

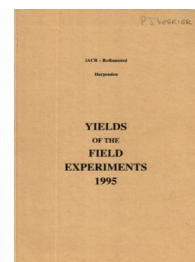
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85/W/M/1 Methods of Cover Crop Establishment - Mixed Crops

Rothamsted Research

Rothamsted Research (1996) *85/W/M/1 Methods of Cover Crop Establishment - Mixed Crops* ; Yields Of The Field Experiments 1995, pp 172 - 174 - DOI: <https://doi.org/10.23637/ERADOC-1-50>

95/W/M/1

MIXED 1

METHODS OF COVER CROP ESTABLISHMENT

Object: To examine the effectiveness of a range of methods of establishing cover crops and to measure the yield of a subsequent crop of linseed - Woburn, Great Hill Bottom I.

Sponsor: D.G. Christian.

Design: 3 randomised blocks of (2 x 4) + 1 plots, split into 2 sub-plots.

Whole plot dimensions: 6.0 x 12.0.

Sub-plot dimensions: 6.0 x 4.5.

Treatments: All combinations of:-

Whole plots

- | | |
|--------------------|--|
| 1. COV CROP | Cover crops: |
| BW | Winter barley |
| FR | Forage rape |
| 2. SOWING | Method and timing of sowing: |
| BC | Broadcast into standing crop seven days before harvest |
| DC | Disced, broadcast and rolled, three days after harvest |
| RC | Rotary cultivated, broadcast and rolled three days after harvest |
| DD | Direct drilled two days after harvest |

Sub-plot

- | | |
|-------------|-----------------|
| 3. N | Nitrogen, kg N: |
| N1 | None |
| N2 | 75 |

plus one extra treatment

Whole plot

- | | |
|-----------------|----------------------------------|
| 1. EXTRA | |
| ST | Stubble from previous wheat crop |

Sub-plot

- | | |
|-------------------|-----------------|
| 2. N EXTRA | Nitrogen, kg N: |
| N1 | None |
| N2 | 75 |

95/W/M/1

Experimental diary:

08-Aug-94 : **T** : **SOWING** BC, **COV CROP** BW: Puffin broadcast at 180 kg.
 : **T** : **SOWING** BC, **COV CROP** FR: Ember broadcast at 30 kg.
 15-Aug-94 : **B** : Wheat combine harvested, straw chopped.
 18-Aug-94 : **T** : **SOWING** DC: Disced.
 : **T** : **SOWING** RC: Rotary cultivated.
 : **T** : **SOWING** DC, RC, DD, **COV CROP** BW: Puffin sown at 180 kg.
 : **T** : **SOWING** DC, RC, DD, **COV CROP** FR: Ember sown at 30 kg.
 : **T** : **SOWING** DC, RC, **COV CROP** BW, FR: Rolled.
 07-Sep-94 : **B** : Draza at 5.5 kg.
 24-Nov-94 : **T** : **COV CROP** FR: Draza at 5.5 kg.
 08-Apr-95 : **B** : Ploughed and rolled.
 11-Apr-95 : **B** : Rotary harrowed, Antares, dressed Prelude 20LF, at 600
 seeds per m².
 13-Apr-95 : **B** : Rolled.
 05-May-95 : **T** : **N** N2, **N EXTRA** N2: 27% N at 278 kg.
 02-Jun-95 : **B** : Ally at 30 g in 200 l.
 : **B** : Fastac at 0.10 l in 300 l.
 22-Sep-95 : **B** : Combine harvested.

Previous crops: S. rape 1993, w. wheat 1994.

NOTE: Dry matter, plant numbers and nitrogen content in the cover crops were measured in autumn. Dry matter and nitrogen content was also measured in spring. At harvest dry matter, nitrogen content, harvest index, oil content and thousand grain weights were measured in the linseed.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

| COV CROP | BW | FR | Mean |
|-----------------|-----------|-----------|-------------|
| SOWING | | | |
| BC | 0.50 | 0.49 | 0.50 |
| DC | 0.57 | 0.59 | 0.58 |
| RC | 0.54 | 0.53 | 0.53 |
| DD | 0.54 | 0.54 | 0.54 |
| Mean | 0.54 | 0.54 | 0.54 |
| N | | | |
| | N1 | N2 | Mean |
| SOWING | | | |
| BC | 0.45 | 0.55 | 0.50 |
| DC | 0.48 | 0.69 | 0.58 |
| RC | 0.43 | 0.63 | 0.53 |
| DD | 0.44 | 0.64 | 0.54 |
| Mean | 0.45 | 0.63 | 0.54 |

95/W/M/1

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

| N | N1 | N2 | Mean |
|-----------------|-----------------|-----------|-------------|
| COV CROP | | | |
| BW | 0.45 | 0.63 | 0.54 |
| FR | 0.45 | 0.62 | 0.54 |
| Mean | 0.45 | 0.63 | 0.54 |
| | N | N1 | N2 |
| SOWING | | | |
| | COV CROP | | |
| BC | BW | 0.43 | 0.57 |
| | FR | 0.46 | 0.53 |
| DC | BW | 0.49 | 0.65 |
| | FR | 0.46 | 0.72 |
| RC | BW | 0.41 | 0.67 |
| | FR | 0.46 | 0.59 |
| DD | BW | 0.46 | 0.63 |
| | FR | 0.43 | 0.65 |
| N EXTRA | N1 | N2 | Mean |
| | 0.33 | 0.76 | 0.55 |

Grand mean 0.54

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

| SOWING | COV CROP | N | SOWING |
|---|-----------------|-----------------|----------------------|
| | | | COV CROP |
| 0.080 | 0.057 | 0.031 | 0.114 |
| SOWING | COV CROP | SOWING | |
| N | N | COV CROP | N |
| | | | & N EXTRA |
| 0.092 | 0.065 | 0.130 | |
| Except when comparing means with the same level(s) of | | | |
| SOWING | 0.063 | | |
| COV CROP | | 0.044 | |
| SOWING.COV CROP | | | 0.089 |

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

| Stratum | d.f. | s.e. | cv% |
|-------------|------|-------|------|
| BLOCK.WP | 16 | 0.139 | 25.8 |
| BLOCK.WP.SP | 18 | 0.109 | 20.1 |

GRAIN MEAN DM% 87.9

SUB-PLOT AREA HARVESTED 0.00099