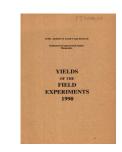
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Yields of the Field Experiments 1990



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90/W/CS/342 Catch Crops - Clover, Forage Rape, Phacelia, Ryegrass, Rye, Mustard, W. Wheat, S. Barley

Rothamsted Research

Rothamsted Research (1991) 90/W/CS/342 Catch Crops - Clover, Forage Rape, Phacelia, Ryegrass, Rye, Mustard, W. Wheat, S. Barley; Yields Of The Field Experiments 1990, pp 96 - 98 - DOI: https://doi.org/10.23637/ERADOC-1-42

90/W/CS/342

CATCH CROPS

Object: To compare a range of catch crops for their ability to take up N during the autumn, to measure rates of mineralization of N after incorporating them in spring and to measure their effects on the yield of a subsequent spring barley crop - Woburn, Road Piece.

Sponsors: D.S. Powlson, D.G. Christian.

The first year, clover, forage rape, Phacelia, ryegrass, rye, mustard, w. wheat, s. barley.

Design: 3 randomised blocks of 11 plots split into 2 sub plots criss

Whole plot dimensions: 8.0 x 10.0.

Treatments: All combinations of:-

Whole plots

1. CROPS Catch crops and subsequent crops:

Sown 11 Aug, 1989, ploughed in on 6 Mar, 1990,

s. barley sown 8 Mar:

AL CL SB Alsike clover

FA CU SB Fallow, cultivated to keep soil bare

FA UC SB Fallow, uncultivated, weeds and volunteers allowed to

grow

FO RA SB Forage rape

PH TA SB Phacelia tanacetifolia

RY GR SB Ryegrass

RYE SB Rve

WH MU SB White mustard

WM+RY SB White mustard + rye

Sown 5 Oct, 1989, ploughed in on 6 Mar, 1990, s. barley

sown 8 Mar:

WW SB Winter wheat

Sown 5 Oct, 1989, taken to normal maturity:

W WHEAT Winter wheat

Sub plots

Nitrogen fertilizer on 8 Mar, 1990 (kg N) as 2. N

'Nitro-Chalk' (27% N):

0

50

Standard applications: Manure, to w. wheat taken to maturity: 150 kg N as 'Nitro-Chalk'. Weedkillers to all w. wheat: Glyphosate at 0.36 kg in 200 l. Isoproturon at 1.5 kg with isoxaben at 75 g in 220 l.

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Basal applications: Weedkillers: Bromoxynil at 0.24 kg and clopyralid at 0.05 kg with mecoprop at 1.8 kg in 220 l. Fungicide: Fenpropimorph at 0.75 kg in 220 l.

Seed: Alsike clover: Sown at 10 kg.

Forage rape: Giant, sown at 30 kg.

Phacelia tanacetifolia: Sown at 12 kg.

Ryegrass: Contessa, sown at 25 kg.

Rye: Halo, sown at 180 kg.

White mustard: Sown at 30 kg.

White mustard + rye: Sown at 30 and 180 kg respectively.

W. wheat: Mercia, sown at 180 kg.

S. barley: Blenheim, seed dressed triadimenol and fuberidazole, sown at 160 kg

Cultivations, etc.:-

- All crops except w. wheat: Rotary cultivated twice, except on uncultivated fallow, seeds sown: 11 Aug, 1989. Deep-tine cultivated fallow only: 21 Sept. Ploughed: 6 Mar, 1990.

 Treatment N applied, rotary harrowed with crumbler attached, s. barley sown: 8 Mar. Weedkillers applied: 23 May. Fungicide applied: 24 May. Combine harvested: 9 Aug.
- W. wheat: Rotary cultivated twice: 26 Sept, 1989. Glyphosate applied: 4 Oct. Seed sown and rolled: 5 Oct. Isoproturon and isoxaben applied: 11 Dec. Wheat not taken to maturity ploughed: 6 Mar, 1990. Remaining wheat, test N applied: 8 Mar, standard N applied: 6 Apr, bromoxynil, clopyralid and mecoprop applied: 23 May, fungicide applied: 24 May, combine harvested: 7 Aug.

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GRAIN TONNES/HECTARE

**** Tables of means ****

N	0	E0	W
The second state of	0	50	Mean
CROP			
AL CL SB	2.38	3.04	2.71
FA CU SB	2.78	3.65	3.21
FA UC SB	2.87	4.01	3.44
FO RA SB	3.19	3.47	3.33
PH TA SB	3.45	1.96	2.71
RY GR SB	2.33	2.61	2.47
RYE SB	2.87	2.64	2.76
WH MU SB	2.42	3.23	2.82
WM+RY SB	2.49	3.94	3.21
WW SB	2.72	3.77	3.25
W WHEAT	5.34	5.38	5.36
Mean	2.99	3.43	3.21

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

CROP CROP*
N
0.531 0.75

* Within the same level of N only

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

 Stratum
 d.f.
 s.e.
 cv%

 BLOCKN.BLOCK.WP
 40
 0.919
 28.7

GRAIN MEAN DM% *

SUB PLOT AREA HARVESTED 0.00003