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ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1987

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Potatoes

Rothamsted Research

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87/R/P/1 and 87/W/P/1

POTATOES

VARIETIES

Object: To compare the quality and yield of some of the newer varieties of potato with current standards on two soil types - Rothamsted Little Hoos (R), Woburn Horsepool Lane Close West (W).

Sponsor: R. Moffitt.

Design: 4 randomised blocks of 7 plots.

Whole plot dimensions: 3.0 x 6.1.

Treatments:

| VARIETY | Varieties: |
|----------|----------------|
| CARA | Cara |
| CROWN | Pentland Crown |
| DESIREE | Desiree |
| ESTIMA | Estima |
| KINGSTON | Kingston |
| ROMANO | Romano |
| WILJA | Wilja |

Basal applications:

Little Hoos (R): Manures: (0:18:36) at 690 kg. Chalk at 5 t. FYM at 35 t. (10:10:15+4.5 Mg) at 1960 kg. Weedkillers: Linuron at 1.7 kg with paraquat at 0.50 kg ion in 500 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions applied with the insecticide on the second occasion. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 300 l.

Horsepool Lane Close West (W): Manures: (0:18:36) at 690 kg. (10:10:15+4.5 Mg) at 2290 kg. Weedkillers: Glyphosate at 1.4 kg in 200 l. Linuron at 1.7 kg in 200 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions applied with the insecticide on the second occasion. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 200 l.

Cultivations, etc.:-

Little Hoos (R): PK applied: 17 Sept, 1986. Chalk applied: 24 Sept. FYM applied: 12 Nov. Ploughed: 17 Nov. NPK Mg applied: 14 Apr, 1987. Rotary harrowed and ridged: 21 Apr. Potatoes hand planted, split back: 22 Apr. Ridged: 29 Apr. Weedkillers applied: 8 May. Mancozeb applied: 24 June, 8 July, 28 July, 10 Aug. Fentin hydroxide applied: 28 Aug, 9 Sept. Insecticide applied: 8 July. Desiccant applied: 21 Sept. Haulm mechanically destroyed: 26 Sept. Lifted: 25 Nov. Previous crops: W. barley 1985, oilseed rape 1986.

87/R/P/1 and 87/W/P/1

Cultivations, etc.:-

Horsepool Lane Close West (W): PK applied: 16 Sept, 1986. Glyphosate applied: 19 Sept. Ploughed: 12 Nov. NPK Mg applied: 22 Apr, 1987. Rotary cultivated, ridged, potatoes hand planted, split back: 28 Apr. Rotary ridged: 15 May. Linuron applied: 25 May. Mancozeb applied: 29 June, 8 July, 26 July, 5 Aug. Fentin hydroxide applied: 18 Aug, 4 Sept. Insecticide applied: 8 July. Desiccant applied: 18 Sept. Haulm mechanically destroyed: 1 Oct. Lifted: 6 Nov. Previous crops: W. wheat 1985, w. oats 1986.

87/R/P/1

TOTAL TUBERS TONNES/HECTARE

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

| VARIETY | |
|----------|------|
| CARA | 45.8 |
| CROWN | 37.6 |
| DESIREE | 37.9 |
| ESTIMA | 43.4 |
| KINGSTON | 33.3 |
| ROMANO | 31.5 |
| WILJA | 37.8 |
| Mean | 38.2 |

*** Standard errors of differences of means ***

| Table | VARIETY |
|--------|---------|
| s.e.d. | 3.69 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|----------|------|------|------|
| BLOCK.WP | 18 | 5.22 | 13.7 |

PERCENTAGE WARE 3.81 CM (1.5 INCH) RIDDLE

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

| VARIETY | |
|----------|------|
| CARA | 92.7 |
| CROWN | 96.2 |
| DESIREE | 95.5 |
| ESTIMA | 92.9 |
| KINGSTON | 93.0 |
| ROMANO | 95.6 |
| WILJA | 90.2 |
| Mean | 93.7 |

PLOT AREA HARVESTED 0.00091

87/W/P/1

TOTAL TUBERS TONNES/HECTARE

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

| VARIETY | |
|----------|------|
| CARA | 42.0 |
| CROWN | 40.8 |
| DESIREE | 26.0 |
| ESTIMA | 37.0 |
| KINGSTON | 39.1 |
| ROMANO | 34.0 |
| WILJA | 32.9 |
| Mean | 35.9 |

*** Standard errors of differences of means ***

| Table | VARIETY |
|--------|---------|
| s.e.d. | 5.04 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|----------|------|------|------|
| BLOCK.WP | 18 | 7.13 | 19.8 |

PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

| VARIETY | |
|----------|------|
| CARA | 83.4 |
| CROWN | 85.9 |
| DESIREE | 82.5 |
| ESTIMA | 85.5 |
| KINGSTON | 86.1 |
| ROMANO | 86.8 |
| WILJA | 79.0 |
| Mean | 84.2 |

PLOT AREA HARVESTED 0.00091

87/R/P/2

POTATOES

SEED HEALTH PROGENY

Object: To compare the health and yield of two varieties of potatoes grown once or twice for seed at Rothamsted under three sets of treatments with the same varieties grown to AA standard in Scotland in 1986 - Bones Close.

Sponsors: R.W. Gibson, G.A. Hide, R. Harrington.

Design: 4 randomised blocks of 28 plots.

Whole plot dimensions: 1.5 x 19.0.

Treatments: All combinations of:-

1. VARIETY Varieties:

 EDWARD King Edward
 PIPER Maris Piper

2. ROTHGROW Frequency of cropping at Rothamsted:

 ONCE In 1986 only from Scottish FS seed
 TWICE In 1985 and 1986, from Scottish FS seed in 1985

3. PATHCONT[86] Pest and pathogen control in 1985, to ROTHGROW TWICE only, and in 1986 to ROTHGROW ONCE and TWICE (in addition to basals):

 STANDARD 1985 and 1986: Plants with virus symptoms were removed in June.

 ENHANCED 1985 and 1986: Seed treatment with tolclofos methyl at 0.24 kg and imazalil at 0.01 kg per tonne of tubers, applied by hydraulic and uncharged electrostatic sprayers respectively. Cypermethrin at 0.04 kg with 7.0 l oil in 500 l applied by hydraulic sprayer on 14 June, 1985, and on 13 and 19 June, 1986. Plants with virus symptoms were removed in June 1985 and 1986.

 FULL 1985: As for ENHANCED 1985, plus:-
 The imazalil was applied by charged electrostatic sprayer. Cypermethrin at 0.04 kg with 7.0 l oil in 500 l was also applied on 28 June, 11 July, 26 July and (to HAULM D LATER plots only) 14 Aug.
 1986: As for ENHANCED 1986, plus:-
 The imazalil was applied by charged electrostatic sprayer. Cypermethrin at 0.04 kg with oil at 7.0 l in 500 l was also applied on 3 July, 18 July, 1 Aug, 19 Aug and (to HAULM D LATER plots only) 4 Sept.

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4. HAULM D[86] Dates of destroying haulm and of lifting in 1985 to ROTHGROW TWICE only and in 1986 to ROTHGROW ONCE and TWICE:
- EARLY 1985: Haulm mechanically destroyed, 12 Aug. Haulm desiccant applied 14 Aug and potatoes lifted 18 Sept.
 1986: Haulm desiccant applied 29 Aug. Haulm mechanically destroyed 16 Sept and potatoes lifted 23 Sept.
- LATER 1985: Haulm mechanically destroyed 4 Sept. Haulm desiccant applied 5 Sept and potatoes lifted 11 Oct.
 1986: Haulm mechanically destroyed 25 Sept. Haulm desiccant applied 27 Sept and potatoes lifted 13 Oct.

plus two extra treatments:

SCOTS AA

- KE SAA King Edward Scottish AA seed bought in 1987 (duplicated)
MP SAA Maris Piper Scottish AA seed bought in 1987 (duplicated)

- NOTES: (1) Basal pest and pathogen control in 1985 (to ROTHGROW TWICE only) was phorate at 1.7 kg with the seed and mancozeb at 1.4 kg in 200 l on five occasions applied with pirimicarb at 0.14 kg on all but the first occasion.
(2) Basal pest and pathogen control in 1986 was phorate at 1.7 kg with the seed, mancozeb at 1.4 kg in 200 l on four occasions with pirimicarb at 0.14 kg on each occasion and (to HAULM D LATER plots only) fentin hydroxide at 0.28 kg in 200 l on two occasions applied with pirimicarb at 0.14 kg on the first.

Basal applications: Manures: FYM at 35 t. (0:18:36) at 690 kg. (10:10:15+4.5 Mg) at 1960 kg. Weedkillers: Linuron at 1.6 kg and paraquat at 0.50 kg ion in 500 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions, applied with the pirimicarb on the second occasion. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Haulm desiccant: Diquat at 0.80 kg ion in 300 l.

Cultivations, etc.: (0:18:36) applied: 28 Oct, 1986. FYM applied: 11 Nov. Ploughed: 21 Nov. (10:10:15+4.5 Mg) applied: 13 Apr, 1987. Rotary harrowed: 20 Apr. Potatoes planted by hand: 21 Apr. Rotary ridged: 27 Apr. Weedkillers applied: 8 May. Mancozeb applied: 24 June, 8 July, 28 July and 10 Aug. Pirimicarb applied: 8 July. Fentin hydroxide applied: 28 Aug, 9 Sept. Haulm desiccant applied: 21 Sept. Haulm mechanically destroyed: 26 Sept. Lifted: 29 Oct. Previous crops: S. barley 1985, w. beans 1986.

NOTE: Viruses were assessed during the season. Tuber samples were taken at harvest to assess storage diseases.

87/R/P/2

TOTAL TUBERS TONNES/HECTARE

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

| | | | | |
|--------------|--------------|----------|----------|------|
| ROTHGROW | ONCE | TWICE | Mean | |
| VARIETY | | | | |
| EDWARD | 76.4 | 77.9 | 77.1 | |
| PIPER | 84.6 | 81.2 | 82.9 | |
| Mean | 80.5 | 79.5 | 80.0 | |
| PATHCONT[86] | STANDARD | ENHANCED | FULL | Mean |
| VARIETY | | | | |
| EDWARD | 76.9 | 76.9 | 77.7 | 77.1 |
| PIPER | 83.3 | 82.2 | 83.0 | 82.9 |
| Mean | 80.1 | 79.5 | 80.4 | 80.0 |
| PATHCONT[86] | STANDARD | ENHANCED | FULL | Mean |
| ROTHGROW | | | | |
| ONCE | 80.8 | 80.4 | 80.2 | 80.5 |
| TWICE | 79.4 | 78.7 | 80.5 | 79.5 |
| Mean | 80.1 | 79.5 | 80.4 | 80.0 |
| HAULM D[86] | EARLY | LATER | Mean | |
| VARIETY | | | | |
| EDWARD | 78.5 | 75.8 | 77.1 | |
| PIPER | 83.3 | 82.4 | 82.9 | |
| Mean | 80.9 | 79.1 | 80.0 | |
| HAULM D[86] | EARLY | LATER | Mean | |
| ROTHGROW | | | | |
| ONCE | 81.4 | 79.5 | 80.5 | |
| TWICE | 80.4 | 78.6 | 79.5 | |
| Mean | 80.9 | 79.1 | 80.0 | |
| HAULM D[86] | EARLY | LATER | Mean | |
| PATHCONT[86] | | | | |
| STANDARD | 81.3 | 78.9 | 80.1 | |
| ENHANCED | 80.0 | 79.0 | 79.5 | |
| FULL | 81.4 | 79.3 | 80.4 | |
| Mean | 80.9 | 79.1 | 80.0 | |
| VARIETY | PATHCONT[86] | STANDARD | ENHANCED | FULL |
| EDWARD | ROTHGROW | | | |
| | ONCE | 76.5 | 76.8 | 75.9 |
| | TWICE | 77.2 | 77.0 | 79.5 |
| PIPER | ONCE | 85.2 | 84.0 | 84.5 |
| | TWICE | 81.5 | 80.4 | 81.5 |

87/R/P/2

TOTAL TUBERS TONNES/HECTARE

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

| | | HAULM D[86] | EARLY | LATER |
|------------|--------------|--------------|-------|-------|
| VARIETY | ROTHGROW | | | |
| EDWARD | ONCE | | 77.3 | 75.5 |
| | TWICE | | 79.7 | 76.1 |
| PIPER | ONCE | | 85.6 | 83.5 |
| | TWICE | | 81.1 | 81.2 |
| | | HAULM D[86] | EARLY | LATER |
| VARIETY | PATHCONT[86] | | | |
| EDWARD | STANDARD | | 80.2 | 73.5 |
| | ENHANCED | | 77.1 | 76.7 |
| | FULL | | 78.2 | 77.1 |
| PIPER | STANDARD | | 82.3 | 84.3 |
| | ENHANCED | | 83.0 | 81.3 |
| | FULL | | 84.6 | 81.5 |
| | | HAULM D[86] | EARLY | LATER |
| ROTHGROW | PATHCONT[86] | | | |
| ONCE | STANDARD | | 82.4 | 79.3 |
| | ENHANCED | | 80.8 | 80.0 |
| | FULL | | 81.1 | 79.3 |
| TWICE | STANDARD | | 80.2 | 78.5 |
| | ENHANCED | | 79.3 | 78.1 |
| | FULL | | 81.7 | 79.3 |
| | | HAULM D[86] | EARLY | LATER |
| VARIETY | ROTHGROW | PATHCONT[86] | | |
| EDWARD | ONCE | STANDARD | 80.1 | 72.9 |
| | | ENHANCED | 75.9 | 77.7 |
| | | FULL | 75.9 | 75.9 |
| | TWICE | STANDARD | 80.4 | 74.1 |
| | | ENHANCED | 78.2 | 75.8 |
| | | FULL | 80.6 | 78.4 |
| PIPER | ONCE | STANDARD | 84.6 | 85.7 |
| | | ENHANCED | 85.7 | 82.3 |
| | | FULL | 86.4 | 82.6 |
| | TWICE | STANDARD | 80.0 | 83.0 |
| | | ENHANCED | 80.4 | 80.4 |
| | | FULL | 82.8 | 80.3 |
| SCOTS AA | KE SAA | MP SAA | Mean | |
| | 67.5 | 78.3 | 72.9 | |
| Grand mean | 79.0 | | | |

87/R/P/2

TOTAL TUBERS TONNES/HECTARE

*** Standard errors of differences of means ***

| | | | | |
|--------|---------|----------|--------------|-------------|
| Table | VARIETY | ROTHGROW | PATHCONT[86] | HAULM D[86] |
| s.e.d. | 0.71 | 0.71 | 0.87 | 0.71 |

| | | | | |
|--------|---------------------|-------------------------|--------------------------|------------------------|
| Table | VARIETY ROTHGROW | VARIETY PATHCONT[86] | ROTHGROW PATHCONT[86] | VARIETY HAULM D[86] |
| s.e.d. | 1.01 | 1.23 | 1.23 | 1.01 |

| | | | | |
|--------|-------------------------|-----------------------------|-------------------------------------|------------------------------------|
| Table | ROTHGROW HAULM D[86] | PATHCONT[86] HAULM D[86] | VARIETY ROTHGROW PATHCONT[86] | VARIETY ROTHGROW HAULM D[86] |
| s.e.d. | 1.01 | 1.23 | 1.74 | 1.42 |

| | | | | |
|--------|----------------------------------------|-----------------------------------------|----------------------------------------------------|----------|
| Table | VARIETY PATHCONT[86] HAULM D[86] | ROTHGROW PATHCONT[86] HAULM D[86] | VARIETY ROTHGROW PATHCONT[86] HAULM D[86] | SCOTS AA |
| s.e.d. | 1.74 | 1.74 | 2.46 | 1.74 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|----------|------|------|-----|
| BLOCK.WP | 83 | 3.48 | 4.4 |

87/R/P/2

PERCENTAGE WARE 4.44 CM (1.75 INCH) RIDDLE

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

| | | | | |
|--------------|--------------|----------|----------|------|
| ROTHGROW | ONCE | TWICE | Mean | |
| VARIETY | | | | |
| EDWARD | 81.9 | 81.3 | 81.6 | |
| PIPER | 83.7 | 83.5 | 83.6 | |
| Mean | 82.8 | 82.4 | 82.6 | |
| PATHCONT[86] | STANDARD | ENHANCED | FULL | Mean |
| VARIETY | | | | |
| EDWARD | 82.1 | 80.1 | 82.7 | 81.6 |
| PIPER | 83.6 | 82.5 | 84.6 | 83.6 |
| Mean | 82.8 | 81.3 | 83.6 | 82.6 |
| PATHCONT[86] | STANDARD | ENHANCED | FULL | Mean |
| ROTHGROW | | | | |
| ONCE | 82.7 | 81.9 | 83.8 | 82.8 |
| TWICE | 83.0 | 80.7 | 83.4 | 82.4 |
| Mean | 82.8 | 81.3 | 83.6 | 82.6 |
| HAULM D[86] | EARLY | LATER | Mean | |
| VARIETY | | | | |
| EDWARD | 82.3 | 81.0 | 81.6 | |
| PIPER | 83.5 | 83.7 | 83.6 | |
| Mean | 82.9 | 82.3 | 82.6 | |
| HAULM D[86] | EARLY | LATER | Mean | |
| ROTHGROW | | | | |
| ONCE | 83.5 | 82.1 | 82.8 | |
| TWICE | 82.2 | 82.6 | 82.4 | |
| Mean | 82.9 | 82.3 | 82.6 | |
| HAULM D[86] | EARLY | LATER | Mean | |
| PATHCONT[86] | | | | |
| STANDARD | 83.8 | 81.9 | 82.8 | |
| ENHANCED | 81.1 | 81.5 | 81.3 | |
| FULL | 83.7 | 83.5 | 83.6 | |
| Mean | 82.9 | 82.3 | 82.6 | |
| VARIETY | PATHCONT[86] | STANDARD | ENHANCED | FULL |
| EDWARD | ROTHGROW | | | |
| | ONCE | 82.3 | 81.1 | 82.3 |
| | TWICE | 81.8 | 79.1 | 83.1 |
| PIPER | ONCE | 83.0 | 82.6 | 85.4 |
| | TWICE | 84.2 | 82.4 | 83.8 |

87/R/P/2

PERCENTAGE WARE 4.44 CM (1.75 INCH) RIDDLE

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

| VARIETY | HAULM D[86] | EARLY | LATER | |
|---------------------|-----------------------|-----------------------|-------|-------|
| EDWARD | ROTHGROW ONCE | 82.9 | 80.9 | |
| | TWICE | 81.6 | 81.0 | |
| | PIPER ONCE | 84.2 | 83.2 | |
| | TWICE | 82.8 | 84.2 | |
| VARIETY | HAULM D[86] | EARLY | LATER | |
| EDWARD | PATHCONT[86] STANDARD | 84.0 | 80.1 | |
| | ENHANCED | 79.9 | 80.3 | |
| | FULL | 82.9 | 82.5 | |
| PIPER | STANDARD | 83.5 | 83.7 | |
| | ENHANCED | 82.3 | 82.8 | |
| | FULL | 84.6 | 84.6 | |
| ROTHGROW | HAULM D[86] | EARLY | LATER | |
| ONCE | PATHCONT[86] STANDARD | 84.1 | 81.3 | |
| | ENHANCED | 82.9 | 80.8 | |
| | FULL | 83.5 | 84.1 | |
| TWICE | STANDARD | 83.4 | 82.5 | |
| | ENHANCED | 79.3 | 82.2 | |
| | FULL | 83.9 | 83.0 | |
| VARIETY | ROTHGROW | HAULM D[86] | EARLY | LATER |
| EDWARD | ONCE | PATHCONT[86] STANDARD | 84.2 | 80.5 |
| | | ENHANCED | 82.1 | 80.2 |
| | | FULL | 82.4 | 82.1 |
| | TWICE | STANDARD | 83.9 | 79.7 |
| | | ENHANCED | 77.7 | 80.4 |
| | | FULL | 83.3 | 82.8 |
| PIPER | ONCE | STANDARD | 84.1 | 82.0 |
| | | ENHANCED | 83.8 | 81.5 |
| | | FULL | 84.7 | 86.1 |
| | TWICE | STANDARD | 83.0 | 85.4 |
| | | ENHANCED | 80.8 | 84.0 |
| | | FULL | 84.5 | 83.1 |
| SCOTS AA | KE SAA | MP SAA | Mean | |
| | 84.8 | 85.1 | 84.9 | |
| Grand mean | 82.9 | | | |
| PLOT AREA HARVESTED | 0.00286 | | | |

87/W/P/2

POTATOES

VARIETIES AND CONTROL OF GLOBODERA PALLIDA

Object: To study the effects of rates of nematicide on seven varieties of potato differing in their resistance to the pale cyst nematode (*Globodera pallida*) - Woburn Far Field II.

Sponsor: A.G. Whitehead.

Design: 3 randomised blocks of 21 plots.

Whole plot dimensions: 3.0 x 4.6.

Treatments: All combinations of:-

1. VARIETY Varieties:

CAXTON
DESIREE
FINGAL
GLENNA
MORAG
ROMANO
SANTE

2. OXAMYL Rates of oxamyl (kg):

0.0
2.8
5.6

Basal applications: Manures: (10:10:15+4.5 Mg) at 2290 kg. Weedkiller: Linuron at 1.6 kg in 200 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions applied with the insecticide on the second. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 200 l.

Cultivations, etc.: - Spring-tine cultivated: 30 Jan, 1987 and 16 Feb. NPK Mg applied: 22 Apr. Oxamyl applied, rotary cultivated and potatoes planted: 28 Apr. Rotary ridged: 15 May. Weedkiller applied: 25 May. Mancozeb applied: 24 June, 26 July, 5 Aug. Mancozeb and pirimicarb applied: 8 July. Fentin hydroxide applied: 18 Aug, 4 Sept. Desiccant applied: 18 Sept. Haulm mechanically destroyed: 1 Oct. Lifted: 5 Oct. Previous crops: Potatoes 1985 and 1986.

NOTE: Soil samples were taken before applying nematicide and after harvest for cyst and egg counts of *G. pallida*.

87/W/P/2

TOTAL TUBERS TONNES/HECTARE

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

| OXAMYL VARIETY | 0.0 | 2.8 | 5.6 | Mean |
|-------------------|------|------|------|------|
| CAXTON | 42.2 | 52.4 | 49.7 | 48.1 |
| DESIREE | 29.4 | 50.1 | 51.7 | 43.7 |
| FINGAL | 45.9 | 65.7 | 64.6 | 58.7 |
| GLENNA | 47.9 | 59.3 | 58.8 | 55.3 |
| MORAG | 46.2 | 56.1 | 58.7 | 53.7 |
| ROMANO | 18.4 | 40.9 | 44.4 | 34.6 |
| SANTE | 31.1 | 53.9 | 48.7 | 44.5 |
| Mean | 37.3 | 54.1 | 53.8 | 48.4 |

*** Standard errors of differences of means ***

| Table | VARIETY | OXAMYL | VARIETY OXAMYL |
|--------|---------|--------|-------------------|
| s.e.d. | 3.36 | 2.20 | 5.81 |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|----------|------|------|------|
| BLOCK.WP | 40 | 7.12 | 14.7 |

PERCENTAGE WARE 4.44CM (1.75 INCH) RIDDLE

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

| OXAMYL VARIETY | 0.0 | 2.8 | 5.6 | Mean |
|-------------------|------|------|------|------|
| CAXTON | 93.7 | 87.5 | 87.7 | 89.6 |
| DESIREE | 85.3 | 95.2 | 92.0 | 90.8 |
| FINGAL | 91.1 | 95.5 | 93.2 | 93.3 |
| GLENNA | 97.1 | 96.7 | 95.9 | 96.5 |
| MORAG | 91.3 | 92.5 | 92.8 | 92.2 |
| ROMANO | 86.7 | 93.7 | 94.1 | 91.5 |
| SANTE | 91.1 | 94.8 | 93.0 | 93.0 |
| Mean | 90.9 | 93.7 | 92.7 | 92.4 |

PLOT AREA HARVESTED 0.00070

87/R/P/4

POTATOES

EFFECTS OF SEED TUBER TREATMENTS

Object: To study the effects of seed tuber health, size and fungicide treatment on crop growth, yield and quality of potatoes after storage - Little Hoos.

Sponsor: K.J. Boorer.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 6.0 x 12.2.

Treatments: All combinations of:-

1. SEED STK Seed stock:
 STOCK A
 STOCK B
2. SIZE Size of seed tubers:
 SMALL 25 - 55 g
 LARGE 100 - 160 g
3. FUNGICIDE Fungicide to seed tubers:
 NONE None
 TOL+IMAZ Tolclofos methyl plus imazalil

NOTES: (1) The fungicide treatments were applied as a dip in a mixture containing 0.5 % tolclofos methyl and 0.05 % imazalil.
(2) It was intended that on STOCK A there would be few tuber borne diseases at planting and on STOCK B many. In practice the differences were slight and varied with particular pathogens.

Basal applications: Manures: Chalk at 5.0 t. FYM at 35 t. (0:18:36) at 690 kg. (10:10:15+4.5 Mg) at 1960 kg. Weedkillers: Linuron at 1.6 kg with paraquat at 0.50 kg ion in 500 l. Fungicides: Mancozeb at 1.4 kg in 200 l on four occasions, applied with the pirimicarb on the second occasion. Fentin hydroxide at 0.28 kg in 200 l on two occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.80 kg ion in 300 l.

Seed: Estima.

Cultivations, etc.:-(0:18:36) applied: 17 Sept, 1986. Chalk applied: 24 Sept. FYM applied: 12 Nov. Ploughed: 17 Nov. (10:10:15+4.5 Mg) applied: 14 Apr, 1987. Rotary harrowed: 21 Apr. Potatoes planted: 22 Apr. Rotary ridged: 29 Apr. Weedkillers applied: 8 May. Mancozeb applied: 24 June, 28 July and 10 Aug. Mancozeb and pirimicarb applied: 8 July. Fentin hydroxide applied: 28 Aug, 9 Sept. Desiccant applied: 21 Sept. Haulm mechanically destroyed: 26 Sept. Lifted: 28 Sept and 10 Nov. Previous crops: W. barley 1985, w. oilseed rape 1986.

87/R/P/4

NOTE: Emergence and ground cover percentages were recorded. Samples were taken on six occasions, from late June to early September, for measurements of haulm weight, leaf area, weight and disease assessments of stem bases and tubers.

TOTAL TUBERS TONNES/HECTARE

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

| SIZE | SMALL | LARGE | Mean |
|----------|----------|----------|----------|
| SEED STK | | | |
| STOCK A | 65.3 | 57.9 | 61.6 |
| STOCK B | 58.1 | 57.4 | 57.7 |
| Mean | 61.7 | 57.6 | 59.7 |
| FUNGCIDE | NONE | TOL+IMAZ | Mean |
| SEED STK | | | |
| STOCK A | 60.8 | 62.4 | 61.6 |
| STOCK B | 56.7 | 58.8 | 57.7 |
| Mean | 58.7 | 60.6 | 59.7 |
| FUNGCIDE | NONE | TOL+IMAZ | Mean |
| SIZE | | | |
| SMALL | 62.9 | 60.5 | 61.7 |
| LARGE | 54.6 | 60.7 | 57.6 |
| Mean | 58.7 | 60.6 | 59.7 |
| SEED STK | FUNGCIDE | NONE | TOL+IMAZ |
| STOCK A | SIZE | | |
| | SMALL | 66.0 | 64.6 |
| | LARGE | 55.6 | 60.2 |
| STOCK B | SMALL | 59.7 | 56.4 |
| | LARGE | 53.6 | 61.2 |

*** Standard errors of differences of means ***

| | | | | |
|--------|----------|----------|------------------|--------------|
| Table | SEED STK | SIZE | FUNGCIDE | SEED STK |
| s.e.d. | 2.56 | 2.56 | 2.56 | SIZE 3.63 |
| Table | SEED STK | SIZE | SEED STK | |
| s.e.d. | FUNGCIDE | FUNGCIDE | SIZE FUNGCIDE | 5.13 |
| | 3.63 | 3.63 | | |

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|------------------------------|------------|---------|------|
| BLOCK.WP | 14 | 6.28 | 10.5 |
| PLOT AREA HARVESTED | SIZE SMALL | 0.00018 | |
| PLOT AREA HARVESTED | SIZE LARGE | 0.00030 | |
| PERCENTAGE WARE NOT RECORDED | | | |