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Yields of the Field Experiments 1974

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74/R/CS/123 Effects of Viruses - Ryegrass, Red Clover

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74/R/CS/123

EFFECTS OF VIRUSES

Object: To study the effects of virus infection on yield and persistence of ryegrass and red clover in pure and mixed stands - Garden Plot 14.

Sponsors: A.J. Cockbain, R.T. Plumb.

The second year, red clover and Italian ryegrass.

For previous year see 73/R/CS/123.

Design: 4 randomised blocks of 8 plots split into 2.

Whole plot dimensions: 3.35 x 1.22. Area harvested: 0.00011.

Treatments: All combinations of:-

| Whole plots: 1. Crop and inoculation with virus: | CROP VIR |
|---|----------|
| Red clover uninoculated | Clover/O |
| Italian ryegrass uninoculated | Grass/O |
| Red clover and Italian ryegrass (mixed within rows) uninoculated | CloGr/O |
| Red clover inoculated with Pea Mosaic Virus (PMV) | Clover/P |
| Italian ryegrass inoculated with Ryegrass Mosaic Virus (RMV) | Grass/R |
| Red clover and Italian ryegrass (mixed) inoculated with PMV | CloGr/P |
| Red clover and Italian ryegrass (mixed) inoculated with RMV | CloGr/R |
| Red clover and Italian ryegrass (mixed) inoculated with PMV and RMV | CloGr/PR |
| Sub plots: 2. Aldicarb (kg) after each cut: | ALDICARB |
| None | 0 |
| 10 | 10 |

NOTE: Inoculation with PMV was unsuccessful.

Basal applications: Manures: (0:14:28) at 800 kg, 'Nitro-Chalk' at 300 kg after each cut.

Cultivations, etc.: - PK applied: 30 Oct, 1973. Aldicarb applied: 3 June, 1974, 25 July, 19 Sept. Cut and N applied: 28 May, 11 July, 9 Sept.

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- NOTES: (1) Crop was scored for Ryegrass Mosaic Virus: 2 May.
(2) Mites (*Abacarus hystrix*) were counted on 11 July, 9 Sept, 21 Oct.
(3) Red clover was sampled for virus incidence during the period 29 Oct to 10 Nov.
(4) 3rd cut. Because of a faulty balance the yields from 3 whole plots CROP VIR - Clogr/PR, Clover/O, and Clogr/P were not recorded. Estimated values were used in the analysis.

Standard errors per plot. Dry matter: tonnes/hectare:

| | |
|------------------|--------------------------------------|
| 1st cut. | Whole plot: 0.833 or 10.7% (21 d.f.) |
| | Sub plot: 0.761 or 9.7% (24 d.f.) |
| 2nd cut. | Whole plot: 0.585 or 10.3% (21 d.f.) |
| | Sub plot: 0.419 or 7.4% (24 d.f.) |
| 3rd cut. | Whole plot: 0.769 or 14.3% (18 d.f.) |
| | Sub plot: 0.640 or 11.9% (21 d.f.) |
| Total of 3 cuts. | Whole plot: 1.766 or 9.4% (18 d.f.) |
| | Sub plot: 1.012 or 5.4% (21 d.f.) |

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TABLES OF MEANS

1ST CUT. DRY MATTER: TONNES/HECTARE

ALDICARB

| | 0 | 10 | Mean |
|----------|------|------|------|
| CROP VIR | | | |
| Clover/O | 7.27 | 7.31 | 7.29 |
| Grass/O | 7.95 | 8.98 | 8.47 |
| CloGr/O | 8.17 | 7.84 | 8.00 |
| Clover/P | 6.11 | 6.66 | 6.38 |
| Grass/R | 7.78 | 8.46 | 8.12 |
| CloGr/P | 8.58 | 8.76 | 8.67 |
| CloGr/R | 7.87 | 8.84 | 8.35 |
| CloGr/PR | 6.89 | 7.47 | 7.18 |
| Mean | 7.58 | 8.04 | 7.81 |

STANDARD ERRORS OF DIFFERENCES

| CROP VIR | ALDICARB | CROP VIR ALDICARB |
|---|----------|----------------------|
| 0.589 | 0.190 | 0.702 |
| Except when comparing means with same level of CROP VIR | | |
| | | 0.538 |

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2ND CUT. DRY MATTER: TONNES/HECTARE

ALDICARB

| | 0 | 10 | Mean |
|----------|------|------|------|
| CROP VIR | | | |
| Clover/O | 5.74 | 6.75 | 6.24 |
| Grass/O | 4.10 | 5.70 | 4.90 |
| CloGr/O | 5.61 | 5.36 | 5.48 |
| Clover/P | 5.59 | 6.16 | 5.87 |
| Grass/R | 4.25 | 5.52 | 4.89 |
| CloGr/P | 5.33 | 6.18 | 5.75 |
| CloGr/R | 6.18 | 6.10 | 6.14 |
| CloGr/PR | 5.93 | 6.01 | 5.97 |
| Mean | 5.34 | 5.97 | 5.66 |

STANDARD ERRORS OF DIFFERENCES

| CROP VIR | ALDICARB | CROP VIR ALDICARB |
|---|----------|----------------------|
| 0.414 | 0.105 | 0.464 |
| Except when comparing means with same level of CROP VIR | | |
| | | 0.296 |

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3RD CUT. DRY MATTER: TONNES/HECTARE

| | ALDICARB | | Mean |
|----------|----------|------|------|
| | 0 | 10 | |
| CROP VIR | | | |
| Clover/O | 5.10 | 7.34 | 6.22 |
| Grass/O | 2.61 | 4.07 | 3.34 |
| CloGr/O | 5.73 | 6.26 | 6.00 |
| Clover/P | 5.36 | 5.85 | 5.61 |
| Grass/R | 3.17 | 4.18 | 3.67 |
| CloGr/P | 5.97 | 6.37 | 6.17 |
| CloGr/R | 5.89 | 6.12 | 6.00 |
| CloGr/PR | 6.10 | 5.84 | 5.97 |
| Mean | 4.99 | 5.75 | 5.37 |

STANDARD ERRORS OF DIFFERENCES

| CROP VIR | ALDICARB | CROP VIR ALDICARB |
|---|----------|----------------------|
| 0.544 | 0.160 | 0.631 |
| Except when comparing means with same level of CROP VIR | | |
| | | 0.453 |

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TOTAL OF 3 CUTS. DRY MATTER: TONNES/HECTARE

ALDICARB

| | 0 | 10 | Mean |
|----------|-------|-------|-------|
| CROP VIR | | | |
| Clover/O | 17.77 | 21.78 | 19.77 |
| Grass/O | 14.66 | 18.75 | 16.71 |
| CloGr/O | 19.51 | 19.46 | 19.48 |
| Clover/P | 17.05 | 18.67 | 17.86 |
| Grass/R | 15.20 | 18.16 | 16.68 |
| CloGr/P | 19.80 | 21.39 | 20.59 |
| CloGr/R | 19.93 | 21.06 | 20.50 |
| CloGr/PR | 18.59 | 19.23 | 18.91 |
| Mean | 17.81 | 19.81 | 18.81 |

STANDARD ERRORS OF DIFFERENCES

| CROP VIR | ALDICARB | CROP VIR ALDICARB |
|---|------------------|----------------------|
| 1.248 | 0.253 | 1.347 |
| Except when comparing means with same level of CROP VIR | | |
| | | 0.716 |
| Mean D.M. % | 1st cut: | 21.1 |
| | 2nd cut: | 21.2 |
| | 3rd cut: | 20.8 |
| | Total of 3 cuts: | 21.0 |