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Yields of the Field Experiments 1974

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74/R/CS/110 and 74/W/CS/110 Fertiliser and Fym - Wheat

74/R/CS/110 and 74/W/CS/110 Fertiliser and Fym - Wheat, Rothamsted Research (1975) Yields Of The Field Experiments 1974, pp 227 - 234 - DOI: <https://doi.org/10.23637/ERADOC-1-119>

74/R/CS/110 and 74/W/CS/110

FERTILISER AND FYM

Object: To study the residual effects of a range of rates of NPK fertiliser, and FYM applied to potatoes on the yields of winter wheat - Rothamsted, Stackyard (R) and Woburn, Great Hill II (W).

Sponsor: F.V. Widdowson.

The second year, winter wheat.

For previous year see 73/R&W/CS/110.

Design: 3 randomised blocks of 18 plots split into 2.

Whole plot dimensions: 4.27 x 16.2. Sub plot area harvested: 0.00217.

Treatments: All combinations of:-

| | | | |
|--------------|----|---|------------|
| Whole plots. | 1. | Farmyard manure in 1973 (tonnes) to supply 377 kg N: | FYM(73) |
| | | | (R) (W) |
| | | None | 0 0 |
| | | 80 Stackyard (R), 63 Great Hill II (W) | 80 63 |
| | 2. | N and PK fertilisers in 1973 to give rates of nitrogen* (kg N): | N(73) |
| | | 188 | 188 |
| | | 377 | 377 |
| | | 565 | 565 |
| | 3. | Times of applying PK fertilisers in 1973: | TIME(73) |
| | | All in autumn | Autumn |
| | | All in spring | Spring |
| | | Half in autumn, half in spring | Aut/Spring |
| Sub plots. | 4. | Nitrogen fertiliser to wheat in 1974 (kg N): | N 74 |
| | | None | 0 |
| | | 63 | 63 |

* The ratio of N:P₂O₅:K₂O was 1:1.5:1.5 for all N(73) treatments.

74/R/CS/110 and 74/W/CS/110

Basal applications:-

Stackyard (R): Weedkillers: Chlortoluron ('Dicurane' 80 WP at 4.5 kg in 440 l). MCPA, mecoprop and dicamba ('Banlene Plus' at 4.5 kg in 220 l).

Great Hill II (W): Weedkiller: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 280 l.

Seed: Cappelle, dressed with dieldrin, sown at Stackyard (R) 200 kg, Great Hill II (W) 190 kg.

Cultivations, etc.:-

Stackyard (R): Deep-tine cultivated twice, power harrowed, seed sown: 26 Oct, 1973. Chlortoluron applied: 1 Nov. N applied: 16 Apr, 1974. 'Banlene Plus' applied: 30 Apr. Combine harvested: 30 Aug.

Great Hill II (W): Deep-tine cultivated twice: 29 Oct, 1973. Seed sown: 30 Oct. N applied: 18 Apr, 1974. Weedkiller applied: 20 Apr. Combine harvested: 30 Aug.

NOTE: Crop samples were taken for nitrate N analysis.

Standard errors per plot. Grain, tonnes/hectare:

| | | |
|--------------------|-------------|--------------------------|
| Stackyard (R): | Whole plot: | 0.489 or 8.1% (34 d.f.) |
| | Sub plot: | 0.535 or 8.8% (36 d.f.) |
| Great Hill II (W): | Whole plot: | 0.260 or 9.6% (34 d.f.) |
| | Sub plot: | 0.289 or 10.7% (36 d.f.) |

74/R/CS/110 and 74/W/CS/110

TABLES OF MEANS

STACKYARD (R)

GRAIN: TONNES/HECTARE

| | N(73) | | | TIME(73) | | | N 74 | | Mean |
|---------|-------|----------|-------|----------|--------|----------|------|----------|------|
| | 188 | 377 | 565 | Autumn | Spring | Aut/Spng | 0 | 63 | |
| FYM(73) | | | | | | | | | |
| 0 | 7.00 | 6.42 | 5.50 | 6.14 | 6.46 | 6.32 | 6.44 | 6.17 | 6.31 |
| 80 | 6.70 | 5.51 | 5.20 | 5.99 | 5.66 | 5.76 | 6.20 | 5.41 | 5.80 |
| | | | N(73) | | | | | | |
| | | | 188 | 6.98 | 6.82 | 6.75 | 6.86 | 6.84 | 6.85 |
| | | | 377 | 5.82 | 6.10 | 5.97 | 6.37 | 5.56 | 5.96 |
| | | | 565 | 5.39 | 5.26 | 5.40 | 5.73 | 4.97 | 5.35 |
| | | | | TIME(73) | | | | | |
| | | | | Autumn | | | 6.24 | 5.89 | 6.06 |
| | | | | Spring | | | 6.31 | 5.81 | 6.06 |
| | | | | Aut/Spng | | | 6.42 | 5.67 | 6.04 |
| Mean | | | | | | | 6.32 | 5.79 | 6.06 |
| | | | | | | | | | |
| FYM(73) | | TIME(73) | | Autumn | | Spring | | Aut/Spng | |
| | | N 74 | 0 | 63 | 0 | 63 | 0 | 63 | |
| | | N(73) | | | | | | | |
| 0 | 188 | 6.70 | 7.43 | 6.18 | 7.52 | 6.48 | 7.70 | | |
| | 377 | 6.65 | 5.23 | 7.05 | 6.68 | 7.35 | 5.57 | | |
| | 565 | 5.74 | 5.09 | 6.10 | 5.26 | 5.76 | 5.06 | | |
| 80 | 188 | 7.46 | 6.35 | 7.51 | 6.07 | 6.86 | 5.97 | | |
| | 377 | 5.45 | 5.95 | 5.71 | 4.96 | 6.03 | 4.95 | | |
| | 565 | 5.45 | 5.27 | 5.32 | 4.37 | 6.02 | 4.75 | | |

Mean D.M. % 83.8

74/R/CS/110 and 74/W/CS/110
 STACKYARD (R)

STANDARD ERRORS OF DIFFERENCES

| FYM(73) | N(73) | TIME(73) | N 74 | FYM(73) N(73) | FYM(73) TIME(73) | N(73) TIME(73) |
|---|-------|----------|-----------------|------------------|---------------------|--------------------------------------|
| 0.133 | 0.163 | 0.163 | 0.103 | 0.230 | 0.230 | 0.282 |
| | | | FYM(73) N 74 | N(73) N 74 | TIME(73) N 74 | FYM(73) N(73) TIME(73) N 74 |
| | | | 0.168 | 0.206 | 0.206 | 0.505 |
| Except when comparing means with same levels of FYM(73) N(73) TIME(73) FYM(73).N(73).TIME(73) | | | 0.146 | 0.178 | 0.178 | 0.437 |

74/R/CS/110 and 74/W/CS/110

STACKYARD (R)

STRAW: TONNES/HECTARE

| | | N(73) | | | TIME(73) | | | N 74 | | Mean | |
|---------|-----|----------|------|--------|----------|--------|----------|----------|------|------|------|
| | | 188 | 377 | 565 | Autumn | Spring | Aut/Spng | 0 | 63 | | |
| FYM(73) | | | | | | | | | | | |
| 0 | | 5.34 | 6.22 | 6.36 | 6.00 | 6.00 | 5.93 | 5.86 | 6.09 | 5.98 | |
| 63 | | 6.50 | 6.55 | 6.40 | 6.39 | 6.52 | 6.53 | 6.50 | 6.46 | 6.48 | |
| | | N(73) | | | TIME(73) | | | | | | |
| | | | | | | | | | | | |
| | | | | 188 | 5.96 | 5.83 | 5.97 | 5.66 | 6.17 | 5.92 | |
| | | | | 377 | 6.33 | 6.47 | 6.36 | 6.38 | 6.39 | 6.38 | |
| | | | | 565 | 6.29 | 6.49 | 6.36 | 6.51 | 6.25 | 6.38 | |
| | | | | | | | | | | | |
| | | | | | | | | Autumn | 6.10 | 6.29 | 6.19 |
| | | | | | | | | Spring | 6.33 | 6.20 | 6.26 |
| | | | | | | | | Aut/Spng | 6.13 | 6.33 | 6.23 |
| Mean | | | | | | | | 6.18 | 6.27 | 6.23 | |
| FYM(73) | | TIME(73) | | Autumn | | Spring | | Aut/Spng | | | |
| | | N 74 | | 0 | 63 | 0 | 63 | 0 | 63 | | |
| | | N(73) | | | | | | | | | |
| 0 | 188 | 5.11 | 6.07 | 4.52 | 5.61 | 4.82 | 5.91 | | | | |
| | 377 | 6.14 | 6.23 | 6.67 | 6.08 | 6.01 | 6.20 | | | | |
| | 565 | 6.38 | 6.06 | 6.83 | 6.27 | 6.28 | 6.36 | | | | |
| 63 | 188 | 6.54 | 6.12 | 6.62 | 6.55 | 6.38 | 6.78 | | | | |
| | 377 | 6.05 | 6.91 | 6.77 | 6.34 | 6.62 | 6.59 | | | | |
| | 565 | 6.37 | 6.35 | 6.54 | 6.32 | 6.65 | 6.14 | | | | |

Mean D.M. % 91.4

74/R/CS/110 and 74/W/CS/110

GREAT HILL II (W)

GRAIN: TONNES/HECTARE

| FYM(73) | N(73) | | | TIME(73) | | | N 74 | | Mean |
|---------|---------------------------|-------------|-------|-------------|--------|---------------|------|------|------|
| | 188 | 377 | 565 | Autumn | Spring | Aut/Spng | 0 | 63 | |
| 0 | 2.40 | 2.69 | 2.73 | 2.62 | 2.59 | 2.60 | 1.99 | 3.22 | 2.61 |
| 63 | 2.87 | 2.88 | 2.65 | 2.72 | 2.74 | 2.94 | 2.29 | 3.31 | 2.80 |
| | | | N(73) | | | | | | |
| | | | 188 | 2.60 | 2.57 | 2.73 | 2.14 | 3.13 | 2.63 |
| | | | 377 | 2.88 | 2.64 | 2.84 | 2.14 | 3.43 | 2.79 |
| | | | 565 | 2.52 | 2.80 | 2.75 | 2.14 | 3.24 | 2.69 |
| | | | | | | TIME(73) | | | |
| | | | | | | Autumn | 2.14 | 3.19 | 2.67 |
| | | | | | | Spring | 2.15 | 3.19 | 2.67 |
| | | | | | | Aut/Spng | 2.13 | 3.42 | 2.77 |
| Mean | | | | | | | 2.14 | 3.26 | 2.70 |
| FYM(73) | TIME(73) N 74 N(73) | Autumn 0 | 63 | Spring 0 | 63 | Aut/Spng 0 | 63 | | |
| 0 | 188 | 1.95 | 3.01 | 1.96 | 2.57 | 1.75 | 3.13 | | |
| | 377 | 2.11 | 3.39 | 1.96 | 3.38 | 1.90 | 3.43 | | |
| | 565 | 2.16 | 3.09 | 2.15 | 3.54 | 2.00 | 3.41 | | |
| 63 | 188 | 2.22 | 3.22 | 2.44 | 3.29 | 2.50 | 3.53 | | |
| | 377 | 2.33 | 3.70 | 2.19 | 3.03 | 2.38 | 3.66 | | |
| | 565 | 2.10 | 2.72 | 2.18 | 3.32 | 2.25 | 3.33 | | |

7⁴/R/CS/110 and 7⁴/W/CS/110

GREAT HILL II (W)

STANDARD ERRORS OF DIFFERENCES

| FYM(73) | N(73) | TIME(73) | N 74 | FYM(73) N(73) | FYM(73) TIME(73) | N(73) TIME(73) |
|---|-------|----------|-----------------|------------------|---------------------|--------------------------------------|
| 0.071 | 0.087 | 0.087 | 0.056 | 0.123 | 0.123 | 0.150 |
| | | | FYM(73) N 74 | N(73) N 74 | TIME(73) N 74 | FYM(73) N(73) TIME(73) N 74 |
| | | | 0.090 | 0.110 | 0.110 | 0.270 |
| Except when comparing means with same levels of | | | | | | |
| FYM(73) | | | 0.079 | | | |
| N(73) | | | | 0.096 | | |
| TIME(73) | | | | | 0.096 | |
| FYM(73).N(73).TIME(73) | | | | | | 0.236 |

Mean D.M. % 82.2

74/R/CS/110 and 74/W/CS/110

GREAT HILL II (W)

STRAW: TONNES/HECTARE

| | N(73) | | | TIME(73) | | | N 74 | | Mean |
|---------|-------|------|-------|----------|--------|----------|------|------|------|
| | 188 | 377 | 565 | Autumn | Spring | Aut/Spng | 0 | 63 | |
| FYM(73) | | | | | | | | | |
| 0 | 1.61 | 1.88 | 1.94 | 1.81 | 1.80 | 1.81 | 1.40 | 2.22 | 1.81 |
| 63 | 2.11 | 2.04 | 1.99 | 1.95 | 2.10 | 2.09 | 1.77 | 2.33 | 2.05 |
| | | | N(73) | | | | | | |
| | | | 188 | 1.81 | 1.92 | 1.85 | 1.49 | 2.23 | 1.86 |
| | | | 377 | 2.04 | 1.93 | 1.90 | 1.66 | 2.25 | 1.96 |
| | | | 565 | 1.79 | 2.00 | 2.10 | 1.59 | 2.34 | 1.97 |
| | | | | | | TIME(73) | | | |
| | | | | | | Autumn | 1.57 | 2.19 | 1.88 |
| | | | | | | Spring | 1.61 | 2.30 | 1.95 |
| | | | | | | Aut/Spng | 1.57 | 2.33 | 1.95 |
| Mean | | | | | | | 1.58 | 2.27 | 1.93 |

| FYM(73) | TIME(73) N 74 N(73) | Autumn | | Spring | | Aut/Spng | |
|---------|---------------------------|--------|------|--------|------|----------|------|
| | | 0 | 63 | 0 | 63 | 0 | 63 |
| 0 | 188 | 1.32 | 2.02 | 1.21 | 1.83 | 1.21 | 2.04 |
| | 377 | 1.60 | 2.26 | 1.52 | 2.27 | 1.33 | 2.29 |
| | 565 | 1.39 | 2.28 | 1.53 | 2.43 | 1.46 | 2.55 |
| 63 | 188 | 1.64 | 2.24 | 1.78 | 2.87 | 1.79 | 2.36 |
| | 377 | 1.90 | 2.41 | 1.81 | 2.11 | 1.82 | 2.17 |
| | 565 | 1.57 | 1.93 | 1.78 | 2.27 | 1.83 | 2.57 |

Mean D.M. % 79.0