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# Yields of the Field Experiments 1975

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## 75/ R/CS/148 - Slow-release N - Wheat

### Rothamsted Research

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75/R/CS/148

SLOW-RELEASE N

Object: To compare the residual effects of a slow-release form of nitrogen with a conventional form (both applied to potatoes in 1974 at a range of rates), using winter wheat as the test crop - Pastures.

Sponsors: D. Cox, T.M. Addiscott.

The second year, winter wheat.

For previous year see 74/R/CS/148.

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

Whole plot dimensions: 4.27 x 16.2.

Treatments: All combinations of:-

|                                                                                  |  |            |
|----------------------------------------------------------------------------------|--|------------|
| Whole plots: 1. Form of nitrogen fertiliser 1974:                                |  | N FORM(74) |
| 'Gold-N', sulphur-coated urea                                                    |  | GOLD N     |
| 'Nitro-Chalk', ammonium nitrate/calcium carbonate                                |  | NITRO C    |
| 2. Rates of nitrogen fertiliser 1974 (kg N):                                     |  | N RATE(74) |
| None                                                                             |  | 0          |
| 50                                                                               |  | 50         |
| 100                                                                              |  | 100        |
| 150                                                                              |  | 150        |
| 200                                                                              |  | 200        |
| 250                                                                              |  | 250        |
| 300                                                                              |  | 300        |
| 350                                                                              |  | 350        |
| 400                                                                              |  | 400        |
| Sub-plots: 3. Rates of nitrogen fertiliser 1975 (kg N) applied as 'Nitro-Chalk': |  | N 75       |
| None                                                                             |  | 0          |
| 30                                                                               |  | 30         |
| 60                                                                               |  | 60         |
| 90                                                                               |  | 90         |

Basal applications: Manures: (0:20:20) at 250 kg, combine drilled.

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Seed: Cappelle, dressed with dieldrin, sown at 200 kg.

Cultivations, etc.:— Chisel ploughed twice: 10 Dec, 1974. Power harrowed,  
seed sown: 19 Dec. N applied: 25 Apr, 1975. Combine harvested:  
14 Aug. Previous crops: Beans 1973, potatoes 1974.

NOTE: Samples of grain were taken for N determinations.

GRAIN MEAN DM% 87.2

SUB PLOT AREA HARVESTED 0.00217

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GRAIN TONNES/HECTARE

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

|            |      |      |      |      |      |      |      |      |      |      |
|------------|------|------|------|------|------|------|------|------|------|------|
| N RATE(74) | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | MEAN |      |
| N FORM(74) |      |      |      |      |      |      |      |      |      |      |
| GOLD N     | 6.00 | 6.44 | 6.25 | 6.73 | 7.39 | 6.95 | 7.29 | 7.42 | 6.81 |      |
| NITRO C    | 6.20 | 6.07 | 6.43 | 6.88 | 6.66 | 6.46 | 7.08 | 7.09 | 6.61 |      |
| MEAN       | 6.10 | 6.25 | 6.34 | 6.80 | 7.03 | 6.70 | 7.19 | 7.26 | 6.71 |      |
| N RATE(74) | 0    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | MEAN |
| N 75       |      |      |      |      |      |      |      |      |      |      |
| 0          | 4.24 | 4.86 | 4.80 | 5.12 | 5.73 | 6.32 | 5.80 | 7.25 | 6.93 | 5.67 |
| 30         | 5.81 | 5.61 | 5.91 | 6.05 | 6.78 | 7.01 | 6.70 | 7.10 | 7.27 | 6.47 |
| 60         | 6.61 | 7.03 | 7.04 | 7.16 | 7.32 | 7.08 | 7.18 | 7.38 | 7.51 | 7.15 |
| 90         | 7.33 | 6.90 | 7.27 | 7.03 | 7.38 | 7.69 | 7.13 | 7.01 | 7.31 | 7.23 |
| MEAN       | 6.00 | 6.10 | 6.25 | 6.34 | 6.80 | 7.03 | 6.70 | 7.19 | 7.26 | 6.63 |
| N 75       | 0    | 30   | 60   | 90   | MEAN |      |      |      |      |      |
| N FORM(74) |      |      |      |      |      |      |      |      |      |      |
| NONE       | 4.24 | 5.81 | 6.61 | 7.33 | 6.00 |      |      |      |      |      |
| GOLD N     | 6.08 | 6.62 | 7.31 | 7.23 | 6.81 |      |      |      |      |      |
| NITRO C    | 5.62 | 6.49 | 7.11 | 7.20 | 6.61 |      |      |      |      |      |
| MEAN       | 5.67 | 6.47 | 7.15 | 7.23 | 6.63 |      |      |      |      |      |

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

| TABLE                                                             | N 75  | N FORM(74)           | N RATE(74) | N FORM(74)<br>N RATE(74) | N FORM(74)<br>N 75               | N RATE(74)<br>N 75 |
|-------------------------------------------------------------------|-------|----------------------|------------|--------------------------|----------------------------------|--------------------|
| SED                                                               | 0.092 | 0.094(1)<br>0.060(2) | 0.119      | 0.146                    | 0.217(1)<br>0.137(2)<br>0.275(3) | 0.275              |
| EXCEPT WHEN COMPARING MEANS WITH LEVELS 0 & 60 OR 30 & 90 OF N 75 |       |                      |            |                          |                                  |                    |
| 0.102                                                             |       |                      |            |                          |                                  |                    |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVELS OF N FORM(74)        |       |                      |            |                          |                                  |                    |
| AND LEVELS 0 & 60 OR 30 & 90 OF N 75                              |       |                      |            |                          |                                  |                    |
| 0.242(1)<br>0.153(2)<br>0.307(3)                                  |       |                      |            |                          |                                  |                    |
| EXCEPT WHEN COMPARING MEANS WITH SAME LEVELS OF N RATE(74)        |       |                      |            |                          |                                  |                    |
| AND LEVELS 0 & 60 OR 30 & 90 OF N 75                              |       |                      |            |                          |                                  |                    |
| 0.307                                                             |       |                      |            |                          |                                  |                    |

- (1) NONE V REMAINDER  
 (2) WITHIN REMAINDER  
 (3) WITHIN NONE

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

| STRATUM     | DF | SE    | CV% |
|-------------|----|-------|-----|
| BLOCK.WP    | 8  | 0.169 | 2.5 |
| BLOCK.WP.SP | 16 | 0.307 | 4.6 |