ROTHAMSTED RESEARCH

Yields of the Field Experiments 2013

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R/CS/477 & W/CS/478 Continuous Maize

Rothamsted Research

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13/R/CS/477

CONTINUOUS MAIZE

Object: To monitor the fate of organic carbon in the soil organic matter – Hoosfield

Sponsors: A. J. Macdonald

The 17th year, forage maize and s. barley

For previous years see Yield Books for 97-12/R/CS/477

Design: 3 randomised blocks of 6 plots.

Plot dimensions: 12.0 x 25.0

Treatments:-

CROP Crop and straw treatments:

M	Continuous maize, stubble incorporated
(M)B	S. barley after five years maize, stubble incorporated
MT	Maize, stubble plus 10 t maize tops incorporated
B(M)	S. barley, after ten years of Maize, straw removed
BT	Continuous spring barley, straw removed plus 10 t maize tops incorporated
B	Continuous spring barley, straw removed

Note: Cropping was changed from Maize to S. barley on the BM treatment in 2010

Experimental diary

Date		Application	Rate	Units
28-Sept-12	f	TSP applied – all plots	171	kg/ha
		MOP applied – all plots	181	kg/ha
05-Oct-12	a	Maize tops spread on plots 3, 9,18, 6, 12, 16	10	t/ha
02-Apr-13	a	Spring tined		
03-Apr-13	s	Drilled Barley only, var. Tipple dr Rancona	350	seeds/m^2
6-Apr-13	p	Sprayed Kula	3.5	l/ha
16-May-13	a	flexitined maize plots	—	—
20-May-13	a	Power-harrowed maize plots	—	—
20-May-13	a	Drilled Maize, Hudson tr Mesurol	as plan	
21-May-13	f	Applied Doubletop to Maize and Barley	@356	kg/ha
26-May-13	p	Sprayed Refine Max, Compitore Plus, Mobius, Cyflomid	re@75 co@1.0 mo@0.6 cyf@0.125	g/ha g/ha l/ha l/ha l/ha
26-Jun-13	p	Sprayed Mobius	@0.4	l/ha
26-Jun-13	p	Sprayed Samson and Callisto, Maize sprayed only	Both @0.5	l/ha
10-Jul-13	a	Pulling Wild Oats	—	—
19-Jul-13	a	Cut Paths.	—	—
12-Aug-13	a	Claas - Harvested opened up exp.	—	—

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27-Aug-13	a	Claas - Harvested OE's	—	—
27-Aug-13	a	Sampo - Harvested all plots	—	—
29-Aug-13	a	Claas - Harvested, cleared OE's	—	—
25-Sep-13	a	Harvested all Maize plots	—	—
25-Sep-13	a	Cleared OE's Maize	—	—
26-Sep-13	a	Cut Maize OE's	—	—

NOTE: Samples of barley grain and maize (whole crop) were taken for chemical analyses.

MAIZE

WHOLE CROP TONNES/HECTARE (100% DM)

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

Treatment	
M	2.33
MT	2.72
M(B)	2.94
(B)M	1.87
Mean	2.47

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

Standard errors of differences of means

Table	Treatment
rep.	3
d.f.	6
s.e.d.	0.678

Stratum standard errors and coefficients of variation

Variate: TPlDm Total plant dry matter tonnes/hectare

Stratum	d.f.	s.e.	cv%
Blocks	2	0.437	17.7
Blocks.Plots	6	0.830	33.7

MEAN DM% 23.8

Plot area harvested 0.00108

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SPRING BARLEY

Grain tonnes/hectare

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

Treatment	
BT	5.10
B	4.85
Mean	4.98

Standard errors of differences of means

Table	Treatment
rep.	3
d.f.	2
s.e.d.	0.086

Stratum standard errors and coefficients of variation

Variate: Grain85% Grain (at 85% dry matter) tonnes/hectare

Stratum	d.f.	s.e.	cv%
Blocks	2	0.299	6.0
Blocks.Plots	2	0.106	2.1

GRAIN MEAN DM% 87.1

Plot area harvested 0.00525

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CONTINUOUS MAIZE

Object: To monitor the fate of organic carbon in the soil organic matter – Woburn, Stackyard AI

Sponsors: A. J. Macdonald

The 17th year, forage maize and s. barley

For previous years see Yield Books for 97-12/W/CS/478

Design: 3 randomised blocks of 6 plots.

Plot dimensions: 9.0 x 25.00

Treatments:-

CROP Crop and straw treatments:

M Continuous maize, stubble incorporated
(M)B S. barley after five years maize, stubble incorporated
MT Maize, stubble plus 10 t maize tops incorporated
B(M) S. barley, after ten years of maize, straw removed
BT Continuous spring barley, straw removed plus 10 t maize tops incorporated
B Continuous spring barley, straw removed
Note: Cropping was changed from Maize to S. barley on the BM treatment in 2010
NOTE: Samples of barley grain and maize (whole crop) were taken for chemical analyses.

Experimental diary

Date		Application	Rate	Units
23-Oct-12	a	Applied Maize tops, plots 2, 4, 12, 13, 16, 17.	10	t/ha
06-Nov-12	a	Ploughed North	—	—
15-Mar-13	a	Spring tined	—	—
04-Apr-13	s	Drilled NFC Tipple, tr Rancona	350	seeds/m^2
04-Apr-13	a	Rolled, rolled Oats/sp Barley	—	—
20-Apr-13	f	Applied TSP	171	kg/ha
22-Apr-13	f	Applied MOP	181	kg/ha
23-Apr-13	f	Applied Double Top, applied to Sp. Barley and maize seedbed	356	kg/ha
22-May-13	s	Drilled Maize, Hudson tr Mesurol	10.1	seeds/m^2
02-Jul-13	p	Sprayed Harmony M, Mobius and Hatchet Xtra, sprayed spring barley only	Har @ 0.1 Mob @ 0.5 Hat @ 0.7	kg/ha l/ha l/ha
05-Jul-13	p	Sprayed Mobius, sprayed spring barley only	0.4	l/ha
05-Jul-13	p	Sprayed Samson and Callisto, Maize plots only	0.5 0.5	l/ha l/ha
31-Aug-13	a	Cut plots for yield	—	—

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04-Sep-13	a	Combined	—	—
06-Sep-13	a	Baled	—	—
07-Oct-13	a	Cut Maize for yields	—	—
07-Oct-13	a	Mowed and Baled, only two bales of maize	—	—

MAIZE WHOLE CROP TONNES/HECTARE (100% DM)

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

Treatment	
M	2.79
T	4.22
M(B)	3.11
(B)M	3.34
Mean	3.36

Standard errors of differences of means

Table	Treatment
rep.	3
d.f.	6
s.e.d.	0.628

Stratum standard errors and coefficients of variation

Stratum	d.f.	s.e.	cv%
Blocks	2	0.390	11.6
Blocks.Plots	6	0.769	22.8

Mean DM% 26.5

Plot area harvested 0.00108

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SPRING BARLEY

GRAIN TONNES/HECTARE

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

    Treatment
           BT      3.93
            B      3.06

         Mean      3.49

Standard errors of differences of means
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Table            Treatment
rep.                     3
d.f.                     2
s.e.d.               0.247

Stratum standard errors and coefficients of variation
=====================================================

Stratum                   d.f.          s.e.         cv%

Blocks                       2         0.203         5.8
Blocks.Plots                 2         0.303         8.7

Grain mean DM%  88.0

Plot area harvested  0.00525

Standard errors of differences of means
---------------------------------------
Table            Treatment
s.e.d.               0.095

Stratum standard errors and coefficients of variation
=====================================================
Stratum                   d.f.          s.e.         cv%

Blocks.Plots                 4         0.116         2.4

GRAIN MEAN DM% 84.3

PLOT AREA HARVESTED 0.00525
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