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## Rothamsted long-term liming experiment plans 1962-1996

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**Date:** December 2020; updated November 2023 with corrected P application rate in 1982 (50kg P instead of 25kgP, P1 and P3).

**Description:** Contains five standardized experiment plans for the Rothamsted Long-term Liming Experiment, 1962-1996, showing plot numbers, layout and treatment factors (not to scale).

- **Plan 1:** 1962-1973. Lime and PK treatments applied to whole plots
- **Plan 2:** 1974-1980. Mg treatments applied to sub-plots, lime and PK treatments to whole plots
- **Plan 3:** 1981-1986. Lime and P treatments to whole plots
- **Plan 4:** 1987-1990. Mn treatments applied to sub-plots, lime and P treatments to whole plots
- **Plan 5:** 1991-1996. S treatments applied to sub-plots, lime and P treatments to whole plots.

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

### Related Resources:

- Original hand drawn plans for individual years can be found here: <http://www.era.rothamsted.ac.uk/eradoc/book/146>
- Refer to website for more details: <http://www.era.rothamsted.ac.uk/>

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# Rothamsted long term liming experiment R/CS/10 Plan 1962-1973

Not to scale

Sawyers

Lime and PK plot treatments

N

Plot	1	2	3	4	5	6	7	8	Block 1  1  2  2  76.8m  51.2m
Lime	O	O	H	L	O	M	L	H	
PK	P	K	none	P	PK	none	none	P	
	9	10	11	12	13	14	15	16	
	M	O	L	L	M	H	H	M	
	K	none	PK	K	PK	K	PK	P	
	17	18	19	20	21	22	23	24	
	M	M	M	O	M	L	O	L	
	K	PK	none	P	P	K	PK	P	
	25	26	27	28	29	30	31	32	
	L	O	H	H	O	L	H	H	
	PK	none	K	PK	K	none	P	none	

## Treatment factors:

**Lime** t CaCO<sub>3</sub> ha<sup>-1</sup>, total 1962-1973

O	0
L	5
M	10
H	20

<b>PK treatment:</b>	kg ha <sup>-1</sup> yr <sup>-1</sup>	
<b>1962-1980:</b>	P	K
none	0	0
K	0	104
P	27.5	0
PK	27.5	104

No P or K in fallow years, and different rate for potatoes.

Plot area 6.4m x 18.3m (6.4m x 18m 1968) Fallow 1969

**Rothamsted long term liming experiment R/CS/10**  
**Plan 1974-1980**

Not to scale

Sawyers

Mg applied to sub-plots

Lime and PK whole plot treatments

N

Sub-plot	011	021	031	041	051	061	071	081	Block 1  1  76.8m  2  2  51.2m
Mg	Mg	Mg	Mg	-	-	-	Mg	Mg	
Lime	O	O	H	L	O	M	L	H	
Mg	-	-	-	Mg	Mg	Mg	-	-	
PK	P	K	none	P	PK	none	none	P	
Sub-plot	012	022	032	042	052	062	072	082	
	091	101	111	121	131	141	151	161	1
	Mg	-	Mg	Mg	Mg	-	-	Mg	
	M	O	L	L	M	H	H	M	
	-	Mg	-	-	-	Mg	Mg	-	
	K	none	PK	K	PK	K	PK	P	
	092	102	112	122	132	142	152	162	
	171	181	191	201	211	221	231	241	2
	-	Mg	Mg	-	-	Mg	-	Mg	
	M	M	M	O	M	L	O	L	
	Mg	-	-	Mg	Mg	-	Mg	-	
	K	PK	none	P	P	K	PK	P	
	172	182	192	202	212	222	232	242	
	251	261	271	281	291	301	311	321	2
	-	-	-	-	Mg	-	-	Mg	
	L	O	H	H	O	L	H	H	
	Mg	Mg	Mg	Mg	-	Mg	Mg	-	
	PK	none	K	PK	K	none	P	none	
	252	262	272	282	292	302	312	322	

**Treatment factors:**

<b>Lime</b>	t CaCO <sub>3</sub> ha <sup>-1</sup> , total 1962-1980
O	0
L	7
M	15
H	30

<b>Mg</b>	kgMg ha <sup>-1</sup> yr <sup>-1</sup>
-	0
Mg	112
Mg applied 1974, 1976-78	

<b>PK treatment</b>	kg ha <sup>-1</sup> yr <sup>-1</sup>	
<b>1962-1980:</b>	P	K
none	0	0
K	0	105
P	27.5	0
PK	27.5	105

No P or K in fallow years, and different rate for potatoes.

See plans for previous years (1962-1973) for further details

Plot area 6.4m x 18.3m (6.4m x 18m 1974, 1976) Fallow 1979 & 1980

# Rothamsted long term liming experiment R/CS/10

## Plan 1981-1986

Not to scale

Sawyers

Lime and P plot treatments

N

Plot	1	2	3	4	5	6	7	8	Block 1  1  2  2  76.8m  51.2m
Lime	O	O	H	L	O	M	L	H	
P	P2	P1	P0	P2	P3	P0	P0	P2	
	9	10	11	12	13	14	15	16	
	M	O	L	L	M	H	H	M	
	P1	P0	P3	P1	P3	P1	P3	P2	
	17	18	19	20	21	22	23	24	
	M	M	M	O	M	L	O	L	
	P1	P3	P0	P2	P2	P1	P3	P2	
	25	26	27	28	29	30	31	32	
	L	O	H	H	O	L	H	H	
	P3	P0	P1	P3	P1	P0	P2	P0	

### Treatment factors:

**Lime** t CaCO<sub>3</sub> ha<sup>-1</sup>, total 1962-1986

O	0
L	14
M	23
H	50

PK treatment	P treatment	kgP ha <sup>-1</sup> total	
1962-1980:	1981-1988:	1962-80	1981-86
None	P0	0	0
K	P1	0	75
P	P2	495	75
PK	P3	495	175

See plans for previous years (1962-1980) for further details

Plot area 6.4m x 18.3m (6.0m x 18m 1983, 1985, 1986) Fallow 1984

# Rothamsted long term liming experiment R/CS/10

Not to scale

## Plan 1987-1990

Sawyers

Mn applied to sub-plots

Lime and P whole plot treatments

N

Sub-plot	011	021	031	041	051	061	071	081	Block
Mn	Mn	Mn	Mn	Mn	Mn	Mn	Mn	Mn	1
Lime	O	O	H	L	O	M	L	H	
Mn	-	-	-	-	-	-	-	-	
P	P2	P1	P0	P2	P3	P0	P0	P2	
Sub-plot	012	022	032	042	052	062	072	082	
76.8m									
	091	101	111	121	131	141	151	161	1
	-	-	-	-	-	-	-	-	
	M	O	L	L	M	H	H	M	
	Mn	Mn	Mn	Mn	Mn	Mn	Mn	Mn	
	P1	P0	P3	P1	P3	P1	P3	P2	
	092	102	112	122	132	142	152	162	
76.8m									
	171	181	191	201	211	221	231	241	2
	Mn	Mn	Mn	Mn	Mn	Mn	Mn	Mn	
	M	M	M	O	M	L	O	L	
	-	-	-	-	-	-	-	-	
	P1	P3	P0	P2	P2	P1	P3	P2	
	172	182	192	202	212	222	232	242	
76.8m									
	251	261	271	281	291	301	311	321	2
	-	-	-	-	-	-	-	-	
	L	O	H	H	O	L	H	H	
	Mn	Mn	Mn	Mn	Mn	Mn	Mn	Mn	
	P3	P0	P1	P3	P1	P0	P2	P0	
	252	262	272	282	292	302	312	322	
51.2m									

### Treatment factors:

**Lime:** t CaCO<sub>3</sub> ha<sup>-1</sup>, total 1962-1987

O	0
L	15
M	24.5
H	52.5

### Mn spray treatment

**1987-1990:**

-	not applied
Mn	foliar spray applied

### PK treatment

**1962-1980:**

None
K
P
PK

### P treatment

**1981-1988:**

P0
P1
P2
P3

kgP ha<sup>-1</sup> total

1962-80 1981-88

0	0
0	100
495	100
495	255

See plans for previous years (1962-1986) for further details

Plot area 6.0m x 18.3m

# Rothamsted long term liming experiment R/CS/10

Not to scale

## Plan 1991-1996

Sawyers

S applied to sub-plots

Lime and P whole plot treatments

N

Sub-plot	011	021	031	041	051	061	071	081	Block
S	-	-	-	-	S	S	S	-	1
Lime	O	O	H	L	O	M	L	H	
S	S	S	S	S	-	-	-	S	
P	P2	P1	P0	P2	P3	P0	P0	P2	
Sub-plot	012	022	032	042	052	062	072	082	
76.8m									
	091	101	111	121	131	141	151	161	1
S	S	S	-	S	S	-	-	S	
M	O	L	L	M	H	H	M	M	
-	-	S	-	-	S	S	-	-	
P	P1	P0	P3	P1	P3	P1	P3	P2	
	092	102	112	122	132	142	152	162	
76.8m									
	171	181	191	201	211	221	231	241	2
S	-	S	-	S	S	S	-	-	
M	M	M	O	M	L	O	L	L	
-	S	-	S	-	-	-	S	-	
P	P3	P0	P2	P2	P1	P3	P2	P2	
	172	182	192	202	212	222	232	242	
76.8m									
	251	261	271	281	291	301	311	321	2
S	S	S	-	S	-	-	-	-	
L	O	H	H	O	L	H	H	H	
-	-	-	S	-	S	S	S	S	
P	P3	P0	P1	P3	P1	P0	P2	P0	
	252	262	272	282	292	302	312	322	
51.2m									

### Treatment factors:

**Lime:** t CaCO<sub>3</sub> ha<sup>-1</sup>, total 1962-1987

O	0
L	15
M	24.5
H	52.5

### S treatment

1991-1996:	kgS ha <sup>-1</sup> yr <sup>-1</sup>
-	0
S	30

### PK treatment

1962-1980:

None
K
P
PK

### P treatment

1981-1988:

P0
P1
P2
P3

kgP ha <sup>-1</sup> total	
1962-80	1981-88
0	0
0	100
495	100
495	255

See plans for previous years (1962-1990) for further details

Plot area 6.0m x 18.3m 1991, 1992; 5.76m x 16.1m 1993, 1994; 6.0m x 16.1m 1995, 1996