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Yields of the Field Experiments 2013

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Results of the
Classical and other
Long-term Experiments
2013

R/BK/1 Broadbalk

Rothamsted Research

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13/R/BK/1

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 170th 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 74-12/R/BK/1.

Areas harvested^a:

Wheat:	Section	
	0	0.00320
	1	0.00589
	3,4,5 and 6	0.00487
	8,9	0.00512
Oats:	7	0.00487
Maize:	2	0.00162

^aHarvest areas in the 2007-2010 yield books were incorrectly assigned, but yields were correct.

Treatments:

In 2001 a number of the treatments were changed. The treatments are now:-

Whole plots

PLOT	Fertilizers and organic manures	
	Plot	Treatments
01 (FYM)N4	01	From 2001 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
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

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- (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 since 2001), to be reviewed in 2015/16.
 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 2015/16
 FYM: Farmyard manure at 35 t

Previous treatment:-

Whole plots

PLOT	Plot	Fertilizers and organic manures:-		
		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)+
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	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

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

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 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.

13/R/BK/1

Experimental Diary:

All Sections

Date		Application	Rate	Units
28-Sep-12	f	Applied Triple Super Phosphate to plots 110 - 119, 130 - 139, 140 - 149, 170 - 179 and 180 - 189 on all sections	171	kg/ha
28-Sep-12	f	Spread Fertilizer MOP as on sheet onto Plots: 140 - 149	181	kg/ha
03-Oct-12	a	Applied fresh FYM to strip 2.1 and 2.2 (not section 7 oats)	35	t/ha
03-Oct-12	a	Ploughed (Soil thrown south)	—	—
11-Mar-13	f	Applied Kieserite	80	kg/ha
12-Mar-13	f	Applied Sulphate of Potash	217	kg/ha
03-Jun-13	p	Sprayed Refine Max, Competox+, Kingdom, Bravo 500 – Sections 0,1,3,4,5 & 9	ref@75 com@1.0 kin@1.25 bra@1.0	g/ha l/ha l/ha l/ha
04-Jun-13	a	Rotavated paths	—	—
04-Jun-13	p	Section 6 Sprayed Refine Max and Competox	ref@75 com@1.0	g/ha l/ha
13-Jun-13	a	Cut Paths	—	—
17-Jun-13	a	Rotavated Fallows	—	—
01-Jul-13	a	Rotavated Fallows	—	—
02-Jul-13	a	Rotavated Fallows	—	—
02-Jul-13	a	Cut Paths	—	—
10-Jul-13	a	Pulling Wild Oats in all plots - 71 counted	—	—
15-Jul-13	a	Put out White posts	—	—
19-Jul-13	a	Cut Paths	—	—
		Note Weedazol was not applied this year due to insufficient time available for it to take effect before cultivation		
W Wheat				
22-Feb-13	a	Drilled Crusoe trt Redigo Deter	450	seeds m ²
12-Mar-13	f	Applied Nitram on plots - 12, 17, 18 and 19.	139	kg/ha
24-Apr-13	f	Applied Nitram on plots -1, 2.1, 6,7,8,9,10,11,12,13,14,15,16,17,18,19.	139 278 417 556 696 835	kg/ha kg/ha kg/ha kg/ha kg/ha kg/ha
21-May-13	f	Applied Nitram to WW on plots 12, 17, 18 and 19.	139	kg/ha
03-Jun-13	p	Sprayed Kingdom and Bravo	kin@1.25 bra@1.0	l/ha l/ha
25-Jun-13	p	All wheat section (except 6)- sprayed Ignite, Bravo 500	lg@1.1	l/ha

		and Comet 200		Br@1.0	l/ha
				Co@1.25	l/ha
29-Aug-13	a	Sampo - Finished harvest of wheat plots		—	—
29-Aug-13	a	Baled, sampled and weighed wheat straw		—	—
W Oats					
23-Feb-13	a	Drilled Winter Oats var Gerald		400	seeds m ²
02-Jun-13	p	Sprayed Foundation, Hatchet, Cello		fou@1.25	l/ha
				hat@0.5	l/ha
				cel@0.8	l/ha
03-Sep-13	a	Sampo - Harvested Oats only		—	—
25-Sep-13	a	Baled, weighed and sampled straw - Oat Section 7		—	—
Maize					
17-May-13	a	Powerharrowed and Drilled Maize var Hudson		10.2	seeds m ²
21-May-13	f	Applied Nitram-N fert (pre-emergent) to Maize plots 1, 2.1, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 & 19.	139	278	kg/ha
				417	kg/ha
			556	696	kg/ha
				835	kg/ha
					kg/ha
10-Jun-13	f	Applied Nitram-N fert (post-emergent) to Maize plots 12, 17, 18 & 19.	139	278	kg/ha
			417	556	kg/ha
					kg/ha
26-Jun-13	p	Sprayed Samson and Callisto sprayed - maize plots only		Both @0.5	l/ha
25-Sep-13	a	Maize Harvested - all plots, as per plan		—	—
25-Sep-13	a	Cleared OE's Maize		—	—
26-Sep-13	a	Cut Maize OE's		—	—
Wilderness					
13-May-13	a	Cut grass on mown area		—	—
21-Jun-13	a	Cut grass on mown area		—	—
01-Aug-13	a	Cut grass on mown area		—	—
10-Oct-13	a	Low branches trimmed in edge of wilderness		—	—
19-Dec-13	A	Stubbed area cut			

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

13/R/BK/1

WHEAT

GRAIN TONNES/HECTARE

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

SECTION PLOT	3/W1	5/W2	4/W3	6/W36	0/W9	1/W47	9/W55	8/W5	Mean
01 (FYM) N4	7.92	7.38	7.50	6.63	*	*	*	*	7.35
21 FYMN3	8.08	8.69	7.88	6.87	6.12	5.95	5.44	3.56	6.57
22 FYM	7.45	5.82	5.24	5.44	4.43	4.84	6.00	2.88	5.26
03 Nil	2.14	1.52	1.59	1.60	1.35	1.60	1.32	1.67	1.60
05 (P) KMg	2.26	1.91	1.87	2.09	1.84	1.94	1.84	2.58	2.04
06N1 (P) KMg	4.49	3.77	3.44	3.91	3.03	3.58	3.64	3.44	3.66
07N2 (P) KMg	6.30	4.90	5.00	5.38	5.03	5.23	5.08	3.65	5.07
08N3 (P) KMg	7.37	4.60	6.20	6.28	5.45	5.95	6.15	3.65	5.71
09N4 (P) KMg	7.58	6.37	6.68	7.15	6.70	6.08	5.68	3.27	6.19
10N4	5.35	1.92	2.87	2.85	2.24	2.88	2.52	1.46	2.76
11N4 PMg	3.57	4.19	4.61	4.17	5.36	4.34	3.62	2.55	4.05
12N1+3+1 (P) KMg	7.54	6.91	6.89	7.45	6.60	5.87	5.93	3.59	6.35
13N4 PK	7.82	6.34	6.79	7.61	6.64	5.84	6.09	1.91	6.13
14N4 PK* (Mg*)	8.02	4.77	6.56	7.26	6.57	6.56	6.60	2.96	6.16
15N5 (P) KMg	7.98	6.45	7.65	7.21	7.22	6.76	5.31	4.68	6.66
16N6 (P) KMg	8.01	7.18	7.24	7.53	7.38	6.56	5.23	3.64	6.60
17N1+4+1 PKMg	7.95	7.73	7.19	7.70	6.88	6.72	5.01	4.55	6.72
18N1+2+1 PKMg	7.88	7.36	6.80	6.90	7.18	6.58	5.23	3.53	6.43
19N1+1+1 KMg	7.01	4.27	4.60	5.71	5.13	4.94	4.31	2.30	4.78
20N4 KMg	*	*	*	*	2.05	1.07	*	*	1.56
Mean	6.56	5.37	5.61	5.78	5.12	4.91	4.72	3.10	5.16

GRAIN MEAN DM% 86.1

STRAW TONNES/HECTARE

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

SECTION PLOT	3/W1	5/W2	4/W3	6/W36	0/W9	1/W47	9/W55	8/W5	Mean
01 (FYM) N4	4.58	*	*	*	*	*	*	*	4.58
21 FYMN3	5.24	*	*	*	*	2.65	*	4.58	4.16
22 FYM	4.41	*	*	*	*	1.69	*	3.43	3.17
03 Nil	0.70	*	*	*	*	0.34	*	1.03	0.69
05 (P) KMg	0.75	*	*	*	*	0.48	*	2.30	1.17
06N1 (P) KMg	2.28	*	*	*	*	1.12	*	2.80	2.06
07N2 (P) KMg	3.35	*	*	*	*	1.77	*	2.99	2.70
08N3 (P) KMg	3.58	*	*	*	*	2.59	*	4.12	3.43
09N4 (P) KMg	4.63	*	*	*	*	2.54	*	4.03	3.73
10N4	2.31	*	*	*	*	0.58	*	1.33	1.41
11N4 PMg	1.73	*	*	*	*	1.39	*	1.93	1.69
12N1+3+1 (P) KMg	4.90	*	*	*	*	2.06	*	4.74	3.90
13N4 PK	4.51	*	*	*	*	1.85	*	3.27	3.21
14N4 PK* (Mg*)	4.14	*	*	*	*	2.15	*	3.79	3.36
15N5 (P) KMg	5.27	*	*	*	*	2.98	*	5.03	4.43
16N6 (P) KMg	5.44	*	*	*	*	2.19	*	4.17	3.93
17N1+4+1 PKMg	5.39	*	*	*	*	3.20	*	3.96	2.40
18N1+2+1 PKMg	5.36	*	*	*	*	2.84	*	3.03	3.74
19N1+1+1 KMg	4.30	*	*	*	*	2.13	*	1.62	2.68
20N4 KMg	*	*	*	*	*	0.13	*	*	0.13
Mean	3.55	*	*	*	*	1.82	*	3.23	2.86

STRAW MEAN DM% 80.5

The missing straw yield for plot 173 was estimated using the straw/grain ratio for plot 163.

13/R/BK/1

OATS

TONNES/HECTARE (85% DM)

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

Units	PLOT	GRAIN	STRAW
17	01 (FYM) [N4]	5.22	1.83
217	21 [FYMN2]	6.58	2.64
227	22 [FYM]	6.34	2.91
37	03Ni1	2.14	0.47
57	05 (P) KMg	2.38	0.43
67	06 [N1] (P) KMg	2.02	0.39
77	07 [N2] (P) KMg	1.78	0.25
87	08 [N3] (P) KMg	1.82	0.33
97	09 [N4] (P) KMg	2.13	0.48
107	10 [N4]	2.37	0.51
117	11 [N4] PMg	3.44	0.97
127	12 [N1+3+1] (P) KMg	2.37	0.61
137	13 [N4] PK	1.78	0.38
147	14 [N4] PK* (Mg*)	1.59	0.33
157	15 [N5] (P) KMg	1.91	0.60
167	16 [N6] (P) KMg	2.98	0.95
177	17 [N1+4+1] PKMg	3.69	1.39
187	18 [N1+2+1] PKMg	2.52	0.82
197	19 [N1+1+1] KMg	2.32	0.51
	MEAN	2.91	0.88

PLOT AREA HARVESTED 0.00487

MAIZE

TONNES/HECTARE (100% DM)

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

PLOT	TP1Dm
01 (FYM) N4	4.09
21FYMN3	7.76
22FYM	10.21
03Ni1	1.56
05 (P) KMg	3.87
06N1 (P) KMg	6.88
07N2 (P) KMg	5.23
08N3 (P) KMg	7.17
09N4 (P) KMg	5.27
10N4	2.42
11N4PMg	5.09
12N2+3 (P) KMg	7.60
13N4PK	10.26
14N4PK* (Mg*)	11.11
15N5 (P) KMg	8.20
16N6 (P) KMg	7.66
17N2+4PKMg	4.03
18N2+2PKMg	6.95
19N2+1KMg	3.61
MEAN	6.26

MEAN DM% 25.1

PLOT AREA HARVESTED 0.00162

ERRATUM

see 2016 page16 (supplied)

Note: Maize yields were adversely affected by the accidental application of residual herbicide (Topik). Therefore, yields are unreliable.

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.

SECTION 8: CLEAN GRAIN, TONNES/HA AFTER REMOVING WEED SEEDS.

	YEAR	2012	2013
	SECTION	8/W2	8/W3
	PLOT		
	2.1 FYMN2	0.50	3.34
	2.2 FYM	0.64	2.75
	03 Nil	0.74	1.58
	05 (P)KMg	0.49	2.47
	06 N1(P)KMg	0.55	3.38
	07 N2(P)KMg	1.15	3.51
	08 N3(P)KMg	1.43	3.48
	09 N4(P)KMg	1.60	3.21
	10 N4	0.48	1.38
	11 N4PMg	0.47	2.40
12	N1+3+1(P)K2Mg2	0.90	3.48
	13 N4PK	1.56	1.77
	14 N4PK*(Mg*)	1.09	2.43
	15 N5(P)KMg	0.67	4.49
	16 N6(P)KMg	0.35	3.55
	17 N1+4+1PKMg	0.66	4.49
	18 N1+2+1PKMg	0.75	3.22
	19 N1+1+1KMg	1.25	1.07