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85/R/RN/19 Worm-worked Wastes - Potatoes, Maize, Kale

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85/R/RN/19

WORM-WORKED WASTES

Object: To study the effects of the residues of pig manure, after it has been worked by earthworms, on the growth and yield of arable crops - Ninnings.

Sponsor: K.E. Fletcher.

The first year, potatoes, maize, kale.

Design: 3 series (for crops) each of 3 blocks of 3 plots.

Whole plot dimensions: 3.05 x 2.8.

Treatments to each series:

MANURE	Fertilizers and organic manures:
FERTILZER	Inorganic fertilizers
WW FYM	Worm-worked pig farmyard manure
WW SS	Worm-worked pig separated solids

- NOTES: (1) Fertilizers to potatoes: (10:10:15+4.5 Mg) at 870 kg followed by 1330 kg to seedbed, 'Nitro-Chalk' (27.5% N) at 180 kg in summer.
- (2) Fertilizers to maize: (20:10:10) at 750 kg to seedbed.
- (3) Fertilizers to kale: 'Nitro-Chalk' (27.5% N) at 450 kg (0:20:20) at 500 kg to seedbed, 'Nitro-Chalk' (27.5% N) at 180 kg in summer.
- (4) WW FYM and WW SS were each applied to potatoes at 44.7 t to maize at 24.7 t and to kale at 28.2 t.

Standard applications:

Potatoes: Weedkillers: Linuron at 1.3 kg with paraquat at 0.28 kg ion in 220 l. Fungicide: Mancozeb at 1.3 kg in 220 l on eight occasions, with the insecticide on the third, fourth and fifth occasions. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.60 kg ion in 220 l.

Maize: Weedkillers: Glyphosate at 1.0 kg in 220 l. Atrazine at 2.8 kg in 220 l.

Kale: Weedkillers: Glyphosate at 1.0 kg in 220 l. Trifluralin at 0.55 kg in 220 l. Desmetryne (as 'Semeron 25 WP' at 1.7 kg) in 220 l, on two occasions.

Seed: Maize: Leader, sown at 50 kg.

Potatoes: Maris Piper.

Kale: Merlin, sown at 3.6 kg.

Cultivations, etc.:-

Potatoes: Ploughed: 5 Feb, 1985. Spring-tine cultivated, organic manures applied, power harrowed, planted by hand: 29 Apr. First NPK Mg applied: 9 May. Weedkillers applied: 16 May. Second NPK Mg applied: 23 May (omitted in error on 9 May). Fungicide alone applied: 13 June, 28 June, 20 Aug, 30 Aug, 5 Sept. N applied: 26 July. Fungicide with insecticide applied: 10 July, 23 July, 6 Aug. Desiccant applied: 17 Sept. Lifted by hand: 27 Sept.

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Maize: Ploughed: 5 Feb, 1985. Glyphosate applied: 16 May.
Spring-tine cultivated, treatments applied, power harrowed, seed sown: 20 May. Atrazine applied: 30 May. Harvested by hand: 6 Nov.

Kale: Ploughed: 5 Feb, 1985. Glyphosate applied: 16 May. Spring-tine cultivated, treatments applied, power harrowed, trifluralin applied, power harrowed, seed sown: 20 May. Desmetryne applied: 10 July, 23 July. N applied: 26 July. Harvested by hand: 6 Nov. Previous crops: Grass 1983, w. wheat 1984.

- NOTES: (1) Because of an error dry matter percentages were not measured on one block of kale. Yields presented are based on only two blocks and consequently standard errors have been omitted.
(2) Emergence counts were made on potatoes at the end of May, and stem counts made just before harvest. Number of maize plants, cobs, and size of cobs were noted at the end of September.

POTATOES

TOTAL TUBERS TONNES/HECTARE

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

MANURE	FERTLZER	WW FYM	WW SS	MEAN
	88.4	72.5	85.5	82.1

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

TABLE	MANURE
-----	-----
SED	6.300

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

STRATUM	DF	SE	CV%
BLOCK.WP	4	7.716	9.4
PLOT AREA HARVESTED	0.00042		

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MAIZE

FORAGE DRY MATTER TONNES/HECTARE

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

MANURE	FERTLZER	WW FYM	WW SS	MEAN
	11.80	11.24	11.70	11.58

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

TABLE	MANURE
-----	-----
SED	1.307

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

STRATUM	DF	SE	CV%
BLOCK.WP	4	1.601	13.8

FORAGE MEAN DM% 34.7

PLOT AREA HARVESTED 0.00030

KALE

FORAGE DRY MATTER TONNES/HECTARE

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

MANURE	FERTLZER	WW FYM	WW SS	MEAN
	6.48	8.08	7.11	7.22

FORAGE MEAN DM% 13.8

PLOT AREA HARVESTED 0.00028