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Yields of the Field Experiments 2020

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20/R/BK/1 Broadbalk

Rothamsted Research

Rothamsted Research (2022) *20/R/BK/1 Broadbalk ;* Yields Of The Field Experiments 2020, pp 1 - 11 **- DOI: https://doi.org/10.23637/ERADOC-1-264**

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20/R/BK/1 BROADBALK

Object: To study the effects of organic manures and inorganic fertilisers on continuous winter wheat and wheat in rotation. From 1968 two three-year rotations were included: potatoes, beans, winter wheat and fallow, winter wheat, winter wheat. In 1979 the first rotation was changed to fallow, potatoes, winter wheat. In 1980 the second rotation reverted to continuous winter wheat. Since 1985 part of the second rotation was added to the first to extend the rotation to fallow, potatoes, winter wheat, winter wheat, winter wheat. In 1996 the fallow was replaced by winter oats and potatoes replaced by maize in 1997. In 2018 (175th year) winter beans (Be) replaced maize on the rotational sections and the rotation was changed to wheat, wheat, oats, wheat, beans. The new rotation includes two first wheats each year. Previously, only one first wheat was included in the rotation. This change has resulted in additional harvest sampling and analysis, to include both first wheats and the beans.

2020 was the 177th year of the experiment, for previous years see 'Details' 1967 and 1973, Station Report for 1966, pp. 229-231; Station Report for 1968, Part 2; Station Report for 1982, Part 2, pp 5-44 and Yield Books for 74-19/R/BK/1.

Areas harvested [a]:

	Section	ha
Wheat:	0	0.00305
	1	0.00561
	2,5,6 and 7	0.00463
	8, 9	0.00488
Oats:	3	0.00463
Beans:	4	0.00463

[a] The new Haldrup combine has a slightly smaller cut width (2.0 m) than the previous Sampo combine (2.1 m). Consequently, from 2017 cereal yields were based on a 2.0 m cut width.

Treatments:
In 2001 some of the treatments were changed. The treatments are now:
Whole plots

PLOT	Fertilizers and organic manures Treatments	
	Plot	From 2001
01 (FYM)N4	01	N4
2.1 FYMN3	2.1	FYM N2 (1)
2.2 FYM	2.2	FYM
03 Nil	03	None
05 (P)KMg	05	(P) K Mg
06 N1 (P) KMg	06	N1 (P) K Mg
07 N2(P)KMg	07	N2 (P) K Mg
08 N3(P)KMg	08	N3 (P) K Mg
09 N4(P)KMg	09	N4 (P) K Mg
10 N4	10	N4
11 N4PMg	11	N4 P Mg
12 N1+3+1(P)K2Mg2	12	N1+3+1 (P) K2 Mg2 (2)
13 N4PK	13	N4 P K
14 N4PK*(Mg*)	14	N4 P K* (Mg*)

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15 N5(P)KMg	15	N5 (P) K Mg
16 N6(P)KMg	16	N6 (P) K Mg
17 N1+4+1PKMg	17	N1+4+1 P K Mg
18 N1+2+1PKMg	18	N1+2+1 P K Mg
19 N1+1+1KMg	19	N1+1+1 K Mg
20 N4KMg	20	N4 K Mg

(1) FYM N3 since 2005
(2) N1+3+1 (P) KMg since 2006

Winter wheat – single N to wheat

N1, N2, N3, N4, N5, N6: 48, 96, 144, 192, 240, 288 kg N as 33.5% N; to be applied at the same time as the second dressings in the split nitrogen plots for wheat.

– Split N to wheat

N1+1+1, 1+2+1 etc: Rates as above. Timings: first two weeks of March, GS31 or mid-April (whichever comes first) and GS37/mid-May.

Winter oats – single N application

½ N1, ½ N2, ½ N3, ½ N4, ½ N5, ½ N6: 24, 48, 72, 96, 120, 144 kg N as 33.5%N; applied at half the rate for wheat in a single application in mid-April; FYM applied at 35 t/ha (fresh wt). Oats received no N or FYM from 1996 to 2017.

Winter Beans (Be) No N or FYM applied.

All crops P, K, Mg & FYM applications as shown below:-

P: 35 kg P as triple superphosphate
(P): (none since 2001), to be reviewed in 2020.
K: 90 kg K as potassium sulphate.
K2: 180 kg K as potassium sulphate (plus 450 kg K autumn 2000 only)
K*: 90 kg K as potassium chloride
Mg: 12 kg Mg as kieserite.
Mg2: 24 kg Mg as kieserite (plus 60kg Mg, autumn 2000 only).
(Mg*): (none since 2001), to be reviewed in 2020
FYM: Farmyard manure at 35 t

Previous treatment:
Whole plots

PLOT Fertilizers and organic manures:-

	Plot	Treatments until 1967	Treatments from 1968	Treatments from 1985 – 2000
01 DN4PK	01	-	D N2 P K	D N4 P K
2.1 DN2	21	D	D N2	D N2
2.2 D	22	D	D	D
03 0	03	None	None	None
05 F	05	P K Na Mg	P K (Na) Mg	PK Mg
06 N1F	06	N1 P K Na Mg	N1 P K (Na) Mg	N1 P K Mg
07 N2F	07	N2 P K Na Mg	N2 P K (Na) Mg	N2 P K Mg
08 N3F	08	N3 P K Na Mg	N3 P K (Na) Mg	N3 P K Mg
09 N4F	09	N*1 P K Na Mg	N4 P K (Na) Mg	N4 P K Mg
10 N2	10	N2	N2	N2

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11 N2P	11	N2 P	N2 P	N2 P
12 N2PNA	12	N2 P Na	N2 P Na	N2 P Na
13 N2PK	13	N2 P K	N2 P K	N2 P K
14 N2PKMG	14	N2 P Mg	N2 P K Mg	N2 P K Mg
15 N5F	15	N2 P K Na Mg	N3 P K(Na) Mg	N5 P K Mg
16 N6F	16	N*2 P K Na Mg	N2 P K (Na) Mg	N6 P K Mg
17 N1+3FH	17	N2 (A)	N2 ½[P K (Na) Mg]	N1+3 ½[P K Mg] (A)+
18 N0+3FH	18	P K Na Mg (A)	N2 ½[P K (Na) Mg]	N0+3 ½[P K Mg] (A)+
19 (C)	19	C	C	(C) (since 1989)
20 N2KMG	20	N2 K Na Mg	N2 K (Na) Mg	N2 K Mg

(A) Alternating each year
+ This change since 1980. Treatments shown are those to winter wheat; autumn N alternates. Maize received N3 ½[PK Mg] on both plots 17 and 18. These treatments shown incorrectly in 1999-2002 Yield books.
Winter oats; Nitrogen and dung were not applied.

N1, N2, N3, N4, N5, N6:	48, 96, 144, 192, 240, 288 kg N as sulphate of ammonia until 1967, except N* which was nitrate of soda. All as 'Nitro-Chalk' in spring from 1968 to 1985, as 34.5% N since 1986.
N0+3; N1+3:	None in autumn + 144 kg N in spring; 48 kg N in autumn + 144 kg N in spring.
P:	35 kg P as triple superphosphate in 1974 and since 1988, single superphosphate in other years
K:	90 kg K as sulphate of potash
Na:	55 kg Na as sulphate of soda
(Na):	16 kg Na as sulphate of soda until 1973
Mg:	30 kg Mg annually to Plot 14 (applied at 26 kg 1990 to 2000), 35 kg Mg every third year to other plots since 1974 (applied at 30 kg in 1991, 1994, 1997 and 2000 and at 15 kg on half rate treatments). All as kieserite since 1974, previously as sulphate of magnesia annually.
D:	Farmyard manure at 35 t
(C):	Castor meal to supply 96 kg N until 1988, none since
F:	Full rate P K (Na) Mg as above
H:	Half rate of above.

Strips of sub-plots: Until 1967 wheat alone was grown on the experiment, with some bare fallowing. From 1968, the experiment was divided into 10 sections with the following cropping:

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SECTION

Section	1	9	0*	8+	6**	5	3	7	4	2
Year										
1968	W	W	W	W	F	W	W	P	W	BE
1969	W	W	W	W	W	F	W	BE	P	W
1970	W	W	W	W	W	W	F	W	BE	P
1971	W	W	W	W	F	W	W	P	W	BE
1972	W	W	W	F	W	F	W	BE	P	W
1973	W	W	W	W	W	W	F	W	BE	P
1974	W	W	W	W	F	W	W	P	W	BE
1975	W	W	W	W	W	F	W	BE	P	W
1976	W	W	W	W	W	W	F	W	BE	P
1977	W	W	W	W	F	W	W	P	W	BE
1978	W	W	W	W	W	F	W	BE	P	W
1979	W	W	W	W	W	W	F	W	P	F
1980	W	W	W	W	W	W	W	F	W	P
1981	W	W	W	F	W	W	W	P	F	W
1982	W	W	W	W	W	W	W	W	P	F
1983	W	W	W	W	W	W	W	F	W	P
1984	W	W	W	W	W	W	W	P	F	W
1985	W	W	W	W	W	F	W	W	P	W
1986	W	W	W	W	W	P	F	W	W	W
1987	W	W	W	W	W	W	P	W	W	F
1988	W	W	W	F	W	W	W	F	W	P
1989	W	W	W	W	W	W	W	P	F	W
1990	W	W	W	W	W	F	W	W	P	W
1991	W	W	W	W	W	P	F	W	W	W
1992	W	W	W	W	W	W	P	W	W	F
1993	W	W	W	W	W	W	W	F	W	P
1994	W	W	W	F	W	W	W	P	F	W
1995	W	W	W	W	W	F	W	W	P	W
1996	W	W	W	W	W	P	O	W	W	W
1997	W	W	W	W	W	W	M	W	W	O
1998	W	W	W	W	W	W	W	O	W	M
1999	W	W	W	W	W	W	W	M	O	W
2000	W	W	W	W	W	O	W	W	M	W
2001[†]	W	W	W	F	W	M	O	W	W	W
2002	W	W	W	W	W	W	M	W	W	O
2003	W	W	F	W	W	W	W	O	W	M
2004	W	W	F	W	W	W	W	M	O	W
2005	W	W	W	W	W	O	W	W	M	W
2006	W	W	W	W	W	M	O	W	W	W
2007	W	W	W	W	W	W	M	W	W	O
2008	W	W	W	F	W	W	W	O	W	M
2009	W	W	W	W	W	W	W	M	O	W
2010	W	W	W	W	W	O	W	W	M	W
2011	W	W	W	W	W	M	O	W	W	W
2012	W	W	W	W	W	W	M	W	W	O
2013	W	W	W	W	W	W	W	O	W	M
2014	W	W	W	W	W	W	W	M	O	W
2015[††]	W	W	W	F	W	O	W	W	M	W
2016	W	W	W	F	W	M	O	W	W	W

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2017	W	W	W	W	W	W	M	W	W	O
2018	W	W	W	W	W	W	W	Be	O	W
2019	W	W	W	W	W	O	W	W	W	Be
2020[++, †]	W	W	W	W	W	W	O	W	Be	W

W = winter wheat, O = winter oats, P = potatoes, BE = spring beans, F = fallow, M = forage maize, Be = Winter Beans
* Straw incorporated since autumn 1986. ** No sprays except herbicides since 1985.
+ No herbicides.
[++] Spring Wheat in 2015, 2020
[†] Spring Oats in 2001, 2020

NOTES:

(1) For a fuller record of treatments see 'Details' etc.

(2) From autumn 1975 to autumn 1986, chalk was applied at 2.9t each autumn to all plots in sets of Sections on a three-year cycle. Year 1: Sections 1, 2, 3. Year 2: Sections 6, 7, 8, 9. Year 3: Sections 0, 4, 5. From autumn 1988 until autumn 1992 a five-year cycle was used. Year 1: Sections 1, 3. Year 2: Sections 2, 8. Year 3: Sections 7, 9. Year 4: Sections 4, 6. Year 5: Sections 0, 5 (omitted). No chalk was applied after autumn 1991 until autumn 2007 when differential amounts were applied to selected plots (see "Results 2008"). Chalk was applied again to selected plots in autumn 2013, see 14/R/BK/1 diary information.

(3) In 2003 and 2004 section 0 was used for an experiment (CS/595) investigating different herbicides to control *Equisetum arvense*.

(4) In 2013 the wheat variety changed from Hereward to Crusoe, but it was sown very late (22nd February 2013) because of the very wet autumn and winter of 2012-13.

(5) Spring wheat (var Mulika) and winter oats (var Gerald) were sown in March 2015, instead of in autumn/winter 2014, because the very wet soil conditions in autumn 2014 prevented sowing of a winter crop. The whole site was spring-tine cultivated in March 2015 instead of being ploughed. Spring wheat (var Tybalt) was sown in March 2020 because the wet autumn and winter of 2019-2020 prevented sowing of a winter crop.

(6) Section 8 was left in bare fallow in 2015 & 2016 and had two in-season cultivations (inversion ploughing) each year to control weeds.

20/R/BK/1 Experimental Diary:

Date		Application	Rate	Unit
All Sections				
13/09/2019	p	Sprayed Buffalo Elite; NH T6030 with Knight Sprayer; Tank volume 200 l	1	l/ha
13/09/2019	p	Sprayed Samurai; NH T6030 with Knight Sprayer; Tank volume 200 l	4	l/ha
18/09/2019	f	Applied MOP muriate of potash; Strip 14; All Sections; JD6930 with Cascade Spreader	181	kg/ha
18/09/2019	f	Applied TSP triple superphosphate; Strips 11, 13, 14, 17, 18; All Sections; JD6930 with Cascade Spreader	171	kg/ha
23/09/2019	a	Ploughed; Thrown North; NHT7210 with KV Five Furrow Plough		
23/09/2019	f	Applied FYM Strips 2.1, 2.2; All Sections; Tym T503 with Muck spreader - international	35	t/ha

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23/03/2020		Cultivation: Done to break up ploughed ground in the spring so it dries before drilling - Section 8 done twice		
27/03/2020	a	Rolled; JD5620 with 6m Flexicoil Cambridge Roll		
25/06/2020	f	Applied Kieserite (15% Mg) ; Strips 05, 06 ,07, 08, 09, 11, 12, 15, 16, 17, 18, 19; All Sections	80	kg/ha
02/07/2020	a	Power Harrowed; JD6145R with Kuhn Powerharrow 3m		
16/07/2020	f	Applied SOP (50% K2O) ; Strips 05, 06 ,07, 08, 09, 12, 13, 15, 16, 17, 18, 19; All Sections	217	kg/ha

S WHEAT

25/03/2020	s	Drilled Spring Wheat, var: Tybalt; Sections 0, 1, 2, 5, 6, 7, 8, 9; JD6830	350	seeds/m^2
12/05/2020	f	Applied Nitram ; Strips 12, 17, 18, 19; excludes Sections 3, 4; JD6930 with Cascade Spreader	139	kg/ha
19/05/2020	p	Sprayed Cello; Tym T503 with Tecnoma Sprayer	1	l/ha
19/05/2020	p	Sprayed Stefes CCC 72; Tym T503 with Tecnoma Sprayer	1	l/ha
20/05/2020	f	Applied Nitram; Strips 06, 19; excludes Sections 3, 4; JD6930 with Cascade Spreader	139	kg/ha
20/05/2020	f	Applied Nitram; Strips 07, 18; excludes Sections 3, 4; JD6930 with Cascade Spreader	278	kg/ha
20/05/2020	f	Applied Nitram; Strips 2.1, 08, 12; excludes Sections 3, 4; JD6930 with Cascade Spreader	417	kg/ha
20/05/2020	f	Applied Nitram; Strips 01, 09, 10, 11, 13, 14, 17; excludes Sections 3, 4; JD6930 with Cascade Spreader	556	kg/ha
20/05/2020	f	Applied Nitram; Strip 15; excludes Sections 3, 4; JD6930 with Cascade Spreader	696	kg/ha
20/05/2020	f	Applied Nitram; Strip 16; excludes Sections 3, 4; JD6930 with Cascade Spreader	835	kg/ha
20/05/2020	p	Sprayed Axial Pro; NH T6030 with Knight Sprayer	60	ml/ha
20/05/2020	p	Sprayed Presite SX; NH T6030 with Knight Sprayer	60	g/ha
20/05/2020	p	Sprayed Starane; NH T6030 with Knight Sprayer	0.4	l/ha
20/05/2020	p	Sprayed Stefes CCC 72; NH T6030 with Knight Sprayer	1	l/ha
21/05/2020	f	Applied Nitram; Strip 2.1; excludes Sections 3, 4; JD5070 with Exactomatic	417	kg/ha
21/05/2020	p	Sprayed Axial Pro; NH T6030 with Knight 24m Sprayer	0	l/ha
21/05/2020	p	Sprayed Cello; NH T6030 with Knight 24m Sprayer	1	l/ha
21/05/2020	p	Sprayed Presite SX; NH T6030 with Knight 24m Sprayer	60	g/ha
21/05/2020	p	Sprayed Starane; NH T6030 with Knight 24m Sprayer	0.4	l/ha
21/05/2020	p	Sprayed Stefes CCC 72; NH T6030 with Knight 24m Sprayer	1	l/ha
08/06/2020	f	Applied Nitram; JD6930 with Cascade Spreader	139	kg/ha
08/06/2020	f	Applied Nitram; Strips 12, 17, 18, 19; excludes Sections 3, 4; JD6930 with Cascade Spreader	139	kg/ha
25/06/2020	p	Sprayed Cello; NH T6030 with Knight 24m Sprayer	1	l/ha

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25/06/2020	p	Sprayed Envoy; NH T6030 with Knight 24m Sprayer	0.203	l/ha
17/07/2020	a	hand Weeded Wild Oats; Plot 108; 9 Plants; By Hand		
07/09/2020	a	Harvest Odds and Ends; Section 0 (chopped straw onto plot area), Section 1 and Section 2; Haldrup C-85		
07/09/2020	a	Harvest Wheat plots; Haldrup C-85		

S OATS

13/09/2019	p	Sprayed Buffalo Elite; NH T6030 with Knight Sprayer; Tank volume 200 l	1	l/ha
13/09/2019	p	Sprayed Samurai; NH T6030 with Knight Sprayer; Tank volume 200 l	4	l/ha
26/03/2020	s	Drilled Spring Oats, var: Elyann; Section 3; JD6830 with Accord Combination Drill No. 4	350	seeds/m^2
20/05/2020	f	Applied Nitram; Strip 06; Section3; JD6930 with Cascade Spreader	70	kg/ha
20/05/2020	f	Applied Nitram; Strip 07; Section3; JD6930 with Cascade Spreader	139	kg/ha
20/05/2020	f	Applied Nitram; Strips 2.1, 08, 19; Section3; JD6930 with Cascade Spreader	209	kg/ha
20/05/2020	f	Applied Nitram; Strips 01, 09, 10, 11; Section3; JD6930 with Cascade Spreader	278	kg/ha
20/05/2020	f	Applied Nitram; Strips 12, 15; Section3; JD6930 with Cascade Spreader	348	kg/ha
20/05/2020	f	Applied Nitram; Strips 16, 17; Section3; JD6930 with Cascade Spreader	417	kg/ha
21/05/2020	f	Applied Nitram by hand to plot 2.13 only (Spring oats - section 3); By Hand	209	kg/ha
21/05/2020	p	Sprayed Cyflamid; Tym T503 with Tecnoma Sprayer	0.1	l/ha
21/05/2020	p	Sprayed Envoy; Tym T503 with Tecnoma Sprayer	0.8	l/ha
21/05/2020	p	Sprayed Stefes CCC 72; Tym T503 with Tecnoma Sprayer	1	l/ha
24/06/2020	p	Sprayed Cello; NH T6030 with Knight Sprayer	0.6	l/ha
01/09/2020	a	Harvest Oats; Section 3; Haldrup C-85		

W BEANS

13/09/2019	p	Sprayed Buffalo Elite; NH T6030 with Knight Sprayer; Tank volume 200 l	1	l/ha
13/09/2019	p	Sprayed Samurai; NH T6030 with Knight Sprayer; Tank volume 200 l	4	l/ha
26/03/2020	s	Drilled Winter Beans, var: Tundra; Section 4; Accord Combination Drill No. 4	35	seeds/m^2
01/04/2020	p	Sprayed Nirvana; NH T6030 with Knight Sprayer	4.5	l/ha
01/04/2020	p	Sprayed Velomax; NH T6030 with Knight Sprayer	0.4	l/ha
27/04/2020	p	Sprayed Hallmark with Zeon Technology; NH T6030 with Knight Sprayer	75	ml/ha
07/07/2020	p	Sprayed Caramba 9; NH T6030 with Knight Sprayer	0.8	l/ha
06/09/2020	a	Harvest Beans; Section 4; Haldrup C-85		

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WILDERNESS

23/12/2019	a	Topped: stubbed area
16/03/2020	a	Topped: mown area
05/05/2020	a	Topping: mown area
17/06/2020	a	Topping: mown area
05/08/2020	a	Topping: mown area
12/10/2020	a	Topping: mown area

NOTE: Samples of grain and straw were taken for chemical analysis. Unground grain and straw samples from selected treatments were archived.

YIELDS

WINTER WHEAT

Grain Tonnes/Hectare (85% DM)

Tables of means

SECTION PLOT	2/W1	5/W1	7/W2	6/W43	0/W16	1/W54	9/W62	8/W4	Mean
01 (FYM)N4	6.98	7.34	7.36	5.47					6.79
2.1 FYMN3	7.85	8.63	8.38	5.73	5.77	7.25	6.98	3.99	6.82
2.2 FYM	8.63	7.21	6.48	5.97	5.82	6.78	6.74	3.56	6.40
03 Nil	2.29	1.49	0.70	1.18	0.60	0.52	0.39	2.02	1.15
05 (P)KMg	3.72	1.69	1.81	1.03	1.25	1.13	0.74	3.36	1.84
06 N1(P)KMg	5.20	3.64	3.96	2.67	4.57	3.68	3.84	3.52	3.89
07 N2(P)KMg	6.08	4.90	4.89	4.23	5.18	5.54	4.85	3.84	4.94
08 N3(P)KMg	6.02	5.40	5.52	4.65	5.41	5.30	5.36	4.26	5.24
09 N4(P)KMg	6.22	5.76	5.66	5.50	5.79	5.41	5.45	3.98	5.47
10 N4	3.26	4.27	2.42	3.25	1.72	1.16	1.62	2.40	2.51
11 N4PMg	4.52	4.27	4.32	4.39	5.37	4.48	3.60	3.07	4.25
12 N1+3+1(P)KMg	6.58	5.98	5.99	6.01	5.72	5.48	5.92	4.01	5.71
13 N4PK	6.22	5.90	6.35	6.32	6.13	5.65	5.40	3.72	5.71
14 N4PK*(Mg*)	6.14	5.51	6.56	6.24	6.03	5.40	5.30	3.77	5.62
15 N5(P)KMg	6.37	5.71	6.45	5.86	5.66	5.63	5.09	3.54	5.54
16 N6(P)KMg	6.07	6.56	6.03	5.70	5.60	5.15	5.28	3.28	5.46
17 N1+4+1PKMg	6.65	6.40	6.62	6.48	5.65	5.72	5.79	4.08	5.92
18 N1+2+1PKMg	7.35	6.46	6.35	5.61	5.96	5.30	5.15	4.35	5.82
19 N1+1+1KMg	6.70	4.45	4.83	4.57	4.24	3.68	4.76	4.17	4.67
20 N4KMg					0.71	0.30			0.51
Mean	5.94	5.35	5.30	4.78	4.59	4.40	4.57	3.61	4.83
Grain Mean DM%	82.8								

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Straw Tonnes/Hectare

Tables of means

SECTION PLOT	2/W1	5/W1	7/W2	6/W43	0/W16	1/W54	9/W62	8/W4	Mean
01 (FYM)N4	2.13	2.10							2.11
2.1 FYMN3	2.68	3.05				2.23		5.83	3.45
2.2 FYM	3.13	2.03				2.64		2.53	2.58
03 Nil	0.31	0.08				0.09		0.42	0.23
05 (P)KMg	0.87	0.09				0.14		1.39	0.62
06 N1(P)KMg	1.26	0.81				1.02		1.85	1.24
07 N2(P)KMg	1.83	1.50				1.48		1.75	1.64
08 N3(P)KMg	1.44	1.50				1.62		2.27	1.70
09 N4(P)KMg	1.77	1.64				1.56		2.79	1.94
10 N4	0.63	0.81				0.11		0.79	0.59
11 N4PMg	1.01	0.95				0.94		1.51	1.10
12 N1+3+1(P)KMg	2.07	2.12				1.56		3.91	2.42
13 N4PK	1.92	1.92				2.01		3.81	2.42
14 N4PK(Mg)	1.53	1.69				1.37		1.99	1.64
15 N5(P)KMg	1.94	1.83				1.63		3.59	2.25
16 N6(P)KMg	1.28	2.20				1.52		3.06	2.02
17 N1+4+1PKMg	1.93	2.05				1.74		3.03	2.19
18 N1+2+1PKMg	2.11	1.91				1.57		2.44	2.01
19 N1+1+1KMg	1.71	0.99				1.06		1.55	1.33
20 N4KMg						0.06			0.06
Mean	1.66	1.54				1.28		2.47	1.73

Straw Mean DM% 87.8

SPRING OATS

Tonnes/Hectare (85% DM)

Table of means

Plot	Treatment	Grain	Straw
013	01 (FYM)1/2N4	4.96	2.22
213	2.1 FYM 1/2N3	5.97	3.12
223	2.2 FYM	6.13	2.34
033	03 Nil	1.30	0.18
053	05 (P)KMg	1.65	0.20
063	06 1/2N1(P)KMg	2.78	0.93
073	07 1/2N2(P)KMg	3.25	1.44
083	08 1/2N3(P)KMg	3.30	1.51
093	09 1/2N4(P)KMg	3.44	1.57
103	10 1/2N4	1.89	0.58
113	11 1/2N4 PMg	4.26	1.17
123	12 1/2N5(P)KMg	4.16	2.24
133	13 1/2N4 PK	4.18	2.07
143	14 1/2N4PK*(Mg*)	3.67	1.94
153	15 1/2N5(P)KMg	3.26	2.04

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163	16 1/2N6(P)KMg	3.23	1.85
173	17 1/2N6 PKMg	3.37	1.78
183	18 1/2N4 PKMg	3.36	1.71
193	19 1/2N3 KMg	2.60	0.99
	Mean	3.51	1.57
Mean DM%		85.4	87.0
Plot Area Harvested (ha)	0.00463		

WINTER BEANS

TONNES/HECTARE (85% DM)

Tables of means

Plot	Treatment	Grain	Straw
014	01 (FYM)[N4]	4.34	1.30
214	21 [FYMN3]	5.12	2.01
224	22 [FYM]	5.50	2.25
034	03 Nil	0.83	0.29
054	05 (P)KMg	1.63	0.09
064	06 [N1](P)KMg	3.03	0.76
074	07 [N2](P)KMg	3.58	1.36
084	08 [N3](P)KMg	3.75	1.00
094	09 [N4](P)KMg	3.63	0.76
104	10 [N4]	0.91	0.33
114	11 [N4]PMg	0.14	0.14
124	12 [N1+3+1](P)KMg	2.69	0.51
134	13 [N4]PK	3.39	0.51
144	14 [N4]PK*(Mg*)	3.28	0.81
154	15 [N5](P)KMg	2.96	0.60
164	16 [N6](P)KMg	2.61	0.34
174	17 [N1+4+1]PKMg	3.31	0.55
184	18 [N1+2+1]PKMg	3.85	0.66
194	19 [N1+1+1]KMg	2.60	0.66
	MEAN	3.01	0.79
Mean DM%		83.6	83.3
PLOT AREA HARVESTED (ha)		0.00463	

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Section 8 Wheat Yields: Clean Grain (2.0-3.5 mm), tonnes/hectare, after removing weed seed

YEAR	2020
SECTION	8/W4
PLOT	
01 (FYM) N4	-
2.1 FYMN3	3.86
2.2 FYM	3.43
03 Nil	1.87
05 (P)KMg	3.02
06 N1(P)KMg	3.14
07 N2(P)KMg	3.41
08 N3(P)KMg	3.55
09 N4(P)KMg	3.36
10 N4	2.20
11 N4PMg	2.48
12 N1+3+1(P)K2Mg2	3.31
13 N4PK	2.99
14 N4PK*(Mg*)	3.22
15 N5(P)KMg	2.86
16 N6(P)KMg	2.60
17 N1+4+1PKMg	3.59
18 N1+2+1PKMg	3.81
19 N1+1+1KMg	3.71
20 N4KMg	-
Mean	3.13

Note: All clean grain yields for section 8 are reported for the 2.0 - 3.5 mm grain size fraction, excluding grain <2 mm, as was the practice prior to 2012.

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