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## Yields of the Field Experiments 1973

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

#### Rothamsted Research

Rothamsted Research (1974) *73/R/CS/123 - Effects of Viruses - Ryegrass, Red Clover* ; Yields Of The Field Experiments 1973, pp 281 - 285 - DOI: <https://doi.org/10.23637/ERADOC-1-98>

73/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 and R.T. Plumb.

The first year, red clover and Italian ryegrass.

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

Whole plot dimensions: 3.35 x 1.22. Area harvested: 0.00015.

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) before sowing, repeated after each cut: | ALDICARB |
| None  | 0        |
| 10  | 10       |

Basal applications: Manures: Ground chalk at 2.4 tonnes, (0:20:20) at 780 kg, 'Nitro-Chalk' at 300 kg at sowing and after first cut.  
Irrigation: 15 mm after first cut.

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Seed: Hungaropoly clover and R.V.P ryegrass both sown at 40 kg in pure stands and 32 kg clover with 8 kg ryegrass in mixture.

Cultivations, etc.: - Ploughed: 1 Dec, 1972. Seed sown and aldicarb applied: 18 Apr, 1973. Cut: 31 July and 10 Oct. Irrigation applied: 3 Aug. Aldicarb applied: 8 Aug.

NOTES. Crop was scored for:-

- (1) Ryegrass mosaic virus: 23 July and 16 Aug.
- (2) Mites (*Abacarus hystrix*): 27 July.
- (3) Clover virus (PMV) : 24 Sept.
- (4) Mildew (*Erysiphe polygoni*) on clover: 23 Aug.

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

|                  |                                      |
|------------------|--------------------------------------|
| 1st cut:         | Whole plot: 0.695 or 11.4% (21 d.f.) |
|                  | Sub plot: 0.515 or 8.4% (24 d.f.)    |
| 2nd cut:         | Whole plot: 0.489 or 11.3% (21 d.f.) |
|                  | Sub plot: 0.567 or 13.1% (24 d.f.)   |
| Total of 2 cuts: | Whole plot: 0.836 or 8.0% (21 d.f.)  |
|                  | Sub plot: 0.922 or 8.9% (24 d.f.)    |

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TABLES OF MEANS

DRY MATTER: TONNES/HECTARE

ALDICARB

|          | 0       | 10   | Mean |
|----------|---------|------|------|
|          | 1ST CUT |      |      |
| CROP/VIR |         |      |      |
| Clover/O | 5.74    | 6.32 | 6.03 |
| Grass/O  | 5.94    | 6.17 | 6.05 |
| CloGr/O  | 6.22    | 6.91 | 6.57 |
| Clover/P | 5.43    | 5.42 | 5.42 |
| Grass/R  | 6.88    | 6.66 | 6.77 |
| CloGr/P  | 5.31    | 6.44 | 5.88 |
| CloGr/R  | 5.50    | 6.22 | 5.86 |
| CloGr/PR | 5.97    | 6.41 | 6.19 |
| Mean     | 5.87    | 6.32 | 6.10 |

STANDARD ERRORS OF DIFFERENCES

| CROP/VIR  | ALDICARB | CROP/VIR<br>ALDICARB |
|---|----------|----------------------|
| 0.491   | 0.129    | 0.555                |
| Except when comparing means<br>with same level of<br>CROP/VIR |          |                      |
|   |          | 0.364                |

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DKV MATTER: TOINFES/ECOTARD

ALDICARB

|          | 0       | 10   | Mean |
|----------|---------|------|------|
|          | 2ND CUT |      |      |
| CROP/VIR |         |      |      |
| Clover/O | 4.54    | 5.06 | 4.80 |
| Grass/O  | 3.15    | 3.80 | 3.47 |
| CloGr/O  | 4.41    | 4.73 | 4.57 |
| Clover/P | 3.92    | 4.14 | 4.03 |
| Grass/R  | 3.55    | 3.90 | 3.73 |
| CloGr/P  | 4.59    | 4.74 | 4.67 |
| CloGr/R  | 4.68    | 5.05 | 4.86 |
| CloGr/PR | 4.27    | 4.49 | 4.38 |
| Mean     | 4.14    | 4.49 | 4.31 |

STANDARD ERRORS OF DIFFERENCES

| CROP/VIR  | ALDICARB | CROP/VIR<br>ALDICARB |
|---|----------|----------------------|
| 0.345   | 0.142    | 0.447                |
| Except when comparing means<br>with same level of<br>CROP/VIR |          |                      |
|   |          | 0.401                |

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DRY MATTER: TONNES/HECTARE

ALDICARE

|                 | 0     | 10    | Mean  |
|-----------------|-------|-------|-------|
| TOTAL OF 2 CUTS |       |       |       |
| CROP/VIR        |       |       |       |
| Clover/O        | 10.28 | 11.39 | 10.83 |
| Grass/O         | 9.08  | 9.97  | 9.53  |
| CloGr/O         | 10.63 | 11.64 | 11.13 |
| Clover/P        | 9.35  | 9.55  | 9.45  |
| Grass/R         | 10.43 | 10.56 | 10.49 |
| CloGr/P         | 9.91  | 11.18 | 10.55 |
| CloGr/R         | 10.18 | 11.27 | 10.72 |
| CloGr/PR        | 10.24 | 10.90 | 10.57 |
| Mean            | 10.01 | 10.81 | 10.41 |

STANDARD ERRORS OF DIFFERENCES

| CROP/VIR  | ALDICARE | CROP/VIR<br>ALDICARE |
|---|----------|----------------------|
| 0.591   | 0.231    | 0.750                |
| Except when comparing means<br>with same level of<br>CROP/VIR |          |                      |
|   |          | 0.652                |
| Mean D.M. % 1st cut:  |          | 19.0                 |
| 2nd cut:  |          | 22.3                 |
| Total of 2 cuts:  |          | 20.7                 |