

Title: Long-term Liming Experiments lime and fertilizer treatments, 1962-1996.

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Description: Contains details of the lime applications, fertilizer treatments and basal fertilizer applied to the Long-term Liming Experiments at Rothamsted and Woburn, 1962-1996.

- 1) Details of lime application dates and amounts applied, 1962-1996.
- 2) Details of fertilizer treatments (P, K, Mg, Mn and S), application amounts, dates and forms, 1962-1996.
- 3) Details of basal fertilizer (N, K and Mg), application amounts and forms, 1962-1996.

Sites:

Rothamsted: R/CS/10. Sawyers field 1, Rothamsted Experimental Farm, Rothamsted Research, West Common, Harpenden, Hertfordshire, AL5 2JQ, UK. Latitude 51.8157, Longitude -0.3752

Woburn: W/CS/10. Stackyard field Section 3, Woburn Experimental Farm, Husborne Crawley, Woburn, Bedfordshire, UK. Latitude 52.0003, Longitude -0.6149

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Refer to website for more details: <http://www.era.rothamsted.ac.uk/>

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Rothamsted and Woburn Long-term Liming experiment.
Lime application dates and amounts

R/CS/10 and W/CS/10
1962-1996

Rothamsted (Sawyers) total lime applied, 1962-1987: **Ground chalk (CaCO_3) tha^{-1}**

Harvest Year	1962	1963	1979	1982	1983	1987
Date applied	05/03/1962	04/12/1962	29/11/1978	03-07/12/1981	26/11/1982	13/11/1986
Lime Treatment						
None (0)	0	0	0	0	0	0
Low (L)	5	0	2	2	5	1
Medium (M)	10	0	5	5	3	1.5
High (H)	15	5	10	10	10	2.5

Woburn (Stackyard) total lime applied, 1962-1987: **Ground chalk (CaCO_3) tha^{-1}**

Harvest Year	1962	1963	1979	1982	1983	1987
Date applied	09/03/1962	19/10/1962	21/11/1978	25/11/1981	04/11/1982	13/11/1986
Lime Treatment						
None (0)	0	0	0	0	0	0
Low (L)	5	0	1	2	0	1
Medium (M)	10	2	2	5	5	1.5
High (H)	15	4	4	10	10	2.5

Summary of total lime applied, 1962-1987, Ground chalk (CaCO_3) tha^{-1} :

Lime Treatment	Rothamsted	Woburn
0	0	0
L	15	9
M	24.5	25.5
H	52.5	45.5

Dolomitic limestone (magnesium calcium carbonate) was applied in some years at Woburn, as a source of magnesium (Paul Poulton, pers. comm.)

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Please acknowledge e-RA and Rothamsted Research as the data source in any publications.

Rothamsted and Woburn Long-term Liming experiment.

R/CS/10 and W/CS/10

1962-1996

Fertilizer treatments

Year	P treatments kgP/ha		Date P, K and Mg applied		K treatment kgK/ha		Mg treatment kgMg/ha	
	0	P	Rothamsted	Woburn	0	K	0	Mg
1962	0	27.5	15/03/1962	15/03/1962	0	104		
1963	0	27.5	03/04/1963	13/03/1963	0	104		
1964	0	27.5	15/02/1964	08/11/1963	0	104		
1965	0	27.5	01/03/1965	29/03/1965	0	104		
1966	0	27.5	14/03/1966	10/03/1966	0	104		
1967	0	27.5	22/02/1967	24/02/1967	0	104		
1968	0	55	04/04/1968	28/03/1968	0	156		
1969	0	0	-	-	0	0		
1970	0	27.5	26/03/1970	26/03/1970	0	104		
1971	0	27.5	03/03/1971	04/03/1971	0	104		
1972	0	27.5	20/03/1972	14/03/1972	0	104		
1973	0	27.5	26/02/1973	28/02/1973	0	104		
1974	0	55	24/04/1974	16/04/1974	0	156	0	112
1975	0	27.5	11/03/1975	17/03/1975	0	105	0	0
1976	0	27.5	24/03/1976	26/03/1976	0	105	0	112
1977	0	27.5	29/03/1977	18/03/1977	0	105	0	112
1978	0	27.5	19/04/1978	13/03/1978	0	105	0	112
1979	0	0	-	-	0	0		
1980	0	0	-	-	0	0		

	Divided into 4 P treatments:				Date P applied		Mn treatment Foliar spray		S treatment kgS/ha	
	P0	P1	P2	P3	Rothamsted	Woburn	0	Mn	0	S
1981	0	25	25	75	08/12/1980	08/12/1980				
1982 [§]	0	25	0	25	14/04/1982	24/03/1982				
1983*	0	0/50	50/50	50/100	11/05/1983	22/03/1983				
1984	0	0	0	0	-	-				
1985	0	0	0	0	-	-				
1986	0	0	0	0	-	-				
1987	0	0	0	0	-	-	0	Mn		
1988	0	25	25	75	14/12/1987	10/02/1988	0	Mn		
1989	0	0	0	0	-	-	0	Mn		
1990	0	0	0	0	-	-	0	Mn		
1991	0	0	0	0	-	-			0	30
1992	0	0	0	0	-	-			0	30
1993	0	0	0	0	-	-			0	30
1994	0	0	0	0	-	-			0	30
1995	0	0	0	0	-	-			0	30
1996	0	0	0	0	-	-			0	30

Phosphorus (P) treatments:

From 1962-1980 two P treatments (0, P)

1962-1978 Applied as superphosphate. Not applied to fallow (1969, 1979, 1980)

1968, 1974 55 kgP/ha to potatoes

From 1981 onwards divided into four P treatments (P0, P1, P2, P3):

1981-83, 1988 Applied as superphosphate

1982[§] Possibly 50KgP/ha. In most Yield Books P1 and P3 shown as 25kgP/ha, on Field Plans shown as 50kgP/ha

1983* Different P rates at the two sites, shown as Rothamsted/Woburn

Potassium (K) treatment:

1962-1978 Applied as muriate of potash

1981 onwards Basal application to all plots in some years

Magnesium (Mg) treatment:

1974, 1976-78 Applied as Epsom salts (1974, 1976-77) and kieserite (magnesium sulphate) (1978)

1981 onwards Basal application to all plots in some years

Manganese (Mn) treatment:

1987-1990 Applied liquid foliar fertilizer at fourth leaf stage and before flowering. Amounts vary

Sulphur (S) treatment:

1991-1996 Applied as calcium sulphate

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Rothamsted and Woburn Long-term Liming experiment.
R/CS/10 and W/CS/10 1962-1996

Basal Fertilizer
(applied to all plots, not a treatment factor)

Year	Fertilizer N kg/ha		N fertilizer type					
	Rothamsted	Woburn	Rothamsted	Woburn				
1962	0	0						
1963	0	0						
1964	32	32	Nitrochalk	Nitrochalk				
1965	63	63	Nitrochalk	Nitrochalk				
1966	63	126	Nitrochalk	AS & nitrochalk				
1967	94	126	Nitrochalk	AS & nitrochalk				
1968	188	251	Nitrochalk	Nitrochalk				
1969	0	0						
1970	94	126	Nitrochalk	Nitrochalk				
1971	94	126	Nitrochalk	Nitrochalk				
1972	90	130	Nitrochalk	Nitrochalk				
1973	90	130	Nitrochalk	Nitrochalk				
1974	190	250	Nitrochalk	Nitrochalk				
1975	80	80	Nitrochalk	Nitrochalk				
1976	170	170	Nitrochalk	Nitrochalk				
1977	80	95	Nitrochalk	Nitrochalk				
1978	80	130	Nitrochalk	Nitrochalk				
1979	0	0						
1980	0	0						
					Potassium kgK/ha		Magnesium kgMg/ha	
					Rothamsted	Woburn	Rothamsted	Woburn
1981	80	80	Nitrochalk	Nitrochalk	120	120	100	100
1982 ^s	80	80	Nitrochalk	Nitrochalk	120	120	40	40
1983*	250	260	Nitrochalk	Nitrochalk	210	210	40	40
1984	0	0			0	0	0	0
1985	113	123	Compound		72	79	0	0
1986	170	190	Nitram	Nitram	0	0	0	0
1987	0	0			0	0	0	0
1988	86	86	Nitram	Nitram	80	80	41	17
1989	0	0			0	0	0	0
1990	0	0			0	0	0	0
1991	271	250	Compound & Nitram		32	32	26	26
1992	126	126	Compound & Nitram		32	32	26	26
1993	0	0			0	0	0	0
1994	0	0			0	0	0	0
1995	150	160	Nitram	Nitram	0	0	0	0
1996	160	160	Nitram	Nitram	0	0	0	0

Nitrogen (N) fertilizers:

AS = Ammonium sulphate (sulfate)

Nitrochalk = calcium ammonium nitrate

Nitram = ammonium nitrate (34.5%N)

Compound = 25:0:16 compound fertilizer (% N:P:K)

Potassium (K) fertilizer

1981 onwards, as muriate of potash or compound (1985, 1991, 1992)

Magnesium (Mg) fertilizer:

1981 onwards, as magnesium sulphate or liquid chelated magnesium (1991, 1992)

Dolomitic limestone (magnesium calcium carbonate) was applied in some years at Woburn, as a source of magnesium (Paul Poulton, pers. comm.)

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