ROTHAMSTED RESEARCH

Yields of the Field Experiments 1975

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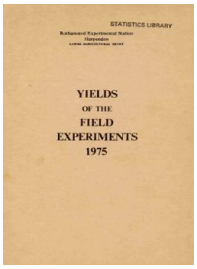

75/ R&w/G/1 - Aqueous Ammonia & Nitrification Inhibitors - Grass

Rothamsted Research

Rothamsted Research (1976) *75/ R&w/G/1 - Aqueous Ammonia & Nitrification Inhibitors - Grass ;* Yields Of The Field Experiments 1975, pp 391 - 398 **- DOI: https://doi.org/10.23637/ERADOC-1-141**

75/R/G/1 and 75/W/G/1

GRASS

AQUEOUS AMMONIA AND NITRIFICATION INHIBITORS

Object: To study the effects of two nitrification inhibitors on autumn and spring-injected aqueous ammonia - Rothamsted (R) Claycroft and Woburn (W) Bull Field.

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Design: Claycroft (R): 4 randomised blocks of 8 plots.
Bull Field (W): 3 randomised blocks of 8 plots.

Whole plot dimensions: 2.43 x 9.14.

Treatments: All combinations of:-

1. Nitrification inhibitors (added with aqueous ammonia, itself applied at 250 kg N/ha): INHIBITR

None	-
Carbon disulphide at 15 kg/ha	CS
'N-serve' (2-chloro-6-trichloromethyl-pyridine) at 2.5 kg/ha	NS

2. Times of applying aqueous ammonia: N TIME

Autumn 1974	AUTUMN
Spring 1975	SPRING

together with two extra plots: EXTRA

No nitrogen	NO N
'Nitro-Chalk' at 250 kg N/ha, dressing divided between cuts in 1975.	NC

Basal manuring: (0:14:28) at 500 kg.

Seed: Claycroft (R): Gremie perennial ryegrass.
Bull Field (W): Old grass.

Cultivations, etc.:-
Claycroft (R): Aqueous ammonia autumn treatments injected: 28 Nov, 1974. PK applied: 14 Jan, 1975. Aqueous ammonia spring treatments injected: 26 Feb. 'Nitro-Chalk' applied in three equal applications: 18 Mar, 16 June, 8 Sept. Cut three times: 6 June, 1 Sept, 28 Oct. Previous crops: Grass 1973, 1974.

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Bull Field (W): Aqueous ammonia autumn treatments injected: 27 Nov, 1974. PK applied: 10 Jan, 1975. Aqueous ammonia spring treatments injected: 25 Feb. 'Nitro-Chalk applied in three equal applications: 19 Mar, 23 June, 4 Sept. Cut twice: 12 June, 4 Sept. Previous crops: Grass 1973, 1974.

NOTES: (1) Grass samples were taken for N determinations.
(2) N in the injected soil profile was measured at regular intervals from December, 1974 to June, 1975 and ammonia evaporation was measured in December, 1974 and March, 1975.

75/R/G/1 CLAYCROFT (R)

1ST CUT (6/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	6.61	7.12	7.31	7.01
SPRING	6.41	7.03	7.04	6.83
MEAN	6.51	7.08	7.17	6.92

EXTRA	NO N	NC	MEAN
	4.57	6.68	5.63

GRAND MEAN 6.60

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.354	0.204	0.250	0.354

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.501	7.6

1ST CUT MEAN DM% 25.6

PLOT AREA HARVESTED 0.00082

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75/R/G/1 CLAYCROFT (R)

2ND CUT (1/9/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	0.53	0.48	0.48	0.49
SPRING	0.44	0.63	0.44	0.50
MEAN	0.48	0.55	0.46	0.50

EXTRA	NO N	NC	MEAN
	0.23	0.64	0.43

GRAND MEAN 0.48

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.091	0.052	0.064	0.091

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.128	26.6

2ND CUT MEAN DM% 52.6

2ND CUT PLOT AREA HARVESTED 0.00073

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75/R/G/1 CLAYCROFT (R)

3RD CUT (28/10/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	0.15	0.16	0.16	0.16
SPRING	0.19	0.21	0.22	0.20
MEAN	0.17	0.18	0.19	0.18

EXTRA	NO N	NC	MEAN
	0.08	0.48	0.28

GRAND MEAN 0.21

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.035	0.020	0.025	0.035

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.050	24.4

3RD CUT MEAN DM% 21.4

3RD CUT PLOT AREA HARVESTED 0.00065

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75/R/G/1 CLAYCROFT (R)

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	7.28	7.76	7.95	7.66
SPRING	7.03	7.87	7.69	7.53
MEAN	7.16	7.81	7.82	7.60

EXTRA	NO N	NC	MEAN
	4.88	7.79	6.34

GRAND MEAN 7.28

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.342	0.198	0.242	0.342

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.484	6.6

TOTAL OF 3 CUTS MEAN DM% 33.2

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75/W/G/1 BULL FIELD (W)

1ST CUT (6/6/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	6.87	7.05	7.18	7.03
SPRING	6.89	6.62	6.77	6.76
MEAN	6.88	6.83	6.98	6.90

EXTRA	NO N	NC	MEAN
	6.16	7.34	6.75

GRAND MEAN 6.86

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.473	0.273	0.334	0.473

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

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.579	8.4

1ST CUT MEAN DM% 23.0

PLOT AREA HARVESTED 0.00089

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75/W/G/1 BULL FIELD (W)

2ND CUT (4/9/75) DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	0.49	0.70	0.67	0.62
SPRING	1.18	0.57	0.47	0.74
MEAN	0.83	0.63	0.57	0.68

EXTRA	NO N	NC	MEAN
	0.72	1.24	0.98

GRAND MEAN 0.75

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.269	0.155	0.190	0.269

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

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.330	43.8

2ND CUT MEAN DM% 40.9

PLOT AREA HARVESTED 0.00066

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75/W/G/1 BULL FIELD (W)

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

*** TABLES OF MEANS ***

INHIBITR N TIME	-	CS	NS	MEAN
AUTUMN	7.35	7.75	7.85	7.65
SPRING	8.07	7.19	7.24	7.50
MEAN	7.71	7.47	7.55	7.58

EXTRA	NO N	NC	MEAN
	6.38	8.57	7.73

GRAND MEAN 7.61

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

TABLE	EXTRA	N TIME	INHIBITR	N TIME INHIBITR AND EXTRA
SED	0.611	0.353	0.432	0.611

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

STRATUM	DF	SE	CV%
BLOCK.WP	13	0.749	9.8

TOTAL OF 2 CUTS MEAN DM% 31.9

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