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Rothamsted Long-term Experiments Farm Diary and Yields of the Classical and Other Long-term Experiments Weather Summaries 2023



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2023/R/RN/1-2 - Highfield and Fosters Ley-arable

Rothamsted Research

Rothamsted Research (2025) *2023/R/RN/1-2 - Highfield and Fosters Ley-arable* ; Rothamsted Long-Term Experiments Farm Diary And Yields Of The Classical And Other Long-Term Experiments Weather Summaries 2023, pp 30 - 31

2023/R/RN/1-2 HIGHFIELD AND FOSTERS LEY-ARABLE

Object: To study the effects of various three-year leys on the fertility of the soil as measured by a sequence of three arable test crops. Highfield was originally permanent grassland since 1838 (>100 years) and Fosters was originally long-term arable (>100 years). Both experiments started with being sown in 1948 and the first harvest year was 1949. Some plots stayed in permanent grass, others went into continuous arable cropping and some alternated between leys and arable. The main comparisons have been of four rotations, each of six years duration. The arable with ley rotation includes a one-year ley cut for hay. The other three have had three-year leys of different species and different management, followed by three arable crops and are referred to as 'test crops'. Permanent bare fallow treatments were introduced in 2008.

Yields are no longer measured (since 1990) but SOM continues to be measured. Available P and K in soil have been measured periodically.

FARM DIARY

Date		Application	Rate	Unit
11/10/2022	p	Sprayed: Buffalo Elite using Knight 24m Sprayer with NH T6030; R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	1	L/ha
11/10/2022	p	Sprayed: Samurai using Knight 24m Sprayer with NH T6030; R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	3	L/ha
31/01/2023	a	Ploughed using Dowdeswell 4 Furrow Plough with JD6620: R/RN/1 Plots 17\18, 21\22, 29\30, 35\36, 37\38, 43\44, 45\46; soil thrown E	-	-
01/02/2023	a	Ploughed using Dowdeswell 4 Furrow Plough with JD6620: R/RN/1 Plots 03\04, 07\08, 11\12; soil thrown E; R/RN/2 Plots 01\02, 03\04, 05\06, 09\10, 11\12, 15\16; soil thrown S	-	-
02/02/2023	a	Plough: R/RN/2 Plots 21\22, 23\24, 25\26, 27\28, 31\32, 39\40; soil thrown S	-	-
03/02/2023	a	Drilled: Winter Wheat (KWS Zyatt) tr Beret Gold (16430) using Accord Combination Drill No. 4 with JD6830: R/RN/1 plots 3\4, 11\12, 37\38, 45\46; R/RN/2 plots 1\2, 3\4, 5\6, 21\22, 25\26, 27\28	400	seeds/m2
03/02/2023	a	Drilled: Spring Oats (Isabel) tr Vibrance Duo (17838) using Accord Combination Drill No. 4 with JD6830R/RN/1 plots 21\22, 35\36; R/RN/2 plots 15\16, 39\40	350	seeds/m2
15/03/2023	f	Applied: Sulphur-N using Cascade Spreader with JD6830: R/RN/1 Plots 21\22, 35\36	154	kg/ha
18/04/2023	f	Applied: YaraBela Extran using Cascade Spreader with JD6830: R/RN/1 Plots 21\22, 35\36	149	kg/ha
03/05/2023	p	Sprayed: Presite SX using Agribuggy2 AB30: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	60	g/ha
03/05/2023	p	Sprayed: Topik using Agribuggy2 AB30: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	0.2	L/ha
03/05/2023	p	Sprayed: Moraine using Agribuggy2 AB30: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	0.6	L/ha
03/05/2023	p	Sprayed: Zarado using Agribuggy2 AB30: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	1	L/ha
15/05/2023	a	Power harrowed using Kuhn Power harrow 3m with JD6230: R/RN/2 Plots 09\10, 11\12, 23\24, 31\32	-	-
15/05/2023	f	Applied: Sulphur-N using Cascade Spreader with JD6830: R/RN/2 Plots 15\16, 39\40	154	kg/ha
16/05/2023	p	Power harrowed using Kuhn Power harrow 3m with JD6230: R/RN/1 Plots 07\08, 17\18, 29\30, 43\44	-	-
16/05/2023	f	Applied: YaraBela Extran using Cascade Spreader with JD6830: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46	209	

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2023/R/RN/1-2

17/05/2023	p	Sprayed: Lentyma XE using Agribuggy2 AB30: R/RN/1 Plot 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	0.75	L/ha
17/05/2023	p	Sprayed: Stefes CCC 720 using Agribuggy2 AB30: R/RN/1 Plot 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	1.5	L/ha
22/05/2023	p	Sprayed: Paramount Max using Agribuggy2 AB30: R/RN/1 Plots 21\22, 35\36; R/RN/2 Plots 15\16, 39\40	25	g/ha
22/05/2023	p	Sprayed: Stefes CCC 720 using Agribuggy2 AB30: R/RN/1 Plots 21\22, 35\36; R/RN/2 Plots 15\16, 39\40	1.5	L/ha
22/05/2023	p	Sprayed: Bugle using Agribuggy2 AB30: R/RN/1 Plots 21\22, 35\36; R/RN/2 Plots 15\16, 39\40	0.7	L/ha
22/06/2023	a	Mowed using McHale Pro Glide R3100 with JD6145R Premium: R/RN/1 Plots 01\02, 23\24, 33\34, 47\48; R/RN/2 Plots 07\08, 13\14, 29\30, 37\38	-	-
26/07/2023	p	Sprayed: Buffalo Elite (ad) using Agribuggy2 AB30: R/RN/1 Plots 15\16, 25\26; R/RN/2 Plots 17\18, 19\20, 33\34, 35\36	1	L/ha
26/07/2023	p	Sprayed: Samurai using Agribuggy2 AB30: R/RN/1 Plots 15\16, 25\26; R/RN/2 Plots 17\18, 19\20, 33\34, 35\36	3	L/ha
15/08/2023	p	Sprayed: Buffalo Elite (ad) using Agribuggy2 AB30: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	1	L/ha
15/08/2023	p	Sprayed: Samurai using Agribuggy2 AB30: R/RN/1 Plots 03\04, 11\12, 37\38, 45\46; R/RN/2 Plots 01\02, 03\04, 05\06, 21\22, 25\26, 27\28	3	L/ha
22/08/2023	a	Harvest: R/RN/2 using Claas Tucano 430	-	-
29/08/2023	a	Harvest: R/RN/1 using Claas Tucano 430	-	-

Notes

- Missing drilling dates.
- Soil sampling for chemical analysis and archiving: All R/RN/1, R/RN/2 plots; 0-23 cm depth; 31/08/2023