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# Yields of the Field Experiments 2002

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Yields of the  
Classical  
and other  
Long-term Experiments  
2002

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## 02/W/RN/3 - Woburn Ley Arable

### Rothamsted Research

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02/W/RN/3

LEY/ARABLE

**Object:** To compare the effects on soil fertility of rotations with or without leys - Woburn, Stackyard D.

**Sponsor:** P.R. Poulton.

The 65th year, leys, w. beans, w. wheat, w. rye, forage maize.

For previous years see 'Details' 1967 & 1973 and 74-01/W/RN/3.

**Design:** 5 series of 8 plots, split for treatments other than rotations.

**Whole plot dimensions:** 8.53 x 40.7.

**Treatments:** All phases of four five-course rotations were originally present:

ROTATION

|     |                    |   |
|-----|--------------------|---|
| LEY | Clover/grass ley:  | L, L, L, P, W                                     |
| CLO | All legume ley:    | SA, SA, SA, P, W until 1971 then CL, CL, CL, P, W |
| A   | Arable with roots: | P, R, C, P, W until 1971 then P, B, B, P, W       |
| A H | Arable with hay:   | P, R, H, P, W until 1971 then P, B, H, P, W       |

P = potatoes, R = w. rye, C = carrots, W = w. wheat, B = s. barley, H = hay, L = clover/grass ley, SA = sainfoin ley, CL = red clover ley

Rotations themselves followed different cycles:

On four plots in each block the rotations were repeated

On four plots in each block arable rotations alternated each five years with ley rotations

From 1976 all the rotations were changed on all phases except for the first and second test crops in 1976:

|      |                                    |
|------|------------------------------------|
| LN 3 | (Previous LEY) LN1, LN2, LN3, W, R |
| LC 3 | (Previous CLO) LC1, LC2, LC3, W, R |
| AF   | (Previous A) F, F, BE, W, R        |
| AB   | (Previous A H) B, B, BE, W, R      |

From 1998 rotations AF and AB are replaced by AM and ABe respectively. Phased in at the beginning of each treatment crop sequence.

|     |                |
|-----|----------------|
| AM  | R, BE, M, W, R |
| ABe | R, M, BE, W, R |

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ROTATION (continued)

LN1 to LN3 = three year grass ley with N, 1st year to 3rd year,  
LC = clover/grass ley, no N, BE = beans (s. oats until 1980), F = fallow,  
M = forage maize

Plots hitherto in alternating rotations were changed to  
test eight-year leys and two test crops:

LLN                    LLN1, LLN2, LLN3, LLN4, LLN5, LLN6, LLN7, LLN8, W, R  
LLC                    LLC1, LLC2, LLC3, LLC4, LLC5, LLC6, LLC7, LLC8, W, R

LLN1 to LLN8 = eight year grass ley with nitrogen, first year to eighth  
year, similarly for LLC - clover/grass ley, no nitrogen

The new scheme started by sowing these new leys in spring 1976 on four  
phases and in spring 1977 on the fifth phase (2nd test crop in 1976).

In 1992 w. rye (R) replaced s. barley (B) as the second test crop.

Yields are taken from the leys, arable treatment crops and the test crops.

Treatments to first test crop w. wheat, all combinations of:

Whole plots:

1. ROTATION                    Rotations before wheat:

LLN 8  
LN 3  
LLC 8  
LC 3  
AM  
ABe

1/2 plots:

2. NSPLIT(FYM res)            Farmyard manure residues, last applied 1967:

Nsplit(noFYM)  
Nsingle(FYM)

1/8 plots:

3. N                    Nitrogen fertilizer in spring 2002 (kg N) as 27% N for  
1<sup>st</sup> split dressing, as 33.5% N for second and single  
dressings:

|     |            |         |                   |
|-----|------------|---------|-------------------|
| 0   |            |         |                   |
| 70  | ) as a     | 40 + 30 | ) split dressings |
| 140 | ) single   | OR      | 40 + 100          |
| 210 | ) dressing |         | 40 + 170          |

) late Feb/early Mar  
) and GS31 or mid-Apr

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Treatments to second test crop w. rye, all combinations of:

Whole plots:

1. ROTATION Rotations before first test crop:

LLN 8  
LN 3  
LLC 8  
LC 3  
AF  
AB

1/2 plots:

2. NSPLIT(FYM res) Farmyard manure residues, last applied 1966:

Nsplit to wheat in 2001(noFYM)  
Nsingle to wheat in 2001 (FYM)

1/8 plots:

3. N Nitrogen fertilizer in spring 2002 (kg N) as 33.5% N:

0  
40  
80  
120

Treatments to leys:

FYM RES Farmyard manure residues:

NONE  
FYM

38 t on each occasion, last applied 1965 to 1st and 6th year leys, 1964 to 2nd and 7th year leys, 1963 to 3rd and 8th year leys, 1967 to 4th year leys, 1966 to 5th year leys.

NOTE: Corrective K dressings (kg K<sub>2</sub>O) as muriate of potash, applied where necessary to first test crop w. wheat and long-term leys in the wheat block, applied 20<sup>th</sup> and 26<sup>th</sup> September 2001.

| Continuous rotations<br>before wheat | No FYM<br>half plots | FYM<br>half plots |
|--------------------------------------|----------------------|-------------------|
| AM                                   | 190                  | 190               |
| ABe                                  | 180                  | 210               |
| Ln                                   | 60                   | 20                |

None to other plots.

02/W/RN/3

**Experimental diary:**

Grass ley and clover/grass ley, 1<sup>st</sup> year (ROTATION LN1, LLN1, LC1, and LLC1)

20-Sep-01 : T : : Ploughed.  
21-Sep-01 : T : : Rolled.  
22-Sep-01 : T : : Rotary harrowed, drilled, grass/clover mix and grass mix, at 30 kg with 4.0 m Accord drill. Rolled.  
04-Oct-01 : T : : 27.0% N at 93 kg, 1st year grass/clover leys; at 185 kg, 1st year grass leys.  
12-Mar-02 : T : : 33.5% N at 224 kg grass leys.  
13-Mar-02 : T : : Muriate of potash at 167 kg.  
14-Apr-02 : T : : Legumex Extra at 7.0 l in 200 l.  
18-Jun-02 : T : : Cut yield strips, weighed and sampled.  
25-Jun-02 : T : : Mowed for hay.  
: T : : Turned hay.  
26-Jun-02 : T : : Turned hay.  
28-Jun-02 : T : : Turned hay.  
29-Jun-02 : T : : Baled hay.  
02-Jul-02 : T : : Muriate of potash at 83 kg.  
: T : : 33.5% N at 224 kg, grass leys.  
24-Sep-02 : T : : Mowed discard. Mowed, sampled and weighed plots for yield.  
26-Sep-02 : B : : Rowed up, baled, and carted grass, clover/grass.

Grass leys 2<sup>nd</sup> to 8<sup>th</sup> year (ROTATION LN2-3 and LLN2-8)

02-Jan-02 : T : : Potassium sulphate at 140 kg, Triple superphosphate at 213 kg.  
12-Mar-02 : T : : 33.5% N at 224 kg grass leys.  
13-Mar-02 : T : : Muriate of potash at 167 kg.  
14-Apr-02 : T : : Legumex Extra at 7.0 l in 200 l.  
18-Jun-02 : T : : Cut yield strips, weighed and sampled.  
25-Jun-02 : T : : Mowed for hay.  
: T : : Turned hay.  
26-Jun-02 : T : : Turned hay.  
28-Jun-02 : T : : Turned hay.  
29-Jun-02 : T : : Baled hay.  
02-Jul-02 : T : : Muriate of potash at 83 kg.  
: T : : 33.5% N at 224 kg, grass leys.  
19-Sep-02 : T : : Egret at 4.0 l in 200 l, LN3, LLN8 plots that are to be ploughed.  
24-Sep-02 : T : : Mowed discard, except plots 51, 52, 57 & 58 (previously sprayed with Egret).  
: T : : Mowed, sampled and weighed plots for yield.  
26-Sep-02 : B : : Rowed up, baled, and carted grass.

Clover/grass leys 2<sup>nd</sup> to 8<sup>th</sup> year (ROTATION LC2-3 and LLC2-8)

02-Jan-02 : T : : Potassium sulphate at 140 kg, Triple superphosphate at 213 kg.  
13-Mar-02 : T : : Muriate of potash at 167 kg.  
14-Apr-02 : T : : Legumex Extra at 7.0 l in 200 l.  
18-Jun-02 : T : : Cut yield strips, weighed and sampled.  
25-Jun-02 : T : : Mowed for hay.  
: T : : Turned hay.  
26-Jun-02 : T : : Turned hay.  
28-Jun-02 : T : : Turned hay.  
29-Jun-02 : T : : Baled hay.  
02-Jul-02 : T : : Muriate of potash at 83 kg.  
19-Sep-02 : T : : Egret at 4.0 l in 200 l, LC3 and LLC8 plots that are to be ploughed.

02/W/RN/3

**Experimental diary:**

Clover/grass leys 2<sup>nd</sup> to 8<sup>th</sup> year (ROTATION LC2-3 and LLC2-8)

24-Sep-02 : T : : Mowed discard grass, except plots 49, 50, 59, & 60 (previously sprayed with Egret).  
: T : : Mowed, sampled and weighed plots for yield.

26-Sep-02 : B : : Rowed up, baled, and carted clover/grass.

W. beans, 2<sup>nd</sup> and 3<sup>rd</sup> treatment crop (ROTATION AM and ABe)

20-Sep-01 : T : : Sulphate of potash at 140 kg, (except plots 53 and 54).  
: T : : Triple superphosphate at 127 kg, (except plots 53 and 54).

26-Sep-01 : T : : Sulphate of potash at 140 kg, plots 53 and 54.  
: T : : Triple superphosphate at 127 kg, plots 53 and 54.

05-Nov-01 : T : : Broadcast, Clipper, recleaned at 25 seeds/m<sup>2</sup> by hand. Ploughed.

03-Dec-01 : T : : Gesatop at 2.0 l in 220 l.

11-Apr-02 : T : : Hallmark with Zeon technology at 75 ml in 220 l.

01-Jul-02 : T : : tm)Bravo 500 at 2.0 l in 200 l.  
: T : : tm)Folicur at 0.5 l in 200 l.  
: T : : tm)Aphox at 280 g in 200 l.

29-Aug-02 : T : : Combine harvested plots for yield.  
: T : : Swathed straw.

31-Aug-02 : B : : Baled and removed straw.

19-Sep-02 : T : : Egret at 4.0 l in 200 l.

Forage maize, 2<sup>nd</sup> and 3<sup>rd</sup> treatment crop (ROTATION Abe and AM)

20-Sep-01 : T : : Sulphate of potash at 140 kg.  
: T : : Triple superphosphate at 127 kg.

05-Nov-01 : T : : Ploughed.

09-May-02 : T : : Rotary harrowed. Drilled, Hudson, tr. Mesurol, at 10 seeds/m<sup>2</sup> with the Nodet drill.

20-May-02 : T : : 27.0% N at 370 kg.

20-Jun-02 : T : : tm)Gesaprim at 3.0 l in 220 l.  
: T : : tm)Cropoil at 5.0 l in 220 l.

12-Sep-02 : T : : Cut discards.  
: T : : Cut sample areas, weighed and sampled.

19-Sep-02 : T : : Egret at 4.0 l in 200 l.

W. wheat, 1<sup>st</sup> test crop (W)

20-Sep-01 : T : : Muriate of potash (corrective K) by hand at 60 kg K<sub>2</sub>O plot 65; 20 kg K<sub>2</sub>O plot 66; 210 kg K<sub>2</sub>O plot 67; 180 kg K<sub>2</sub>O plot 68.  
: T : : Sulphate of potash at 140 kg, (except plots 73 and 74, still in maize).  
: T : : Triple superphosphate at 127 kg, (except plots 73 and 74).  
: T : : Ploughed for leys, wheat and rye, except those still in maize.

21-Sep-01 : T : : Rolled.

26-Sep-01 : T : : Muriate of potash (corrective K) by hand at 190 kg K<sub>2</sub>O plots 73 and 74.  
: T : : Sulphate of potash at 140 kg, plots 73 and 74.  
: T : : Triple superphosphate at 127 kg, plots 73 and 74.  
: T : : Ploughed and rolled, plots 73 and 74.  
: T : : Drilled, Claire, tr. Sibutol + Aventis Manganese 500, at 300 seeds/m<sup>2</sup> with the Accord drill.

28-Sep-01 : T : : Rolled.

16-Nov-01 : T : : tm)Stomp 400 SC at 4.0 l in 200 l.  
: T : : tm)Tolkan liquid at 2.5 l in 200 l.

14-Mar-02 : T : : 1<sup>st</sup> N applied to split N sub-plots.

02/W/RN/3

**Experimental diary:**

W. wheat, 1<sup>st</sup> test crop (W)

14-Apr-02 : T : tm)Ally at 30 g in 200 l.  
: T : : tm)Opus at 0.5 l in 200 l.  
: T : : tm)BASF 3C Chlormequat 720 at 2.0 l in 200 l.  
16-Apr-02 : T : : 2<sup>nd</sup> N applied to split N sub-plots and single dose  
to others.  
27-May-02 : T : : tm)Amistar at 0.8 l in 200 l.  
: T : : tm)Opus at 0.5 l in 200 l.  
22-Aug-02 : T : : Combine harvested plots for yield.  
30-Aug-02 : B : : Combine harvested all remaining wheat. Swathed  
straw. Sampled, baled and weighed straw.  
31-Aug-02 : B : : Baled and removed straw.  
19-Sep-02 : T : : Egret at 4.0 l in 200 l.

W. rye, 2<sup>nd</sup> test crop and 1<sup>st</sup> treatment crop (ROTATION Abe and AM)

20-Sep-01 : T : : Sulphate of potash at 140 kg.  
: T : : Triple superphosphate at 127 kg.  
: T : : Ploughed.  
21-Sep-01 : T : : Rolled.  
04-Oct-01 : T : : Rotary harrowed. Drilled, Picasso/Nikita blend  
(90:10), tr. Baytan, at 275 seeds/m<sup>2</sup> with 4.0 m  
Accord drill. Rolled.  
17-Oct-01 : T : : Ardent at 2.0 l in 200 l.  
16-Apr-02 : T : : N applied, 27% N at 296 kg to treatment plots.  
: T : : N applied to 2<sup>nd</sup> test crop.  
27-May-02 : T : : tm)Amistar at 0.8 l in 200 l.  
: T : : tm)Opus at 0.5 l in 200 l.  
22-Aug-02 : T : : Combine harvested plots for yield.  
30-Aug-02 : B : : Combine harvested all remaining rye. Swathed  
straw. Sampled, baled and weighed straw.  
31-Aug-02 : B : : Baled and removed straw.  
19-Sep-02 : T : : Egret at 4.0 l in 200 l.

02/W/RN/3

LEYS

1ST CUT (18/6/02) DRY MATTER TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| FYM RES | NONE | FYM  | Mean |
|---------|------|------|------|
| LEY     |      |      |      |
| LC1     | 1.18 | 1.20 | 1.19 |
| LC2     | 4.15 | 4.82 | 4.48 |
| LC3     | 6.14 | 6.22 | 6.18 |
| LN1     | 3.64 | 3.93 | 3.78 |
| LN2     | 7.85 | 8.09 | 7.97 |
| LN3     | 6.93 | 7.02 | 6.98 |
| LLC1    | 1.24 | 0.73 | 0.99 |
| LLC2    | 5.56 | 5.14 | 5.35 |
| LLC3    | 6.74 | 6.91 | 6.83 |
| LLC4    | 5.60 | 5.28 | 5.44 |
| LLC5    | 6.07 | 6.21 | 6.14 |
| LLC6    | 4.31 | 2.79 | 3.55 |
| LLC7    | 2.03 | 3.16 | 2.60 |
| LLC8    | 5.61 | 6.10 | 5.86 |
| LLN1    | 2.61 | 3.19 | 2.90 |
| LLN2    | 7.27 | 7.45 | 7.36 |
| LLN3    | 7.19 | 7.54 | 7.37 |
| LLN4    | 6.81 | 7.22 | 7.01 |
| LLN5    | 8.52 | 8.15 | 8.34 |
| LLN6    | 8.06 | 8.99 | 8.52 |
| LLN7    | 7.60 | 6.81 | 7.20 |
| LLN8    | 8.18 | 7.58 | 7.88 |
| Mean    | 5.60 | 5.66 | 5.63 |

1ST CUT MEAN DM% 26.6



02/W/RN/3

LEYS

2ND CUT (24/9/02) DRY MATTER TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| FYM RES | NONE | FYM  | Mean |
|---------|------|------|------|
| LEY     |      |      |      |
| LC1     | 0.97 | 0.88 | 0.92 |
| LC2     | 0.97 | 0.96 | 0.96 |
| LC3     | 1.81 | 1.66 | 1.74 |
| LN1     | 0.54 | 0.37 | 0.45 |
| LN2     | 2.06 | 1.96 | 2.01 |
| LN3     | 1.53 | 1.98 | 1.76 |
| LLC1    | 1.88 | 1.82 | 1.85 |
| LLC2    | 1.09 | 1.07 | 1.08 |
| LLC3    | 1.84 | 1.86 | 1.85 |
| LLC4    | 1.84 | 1.80 | 1.82 |
| LLC5    | 1.40 | 0.93 | 1.17 |
| LLC6    | 0.74 | 0.30 | 0.52 |
| LLC7    | 0.33 | 0.42 | 0.38 |
| LLC8    | 1.28 | 1.06 | 1.17 |
| LLN1    | 0.94 | 1.47 | 1.20 |
| LLN2    | 1.80 | 1.51 | 1.65 |
| LLN3    | 1.42 | 1.21 | 1.31 |
| LLN4    | 1.56 | 1.90 | 1.73 |
| LLN5    | 2.23 | 2.67 | 2.45 |
| LLN6    | 2.47 | 2.52 | 2.50 |
| LLN7    | 1.81 | 2.38 | 2.10 |
| LLN8    | 2.55 | 2.12 | 2.33 |
| Mean    | 1.50 | 1.49 | 1.50 |

2ND CUT MEAN DM% 39.3

02/W/RN/3

LEYS

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

\*\*\*\* Tables of means \*\*\*\*

| FYM RES | NONE  | FYM   | Mean  |
|---------|-------|-------|-------|
| LEY     |       |       |       |
| LC1     | 2.15  | 2.07  | 2.11  |
| LC2     | 5.12  | 5.77  | 5.44  |
| LC3     | 7.95  | 7.89  | 7.92  |
| LN1     | 4.18  | 4.29  | 4.23  |
| LN2     | 9.91  | 10.04 | 9.98  |
| LN3     | 8.46  | 9.00  | 8.73  |
| LLC1    | 3.12  | 2.55  | 2.83  |
| LLC2    | 6.65  | 6.22  | 6.43  |
| LLC3    | 8.58  | 8.77  | 8.67  |
| LLC4    | 7.44  | 7.07  | 7.26  |
| LLC5    | 7.47  | 7.14  | 7.31  |
| LLC6    | 5.05  | 3.09  | 4.07  |
| LLC7    | 2.37  | 3.58  | 2.97  |
| LLC8    | 6.89  | 7.16  | 7.03  |
| LLN1    | 3.55  | 4.66  | 4.11  |
| LLN2    | 9.07  | 8.96  | 9.01  |
| LLN3    | 8.61  | 8.76  | 8.68  |
| LLN4    | 8.37  | 9.13  | 8.75  |
| LLN5    | 10.75 | 10.82 | 10.79 |
| LLN6    | 10.54 | 11.50 | 11.02 |
| LLN7    | 9.41  | 9.19  | 9.30  |
| LLN8    | 10.73 | 9.70  | 10.22 |
| Mean    | 7.11  | 7.15  | 7.13  |

TOTAL OF 2 CUTS MEAN DM% 33.0

PLOT AREA HARVESTED 0.00200

W. BEANS

GRAIN (AT 85% DRY MATTER) TONNES/HECTARE

\*\*\*\* Tables of means \*\*\*\*

| FYMRRES | NONE | FYM  | Mean |
|---------|------|------|------|
|         | 2.97 | 3.50 | 3.23 |

GRAIN MEAN DM% 81.2

PLOT AREA HARVESTED 0.00413

02/W/RN/3

W. WHEAT

GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| NSPLITFYM        | Nsplit (noFYM) | Nsingle (FYM) | Mean  |       |       |
|------------------|----------------|---------------|-------|-------|-------|
| <b>ROTATION</b>  |                |               |       |       |       |
| LLN 8            | 7.36           | 7.53          | 7.44  |       |       |
| LN 3             | 6.70           | 7.08          | 6.89  |       |       |
| LLC 8            | 9.01           | 8.19          | 8.60  |       |       |
| LC 3             | 9.16           | 9.77          | 9.47  |       |       |
| AM               | 6.62           | 6.37          | 6.49  |       |       |
| ABe              | 6.90           | 6.90          | 6.90  |       |       |
| Mean             | 7.62           | 7.64          | 7.63  |       |       |
| <b>N</b>         | 0              | 70            | 140   | 210   | Mean  |
| <b>ROTATION</b>  |                |               |       |       |       |
| LLN 8            | 4.94           | 7.75          | 8.45  | 8.63  | 7.44  |
| LN 3             | 4.54           | 7.06          | 7.95  | 8.00  | 6.89  |
| LLC 8            | 6.59           | 8.20          | 9.59  | 10.03 | 8.60  |
| LC 3             | 7.28           | 10.01         | 10.32 | 10.25 | 9.47  |
| AM               | 2.44           | 6.05          | 8.46  | 9.03  | 6.49  |
| ABe              | 3.30           | 6.56          | 8.46  | 9.29  | 6.90  |
| Mean             | 4.85           | 7.61          | 8.87  | 9.20  | 7.63  |
| <b>N</b>         | 0              | 70            | 140   | 210   | Mean  |
| <b>NSPLITFYM</b> |                |               |       |       |       |
| Nsplit (noFYM)   | 4.94           | 7.49          | 9.09  | 8.98  | 7.62  |
| Nsingle (FYM)    | 4.75           | 7.72          | 8.66  | 9.43  | 7.64  |
| Mean             | 4.85           | 7.61          | 8.87  | 9.20  | 7.63  |
| <b>ROTATION</b>  | <b>N</b>       | 0             | 70    | 140   | 210   |
| <b>NSPLITFYM</b> |                |               |       |       |       |
| LLN 8            | Nsplit (noFYM) | 5.06          | 7.21  | 8.67  | 8.49  |
|                  | Nsingle (FYM)  | 4.82          | 8.28  | 8.23  | 8.77  |
| LN 3             | Nsplit (noFYM) | 4.28          | 6.50  | 8.43  | 7.58  |
|                  | Nsingle (FYM)  | 4.80          | 7.63  | 7.47  | 8.41  |
| LLC 8            | Nsplit (noFYM) | 7.97          | 8.64  | 9.38  | 10.07 |
|                  | Nsingle (FYM)  | 5.22          | 7.77  | 9.79  | 9.98  |
| LC 3             | Nsplit (noFYM) | 6.72          | 9.89  | 10.30 | 9.71  |
|                  | Nsingle (FYM)  | 7.83          | 10.12 | 10.34 | 10.80 |
| AM               | Nsplit (noFYM) | 2.43          | 6.04  | 8.89  | 9.11  |
|                  | Nsingle (FYM)  | 2.44          | 6.07  | 8.02  | 8.94  |
| ABe              | Nsplit (noFYM) | 3.20          | 6.67  | 8.84  | 8.89  |
|                  | Nsingle (FYM)  | 3.40          | 6.45  | 8.09  | 9.68  |

GRAIN MEAN DM% 84.3

02/W/RN/3

W. WHEAT

STRAW TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| NSPLITFYM        | Nsplit (noFYM)   | Nsingle (FYM) | Mean |      |      |      |
|------------------|------------------|---------------|------|------|------|------|
| <b>ROTATION</b>  |                  |               |      |      |      |      |
| LLN 8            | 3.05             | 2.74          | 2.90 |      |      |      |
| LN 3             | 2.70             | 2.86          | 2.78 |      |      |      |
| LLC 8            | 4.60             | 3.56          | 4.08 |      |      |      |
| LC 3             | 4.30             | 4.41          | 4.36 |      |      |      |
| AM               | 2.70             | 2.82          | 2.76 |      |      |      |
| ABe              | 2.98             | 2.57          | 2.77 |      |      |      |
| Mean             | 3.39             | 3.16          | 3.27 |      |      |      |
|                  | N                | 0             | 70   | 140  | 210  | Mean |
| <b>ROTATION</b>  |                  |               |      |      |      |      |
| LLN 8            | 1.41             | 2.61          | 3.52 | 4.04 | 2.90 |      |
| LN 3             | 1.52             | 3.20          | 3.70 | 2.69 | 2.78 |      |
| LLC 8            | 2.53             | 3.61          | 4.95 | 5.23 | 4.08 |      |
| LC 3             | 2.94             | 4.96          | 4.79 | 4.74 | 4.36 |      |
| AM               | 0.55             | 2.62          | 3.90 | 3.98 | 2.76 |      |
| ABe              | 0.88             | 2.57          | 3.65 | 3.99 | 2.77 |      |
| Mean             | 1.64             | 3.26          | 4.08 | 4.11 | 3.27 |      |
|                  | N                | 0             | 70   | 140  | 210  | Mean |
| <b>NSPLITFYM</b> |                  |               |      |      |      |      |
| Nsplit (noFYM)   | 1.71             | 3.27          | 4.41 | 4.17 | 3.39 |      |
| Nsingle (FYM)    | 1.57             | 3.25          | 3.76 | 4.06 | 3.16 |      |
| Mean             | 1.64             | 3.26          | 4.08 | 4.11 | 3.27 |      |
|                  | N                | 0             | 70   | 140  | 210  |      |
| <b>ROTATION</b>  |                  |               |      |      |      |      |
|                  | <b>NSPLITFYM</b> |               |      |      |      |      |
| LLN 8            | Nsplit (noFYM)   | 1.66          | 2.61 | 3.78 | 4.17 |      |
|                  | Nsingle (FYM)    | 1.16          | 2.61 | 3.26 | 3.92 |      |
| LN 3             | Nsplit (noFYM)   | 1.26          | 2.57 | 4.46 | 2.51 |      |
|                  | Nsingle (FYM)    | 1.79          | 3.84 | 2.94 | 2.88 |      |
| LLC 8            | Nsplit (noFYM)   | 3.52          | 4.19 | 5.19 | 5.50 |      |
|                  | Nsingle (FYM)    | 1.54          | 3.03 | 4.71 | 4.95 |      |
| LC 3             | Nsplit (noFYM)   | 2.56          | 4.87 | 4.82 | 4.94 |      |
|                  | Nsingle (FYM)    | 3.31          | 5.06 | 4.75 | 4.53 |      |
| AM               | Nsplit (noFYM)   | 0.49          | 2.76 | 3.84 | 3.72 |      |
|                  | Nsingle (FYM)    | 0.60          | 2.47 | 3.97 | 4.23 |      |
| Abe              | Nsplit (noFYM)   | 0.74          | 2.63 | 4.36 | 4.16 |      |
|                  | Nsingle (FYM)    | 1.02          | 2.51 | 2.94 | 3.83 |      |

STRAW MEAN DM% 85.7

Plot area harvested 0.00183

02/W/RN/3

W. RYE

GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| NSPLITFYM        | (Nsplit) (noFYM) | (Nsingle) (FYM) |      |       |       | Mean  |
|------------------|------------------|-----------------|------|-------|-------|-------|
| <b>ROTATION</b>  |                  |                 |      |       |       |       |
| LLN 8            | 7.06             | 7.29            |      |       |       | 7.17  |
| LN 3             | 8.28             | 8.27            |      |       |       | 8.28  |
| LLC 8            | 7.21             | 7.24            |      |       |       | 7.22  |
| LC 3             | 7.43             | 7.50            |      |       |       | 7.46  |
| AM               | 5.77             | 6.35            |      |       |       | 6.06  |
| ABe              | 6.48             | 7.01            |      |       |       | 6.75  |
| Mean             | 7.04             | 7.28            |      |       |       | 7.16  |
|                  | N                | 0               | 40   | 80    | 120   | Mean  |
| <b>ROTATION</b>  |                  |                 |      |       |       |       |
| LLN 8            | 4.87             | 6.69            | 8.60 | 8.53  |       | 7.17  |
| LN 3             | 5.83             | 7.62            | 9.62 | 10.05 |       | 8.28  |
| LLC 8            | 4.74             | 7.23            | 8.20 | 8.73  |       | 7.22  |
| LC 3             | 4.86             | 6.89            | 8.97 | 9.14  |       | 7.46  |
| AM               | 2.61             | 5.43            | 7.27 | 8.92  |       | 6.06  |
| ABe              | 3.69             | 6.03            | 8.06 | 9.20  |       | 6.75  |
| Mean             | 4.43             | 6.65            | 8.45 | 9.10  |       | 7.16  |
|                  | N                | 0               | 40   | 80    | 120   | Mean  |
| <b>NSPLITFYM</b> |                  |                 |      |       |       |       |
| (Nsplit) (noFYM) | 4.47             | 6.61            | 8.19 | 8.88  |       | 7.04  |
| (Nsingle) (FYM)  | 4.40             | 6.69            | 8.71 | 9.31  |       | 7.28  |
| Mean             | 4.43             | 6.65            | 8.45 | 9.10  |       | 7.16  |
|                  | N                | 0               | 40   | 80    | 120   |       |
| <b>ROTATION</b>  |                  |                 |      |       |       |       |
| LLN 8            | <b>NSPLITFYM</b> |                 | 4.90 | 6.53  | 8.48  | 8.35  |
|                  | (Nsplit) (noFYM) | (Nsingle) (FYM) | 4.85 | 6.86  | 8.72  | 8.72  |
| LN 3             | <b>NSPLITFYM</b> |                 | 6.13 | 7.69  | 9.18  | 10.14 |
|                  | (Nsplit) (noFYM) | (Nsingle) (FYM) | 5.53 | 7.54  | 10.07 | 9.95  |
| LLC 8            | <b>NSPLITFYM</b> |                 | 4.90 | 7.35  | 8.09  | 8.48  |
|                  | (Nsplit) (noFYM) | (Nsingle) (FYM) | 4.58 | 7.10  | 8.31  | 8.98  |
| LC 3             | <b>NSPLITFYM</b> |                 | 5.09 | 6.93  | 8.65  | 9.04  |
|                  | (Nsplit) (noFYM) | (Nsingle) (FYM) | 4.62 | 6.84  | 9.28  | 9.24  |
| AM               | <b>NSPLITFYM</b> |                 | 2.36 | 5.32  | 7.08  | 8.32  |
|                  | (Nsplit) (noFYM) | (Nsingle) (FYM) | 2.86 | 5.54  | 7.46  | 9.53  |
| Abe              | <b>NSPLITFYM</b> |                 | 3.44 | 5.82  | 7.69  | 8.97  |
|                  | (Nsplit) (noFYM) | (Nsingle) (FYM) | 3.94 | 6.24  | 8.43  | 9.43  |

GRAIN MEAN DM% 84.0

02/W/RN/3

W. RYE

STRAW TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| NSPLITFYM        | (Nsplit)  | (noFYM)  | (Nsingle) | (FYM)     | Mean       |             |
|------------------|-----------|----------|-----------|-----------|------------|-------------|
| <b>ROTATION</b>  |           |          |           |           |            |             |
| LLN 8            |           | 4.41     |           | 4.97      | 4.69       |             |
| LN 3             |           | 5.29     |           | 5.11      | 5.20       |             |
| LLC 8            |           | 4.89     |           | 4.85      | 4.87       |             |
| LC 3             |           | 4.86     |           | 5.08      | 4.97       |             |
| AM               |           | 3.46     |           | 3.47      | 3.46       |             |
| ABe              |           | 4.17     |           | 4.34      | 4.25       |             |
| Mean             |           | 4.51     |           | 4.64      | 4.57       |             |
|                  | <b>N</b>  | <b>0</b> | <b>40</b> | <b>80</b> | <b>120</b> | <b>Mean</b> |
| <b>ROTATION</b>  |           |          |           |           |            |             |
| LLN 8            |           | 3.44     | 4.57      | 5.78      | 5.00       | 4.69        |
| LN 3             |           | 3.71     | 4.78      | 6.11      | 6.20       | 5.20        |
| LLC 8            |           | 3.58     | 4.83      | 5.43      | 5.62       | 4.87        |
| LC 3             |           | 3.24     | 4.18      | 5.70      | 6.75       | 4.97        |
| AM               |           | 1.76     | 3.44      | 3.91      | 4.74       | 3.46        |
| ABe              |           | 2.69     | 3.76      | 5.11      | 5.45       | 4.25        |
| Mean             |           | 3.07     | 4.26      | 5.34      | 5.63       | 4.57        |
|                  | <b>N</b>  | <b>0</b> | <b>40</b> | <b>80</b> | <b>120</b> | <b>Mean</b> |
| <b>NSPLITFYM</b> |           |          |           |           |            |             |
| (Nsplit)         |           | 3.16     | 4.36      | 5.04      | 5.50       | 4.51        |
| (Nsingle)        |           | 2.98     | 4.17      | 5.64      | 5.76       | 4.64        |
| Mean             |           | 3.07     | 4.26      | 5.34      | 5.63       | 4.57        |
|                  | <b>N</b>  | <b>0</b> | <b>40</b> | <b>80</b> | <b>120</b> | <b>Mean</b> |
| <b>ROTATION</b>  |           |          |           |           |            |             |
| LLN 8            | (Nsplit)  |          | 3.31      | 4.18      | 5.63       | 4.55        |
|                  | (Nsingle) |          | 3.57      | 4.95      | 5.93       | 5.44        |
| LN 3             | (Nsplit)  |          | 3.73      | 5.23      | 5.61       | 6.61        |
|                  | (Nsingle) |          | 3.70      | 4.33      | 6.61       | 5.80        |
| LLC 8            | (Nsplit)  |          | 4.13      | 5.23      | 4.96       | 5.22        |
|                  | (Nsingle) |          | 3.02      | 4.44      | 5.90       | 6.02        |
| LC 3             | (Nsplit)  |          | 3.48      | 3.98      | 5.19       | 6.79        |
|                  | (Nsingle) |          | 3.00      | 4.39      | 6.22       | 6.72        |
| AM               | (Nsplit)  |          | 1.65      | 3.68      | 3.82       | 4.70        |
|                  | (Nsingle) |          | 1.88      | 3.20      | 4.01       | 4.78        |
| Abe              | (Nsplit)  |          | 2.65      | 3.84      | 5.07       | 5.11        |
|                  | (Nsingle) |          | 2.73      | 3.67      | 5.16       | 5.79        |

STRAW MEAN DM% 89.9

Plot area harvested 0.00192

02/W/RN/3

W. RYE EXTRA

GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| FYMRES | NONE | FYM  | Mean |
|--------|------|------|------|
|        | 6.15 | 6.18 | 6.16 |

GRAIN MEAN DM% 83.8

PLOT AREA HARVESTED 0.00413

MAIZE

WHOLE CROP (AT 100% DRY MATTER) TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

| FYMRES | NONE  | FYM   | Mean  |
|--------|-------|-------|-------|
|        | 12.85 | 12.61 | 12.73 |

TOTAL PLANT DM% 27.9

PLOT AREA HARVESTED 0.00108