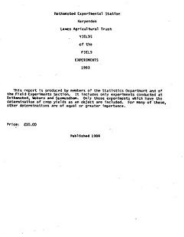
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1983



Full Table of Content

Field Beans

Rothamsted Research

Rothamsted Research (1984) *Field Beans ;* Yields Of The Field Experiments 1983, pp 272 - 309 **-**
DOI: https://doi.org/10.23637/ERADOC-1-44

83/R/BE/1

WINTER BEANS

EFFECTS OF PESTS AND PATHOGENS

Object: To assess the effects of three amounts of pest and disease control on w. beans - Stackyard.

Sponsors: J. McEwen, A. Bainbridge, R. Bardner, A.J. Cockbain, J.M. Day, K.E. Fletcher, D.C. Griffiths, D.H. Lapwood, R.M. Webb, T.D. Williams, D.P. Yeoman.

Design: 6 randomised blocks of 3 plots.

Whole plot dimensions: 5.33 x 15.0.

Treatments:

PATHCONT	Pest and pathogen control (in addition to basals):
STANDARD	None
ENHANCED	Seed dressed with benomyl and thiram (1.1 g of each per kg of seed)
	Phorate at 2.2 kg as granules to foliage on 14 Apr, 1983
FULL	Seed dressed with benomyl and thiram (1.1 g of each per kg of seed)
	Aldicarb at 10 kg on 23 Sept, 1982
	Benomyl at 0.50 kg and fosetyl-Al at 1.76 kg on 7 Mar, 1983
	Carbofuran at 2.24 kg on 14 Apr
	Benomyl at 0.50 kg on 26 Apr
	Propiconazole at 0.12 kg on 28 June and 11 July

NOTES: (1) Treatment sprays were applied in 340 l.
(2) Sides of plots were separated by strips of w. beans 5.33 m wide plus 0.66 m fallow paths, ends of plots were separated by strips of w. beans 9.2 m wide plus 0.9 m fallow paths. The separating crops received basal applications as for the plots and in addition received benomyl at 0.50 kg on 7 Mar.

Basal applications: Weedkillers: Simazine at 1.2 kg in 250 l. Fungicide: Benomyl at 0.56 kg in 250 l on two occasions, the second time with the insecticide. Insecticide: Pirimicarb at 0.14 kg.

Seed: Throws MS, sown at 230 kg.

Cultivations, etc.:- Ploughed: 26 Aug, 1982. Spring-tine cultivated, rotary harrowed: 23 Sept. Seed sown: 24 Sept. Weedkiller applied: 16 Oct. Basal fungicide applied: 26 May, 1983. Basal fungicide with insecticide applied: 23 June. Combine harvested: 12 Aug. Previous crops: W. wheat 1981 and 1982.

NOTE: Plant counts were made after establishment and components of yield were measured at maturity. Migratory nematodes, root and foliar fungi, aphids and weevils were counted at intervals during the season. Total above ground dry matter, and N content, were measured in July. N content of grain was measured.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/1

GRAIN TONNES/HECTARE

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

PATHCONT	STANDARD	ENHANCED	FULL	MEAN
	3.62	3.93	4.03	3.86

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

TABLE	PATHCONT
SED	0.111

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.192	5.0

GRAIN MEAN DM% 86.5

SUB PLOT AREA HARVESTED 0.00320

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/2

WINTER BEANS

CONTROL OF CHOCOLATE SPOT

Object: To study the effects of times of applying benomyl on the incidence of chocolate spot (Botrytis spp.) and on the yield of w. beans - Fosters West.

Sponsor: A. Bainbridge.

Design: 4 randomised blocks of 7 plots.

Whole plot dimensions: 4.27 x 13.7.

Treatments:

FUNGTIME	Time of applying benomyl fungicide, at 0.56 kg in 340 l:
NONE	Not applied
1	Single spray on 28 Apr, 1983
2	Single spray on 17 May
3	Single spray on 10 June
4	Single spray on 1 July
1+2+3+4	Single sprays on each of above dates
R	Routine sprays during flowering on 17 May, 16 June

NOTE: A single spray of benomyl at 0.56 kg in 340 l was applied to all treatments except NONE on 1 March, 1983 to limit spread of Ascochyta.

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Propyzamide at 0.8 kg with simazine at 1.7 l in 250 l. Fungicide: Propiconazole at 0.12 kg in 250 l. Insecticide: Pirimicarb at 0.14 kg in 250 l.

Seed: Throws MS, sown at 280 kg.

Cultivations, etc.:- Ploughed: 31 Aug, 1982. Chalk applied: 16 Sept. Rotary harrowed: 20 Sept. Seed sown: 22 Sept. Weedkillers applied: 2 Oct. Insecticide applied: 23 June, 1983. Fungicide applied: 12 July. Combine harvested: 12 Aug. Previous crops: W. barley 1981, w. wheat 1982.

NOTE: Emergence counts were made and spore sampling started in November. Disease assessments for chocolate spot and Ascochyta were made on three occasions during the season. Stem and pod counts were made in July.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/2

GRAIN TONNES/HECTARE

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

FUNGTIME	NONE	1	2	3	4	1+2+3+4	R	MEAN
	3.43	3.47	3.72	3.52	3.51	3.66	3.48	3.54

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

TABLE	FUNGTIME
SED	0.127

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

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.180	5.1

GRAIN MEAN DM% 85.9

PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/3

WINTER BEANS

CONTROL OF SITONA

Object: To study the effects of four insecticides on the numbers of Sitona and on the yield of w. beans - Gt. Harpenden I.

Sponsors: R. Bardner, K.E. Fletcher, D.C. Griffiths.

Design: 4 randomised blocks of 7 plots.

Whole plot dimensions: 5.33 x 13.7.

Treatments:

INSCTCDE	Forms, rates and methods of applying insecticides:
NONE	None
CF2 G S	Carbofuran at 2.2 kg, as granules, applied on 14 Apr, 1983
CS2 G S	Carbosulfan at 2.2 kg, as granules, applied on 14 Apr
PER S S	Permethrin at 0.15 kg, as a single spray, applied on 4 May
PER D S	Permethrin at 0.15 kg, as a divided spray, half applied on 4 May, half on 25 May
PH1 G S	Phorate at 1.7 kg, as granules, applied on 14 Apr
PH2 G S	Phorate at 2.2 kg, as granules, applied on 14 Apr

NOTE: Permethrin was applied in 450 l.

Basal applications: Weedkiller: Simazine at 1.2 l in 250 l. Fungicides: Benomyl at 0.55 kg in 250 l. Propiconazole at 0.12 kg in 250 l. Insecticide: Pirimicarb at 0.14 kg in 500 l.

Seed: Throws MS, sown at 280 kg.

Cultivations, etc.:- Ploughed: 10 Sept, 1982. Rotary harrowed, seed sown: 22 Sept. Weedkiller applied: 16 Oct. Benomyl applied: 26 May, 1983. Insecticide applied: 1 July. Propiconazole applied: 12 July. Combine harvested: 12 Aug. Previous crops: W. wheat 1981 and 1982.

NOTE: Leaf damage by Sitona and Apion was assessed in May. Soil animals were assessed from soil cores in June and from pitfall traps at weekly intervals. Numbers of Sitona larvae and pupae were estimated in July.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/3

GRAIN TONNES/HECTARE

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

INSCTCDE	
NONE	3.23
CF2 G S	3.67
CS2 G S	3.44
PER S S	3.72
PER D S	3.82
PH1 G S	3.69
PH2 G S	3.70
MEAN	3.61

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

TABLE	INSCTCDE
SED	0.142

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

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.201	5.6

GRAIN MEAN DM% 87.4

PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/4

WINTER BEANS

ALL PURPOSE ELECTROSTATIC SPRAYING

Object: To study the effects of using an electrostatic sprayer for all spraying operations during the season on pests, diseases and weeds and on the yields of w. beans - Gt. Harpenden I.

Sponsors: D.C. Griffiths, A.J. Arnold, A. Bainbridge, G.R. Cayley, P. Etheridge, F.T. Phillips, B.J. Pye, G.C. Scott.

Design: 4 randomised blocks of 5 plots.

Whole plot dimensions: 8.0 x 30.0.

Treatments:

SPRAYER	Sprayers:
CNVNTL A	Conventional hydraulic sprayer for all sprays
CNVNTL W	Conventional sprayer, only weedkiller applied
ELECT CA	Electrostatic sprayer, charged particles, for all sprays
ELECT UA	Electrostatic sprayer, uncharged particles, for all sprays
EL UW CR	Electrostatic sprayer, uncharged particles to spray weedkiller, charged particles for all remaining sprays

NOTE: Details of treatments are shown below:

Date	Chemical	kg per ha	VOLUME, l per ha Electrostatic	Hydraulic
28 Oct, 1982	Carbetamide	2.1	11.2	380
29 Mar, 1983	Benomyl	0.55	6.25	380
23 May	Permethrin &)	0.10	6.25	416 (hand sprayer)
	Carbendazim)	0.51		
23 June	Pirimicarb &)	0.15	8.3	380
	Propiconazole)	0.12		

The carbetamide was applied by electrostatic sprayer as two consecutive sprays.

Seed: Throws MS, sown at 280 kg.

Cultivations, etc.:- Ploughed: 10 Sept, 1982. Rotary harrowed, seed sown: 22 Sept. Combine harvested: 12 Aug, 1983. Previous crops: W. Wheat 1981 and 1982.

NOTE: (1) Weed counts were made in May. Sitona leaf notching was counted in June. Chocolate spot and aphids were assessed in June, rust in July.
(2) Samples for chemical analysis were taken immediately after spraying.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/4

GRAIN TONNES/HECTARE

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

SPRAYER	CNVNTL A	CNVNTL W	ELECT CA	ELECT UA	EL UW CR	MEAN
	3.74	2.95	3.46	3.43	3.51	3.42

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

TABLE	SPRAYER
SED	0.086

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.122	3.6

GRAIN MEAN DM% 87.1

PLOT AREA HARVESTED 0.00960

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/5

WINTER BEANS

SEED DRESSINGS

Object: To study the effects of benomyl and thiram seed dressings on establishment, disease control and yield of w. beans - Stackyard.

Sponsors: A. Bainbridge, D.C. Griffiths, J. McEwen, D.P. Yeoman.

Design: 4 randomised blocks of 4 plots.

Whole plot dimensions: 5.33 x 9.14.

Treatments: All combinations of:-

1. SEEDRESS(1) Seed dressing:

NONE	None
BENOMYL	Benomyl at 0.8 g per kg seed

2. SEEDRESS(2) Seed dressing:

NONE	None
THIRAM	Thiram (as 'Thiram 80' at 1.0 g per kg seed)

Basal applications: Weedkiller: Simazine at 1.2 l in 250 l. Fungicide: Benomyl at 0.56 kg in 250 l on two occasions, with pirimicarb on the second. Insecticides: Permethrin at 0.15 kg in 340 l on two occasions. Pirimicarb at 0.14 kg.

Seed: Throws MS, sown at 230 kg.

Cultivations, etc.:- Ploughed: 26 Aug, 1982. Rotary harrowed, seed not dressed with benomyl sown: 23 Sept. Remaining seed sown: 24 Sept. Weedkiller applied: 16 Oct. Permethrin applied: 4 May, 20 May, 1983. Benomyl applied: 26 May. Benomyl with pirimicarb applied: 23 June. Combine harvested: 12 Aug. Previous crops: W. wheat 1981 and 1982.

NOTE: Emergence counts were made in December, 1982. Disease assessments were made on three occasions during the season. Spores were sampled from May.

https://doi.org/10.23637/ERADOC-1-44 *pp 10*

83/R/BE/5

GRAIN TONNES/HECTARE

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

SEEDRESS(2) / SEEDRESS(1)	NONE	THIRAM	MEAN
NONE	4.29	4.19	4.24
BENOMYL	4.37	4.45	4.41
MEAN	4.33	4.32	4.32

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

TABLE	SEEDRESS(1)	SEEDRESS(2)	SEEDRESS(1) SEEDRESS(2)
SED	0.064	0.064	0.090

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

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.128	3.0

GRAIN MEAN DM% 86.4

PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/6

WINTER BEANS

VARIETIES

Object: To compare agronomic characters and yields of four varieties of w. beans - Long Hoos IV 5.

Sponsors: J. McEwen, D.P. Yeoman.

Design: 4 randomised blocks of 4 plots.

Whole plot dimensions: 2.03 x 2.13.

Treatments:

VARIETY	Varieties:
BANNER	Banner
BEAGLE	Maris Beagle
BULLDOG	Bulldog
THROWS	Throws MS

NOTE: Seed was sown by hand in rows 51 cm apart, seed spaced 5 cm apart in the row.

Basal applications: Manures: Chalk at 2.9 t. Muriate of potash at 520 kg. Weedkillers: Trietazine at 1.0 kg with simazine at 0.14 kg in 340 l. Fungicides: Benomyl at 0.56 kg in 340 l on two occasions, with pirimicarb on the second, propiconazole at 0.12 kg in 340 l with pirimicarb. Insecticides: Permethrin at 0.15 kg in 340 l on two occasions; pirimicarb at 0.14 kg on two occasions with the fungicides.

Cultivations, etc.:- Muriate of potash applied: 16 Sept, 1982. Chalk applied: 30 Sept. Ploughed: 11 Oct. Power harrowed, seed sown: 29 Oct. Weedkillers applied: 11 Nov. Permethrin applied: 4 and 20 May, 1983. Benomyl applied: 23 May and 1 July. Propiconazole applied: 12 July. Pirimicarb applied: 1 and 12 July. Harvested by hand: 11 Aug. Previous crops: Potatoes 1981, s. barley 1982.

NOTE: Plant counts were made after establishment. Components of yield were measured at maturity. N content of grain was measured.

https://doi.org/10.23637/ERADOC-1-44 *pp 12*

83/R/BE/6

GRAIN TONNES/HECTARE

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

VARIETY	BANNER	BEAGLE	BULLDOG	THROWS	MEAN
	5.42	5.54	5.02	5.32	5.33

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

TABLE	VARIETY
SED	0.427

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

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.603	11.3

GRAIN MEAN DM% 88.4

PLOT AREA HARVESTED 0.00015

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/8

WINTER BEANS

CONTROL OF STEM NEMATODE

Object: To study the effects of a range of chemicals, rates and times of application on the control of stem nematode (Ditylenchus dipsaci) and on the yield of w. beans - Highfield 0 and E III.

Sponsor: A.G. Whitehead.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 2.29 x 4.57.

Treatments:

NEMACIDE	Nematicides, rates and times of application: Applied in the furrow at sowing		Top-dressed after emergence
NONE	None		None (duplicated)
AL1+AL1	Aldicarb at 1.17 kg	+	aldicarb at 1.25 kg
AL2+AL2	Aldicarb at 2.34 kg	+	aldicarb at 2.5 kg
AL4+AL4	Aldicarb at 4.68 kg	+	aldicarb at 5.0 kg
AL2+TH2	Aldicarb at 2.34 kg	+	thiabendazole at 2.5 kg
AL2+TH4	Aldicarb at 2.34 kg	+	thiabendazole at 5.0 kg
CA2+TH2	Carbofuran at 2.38 kg	+	thiabendazole at 2.5 kg
CA2+TH4	Carbofuran at 2.38 kg	+	thiabendazole at 5.0 kg
CA1+CA1	Carbofuran at 1.19 kg	+	carbofuran at 1.25 kg
CA2+CA2	Carbofuran at 2.38 kg	+	carbofuran at 2.5 kg
CA4+CA4	Carbofuran at 4.76 kg	+	carbofuran at 5.0 kg

NOTES: (1) To ensure the presence of stem nematode, infested straw was spread on the site and ploughed in.
(2) Thiabendazole was applied in 7,650 l water.
(3) Post emergence treatments were applied to w. beans on 25 May, 1983

Basal applications: Manures: (0:20:20) at 630 kg. Weedkillers: Simazine at 1.1 l in 560 l. Fungicide: Benomyl at 0.56 kg in 560 l, on two occasions, with the insecticide on the second. Insecticide: Pirimicarb at 0.14 kg on three occasions, with the fungicide on the first, in 560 l on the second and third.

Seed: Throws MS, sown at 240 kg.

Cultivations, etc.:- PK applied, infested straw applied, ploughed in: 17 Aug, 1982. Rotary harrowed, seed sown: 11 Nov. Weedkiller and fungicide applied: 4 Feb, 1983. Fungicide with insecticide applied: 10 June. Insecticide applied: 30 June, 19 July. Harvested by hand: 3 Aug. Previous crops: S. beans 1981, w. beans 1982.

NOTE: The percentage of stems infested with stem nematode was assessed in July.

https://doi.org/10.23637/ERADOC-1-44 *pp 14*

83/R/BE/8

GRAIN TONNES/HECTARE

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

NEMACIDE	
NONE	0.81
AL1+AL1	1.30
AL2+AL2	1.78
AL4+AL4	2.21
AL2+TH2	1.45
AL2+TH4	1.71
CA2+TH2	1.86
CA2+TH4	1.67
CA1+CA1	2.14
CA2+CA2	2.44
CA4+CA4	2.80
MEAN	1.75

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

TABLE	NEMACIDE	
SED	0.367	MIN REP
	0.318	MAX-MIN

	NEMACIDE
MAX-MIN	NONE V ANY OF THE REMAINDER
MIN REP	ANY OF THE REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.449	25.7

GRAIN MEAN DM% 78.6

PLOT AREA HARVESTED 0.00035

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/9

SPRING BEANS

EFFECTS OF PESTS AND PATHOGENS

Object: To assess the benefits from three amounts of pest and disease control on irrigated and unirrigated s. beans - W. Barnfield II.

Sponsors: J. McEwen, R. Bardner, A.J. Cockbain, D.H. Lapwood, R.M. Webb, T.D. Williams, D.P. Yeoman.

Design: 4 randomised blocks of 2 plots split into 3.

Whole plot dimensions: 4.27 x 13.7.

Treatments: All combinations of:-

Whole plots

1. IRRIGATN	Irrigation:	
NONE	None	
FULL	Full (total 138 mm)	

Sub plots

2. PATHCONT	Pest and pathogen control:	
STANDARD	Pirimicarb at 0.14 kg on 13 June, 1983	
ENHANCED	Phorate at 2.2 kg, combine drilled	
	Pirimicarb at 0.14 kg on 13 June	
	Maneb at 0.8 kg with mancozeb at 0.8 kg in 450 l on 18 July	
FULL	Aldicarb at 10 kg on 9 Mar	
	Phorate at 2.2 kg combine drilled	
	Fosetyl-Al at 2.0 kg on 5 May	
	Pirimicarb at 0.14 kg on 13 June	
	Benomyl at 0.50 kg on 5 July and 4 Aug	
	Maneb at 0.8 kg with mancozeb at 0.8 kg in 450 l on 18 July, 26 July, 4 Aug	

NOTES: (1) Irrigation was applied as follows (mm water):

1 July	20
6 July	25
15 July	18
27 July	25
8 Aug	25
14 Aug	25
Total	138 mm

(2) Treatment sprays were applied in 340 l except where stated.

Basal applications: Manures: Chalk at 5 0 t. Weedkillers: Glyphosate at 1.4 kg in 250 l. Trietazine and simazine (as 'Aventox' at 2.4 l) in 250 l.

Seed: Minden, sown at 230 kg.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/9

Cultivations, etc.:- Chalk applied: 16 Sept, 1982. Glyphosate applied: 19 Oct. Ploughed: 25 Nov. Spring-tine cultivated twice: 8 Mar, 1983. Seedbed treatments applied, rotary harrowed, seed sown: 9 Mar. 'Aventox' applied: 12 Mar. Combine harvested non-irrigated plots: 12 Aug. Combine harvested irrigated plots: 22 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTE: Plant counts were made after establishment and components of yield were measured at maturity. Total above ground dry matter and N content were measured in August. Migratory nematodes, root and foliar fungi, aphids, weevils and viruses were counted at intervals during the season. N content of grain was measured.

GRAIN TONNES/HECTARE

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

PATHCONT IRRIGATN	STANDARD	ENHANCED	FULL	MEAN
NONE	3.21	3.51	3.90	3.54
FULL	4.83	5.14	5.42	5.13
MEAN	4.02	4.33	4.66	4.34

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

TABLE	PATHCONT	IRRIGATN* PATHCONT
SED	0.072	0.102

* WITHIN THE SAME LEVEL OF IRRIGATN ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.144	3.3

GRAIN MEAN DM% 85.0

SUB PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/10

SPRING BEANS

CONTROL OF SITONA

Object: To study the effects of a range of insecticides on the numbers of Sitona and on the yield of s. beans - W. Barnfield II.

Sponsors: R. Bardner, D.C. Griffiths.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 5.33 x 13.7.

Treatments:

INSCTCDE	Forms, rates and methods of applying insecticides:
NONE	None
DI+CH CD	Disulfoton at 1.2 kg plus chlorpyrifos at 0.8 kg combine drilled
PHO 1 CD	Phorate at 1.7 kg combine drilled
PHO 2 CD	Phorate at 2.2 kg combine drilled
CA 1 GR	Carbosulfan at 1.7 kg as granules on 5 May, 1983
TR FS	Triazophos at 0.34 kg as a foliar spray in 450 l on 4 May

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Glyphosate at 1.4 kg in 250 l. Trietazine and simazine (as 'Aventox' at 2.4 l) in 250 l. Insecticide: Pirimicarb at 0.14 kg in 250 l.

Seed: Minden, sown at 280 kg.

Cultivations, etc.:- Chalk applied: 16 Sept, 1982. Glyphosate applied: 19 Oct. Ploughed: 25 Nov. Spring-tine cultivated twice: 8 Mar, 1983. Seed sown: 10 Mar. 'Aventox' applied: 12 Mar. Pirimicarb applied: 16 June. Combine harvested: 12 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTE: Leaf damage by Sitona was assessed in April; larval and pupal counts were made in July. Aphis fabae were assessed in June and yellowing in July. Soil cores were taken for chemical analyses in May.

https://doi.org/10.23637/ERADOC-1-44 *pp 18*

83/R/BE/10

GRAIN TONNES/HECTARE

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

INSCTCDE	NONE	DI+CH CD	PHO 1 CD	PHO 2 CD	CA 1 GR	TR FS	MEAN
	3.26	3.33	3.58	3.59	3.53	3.41	3.45

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

TABLE	INSCTCDE
SED	0.091

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.128	3.7

GRAIN MEAN DM% 86.1

PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/11

SPRING BEANS

CONTROL OF PRATYLENCHUS

Object: To study the effects of aldicarb and carbofuran on numbers of Pratylenchus nematodes and on the yield of s. beans - W. Barnfield II.

Sponsor: R.M. Webb.

Design: 4 randomised blocks of 5 plots.

Whole plot dimensions: 5.33 x 13.7.

Treatments:

NEMACIDE	Nematicides, rates and methods of application:
NONE	None
AL BC	Aldicarb at 10 kg, worked into seedbed
CA 1 CD	Carbofuran at 1.7 kg, combine drilled
CA 2 CD	Carbofuran at 2.2 kg, combine drilled
CA 3 CD	Carbofuran at 3.2 kg, combine drilled

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Trietazine with simazine (as 'Aventox SC' at 2.4 l) in 250 l. Glyphosate at 1.4 kg in 250 l. Insecticide: Pirimicarb at 0.14 kg in 250 l.

Seed: Minden, sown at 280 kg.

Cultivations, etc.:- Chalk applied: 16 Sept, 1982. Glyphosate applied: 19 Oct. Ploughed: 25 Nov. Spring-tine cultivated twice: 8 Mar, 1983. Aldicarb treatment applied, rotary harrowed, remaining treatments combine drilled: 10 Mar. Rolled, trietazine with simazine applied: 12 Mar. Pirimicarb applied: 16 June. Combine harvested: 12 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTE: Soils were sampled for nematodes just before treatments were applied, and soils and roots in mid-June.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/11

GRAIN TONNES/HECTARE

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

NEMACIDE	NONE	AL BC	CA 1 CD	CA 2 CD	CA 3 CD	MEAN
	3.48	3.81	3.81	3.66	3.72	3.69

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

TABLE	NEMACIDE
SED	0.122

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.173	4.7

GRAIN MEAN DM% 86.6

PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/12

SPRING BEANS

ROW SPACING AND METHODS OF APPLYING PHORATE

Object: To study the effects of methods of applying phorate on the incidence of Sitona and on the yield of s. beans sown in wide or narrow rows - W. Barnfield II.

Sponsors: R. Bardner, D.C. Griffiths.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 5.33 x 13.7.

Treatments: All combinations of:-

1. PHORATE	Methods of applying phorate:
NONE	Not applied
B CAST	Broadcast at 1.7 kg and worked in to the seedbed
C DRILL	Combine drilled at 1.7 kg
2. ROW SPAC	Spacing between rows:
18 CM	7 inches (18 cm)
53 CM	21 inches (53 cm)

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Glyphosate at 1.4 kg in 250 l. Trietazine and simazine (as 'Aventox' at 2.4 l) in 250 l. Insecticide: Pirimicarb at 0.14 kg in 250 l.

Seed: Minden, sown at 280 kg.

Cultivations, etc.:- Chalk applied: 16 Sept, 1982. Glyphosate applied: 19 Oct. Ploughed: 25 Nov. Spring-tine cultivated twice: 8 Mar, 1983. Broadcast phorate treatments applied, rotary harrowed: 9 Mar. Combine drilled phorate treatments applied, seed sown: 10 Mar. 'Aventox' applied: 12 Mar. Insecticide applied: 16 June. Combine harvested: 12 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTE: Leaf damage by Sitona was assessed in May; larval and pupal counts were made in July. Yellowing was assessed in July. Soil animals were assessed from soil in June and from pitfall traps at weekly intervals. Soil cores were taken for chemical analyses in May.

https://doi.org/10.23637/ERADOC-1-44 *pp 22*

83/R/BE/12

GRAIN TONNES/HECTARE

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

ROW SPAC PHORATE	18 CM	53 CM	MEAN
NONE	3.16	3.16	3.16
B CAST	3.40	3.39	3.40
C DRILL	3.65	3.81	3.73
MEAN	3.40	3.45	3.43

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

TABLE	PHORATE	ROW SPAC	PHORATE ROW SPAC
SED	0.131	0.107	0.185

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.262	7.6

GRAIN MEAN DM% 86.1

PLOT AREA HARVESTED 0.00293

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/13

SPRING BEANS

TIMES OF APPLYING ERYNIA

Object: To study the effects of rates and times of applying the aphid-pathogenic fungus Erynia neoaphidis on the numbers of black aphids (Aphis fabae) and on the yield of s. beans - W. Barnfield II.

Sponsor: N. Wilding.

Design: 4 randomised blocks of 7 plots.

Whole plot dimensions: 2.67 x 2.13.

Treatments:

APH CONT	Chemical and biological aphid control:
NONE	None
	Pirimicarb at 0.14 kg in 340 l:
PIRIM E	Applied on 10 June, 1983
PIRIM L	Applied on 29 June
	Erynia neoaphidis applied as a powder of mummified aphids:
E NEO1 E	At 0.5 mg per plant on 9 June
E NEO1 L	At 0.5 mg per plant on 28 June
E NEO2 E	At 5.0 mg per plant on 9 June
E NEO2 L	At 5.0 mg per plant on 28 June

NOTE: Basal irrigation was applied as follows (mm water):

21 June	20
28 June	25
5 July	12.5
12 July	12.5
15 July	12.5
23 July	12.5
Total	95 mm

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Glyphosate at 1.4 kg in 250 l. Trietazine with simazine (as 'Aventox' at 2.4 l) in 250 l.

Seed: Minden, sown at 230 kg.

Cultivations, etc.:- Chalk applied: 16 Sept, 1982. Glyphosate applied: 19 Oct. Ploughed: 25 Nov. Spring-tine cultivated twice: 8 Mar, 1983. Seed sown: 9 Mar. Rolled, trietazine and simazine applied: 12 Mar. Combine harvested: 12 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTES: (1) Aphid numbers were estimated weekly during June and July.
(2) Samples of live aphids were examined for infection with Erynia and other fungal pathogens.

https://doi.org/10.23637/ERADOC-1-44 *pp 24*

83/R/BE/13

GRAIN TONNES/HECTARE

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

APH CONT	
NONE	4.75
PIRIM E	5.34
PIRIM L	4.89
E NE01 E	4.32
E NE01 L	4.33
E NE02 E	4.72
E NE02 L	4.69
MEAN	4.72

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

TABLE	APH CONT
SED	0.203

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

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.287	6.1

GRAIN MEAN DM% 91.3

PLOT AREA HARVESTED 0.00024

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/14

SPRING BEANS

VARIETIES

Object: To compare agronomic characters and yields of six varieties of s. beans - Long Hoos IV 5.

Sponsors: J. McEwen, D.P. Yeoman.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 2.03 x 2.13.

Treatments:

VARIETY Varieties:

ALFRED
BLAZE
EXELLE
MINDEN
NARBOR
TIGER

Note: Seed was sown by hand in rows 51 cm apart, seed spaced 5 cm apart in the row.

Basal applications: Manures: Chalk at 2.9 t. Muriate of potash at 520 kg. Weedkillers: Trietazine at 1.1 kg with simazine at 0.16 kg in 220 l. Fungicides: Benomyl at 0.56 kg in 340 l; propiconazole at 0.12 kg in 340 l on three occasions, once with pirimicarb. Insecticides: Pirimicarb at 0.14 kg on two occasions, in 340 l on the first, with propiconazole on the second; permethrin at 0.15 kg in 340 l on two occasions.

Cultivations, etc.:- Muriate of potash applied: 16 Sept, 1982. Chalk applied: 30 Sept. Ploughed: 11 Oct. Spring-tine cultivated twice, seed sown: 15 Mar, 1983. Weedkillers applied: 17 Mar. Permethrin applied: 4 May, 20 May. Pirimicarb applied: 13 June. Benomyl applied: 5 July. Pirimicarb with propiconazole applied: 12 July. Propiconazole applied: 18 July, 26 July. Harvested by hand: 15 Aug. Previous crops: Potatoes 1981, s. barley 1982.

NOTE: Plant counts were made after establishment. Components of yield were measured at maturity. N content of grain was measured.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/14

GRAIN TONNES/HECTARE

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

VARIETY	ALFRED	BLAZE	EXELLE	MINDEN	NARBOR	TIGER	MEAN
	3.26	3.33	3.28	3.42	3.28	3.45	3.34

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

TABLE	VARIETY
SED	0.128

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.181	5.4

GRAIN MEAN DM% 89.8

PLOT AREA HARVESTED 0.00015

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/15

SPRING BEANS

CONTROL OF RUST

Object: To study the effects of fungicides on the control of rust (Uromyces fabae) and on the yield of spring beans - Long Hoos IV 5.

Sponsors: D.H. Lapwood, J. McEwen, D.P. Yeoman.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 2.03 x 2.13.

Treatments: All combinations of:-

1. C S FUNG — Fungicide to control chocolate spot but not rust:

   NONE — None
   BENOMYL — Benomyl at 0.50 kg in 340 l on 7 July, 1983

2. RUSTFUNG — Fungicides to control rust:

   MAN+MANC — Maneb at 0.8 kg + mancozeb at 0.8 kg in 340 l
   PROPICON — Propiconazole at 0.12 kg in 340 l

3. RFNGTIME — Times of applying fungicides to control rust:

   ONCE — Once on 18 July
   TWICE — Twice, on 18 and 27 July

plus extra treatments:

   EXTRA

   NONE — None (duplicated)
   BENOMYL — Benomyl at 0.50 kg in 340 l on 7 July (duplicated)

Basal applications: Manures: Chalk at 2.9 t. Muriate of potash at 520 kg. Weedkillers: Trietazine at 1.1 kg with simazine at 0.16 kg in 220 l. Insecticides: Pirimicarb at 0.14 kg in 340 l on two occasions; permethrin at 0.15 kg in 340 l on two occasions.

Seed: Minden, sown at 280 kg.

Cultivations, etc.:- Muriate of potash applied: 16 Sept, 1982. Chalk applied: 30 Sept. Ploughed: 11 Oct. Spring-tine cultivated, seed sown: 8 Mar, 1983. Weedkillers applied: 17 Mar. Permethrin applied: 4 May, 20 May. Pirimicarb applied; 13 June, 13 July. Harvested by hand: 16 Aug. Previous crops: Potatoes 1981, s. barley 1982.

NOTE: Plant counts were made after establishment. The incidence of chocolate spot and rust were assessed from early July until maturity. Components of yield were measured at maturity.

https://doi.org/10.23637/ERADOC-1-44 *pp 28*

83/R/BE/15

GRAIN TONNES/HECTARE

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

RUSTFUNG C S FUNG	MAN+MANC	PROPICON	MEAN
NONE	3.68	4.22	3.95
BENOMYL	3.86	4.39	4.13
MEAN	3.77	4.30	4.04

RFNGTIME C S FUNG	ONCE	TWICE	MEAN
NONE	4.31	3.59	3.95
BENOMYL	3.83	4.42	4.13
MEAN	4.07	4.00	4.04

RFNGTIME RUSTFUNG	ONCE	TWICE	MEAN
MAN+MANC	3.93	3.62	3.77
PROPICON	4.21	4.39	4.30
MEAN	4.07	4.00	4.04

RUSTFUNG	MAN+MANC		PROPICON	
RFNGTIME	ONCE	TWICE	ONCE	TWICE
C S FUNG				
NONE	4.20	3.15	4.42	4.02
BENOMYL	3.65	4.08	4.01	4.76

EXTRA	NONE	BENOMYL	MEAN
	3.64	3.51	3.58

GRAND MEAN 3.88

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

TABLE	EXTRA	C S FUNG	RUSTFUNG	RFNGTIME
SED	0.253	0.179	0.179	0.179

TABLE	C S FUNG RUSTFUNG	C S FUNG RFNGTIME	RUSTFUNG RFNGTIME	C S FUNG RUSTFUNG RFNGTIME
SED	0.253	0.253	0.253	0.358

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

STRATUM	DF	SE	CV%
BLOCK.WP	24	0.439	11.3

GRAIN MEAN DM% 89.3

PLOT AREA HARVESTED 0.00015

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/16

SPRING BEANS

SEED RATES AND PLANT HEALTH

Object: To study the effects of three seed rates and two standards of plant health on the yield of s. beans - Long Hoos V 2.

Sponsors: J. McEwen, D.P. Yeoman.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 2.40 x 3.00.

Treatments: All combinations of:-

1. POPULATN — Plant populations in thousands per hectare:

	Target population	Population achieved
2	200,000	140,000
4	400,000	270,000
6	600,000	350,000

2. PATHCONT — Pest and pathogen control:

STANDARD — Pirimicarb at 0.14 kg in 340 l on 13 June, 1983

ENHANCED — Permethrin at 0.15 kg in 220 l on 4 May and 24 May
Pirimicarb at 0.14 kg in 340 l on 13 June
Propiconazole at 0.12 kg in 340 l on 26 July
Benomyl at 0.5 kg in 340 l on 7 July

Basal applications: Manures: Chalk at 2.9 t. Muriate of potash at 520 kg. Trietazine at 1.1 kg with simazine at 0.16 kg in 220 l.

Seed: Minden.

Cultivations, etc.:- Muriate of potash applied: 16 Sept, 1982. Chalk applied: 28 Sept. Ploughed: 26 Nov. Spring-tine cultivated twice: 10 and 11 Mar, 1983. Seed sown: 11 Mar. Weedkillers applied: 17 Mar. Harvested by hand: 15 Aug. Previous crops: Potatoes 1981, s. barley 1982.

NOTE: Plant counts were made after establishment and components of yield were measured at maturity.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/16

GRAIN TONNES/HECTARE

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

PATHCONT POPULATN	STANDARD	ENHANCED	MEAN
2	2.06	2.08	2.07
4	2.71	2.72	2.71
6	2.71	3.25	2.98
MEAN	2.49	2.68	2.59

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

TABLE	POPULATN	PATHCONT	POPULATN PATHCONT
SED	0.165	0.135	0.234

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.330	12.8

GRAIN MEAN DM% 88.8

PLOT AREA HARVESTED 0.00015

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/17

SPRING BEANS

CONTROL OF STEM NEMATODE

Object: To study the effects of a range of materials, applied at three rates on the incidence of stem nematode (Ditylenchus dipsaci) and on the yield of spring beans grown from infested seed - ex-Allotments.

Sponsor: A.G. Whitehead.

Design: 2 randomised blocks of 24 plots.

Whole plot dimensions: 2.29 x 4.57.

Treatments: All combinations of:-

1. NEMACIDE — Nematicides applied in the seed furrows at sowing:

ALDICARB	Aldicarb
CARBOFUR	Carbofuran
DIMETHOA	Dimethoate
DISULFOT	Disulfoton
FENAMIPH	Fenamiphos

2. NEM RATE — Rates of nematicides (kg):

1	All applied to seed furrow
2	All applied to seed furrow
4	All applied to seed furrow
2+2	2 kg to seed furrow, 2 kg post emergence on 23 May, 1983

plus one extra treatment:

EXTRA	
NONE	None (quadruplicated)

Basal applications: Manures: (0:14:28) at 450 kg. Weedkillers: Simazine at 1.1 l in 640 l. Fungicide: Benomyl at 0.56 kg in 560 l applied with the insecticide. Insecticide: Pirimicarb at 0.14 kg on three occasions, with the fungicide on the first, in 560 l on the second and third.

Seed: Maris Bead, sown at 260 kg.

Cultivations, etc.:- Ploughed: 7 Dec, 1982. PK applied: 23 Feb, 1983. Spring-tine cultivated, rotary harrowed, seed sown: 9 Mar. Weedkiller applied: 11 Mar. Fungicide with insecticide applied: 10 June. Insecticide applied: 30 June, 19 July. Combine harvested: 8 Aug. Previous crops: S. barley 1981 and 1982.

NOTE: The percentage of stems infested with stem nematode was estimated in July. Seed infestation was assessed in harvested grain.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/17

GRAIN TONNES/HECTARE

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

NEM RATE / NEMACIDE	1	2	4	2+2	MEAN
ALDICARB	3.97	4.05	3.98	3.77	3.94
CABBOFUR	4.24	4.19	3.72	3.78	3.98
DIMETHOA	2.82	3.18	2.94	2.86	2.95
DISULFOT	3.12	3.60	3.55	3.24	3.38
FENAMIPH	3.42	3.43	3.69	3.64	3.55
MEAN	3.51	3.69	3.58	3.46	3.56

NONE 2.99

GRAND MEAN 3.47

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

TABLE	NEMACIDE	NEM RATE	NEMACIDE NEM RATE
SED	0.164	0.146	0.327

SED FOR COMPARING NONE WITH ANY ITEM IN THE NEM RATE.NEMACIDE TABLE IS 0.259

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

STRATUM	DF	SE	CV%
BLOCK.WP	26	0.327	9.4

GRAIN MEAN DM% 84.6

PLOT AREA HARVESTED 0.00035

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/18

SPRING BEANS

PERMETHRIN AND ALARM PHEROMONE

Object: To study the effects of aphid alarm pheromone on the activity of permethrin against bean aphids and on the yield of spring beans - Long Hoos VI/VII 2.

Sponsors: D.C. Griffiths, J.A. Pickett, G.R. Cayley.

Design: 2 randomised blocks of 14 plots.

Whole plot dimensions: 2.4 x 4.5.

Treatments: All combinations of:-

1. PERMETH — Permethrin (g):

0	None (duplicated)
3	
10	
30	
90	
270	

2. PHEROMON — Pheromone:

NONE	None
BETA FAR	(E), beta farnesene at 0.004 l

NOTE: Treatments were applied by electrostatic sprayer in 4.2 l hexane on 4 July.

Basal applications: Manures: Chalk at 2.9 t. Weedkillers: Trietazine at 1.1 kg with simazine at 0.16 kg in 220 l. Insecticide: Permethrin at 0.15 kg in 220 l.

Seed: Minden, sown at 280 kg.

Cultivations, etc.:- Chalk applied: 28 Sept, 1982. Ploughed: 4 Nov. Spring-tine cultivated, seed sown: 10 Mar, 1983. Weedkillers applied: 17 Mar. Insecticide applied: 24 May. Combine harvested: 11 Aug. Previous crops: Potatoes 1981, fallow 1982.

NOTE: Aphid infestations were measured in early July.

https://doi.org/10.23637/ERADOC-1-44

83/R/BE/18

GRAIN TONNES/HECTARE

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

PERMETH / PHEROMON	0	3	10	30	90	270	MEAN
NONE	1.73	1.51	1.76	1.92	1.87	1.99	1.79
BETA FAR	1.59	1.98	1.99	1.87	1.89	1.91	1.83
MEAN	1.66	1.74	1.88	1.90	1.88	1.95	1.81

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

TABLE	PERMETH	PHEROMON	PERMETH PHEROMON	
SED	0.183		0.259	MIN REP
	0.159	0.098	0.224	MAX-MIN
			0.183	MAX REP

	PERMETH
MAX REP	0
MAX-MIN	0 V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	15	0.259	14.3

GRAIN MEAN DM% 86.1

PLOT AREA HARVESTED 0.00065

https://doi.org/10.23637/ERADOC-1-44 *pp 35*

83/R/PE/1

PEAS

CONTROL OF PESTS AND DISEASES

Object: To study the effects of aldicarb, tolclofos methyl and permethrin on soil-inhabiting pests and pathogens and on the yield of peas - Long Hoos III 4.

Sponsors: J. McEwen, R. Bardner, A.J. Cockbain, C.D. Green, D.H. Lapwood, R.M. Webb, A.G. Whitehead, D.P. Yeoman.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 4.06 x 4.57.

Treatments: All combinations of:-

1.	NEMACIDE	Nematicide:
	NONE	None
	ALDICARB	Aldicarb at 5 kg combine drilled
2.	FUNGCIDE	Fungicide:
	NONE	None
	TOL METH	Tolclofos methyl at 50 kg worked into the seedbed
3.	INSCTCDE	Insecticide:
	NONE	None
	PERMETH	Permethrin at 0.15 kg in 220 l on 11 May, 1983 and 13 June

Basal applications: Manures: Chalk at 2.9 t. Muriate of potash at 520 kg. Weedkillers: Trietazine at 1.1 kg with simazine at 0.16 kg in 340 l.

Seed: Progreta, dressed metalaxyl, sown at 290 kg.

Cultivations, etc.:- Muriate of potash applied: 16 Sept, 1982. Chalk applied: 30 Sept. Ploughed: 12 Jan, 1983. Spring-tine cultivated twice, seed sown: 16 Mar. Weedkillers applied: 18 Mar. Combine harvested: 2 Aug. Previous crops: Potatoes 1981, s. barley 1982.

NOTE: Plants were counted after establishment. Weevils, migratory nematodes, root fungi and viruses were counted during the season. N content of grain was measured.

https://doi.org/10.23637/ERADOC-1-44 *pp 36*

83/R/PE/1

GRAIN TONNES/HECTARE

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

FUNGCIDE	NONE	TOL METH	MEAN
NEMACIDE			
NONE	4.78	4.79	4.79
ALDICARB	4.58	5.29	4.94
MEAN	4.68	5.04	4.86

INSCTCDE	NONE	PERMETH	MEAN
NEMACIDE			
NONE	4.90	4.68	4.79
ALDICARB	4.65	5.23	4.94
MEAN	4.77	4.95	4.86

INSCTCDE	NONE	PERMETH	MEAN
FUNGCIDE			
NONE	4.55	4.82	4.68
TOL METH	5.00	5.09	5.04
MEAN	4.77	4.95	4.86

FUNGCIDE	NONE		TOL METH	
INSCTCDE	NONE	PERMETH	NONE	PERMETH
NEMACIDE				
NONE	4.97	4.60	4.82	4.76
ALDICARB	4.12	5.05	5.17	5.41

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

TABLE	NEMACIDE	FUNGCIDE	INSCTCDE	NEMACIDE FUNGCIDE
SED	0.189	0.189	0.189	0.267

TABLE	NEMACIDE INSCTCDE	FUNGCIDE INSCTCDE	NEMACIDE FUNGCIDE INSCTCDE
SED	0.267	0.267	0.377

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.462	9.5

GRAIN MEAN DM% 82.3

PLOT AREA HARVESTED 0.00058

https://doi.org/10.23637/ERADOC-1-44

83/R/FE/1

FENUGREEK

N, RHIZOBIUM AND PEST CONTROL

Object: To study the effects of inoculation with Rhizobium, application of insecticide and times of applying nitrogen fertilizer on nodulation and yield of fenugreek (Trigonella foenum - graecum) - Long Hoos IV 4.

Sponsor: D.P. Yeoman.

Design: 2 randomised blocks of 12 plots.

Whole plot dimensions: 2.64 x 8.00.

Treatments: All combinations of:-

1.	INOCULUM	Inoculum applied to the seed:
	NONE	None
	RHIZOBUM	Rhizobium meliloti, strain 2012, as a peat culture
2.	N	Nitrogen fertilizer (kg N) and times of application:
	0	None
	150 S	150 to the seedbed, on 5 May, 1983
	150 F	150 at flowering, on 5 July
3.	INSCTCDE	Insecticide:
	NONE	None
	PERMETH	Permethrin foliar spray at 0.15 kg in 340 l on 13 June

Basal applications: Weedkillers: Trifluralin at 0.81 kg in 220 l. MCPB at 2.1 kg in 220 l. Desiccant: Diquat at 0.84 kg ion in 220 l.

Seed: Barbara, sown at 22 kg.

Cultivations, etc.:- Ploughed: 17 Jan, 1983. Trifluralin applied, spring-tine cultivated twice, power harrowed, seed sown: 5 May. MCPB applied: 1 July. Desiccant applied: 26 Aug. Combine harvested: 23 Sept. Previous crops: Peas 1981, s. barley 1982.

NOTE: Plant counts were made after establishment. N content of grain was measured.

https://doi.org/10.23637/ERADOC-1-44

83/R/FE/1

GRAIN TONNES/HECTARE

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

N	0	150 S	150 F	MEAN
INOCULUM				
NONE	0.31	0.71	0.32	0.45
RHIZOBUM	0.32	0.56	0.36	0.41
MEAN	0.31	0.63	0.34	0.43

INSCTCDE	NONE	PERMETH	MEAN
INOCULUM			
NONE	0.43	0.46	0.45
RHIZOBUM	0.40	0.42	0.41
MEAN	0.42	0.44	0.43

INSCTCDE	NONE	PERMETH	MEAN
N			
0	0.29	0.33	0.31
150 S	0.60	0.67	0.63
150 F	0.36	0.32	0.34
MEAN	0.42	0.44	0.43

N	0		150 S		150 F	
INSCTCDE	NONE	PERMETH	NONE	PERMETH	NONE	PERMETH
INOCULUM						
NONE	0.30	0.32	0.67	0.74	0.32	0.32
RHIZOBUM	0.29	0.34	0.53	0.60	0.40	0.32

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

TABLE	INOCULUM	N	INSCTCDE	INOCULUM N
SED	0.029	0.036	0.029	0.050

TABLE	INOCULUM INSCTCDE	N INSCTCDE	INOCULUM N INSCTCDE
SED	0.041	0.050	0.071

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.071	16.6

GRAIN MEAN DM% 81.7

PLOT AREA HARVESTED 0.00154

https://doi.org/10.23637/ERADOC-1-44