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68/DE/14 Woburn Fumigants and Nutrients - Potatoes

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68/De/14.1

POTATOES

(WP 401)

Fumigants and nutrients - Woburn Stackyard D (clean site),
Great Hill III (infested site), 1968.

Design: At each site 2 blocks of 2 plots, each split into 3.

Area of each sub plot: 0.0021. Area harvested: 0.0011.

Treatments: All combinations of:-

Whole plots: 1. Fumigant: None (O), methyl bromide at 870 lb (F).
Sub plots: 2. NPK: 2 cwt (13:13:20) (T1), 10 cwt (13:13:20) (T2),
10 cwt (13:13:20) plus 100 lb Mg as Epsom salts
(T2Mg).

Basal applications: Weedkiller: Paraquat at 0.5 lb ion in 33 gals before
ploughing (Great Hill III only). Weedkiller: Linuron at 0.5 lb plus
paraquat at 0.37 lb ion in 50 gals. Fungicide: Mancozeb at
1.2 lb in 38 gals (on three occasions). Insecticide:
Demeton-s-methyl at 3.5 oz applied with fungicide on one
occasion.

Cultivations, etc.:

Stackyard D: Mg applied: 8 Feb, 1968. NPK applied: 1 Apr.

Rotary cultivated, methyl bromide applied: 5 Apr. Potatoes

planted: 9 Apr. Linuron plus paraquat applied: 3 May.

Earthed up: 14 June. Fungicide plus insecticide applied:

12 July. Fungicide applied: 18 July, 30 July. Sprayed with

undiluted BOV at 15 gals: 4 Sept. Lifted: 31 Oct. Variety:

King Edward. Previous crops: Fallow 1966 and 1967.

Great Hill III: Paraquat applied: 22 Sept, 1967. Subsoiled:

26 - 27 Sept. Ploughed: 7 - 9 Nov. Mg applied:

8 Feb, 1968. NPK applied: 1 Apr. Rotary cultivated,

methyl bromide applied: 5 Apr. Potatoes planted: 9 Apr.

Linuron plus paraquat applied: 2 May. Rotary ridged: 13 June.

Fungicide plus insecticide applied: 12 July. Fungicide applied:

18 July, 30 July. Sprayed with undiluted BOV at 15 gals: 4 Sept.

Lifted: 4 Nov. Variety: King Edward. Previous crops:

Potatoes 1966, spring wheat 1967.

NOTES: (1) Soil samples were taken in March and September for cyst
and egg counts of *Heterodera rostochiensis*.
(2) Plant samples were taken in July for counts of white cysts.

Standard errors per sub plot. Total tubers:

Stackyard D, clean site: 3.640 or 21.5% (4 d.f.)

Great Hill III, infected site: 1.560 or 11.2% (4 d.f.)

68/De/14.2

SUMMARY OF RESULTS

STACKYARD D				
	T1	T2	T2MG	Mean
TOTAL TUBERS				
	(1) and (2)			(± 0.945)
O	11.56	19.95	20.00	17.17
F	10.31	18.96	20.94	16.74
Mean (± 1.820)	10.94	19.46	20.47	16.95

(1) (± 2.305) For use in vertical and diagonal comparisons only(2) (± 2.574) For use in horizontal and interaction comparisons only

% WARE				
O	74.4	87.9	82.4	81.6
F	68.3	79.2	82.4	76.6
Mean	71.4	83.5	82.4	79.1

68/De/14.3

GREAT HILL III

	T1	T2	T2MG	Mean
TOTAL TUBERS				
	(1) and (2)			(±2.210)
O	6.15	11.25	12.14	9.84
F	14.64	19.17	20.42	18.07
Mean (±0.780)	10.39	15.21	16.28	13.96

(1) (±2.386) For use in vertical and diagonal comparisons only

(2) (±1.103) For use in horizontal and interaction comparisons only

	% WARE			
O	51.3	72.2	74.5	66.0
F	71.9	79.8	78.0	76.5
Mean	61.6	76.0	76.2	71.3

68/Df/1.1

GRASS

(RG 101)

Anhydrous and aqueous ammonia, Parklands 1968.

Design: 3 randomised blocks of 26 plots.

Area of each plot: 0.0092. Area harvested: 0.0054.

Treatments: None (NO) (2 plots per block) and all combinations of:-

1. Nitrogen fertiliser and time of application:

Applied in autumn:

Injected anhydrous ammonia (20 Nov) (IAA)

Injected aqueous ammonia (8 Nov) (IQA)

Applied in spring:

Injected anhydrous ammonia (14 Mar) (IAS)

Injected aqueous ammonia (12 Mar) (IQS)

Broadcast 'Nitro-Chalk':

Applied in 3 equal dressings (BD)

Applied as single dressing (BS)

2. N: 2.0 (N2), 3.0 (N3), 4.0 (N4), 5.0 (N5) cwt
(total for the season).

Basal applications: 900 lb (0:14:28) in winter.

Cultivations, etc.: Basal PK compound applied: 1 Jan, 1968. 'Nitro-Chalk' applied (treatment BS and first dressing of BD): 15 Mar.
Cut three times: 22 May, 9 July, 14 Sept. 'Nitro-Chalk' applied after first two cuts for BD treatment. Previous crop: Grassland for at least 35 years.

NOTE: Grass samples were taken to determine dry matter and percentage of N, P and K. Percentage of Mg was determined in some samples.

Standard errors per plot. Dry matter:

1st cut: 2.71 or 7.9% (46 d.f.)

2nd cut: 2.09 or 7.8% (46 d.f.)

3rd cut: 3.18 or 14.6% (46 d.f.)

Total of 3 cuts: 4.97 or 6.0% (46 d.f.)

68/Df/1.2

SUMMARY OF RESULTS

	IAA	IQA	IAS	IQS	BD	BS	Mean
1ST CUT							
(±1.56)							(±0.64)
N2	34.1	34.2	35.8	33.8	34.0	31.1	33.8
N3	35.7	35.4	31.8	35.0	33.5	30.6	33.7
N4	36.5	36.6	31.3	34.6	32.8	34.9	34.4
N5	33.5	38.3	32.7	34.3	34.5	33.5	34.5
Mean (±0.78)	34.9	36.1	32.9	34.4	33.7	32.5	34.1

NO: 21.2 (±1.11)

General mean: 33.1

Mean D.M. %: 14.2

2ND CUT							
(±1.20)							(±0.49)
N2	23.9	27.4	27.9	26.2	25.2	25.3	26.0
N3	26.3	27.3	27.8	28.5	26.5	28.7	27.5
N4	26.7	28.4	28.6	27.4	26.8	27.8	27.6
N5	26.4	25.9	27.9	25.6	25.6	26.0	26.2
Mean (±0.60)	25.8	27.3	28.0	26.9	26.0	27.0	26.8

NO: 18.2 (±0.85)

General mean: 26.2

Mean D.M. %: 15.6

TABLE 1						
SOURCES OF FERTILIZER NITROGEN						
Source	1950	1955	1960	1965	1970	1975
Atmosphere	100.00	100.00	100.00	100.00	100.00	100.00
Manure	0.00	0.00	0.00	0.00	0.00	0.00
Industrial waste	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 2						
SOURCES OF FERTILIZER PHOSPHORUS						
Source	1950	1955	1960	1965	1970	1975
Atmosphere	100.00	100.00	100.00	100.00	100.00	100.00
Manure	0.00	0.00	0.00	0.00	0.00	0.00
Industrial waste	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00