15	6.65
T16	6.60
T17	6.30
T18	6.48
T19	5.54
T20	6.62

Mean 6.26

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

SLUDGE

0.830	min.rep
0.719	max-min
0.587	max.rep

SLUDGE

max.rep	T1 v T2 or T16
max-min	T1 or T2 or T16 v any of the remainder
min.rep	Any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	47	1.016	16.2

1ST CUT MEAN DM% 24.6

PLOT AREA HARVESTED 0.00081