

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1978

[Full Table of Content](#)



78/R/WS/1 Bacterial Inoculation - S. Wheat

Rothamsted Research

Rothamsted Research (1979) *78/R/WS/1 Bacterial Inoculation - S. Wheat* ; Yields Of The Field Experiments 1978, pp 369 - 372 - DOI: <https://doi.org/10.23637/ERADOC-1-30>

78/R/WS/1

SPRING WHEAT

BACTERIAL INOCULATION

Object: To study the effects of applying a bacterial inoculant and additives on the growth and yield of spring wheat in the presence and absence of straw applied in winter - Hoosfield.

Sponsors: M.E. Brown, J.F. Witty.

Design: Single replicate of 2 x 3 split into 2 x 4.

Whole plot dimensions: 4.27 x 7.62.

Treatments: All combinations of:-

Whole plots

1. STRAW Straw (t) applied in winter, chopped on site and ploughed in on 14 Dec, 1977:

0.0
7.5

2. SEEDBD N Nitrogen fertiliser (kg N) (as 'Nitro-chalk 26') applied to seedbed on 17 May, 1978:

30
90
150

Sub plots

3. WINTER N Nitrogen fertiliser (kg N) (as 'Nitro-chalk 25') applied just before straw on 13 Dec, 1977:

0
30

4. INOCULNT Inoculants sprayed on chopped straw:

0 None
B+W+C Bacterial inoculant plus fermented whey plus cobalt lactate
W+C Fermented whey plus cobalt lactate
C Cobalt lactate

NOTE: Rates of application of INOCULNT were:

- (1) Bacteria at 0.019 kg of a culture containing *Actinomyces thermophilus*, *Azotobacter chroococcum*, *Cellvibrio*, *Cytophaga* and *Bacillus subtilis*.
 - (2) Whey 6.67 kg.
 - (3) Cobalt lactate (0.22 kg 'Symbooster').
- Materials were applied in 240 l.

78/R/WS/1

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l) in 220 l.

Seed: Sicco, sown at 190 kg.

Cultivations, etc.:— Ploughed: 16 Dec, 1977. Rotary harrowed, seed sown: 15 Mar, 1978. Weedkillers applied: 26 May. Combine harvested: 16 Sept. Previous crops: Sugar beet 1976, barley 1977.

NOTE: Germination counts were made in May and the total dry weight of plants was measured in May and June.

GRAIN TONNES/HECTARE

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

SEEDBD N	30	90	150	MEAN
STRAW				
0.0	2.30	2.98	3.85	3.04
7.5	1.60	2.22	3.07	2.29
MEAN	1.95	2.60	3.46	2.67
WINTER N	0	30	MEAN	
STRAW				
0.0	2.80	3.29	3.04	
7.5	2.10	2.49	2.29	
MEAN	2.45	2.89	2.67	
WINTER N	0	30	MEAN	
SEEDBD N				
30	1.80	2.10	1.95	
90	2.34	2.85	2.60	
150	3.21	3.71	3.46	
MEAN	2.45	2.89	2.67	

78/R/WS/1

GRAIN TONNES/HECTARE

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

INOCULNT STRAW	0	B+W+C	W+C	C	MEAN
0.0	3.09	3.01	2.95	3.12	3.04
7.5	2.39	2.37	2.24	2.17	2.29
MEAN	2.74	2.69	2.59	2.65	2.67

INOCULNT SEEDBD N	0	B+W+C	W+C	C	MEAN
30	1.99	1.99	1.99	1.82	1.95
90	2.81	2.48	2.51	2.59	2.60
150	3.43	3.61	3.26	3.53	3.46
MEAN	2.74	2.69	2.59	2.65	2.67

INOCULNT WINTER N	0	B+W+C	W+C	C	MEAN
0	2.61	2.51	2.27	2.41	2.45
30	2.87	2.88	2.92	2.89	2.89
MEAN	2.74	2.69	2.59	2.65	2.67

STRAW	WINTER N SEEDBD N	0	30
0.0	30	2.07	2.53
	90	2.76	3.20
	150	3.57	4.12
7.5	30	1.52	1.67
	90	1.93	2.50
	150	2.84	3.30

STRAW	INOCULNT SEEDBD N	0	B+W+C	W+C	C
0.0	30	2.19	2.45	2.24	2.32
	90	3.23	2.77	2.81	3.11
	150	3.86	3.82	3.79	3.93
7.5	30	1.79	1.53	1.75	1.31
	90	2.39	2.20	2.22	2.06
	150	3.00	3.40	2.74	3.13

STRAW	INOCULNT WINTER N	0	B+W+C	W+C	C
0.0	0	2.82	2.84	2.56	2.99
	30	3.36	3.19	3.33	3.26
7.5	0	2.41	2.18	1.97	1.83
	30	2.38	2.57	2.50	2.51

SEEDBD N	INOCULNT WINTER N	0	B+W+C	W+C	C
30	0	2.03	1.94	1.49	1.71
	30	1.95	2.04	2.50	1.92
90	0	2.60	2.07	2.33	2.37
	30	3.01	2.90	2.70	2.81
150	0	3.20	3.51	2.98	3.13
	30	3.66	3.71	3.55	3.93

78/R/WS/1

GRAIN TONNES/HECTARE

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

TABLE	STRAW	SEEDBD N	WINTER N	INOCULNT
SED	**	**	0.089	0.126

TABLE	STRAW SEEDBD N	STRAW* WINTER N	SEEDBD N* WINTER N	STRAW* INOCULNT
SED	**	0.126	0.154	0.178

TABLE	SEEDBD N* INOCULNT	WINTER N INOCULNT	STRAW* SEEDBD N WINTER N	STRAW* SEEDBD N INOCULNT
	0.218	0.178	0.218	0.308

TABLE	STRAW* WINTER N INOCULNT	SEEDBD N* WINTER N INOCULNT
SED	0.251	0.308

* WITHIN SAME LEVEL OF STRAW, SEEDBD N OR STRAW SEEDBD N
 ** NO STANDARD ERROR AVAILABLE

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

STRATUM	DF	SE	CV%
WP.SP	6	0.308	11.5

GRAIN MEAN DM% 80.8

PLOT AREA HARVESTED 0.00217