ROTHAMSTED RESEARCH

Yields of the Field Experiments 2009

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R/BK/1 Broadbalk

Rothamsted Research

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BROADBALK

Object: To study the effects of organic manures and inorganic fertilisers on continuous w. wheat and wheat in rotation. From 1968 two three-year rotations were included: potatoes, beans, w. wheat and fallow, w. wheat, w. wheat. In 1979 the first rotation was changed to fallow, potatoes, w. wheat. In 1980 the second rotation reverted to continuous w. wheat. Since 1985 part of the second rotation was added to the first to extend the rotation to fallow, potatoes, w. wheat, w. wheat, w. wheat. In 1996 the fallow was replaced by w. oats and potatoes replaced by maize in 1997.

The 166th year, w. wheat, w. oats and forage maize.

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-O8R//BK/1.

Areas harvested:

	Section	
Wheat:	0	0.00320
	1	0.00589
	2,3,6 and 7	0.00487
	5	0.00162
	8,9	0.00512
Oats:	4	0.00487 (*see note 4, below)
Maize:	7	0.00487

Treatments:

In 2001 a number 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
21FYMN3	2.1	FYM N2 (1)
22FYM	2.2	FYM
03Nil	03	None
05(P)KMg	05	(P) K Mg
06N1 (P) KMg	06	N1 (P) K Mg
07N2(P)KMg	07	N2 (P) K Mg
08N3(P)KMg	08	N3 (P) K Mg
09N4(P)KMg	09	N4 (P) K Mg
10N4	10	N4
11N4PMg	11	N4 P Mg
12N1+3+1(P)K2Mg2	12	N1+3+1 (P) K2 Mg2 (2)
13N4PK	13	N4 P K
14N4PK*(Mg*)	14	N4 P K* (Mg*)
15N5(P)KMg	15	N5 (P) K Mg
16N6(P)KMg	16	N6 (P) K Mg

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17N1+4+1PKMg	17	N1+4+1 P K Mg
18N1+2+1PKMg	18	N1+2+1 P K Mg
19N1+1+1KMg	19	N1+1+1 K Mg
20N4KMg	20	N4 K Mg

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

W. oats; Nitrogen and farmyard manure were not applied.

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 and to the seedbed for forage maize.
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.
Split N to forage maize	
N2+1, 2+2, 2+3,2+4:	Rates as above. Timings: to the seedbed and post-emergence.
P:	35 kg P as triple superphosphate
(P):	(none), to be reviewed in 2010/11.
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), to be reviewed in 2010/11
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
01DN4PK	01	-	D N2 P K	D N4 P K
21DN2	21	D	D N2	D N2
22D	22	D	D	D
030	03	None	None	None
05F	05	P K Na Mg	P K (Na) Mg	PK Mg
06N1F	06	N1 P K Na Mg	N1 P K (Na) Mg	N1 P K Mg
07N2F	07	N2 P K Na Mg	N2 P K (Na) Mg	N2 P K Mg
08N3F	08	N3 P K Na Mg	N3 P K (Na) Mg	N3 P K Mg
09N4F	09	N*1 P K Na Mg	N4 P K (Na) Mg	N4 P K Mg
10N2	10	N2	N2	N2
11N2P	11	N2 P	N2 P	N2 P
12N2PNA	12	N2 P Na	N2 P Na	N2 P Na
13N2PK	13	N2 P K	N2 P K	N2 P K
14N2PKMG	14	N2 P Mg	N2 P K Mg	N2 P K Mg
15N5F	15	N2 P K Na Mg	N3 P K(Na) Mg	N5 P K Mg
16N6F	16	N*2 P K Na Mg	N2 P K (Na) Mg	N6 P K Mg
17N1+3FH	17	N2 (A)	N2 ½[P K (Na) Mg]	N1+3 ½[P K Mg] (A)+
18N0+3FH	18	P K Na Mg (A)	N2 ½[P K (Na) Mg]	N0+3 ½[P K Mg] (A)+

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19(C)	19	C	C	(C) (since 1989)
20N2KMG	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 w. 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.
W. 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:	30kg 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:-

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

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Section	1	9	0*	8+	6**	5	3	7	4	2
Year										
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

W = w. wheat, O = w. oats (spring oats 2001), P = potatoes, BE = s. beans, F = fallow, M = forage maize

* Straw incorporated since autumn 1986. ** No sprays except weedkillers since 1985.
+ No weedkillers.

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”).

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

(4) In 2006 part of plots 2.2, 06, 09 and 14 on Section 4 used for a nutrition trial with the application of urea. 5m was cut off the end of these plots before the yield measurement was taken.

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Experimental Diary:

AllSections			Rate	Unit
29-Sep-08	f	Triple Superphosphate, strips 11, 13, 14, 17, and 18	170.00	kg/ha
30-Sep-08	f	Muriate of Potash - strip 14	181.00	kg/ha
02-Oct-08	f	Farm Yard Manure - strips 21and 22 excluding section 4	35.00	t/ha
06-Oct-08	a	Plough/ S		
10-Oct-08	a	Cultipressed		
16-Oct-08	a	Power Harrowed		
25-Nov-08	a	Collapsed rabbit holes with Burrow Blaster		
16-Dec-08	a	Cut Hedges		
17-Dec-08	a	Cut Hedges		
24-Mar-09	f	Sulphate of Potash - strips 5, 6, 7, 8, 9, 12, 13,15,16,17,18,19,20	217.00	kg/ha
25-Mar-09	f	Kieserite - strips 5, 6, 7, 8, 9, 11, 12, 15, 16, 17, 18, 19, and 20	80.00	kg/ha
16-May-09	a	Mow / Rotavate paths		
19-May-09	a	Rotavate side paths		
01-Jun-09	a	Mow / Rotavate paths		
15-Jun-09	a	Mow / Rotavate paths		
29-Jun-09	a	Mow / Rotavate paths		
03-Jul-09	a	Rogue wild oats/thistles/weeds - 323 wild oat plants		
28-Jul-09	a	Rotavate Down paths and headlands		
30-Jul-09	a	Mow / Rotavate paths Cut cross paths		
13-Aug-09	a	Combine harvest discards O's & Es		
	a	Baled except section 0		
27-Aug-09	p	Weedazol-TL – all except sections 3 and 8	20.00	lt/ha

Cropped Sections:

Winter Wheat			Rate	Unit
17-Oct-08	a	Combination Drilled		
	s	Hereward tr Redigo Deter - wheat sections	400.00	seeds/m^2
18-Oct-08	p	Liberator -wheat excluding section 8	0.60	l/200 l/ha
27-Oct-08	p	Allure - wheat and oats	7.50	kg/ha
20-Nov-08	p	Karan - wheat and oats	5.00	kg/ha
10-Dec-08	p	Stomp 400 SC. Sprayed all wheat excluding section 8	3.30	l/ha
	p	Arelon 500. Sprayed all wheat excluding section 8	3.00	l/ha
	p	Hallmark with Zeon Technology. Sprayed all wheat excluding section 8	50.00	ml/ha
09-Mar-09	f	Nitraprill – wheat, strips 12, 17, 18 and 19	139.00	kg/ha
21-Apr-09	f	Nitram – wheat, strips 19 and 6	139.00	kg/ha
	f	Nitram – wheat, strips 7 and 18	278.00	kg/ha
	f	Nitram – wheat, strips 2, 8 and 12	417.00	kg/ha

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			Rate	Unit
21-Apr-09	f	Nitram – wheat, strips 1, 9, 10, 11, 13, 14, 17 and 20	556.00	kg/ha
	f	Nitram – wheat, strips 15	696.00	kg/ha
	f	Nitram – wheat, strip 16	835.00	kg/ha
29-Apr-09	p	Cherokee - to section 8 only	1.25	l/ha
10-May-09	p	Cherokee - wheat sections only, except section 6 and 8.	1.25	l/ha
	p	Ally Max SX wheat sections only, except section 6 and 8.	42.00	g/ha
	p	Agriguard Fluroxypyr - wheat sections only, except section 6 and 8.	0.75	l/ha
	p	Hurler wheat sections only, except section 6 and 8 either	0.75	l/ha
13-May-09	f	Nitram – wheat, strips 12,17, 18 and 19	139.00	kg/ha
28-May-09	p	Brutus wheat + section 8	1.50	l/ha
	p	Amistar Opti wheat + section 8	1.25	l/ha
14-Aug-09	a	Combine harvest, plots for yield		
15-Aug-09	a	Sample, bale and weigh straw wheat plots		

Winter Oats

			Rate	Unit
17-Oct-08	a	Combination Drilled		
	s	Gerald tr Beret Gold - oats	400.00	seeds/m^2
27-Oct-08	p	Allure - wheat and oats	7.50	kg/ha
20-Nov-08	p	Karan - wheat and oats	5.00	kg/ha
15-Dec-08	p	Lexus Class - oats only	60.00	g/ha
	p	Hallmark with Zeon Technology – oats only	50.00	ml/ha
22-May-09	p	Ally Max SX	42.00	g/ha
	p	Duplosan KV	1.50	l/ha
	p	Headland Charge	1.50	l/ha
	p	Amistar	0.60	l/ha
	p	Flexity	0.20	l/ha
	p	Agriguard Chlormequat 720	2.25	l/ha
11-Aug-09	a	Combine harvest discards – oats.		
	a	Sample, bale and weigh straw oat straw		

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Forage Maize

			Rate	Unit
03-Apr-09	p	Clipper - maize area only	3.00	l/ha
11-May-09	a	Flexitined in preparation for maize		
12-May-09	a	Power Harrowed		
	a	Nodet Drilled		
	s	Hudson tr mesurol + thiram	10.20	seeds/m^2
13-May-09	f	Nitram - maize, strip 6	139.00	kg/ha
	f	Nitram – maize strips 7, 12, 17, 18 and 19. NOTE: plot 197 had 556 kg/ha, i.e. 278 kg/ha over and plot 187 had 417 kg/ha i.e.139 kg/ha over	278.00	kg/ha
	f	Nitram – maize, strips 2.1 and 8	417.00	kg/ha
	f	Nitram – maize, strips 1, 9, 10, 11, 13 and 14	556.00	kg/ha
	f	Nitram – maize, strip 15	696.00	kg/ha
	f	Nitram – maize, strip 16	835.00	kg/ha
15-Jun-09	p	Callisto section 7 only	0.75	l/ha
	p	Samson section 7 only	1.00	l/ha
25-Jun-09	f	Nitram – maize, Plot 187 received 139 kg/ha extra on 13-May-10 so a reduced amount was applied to this plot to ensure correct amount applied overall. Plot 197, having already received more than the total required did not receive any further N.	139.00	kg/ha
	f	Nitram – Strip 18 except plot 187	278.00	kg/ha
	f	Nitram – Strip 12	417.00	kg/ha
	f	Nitram - Strip 17	556.00	kg/ha
10-Sep-09	a	Harvest maize plots		

Wilderness

08-Dec-08	a	Topped Grubbed section
13-May-09	a	Topped
04-Jun-09	a	Mown
13-Aug-09	a	Wilderness topped

NOTE: Samples of wheat and oat grain and straw and forage maize were taken for chemical analysis. Unground wheat grain and straw from Section 1 and maize samples from Section 7 were archived

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WHEAT

GRAIN TONNES/HECTARE

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

SECTION PLOT	2/W1	3/W2	5/W3	6/W32	0/W5	1/W43	9/W51	8/W1	Mean
01(FYM)N4	10.07	8.63	7.19	8.12	*	*	*	*	8.50
21FYMN3	10.63	9.47	9.03	9.16	6.84	7.62	7.37	3.53	7.96
22FYM	6.08	4.33	5.93	6.12	4.56	5.56	5.86	3.82	5.28
03Nil	1.74	1.38	1.43	1.68	1.20	2.05	0.92	2.33	1.59
05(P)KMg	1.83	1.67	1.42	2.03	1.46	1.71	1.49	4.79	2.05
06N1(P)KMg	4.28	3.72	3.07	3.39	2.64	2.67	3.18	3.30	3.28
07N2(P)KMg	6.56	5.35	4.06	4.83	3.69	3.83	4.00	4.34	4.58
08N3(P)KMg	8.18	6.52	4.60	5.60	4.07	3.63	5.11	5.76	5.43
09N4(P)KMg	9.44	7.51	3.77	7.18	4.86	3.86	5.37	6.16	6.02
10N4	6.36	2.32	2.84	3.27	1.22	1.06	1.81	2.55	2.68
11N4PMg	5.37	3.89	5.75	6.48	5.61	4.59	5.22	2.98	4.99
12N1+3+1(P)K2Mg2	9.19	7.88	6.43	7.64	6.01	4.98	5.99	3.95	6.51
13N4PK	8.42	7.27	5.44	6.54	4.41	3.81	5.99	5.86	5.97
14N4PK*(Mg*)	7.86	6.63	4.92	6.16	4.75	3.66	5.58	6.12	5.71
15N5(P)KMg	8.94	7.70	5.46	6.79	4.92	4.64	6.11	5.97	6.32
16N6(P)KMg	9.25	8.77	5.63	8.28	5.17	4.53	6.33	5.70	6.71
17N1+4+1PKMg	8.91	8.11	6.18	7.90	5.78	4.76	4.84	2.84	6.16
18N1+2+1PKMg	8.36	7.50	6.37	6.81	5.11	3.62	4.40	3.66	5.73
19N1+1+1KMg	6.77	5.79	5.01	5.52	3.85	3.27	4.19	3.02	4.68
20N4KMg	*	*	*	*	1.37	0.68	*	*	1.02

GRAIN MEAN DM% 85.6

STRAW TONNES/HECTARE

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

SECTION PLOT	2/W1	3/W2	5/W3	6/W32	0/W5	1/W43	9/W51	8/W1	Mean
01(FYM)N4	5.42	*	*	*	*	*	*	*	5.42
21FYMN3	6.04	*	*	*	*	4.34	*	6.89	5.76
22FYM	4.77	*	*	*	*	4.40	*	6.49	5.22
03Nil	0.58	*	*	*	*	0.84	*	2.08	1.17
05(P)KMg	0.71	*	*	*	*	0.86	*	4.58	2.05
06N1(P)KMg	2.03	*	*	*	*	1.17	*	3.53	2.24
07N2(P)KMg	2.83	*	*	*	*	1.81	*	4.66	3.10
08N3(P)KMg	3.50	*	*	*	*	1.74	*	5.42	3.55
09N4(P)KMg	4.45	*	*	*	*	1.79	*	6.26	4.17
10N4	2.47	*	*	*	*	0.62	*	2.78	1.96
11N4PMg	1.90	*	*	*	*	1.88	*	5.15	2.98
12N1+3+1(P)K2Mg2	4.99	*	*	*	*	2.66	*	5.64	4.43
13N4PK	3.51	*	*	*	*	1.66	*	5.55	3.57
14N4PK*(Mg*)	3.11	*	*	*	*	1.76	*	5.60	3.49
15N5(P)KMg	3.95	*	*	*	*	2.64	*	6.54	4.38
16N6(P)KMg	4.50	*	*	*	*	2.65	*	6.73	4.63
17N1+4+1PKMg	4.99	*	*	*	*	2.94	*	6.73	4.89
18N1+2+1PKMg	4.51	*	*	*	*	2.25	*	5.51	4.09
19N1+1+1KMg	3.55	*	*	*	*	2.90	*	4.94	3.80
20N4KMg	*	*	*	*	*	0.36	*	*	0.36

STRAW MEAN DM% 79.2

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W. OATS
TONNES/HECTARE

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

PLOT	GRAIN	STRAW
01(FYM)[N4]	4.24	1.98
21[FYMN2]	6.48	3.23
22[FYM]	5.96	3.25
03Nil	1.73	0.48
05(P)KMg	1.94	0.52
06[N1](P)KMg	2.25	0.46
08[N2](P)KMg	2.83	0.77
08[N3](P)KMg	2.64	0.72
09[N4](P)KMg	2.76	0.70
10[N4]	4.86	0.32
11[N4]PMg	6.24	0.71
12[N1+3+1](P)K2Mg2	2.83	*
13[N4]PK	2.89	0.72
14[N4]PK*(Mg*)	2.92	0.84
15[N5](P)KMg	4.23	1.58
16[N6](P)KMg	6.07	2.25
17[N1+4+1]PKMg	6.03	2.23
18[N1+2+1]PKMg	2.89	0.86
19[N1+1+1]KMg	2.00	0.60
MEAN DM %	84.80	79.20

FORAGE MAIZE
WHOLE CROP (100% DM) TONNES/HECTARE

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

ERRATUM
see 2016 page16 (supplied)

PLOT	WHOLE CROP
01(FYM)N4	13.78
21FYMN3	16.15
22FYM	14.43
03Nil	0.67
05(P)KMg	6.07
06N1(P)KMg	8.31
07N2(P)KMg	9.93
08N3(P)KMg	9.62
09N4(P)KMg	9.73
10N4	1.10
11N4PMg	6.05
12N2+3(P)K2Mg2	9.98
13N4PK	10.37
14N4PK*(Mg*)	10.22
15N5(P)KMg	9.12
16N6(P)KMg	8.63
17N2+4PKMg	9.55
18N2+2PKMg	9.86
19N2+1KMg	4.08
MEAN	8.82
MEAN DM%	20.90

PLOT AREA HARVESTED 0.00162

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Maize Yields (100% DM) shown in previous yield books (2009-2015) were found to be in error because an increase in the crop row spacing from 0.6m to 0.7m was not accounted for.
The corrected yields are given below:

Year	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*
Treatment/ Section	*7*	*4*	*5*	*3*	*2*	*7*	*4*
01(FYM)N4	11.81	14.37	8.67	14.32	3.51	13.30	14.31
21FYMN3	13.84	15.32	9.26	18.24	6.65	15.46	16.61
22FYM	12.37	12.78	11.95	11.21	8.75	15.87	12.12
03Nil	0.58	1.73	1.49	1.65	1.34	1.45	2.63
05(P)KMg	5.20	3.82	2.86	3.56	3.32	4.25	4.05
06N1(P)KMg	7.12	6.82	5.05	5.75	5.90	7.77	7.13
07N2(P)KMg	8.51	9.67	7.90	8.85	4.48	9.87	8.88
08N3(P)KMg	8.25	10.15	5.27	10.85	6.14	8.57	10.85
09N4(P)KMg	8.34	10.10	5.83	10.16	4.52	8.96	10.12
10N4	0.94	2.15	1.09	0.96	2.07	2.79	2.83
11N4PMg	5.19	6.97	3.88	5.44	4.36	4.36	7.71
12N2+3(P)KMg	8.55	12.42	7.32	9.33	6.52	11.11	14.64
13N4PK	8.89	11.21	7.20	10.72	8.80	9.58	15.00
14N4PK*(Mg*)	8.76	11.69	7.01	9.82	9.52	11.33	14.47
15N5(P)KMg	7.82	12.19	5.63	9.94	7.03	10.06	13.15
16N6(P)KMg	7.40	10.93	4.33	9.13	6.57	8.59	14.18
17N2+4PKMg	8.18	10.52	5.19	9.13	3.46	8.99	12.35
18N2+2PKMg	8.45	9.85	5.88	11.46	5.95	8.98	11.94
19N2+1KMg	3.49	4.28	2.56	5.43	3.10	4.53	5.10
Mean	7.56	9.31	5.70	8.73	5.37	8.73	10.42
Mean DM%	20.90	29.50	18.80	25.90	25.10	29.80	23.20
Plot Area Harvested	0.00189						

Note: In 2013 herbicide was applied accidentally to maize. Consequently, the maize yields given above for 2013 are unreliable.

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