

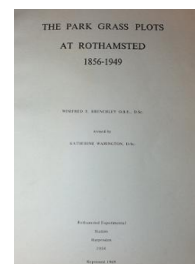
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The Park Grass Plots at Rothamsted 1856 -1949

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Tables

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Rothamsted Research (1958) *Tables* ; The Park Grass Plots At Rothamsted 1856 -1949, pp 159 - 174
- DOI: <https://doi.org/10.23637/ERADOC-1-154>

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Fig. 15.

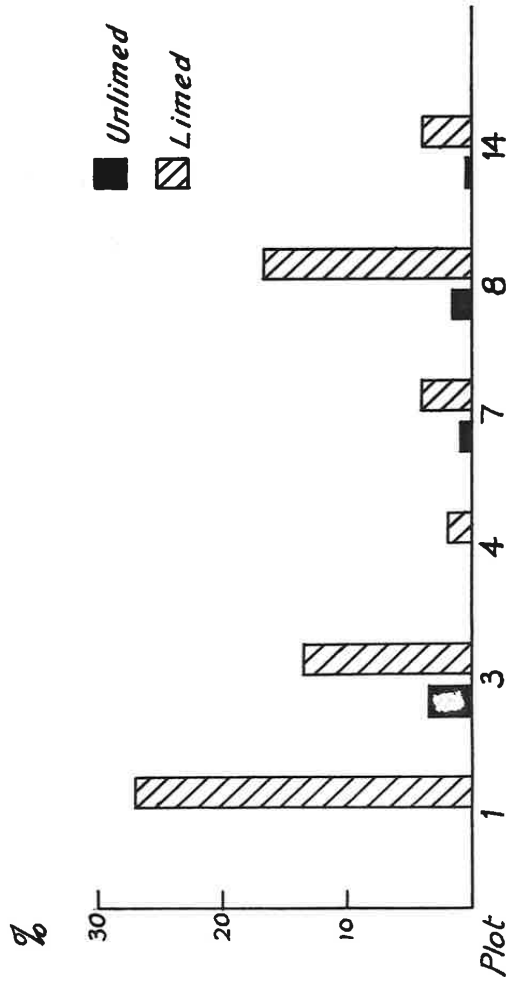
Fig. 15. Percentage of *Arrhenatherum avenaceum* in 1947



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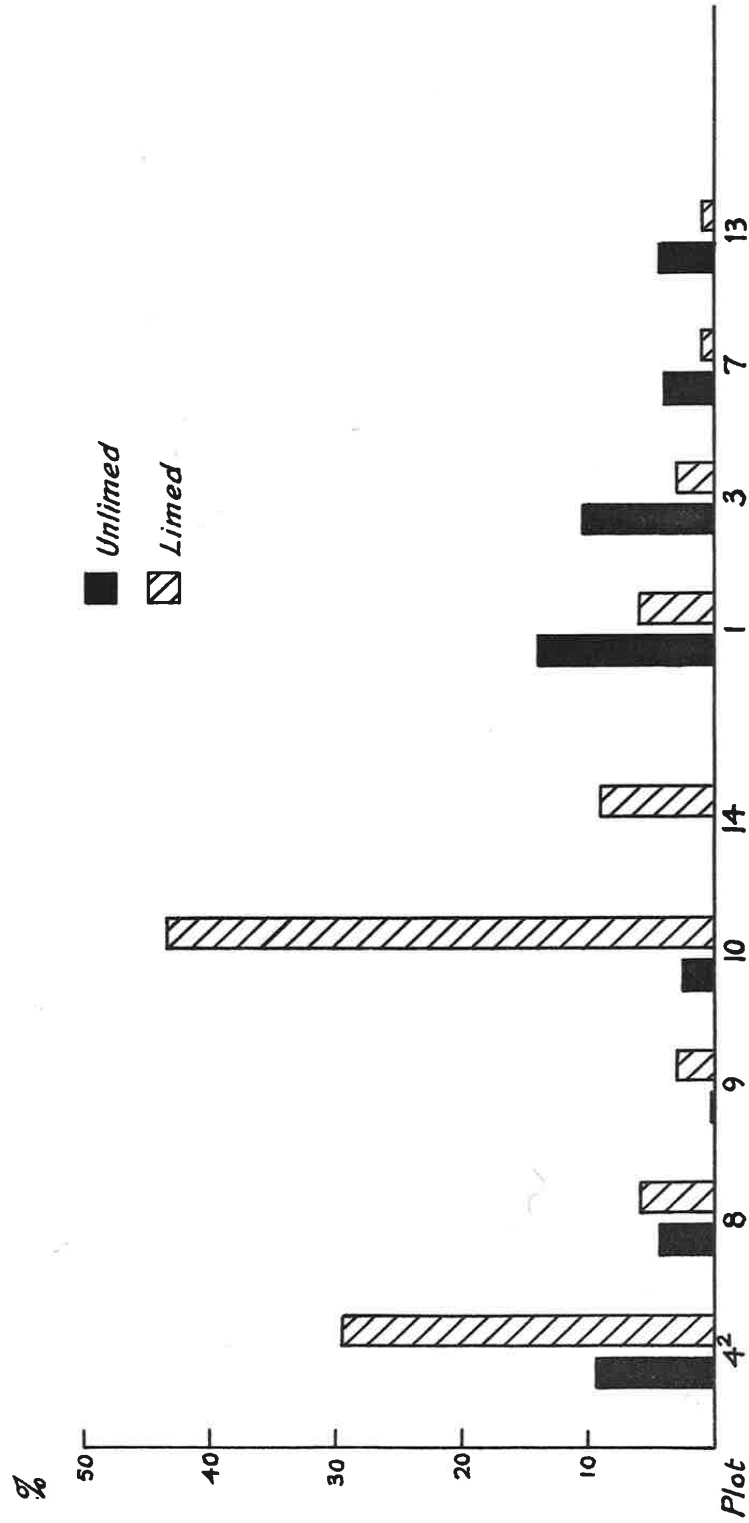
Fig. 16.

Fig. 16. Percentage of *Avena pubescens* in 1947



161
Fig. 17.

Fig. 17. Percentage of *Festuca rubra* in 1947



162
Fig. 18.

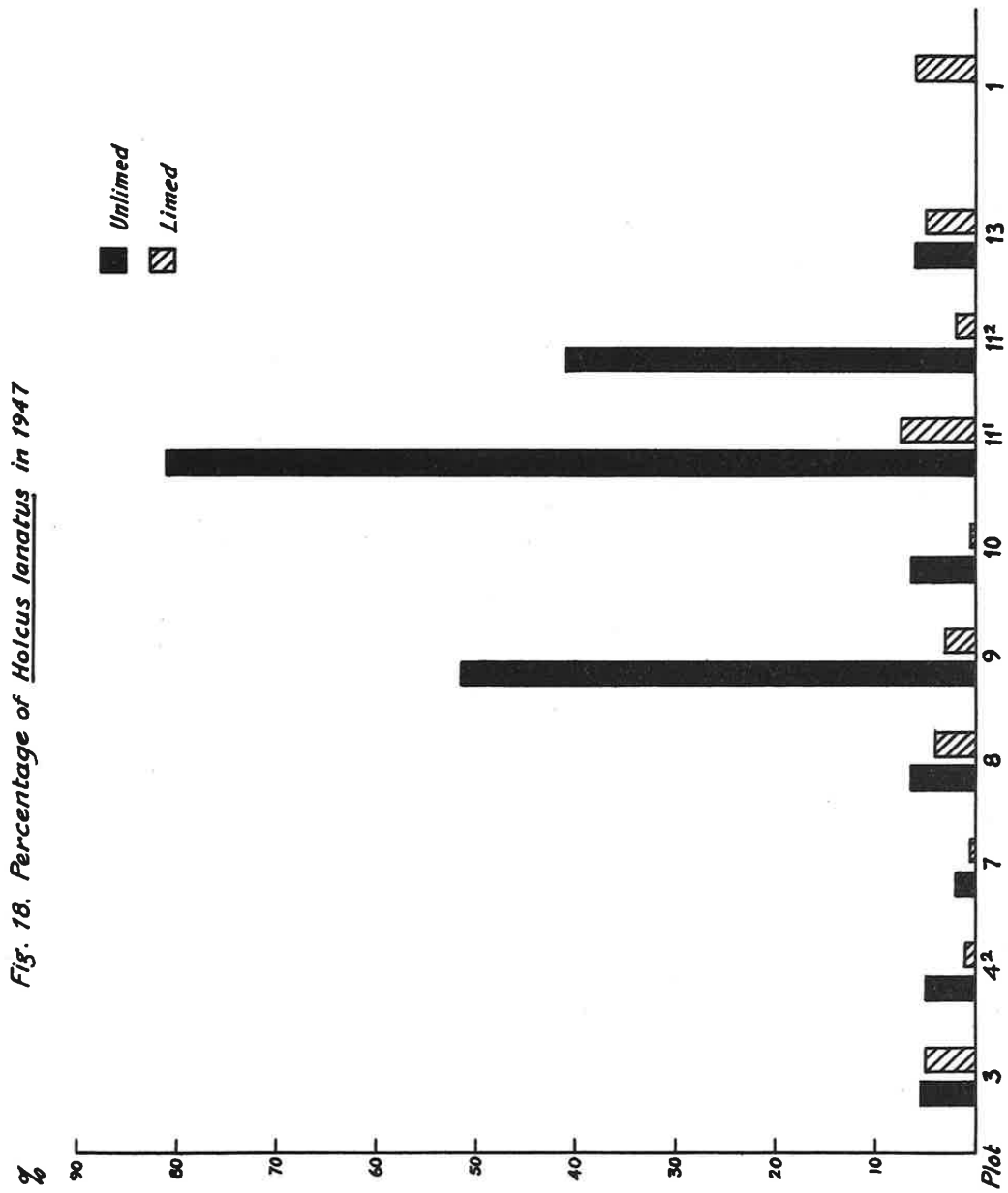
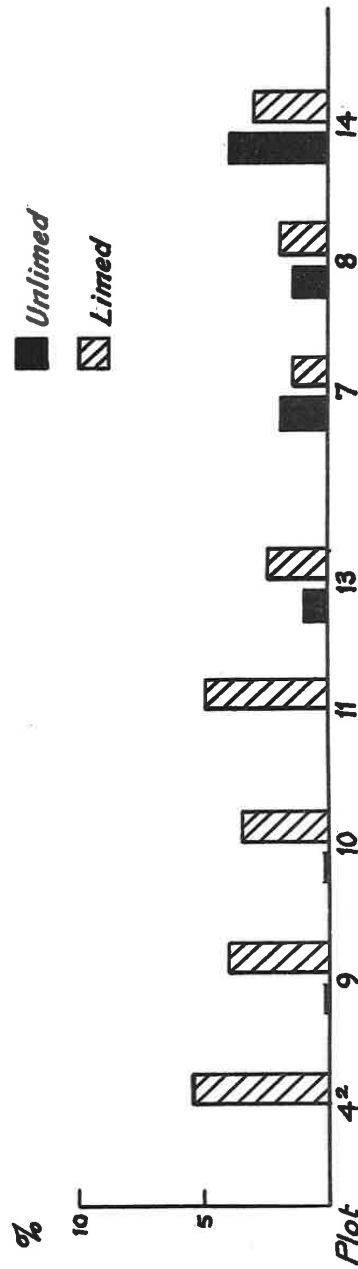


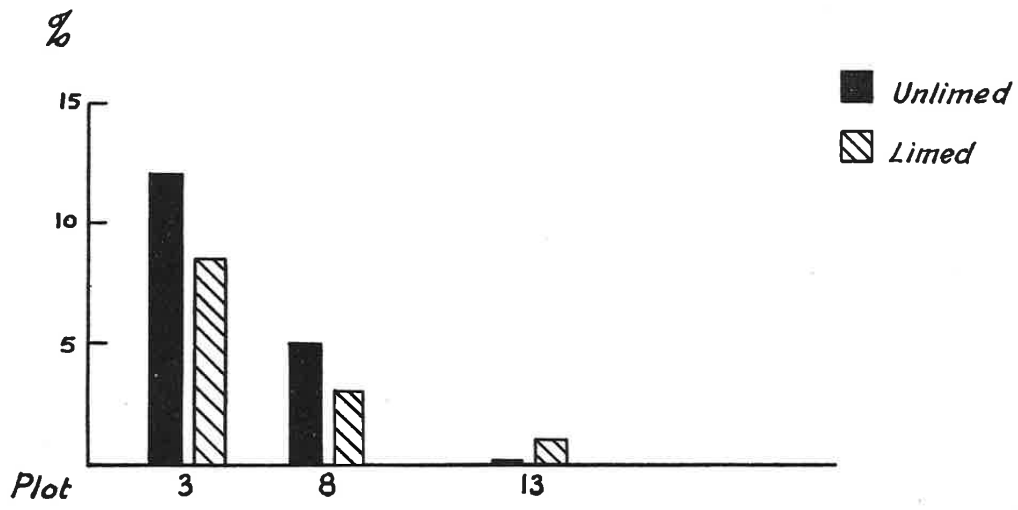
Fig. 19.

Fig. 19. Percentage of *Poa pratensis* in 1947



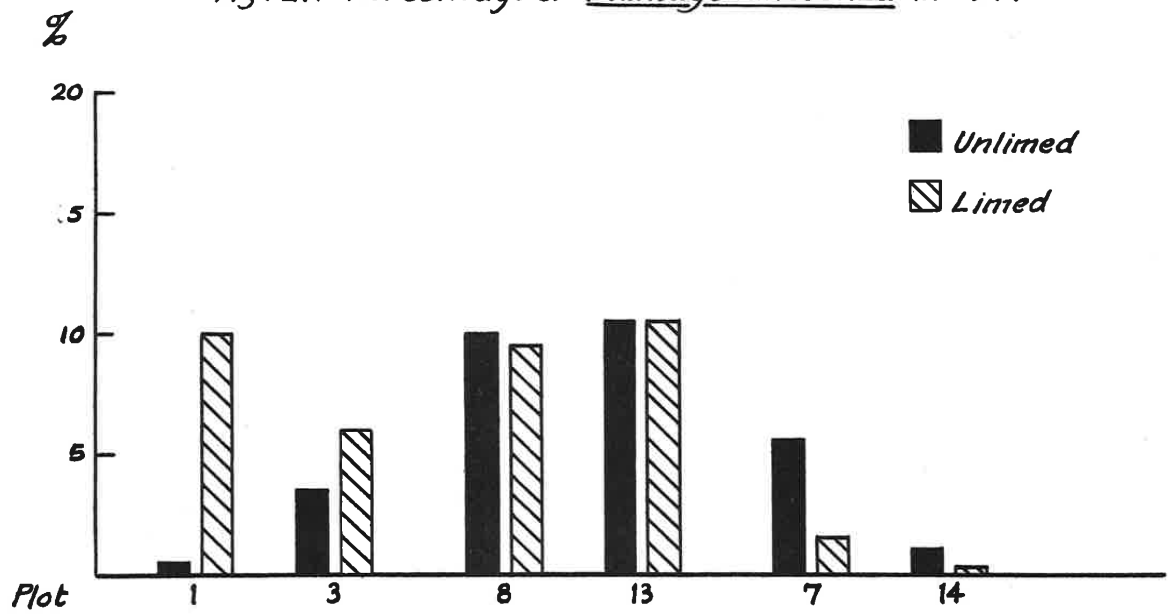
164
Fig.20.

Fig. 20. Percentage of *Leontodon hispidus* in 1947



165
Fig.21.

Fig. 21. Percentage of *Plantago lanceolata* in 1947



166
Fig. 22.

Fig. 22. Percentage of *Rumex acetosa* in 1947

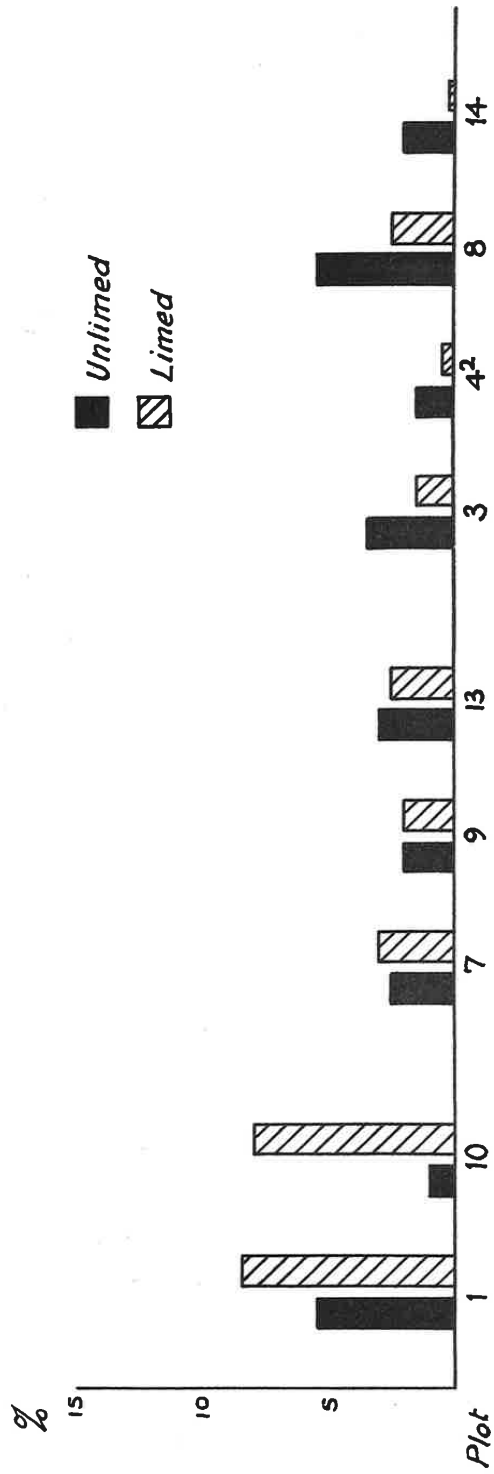


TABLE 1a

Plot	Description of Manure	Quantity of Manure per Acre.				Mineral Manures				Organic Manures		Averages Over.	Cwts. Cwts. Cwts. Cwts. Cwts. Cwts. Cwts. Cwts. Cwts. Cwts. Cwts.		
		Nitro-Genous Manures	Superphosphate	Sulphate of Potash	Sulphate of Soda	Sulphate of Potash	Sulphate of Soda	Sulphate of Magnesia	Silicate of Soda	Farmyard Manure	Fish Guano				
1	Ammonium salts = 43 lbs. N (with farmyard manure, 1856-63)	220	-	-	-	-	-	-	-	-	-	1906-15	1926-35	1936-45	1946-1949
2	Unmanured (after farmyard manure, 1856-63)	-	-	-	-	-	-	-	-	-	-	1876-85	1886-95	1896-1905	1906-15
3	Unmanured	-	-	-	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
4	Superphosphate of lime	440	3.5	-	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
5	Superphosphate and ammonium salts = 86 lbs. N (N.half) Unmanured (after ammonium salts, 1856-97 = Plot 5)	-	3.5	-	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
6	(S.half) Superphosphate, sulphate of potash (after ammonium salts, 1856-97 = Plot 5)	-	3.5	500	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
7	As plot 7 (after ammonium salts, 1856-66)	-	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
8	Complete mineral manure	-	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
9	Mineral manure without potash	-	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
10	Complete mineral manure and ammonium salts = 86 lbs. N.	440	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
11	Mineral manure (without potash) and ammonium salts = 86 lbs. N.	440	3.5	-	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
12	Complete mineral manure and extra ammonium salts = 129 lbs. N.	660	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
13	As plot 11 and silicate of soda Unmanured	660	3.5	500	100	400	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
14	Farmyard manure and fish guano, each once in four years since 1905 (after cut wheat straw, minerals, and ammonium salts)	-	-	-	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
15	Complete mineral manure and nitrate of soda = 86 lbs. N.	-	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
16	Complete mineral manure (after nitrate of soda, 1856-75)	-	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
17	Complete mineral manure and nitrate of soda = 43 lbs. N.	-	3.5	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
18	Nitrate of soda = 43 lbs. N. Mineral manure without superphosphate, and ammonium salts = 86 lbs. N (after minerals and nitrogen equal to constituents of 1 ton of hay, 1865-1904)	440	-	500	100	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
19	Farmyard manure every fourth year (after superphosphate, sulphate of potash, and nitrate of soda, 1872-1904)	-	-	-	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905
20	Farmyard manure every fourth year; sulphate of potash, superphosphate, and nitrate of soda = 26 lbs. N in other years (after superphosphate and nitrate of potash, 1872-1904)	-	-	-	-	-	-	-	-	-	-	1866-75	1876-85	1886-95	1896-1905

TABLE 1a

Manures - all plots
Yield of hay on all unlimed plots

7 years only, 1859-65
4 " " 1862-65
8 " " 1858-65
9 " " 1865-75
11 " " 1865-75
14 years only, 1872-75
6 " " 1898-1905
7 " " 1896-1904
8 " " 1905-15

TABLE 1 b.

Plot	Regular liming ¹ (Burnt lime)		pH Plots 1-17 in 1945 Plots 18-20 in 1957		Average produce of hay per acre over two successive 10 - year periods 1926 - 45 and over the 4 - year period 1946 - 9. First crop only, cwt at 85% dry matter,		
	Begun in Year	Amount per acre every 4th year	Unlimed	Limed	LIMED		
					1926 - 35	1936 - 45	1946 - 49
1	1903	2000 lb	4.5	7.0	17.2	13.6	16.9
2	1903	"	5.0	7.0	12.8	9.0	13.4
3	1903	"	5.5	7.0	10.6	8.7	12.7
4-1	1903	"	5.5	7.0	11.8	10.0	15.3
4-2	1903	"	4.0	5.5	30.7	24.2	24.2
5-1	-	-	4.5	-	-	-	-
5-2	-	-	4.5	-	-	-	-
6	-	-	5.0	-	-	-	-
7	1903	2000 lb	5.0	7.0	31.0	30.4	33.0
8	1903	"	5.0	7.0	13.4	12.2	13.6
9	1903	"	4.0	5.0	50.6	38.0	32.7
10	1903	"	4.0	5.0	36.6	30.6	24.9
11-1	1903	"	4.0	4.5	51.9	45.4	45.1
11-2	1903	"	4.0	4.5	53.4	47.3	45.8
12	-	-	5.0	-	-	-	-
13	1903	2000 lb	4.6	6.5	36.0	26.4	29.2
14	1920	"	6.0	7.0	46.9	38.5	39.6
15	1920	"	5.0	6.5	23.8	21.7	23.4
16	1903	"	5.0	7.0	30.4	29.5	31.1
17	1920	"	6.0	7.0	22.7	17.7	19.7
18	1920	61 cwt	4.0	6.0	38.0	21.9	22.6
"	1920	35 cwt		7.5	30.2	20.0	20.1
19	1920	28 cwt	5.5	7.6	21.5	22.0	24.6
"	1920	5 cwt		6.5	24.1	23.3	26.2
20	1920	25 cwt	5.7	7.6	33.3	27.6	35.3
"	1920	5 cwt		6.5	35.1	29.7	32.4

TABLE 1b.
Liming, soil pH
and yield of hay
on limed plots

¹ 1911 omitted. 1919 dressing not given until 1920 and amount increased by $\frac{1}{4}$ to allow for the extra year.

TABLE 2

Botanical analyses
Plots 3, 12, (2, 5)
Unmeasured
<= less than 0.05

Number of species, and percentage of each species and group of species.	MANURE.																	
	Since 1936.					12					2					After Ammonium Salt, 1936-1937.		
	UNLIMITED		LIMITED		UNLIMITED		UNLIMITED		LIMITED		UNLIMITED		LIMITED		UNLIMITED		UNLIMITED	
Year	Plot	Year	Plot	Year	Plot	Year	Plot	Year	Plot	Year	Plot	Year	Plot	Year	Plot	Year	Plot	
GRAMINEAE	Number of species																	
	1933	13	13	1934	13	1935	12	1936	12	1937	12	1938	12	1939	12	1940	12	
	1941	13	1942	13	1943	13	1944	12	1945	12	1946	12	1947	12	1948	12	1949	12
	1950	13	1951	13	1952	13	1953	13	1954	13	1955	13	1956	13	1957	13	1958	13
	1959	13	1960	13	1961	13	1962	13	1963	13	1964	13	1965	13	1966	13	1967	13
	1968	13	1969	13	1970	13	1971	13	1972	13	1973	13	1974	13	1975	13	1976	13
	1977	13	1978	13	1979	13	1980	13	1981	13	1982	13	1983	13	1984	13	1985	13
	1986	13	1987	13	1988	13	1989	13	1990	13	1991	13	1992	13	1993	13	1994	13
	1995	13	1996	13	1997	13	1998	13	1999	13	2000	13	2001	13	2002	13	2003	13
	1994	13	1995	13	1996	13	1997	13	1998	13	1999	13	2000	13	2001	13	2002	13
	1993	13	1994	13	1995	13	1996	13	1997	13	1998	13	1999	13	2000	13	2001	13
	1992	13	1993	13	1994	13	1995	13	1996	13	1997	13	1998	13	1999	13	2000	13
	1991	13	1992	13	1993	13	1994	13	1995	13	1996	13	1997	13	1998	13	1999	13
	1990	13	1991	13	1992	13	1993	13	1994	13	1995	13	1996	13	1997	13	1998	13
	1989	13	1990	13	1991	13	1992	13	1993	13	1994	13	1995	13	1996	13	1997	13
	1988	13	1989	13	1990	13	1991	13	1992	13	1993	13	1994	13	1995	13	1996	13
	1987	13	1988	13	1989	13	1990	13	1991	13	1992	13	1993	13	1994	13	1995	13
1986	13	1987	13	1988	13	1989	13	1990	13	1991	13	1992	13	1993	13	1994	13	
1985	13	1986	13	1987	13	1988	13	1989	13	1990	13	1991	13	1992	13	1993	13	
1984	13	1985	13	1986	13	1987	13	1988	13	1989	13	1990	13	1991	13	1992	13	
1983	13	1984	13	1985	13	1986	13	1987	13	1988	13	1989	13	1990	13	1991	13	
1982	13	1983	13	1984	13	1985	13	1986	13	1987	13	1988	13	1989	13	1990	13	
1981	13	1982	13	1983	13	1984	13	1985	13	1986	13	1987	13	1988	13	1989	13	
1980	13	1981	13	1982	13	1983	13	1984	13	1985	13	1986	13	1987	13	1988	13	
1979	13	1980	13	1981	13	1982	13	1983	13	1984	13	1985	13	1986	13	1987	13	
1978	13	1979	13	1980	13	1981	13	1982	13	1983	13	1984	13	1985	13	1986	13	
1977	13	1978	13	1979	13	1980	13	1981	13	1982	13	1983	13	1984	13	1985	13	
1976	13	1977	13	1978	13	1979	13	1980	13	1981	13	1982	13	1983	13	1984	13	
1975	13	1976	13	1977	13	1978	13	1979	13	1980	13	1981	13	1982	13	1983	13	
1974	13	1975	13	1976	13	1977	13	1978	13	1979	13	1980	13	1981	13	1982	13	
1973	13	1974	13	1975	13	1976	13	1977	13	1978	13	1979	13	1980	13	1981	13	
1972	13	1973	13	1974	13	1975	13	1976	13	1977	13	1978	13	1979	13	1980	13	
1971	13	1972	13	1973	13	1974	13	1975	13	1976	13	1977	13	1978	13	1979	13	
1970	13	1971	13	1972	13	1973	13	1974	13	1975	13	1976	13	1977	13	1978	13	
1969	13	1970	13	1971	13	1972	13	1973	13	1974	13	1975	13	1976	13	1977	13	
1968	13	1969	13	1970	13	1971	13	1972	13	1973	13	1974	13	1975	13	1976	13	
1967	13	1968	13	1969	13	1970	13	1971	13	1972	13	1973	13	1974	13	1975	13	
1966	13	1967	13	1968	13	1969	13	1970	13	1971	13	1972	13	1973	13	1974	13	
1965	13	1966	13	1967	13	1968	13	1969	13	1970	13	1971	13	1972	13	1973	13	
1964	13	1965	13	1966	13	1967	13	1968	13	1969	13	1970	13	1971	13	1972	13	
1963	13	1964	13	1965	13	1966	13	1967	13	1968	13	1969	13	1970	13	1971	13	
1962	13	1963	13	1964	13	1965	13	1966	13	1967	13	1968	13	1969	13	1970	13	
1961	13	1962	13	1963	13	1964	13	1965	13	1966	13	1967	13	1968	13	1969	13	
1960	13	1961	13	1962	13	1963	13	1964	13	1965	13	1966	13	1967	13	1968	13	
1959	13	1960	13	1961	13	1962	13	1963	13	1964	13	1965	13	1966	13	1967	13	
1958	13	1959	13	1960	13	1961	13	1962	13	1963	13	1964	13	1965	13	1966	13	
1957	13	1958	13	1959	13	1960	13	1961	13	1962	13	1963	13	1964	13	1965	13	
1956	13	1957	13	1958	13	1959	13	1960	13	1961	13	1962	13	1963	13	1964	13	
1955	13	1956	13	1957	13	1958	13	1959	13	1960	13	1961	13	1962	13	1963	13	
1954	13	1955	13	1956	13	1957	13	1958	13	1959	13	1960	13	1961	13	1962	13	
1953	13	1954	13	1955	13	1956	13	1957	13	1958	13	1959	13	1960	13	1961	13	
1952	13	1953	13	1954	13	1955	13	1956	13	1957	13	1958	13	1959	13	1960	13	
1951	13	1952	13	1953	13	1954	13	1955	13	1956	13	1957	13	1958	13	1959	13	
1950	13	1951	13	1952	13	1953	13	1954	13	1955	13	1956	13	1957	13	1958	13	
1949	13	1950	13	1951	13	1952	13	1953	13	1954	13	1955	13	1956	13	1957	13	
1948	13	1949	13	1950	13	1951	13	1952	13	1953	13	1954	13	1955	13	1956	13	
1947	13	1948	13	1949	13	1950	13	1951	13	1952	13	1953	13	1954	13	1955	13	
1946	13	1947	13	1948	13	1949	13	1950	13	1951	13	1952	13	1953	13	1954	13	
1945	13	1946	13	1947	13	1948	13	1949	13	1950	13	1951	13	1952	13	1953	13	
1944	13	1945	13	1946	13	1947	13	1948	13	1949	13	1950	13	1951	13	1952	13	
1943	13	1944	13	1945	13	1946	13	1947	13	1948	13	1949	13	1950	13	1951	13	
1942	13	1943	13	1944	13	1945	13	1946	13	1947	13	1948	13	1949	13	1950	13	
1941	13	1942	13	1943	13	1944	13	1945	13	1946	13	1947	13	1948	13	1949	13	
1940	13	1941	13	1942	13	1943	13	1944	13	1945	13	1946	13	1947	13	1948	13	
1939	13	1940	13	1941	13	1942	13	1943	13	1944	13	1945	13	1946	13	1947	13	
1938	13	1939	13	1940	13	1941	13	1942	13	1943	13	1944	13	1945	13	1946	13	
1937	13	1938	13	1939	13	1940	13	1941	13	1942	13	1943	13	1944	13	1945	13	
1936	13	1937	13	1938	13	1939	13	1940	13	1941	13	1942	13	1943	13	1944	13	
1935	13	1936	13	1937	13	1938	13	1939	13	1940	13	1941	13	1942	13	1943	13	
1934	13	1935	13	1936	13	1937	13	1938	13	1939	13	1940	13	1941	13	1942	13	
1933	13	1934	13	1935	13	1936	13	1937	13	1938	13	1939	13	194				

TABLE 6B,
NUMBER OF SPECIES AND PERCENTAGE OF EACH SPECIES AND GROUP OF SPECIES,
FARMYARD MANURE

Species	13																19																																													
	Unlimited				Limited				Unlimited				Light Lime				Heavy Lime				Unlimited				Light Lime				Heavy Lime																																	
Plot number	1914	1919	1944	1948	1914	1919	1944	1948	1914	1919	1928	1928	1928	1948	1928	1928	1948	1948	1914	1919	1928	1928	1928	1948	1928	1928	1948	1948	1914	1919	1928	1928	1928	1948	1928	1928	1948	1948																								
Season	10	11	12	9	10	11	9	10	12	14	13	12	12	12	14	13	13	14	13	14	13	12	12	14	13	12	14	13	14	14	14	13	14	14	12	12	14	13	13																							
Agrostis vulgaris	11.8	11.0	8.4	15.7	2.3	3.3	-	0.1	7.6	7.5	14.3	5.8	11.0	14.7	5.1	4.3	10.3	2.4	0.5	4.5	6.6	10.5	4.1	4.1	12.7	4.2	2.5	5.3	1.2	0.1	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																					
Alopecurus pratensis	16.5	22.2	56.7	31.9	18.3	35.3	5.8	10.4	13.4	22.3	16.1	33.2	6.2	16.1	42.6	25.1	14.6	21.1	16.7	4.5	3.1	0.8	4.6	4.1	4.1	3.2	4.1	4.1	2.0	3.8	17.4	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																				
Arrhenatherum avenaceum	4.0	5.2	4.8	6.2	1.5	2.0	0.5	0.3	1.0	4.3	11.6	11.6	7.3	9.4	7.9	1.5	1.3	0.7	14.3	5.8	11.0	14.7	5.1	4.1	12.7	4.2	2.5	2.0	3.8	17.4	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																					
Avena fasciculata	24.4	17.3	0.9	3.4	40.3	20.9	5.9	20.1	8.9	3.2	2.0	3.5	1.7	6.6	3.2	3.0	8.7	6.1	3.1	6.3	10.2	7.7	6.6	4.0	2.7	4.1	1.9	5.3	2.6	3.3	3.3	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																				
Bromus mollis	0.1	0.1	0.1	-	-	-	-	-	0.1	0.3	1.9	3.0	0.9	2.7	2.8	1.9	4.3	11.9	5.4	6.3	10.2	7.7	6.6	4.0	2.7	4.1	1.9	5.3	2.6	3.3	3.3	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																				
Cynacorus cristatus	7.0	0.7	0.1	-	8.4	10.3	6.6	91.5	12.7	15.9	5.3	9.6	3.3	0.1	11.0	10.9	3.7	9.1	13.6	9.9	12.5	6.0	7.0	14.7	4.1	7.1	14.4	2.7	5.6	14.2	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																					
Dactylis glomerata	14.6	5.5	3.6	4.0	10.7	4.7	1.1	0.9	21.0	6.1	13.3	8.1	9.8	14.8	3.7	5.0	16.6	13.9	4.5	22.2	4.4	13.9	5.3	3.7	14.9	6.5	2.8	21.1	9.0	4.8	4.8	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																				
Poa pratensis	14.6	7.2	2.7	2.5	14.4	6.4	1.7	4.4	3.5	2.1	3.4	4.9	1.3	2.1	2.6	1.7	0.2	0.9	0.8	10.4	6.8	1.9	4.1	1.0	2.4	7.9	3.7	1.9	5.0	1.6	1.6	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																				
Poa pratensis	0.1	0.4	0.4	0.1	0.1	0.2	1.2	1.2	2.4	1.4	0.5	2.0	0.5	1.4	4.6	1.8	1.3	6.0	0.7	2.2	1.1	1.1	1.2	1.3	1.9	3.5	3.9	1.2	3.0	4.3	4.3	11.1	30.3	20.4	39.2	16.9	30.6	21.9	25.2	24.1	17.6	17.4																				
Stalks	96.5	79.9	85.7	73.8	95.4	86.7	26.3	87.0	78.7	75.0	78.6	89.9	50.3	79.2	88.6	82.2	72.4	89.7	87.0	84.3	81.7	86.3	92.9	86.4	82.5	89.6	80.3	82.7	87.1	74.3	74.3	96.5	79.9	85.7	73.8	95.4	86.7	26.3	87.0	78.7	75.0	78.6	89.9	50.3	79.2	88.6	82.2	72.4	89.7	87.0	84.3	81.7	86.3	92.9	86.4	82.5	89.6	80.3	82.7	87.1	74.3	74.3

TABLE 6B,
Botanical
analyses,
plots 13, 19, 20
Farmyard
manure,
< - Less than 0.05.