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Yields of the Field Experiments 1977

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77/R/CS/130 Effects of Earthworm Inoculation - Ley

Rothamsted Research

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77/R/CS/130

EFFECTS OF EARTHWORM INOCULATION

Object: To study the effects of different species of earthworms on yield and other characteristics of grass - Fosters O & E.

Sponsor: J.R. Lofty.

The fourth year, ley.

For previous years see 74-76/R/CS/130.

Design: 3 blocks of 4 plots.

Whole plot dimensions: 8.53 x 9.14.

Treatments: Inoculation with earthworm species in 1974 and 1975:

WORMSPEC

| | |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| NONE | None |
| ALLOLOBO | Allolobophora longa at 15,000 per hectare in 1974; 5,000 in 1975 |
| LUMBRICU | Lumbricus terrestris at 5,000 per hectare in 1974 and 1975 |
| SIX SPEC | Six species - A. caliginosa, A. chlorotica, A. longa, A. rosea, L. rubellus, L. terrestris at a total of 35,000 per hectare in 1974, 12,000 in 1975 |

NOTE: The experiment was ploughed in error in July 1976 and resown in autumn 1976.

Basal applications: Manures: (0:14:28) at 500 kg, (25:0:16) at 440 kg in spring, (25:0:16) at 220 kg after the first two cuts.

Seeds mixture: Combi perennial ryegrass at 8.4 kg, S24 perennial ryegrass at 8.4 kg, S23 perennial ryegrass at 5.6 kg, S26 cocksfoot at 5.6 kg, S37 cocksfoot at 5.6 kg, S48 Timothy at 2.8 kg, Pecora Timothy at 2.8 kg, Huia white clover at 2.8 kg, wild white clover at 2.8 kg. Sown at 45 kg.

Cultivations, etc.: - Rotary cultivated, spring-tine harrowed, sown and harrowed: 21 Sept, 1976. PK applied: 23 Dec. Spring NK applied: 4 Mar, 1977. Cut three times: 24 May, 21 July, 21 Nov. NK applied: 27 May, 27 July.

NOTE: Earthworm populations were assessed in spring 1977.

77/R/CS/130

1ST CUT (24/5/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

| WORMSPEC | NONE | ALLOLOBO | LUMBRICU | SIX SPEC | MEAN |
|----------|------|----------|----------|----------|------|
| | 3.44 | 3.30 | 3.35 | 4.01 | 3.52 |

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

| TABLE | WORMSPEC |
|-------|----------|
| ----- | ----- |
| SED | 0.530 |

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

| STRATUM | DF | SE | CV% |
|----------|----|-------|------|
| BLOCK.WP | 6 | 0.649 | 18.4 |

1ST CUT MEAN DM% 16.7

2ND CUT (21/7/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

| WORMSPEC | NONE | ALLOLOBO | LUMBRICU | SIX SPEC | MEAN |
|----------|------|----------|----------|----------|------|
| | 4.24 | 5.06 | 4.14 | 3.82 | 4.31 |

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

| TABLE | WORMSPEC |
|-------|----------|
| ----- | ----- |
| SED | 0.816 |

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

| STRATUM | DF | SE | CV% |
|----------|----|-------|------|
| BLOCK.WP | 6 | 0.999 | 23.2 |

2ND CUT MEAN DM% 27.9

77/R/CS/130

3RD CUT (21/11/77) DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

| WORMSPEC | NONE | ALLOLOBO | LUMBRICU | SIX SPEC | MEAN |
|----------|------|----------|----------|----------|------|
| | 4.77 | 4.49 | 4.55 | 4.49 | 4.58 |

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

| TABLE | WORMSPEC |
|-------|----------|
| ----- | ----- |
| SED | 0.324 |

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

| STRATUM | DF | SE | CV% |
|----------|----|-------|-----|
| BLOCK.WP | 6 | 0.397 | 8.7 |

3RD CUT MEAN DM% 23.7

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

***** TABLES OF MEANS *****

| WORMSPEC | NONE | ALLOLOBO | LUMBRICU | SIX SPEC | MEAN |
|----------|-------|----------|----------|----------|-------|
| | 12.45 | 12.85 | 12.04 | 12.32 | 12.42 |

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

| TABLE | WORMSPEC |
|-------|----------|
| ----- | ----- |
| SED | 1.306 |

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

| STRATUM | DF | SE | CV% |
|----------|----|-------|------|
| BLOCK.WP | 6 | 1.599 | 12.9 |

TOTAL OF 3 CUTS MEAN DM% 22.8

PLOT AREA HARVESTED 0.00046