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## Report for 1934

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## The Classical Experiments

### Rothamsted Research

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## CROPS GROWN IN ROTATION, AGDELL FIELD

### PRODUCE PER ACRE.

| Year.   | Crop.              | O.<br>Unmanured<br>since 1848. |                           | M.<br>Mineral Manure. †<br>No Nitrogen. |                           | C.<br>Complete Mineral<br>and Nitrogenous<br>Manure |                           |       |
|---|--------------------|--------------------------------|---------------------------|---|---------------------------|---|---------------------------|-------|
|   |                    | 5.<br>Fallow.                  | 6.<br>Clover<br>or Beans. | 3.<br>Fallow.                           | 4.<br>Clover<br>or Beans. | 1.<br>Fallow.                                       | 2.<br>Clover<br>or Beans. |       |
| <b>Average of first twenty-one Courses, 1848-1931</b> |                    |                                |                           |   |                           |   |                           |       |
|   | Roots (Swedes) ..  | cwt.*                          | 32.0                      | 16.1                                    | 174.0                     | 206.5   | 352.0                     | 310.0 |
|   | Barley—            |                                |                           |   |                           |   |                           |       |
|   | Dressed Grain ..   | bush.                          | 21.6                      | 19.8                                    | 22.7                      | 26.6  | 30.3                      | 35.0  |
|   | Total Straw ..     | cwt. †                         | 13.3                      | 13.2                                    | 13.6                      | 15.6  | 18.4                      | 21.7  |
|   | Beans—             |                                |                           |   |                           |   |                           |       |
|   | Dressed Grain ..   | bush. ††                       | —                         | 13.1                                    | —                         | 18.2  | —                         | 22.3  |
|   | Total Straw ..     | cwt. ††                        | —                         | 9.2                                     | —                         | 13.2  | —                         | 15.3  |
|   | Clover Hay ..      | cwt. §                         | —                         | 25.6                                    | —                         | 52.1  | —                         | 52.0  |
|   | Wheat—             |                                |                           |   |                           |   |                           |       |
|   | Dressed Grain ..   | bush.                          | 23.1                      | 21.6                                    | 26.9                      | 29.4  | 27.5                      | 29.0  |
|   | Total Straw ..     | cwt. †                         | 22.9                      | 21.2                                    | 28.2                      | 29.8  | 29.4                      | 29.3  |
| <b>Present Course (22nd), 1932-34</b>                 |                    |                                |                           |   |                           |   |                           |       |
| 1932  | Roots (Turnips) .. | cwt.                           | 20.2                      | 5.4                                     | 86.0                      | 118.0   | 120.0                     | 98.6  |
| 1933  | Barley—            |                                |                           |   |                           |   |                           |       |
|   | Dressed Grain ..   | bush.                          | 6.0                       | 2.2                                     | 9.5                       | 13.9  | 3.7                       | 5.4   |
|   | Total Grain ..     | cwt.                           | 3.3                       | 1.3                                     | 5.2                       | 7.4   | 2.0                       | 2.9   |
|   | Weight per bushel  | lb.                            | 54.8                      | 50.2                                    | 55.2                      | 55.0  | 52.9                      | 53.0  |
|   | Total Straw ..     | cwt. †                         | 6.3                       | 4.8                                     | 7.4                       | 11.4  | 9.1                       | 14.0  |
| 1934  | Beans—             |                                |                           |   |                           |   |                           |       |
|   | Dressed Grain ..   | bush                           | —                         | 9.2                                     | —                         | 24.6  | —                         | 13.1  |
|   | Total Grain ..     | cwt.                           | —                         | 5.6                                     | —                         | 15.2  | —                         | 8.1   |
|   | Weight per bushel  | lb.                            | —                         | 67.8                                    | —                         | 69.4  | —                         | 69.6  |
|   | Total Straw ..     | cwt.                           | —                         | 10.5                                    | —                         | 28.3  | —                         | 16.5  |

\* Plots 1, 3 and 5 based upon 19 courses. Plots 2, 4 and 6 based upon 18 courses.

† Includes straw, cavings and chaff.

‡ Mineral Manure: 528 lb. Superphosphate (35%); 500 lb. Sulphate of Potash; 100 lb. Sulphate of Soda; 200 lb. Sulphate of Magnesia, all per acre. Nitrogenous Manure—206 lb. Sulphate of Ammonia and 2,000 lb. Rape Dust per acre. Manures applied once every four years, prior to sowing of Swedes.

†† Based on 8 courses.

§ Based on 13 courses.

CULTIVATIONS, ETC.—Cropped sections: Clover sown: May 3. Variety: Broad Red. Clover failed. Ploughed: Feb. 5 and 6. Harrowed: Feb. 21. Seed sown: Feb. 21. Variety: Spring beans. Hoed: May 14, 28 and 29. Cut: August 4. Fallowed sections: Ploughed: November 29–December 1, May 25, July 22 and August 30–September 7.

## WHEAT AFTER FALLOW—HOOS FIELD

Without Manure 1851, and since.

### SCHEME FOR COMPARING A THREE YEAR FALLOW WITH A ONE YEAR FALLOW.

Each of the two strips on Hoos Wheat after Fallow is to be divided into four parts. In the year when a strip is in crop, one quarter is to continue to be fallowed, so that this quarter has a three-year fallow. Different quarters are to be selected for fallow in successive years in the rotation given in the following table :

#### Cropping of strips A and B.

C = Crop.      F = Fallow.

A   N   B

|   |   |
|---|---|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |

| Year. | A1. | A2. | A3. | A4. | B1. | B2. | B3. | B4. |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|
| 1932  | F   | C   | C   | C   | F   | F   | F   | F   |
| 1933  | F   | F   | F   | F   | C   | C   | F   | C   |
| 1934  | C   | F   | C   | C   | F   | F   | F   | F   |
| 1935  | F   | F   | F   | F   | C   | C   | C   | F   |
| 1936  | C   | C   | F   | C   | F   | F   | F   | F   |
| 1937  | F   | F   | F   | F   | F   | C   | C   | C   |
| 1938  | C   | C   | C   | F   | F   | F   | F   | F   |
| 1939  | F   | F   | F   | F   | C   | F   | C   | C   |
| 1940  | F   | C   | C   | C   | F   | F   | F   | F   |

A comparison of the effect of a three year fallow with the effect of a one year fallow will be possible in ever year.

Half the experiment will continue to be wheat after one year fallow, and continuity with previous results will thus be maintained.

#### PRODUCE PER ACRE, 1934.

|                             | A1.  | A3.  | A4.  | Mean. | Average,<br>78 years,<br>1856-1933. |
|-----------------------------|------|------|------|-------|-------------------------------------|
| Dressed Grain—bushels .. .. | 27.9 | 19.6 | 28.1 | 25.2  | 14.3                                |
| Total grain—cwt. .. ..      | 16.8 | 12.3 | 17.2 | 15.4  | 8.1                                 |
| Weight per bushel—lb. .. .. | 63.9 | 63.4 | 63.5 | 63.6  | 58.8                                |
| Total Straw—cwt. .. ..      | 24.6 | 15.2 | 19.0 | 19.6  | 12.7                                |

CULTIVATIONS, ETC.—Cropped sections. Ploughed : September 12. Harrowed : April 7. Rolled : April 9. Seed sown : October 13. Variety : Red Standard. Harvested : August 8. Fallowed section. Ploughed : February 7. Tractor cultivated : April 20, May 4. Horse harrow : May 17. Plough : May 17. Tractor cultivated : June 16. Two horse roll : June 22. Plough : June 28. Tractor cultivated : July 24.

MANGOLDS—BARNFIELD, 1934

Mangolds each year since 1876.

Roots each year since 1856.

PRODUCE PER ACRE.

| Strip | Strip Manures<br>(Amounts stated are per acre.)   | 1934            |                            |                               |   |       | 53 Year Average, 1876-1933† |                               |   |                       |   |
|-------|---|-----------------|----------------------------|-------------------------------|---|-------|-----------------------------|-------------------------------|---|-----------------------|---|
|       |   | Cross Dressings |                            |                               |   |       | Cross Dressings             |                               |   |                       |   |
|       |   | O               | N                          | A                             | AC  | C     | O                           | N                             | A   | AC                    | C |
|       |   | None            | Nitrate of Soda (550 lb.)  | Sulphate of Ammonia (412 lb.) | Sulphate of Ammonia (412 lb.) & Rape Cake (2,000 lb.) | None  | Nitrate of Soda (550 lb.)   | Sulphate of Ammonia (412 lb.) | Sulphate of Ammonia (412 lb.) & Rape Cake (2,000 lb.) | Rape Cake (2,000 lb.) |   |
|       |   | Tons            | Tons                       | Tons                          | Tons  | Tons  | Tons                        | Tons                          | Tons  | Tons                  |   |
| 1     | Dung only (14 tons)   | 25.31           | 42.88                      | 34.01                         | 32.02   | 17.45 | 26.14                       | 21.57                         | 23.38   | 23.43                 |   |
| 2     | Dung, Superphosphate (3½ cwt.), Sulphate of Potash (500 lb.)                                      | 33.50           | 49.49                      | 39.19                         | 37.84   | 19.00 | 26.71                       | 24.68                         | 27.46   | 26.50                 |   |
| 4     | Complete Minerals: Super. and Potash as 2, Salt (200 lb.)   | 8.74            | (a) 37.70**<br>(b) 37.08** | 25.33                         | 32.03   | 4.64  | (a) 17.41<br>(b) 18.01*     | 14.48                         | 25.97   | 20.95                 |   |
| 5     | Sulphate of Magnesia (200 lb.)  | 7.89            | 28.27                      | 5.55                          | 8.80  | 4.47  | 14.71                       | 6.80                          | 9.34  | 10.08                 |   |
| 6     | Super. (¾ cwt.) Sulphate of Potash (500 lb.)  | 8.11            | 30.09                      | 20.77                         | 27.79   | 4.04  | 15.16                       | 13.56                         | 22.30   | 18.02                 |   |
| 7     | Super. (¾ cwt.) Sulphate of Magnesia (200 lb.) and Sodium Chloride (200 lb.)                      | 8.12            | 30.52                      | 21.14                         | 30.02   | 4.83  | 16.16                       | 14.80                         | 21.97   | 19.04                 |   |
| 8     | No Minerals   | 5.92            | 15.77                      | 4.97                          | 13.11   | 3.34  | 9.76                        | 5.40                          | 8.38  | 8.87                  |   |
| 9     | Sodium Chloride (200 lb.), Nit. Soda (550 lb.), Sulph. Potash (500 lb.) and Sulph. Mag. (200 lb.) | 30.66           | —                          | —                             | —   | —     | —                           | —                             | —   | —                     |   |
| 1     | Dung only (14 tons)   | 4.68            | 6.44                       | 6.76                          | 7.81  | 3.02  | 4.60                        | 4.83                          | 5.16  | 4.50                  |   |
| 2     | Dung, Superphosphate (3½ cwt.), Sulphate of Potash (500 lb.)                                      | 4.60            | 6.92                       | 6.18                          | 6.87  | 3.13  | 5.11                        | 5.41                          | 6.18  | 4.77                  |   |
| 4     | Complete Minerals: Super. and Potash as 2, Salt (200 lb.)   | 2.12            | (a) 5.44<br>(b) 6.35       | 4.40                          | 4.25  | 1.04  | (a) 3.83<br>(b) 4.01*       | 2.87                          | 5.25  | 3.35                  |   |
| 5     | Sulph. of Magnesia (200 lb.)  | 1.73            | 5.68                       | 3.44                          | 4.18  | 1.05  | 3.15                        | 2.69                          | 3.22  | 2.80                  |   |
| 6     | Superphosphate only (¾ cwt.)  | 1.57            | 5.29                       | 4.21                          | 6.35  | 0.93  | 3.01                        | 2.77                          | 5.09  | 2.84                  |   |
| 7     | Super. (¾ cwt.) Sulphate of Potash (500 lb.) and Sodium Chloride (200 lb.)                        | 1.63            | 5.23                       | 4.85                          | 7.23  | 1.10  | 3.31                        | 3.00                          | 5.14  | 3.30                  |   |
| 8     | No Minerals   | 1.49            | 4.95                       | 2.98                          | 4.57  | 0.97  | 3.16                        | 2.48                          | 3.22  | 2.81                  |   |
| 9     | Sodium Chloride (200 lb.), Nit. Soda (550 lb.), Sulph. Potash (500 lb.) and Sulph. Mag. (200 lb.) | 4.50            | —                          | —                             | —   | —     | —                           | —                             | —   | —                     |   |

\*\* From 1904 onwards plot 4N has been divided, 4(a) receiving Superphosphate, Sulphate of Potash, Sulphate of Magnesia, Sodium Chloride and Nitrate of Soda, amounts as above; (4b) receiving Superphosphate, Calcium Chloride, (190 lb.), Potassium Nitrate (670 lb.), and Calcium Nitrate (100 lb.). Nitrogenous manures are applied as to one-third at time of sowing and two-thirds as top dressing at a later date, except with Rape Cake which all goes on with the seed.

† Excluding 1885 when nitrogenous fertilisers were not applied, owing to poor crop, 1908 and 1927 when the crop was swedes, 1930 when the spacing of the rows was changed and 1951 when the crop was a mixture of mangolds and swedes.

\* 26 years only, 1904-1933, excluding 1908, 1927, 1930 and 1931. For this period the average yield of plot 4(a) was 18.16 for roots and 3.95 for leaves.

Cultivations, Etc.—Ploughed: November 3-10 and 25-27. Cultivated: April 25 and 30 and May 1. Harrowed: May 1, 2 and 4. Rolled: May 3, 6 and 10. Hoed: May 31-June 4, June 13-16, July 16-18 and August 8 and 9. Singled: June 23-28. Seed sown: May 4. Variety: Yellow Globe, Manures applied: November 22-24, April 23-25 and July 9 and 10. Lifted: October 31-November 16.

HAY—THE PARK GRASS PLOTS, 1934

| Plot. | Manuring (amounts stated are per acre).  | Yield of Hay per acre. |           |       | Dry Matter per acre. |           |       |
|-------|--|------------------------|-----------|-------|----------------------|-----------|-------|
|       |  | 1st Crop               | 2nd* Crop | Total | 1st Crop             | 2nd* Crop | Total |
| 1     | Single dressing (206 lb.) Sulphate of Ammonia (=43 lb. N.), (with Dung also 8 years, 1856-63)  | not limed 7.2          |           |       | not limed 6.4        |           |       |
| 2     | Unmanured (after Dung 8 years, 1856-63)  | limed 16.5             |           |       | limed 14.2           |           |       |
| 3     | Unmanured  | not limed 11.8         |           |       | not limed 10.3       |           |       |
| 4-1   | Superphosphate of lime (3½ cwt.)   | limed 12.4             |           |       | limed 10.6           |           |       |
| 4-2   | Superphosphate of lime (3½ cwt.), and double dressing (412 lb.) Sulphate of Ammonia (=86 lb. N.)   | not limed 12.3         |           |       | not limed 10.6       |           |       |
| 5-1   | (N. half) Unmanured following double dressing Ammonia salts (=86 lb. N.) 1856-97   | limed 9.4              |           |       | limed 7.8            |           |       |
| 5-2   | (S. half) Superphosphate (3½ cwt.) Sulphate of Potash (500 lb.) following double dressing Amm. salts (=86 lb. N.) 1856-97  | not limed 12.3         |           |       | not limed 10.9       |           |       |
| 6     | Complete Mineral Manure as Plot 7; following double dressing Amm. salts (=86 lb. N.) 1856-68   | limed 9.6              |           |       | limed 7.9            |           |       |
| 7     | Complete Mineral Manure: Super. (3½ cwt.); Sulphate of Potash (500lb.); Sulphate of Soda (100lb.); Sulphate Magnesia (100lb.)  | not limed 13.7         | 3.7       | 17.4  | not limed 12.3       | 0.5       | 12.8  |
| 8     | Mineral Manure without Potash  | limed 29.7             | 2.6       | 32.3  | limed 26.6           | 0.7       | 27.3  |
| 9     | Complete Mineral Manure and double dressing (412 lb.) Sulphate of Ammonia (=86 lb. N.)   | not limed 8.3          |           |       | not limed 7.5        |           |       |
| 10    | Mineral Manure (without Potash) and double dressing Amm. salts (=86 lb. N.)  | not limed 17.6         |           |       | not limed 15.8       |           |       |
| 11-1  | Complete Mineral Manure and treble dressing (618lb.) Sulphate of Amm. (129 lb. N.)   | not limed 25.8         |           |       | not limed 22.2       |           |       |
| 11-2  | As Plot 11-1 and Silicate of Soda  | not limed 28.0         |           |       | not limed 24.1       |           |       |
| 12    | Unmanured  | limed 32.7             |           |       | limed 28.0           |           |       |
| 13    | Dung (14 tons) in 1905, and every fourth year since (omitted 1917), Fish Guano (6 cwt.) in 1907 and every fourth year since  | not limed 17.8         |           |       | not limed 15.1       |           |       |
| 14    | Complete Mineral Manure and double dressing (550 lb.) Nitrate of Soda (=86 lb. N.)   | limed 13.6             |           |       | limed 10.8           |           |       |
| 15    | Complete Mineral Manure as Plot 7; following double dressing Nitrate of Soda (=86 lb. N., 1858-75)   | not limed 33.0         | 10.5      | 43.5  | not limed 28.9       | 1.3       | 30.2  |
| 16    | Complete Mineral Manure and single dressing (275 lb.) Nitrate of Soda (=43 lb. N.)   | limed 48.1             | 3.7       | 51.8  | limed 41.1           | 1.0       | 42.1  |
| 17    | Single dressing (275 lb.) Nitrate of Soda (43 lb. N.)  | not limed 20.1         |           |       | not limed 18.2       |           |       |
| 18    | Mineral Manure (without Super.), and double dressing Sulphate of Amm. (=86 lb. N.), 1905 and since; following Minerals and Amm. salts supplying the constituents of 1 ton of hay, 1865-1904  | limed 33.1             | 4.4       | 37.5  | limed 29.0           | 1.4       | 30.4  |
| 19    | Farmyard Dung (14 tons) in 1905 and every fourth year since (omitted in 1917), following Nitrate of Soda (=43 lb. N.) and Minerals, 1872-1904  | not limed 36.1         |           |       | not limed 29.7       | 4.3       | 34.0  |
| 20    | Farmyard Dung (14 tons) in 1905 and every fourth year since (omitted in 1917); each intervening year Plot 20 receives Sulphate of Potash (100 lb.); Superphosphate (200 lb.) and 1½ cwt. Nitrate of Soda (=26 lb. N.); following Nitrate of Potash and Superphosphate, 1872-1904 | limed 54.4             | 14.1      | 68.5  | limed 44.4           | 3.0       | 47.4  |
|       |  | not limed 50.3         | 31.9      | 82.2  | not limed 42.9       | 3.8       | 46.7  |
|       |  | limed 54.7             | 17.8      | 72.5  | limed 45.5           | 4.2       | 49.7  |
|       |  | not limed 14.9         |           |       | not limed 12.8       |           |       |
|       |  | not limed 34.8         |           |       | not limed 30.3       |           |       |
|       |  | limed 31.4             |           |       | limed 26.4           |           |       |
|       |  | not limed 52.8         | 7.4       | 60.2  | not limed 46.3       | 1.6       | 47.9  |
|       |  | Limed Sun 50.6         |           |       | 44.1                 |           |       |
|       |  | Shade 42.1             |           |       | 34.0                 |           |       |
|       |  | not limed 22.3         |           |       | not limed 19.5       |           |       |
|       |  | limed 17.9             |           |       | limed 16.0           |           |       |
|       |  | not limed 39.2         |           |       | not limed 34.0       |           |       |
|       |  | limed 31.2             |           |       | limed 28.7           |           |       |
|       |  | not limed 22.5         |           |       | not limed 18.5       |           |       |
|       |  | limed 23.1             |           |       | limed 21.4           |           |       |
|       |  | not limed 13.6         |           |       | not limed 12.1       |           |       |
|       |  | limed (6788 lb.) 26.6  |           |       | limed 22.8           |           |       |
|       |  | limed (3951 lb.) 21.0  |           |       | limed 18.2           |           |       |
|       |  | not limed 24.2         |           |       | not limed 23.1       |           |       |
|       |  | limed (3150 lb.) 24.5  |           |       | limed 21.2           |           |       |
|       |  | limed (570 lb.) 26.0   |           |       | limed 21.8           |           |       |
|       |  | not limed 36.6         |           |       | not limed 31.6       |           |       |
|       |  | limed (2772 lb.) 35.6  |           |       | limed 30.6           |           |       |
|       |  | limed (570 lb.) 39.3   |           |       | limed 32.2           |           |       |

Ground Lime was applied to the southern portion (limed) of the plots at the rate of 2,000 lb. to the acre in the Winters of 1903-4, 1907-8, 1915-16, 1923-24, 1927-28, 1931-32, and at the rate of 2,500 lb. to the acre in the Winter of 1920-1921, except where otherwise stated.

Up to 1914 the limed and unlimed plot results were not separately given in the Annual Report but the mean of the two was given. From 1915 onwards the separate figures are given.

\*All plots cut but only those weighed as shown. Other plots were too small to weigh.

CULTIVATIONS, ETC.—Harrowed: Feb. 20-23. Rolled: Feb. 24-26. Mannres applied: Mar. 5-7 Apr. 4-5 and 27. Cut: 1st crop, June 26-28; 2nd crop, Jan. 15-17.

### PARK GRASS PLOTS

In 1914 and 1919 complete botanical analyses were made of all the Park Grass Plots, and were compared with the earlier analyses carried out by Sir John Lawes, the results being published in the Rothamsted Monograph "Manuring of Grassland for Hay." Since 1919 special attention has been given to the effect of season, and of changes in manurial treatment, on the botanical composition of the hay. The necessary information has been gained by making complete botanical analyses of certain typical plots over periods of consecutive years or in alternate years, and the data have been dealt with in a paper published in the Annals of Applied Biology, May, 1935, in which skeleton tables only are given. The complete figures for all the plots thus analysed from 1920-1933 are given in the present report. In future it is intended to publish the complete analyses year by year as they become available, in addition to the partial analyses which have hitherto appeared.

#### BOTANICAL COMPOSITION PER CENT—1931 (1st Crop)

| Plot | Manuring   | Liming.          | Grami-<br>neae. | Legumi-<br>nosae. | Other<br>Orders. | " Other Orders"<br>consist largely<br>of  |
|------|--|------------------|-----------------|-------------------|------------------|---|
| 3    | Unmanured  | Limed            | 59.1            | 12.1              | 28.8             | <i>(None dominant)</i><br><i>Pimpinella</i><br><i>saxifraga</i>   |
|      |  | Unlimed          | 60.9            | 10.1              | 29.0             |   |
| 7    | Complete Mineral Manure.   | Limed            | 76.9            | 9.4               | 13.7             | <i>Heracleum</i><br><i>sphondylium</i><br><i>Achillea</i><br><i>millefolium</i>   |
|      |  | Unlimed          | 60.2            | 18.7              | 21.1             |   |
| 9    | Complete Mineral Manure<br>and double Amm. Salts.  | Limed            | 99.0            | —                 | 1.0              | —   |
|      |  | Unlimed          | 99.5            | —                 | 0.5              |   |
| 14   | Complete Mineral Manure and<br>double Nitrate of Soda.   | Limed<br>(sun)   | 94.5            | 3.5               | 2.0              | <i>Taraxacum</i><br><i>vulgare</i><br><i>Anthriscus</i><br><i>sylvestris</i><br><i>Anthriscus</i><br><i>sylvestris</i>              |
|      |  | Limed<br>(shade) | 96.1            | 2.8               | 1.1              |   |
|      |  | Unlimed          | 99.2            | 0.03              | 0.77             |   |
| 15   | As plot 7 following double<br>Nitrate of Soda, 1858-75.  | Limed            | 81.3            | 5.8               | 12.9             | {<br><i>Plantago</i><br><i>lanceolata</i><br><i>Achillea</i><br><i>millefolium</i>  |
|      |  | Unlimed          | 80.2            | 7.7               | 12.1             |   |
| 17   | Single Nitrate of Soda.  | Limed            | 78.5            | 3.3               | 18.2             | <i>Plantago</i><br><i>lanceolata</i>  |
|      |  | Unlimed          | 80.4            | 0.4               | 19.2             | {<br><i>Plantago</i><br><i>lanceolata</i><br><i>Centaurea nigra</i>   |
| 18   | Mineral Manure (without<br>Super) and double Sul-<br>phate Amm. 1905 and since.  | L.6,788 lb.      | 90.0            | 0.3               | 9.7              | <i>Heracleum</i><br><i>sphondylium</i><br>{<br><i>Taraxacum</i><br><i>vulgare</i><br><i>Centaurea nigra</i><br><i>Rumex acetosa</i> |
|      |  | L.3,951 lb.      | 89.3            | —                 | 10.7             |   |
|      |  | Unlimed          | 96.2            | —                 | 3.8              |   |
| 19   | Farmyard Dung in 1905 and<br>every fourth year since<br>(omitted 1917).  | L.3,150 lb.      | 87.7            | 3.1               | 9.2              | <i>Cerastium</i><br><i>vulgatum</i><br><i>Stellaria</i><br><i>graminea</i><br><i>Achillea</i><br><i>millefolium</i>                 |
|      |  | L. 570 lb.       | 83.5            | 7.6               | 8.9              |   |
|      |  | Unlimed          | 88.6            | 3.3               | 8.1              |   |
| 20   | Farmyard Dung in 1905 and<br>every fourth year since<br>(omitted in 1917); each<br>intervening year Sulphate<br>of potash, Super., and Ni-<br>trate of Soda. | L.2772 lb.       | 80.8            | 8.8               | 10.4             | —<br><i>Cerastium</i><br><i>vulgatum</i><br><i>Anthriscus</i><br><i>sylvestris</i>  |
|      |  | L. 570 lb.       | 86.9            | 3.9               | 9.2              |   |
|      |  | Unlimed          | 84.8            | 3.7               | 11.5             |   |

**PARK GRASS PLOTS**  
**BOTANICAL COMPOSITION PER CENT.**  
 1932 (1st Crop)

| Plot | Manuring.   | Liming.            | Gram-ineæ.     | Legumi-nosæ. | Other Orders. | "Other Orders" consist largely of |
|------|---|--------------------|----------------|--------------|---------------|-----------------------------------|
| 3    | Unmanured   | Limed              | 73.1           | 7.0          | 19.9          | (None dominant)                   |
|      |   | Unlimed            | 65.7           | 6.8          | 27.5          | (None dominant)                   |
| 7    | Complete Mineral Manure   | Limed              | 68.7           | 14.4         | 16.9          | (None dominant)                   |
|      |   | Unlimed            | 71.4           | 15.6         | 13.0          | (None dominant)                   |
| 9    | Complete Mineral Manure and double Amm. Salts   | Limed              | 97.7           | —            | 2.3           | <i>Rumex acetosa</i>              |
|      |   | Unlimed            | 100.0          | —            | —             | —                                 |
| 14   | Complete Mineral Manure and double Nitrate of Soda  | Limed              | 97.0           | 0.9          | 2.1           | <i>Taraxacum vulgare</i>          |
|      |   | (sun)<br>Limed     | 95.2           | 4.0          | 0.8           | (None dominant)                   |
|      |   | (shade)<br>Unlimed | 95.1           | 1.1          | 3.8           | <i>Anthriscus sylvestris</i>      |
| 15   | As plot 7 following double Nitrate of Soda, 1858-75   | Limed              | } Not analysed |              |               |                                   |
| 17   |   | Unlimed            |                |              |               |                                   |
| 18   | Mineral Manure (without Super) and double Sulphate Amm. 1905 and since.   | L.6,788 lb.        | 92.8           | —            | 7.2           | (None dominant)                   |
|      |   | L.3,951 lb.        | 83.5           | —            | 16.5          | <i>Taraxacum vulgare</i>          |
|      |   | Unlimed            | 96.4           | —            | 3.6           | <i>Rumex acetosa</i>              |
| 19   | Farmyard Dung in 1905 and every fourth year since (omitted 1917)  | L.3,150 lb.        | 91.2           | 1.8          | 7.0           | <i>Ranunculus spp.</i>            |
|      |   | L.570 lb.          | 88.2           | 1.6          | 10.2          | (None dominant)                   |
|      |   | Unlimed            | 87.8           | 1.2          | 11.0          | (None dominant)                   |
| 20   | Farmyard Dung in 1905 and every fourth year since (omitted in 1917); each intervening year Sulphate of potash, Super. and Nitrate of Soda | L.2,772 lb.        | 81.6           | 6.8          | 11.6          | (None dominant)                   |
|      |   | L. 570 lb.         | 90.8           | 2.1          | 7.1           | <i>Achillea millefolium</i>       |
|      |   | Unlimed            | 89.0           | 1.9          | 9.1           | (None dominant)                   |

**PARK GRASS PLOT**  
**BOTANICAL COMPOSITION PER CENT.**  
**1933 (1st Crop)**

| Plot | Manuring.   | Liming.       | Gram-<br>ineæ. | Legumi-<br>nosæ. | Other<br>orders. | " Other Orders "<br>consist largely of                 |
|------|---|---------------|----------------|------------------|------------------|--|
| 3    | Unmanured   | Limed         | 56.2           | 13.5             | 30.3             | <i>Poterium sanguisorba</i>                            |
|      |   | Unlimed       | 57.8           | 2.7              | 39.5             | (None dominant)  |
| 7    | Complete Mineral Manure   | Limed         | 44.0           | 43.8             | 12.2             | <i>Heracleum sphondylium</i>                           |
|      |   | Unlimed       | 51.9           | 29.9             | 18.2             | { <i>Rumex acetosa</i><br><i>Plantago lanceolata</i>   |
| 9    | Complete Mineral Manure and double Amm. Salts   | Limed         | 96.8           | 0.4              | 2.8              | <i>Rumex acetosa</i>                                   |
|      |   | Unlimed       | 100.0          | —                | —                | —  |
| 14   | Complete Mineral Manure and double Nitrate of Soda  | Limed         | 95.9           | 1.3              | 2.8              | <i>Taraxacum vulgare</i>                               |
|      |   | Limed (sun)   | 94.2           | 4.4              | 1.4              | <i>Anthriscus sylvestris</i>                           |
|      |   | Limed (shade) | 94.2           | 4.4              | 1.4              | <i>Anthriscus sylvestris</i>                           |
|      |   | Unlimed       | 98.6           | 0.2              | 1.2              | <i>Anthriscus sylvestris</i>                           |
| 15   | As plot 7 following double Nitrate of Soda, 1858-75   | Limed         | 58.1           | 26.4             | 15.5             | <i>Plantago lanceolata</i>                             |
|      |   | Unlimed       | 78.8           | 9.1              | 12.1             | { <i>Plantago lanceolata</i><br><i>Rumex acetosa</i>   |
| 17   | Single Nitrate of Soda  | Limed         | 76.1           | 1.8              | 22.1             | <i>Plantago lanceolata</i>                             |
|      |   | Unlimed       | 71.5           | 0.1              | 28.4             | { <i>Plantago lanceolata</i><br><i>Centaurea nigra</i> |
| 18   | Mineral Manure (without Super) and double Sulphate Amm. 1905 and since.   | L.6,788 lb.   | 88.7           | 0.2              | 11.1             | <i>Taraxacum vulgare</i>                               |
|      |   | L.3,951 lb.   | 84.8           | —                | 15.2             | <i>Taraxacum vulgare</i>                               |
|      |   | Unlimed       | 97.9           | —                | 2.1              | <i>Rumex acetosa</i>                                   |
| 19   | Farmyard Dung in 1905 and every fourth year since (omitted 1917)  | L.3,150 lb.   | 91.8           | 2.8              | 5.4              | <i>Rumex acetosa</i>                                   |
|      |   | L. 570 lb.    | 87.1           | 1.5              | 11.4             | <i>Rumex acetosa</i>                                   |
|      |   | Unlimed       | 87.5           | 1.8              | 10.7             | <i>Rumex acetosa</i>                                   |
| 20   | Farmyard Dung in 1905 and every fourth year since (omitted in 1917); each intervening year Sulphate of potash, Super., and Nitrate of Soda. | L.2,772 lb.   | 74.8           | 10.0             | 15.2             | <i>Taraxacum vulgare</i>                               |
|      |   | L. 570 lb.    | 86.0           | 3.5              | 10.5             | <i>Achillea millefolium</i>                            |
|      |   | Unlimed       | 89.2           | 2.1              | 8.7              | <i>Rumex acetosa</i>                                   |



PLOT 3—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|                                      | 1919 |       | 1921  |       | 1922  |       | 1923  |       | 1924  |       | 1925  |       | 1926  |       |
|--------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                      | U    | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     |
| Unlimed (U) ; limed (L).             |      |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <i>Gramineae</i>                     |      |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Agrostis vulgaris</i> ..       | 8.42 | 1.54  | 25.09 | 1.73  | 24.41 | 4.06  | 21.10 | 2.81  | 19.37 | 2.99  | 18.78 | 1.87  | 18.31 | 2.19  |
| 2. <i>Aira caespitosa</i> ..         | —    | —     | —     | —     | —     | —     | —     | —     | 0.02  | —     | —     | —     | —     | —     |
| 3. <i>Alopecurus pratensis</i> ..    | 0.29 | 0.61  | 0.71  | 4.92  | 3.27  | 2.94  | 0.22  | 6.89  | 4.63  | 9.14  | 1.32  | 3.95  | 1.94  | 2.68  |
| 4. <i>Anthoxanthum odoratum</i> ..   | 7.04 | 3.09  | 4.09  | 0.62  | 0.93  | 0.21  | 4.34  | 0.98  | 3.72  | 0.37  | 7.22  | 0.49  | 3.10  | 0.36  |
| 5. <i>Arrhenatherum avenaceum</i> .. | 0.29 | 0.51  | 0.28  | 0.18  | 0.50  | 0.77  | 0.07  | 0.14  | 0.02  | 0.10  | 0.17  | 0.40  | 0.13  | 0.40  |
| 6. <i>Avena flavescens</i> ..        | 0.89 | 2.78  | 1.27  | 3.14  | 2.41  | 4.33  | 0.67  | 2.11  | 0.53  | 2.42  | 0.42  | 1.78  | 0.71  | 3.39  |
| 7. " <i>pubescens</i> ..             | 4.16 | 19.27 | 2.68  | 18.07 | 2.70  | 11.53 | 3.89  | 17.86 | 3.62  | 16.98 | 5.82  | 32.10 | 4.32  | 18.60 |
| 8. <i>Briza media</i> ..             | 1.99 | 8.97  | 1.41  | 7.99  | 1.21  | 5.03  | 4.71  | 6.61  | 0.48  | 2.26  | 1.87  | 10.39 | 1.29  | 10.88 |
| 9. <i>Bromus mollis</i> ..           | —    | —     | —     | —     | 0.07  | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 10. <i>Cynosurus cristatus</i> ..    | 0.20 | —     | 0.21  | 0.06  | 0.14  | —     | —     | —     | —     | 0.01  | —     | —     | 0.26  | 0.13  |
| 11. <i>Dactylis glomerata</i> ..     | 8.42 | 7.42  | 12.26 | 8.30  | 7.67  | 7.75  | 4.56  | 2.95  | 4.26  | 4.31  | 6.76  | 6.35  | 5.22  | 8.07  |
| 12. <i>Festuca ovina</i> ..          | 6.73 | 5.06  | 13.38 | 13.27 | 13.20 | 10.55 | 20.35 | 18.00 | 10.86 | 8.72  | 10.63 | 7.99  | 7.54  | 5.80  |
| 14. <i>Holcus lanatus</i> ..         | 9.22 | 7.73  | 11.56 | 8.78  | 3.41  | 1.75  | 3.59  | 2.81  | 2.29  | 1.74  | 7.82  | 4.97  | 6.64  | 6.24  |
| 15. <i>Lolium perenne</i> ..         | —    | —     | —     | —     | 0.14  | —     | —     | —     | —     | —     | 0.13  | —     | —     | 0.18  |
| 16. <i>Poa pratensis</i> ..          | 0.15 | 1.96  | 0.14  | 1.29  | 0.42  | 2.10  | 0.22  | 2.25  | 0.16  | 2.16  | 0.09  | 3.06  | 0.13  | 2.36  |
| 17. " <i>trivialis</i> ..            | —    | 0.10  | —     | 0.06  | —     | —     | —     | 0.14  | —     | 0.02  | —     | 0.09  | —     | 0.40  |
| <i>Leguminosae</i>                   |      |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Lathyrus pratensis</i> ..      | 0.89 | 1.24  | 0.78  | 1.66  | 1.00  | 3.15  | 0.82  | 2.47  | 2.45  | 6.41  | 1.95  | 1.91  | 1.48  | 2.10  |
| 2. <i>Lotus corniculatus</i> ..      | 1.59 | 2.47  | 3.52  | 7.19  | 3.27  | 3.28  | 3.07  | 4.78  | 4.26  | 4.78  | 1.74  | 2.09  | 3.03  | 4.01  |
| 4. <i>Trifolium pratense</i> ..      | 2.08 | 1.76  | 0.35  | 1.54  | 0.35  | 1.19  | 0.60  | 2.88  | 1.27  | 3.15  | 1.23  | 1.33  | 1.42  | 1.52  |
| 5. " <i>repens</i> ..                | —    | —     | 0.07  | 0.06  | —     | —     | 0.07  | 0.50  | 0.05  | 0.16  | 0.13  | 0.05  | 0.20  | 0.13  |

PLOT 3—(continued)

|                              | 1919  |       | 1921 |      | 1922  |       | 1923  |      | 1924  |      | 1925  |      | 1926  |      |
|------------------------------|-------|-------|------|------|-------|-------|-------|------|-------|------|-------|------|-------|------|
|                              | U     | L     | U    | L    | U     | L     | U     | L    | U     | L    | U     | L    | U     | L    |
| Unlimed (U) ; limed (L)      |       |       |      |      |       |       |       |      |       |      |       |      |       |      |
| <i>Other orders</i>          |       |       |      |      |       |       |       |      |       |      |       |      |       |      |
| 1. Ranunculus spp. . .       | 0.39  | 2.57  | —    | 0.37 | 0.14  | 0.36  | —     | 1.20 | —     | 1.63 | 0.04  | 2.44 | 0.13  | 1.65 |
| 4. Cerastium vulgatum . .    | 0.60  | 0.83  | 0.07 | 0.06 | 0.21  | 0.28  | 0.45  | 1.13 | 0.32  | 0.16 | 0.17  | 0.22 | 0.07  | 0.49 |
| 5. Stellaria graminea . .    | —     | 0.10  | 0.07 | —    | 0.14  | —     | 0.23  | 0.14 | 0.32  | 0.03 | 0.03  | 0.05 | 0.07  | 0.05 |
| 6. Linum catharticum . .     | —     | —     | —    | 0.06 | —     | —     | —     | 0.07 | —     | 0.02 | —     | 0.01 | —     | —    |
| 7. Agrimonia eupatoria . .   | —     | —     | —    | —    | —     | 0.07  | —     | —    | —     | —    | —     | —    | —     | 0.14 |
| 10. Potentilla reptans . .   | —     | —     | —    | —    | —     | —     | 0.07  | 0.28 | 0.31  | 0.10 | 0.13  | 0.27 | 0.07  | 0.09 |
| 11. Poterium sanguisorba . . | 5.76  | 3.09  | 3.73 | 1.90 | 5.11  | 3.56  | 3.96  | 3.51 | 5.33  | 4.36 | 3.78  | 1.64 | 5.80  | 3.61 |
| 14. Conopodium denudatum . . | 4.65  | 0.61  | 0.35 | 0.06 | 1.92  | 0.47  | 2.02  | 0.21 | 1.92  | 0.21 | 3.53  | 0.36 | 5.48  | 0.63 |
| 16. Pimpinella saxifraga . . | —     | 0.10  | 0.14 | 0.24 | 0.42  | 0.36  | 0.23  | 0.77 | 0.58  | 0.90 | 0.51  | 0.53 | 0.71  | 0.80 |
| 17. Galium verum . .         | —     | —     | —    | —    | 0.50  | —     | 0.07  | —    | 0.27  | —    | 0.26  | —    | 0.07  | —    |
| 18. Scabiosa arvensis . .    | —     | 1.65  | 0.28 | 1.17 | 0.35  | 1.96  | 0.23  | 1.34 | 0.48  | 6.78 | 0.47  | 2.13 | 0.58  | 2.72 |
| 19. Achillea millefolium . . | 1.59  | 1.86  | 0.92 | 1.17 | 1.35  | 1.46  | 1.35  | 0.98 | 2.40  | 2.42 | 1.28  | 0.89 | 1.55  | 1.16 |
| 20. Centaurea nigra . .      | 5.76  | 6.19  | 4.44 | 4.79 | 6.81  | 21.31 | 2.17  | 3.65 | 9.80  | 9.09 | 3.32  | 2.75 | 2.84  | 3.84 |
| 22. Hieracium pilosella . .  | —     | —     | —    | —    | —     | —     | —     | 0.07 | —     | —    | 0.04  | 0.04 | 0.07  | 0.05 |
| 24. Leontodon hispidus . .   | 6.94  | 1.54  | 2.32 | 0.56 | 4.26  | 1.53  | 2.62  | 1.76 | 5.96  | 1.05 | 2.55  | 0.44 | 5.48  | 1.65 |
| 26. Taraxacum vulgare . .    | —     | —     | —    | —    | 0.14  | —     | 0.30  | 0.05 | 0.10  | 0.16 | 0.30  | 0.09 | 0.19  | 0.14 |
| 27. Tragopogon pratensis . . | —     | —     | 0.07 | 0.06 | —     | 0.28  | 0.07  | 0.29 | 0.37  | 0.42 | 0.43  | 0.49 | 0.07  | 0.14 |
| 28. Primula veris . .        | —     | —     | —    | —    | —     | —     | —     | —    | —     | —    | —     | —    | 0.07  | —    |
| 29. Plantago lanceolata . .  | 19.12 | 12.06 | 7.68 | 9.22 | 11.07 | 8.32  | 11.52 | 7.31 | 10.70 | 4.83 | 14.91 | 7.06 | 17.41 | 8.97 |
| 30. Veronica chamaedrys . .  | 0.05  | 0.10  | 0.14 | 0.06 | 0.07  | 0.07  | 0.22  | 0.29 | 0.21  | 0.11 | 0.21  | 0.18 | 0.19  | 0.14 |
| 31. Ajuga reptans . .        | 0.10  | —     | —    | —    | —     | —     | —     | 0.07 | 0.01  | 0.03 | —     | 0.13 | —     | 0.09 |
| 33. Thymus serpyllum . .     | —     | —     | —    | —    | —     | —     | —     | —    | 0.01  | —    | 0.04  | —    | —     | —    |
| 34. Rumex acetosa . .        | 1.98  | 4.23  | 0.85 | 0.93 | 1.49  | 0.84  | 1.20  | 0.43 | 0.85  | 0.79 | 0.76  | 1.02 | 2.39  | 3.66 |
| 35. Luzula campestris . .    | 0.15  | 0.20  | 0.43 | 0.12 | 0.50  | 0.14  | 3.14  | 1.41 | 0.37  | 0.58 | 0.17  | 0.13 | 0.07  | 0.18 |
| 36. Carex praecox . .        | 0.55  | 0.36  | 0.71 | 0.37 | 0.42  | 0.35  | 1.87  | 0.84 | 1.70  | 0.58 | 0.85  | 0.31 | 0.97  | 0.36 |

PLOTS 5<sup>1</sup> AND 5<sup>2</sup>—BOTANICAL COMPOSITION PER CENT (INDIVIDUAL SPECIES)

|                                      | PLOT 5 <sup>1</sup> |       |       |       |       | PLOT 5 <sup>2</sup> |       |       |       |       |
|--------------------------------------|---------------------|-------|-------|-------|-------|---------------------|-------|-------|-------|-------|
|                                      | 1919                | 1921  | 1922  | 1924  | 1926  | 1919                | 1921  | 1922  | 1924  | 1926  |
| No liming on these plots.            |                     |       |       |       |       |                     |       |       |       |       |
| <i>Gramineae</i>                     |                     |       |       |       |       |                     |       |       |       |       |
| 1. <i>Agrostis vulgaris</i> ..       | 4.49                | 12.73 | 22.31 | 12.10 | 23.62 | 8.42                | 20.30 | 15.19 | 16.49 | 20.73 |
| 2. <i>Aira caespitosa</i> ..         | 0.26                | —     | —     | 1.49  | 0.49  | —                   | —     | 0.07  | —     | —     |
| 3. <i>Alopecurus pratensis</i> ..    | 0.74                | 1.06  | 4.65  | 4.48  | 0.58  | 11.15               | 5.67  | 20.39 | 5.90  | 12.58 |
| 4. <i>Anthoxanthum odoratum</i> ..   | 11.69               | 8.77  | 0.52  | 4.15  | 12.30 | 5.12                | 3.86  | 0.44  | 0.62  | 4.86  |
| 5. <i>Arrhenatherum avenaceum</i> .. | 1.67                | 7.78  | 2.38  | 1.53  | 4.94  | 2.28                | 3.41  | 4.02  | 3.48  | 7.72  |
| 6. <i>Avena flavescens</i> ..        | —                   | —     | 0.22  | 0.02  | —     | —                   | —     | 0.07  | 0.04  | —     |
| 7. " <i>pubescens</i> ..             | 0.21                | 0.21  | 0.28  | 0.28  | 0.27  | 1.71                | 2.04  | 0.67  | 1.51  | 2.04  |
| 9. <i>Bromus mollis</i> ..           | —                   | —     | 0.06  | —     | —     | 0.06                | —     | —     | —     | —     |
| 11. <i>Dactylis glomerata</i> ..     | 8.87                | 14.57 | 9.29  | 6.37  | 8.17  | 7.40                | 2.04  | 7.15  | 3.26  | 5.06  |
| 12. <i>Festuca ovina</i> ..          | 46.73               | 40.74 | 15.51 | 39.91 | 27.88 | 19.57               | 27.79 | 16.97 | 19.73 | 13.66 |
| 14. <i>Holcus lanatus</i> ..         | 0.57                | 0.28  | 0.28  | 0.20  | 1.21  | 1.13                | 2.38  | 0.97  | 0.11  | 3.71  |
| 16. <i>Poa pratensis</i> ..          | 1.35                | 0.64  | 1.75  | 1.49  | 1.17  | 6.26                | 5.00  | 5.81  | 6.20  | 2.18  |
| 17. " <i>trivialis</i> ..            | —                   | —     | —     | —     | —     | 0.11                | 0.06  | 0.07  | —     | 0.03  |
| <i>Leguminosae</i>                   |                     |       |       |       |       |                     |       |       |       |       |
| 1. <i>Lathyrus pratensis</i> ..      | —                   | —     | 0.06  | 0.56  | 0.04  | 1.26                | 6.12  | 1.56  | 10.55 | 6.70  |
| 2. <i>Lotus corniculatus</i> ..      | 0.36                | 1.13  | 2.10  | 1.01  | 0.45  | 3.07                | 2.61  | 4.09  | 4.13  | 1.60  |
| 4. <i>Trifolium pratense</i> ..      | —                   | —     | —     | 0.10  | 0.09  | —                   | 0.11  | 0.15  | 1.14  | 0.44  |
| 5. " <i>repens</i> ..                | —                   | —     | —     | 0.01  | —     | —                   | —     | —     | 0.07  | 0.20  |
| 6. <i>Vicia sepium</i> ..            | —                   | —     | —     | —     | —     | 0.23                | 0.34  | 0.30  | 1.70  | 1.53  |

PLOTS 5<sup>1</sup> AND 5<sup>2</sup>—(continued).

|  | PLOT 5 <sup>1</sup> |      |       |       |      | PLOT 5 <sup>2</sup> |      |      |      |      |
|--|---------------------|------|-------|-------|------|---------------------|------|------|------|------|
|  | 1919                | 1921 | 1922  | 1924  | 1926 | 1919                | 1921 | 1922 | 1924 | 1926 |
| No liming on these plots.                  |                     |      |       |       |      |                     |      |      |      |      |
| <i>Other orders</i>                        |                     |      |       |       |      |                     |      |      |      |      |
| 1. & 2. <i>Ranunculus</i> spp. . . . .     | 0.31                | 0.07 | 0.22  | 0.28  | 0.18 | 0.62                | 0.46 | 0.22 | 0.34 | 0.41 |
| 4. <i>Cerastium vulgatum</i> . . . . .     | 0.42                | 0.07 | 0.17  | 0.13  | 0.09 | 0.17                | 0.11 | 0.07 | 0.04 | 0.03 |
| 5. <i>Stellaria media</i> . . . . .        | 0.10                | 0.07 | 0.11  | 0.60  | 0.18 | 0.34                | 0.06 | 0.22 | 0.34 | 0.07 |
| 11. <i>Poterium sanguisorba</i> . . . . .  | —                   | —    | 0.06  | —     | —    | —                   | —    | —    | —    | —    |
| 14. <i>Conopodium denudatum</i> . . . . .  | 1.31                | 0.14 | 0.22  | 1.98  | 1.79 | 0.11                | 0.11 | —    | 0.09 | 0.07 |
| 15. <i>Heracleum sphondylium</i> . . . . . | —                   | —    | 0.17  | —     | —    | 0.28                | —    | —    | 0.19 | 0.58 |
| 16. <i>Pimpinella saxifraga</i> . . . . .  | 0.05                | —    | 0.11  | 0.13  | 0.04 | 0.40                | 0.06 | 0.22 | 0.26 | 0.20 |
| 17. <i>Galium verum</i> . . . . .          | 1.98                | 0.64 | 0.39  | 1.30  | 0.31 | 0.23                | —    | 0.22 | 0.37 | 0.07 |
| 18. <i>Scabiosa arvensis</i> . . . . .     | 0.62                | 1.13 | 5.72  | 4.19  | 1.44 | 0.23                | 1.36 | 1.12 | 2.36 | 1.16 |
| 19. <i>Achillea millefolium</i> . . . . .  | 0.73                | 0.35 | 0.46  | 1.34  | 1.03 | 2.84                | 1.36 | 1.19 | 3.69 | 4.45 |
| 20. <i>Centaurea nigra</i> . . . . .       | 3.86                | 6.65 | 19.37 | 14.92 | 6.29 | 3.41                | 3.18 | 7.22 | 6.05 | 3.20 |
| 22. <i>Hieracium pilosella</i> . . . . .   | —                   | —    | —     | 0.01  | 0.04 | —                   | —    | 1.04 | 0.01 | —    |
| 23. <i>Hypochaeris radicata</i> . . . . .  | —                   | —    | —     | —     | —    | 0.11                | —    | —    | 0.11 | —    |
| 24. <i>Leontodon hispidus</i> . . . . .    | 0.10                | —    | 0.22  | 0.16  | 0.09 | —                   | —    | —    | 0.02 | —    |
| 27. <i>Tragopogon pratensis</i> . . . . .  | —                   | —    | 0.17  | —     | 0.09 | 0.45                | 0.23 | 0.30 | 0.01 | 0.07 |
| 29. <i>Plantago lanceolata</i> . . . . .   | 0.42                | 0.28 | 0.91  | 1.01  | 1.70 | 0.57                | 0.23 | 0.22 | 0.60 | 0.37 |
| 30. <i>Veronica chamaedrys</i> . . . . .   | 0.06                | 0.14 | —     | 0.41  | 0.13 | 0.06                | —    | —    | 0.31 | 0.03 |
| 34. <i>Rumex acetosa</i> . . . . .         | 12.31               | 2.20 | 11.21 | 3.15  | 4.76 | 18.09               | 7.82 | 9.52 | 6.55 | 2.99 |
| 35. <i>Luzula campestris</i> . . . . .     | 0.79                | 0.35 | 1.08  | 0.69  | 0.63 | 4.32                | 3.29 | 0.52 | 3.73 | 3.26 |

PLOT 7—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|                                      | 1919  |       | 1921  |       | 1922  |       | 1923  |       | 1924  |       | 1925  |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                      | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     |
| Unlimed (U) or Limed (L) :           |       |       |       |       |       |       |       |       |       |       |       |       |
| <i>Gramineae</i>                     |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Agrostis vulgaris</i> ..       | 5.41  | 2.02  | 12.07 | 5.31  | 19.30 | 5.25  | 15.53 | 4.85  | 13.87 | 1.23  | 11.05 | 1.79  |
| 3. <i>Alopecurus pratensis</i> ..    | 1.74  | 15.23 | 1.41  | 12.09 | 1.36  | 10.98 | 1.64  | 6.67  | 1.97  | 9.95  | 1.07  | 8.90  |
| 4. <i>Anthoxanthum odoratum</i> ..   | 3.57  | 0.45  | 4.70  | 0.67  | 1.56  | 0.09  | 4.40  | 0.76  | 1.10  | 0.16  | 2.26  | 0.09  |
| 5. <i>Arrhenatherum avenaceum</i> .. | 3.07  | 2.63  | 1.18  | 5.42  | 1.36  | 4.15  | 1.00  | 3.44  | 1.71  | 3.70  | 5.25  | 27.32 |
| 6. <i>Avena flavescens</i> ..        | 0.72  | 0.96  | 1.64  | 1.30  | 2.36  | 2.23  | 0.71  | 2.32  | 1.10  | 1.75  | 0.56  | 0.45  |
| 7. " <i>pubescens</i> ..             | 2.86  | 8.83  | 2.70  | 12.09 | 1.66  | 4.92  | 2.85  | 6.37  | 1.32  | 4.77  | 1.49  | 8.10  |
| 8. <i>Briza media</i> ..             | —     | —     | —     | —     | 0.05  | —     | —     | —     | —     | —     | 0.09  | —     |
| 9. <i>Bromus mollis</i> ..           | 0.05  | 0.60  | 0.12  | 2.60  | 0.15  | 5.42  | 0.08  | 7.94  | —     | —     | —     | 0.04  |
| 11. <i>Dactylis glomerata</i> ..     | 21.64 | 18.61 | 14.08 | 11.87 | 11.64 | 10.21 | 9.80  | 5.41  | 11.90 | 9.95  | 34.13 | 22.81 |
| 12. <i>Festuca ovina</i> ..          | 7.15  | 5.40  | 18.20 | 9.83  | 24.19 | 13.17 | 28.33 | 10.41 | 10.84 | 2.46  | 9.26  | 3.18  |
| 14. <i>Holcus lanatus</i> ..         | 4.28  | 1.56  | 11.73 | 2.26  | 3.78  | 1.87  | 2.30  | 1.22  | 1.35  | 0.48  | 6.49  | 0.67  |
| 15. <i>Lolium perenne</i> ..         | —     | —     | —     | —     | —     | —     | —     | —     | 0.04  | —     | —     | 0.04  |
| 16. <i>Poa pratensis</i> ..          | 1.18  | 1.61  | 0.93  | 1.98  | 2.11  | 2.78  | 2.43  | 2.94  | 1.85  | 2.03  | 1.02  | 1.12  |
| 17. " <i>trivialis</i> ..            | 0.36  | 1.21  | 0.12  | 0.62  | 0.15  | 0.27  | 0.08  | 0.45  | 0.04  | 0.40  | 0.04  | 0.67  |
| <i>Leguminosae</i>                   |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Lathyrus pratensis</i> ..      | 7.15  | 19.57 | 7.75  | 21.26 | 11.64 | 29.21 | 8.75  | 36.62 | 28.62 | 51.06 | 6.10  | 1.07  |
| 2. <i>Lotus corniculatus</i> ..      | 0.46  | 0.03  | 1.53  | 0.11  | 0.81  | —     | 0.71  | 0.10  | 1.10  | 0.56  | 0.04  | 0.04  |
| 4. <i>Trifolium pratense</i> ..      | 1.03  | 0.03  | 3.29  | 0.11  | 0.25  | 0.32  | 5.57  | 0.70  | 3.06  | 0.12  | 0.21  | 0.04  |
| 5. " <i>repens</i> ..                | 0.05  | —     | 0.70  | 0.56  | 0.05  | 0.09  | 0.17  | 2.73  | 0.41  | 0.04  | —     | —     |
| 7. <i>Vicia sepium</i> ..            | 0.10  | —     | 0.23  | —     | —     | —     | —     | —     | 0.07  | —     | 0.04  | —     |

PLOT 7 (continued)

|                           | 1919  |      | 1921 |      | 1922 |      | 1923 |      | 1924 |      | 1925 |       |
|---------------------------|-------|------|------|------|------|------|------|------|------|------|------|-------|
|                           | U     | L    | U    | L    | U    | L    | U    | L    | U    | L    | U    | L     |
| Unlimed (U); limed (L)    |       |      |      |      |      |      |      |      |      |      |      |       |
| <i>Other species</i>      |       |      |      |      |      |      |      |      |      |      |      |       |
| 1. Ranunculus spp.        | 1.94  | 3.99 | 0.47 | 1.30 | 0.15 | 0.27 | 1.00 | 1.77 | 0.59 | 0.83 | 0.81 | 2.15  |
| 4. Cerastium vulgatum     | 0.05  | 0.10 | 2.59 | —    | —    | —    | —    | 0.05 | —    | —    | —    | —     |
| 5. Stellaria media        | 0.15  | —    | —    | —    | —    | —    | 0.08 | —    | 0.04 | —    | 0.04 | —     |
| 12. Spiraea ulmaria       | 1.89  | —    | 3.05 | —    | 1.11 | —    | 2.26 | —    | 1.21 | —    | 1.24 | —     |
| 13. Anthriscus sylvestris | —     | —    | —    | —    | —    | 0.27 | —    | 0.25 | —    | 0.72 | —    | 1.07  |
| 14. Conopodium denudatum  | 9.49  | 3.68 | 1.53 | 1.30 | 0.61 | 0.83 | 1.68 | 0.87 | 3.21 | 0.60 | 2.56 | 0.45  |
| 15. Heracleum sphondylium | 4.18  | 1.56 | 1.53 | 4.86 | 2.62 | 2.28 | 1.68 | 0.87 | 3.25 | 4.93 | 4.22 | 11.99 |
| 16. Pimpinella saxifraga  | —     | 0.03 | —    | —    | —    | 0.09 | —    | —    | —    | 0.04 | —    | —     |
| 17. Galium verum          | 0.20  | —    | —    | —    | —    | —    | 0.04 | —    | —    | —    | —    | —     |
| 18. Scabiosa arvensis     | 0.10  | 0.55 | 0.35 | 0.73 | —    | 0.45 | 0.50 | 0.50 | 0.33 | 0.28 | 0.34 | —     |
| 19. Achillea millefolium  | 6.34  | 0.96 | 3.69 | 0.45 | 2.52 | 0.45 | 0.67 | 0.20 | 3.14 | 0.83 | 1.83 | 0.63  |
| 20. Centaurea nigra       | 2.55  | 1.11 | 2.59 | 1.08 | 6.40 | 1.28 | 0.96 | 0.91 | 0.55 | 1.19 | 2.22 | 0.81  |
| 23. Hypochaeris radicata  | —     | —    | —    | —    | —    | —    | —    | —    | 0.14 | —    | —    | —     |
| 26. Taraxacum vulgare     | —     | 0.05 | —    | —    | —    | 0.65 | —    | 0.20 | —    | 0.36 | —    | 1.43  |
| 27. Tragopogon pratensis  | 0.05  | 1.46 | 0.23 | 1.19 | 0.25 | 1.64 | 0.04 | 0.45 | —    | 0.32 | 0.04 | 0.09  |
| 29. Plantago lanceolata   | 1.33  | 0.50 | 1.18 | 0.67 | 1.96 | 0.74 | 3.56 | 0.45 | 4.20 | 0.48 | 3.33 | 0.18  |
| 30. Veronica chamaedrys   | —     | 0.10 | 0.12 | 0.06 | —    | —    | 0.04 | —    | 0.07 | 0.08 | 0.04 | 0.04  |
| 34. Rumex acetosa         | 10.61 | 7.12 | —    | 0.28 | 1.81 | 0.09 | 1.76 | 0.45 | 2.63 | 0.64 | 4.01 | 4.83  |
| 35. Luzula campestris     | 0.30  | 0.05 | 0.29 | —    | 0.15 | —    | 1.38 | 0.10 | 0.29 | 0.04 | 0.22 | —     |

PLOT 9—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|                                      | 1919  |       | 1921  |       | 1922  |       | 1923  |       | 1924  |       | 1925  |       | 1926  |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                      | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     |
| Unlimed (U) ; limed (L).             |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <i>Gramineae</i>                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Agrostis vulgaris</i> ..       | 12.46 | 2.27  | 27.37 | 4.15  | 16.48 | 3.58  | 23.30 | 2.39  | 31.04 | 3.33  | 17.08 | 1.77  | 24.84 | 3.04  |
| 3. <i>Alopecurus pratensis</i> ..    | 0.68  | 26.02 | 0.58  | 22.56 | 13.81 | 27.83 | 0.32  | 28.34 | 0.53  | 45.66 | 1.55  | 42.21 | 0.13  | 23.62 |
| 4. <i>Anthoxanthum odoratum</i> ..   | 5.44  | 1.12  | 25.15 | 2.08  | 8.40  | 0.36  | 42.81 | 1.45  | 22.41 | 0.40  | 13.16 | 0.73  | 15.84 | 1.34  |
| 5. <i>Arrhenatherum avenaceum</i> .. | 46.88 | 47.35 | 4.44  | 43.06 | 11.06 | 30.57 | 8.16  | 35.60 | 21.71 | 32.48 | 20.21 | 44.84 | 6.08  | 49.64 |
| 6. <i>Avena flavescens</i> ..        | —     | 0.02  | 0.06  | 0.26  | 0.21  | 0.10  | —     | —     | —     | —     | —     | —     | —     | —     |
| 7. " <i>pubescens</i> ..             | —     | —     | —     | —     | 0.05  | 0.05  | —     | —     | —     | —     | —     | —     | —     | —     |
| 9. <i>Bromus mollis</i> ..           | —     | —     | —     | —     | 0.11  | 0.36  | —     | 0.05  | —     | —     | —     | —     | —     | —     |
| 11. <i>Dactylis glomerata</i> ..     | 3.30  | 6.84  | 1.12  | 4.92  | 3.02  | 8.04  | 0.70  | 2.15  | 0.09  | 1.71  | 0.53  | 4.30  | 0.36  | 8.39  |
| 12. <i>Festuca ovina</i> ..          | 3.59  | 5.92  | 9.94  | 7.78  | 11.17 | 4.61  | 12.36 | 13.25 | 8.40  | 3.21  | 3.59  | 2.19  | 1.53  | 3.13  |
| 14. <i>Holcus lanatus</i> ..         | 12.43 | 0.76  | 30.05 | 2.08  | 32.53 | 1.29  | 11.91 | 0.23  | 14.21 | 0.20  | 40.45 | 0.31  | 50.73 | 3.19  |
| 16. <i>Poa pratensis</i> ..          | 0.21  | 5.56  | 0.29  | 9.34  | 1.60  | 22.44 | 0.24  | 15.92 | 0.33  | 11.97 | 0.08  | 3.11  | 0.10  | 6.32  |
| 17. " <i>trivialis</i> ..            | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.09  |
| <i>Leguminosae</i>                   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Lathyrus pratensis</i> ..      | —     | 0.10  | —     | —     | 0.11  | 0.26  | —     | —     | 0.24  | 0.08  | —     | 0.04  | —     | 0.09  |
| <i>Other orders</i>                  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 10. <i>Potentilla reptans</i> ..     | 0.09  | —     | —     | —     | —     | —     | —     | —     | 0.38  | —     | 0.29  | —     | 0.03  | —     |
| 14. <i>Conopodium denudatum</i> ..   | 0.05  | 0.11  | —     | 0.26  | —     | 0.31  | 0.04  | 0.14  | —     | 0.36  | —     | 0.27  | —     | 0.12  |
| 15. <i>Heracleum sphondylium</i> ..  | —     | 0.27  | 0.12  | 1.30  | 0.53  | 0.10  | —     | 0.14  | 0.52  | —     | 2.00  | —     | 0.36  | —     |
| 20. <i>Centaurea nigra</i> ..        | —     | 0.14  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 26. <i>Taraxacum vulgare</i> ..      | —     | —     | —     | 0.26  | —     | —     | —     | —     | —     | 0.28  | —     | —     | —     | 0.06  |
| 34. <i>Rumex acetosa</i> ..          | 14.87 | 3.52  | 0.82  | 1.95  | 0.32  | 0.10  | 0.16  | 0.34  | 0.14  | 0.32  | 1.06  | 0.23  | —     | 0.97  |
| 35. <i>Luzula campestris</i> ..      | —     | —     | 0.06  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |

PLOT 9 (continued)

|                                       | 1927  |       | 1928  |       | 1929  |       | 1930  |       | 1931  |       | 1932  |       | 1933 |       |
|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
|                                       | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U    | L     |
| Unlimed (U); limed (L)                |       |       |       |       |       |       |       |       |       |       |       |       |      |       |
| <i>Gramineae</i>                      |       |       |       |       |       |       |       |       |       |       |       |       |      |       |
| 1. <i>Agrostis vulgaris</i> ..        | 14.14 | 2.95  | 7.57  | 2.91  | 4.57  | 3.26  | 12.12 | 2.43  | 5.33  | 2.95  | 5.33  | 2.95  | —    | 2.95  |
| 3. <i>Alopecurus pratensis</i> ..     | 0.25  | 38.39 | 0.41  | 54.39 | 40.35 | 57.42 | 0.16  | 46.79 | 35.13 | 25.56 | 35.13 | 25.56 | —    | 25.56 |
| 4. <i>Anthoxanthum odoratum</i> ..    | 10.82 | 1.54  | 10.32 | 3.33  | 1.65  | 0.75  | 0.33  | 1.33  | 3.67  | 3.98  | 3.67  | 3.98  | —    | 3.98  |
| 5. <i>Arrhenatherum avenaceum</i> ..  | 2.98  | 38.90 | 4.16  | 17.88 | 18.20 | 20.91 | 2.32  | 33.97 | 39.34 | 50.91 | 39.34 | 50.91 | —    | 50.91 |
| 6. <i>Avena flavescens</i> ..         | —     | 0.04  | —     | —     | 0.04  | 0.07  | —     | —     | 0.05  | —     | 0.05  | —     | —    | —     |
| 7. " <i>pubescens</i> ..              | 0.03  | 0.17  | —     | —     | —     | 0.03  | —     | —     | 0.05  | —     | 0.05  | —     | —    | 0.31  |
| 9. <i>Bromus mollis</i> ..            | —     | —     | —     | —     | —     | 0.03  | —     | 0.33  | 0.59  | 1.29  | 0.59  | 1.29  | —    | 1.29  |
| 11. <i>Dactylis glomerata</i> ..      | 0.55  | 6.02  | 0.45  | 1.70  | 6.74  | 2.32  | 1.10  | 4.38  | 4.06  | 2.48  | 4.06  | 2.48  | —    | 2.48  |
| 12. <i>Festuca ovina</i> ..           | 1.14  | 3.15  | 1.38  | 8.36  | 15.05 | 7.08  | 7.40  | 2.10  | 1.42  | 1.45  | 1.42  | 1.45  | —    | 1.45  |
| 14. <i>Holcus lanatus</i> ..          | 69.42 | 1.70  | 75.57 | 0.54  | 2.70  | 0.46  | 76.08 | 1.43  | 4.01  | 4.91  | 4.01  | 4.91  | —    | 4.91  |
| 16. <i>Poa pratensis</i> ..           | —     | 6.27  | 0.07  | 9.44  | 10.18 | 7.05  | —     | 6.29  | 3.96  | 2.95  | 3.96  | 2.95  | —    | 2.95  |
| 17. " <i>trivialis</i> ..             | —     | —     | —     | —     | —     | —     | —     | —     | 0.05  | —     | 0.05  | —     | —    | —     |
| <i>Leguminosae</i>                    |       |       |       |       |       |       |       |       |       |       |       |       |      |       |
| 1. <i>Lathyrus pratensis</i> ..       | 0.03  | 0.25  | —     | —     | 0.04  | 0.07  | —     | —     | —     | 0.36  | —     | —     | —    | 0.36  |
| <i>Other orders</i>                   |       |       |       |       |       |       |       |       |       |       |       |       |      |       |
| 13. <i>Anthriscus sylvestris</i> ..   | 0.03  | 0.04  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —    | —     |
| 14. <i>Conopodium denudatum</i> ..    | —     | 0.12  | —     | —     | 0.26  | 0.03  | —     | —     | 0.29  | 0.36  | 0.29  | 0.36  | —    | 0.36  |
| 15. <i>Heracleum sphondylium</i> ..   | 0.52  | 0.04  | —     | 0.37  | 0.07  | 0.39  | —     | 0.52  | 0.44  | 0.47  | 0.44  | 0.47  | —    | 0.47  |
| 19. <i>Achillea millefolium</i> ..    | 0.03  | —     | —     | —     | —     | —     | 0.04  | —     | —     | —     | —     | —     | —    | —     |
| 20. <i>Centaurea nigra</i> ..         | —     | —     | —     | 0.54  | —     | —     | —     | 0.24  | —     | —     | —     | —     | —    | —     |
| 26. <i>Taraxacum vulgare</i> ..       | —     | 0.17  | —     | —     | —     | —     | —     | —     | 0.44  | 0.36  | 0.44  | 0.36  | —    | 0.36  |
| 29. <i>Plantago lanceolata</i> ..     | 0.03  | 0.04  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —    | —     |
| 34. <i>Rumex acetosa</i> ..           | 0.03  | 0.21  | 0.07  | 0.54  | 0.15  | 0.13  | —     | 0.19  | 1.17  | 1.66  | 1.17  | 1.66  | —    | 1.66  |
| 38. <i>Epilobium angustifolium</i> .. | —     | —     | —     | —     | —     | —     | 0.45  | —     | —     | —     | —     | —     | —    | —     |

No sample taken.  
Herbage killed by frost and drought.



PLOT 14—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|                                      | 1919  |         | 1920      |       | 1921  |       | 1922  |       | 1923  |       | 1924  |       | 1925    |           | 1926    |
|--------------------------------------|-------|---------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-----------|---------|
|                                      | U     | L (sun) | L (shade) | U     | L     | U     | L     | U     | L     | U     | L     | U     | L (sun) | L (shade) | L (sun) |
| Unlimed (U); limed (L).              |       |         |           |       |       |       |       |       |       |       |       |       |         |           |         |
| <i>Gramineae</i>                     |       |         |           |       |       |       |       |       |       |       |       |       |         |           |         |
| 1. <i>Agrostis vulgaris</i> ..       | 0.55  | 0.24    | 2.61      | 0.96  | 0.17  | 0.80  | 0.05  | 0.61  | 0.27  | 0.27  | 0.27  | 0.26  | 0.60    | 0.23      |         |
| 3. <i>Alopecurus pratensis</i> ..    | 53.65 | 52.87   | 47.47     | 33.34 | 58.33 | 42.54 | 42.28 | 23.90 | 28.65 | 43.70 | 28.65 | 35.82 | 22.05   | 14.16     |         |
| 4. <i>Anthoxanthum odoratum</i> ..   | 0.37  | —       | 1.25      | 0.60  | —     | —     | —     | 0.09  | 0.08  | —     | 0.08  | 0.01  | 0.60    | 0.10      |         |
| 5. <i>Arrhenatherum avenaceum</i> .. | 23.38 | 29.99   | 3.36      | 40.89 | 24.67 | 24.70 | 33.17 | 34.81 | 39.36 | 40.04 | 40.04 | 40.44 | 29.63   | 57.71     |         |
| 6. <i>Avena flavescens</i> ..        | 0.73  | 0.30    | 2.48      | 0.30  | 0.50  | 0.25  | —     | 0.89  | 0.04  | 0.27  | —     | —     | 0.35    | 0.20      |         |
| 7. " <i>pubescens</i> ..             | 3.67  | 1.07    | 14.42     | 3.71  | 0.73  | 1.62  | 0.83  | 5.04  | 2.79  | 2.79  | —     | 0.26  | 15.97   | 1.31      |         |
| 9. <i>Bromus mollis</i> ..           | 0.51  | 0.24    | 0.75      | 1.55  | 4.60  | 6.55  | 3.70  | 15.29 | —     | —     | —     | —     | 0.03    | —         |         |
| 11. <i>Dactylis glomerata</i> ..     | 3.23  | 4.61    | 3.48      | 5.14  | 3.14  | 2.42  | 4.96  | 0.56  | 1.42  | 1.42  | —     | 6.83  | 3.05    | 2.66      |         |
| 12. <i>Festuca ovina</i> ..          | 5.06  | 1.78    | 11.56     | 5.33  | 0.17  | 5.34  | 0.22  | 9.17  | 7.15  | 7.15  | —     | 0.02  | 16.88   | 3.11      |         |
| 14. <i>Holcus lanatus</i> ..         | —     | —       | 0.74      | —     | —     | —     | —     | —     | 0.04  | —     | —     | —     | —       | 0.07      |         |
| 15. <i>Lolium perenne</i> ..         | 0.81  | 1.90    | 4.73      | 2.30  | 1.18  | 5.45  | 0.84  | 2.59  | 2.16  | 2.16  | —     | 0.21  | 1.41    | 1.18      |         |
| 16. <i>Poa pratensis</i> ..          | 1.02  | 3.74    | 0.31      | 3.18  | 2.91  | 2.82  | 7.61  | 2.78  | 2.12  | 2.12  | —     | 2.47  | 6.58    | 10.72     |         |
| 17. " <i>trivialis</i> ..            | —     | —       | —         | —     | —     | —     | —     | —     | —     | —     | —     | —     | —       | —         |         |
| <i>Leguminosae</i>                   |       |         |           |       |       |       |       |       |       |       |       |       |         |           |         |
| 1. <i>Lathyrus pratensis</i> ..      | 2.38  | 0.89    | 5.84      | 2.96  | 0.17  | 1.06  | 0.11  | 0.89  | 6.21  | 6.21  | —     | 0.17  | 0.02    | 5.73      |         |
| <i>Other orders</i>                  |       |         |           |       |       |       |       |       |       |       |       |       |         |           |         |
| 1 & 2. <i>Ranunculus</i> spp.        | —     | —       | 0.19      | —     | —     | —     | —     | —     | 0.04  | 0.04  | —     | —     | —       | —         |         |
| 13. <i>Anthriscus sylvestris</i> ..  | 2.41  | 1.00    | 0.19      | 0.07  | 0.96  | 0.40  | 1.82  | 0.09  | 2.40  | 2.40  | —     | 9.91  | 12.12   | 3.47      |         |
| 14. <i>Conopodium denudatum</i> ..   | —     | —       | —         | —     | —     | —     | —     | 0.05  | 0.04  | 0.04  | —     | 0.01  | 0.01    | 0.10      |         |
| 18. <i>Scabiosa arvensis</i> ..      | —     | —       | —         | —     | —     | —     | —     | —     | —     | —     | —     | —     | —       | —         |         |
| 19. <i>Achillea millefolium</i> ..   | 0.04  | —       | 0.12      | —     | —     | —     | —     | —     | —     | —     | —     | —     | —       | —         |         |
| 20. <i>Centaurea nigra</i> ..        | —     | —       | —         | —     | —     | —     | —     | —     | —     | —     | —     | —     | —       | —         |         |
| 26. <i>Taraxacum vulgare</i> ..      | 1.17  | 1.37    | 0.25      | 1.64  | 2.19  | 5.90  | 2.59  | 2.21  | 6.13  | 6.13  | —     | 1.90  | 3.17    | 0.10      |         |
| 29. <i>Plantago lanceolata</i> ..    | —     | —       | —         | —     | —     | —     | 0.05  | —     | —     | —     | —     | —     | 0.01    | —         |         |
| 34. <i>Rumex acetosa</i> ..          | 1.02  | 1.24    | 0.25      | 0.22  | 0.28  | 0.15  | 1.77  | 0.80  | 0.27  | 0.27  | —     | 1.69  | 1.10    | 0.05      |         |

Part of the limed area of Plot 14 is shaded by a large oak tree. Samples of the shaded and unshaded (sun) areas were taken separately in 1920, and every year from 1925 onwards.

| Plot 15<br>Unlimed (U); limed (L) |                                | 1919  |       | 1921  |       | 1923  |       | 1925  |       | 1927  |       | 1929  |       | 1931  |       | 1933  |       |
|-----------------------------------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                   |                                | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     |
| <i>Gramineae</i>                  |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1.                                | <i>Agrostis vulgaris</i>       | 11.39 | 9.44  | 15.20 | 9.44  | 13.12 | 13.83 | 17.00 | 7.71  | 12.48 | 6.31  | 11.56 | 2.51  | 20.51 | 2.22  | 16.80 | 3.58  |
| 2.                                | <i>Aira caespitosa</i>         | 30.06 | 19.95 | 8.55  | 19.95 | 8.53  | 15.48 | 10.15 | 27.89 | 8.80  | 13.94 | 9.20  | 15.37 | 18.30 | 28.74 | 10.58 | 8.92  |
| 3.                                | <i>Alpeccurus pratensis</i>    | 3.52  | 2.49  | 5.04  | 2.49  | 3.78  | 0.16  | 2.65  | 1.11  | 3.72  | 0.92  | 1.10  | 0.16  | 4.88  | 0.64  | 8.24  | 0.82  |
| 4.                                | <i>Anthoxanthum odoratum</i>   | 1.46  | 3.51  | 2.63  | 3.51  | 1.12  | 2.60  | 1.12  | 1.07  | 9.30  | 5.46  | 0.68  | 0.33  | 5.82  | 5.92  | 10.84 | 7.97  |
| 5.                                | <i>Arrhenatherum avenaceum</i> | 0.86  | 1.62  | 1.60  | 1.62  | 0.74  | 0.95  | 0.61  | 0.76  | 0.66  | 2.62  | 0.89  | 1.74  | 0.84  | 3.51  | 0.78  | 1.95  |
| 6.                                | <i>Avena flavescens</i>        | 1.97  | 3.29  | 3.29  | 3.24  | 2.00  | 3.30  | 1.77  | 6.33  | 2.77  | 10.91 | 2.99  | 8.23  | 3.24  | 12.57 | 4.20  | 12.55 |
| 7.                                | " <i>pubescens</i>             | —     | —     | —     | —     | —     | —     | —     | 0.02  | —     | —     | —     | —     | —     | —     | —     | —     |
| 8.                                | <i>Briza media</i>             | 0.09  | 0.15  | 0.15  | 0.60  | 0.67  | 2.35  | —     | —     | —     | 0.11  | —     | —     | 0.19  | 0.28  | 0.57  | 0.19  |
| 9.                                | <i>Bromus mollis</i>           | 4.97  | 2.16  | 5.26  | 2.16  | 3.26  | 1.59  | 9.64  | 6.46  | 16.41 | 5.17  | 5.78  | 2.78  | 6.71  | 6.84  | 12.34 | 6.59  |
| 11.                               | <i>Dactylis glomerata</i>      | 7.36  | 20.35 | 22.27 | 20.35 | 20.91 | 23.72 | 8.53  | 9.85  | 7.89  | 7.90  | 17.08 | 7.90  | 10.93 | 12.66 | 9.18  | 13.37 |
| 12.                               | <i>Festuca ovina</i>           | 5.99  | 5.39  | 11.02 | 5.39  | 2.08  | 1.65  | 9.78  | 3.70  | 12.19 | 3.46  | 2.47  | 0.87  | 7.18  | 4.25  | 3.99  | 1.57  |
| 14.                               | <i>Holcus lanatus</i>          | —     | —     | —     | —     | —     | 0.89  | —     | —     | —     | 0.37  | —     | —     | —     | —     | 0.16  | —     |
| 15.                               | <i>Lolium perenne</i>          | 1.37  | 1.69  | 1.10  | 1.69  | 1.41  | 1.78  | 0.84  | 1.02  | 0.66  | 1.11  | 0.68  | 0.65  | 1.50  | 2.50  | 1.09  | 0.31  |
| 16.                               | <i>Poa pratensis</i>           | 0.21  | 0.13  | 0.07  | 0.13  | 0.15  | 0.89  | 0.09  | 0.22  | 0.04  | 0.07  | —     | —     | 0.09  | 1.20  | 0.05  | 0.25  |
| 17.                               | " <i>trivialis</i>             | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| <i>Leguminosae</i>                |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1.                                | <i>Lathyrus pratensis</i>      | 5.31  | 18.18 | 8.32  | 18.18 | 15.06 | 11.22 | 4.01  | 14.31 | 4.84  | 26.18 | 16.03 | 27.24 | 4.74  | 3.79  | 7.67  | 13.81 |
| 2.                                | <i>Lotus corniculatus</i>      | —     | —     | 0.15  | —     | —     | —     | 0.56  | 0.45  | —     | 0.04  | —     | 0.16  | 0.09  | —     | —     | —     |
| 4.                                | <i>Trifolium pratense</i>      | 0.09  | 0.07  | 0.15  | 0.07  | 0.07  | 2.60  | 0.09  | 0.05  | 0.62  | 1.07  | 3.00  | 1.31  | 0.05  | 0.46  | 0.52  | 5.96  |
| 5.                                | " <i>repens</i>                | —     | —     | 0.22  | —     | 0.29  | 4.57  | 0.09  | 0.05  | 0.45  | 1.44  | 2.94  | 21.22 | 2.82  | 1.57  | 0.88  | 6.59  |
| <i>Other orders</i>               |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1 & 2.                            | <i>Ranunculus</i> spp.         | 2.66  | 0.88  | 0.51  | 0.88  | 1.34  | 1.40  | 2.65  | 3.97  | 0.83  | 0.81  | 0.74  | 0.55  | 0.05  | 0.19  | 0.36  | 0.50  |
| 4.                                | <i>Cerastium vulgatum</i>      | —     | —     | —     | —     | 0.07  | —     | 0.14  | —     | —     | —     | 0.05  | —     | —     | —     | 0.05  | 0.13  |
| 5.                                | <i>Stellaria media</i>         | —     | —     | 0.15  | —     | 0.15  | —     | —     | —     | —     | —     | —     | —     | 0.05  | —     | —     | 0.13  |
| 11.                               | <i>Poterium sanguisorba</i>    | —     | —     | —     | —     | —     | —     | —     | —     | 0.12  | 0.15  | —     | —     | —     | —     | —     | —     |
| 13.                               | <i>Anthriscus sylvestris</i>   | —     | —     | —     | —     | 0.07  | —     | —     | —     | 2.19  | 1.29  | 0.58  | 0.11  | 0.38  | 0.37  | 1.50  | 0.75  |
| 14.                               | <i>Conopodium denudatum</i>    | 3.60  | 2.02  | 0.73  | 2.02  | 2.52  | 1.97  | 2.93  | 1.20  | 0.94  | 0.04  | 0.26  | 0.65  | —     | 1.29  | —     | 1.44  |
| 15.                               | <i>Heracleum sphondylium</i>   | 0.30  | —     | —     | —     | —     | —     | 0.23  | 0.40  | —     | —     | 0.16  | —     | 0.05  | —     | 0.10  | —     |
| 16.                               | <i>Pimpinella saxifraga</i>    | —     | —     | —     | —     | —     | —     | 0.14  | 0.04  | 0.08  | 0.04  | 0.16  | 0.05  | 0.09  | —     | 0.05  | —     |
| 17.                               | <i>Galium verum</i>            | —     | —     | —     | —     | 0.15  | —     | 7.08  | 2.36  | 6.20  | 3.13  | 15.66 | 3.76  | 7.74  | 3.33  | 1.45  | 0.88  |
| 19.                               | <i>Achillea millefolium</i>    | 5.31  | 1.75  | 2.63  | 1.75  | 1.71  | 1.20  | 0.70  | 0.18  | 0.54  | 0.26  | 0.89  | —     | 0.14  | 1.11  | 0.42  | 0.82  |
| 20.                               | <i>Centaurea nigra</i>         | 0.60  | 0.07  | 0.58  | 0.07  | 0.28  | 0.76  | 0.70  | 0.18  | 0.04  | —     | —     | —     | —     | —     | 0.06  | 0.06  |
| 24.                               | <i>Leontodon hispidus</i>      | —     | —     | 0.66  | —     | 0.82  | 1.59  | 0.37  | 1.11  | 0.83  | 0.66  | 0.32  | 0.05  | 0.19  | 0.19  | 0.36  | 0.44  |
| 26.                               | <i>Taraxacum vulgare</i>       | 0.26  | 0.07  | 0.29  | 0.07  | 0.51  | 0.13  | 0.14  | 0.04  | 0.41  | 0.33  | 0.53  | —     | 0.09  | —     | 0.10  | —     |
| 27.                               | <i>Tragopogon pratensis</i>    | —     | —     | —     | —     | 13.49 | 4.63  | 15.19 | 8.38  | 6.16  | 5.10  | 5.57  | 4.14  | 1.92  | 5.45  | 4.40  | 9.67  |
| 29.                               | <i>Plantago lanceolata</i>     | 3.76  | 4.51  | 7.23  | 4.51  | 0.07  | 0.06  | 0.05  | 0.04  | 0.04  | 0.11  | —     | —     | —     | 0.18  | —     | 0.13  |
| 30.                               | <i>Veronica chamaedrys</i>     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 31.                               | <i>Ajuga reptans</i>           | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 34.                               | <i>Rumex acetosa</i>           | 7.36  | 0.60  | 1.39  | 0.60  | 2.00  | 0.31  | 3.17  | 1.29  | 1.36  | 0.89  | 0.26  | 0.11  | 0.38  | 0.55  | 2.28  | 0.31  |
| 35.                               | <i>Luzula campestris</i>       | 0.21  | 0.13  | 0.81  | 0.13  | 3.63  | 0.31  | 0.37  | 0.04  | 0.04  | 0.07  | 0.42  | 0.11  | 1.03  | 0.19  | 0.99  | 0.31  |

PLOT 17—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|                                   | 1919  |       | 1921  |       | 1923  |       | 1925  |       | 1927  |       | 1929  |       | 1931  |       | 1933 |   |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|---|
|                                   | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U     | L     | U    | L |
| Unlimed (U); Limed (L).           |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |   |
| <i>Gramineae</i>                  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |   |
| 1. <i>Agrostis vulgaris</i>       | 6.06  | 4.77  | 9.22  | 4.02  | 3.31  | 1.95  | 5.52  | 3.56  | 3.13  | 0.97  | 4.52  | *     | 5.06  | 0.49  |      |   |
| 3. <i>Alopecurus pratensis</i>    | 12.86 | 10.22 | 13.32 | 10.35 | 14.39 | 13.20 | 14.04 | 13.70 | 17.76 | 11.62 | 17.92 | 12.34 | 14.31 | 9.34  |      |   |
| 4. <i>Anthoxanthum odoratum</i>   | 7.35  | 3.07  | 7.49  | 2.88  | 7.11  | 0.88  | 10.53 | 2.96  | 2.73  | 0.23  | 5.53  | 0.73  | 10.31 | 0.55  |      |   |
| 5. <i>Arrhenatherum avenaceum</i> | 0.32  | —     | 0.07  | 0.35  | 0.53  | 0.08  | 1.35  | 2.25  | 0.12  | 0.14  | 0.39  | 0.60  | 0.05  | 1.95  |      |   |
| 6. <i>Avena flavescens</i>        | 1.30  | 0.77  | 1.52  | 1.30  | 0.40  | 1.16  | 0.30  | 2.19  | 0.35  | 1.49  | 0.47  | 2.46  | 0.29  | 2.57  |      |   |
| 7. " <i>pubescens</i>             | 4.86  | 6.95  | 3.53  | 10.42 | 2.34  | 15.56 | 2.56  | 17.04 | 2.32  | 18.13 | 3.20  | 16.32 | 1.67  | 10.50 |      |   |
| 8. <i>Briza media</i>             | 0.54  | 0.75  | 0.21  | 0.35  | 0.09  | 0.52  | 0.20  | 0.38  | 0.12  | 0.70  | 0.15  | 0.80  | 0.33  | 0.98  |      |   |
| 9. <i>Bromus mollis</i>           | —     | 0.07  | 0.07  | 0.35  | —     | —     | —     | —     | —     | —     | 0.08  | 0.13  | 0.05  | 0.06  |      |   |
| 10. <i>Cynosurus cristatus</i>    | 0.11  | 0.23  | —     | —     | 0.04  | 0.04  | 0.05  | 0.11  | 0.06  | —     | —     | 0.07  | 0.14  | 0.18  |      |   |
| 11. <i>Dactylis glomerata</i>     | 8.33  | 5.16  | 7.27  | 4.32  | 28.34 | 15.01 | 23.87 | 7.12  | 18.63 | 7.62  | 23.54 | 10.48 | 17.65 | 10.75 |      |   |
| 12. <i>Festuca ovina</i>          | 4.33  | 11.60 | 17.57 | 35.42 | 6.18  | 21.67 | 5.07  | 20.77 | 6.44  | 26.82 | 8.26  | 27.87 | 6.77  | 29.31 |      |   |
| 14. <i>Holcus lanatus</i>         | 10.92 | 15.94 | 2.74  | 2.66  | 9.80  | 6.46  | 11.84 | 10.19 | 8.76  | 2.04  | 15.43 | 4.44  | 13.65 | 5.86  |      |   |
| 15. <i>Lolium perenne</i>         | 0.75  | 0.23  | 0.65  | 0.36  | 0.80  | 0.36  | 0.15  | 0.60  | 0.29  | 0.70  | 0.62  | 1.06  | 0.48  | 1.71  |      |   |
| 16. <i>Poa pratensis</i>          | 0.27  | 0.35  | 0.58  | 0.07  | 0.44  | 0.08  | 0.40  | 0.11  | 0.23  | 0.14  | 0.08  | 0.07  | 0.14  | —     |      |   |
| 17. " <i>trivialis</i>            | 0.54  | 0.17  | 1.44  | 1.07  | 0.97  | 1.12  | 0.15  | 1.48  | —     | 0.19  | 0.23  | 1.13  | 0.57  | 1.89  |      |   |
| <i>Leguminosae</i>                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |   |
| 1. <i>Lathyrus pratensis</i>      | 0.05  | 0.17  | 0.07  | 0.07  | 0.09  | —     | 0.05  | —     | 0.12  | —     | 0.23  | —     | 0.05  | —     |      |   |
| 2. <i>Lotus corniculatus</i>      | 0.32  | —     | —     | 1.07  | —     | 0.52  | 0.05  | 1.26  | 0.12  | 1.67  | 0.16  | 3.32  | —     | 1.77  |      |   |
| 4. <i>Trifolium pratense</i>      | —     | —     | —     | 0.07  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |      |   |

PLOT 17 (continued)

|                             | 1919  |       | 1921  |       | 1923  |       | 1925  |       | 1927  |      | 1931  |       | 1931 |      | 1933  |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|------|------|-------|-------|
|                             | U     | L     | U     | L     | U     | L     | U     | L     | U     | L    | U     | L     | U    | L    | U     | L     |
| Unlimed (U) ; Limed (L).    |       |       |       |       |       |       |       |       |       |      |       |       |      |      |       |       |
| <i>Other orders</i>         |       |       |       |       |       |       |       |       |       |      |       |       |      |      |       |       |
| 1 & 2. Ranunculus spp.      | 0.81  | 0.23  | 0.27  | 0.51  | 0.28  | 0.51  | 0.62  | 1.67  | 0.20  | 0.38 | 0.35  | 0.42  | 0.08 | 0.20 | 0.24  | 0.49  |
| 4. Cerastium vulgatum ..    | 0.32  | 0.17  | 0.14  | 0.93  | 0.36  | 0.93  | 0.18  | 0.36  | 0.30  | 0.60 | 0.58  | 1.07  | 0.31 | 1.72 | 0.19  | 0.49  |
| 5. Stellaria media ..       | 0.05  | —     | —     | 0.07  | —     | 0.07  | 0.13  | —     | —     | —    | —     | —     | —    | 0.07 | —     | —     |
| 11. Poterium sanguisorba .. | —     | —     | —     | —     | —     | —     | 0.04  | —     | —     | —    | —     | —     | —    | —    | —     | —     |
| 14. Conopodium denudatum    | 1.19  | 0.12  | 0.27  | 0.79  | 0.51  | 0.79  | 1.24  | 1.00  | 0.45  | 0.28 | 0.11  | 0.19  | 0.08 | 0.07 | 0.24  | 0.06  |
| 15. Heracleum sphondylium   | 0.27  | —     | 0.20  | 0.07  | —     | 0.07  | —     | 0.20  | —     | —    | —     | 0.09  | —    | 0.07 | —     | —     |
| 16. Pimpinella saxifraga .. | —     | —     | —     | 0.07  | 0.07  | 0.07  | —     | —     | —     | —    | —     | 0.05  | —    | 0.07 | —     | —     |
| 17. Galium verum ..         | —     | —     | —     | 0.07  | —     | 0.07  | —     | —     | 1.10  | —    | —     | —     | —    | 0.07 | —     | —     |
| 18. Scabiosa arvensis ..    | —     | —     | —     | —     | —     | —     | —     | —     | —     | —    | 0.29  | 0.14  | —    | —    | —     | —     |
| 19. Achillea millefolium .. | 0.92  | 0.12  | 0.41  | 1.07  | 0.28  | 1.07  | 0.22  | 0.88  | 0.30  | 1.04 | 0.52  | 2.19  | 0.78 | 1.79 | 0.81  | 0.79  |
| 20. Centaurea nigra ..      | 8.65  | 1.99  | 3.62  | 1.37  | 1.22  | 1.37  | 1.68  | 2.43  | 1.91  | 2.25 | 8.36  | 3.44  | 5.92 | 2.39 | 5.20  | 0.31  |
| 22. Hieracium pilosella ..  | —     | —     | —     | 0.07  | —     | 0.07  | —     | —     | —     | —    | —     | —     | —    | —    | —     | —     |
| 24. Leontodon hispidus ..   | 3.36  | 1.12  | 1.57  | 1.51  | 1.94  | 1.51  | 1.50  | 1.31  | 1.96  | —    | 3.89  | 3.44  | 1.95 | 2.45 | 1.29  | 1.34  |
| 26. Taraxacum vulgare ..    | 0.16  | 0.17  | —     | 0.36  | 0.36  | 0.36  | 0.22  | 1.24  | 0.15  | 0.22 | 0.40  | 0.70  | 0.55 | 0.26 | 0.48  | 0.43  |
| 27. Tragopogon pratensis .. | —     | 0.12  | 0.20  | —     | —     | —     | —     | —     | —     | 0.06 | —     | —     | —    | —    | —     | —     |
| 29. Plantago lanceolata ..  | 24.12 | 29.42 | 17.73 | 15.96 | 27.09 | 15.96 | 17.40 | 10.74 | 16.40 | 8.22 | 22.98 | 14.83 | 7.95 | 7.56 | 16.22 | 17.09 |
| 30. Veronica chamaedrys ..  | —     | 0.23  | —     | 0.07  | 0.28  | 0.07  | 0.13  | 0.04  | 0.15  | 0.05 | 0.12  | 0.09  | 0.16 | 0.20 | 0.19  | 0.06  |
| 31. Ajuga reptans ..        | 0.16  | 0.17  | —     | —     | —     | —     | 0.22  | 0.04  | 0.75  | —    | 0.06  | 0.05  | —    | —    | 0.19  | 0.12  |
| 32. Prunella vulgaris ..    | —     | —     | —     | —     | —     | —     | —     | —     | —     | —    | —     | —     | —    | —    | 0.14  | —     |
| 33. Thymus serpyllum ..     | 0.87  | 0.12  | 0.20  | 0.51  | 0.28  | 0.51  | 1.24  | 1.20  | 0.90  | 1.86 | 0.70  | 0.56  | 0.39 | 0.93 | 1.67  | 0.73  |
| 34. Rumex acetosa ..        | 0.05  | 0.35  | 0.07  | 0.79  | 0.79  | 0.51  | 0.22  | 0.16  | 0.20  | 0.16 | 0.17  | 0.14  | 0.47 | 0.33 | 0.19  | 0.18  |
| 35. Luzula campestris ..    | —     | —     | —     | —     | —     | —     | —     | —     | —     | —    | —     | —     | —    | —    | —     | —     |
| 36. Carex praecox ..        | 0.16  | 0.17  | 0.34  | 0.93  | 0.79  | 0.93  | 0.13  | 0.12  | 0.20  | 0.06 | 0.29  | 0.14  | 0.47 | —    | 1.43  | —     |

\* The very small amount of Agrostis present was accidentally lost at the time of weighing.

PLOT 18—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|   | 1919  |       |       | 1920  |       |       | 1921  |       |       | 1922  |       |       | 1923 |    |    |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|----|----|
|   | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U    | LL | HL |
| Unlimed (U) ; lightly limed (LL) ;<br>heavily limed (HL). |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| <i>Gramineae</i>  |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| 1. <i>Agrostis vulgaris</i> ..                            | 17.59 | 44.80 | 35.05 | 50.87 | 41.16 | 42.54 | 43.92 | 35.90 | 31.50 | 47.92 | 28.29 | 27.16 |      |    |    |
| 2. <i>Aira caespitosa</i> ..                              | 0.05  | —     | —     | —     | —     | —     | —     | —     | 0.50  | —     | —     | —     |      |    |    |
| 3. <i>Alopecurus pratensis</i> ..                         | 5.08  | 4.28  | 6.25  | 3.50  | 5.33  | 5.37  | 9.90  | 25.45 | 17.61 | 5.05  | 10.32 | 8.34  |      |    |    |
| 4. <i>Anthoxanthum odoratum</i> ..                        | 3.46  | 7.01  | 5.34  | 8.07  | 4.06  | 4.43  | 2.68  | 0.74  | 1.00  | 19.82 | 2.20  | 2.58  |      |    |    |
| 5. <i>Arrhenatherum avenaceum</i> ..                      | 1.62  | 0.78  | 0.53  | 0.75  | 1.97  | 1.69  | 1.03  | 2.45  | 3.15  | 0.13  | 1.97  | 2.65  |      |    |    |
| 6. <i>Avena flavescens</i> ..                             | —     | 0.51  | —     | —     | —     | 0.19  | 0.20  | 1.14  | 1.29  | —     | —     | —     |      |    |    |
| 7. " <i>pubescens</i> ..                                  | 0.11  | 0.09  | —     | —     | —     | —     | 0.31  | 0.40  | 1.00  | —     | 0.12  | —     |      |    |    |
| 9. <i>Bromus mollis</i> ..                                | —     | —     | —     | —     | —     | —     | 0.10  | 0.16  | 0.79  | —     | —     | —     |      |    |    |
| 11. <i>Dactylis glomerata</i> ..                          | 34.00 | 8.38  | 16.16 | 11.97 | 21.80 | 12.93 | 11.75 | 7.01  | 8.02  | 3.24  | 8.00  | 9.67  |      |    |    |
| 12. <i>Festuca ovina</i> ..                               | 4.21  | 13.88 | 5.47  | 11.44 | 6.03  | 7.50  | 9.28  | 9.79  | 12.02 | 18.27 | 26.43 | 31.12 |      |    |    |
| 14. <i>Holcus lanatus</i> ..                              | 2.37  | 7.87  | 1.91  | 4.04  | 3.30  | 5.25  | 0.93  | 1.87  | 1.07  | 0.19  | 1.34  | 1.53  |      |    |    |
| 16. <i>Poa pratensis</i> ..                               | 0.43  | 2.05  | 0.61  | 0.61  | 2.32  | 2.68  | 0.72  | 2.61  | 4.16  | 2.20  | 6.95  | 4.37  |      |    |    |
| 17. " <i>trivialis</i> ..                                 | —     | —     | —     | —     | —     | —     | —     | —     | 0.21  | —     | —     | —     |      |    |    |
| <i>Leguminosae</i>  |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| 1. <i>Lathyrus pratensis</i> ..                           | —     | —     | —     | —     | —     | —     | —     | —     | 1.43  | 0.13  | —     | —     |      |    |    |
| <i>Other orders</i>                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| 1 & 2. <i>Ranunculus</i> spp. ..                          | —     | —     | —     | —     | —     | —     | —     | —     | 0.35  | —     | —     | —     |      |    |    |
| 5. <i>Stellaria media</i> ..                              | 4.32  | 0.51  | 0.53  | 0.40  | 0.35  | 0.69  | 1.76  | 2.37  | 2.01  | 0.26  | 0.06  | 0.07  |      |    |    |
| 14. <i>Conopodium denudatum</i> ..                        | —     | 0.44  | —     | 0.27  | —     | 0.50  | 3.61  | —     | 1.79  | 0.19  | —     | —     |      |    |    |
| 15. <i>Heracleum sphondylium</i> ..                       | —     | —     | 0.83  | —     | —     | 0.06  | —     | —     | 2.08  | —     | —     | —     |      |    |    |
| 17. <i>Galium verum</i> ..                                | —     | —     | —     | —     | —     | 0.25  | —     | —     | 0.58  | —     | —     | —     |      |    |    |
| 18. <i>Scabiosa arvensis</i> ..                           | —     | —     | —     | —     | —     | —     | 0.20  | 0.16  | —     | —     | —     | —     |      |    |    |
| 19. <i>Achillea millefolium</i> ..                        | 0.16  | 0.43  | 0.15  | —     | 0.12  | —     | —     | —     | —     | —     | —     | —     |      |    |    |
| 20. <i>Centaurea nigra</i> ..                             | 1.94  | 1.80  | 1.91  | 1.69  | 2.32  | 1.81  | 9.59  | 4.16  | 0.50  | —     | 0.23  | 0.26  |      |    |    |
| 26. <i>Taraxacum vulgare</i> ..                           | —     | —     | —     | —     | —     | —     | —     | —     | 0.50  | —     | —     | —     |      |    |    |
| 29. <i>Plantago lanceolata</i> ..                         | —     | 0.26  | —     | —     | —     | —     | —     | —     | 0.21  | —     | —     | —     |      |    |    |
| 32. <i>Prunella vulgaris</i> ..                           | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |      |    |    |
| 34. <i>Rumex acetosa</i> ..                               | 24.61 | 8.62  | 18.45 | 6.26  | 11.24 | 14.05 | 4.02  | 5.71  | 8.16  | 2.47  | 13.10 | 11.66 |      |    |    |
| 35. <i>Luzula campestris</i> ..                           | 0.05  | 0.09  | 0.08  | 0.13  | —     | 0.06  | —     | 0.08  | 0.07  | 0.13  | 0.06  | 0.13  |      |    |    |

PLOT 18 (continued)

|   | 1924  |       |       | 1925  |       |       | 1926  |       |       | 1927  |       |       | 1928  |       |       |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    |
| Unlimed (U); lightly limed (LL);<br>heavily limed (HL). |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| <i>Gramineae</i>  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Agrotis vulgaris</i> ..                           | 72.70 | 36.81 | 26.46 | 63.03 | 36.52 | 13.65 | 47.05 | 17.54 | 11.54 | 74.63 | 21.56 | 10.30 | 58.99 | 17.51 | 4.83  |
| 2. <i>Aira caespitosa</i> ..                            | 4.64  | 22.65 | 21.64 | 4.30  | 13.91 | 14.06 | 6.47  | 25.07 | 24.60 | 3.85  | 22.23 | 19.39 | 5.32  | 45.56 | 22.68 |
| 3. <i>Alopecurus pratensis</i> ..                       | 4.12  | 0.14  | —     | 3.27  | 0.08  | 0.04  | 4.38  | 0.14  | 0.12  | 2.76  | 0.11  | —     | 6.88  | 0.50  | —     |
| 4. <i>Anthoxanthum odoratum</i> ..                      | 0.28  | 2.13  | 10.11 | 1.34  | 7.50  | 1.43  | 2.38  | 9.19  | 11.30 | 1.56  | 10.35 | 19.28 | 0.40  | 2.86  | 18.08 |
| 5. <i>Arrhenatherum avenaceum</i> ..                    | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.14  | —     | 0.04  | 0.04  | 0.03  |
| 6. <i>Avena flavescens</i> ..                           | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.09  | 0.19  | —     | 0.04  | 0.03  |
| 7. " <i>pubescens</i> ..                                | 0.06  | —     | —     | —     | 0.02  | 0.04  | —     | 0.28  | 1.06  | 0.05  | 0.05  | —     | —     | —     | —     |
| 8. <i>Briza media</i> ..                                | —     | —     | —     | —     | 0.02  | 0.02  | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 11. <i>Dactylis glomerata</i> ..                        | 3.66  | 13.51 | 19.53 | 7.57  | 20.67 | 53.48 | 10.81 | 30.55 | 37.38 | 9.55  | 32.28 | 40.02 | 9.34  | 21.08 | 37.72 |
| 12. <i>Festuca ovina</i> ..                             | 5.41  | 5.55  | 3.94  | 6.31  | 5.11  | 5.11  | 2.71  | 1.66  | 1.95  | 2.84  | 3.40  | 2.91  | 6.22  | 2.79  | 3.13  |
| 14. <i>Holcus lanatus</i> ..                            | 0.25  | 0.17  | 0.03  | 0.83  | 0.40  | 0.29  | 3.13  | 1.31  | 2.40  | 2.21  | 3.33  | 1.71  | 8.18  | 0.82  | 1.64  |
| 16. <i>Poa pratensis</i> ..                             | 0.64  | 5.27  | 4.92  | 0.31  | 4.30  | 3.75  | 0.83  | 3.74  | 3.49  | 0.70  | 3.46  | 3.72  | 0.87  | 5.36  | 6.30  |
| 17. " <i>trivialis</i> ..                               | —     | —     | —     | —     | —     | —     | —     | 0.07  | —     | —     | 0.04  | —     | 0.04  | 0.18  | 0.06  |
| <i>Leguminosae</i>                                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Lathyrus pratensis</i> ..                         | 0.06  | —     | 0.17  | 0.04  | —     | 0.24  | —     | 0.04  | 0.03  | —     | —     | 0.14  | —     | —     | 0.21  |
| <i>Other orders</i>                                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 5. <i>Stellaria media</i> ..                            | —     | 0.10  | —     | 0.04  | —     | —     | —     | 0.04  | —     | —     | 0.02  | 0.03  | —     | —     | —     |
| 14. <i>Conopodium denudatum</i> ..                      | 0.93  | 2.48  | 3.05  | 0.27  | 0.04  | 0.53  | 0.17  | 0.35  | 0.15  | 0.05  | 0.36  | 0.05  | 0.29  | 0.75  | 0.39  |
| 15. <i>Heracleum sphondylium</i> ..                     | 3.96  | —     | —     | 0.67  | 0.37  | 0.74  | 1.17  | 0.07  | 0.40  | 0.29  | 0.07  | 0.93  | 0.07  | —     | 3.13  |
| 17. <i>Galium verum</i> ..                              | —     | —     | 0.14  | —     | —     | —     | —     | 0.10  | 0.09  | —     | —     | 0.03  | —     | —     | —     |
| 18. <i>Scabiosa arvensis</i> ..                         | —     | —     | —     | —     | —     | —     | —     | 0.18  | 0.18  | —     | —     | 0.08  | —     | —     | —     |
| 19. <i>Achillea millefolium</i> ..                      | 0.09  | 0.28  | —     | —     | 0.15  | 0.08  | —     | 0.56  | 0.03  | —     | 0.83  | 0.30  | 0.04  | 0.07  | 0.30  |
| 20. <i>Centaurea nigra</i> ..                           | 0.18  | 1.18  | 0.83  | 1.93  | 0.15  | 1.31  | —     | 0.24  | 0.12  | 0.47  | 0.33  | —     | 0.04  | 0.04  | 0.21  |
| 26. <i>Taraxacum vulgare</i> ..                         | —     | —     | —     | —     | 0.08  | —     | —     | 0.38  | 0.18  | —     | —     | —     | —     | 0.04  | 0.21  |
| 27. <i>Tragopogon pratensis</i> ..                      | —     | 0.03  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 29. <i>Plantago lanceolata</i> ..                       | —     | —     | —     | —     | 0.02  | —     | —     | 0.07  | —     | —     | 0.04  | —     | —     | —     | —     |
| 34. <i>Rumex acetosa</i> ..                             | 2.28  | 9.70  | 9.18  | 9.85  | 10.65 | 5.15  | 20.90 | 8.60  | 4.98  | 1.01  | 1.36  | 0.76  | 3.18  | 2.36  | 1.05  |
| 35. <i>Luzula campestris</i> ..                         | 0.74  | —     | —     | 0.24  | —     | —     | —     | —     | —     | 0.03  | —     | —     | 0.10  | —     | —     |

| PLOT 19<br>Unlimed (U) ; lightly limed (LL) ;<br>heavily limed (HL) |                                | 1919  |       |       | 1920  |       |       | 1921  |       |       | 1922  |       |       | 1923  |       |       |
|---|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   |                                | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    |
| <i>Gramineae</i>  |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1.  | <i>Agrostis vulgaris</i>       | 7.52  | 17.82 | 15.01 | 15.04 | 13.87 | 17.75 | 13.87 | 16.44 | 10.25 | 14.28 | 14.71 | 10.28 | 14.28 | 14.71 | 10.28 |
| 2.  | <i>Aira caespitosa</i>         | —     | 16.43 | 15.15 | 22.02 | 16.35 | 20.29 | 16.35 | 20.40 | 18.79 | —     | 16.14 | 14.61 | —     | 16.14 | 14.61 |
| 3.  | <i>Alopecurus pratensis</i>    | 22.36 | 5.27  | 4.15  | 1.68  | 2.93  | 8.32  | 2.93  | 3.66  | 0.62  | 11.57 | 9.37  | 1.37  | 11.57 | 9.37  | 1.37  |
| 4.  | <i>Anthoxanthum odoratum</i>   | —     | 7.91  | 4.15  | 5.37  | 13.76 | 0.30  | 13.76 | 11.39 | 1.85  | 8.58  | 1.95  | 7.13  | 8.58  | 1.95  | 7.13  |
| 5.  | <i>Arrhenatherum avenaceum</i> | —     | 3.17  | 4.65  | 4.29  | 10.49 | 7.72  | 10.49 | 7.14  | 9.89  | 17.65 | 6.64  | 8.73  | 17.65 | 6.64  | 8.73  |
| 6.  | <i>Avena flavescens</i>        | —     | 3.32  | 3.41  | 4.43  | 4.63  | 1.94  | 4.63  | 1.64  | 1.42  | 1.93  | 2.67  | 4.34  | 1.93  | 2.67  | 4.34  |
| 7.  | „ <i>pubescens</i>             | —     | —     | —     | —     | 0.11  | —     | 0.11  | —     | —     | —     | —     | —     | —     | —     | —     |
| 8.  | <i>Briza media</i>             | —     | —     | —     | —     | 0.78  | 0.42  | 0.78  | 1.64  | 1.31  | 1.00  | 0.92  | 1.67  | 1.00  | 0.92  | 1.67  |
| 9.  | <i>Bromus mollis</i>           | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 10.   | <i>Cynosurus cristatus</i>     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| 11.   | <i>Dactylis glomerata</i>      | 15.84 | 11.31 | 9.25  | 9.00  | 9.02  | 15.98 | 9.02  | 4.91  | 11.85 | 5.28  | 6.38  | 3.66  | 5.28  | 6.38  | 3.66  |
| 12.   | <i>Festuca ovina</i>           | 6.10  | 11.92 | 11.79 | 15.31 | 15.51 | 9.84  | 15.51 | 17.68 | 15.04 | 13.28 | 14.84 | 16.59 | 13.28 | 14.84 | 16.59 |
| 14.   | <i>Holcus lanatus</i>          | —     | 2.14  | 1.88  | 2.01  | 5.53  | 6.56  | 5.53  | 1.12  | 2.11  | 3.36  | 2.08  | 0.18  | 3.36  | 2.08  | 0.18  |
| 15.   | <i>Lolium perenne</i>          | 0.43  | —     | —     | 0.20  | 0.39  | 0.13  | 0.39  | 0.13  | 0.45  | —     | 0.13  | 0.31  | —     | 0.13  | 0.31  |
| 16.   | <i>Poa pratensis</i>           | 0.55  | 1.24  | 0.47  | 2.01  | 1.08  | 0.79  | 1.08  | 0.79  | 1.88  | 0.58  | 2.01  | 2.17  | 0.58  | 2.01  | 2.17  |
| 17.   | „ <i>trivialis</i>             | 1.43  | 1.39  | 0.40  | 2.15  | 1.81  | 2.43  | 1.81  | 0.33  | 0.68  | 0.50  | 1.43  | 1.30  | 0.50  | 1.43  | 1.30  |
| <i>Leguminosae</i>  |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1.  | <i>Lathyrus pratensis</i>      | 6.02  | 12.39 | 17.96 | 8.33  | 3.38  | 2.07  | 3.38  | 7.46  | 5.93  | 7.29  | 9.25  | 15.54 | 7.29  | 9.25  | 15.54 |
| 2.  | <i>Lotus corniculatus</i>      | —     | —     | 0.27  | 0.33  | 0.06  | —     | 0.06  | —     | —     | —     | —     | 0.49  | —     | 0.49  | 0.49  |
| 5.  | <i>Trifolium repens</i>        | 0.12  | 2.87  | 0.40  | 0.73  | 0.56  | 0.18  | 0.56  | —     | 0.06  | 0.14  | 0.78  | 0.93  | 0.14  | 0.78  | 0.93  |
| <i>Other orders</i>   |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1 & 2.  | <i>Ranunculus</i> spp.         | 4.75  | 2.86  | 2.09  | 1.14  | 0.73  | 1.34  | 0.73  | 1.25  | 1.49  | 4.57  | 5.46  | 4.89  | 4.57  | 5.46  | 4.89  |
| 4.  | <i>Cerastium vulgatum</i>      | 0.28  | 0.93  | 1.01  | 0.27  | —     | 0.06  | —     | 0.07  | 0.12  | 0.14  | 0.19  | 0.19  | 0.14  | 0.19  | 0.19  |
| 5.  | <i>Stellaria graminea</i>      | 0.04  | —     | 0.13  | 0.20  | —     | —     | —     | 0.07  | —     | 0.14  | —     | —     | 0.14  | —     | —     |
| 11.   | <i>Poterium sanguisorba</i>    | —     | —     | —     | —     | —     | —     | —     | 0.07  | —     | —     | —     | —     | —     | —     | —     |
| 13.   | <i>Anthriscus sylvestris</i>   | 0.51  | —     | —     | —     | 0.17  | 0.24  | 0.17  | 0.13  | 0.11  | 1.57  | —     | 0.49  | 1.57  | —     | 0.49  |
| 14.   | <i>Conopodium denudatum</i>    | 1.75  | 0.31  | 0.27  | 0.40  | 1.13  | 0.67  | 1.13  | 0.86  | 1.11  | 0.79  | 1.17  | 1.30  | 0.79  | 1.17  | 1.30  |
| 15.   | <i>Heracleum sphondylium</i>   | —     | —     | —     | —     | 0.23  | —     | 0.23  | —     | 0.40  | —     | —     | 0.18  | —     | —     | 0.18  |
| 17.   | <i>Galium verum</i>            | —     | —     | —     | —     | —     | —     | —     | —     | 0.06  | —     | —     | —     | —     | —     | —     |
| 19.   | <i>Achillea millefolium</i>    | 1.38  | 1.70  | 1.21  | 1.08  | 0.23  | 0.18  | 0.23  | 0.20  | 0.12  | 0.07  | 0.13  | 0.12  | 0.07  | 0.13  | 0.12  |
| 20.   | <i>Centaura nigra</i>          | 0.39  | —     | 2.69  | 0.13  | 0.28  | 0.12  | 0.28  | 0.39  | 0.31  | 0.50  | —     | —     | 0.50  | —     | —     |
| 26.   | <i>Taraxacum vulgare</i>       | 0.12  | —     | 0.53  | 0.60  | 0.17  | —     | 0.17  | 0.73  | 0.44  | 0.43  | 0.32  | 0.56  | 0.43  | 0.32  | 0.56  |
| 27.   | <i>Tragopogon pratensis</i>    | 0.28  | —     | 0.40  | 0.33  | 0.23  | —     | 0.23  | 0.07  | —     | 0.14  | —     | —     | 0.14  | —     | —     |
| 29.   | <i>Plantago lanceolata</i>     | 0.24  | 0.31  | 0.47  | 0.40  | 0.11  | 0.18  | 0.11  | 0.58  | 0.24  | 0.79  | 0.39  | 1.92  | 0.79  | 0.39  | 1.92  |
| 30.   | <i>Veronica chamaedrys</i>     | 0.20  | 0.38  | 0.33  | —     | 0.23  | 0.25  | 0.23  | —     | 0.06  | 0.21  | 0.26  | —     | 0.21  | 0.26  | —     |
| 31.   | <i>Ajuga reptans</i>           | 0.16  | 0.31  | —     | —     | —     | —     | —     | —     | —     | —     | 0.19  | 0.43  | —     | 0.19  | 0.43  |
| 34.   | <i>Rumex acetosa</i>           | 8.40  | 1.47  | 0.60  | 0.94  | 0.34  | 2.37  | 0.34  | 2.09  | 1.98  | 4.29  | 2.14  | 0.25  | 4.29  | 2.14  | 0.25  |
| 35.   | <i>Luzula campestris</i>       | 0.12  | 0.08  | 0.20  | 0.13  | 0.11  | —     | 0.11  | 0.26  | 0.06  | 0.43  | 0.39  | 0.31  | 0.43  | 0.39  | 0.31  |

| PLOT 19 (continued)<br>Unlimed (U); lightly limed (LL);<br>heavily limed (HL) |                                | 1924  |       |       | 1925  |       |       | 1926  |       |       | 1927  |       |       | 1928  |       |    |
|---|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
|   |                                | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL |
| <i>Gramineae</i>  |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1.  | <i>Agrostis vulgaris</i>       | 12.79 | 18.29 | 8.20  | 10.72 | 9.53  | 3.38  | 2.52  | 9.49  | 5.46  | 5.48  | 1.90  | 5.79  | 5.14  | 2.43  |    |
| 3.  | <i>Alopecurus pratensis</i>    | 16.93 | 16.17 | 16.71 | 16.38 | 22.48 | 24.34 | 27.20 | 29.75 | 25.83 | 27.62 | 16.93 | 33.19 | 42.58 | 21.15 |    |
| 4.  | <i>Anthoxanthum odoratum</i>   | 3.95  | 7.18  | 0.61  | 9.52  | 5.12  | 0.80  | 0.73  | 7.67  | 9.29  | 8.67  | 0.50  | 11.59 | 7.89  | 0.72  |    |
| 5.  | <i>Arrhenatherum avenaceum</i> | 10.62 | 1.02  | 8.01  | 18.50 | 2.70  | 15.48 | 21.54 | 6.01  | 17.68 | 6.44  | 22.31 | 7.88  | 3.48  | 15.88 |    |
| 6.  | <i>Avena flavescens</i>        | 3.91  | 3.68  | 7.28  | 1.25  | 0.99  | 2.11  | 2.24  | 1.17  | 1.91  | 2.61  | 4.37  | 3.51  | 3.20  | 6.06  |    |
| 7.  | " <i>pubescens</i>             | 1.44  | 1.76  | 5.90  | 1.69  | 2.62  | 6.70  | 7.19  | 2.89  | 2.92  | 3.88  | 11.26 | 2.95  | 2.84  | 11.94 |    |
| 8.  | <i>Briza media</i>             | 0.04  | —     | —     | —     | —     | —     | —     | —     | —     | 0.04  | 0.06  | —     | —     | —     |    |
| 9.  | <i>Bromus mollis</i>           | 7.06  | 4.40  | 4.66  | 9.30  | 20.97 | 18.39 | 15.76 | 15.31 | 17.01 | 25.85 | 16.87 | 9.58  | 11.04 | 9.07  |    |
| 11.   | <i>Dactylis glomerata</i>      | 8.08  | 9.79  | 12.94 | 7.67  | 5.04  | 6.83  | 4.31  | 2.67  | 6.18  | 3.16  | 10.76 | 8.08  | 3.74  | 13.93 |    |
| 12.   | <i>Festuca ovina</i>           | 1.32  | 2.27  | 0.77  | 6.15  | 1.75  | 1.68  | 1.28  | 2.21  | 3.35  | 2.23  | 1.23  | 4.93  | 2.58  | 0.89  |    |
| 14.   | <i>Holcus lanatus</i>          | —     | 0.01  | —     | 0.16  | —     | —     | 0.13  | 0.13  | 0.10  | 0.04  | 0.22  | 0.04  | 0.39  | 0.03  |    |
| 15.   | <i>Lolium perenne</i>          | 0.53  | 1.33  | 2.58  | 0.33  | 1.51  | 1.86  | 1.63  | 1.17  | 0.29  | 1.05  | 0.90  | 0.27  | 1.07  | 1.37  |    |
| 16.   | <i>Poa pratensis</i>           | 0.27  | 0.72  | 1.34  | 0.93  | 3.02  | 3.21  | 5.85  | 5.59  | 0.29  | 0.89  | 0.50  | 2.01  | 4.58  | 5.99  |    |
| 17.   | " <i>trivialis</i>             | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |    |
| <i>Leguminosae</i>  |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1.  | <i>Lathyrus pratensis</i>      | 19.50 | 17.83 | 20.56 | 3.86  | 3.14  | 1.31  | 0.86  | 1.33  | 1.15  | 1.10  | 1.01  | 1.61  | 1.49  | 1.03  |    |
| 2.  | <i>Lotus corniculatus</i>      | —     | —     | 0.23  | —     | —     | 0.21  | 0.16  | —     | 0.05  | —     | 0.90  | —     | —     | 0.93  |    |
| 5.  | <i>Trifolium repens</i>        | 0.23  | 2.14  | 0.81  | 0.01  | 0.04  | —     | 0.16  | 0.32  | 0.14  | 1.01  | 1.07  | 0.28  | 0.53  | 2.47  |    |
| <i>Other orders</i>   |                                |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |
| 1 & 2.  | <i>Ranunculus</i> spp.         | 3.91  | 7.44  | 3.39  | 5.39  | 11.12 | 5.44  | 2.11  | 4.26  | 1.53  | 2.61  | 1.74  | 1.77  | 2.53  | 1.40  |    |
| 4.  | <i>Cerastium vulgatum</i>      | 0.15  | 1.12  | —     | 0.11  | 0.04  | 0.13  | —     | 0.26  | 0.10  | —     | 0.06  | 0.16  | 0.25  | 0.34  |    |
| 5.  | <i>Stellaria graminea</i>      | 0.04  | 0.04  | 0.04  | 0.03  | —     | —     | —     | 0.03  | —     | —     | —     | 0.04  | —     | —     |    |
| 6.  | " <i>holostea</i>              | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.06  | —     |    |
| 13.   | <i>Anthriscus sylvestris</i>   | 0.98  | 0.21  | 0.54  | 1.36  | 0.84  | 2.49  | 0.86  | 0.33  | 1.53  | 0.34  | 0.56  | 0.16  | 0.03  | 0.38  |    |
| 14.   | <i>Conopodium denudatum</i>    | 2.21  | 1.89  | 1.66  | 1.47  | 0.83  | 0.84  | 0.70  | 1.50  | 1.15  | 1.43  | 0.62  | 0.79  | 0.59  | 0.44  |    |
| 15.   | <i>Heracleum sphondylium</i>   | —     | —     | 0.23  | —     | —     | 0.13  | 0.48  | 0.07  | 0.05  | —     | 2.35  | —     | 0.03  | 0.51  |    |
| 16.   | <i>Pimpinella saxifraga</i>    | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.06  | —     | —     | —     |    |
| 19.   | <i>Achillea millefolium</i>    | 0.19  | 0.34  | 0.19  | 0.11  | 0.04  | 0.03  | 0.06  | 0.20  | 0.29  | 0.25  | 0.17  | 0.16  | 0.11  | 0.38  |    |
| 20.   | <i>Centaurea nigra</i>         | 2.05  | 0.72  | 0.04  | —     | 0.12  | 0.25  | 0.42  | 0.07  | 0.34  | 0.01  | 0.28  | 0.28  | —     | 0.10  |    |
| 26.   | <i>Taraxacum vulgare</i>       | 0.76  | 0.30  | 2.31  | 0.27  | 0.08  | 1.65  | 0.48  | 0.11  | 0.05  | —     | 0.17  | 0.04  | 0.11  | 0.41  |    |
| 27.   | <i>Tragopogon pratensis</i>    | 0.15  | 0.04  | —     | 0.22  | —     | 0.01  | —     | —     | —     | —     | —     | —     | —     | 0.03  |    |
| 29.   | <i>Plantago lanceolata</i>     | 0.53  | 0.04  | 0.23  | 0.11  | —     | 0.63  | 0.42  | 0.06  | 0.29  | 0.21  | 0.78  | 0.55  | —     | 0.55  |    |
| 30.   | <i>Veronica chamaedrys</i>     | 0.23  | 0.17  | 0.08  | 0.16  | 0.08  | 0.01  | —     | 0.33  | 0.19  | 0.30  | 0.06  | 0.39  | 0.28  | 0.10  |    |
| 31.   | <i>Ajuga reptans</i>           | 0.15  | 0.17  | 0.12  | 0.22  | 0.40  | 0.13  | 0.10  | 0.19  | 0.24  | 0.84  | 1.12  | 0.28  | 0.20  | 0.44  |    |
| 34.   | <i>Rumex acetosa</i>           | 1.83  | 0.85  | 0.38  | 3.97  | 7.50  | 1.77  | 2.78  | 6.31  | 2.49  | 3.87  | 1.12  | 3.47  | 5.11  | 0.65  |    |
| 35.   | <i>Luzula campestris</i>       | 0.15  | 0.09  | 0.19  | 0.11  | 0.01  | 0.03  | 0.03  | 0.03  | 0.10  | 0.01  | 0.06  | 0.20  | 0.03  | 0.07  |    |
| 36.   | <i>Carex praecox</i>           | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.06  | —     |    |



PLOT 20—BOTANICAL COMPOSITION PER CENT. (INDIVIDUAL SPECIES)

|  | 1919  |       |       | 1920  |       |       | 1921  |       |       | 1922  |       |       | 1923 |    |    |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|----|----|
|  | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U    | LL | HL |
| Unlimed (U) ; lightly limed (LL) ;<br>heavily limed (HL) |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| <i>Gramineae</i>   |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| 1. <i>Agrostis vulgaris</i> ..                           | 6.57  | 10.96 | 6.10  | 13.38 | 10.50 | 4.87  | 9.79  | 11.51 | 4.86  | 10.44 | 12.70 | 5.33  |      |    |    |
| 3. <i>Alopecurus pratensis</i> ..                        | 30.34 | 26.82 | 30.26 | 19.43 | 22.05 | 30.14 | 23.30 | 23.79 | 33.27 | 29.36 | 16.88 | 25.23 |      |    |    |
| 4. <i>Anthoxanthum odoratum</i> ..                       | 1.16  | 0.78  | 0.75  | 1.08  | 6.40  | 1.76  | 0.37  | 1.21  | 0.34  | 0.34  | 5.71  | 1.21  |      |    |    |
| 5. <i>Arrhenatherum avenaceum</i> ..                     | 4.60  | 5.80  | 2.49  | 10.05 | 9.56  | 3.93  | 6.81  | 5.53  | 2.96  | 5.56  | 12.38 | 2.01  |      |    |    |
| 6. <i>Avena flavescens</i> ..                            | 2.94  | 4.64  | 3.74  | 6.70  | 2.94  | 5.32  | 9.04  | 7.46  | 7.07  | 6.14  | 2.73  | 5.28  |      |    |    |
| 7. " <i>pubescens</i> ..                                 | 10.17 | 11.22 | 14.20 | 12.32 | 8.03  | 18.58 | 7.77  | 5.15  | 7.41  | 7.71  | 5.33  | 11.65 |      |    |    |
| 9. <i>Bromus mollis</i> ..                               | 0.23  | 0.19  | 0.26  | 0.47  | 1.21  | 0.72  | 1.76  | 2.19  | 2.81  | 2.44  | 2.40  | 2.87  |      |    |    |
| 11. <i>Dactylis glomerata</i> ..                         | 12.52 | 9.87  | 7.68  | 9.09  | 5.62  | 8.50  | 9.04  | 10.74 | 8.16  | 6.00  | 4.08  | 2.70  |      |    |    |
| 12. <i>Festuca ovina</i> ..                              | 4.44  | 10.06 | 9.96  | 8.71  | 8.71  | 7.07  | 15.64 | 13.59 | 12.64 | 13.85 | 14.95 | 21.11 |      |    |    |
| 14. <i>Holcus lanatus</i> ..                             | 6.85  | 3.35  | 4.77  | 10.05 | 10.29 | 7.73  | 3.51  | 4.17  | 3.06  | 1.95  | 2.40  | 1.90  |      |    |    |
| 15. <i>Lolium perenne</i> ..                             | 0.30  | 0.26  | 0.12  | 0.40  | 0.42  | 0.11  | 0.37  | 0.33  | 0.10  | 0.79  | —     | 0.23  |      |    |    |
| 16. <i>Poa pratensis</i> ..                              | 0.62  | 1.93  | 1.50  | 0.73  | 0.26  | 0.87  | 3.20  | 0.61  | 2.61  | 2.44  | 1.06  | 2.01  |      |    |    |
| 17. " <i>trivialis</i> ..                                | 1.09  | 1.61  | 0.94  | 1.21  | 1.84  | 0.99  | 0.32  | 0.54  | 0.40  | 1.13  | 1.92  | 1.21  |      |    |    |
| <i>Leguminosae</i>                                       |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| 1. <i>Lathyrus pratensis</i> ..                          | 4.72  | 3.87  | 4.60  | 3.35  | 4.68  | 3.51  | 0.95  | 7.89  | 4.41  | 1.95  | 9.88  | 5.33  |      |    |    |
| 2. <i>Lotus corniculatus</i> ..                          | —     | —     | —     | 0.27  | —     | 0.16  | —     | —     | —     | —     | —     | —     |      |    |    |
| 4. <i>Trifolium pratense</i> ..                          | —     | —     | —     | —     | —     | —     | —     | —     | 0.20  | 0.29  | —     | —     |      |    |    |
| 5. " <i>repens</i> ..                                    | —     | 0.64  | 0.06  | 0.40  | 0.16  | —     | 0.05  | 0.05  | —     | 0.24  | 0.77  | —     |      |    |    |
| <i>Other orders</i>                                      |       |       |       |       |       |       |       |       |       |       |       |       |      |    |    |
| 1. & 2. <i>Ranunculus</i> spp. ..                        | 2.13  | 0.84  | 0.69  | 0.94  | 0.84  | 1.15  | 1.02  | 0.99  | 1.30  | 1.95  | 2.59  | 2.12  |      |    |    |
| 4. <i>Cerastium vulgatum</i> ..                          | 0.25  | 0.26  | 0.56  | —     | 0.05  | —     | —     | 0.05  | —     | —     | 0.05  | 0.06  |      |    |    |
| 5. <i>Stellaria graminea</i> ..                          | 0.05  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |      |    |    |
| 13. <i>Anthriscus sylvestris</i> ..                      | 2.50  | 0.78  | 1.06  | 0.20  | 0.10  | 0.93  | 0.69  | 0.27  | 2.15  | 2.68  | 0.72  | 3.27  |      |    |    |
| 14. <i>Conopodium denudatum</i> ..                       | 1.50  | 0.13  | 0.50  | 0.87  | 0.47  | 1.04  | 1.70  | 1.32  | 2.46  | 0.78  | 1.25  | 1.55  |      |    |    |
| 15. <i>Heracleum sphondylium</i> ..                      | —     | —     | 0.25  | 0.27  | —     | —     | —     | —     | —     | —     | —     | —     |      |    |    |
| 17. <i>Galium verum</i> ..                               | 0.47  | 0.06  | 0.43  | —     | —     | 0.06  | 0.42  | —     | 0.81  | —     | —     | 0.17  |      |    |    |
| 19. <i>Achillea millefolium</i> ..                       | 1.19  | 2.71  | 1.25  | 0.73  | 0.16  | 0.16  | 1.70  | 0.49  | 0.30  | 0.68  | 0.33  | 0.23  |      |    |    |
| 20. <i>Centaura nigra</i> ..                             | 1.44  | 1.93  | 2.61  | 0.67  | —     | 0.49  | 0.74  | —     | 0.50  | 0.49  | —     | 1.03  |      |    |    |
| 26. <i>Taraxacum vulgare</i> ..                          | 0.05  | —     | 0.12  | —     | 0.31  | 0.60  | 0.16  | 0.27  | 0.72  | 0.24  | 0.76  | 1.21  |      |    |    |
| 27. <i>Tragopogon pratensis</i> ..                       | 0.16  | —     | 0.50  | —     | 0.47  | 0.16  | —     | 0.16  | 0.35  | 0.10  | 0.24  | 1.32  |      |    |    |
| 29. <i>Plantago lanceolata</i> ..                        | 0.06  | —     | 0.13  | 0.06  | 0.42  | —     | 0.32  | 0.33  | 0.15  | 0.10  | —     | 0.40  |      |    |    |
| 30. <i>Veronica chamaedrys</i> ..                        | 0.31  | —     | 0.13  | 0.06  | —     | —     | 0.05  | 0.05  | —     | 0.10  | —     | 0.06  |      |    |    |
| 34. <i>Rumex acetosa</i> ..                              | 3.31  | 1.29  | 0.73  | 1.48  | 1.32  | 1.04  | 1.23  | 1.26  | 0.81  | 2.15  | 0.82  | 0.34  |      |    |    |
| 35. <i>Luzula campestris</i> ..                          | 0.03  | —     | 0.07  | 0.07  | 0.05  | 0.11  | 0.05  | 0.05  | 0.15  | 0.10  | 0.05  | 0.17  |      |    |    |

**PLOT 20 (continued)**

|                                      | 1924  |       |       | 1925  |       |       | 1926  |       |       | 1927  |       |       | 1928  |       |       | 1929  |       |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                      | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | LL    | HL    | U     | HL    |
| <i>Gramineae</i>                     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Agrostis vulgaris</i> ..       | 15.01 | 9.22  | 4.26  | 13.80 | 3.55  | 3.00  | 9.51  | 4.71  | 3.57  | 3.73  | 2.59  | 1.87  | 4.08  | 4.21  | 1.17  | 5.48  | 1.17  |
| 3. <i>Alopecurus pratensis</i> ..    | 16.01 | 27.53 | 20.95 | 16.61 | 15.43 | 19.24 | 27.45 | 21.54 | 25.94 | 30.25 | 18.58 | 23.39 | 46.23 | 30.65 | 24.12 | 33.88 | 24.12 |
| 4. <i>Anthoxanthum odoratum</i> ..   | 0.96  | 1.34  | 0.23  | 1.08  | 1.82  | 0.41  | 1.34  | 3.72  | 0.97  | 0.65  | 3.22  | 0.84  | 1.89  | 6.37  | 0.73  | 0.61  | 0.73  |
| 5. <i>Arrhenatherum avenaceum</i> .. | 5.97  | 10.17 | 0.39  | 8.88  | 32.59 | 3.64  | 17.62 | 23.83 | 8.22  | 24.58 | 31.04 | 7.43  | 11.28 | 8.74  | 3.83  | 8.85  | 3.83  |
| 6. <i>Avena flavescens</i> ..        | 4.66  | 2.83  | 3.17  | 1.48  | 0.58  | 1.09  | 0.88  | 1.40  | 1.45  | 2.59  | 1.59  | 2.60  | 3.42  | 4.11  | 2.58  | 3.81  | 2.58  |
| 7. " <i>pubescens</i> ..             | 5.33  | 4.86  | 10.44 | 6.32  | 2.58  | 15.83 | 5.61  | 6.82  | 15.97 | 4.83  | 8.00  | 23.72 | 6.63  | 9.35  | 28.92 | 8.10  | 28.92 |
| 9. <i>Bromus mollis</i> ..           | —     | 0.04  | —     | —     | —     | 0.02  | —     | 0.04  | 0.06  | —     | 0.08  | 0.04  | 0.03  | 0.26  | 0.20  | 0.10  | 0.20  |
| 10. <i>Cynosurus cristatus</i> ..    | —     | —     | —     | —     | 0.13  | 0.02  | —     | 0.04  | —     | —     | —     | 0.01  | 0.03  | 0.03  | —     | —     | —     |
| 11. <i>Dactylis glomerata</i> ..     | 6.09  | 5.31  | 4.87  | 10.43 | 13.38 | 9.08  | 11.10 | 13.71 | 12.84 | 14.63 | 17.90 | 14.01 | 7.00  | 7.12  | 5.61  | 9.33  | 5.61  |
| 12. <i>Festuca ovina</i> ..          | 8.04  | 6.10  | 9.90  | 4.48  | 1.47  | 4.39  | 3.29  | 3.02  | 5.38  | 3.24  | 2.63  | 4.76  | 5.31  | 6.47  | 9.04  | 5.96  | 9.04  |
| 14. <i>Holcus lanatus</i> ..         | 1.93  | 2.11  | 1.46  | 4.48  | 4.45  | 4.76  | 6.56  | 6.54  | 7.62  | 7.22  | 7.21  | 6.96  | 4.05  | 7.89  | 5.00  | 2.04  | 7.89  |
| 15. <i>Lolium perenne</i> ..         | 0.21  | 0.36  | 0.19  | 0.04  | 0.04  | —     | 0.06  | 0.07  | 0.03  | 0.05  | 0.04  | 0.07  | 0.43  | 0.32  | 0.08  | 0.17  | 0.43  |
| 16. <i>Poa pratensis</i> ..          | 0.92  | 0.65  | 1.59  | 0.96  | 0.27  | 1.20  | 1.89  | 0.77  | 1.93  | 1.10  | 0.52  | 2.31  | 1.43  | 0.65  | 2.90  | 1.36  | 2.90  |
| 17. " <i>trivialis</i> ..            | 0.35  | 0.65  | 0.39  | 0.28  | 0.62  | 0.64  | 2.35  | 4.36  | 3.66  | 0.35  | 0.88  | 0.77  | 1.23  | 3.46  | 2.99  | 1.40  | 2.99  |
| <i>Leguminosae</i>                   |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. <i>Lathyrus pratensis</i> ..      | 21.59 | 16.70 | 30.47 | 10.32 | 2.49  | 4.20  | 3.54  | 1.09  | 3.41  | 1.64  | 0.52  | 3.22  | 2.59  | 1.78  | 5.13  | 6.95  | 5.13  |
| 2. <i>Lotus corniculatus</i> ..      | —     | —     | —     | —     | —     | 0.11  | —     | —     | —     | —     | —     | 0.04  | —     | —     | —     | —     | —     |
| 4. <i>Trifolium pratense</i> ..      | 0.67  | —     | —     | —     | —     | —     | —     | —     | —     | 0.05  | —     | 0.18  | —     | —     | —     | 0.17  | —     |
| 5. " <i>repens</i> ..                | 1.10  | 0.11  | —     | 0.04  | 0.04  | 0.01  | 0.27  | 0.07  | 0.03  | 0.10  | 0.12  | 0.04  | 0.20  | 1.42  | 0.24  | 5.28  | 0.24  |
| <i>Other orders</i>                  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 1. & 2. <i>Ranunculus</i> spp. ..    | 2.89  | 4.14  | 2.13  | 3.80  | 3.56  | 9.00  | 1.77  | 1.72  | 1.84  | 0.55  | 0.56  | 0.92  | 0.76  | 1.29  | 1.21  | 0.65  | 1.21  |
| 4. <i>Cerastium vulgatum</i> ..      | 0.04  | 0.11  | 0.08  | —     | 0.13  | 0.08  | —     | 0.35  | 0.18  | —     | 0.08  | 0.11  | 0.03  | 0.26  | 0.24  | 0.44  | 0.24  |
| 5. <i>Stellaria graminea</i> ..      | —     | —     | 0.04  | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     | 0.03  | —     | —     | —     |
| 13. <i>Anthriscus sylvestris</i> ..  | 1.39  | 1.12  | 2.36  | 4.56  | 6.00  | 7.88  | 1.22  | 0.91  | 0.97  | 0.95  | 0.28  | 0.62  | 0.40  | 0.32  | 0.28  | 0.37  | 0.28  |
| 14. <i>Conopodium denudatum</i> ..   | 1.54  | 1.46  | 1.67  | 1.40  | 0.89  | 0.86  | 0.58  | 0.31  | 0.39  | 0.65  | 0.76  | 0.84  | 0.73  | 0.68  | 0.49  | 0.72  | 0.49  |
| 15. <i>Heracleum sphondylium</i> ..  | —     | 0.14  | —     | —     | —     | 0.01  | 0.06  | —     | 0.36  | 0.55  | —     | 0.22  | —     | —     | 0.24  | 0.48  | 0.24  |
| 17. <i>Galium verum</i> ..           | —     | —     | 0.12  | 0.04  | —     | 0.22  | 0.06  | —     | 0.12  | —     | —     | 0.15  | —     | —     | 0.08  | —     | 0.08  |
| 18. <i>Scabiosa arvensis</i> ..      | —     | —     | —     | —     | —     | —     | —     | —     | 0.09  | —     | —     | —     | —     | —     | —     | —     | —     |
| 19. <i>Achillea millefolium</i> ..   | 1.17  | 0.80  | 0.31  | 2.20  | 0.36  | 0.30  | 0.95  | 0.46  | 0.60  | 0.45  | 0.84  | 0.62  | 0.30  | 0.97  | 0.53  | 1.40  | 0.53  |
| 20. <i>Centaurea nigra</i> ..        | 2.03  | —     | 0.50  | 5.84  | 0.13  | 2.21  | 0.21  | —     | 0.66  | 0.05  | 0.88  | 1.03  | 0.03  | 0.03  | 0.20  | 0.17  | 0.20  |
| 26. <i>Taraxacum vulgare</i> ..      | 0.53  | 2.29  | 2.55  | 0.24  | 3.02  | 6.38  | 0.18  | 0.95  | 1.21  | —     | 0.36  | 1.39  | 0.10  | 1.00  | 2.06  | 0.17  | 2.06  |
| 27. <i>Tragopogon pratensis</i> ..   | 0.18  | 1.01  | 1.27  | 0.08  | 0.62  | 2.70  | 0.03  | 0.56  | 0.60  | —     | 0.12  | 0.88  | —     | 0.13  | 0.32  | —     | 0.32  |
| 29. <i>Plantago lanceolata</i> ..    | —     | 0.04  | —     | 0.28  | 0.89  | 0.41  | 0.18  | 0.18  | 0.42  | —     | 0.24  | 0.37  | 0.03  | 0.36  | 0.44  | 0.31  | 0.44  |
| 30. <i>Veronica chamaedrys</i> ..    | 0.07  | 0.07  | —     | 0.04  | 0.09  | 0.04  | 0.09  | 0.18  | 0.12  | 0.15  | 0.36  | 0.15  | 0.33  | 0.36  | 0.45  | 0.17  | 0.45  |
| 31. <i>Ajuga reptans</i> ..          | 0.04  | 0.04  | —     | 0.04  | —     | 0.08  | 0.03  | 0.04  | —     | —     | 0.08  | —     | —     | 0.06  | —     | —     | —     |
| 34. <i>Rumex acetosa</i> ..          | 1.24  | 0.76  | 0.62  | 2.24  | 4.85  | 2.17  | 3.17  | 2.57  | 1.33  | 1.64  | 0.48  | 0.37  | 1.43  | 1.62  | 0.28  | 1.53  | 0.28  |
| 35. <i>Luzula campestris</i> ..      | 0.04  | 0.04  | 0.04  | 0.04  | 0.02  | 0.04  | —     | 0.04  | 0.03  | —     | 0.04  | 0.04  | 0.03  | 0.06  | 0.04  | 0.10  | 0.04  |

WHEAT—BROADBALK FIELD, 1934

| Plot. | Manurial Treatment<br>(amounts stated are per acre).                        | Dressed Grain, bushels per acre (in some cases estimated from half or quarter-bushel). |                           |      |      |      | Total Grain, cwt. per acre |      |      |      |      | 74-year Average 1852-1925 (prior to fallow). Total Grain, cwt. |
|-------|---|--|---------------------------|------|------|------|----------------------------|------|------|------|------|--|
|       |   | I  | II                        | III  | V    | Mean | I                          | II   | III  | V    | Mean |  |
|       |   | 2A   | Farmyard Manure (14 tons) | 34.6 | 44.6 | 42.5 | 23.3                       | 36.2 | 21.4 | 27.6 | 25.7 |  |
| 2B    | Farmyard Manure (14 tons)   | 32.2   | 36.1                      | 37.6 | 22.8 | 32.2 | 19.9                       | 23.3 | 24.0 | 15.9 | 20.8 | 19.4   |
| 3     | Unmanured since 1839  | 17.2   | 16.6                      | 21.4 | 29.7 | 21.2 | 9.9                        | 10.5 | 13.2 | 18.4 | 13.0 | 6.7  |
| 5     | Complete Mineral Manure §§  | 12.5   | 15.3                      | 13.3 | 24.6 | 16.4 | 8.2                        | 9.7  | 8.6  | 14.9 | 10.4 | 7.8  |
| 6     | As 5, and 206 lb. Sulphate of Ammonia                                       | 26.1   | 30.9                      | 31.3 | 28.7 | 29.3 | 16.0                       | 18.8 | 19.1 | 18.0 | 18.0 | 12.5   |
| 7     | As 5, and 412 lb. Sulphate of Ammonia                                       | 45.2   | 46.1                      | 44.8 | 27.1 | 40.8 | 27.7                       | 28.6 | 27.1 | 18.0 | 25.4 | 17.6   |
| 8     | As 5, and 618 lb. Sulphate of Ammonia                                       | 43.1   | 53.2                      | 52.4 | 28.8 | 44.4 | 26.9                       | 33.8 | 32.1 | 18.3 | 27.8 | 20.1   |
| 9     | As 5, and 275 lb. Nitrate of Soda   | 32.8   | 35.3                      | 29.6 | 32.6 | 32.6 | 19.7                       | 21.9 | 18.4 | 20.4 | 20.1 | 13.9††   |
| 10    | 412 lb. Sulphate of Ammonia   | 39.2   | 45.6                      | 44.2 | 32.1 | 40.3 | 25.2                       | 27.8 | 27.5 | 20.7 | 25.3 | 10.9   |
| 11    | As 10, and Superphosphate (3½ cwt.)   | 35.8   | 36.1                      | 37.3 | 29.2 | 34.6 | 21.6                       | 22.1 | 23.1 | 20.1 | 21.7 | 12.3   |
| 12    | As 10, and Super (3½ cwt.) and Sulph. Soda (366 lb.)                        | 40.2   | 45.1                      | 44.7 | 33.7 | 40.9 | 24.2                       | 27.1 | 26.7 | 22.7 | 25.2 | 15.7   |
| 13    | As 10 and Super (3½ cwt.) and Sulph. Potash (200 lb.)                       | 38.0   | 47.5                      | 42.6 | 28.6 | 39.2 | 23.1                       | 28.6 | 26.1 | 19.5 | 24.3 | 17.0   |
| 14    | As 10, and Super. (3½ cwt.) and Sulph. Magnesia (280 lb.)                   | 42.6   | 46.3                      | 43.6 | 34.7 | 41.8 | 25.4                       | 27.1 | 26.2 | 22.9 | 25.4 | 15.5   |
| 15    | As 5, and 412 lb. Sulphate Amm. all applied in Autumn                       | 33.6   | 48.7                      | 41.0 | 34.3 | 39.4 | 21.0                       | 28.7 | 24.7 | 22.4 | 24.2 | 16.1   |
| 16    | As 5, and 550 lb. Nitrate of Soda   | 41.5   | 49.8                      | 43.4 | 29.6 | 41.1 | 25.5                       | 30.4 | 26.2 | 19.2 | 25.3 | 17.8††   |
| 17    | Minerals alone as 5 or 412 lb. Sulphate of Ammonia alone in alternate years | A36.1  | 41.2                      | 37.9 | 34.2 | 37.4 | 21.9                       | 24.8 | 23.6 | 21.7 | 23.0 | A16.1*   |
| 18    | Rape Cake (1,889 lb.)   | M13.2  | 18.7                      | 14.5 | 36.0 | 20.6 | 8.3                        | 11.5 | 9.1  | 22.6 | 12.9 | M8.1   |
| 19    | As 7, without Supper  | 35.9   | 40.2                      | 32.4 | 26.7 | 33.8 | 21.9                       | 24.3 | 20.2 | 17.7 | 21.0 | 12.6†  |
| 20    | As 7, without Supper  | 31.9   | 40.6                      | —    | —    | 36.2 | 19.8                       | 24.8 | —    | —    | 22.3 | 10.3§  |

  

| Season  | I. | II. | III. | IV. | V. | Season. | I. | II. | III. | IV. | V. |
|---------|----|-----|------|-----|----|---------|----|-----|------|-----|----|
| 1925-26 | F  | F   | F    | C   | C  | 1930-31 | F  | C   | C    | C   | C  |
| 1926-27 | F  | F   | F    | F   | C  | 1931-32 | C  | F   | C    | C   | C  |
| 1927-28 | C  | C   | F    | F   | F  | 1932-33 | C  | C   | C    | C   | F  |
| 1928-29 | C  | C   | F    | F   | F  | 1933-34 | C  | C   | C    | F   | C  |
| 1929-30 | C  | C   | C    | C   | C  | 1934-35 | C  | C   | F    | C   | C  |

FALLOWING ROTATION. After the fallows of 1925-6 to 1928-9 a regular cycle of fallowing was started in the season 1930-31. This cycle and the preceding fallows are shown in the accompanying diagram (C=crop, F=fallow). The sections (I. to V.) are numbered in order from the upper or western end of the field. Preparatory to the first fallow the field was harvested in five separate sections (1924-5).

For notes, see next page.

**WHEAT—BROADBALK FIELD, 1934**

| Plot. | Manurial Treatment<br>(amounts stated are per acre).      | Bushel Weight in lb. (in some cases estimated from half or quarter-bushel). |      |      |      |      | Total Straw†, cwt. per acre. |      |      |      |      | 74-year Average 1852-1925 (prior to fallow). Total Straw, cwt. |
|-------|---|---|------|------|------|------|------------------------------|------|------|------|------|--|
|       |   | Mean  |      |      |      |      | Mean                         |      |      |      |      |  |
|       |   | I   | II   | III  | V    | Mean | I                            | II   | III  | V    | Mean |  |
| 2A    | Farmyard Manure (14 tons)                                 | 63.2  | 64.4 | 63.8 | 61.8 | 63.3 | 56.4                         | 60.3 | 53.0 | 63.8 | 58.4 | 32.1**   |
| 2B    | Farmyard Manure (14 tons)                                 | 63.2  | 64.2 | 64.2 | 61.5 | 63.3 | 58.9                         | 61.8 | 54.2 | 69.4 | 61.1 | 34.2   |
| 3     | Unmanured since 1839                                      | 63.5  | 63.2 | 62.5 | 61.8 | 63.2 | 16.9                         | 13.9 | 14.3 | 29.6 | 18.7 | 9.8  |
| 5     | Complete Mineral Manure §§                                | 63.3  | 62.9 | 62.5 | 61.8 | 62.6 | 14.8                         | 13.1 | 13.5 | 36.0 | 19.4 | 11.5   |
| 6     | As 5, and 206 lb. Sulphate of Ammonia                     | 63.8  | 63.8 | 64.0 | 64.2 | 64.0 | 30.4                         | 30.1 | 30.7 | 52.0 | 35.8 | 20.3   |
| 7     | As 5, and 412 lb. Sulphate of Ammonia                     | 64.0  | 64.8 | 63.9 | 62.2 | 63.7 | 51.9                         | 48.2 | 47.1 | 64.9 | 53.0 | 32.1   |
| 8     | As 5, and 618 lb. Sulphate of Ammonia                     | 62.6  | 63.9 | 63.9 | 61.4 | 63.0 | 69.2                         | 60.5 | 54.1 | 63.5 | 61.8 | 39.8   |
| 9     | As 5, and 275 lb. Nitrate of Soda                         | 63.4  | 64.2 | 64.0 | 64.2 | 64.0 | 38.4                         | 35.3 | 31.4 | 56.3 | 40.4 | 24.6††   |
| 10    | 412 lb. Sulphate of Ammonia                               | 63.5  | 63.2 | 63.1 | 64.0 | 63.4 | 38.1                         | 36.8 | 35.6 | 30.1 | 35.2 | 17.8   |
| 11    | As 10, and Superphosphate (3½ cwt.)                       | 61.8  | 62.3 | 61.9 | 62.3 | 62.1 | 37.6                         | 38.9 | 34.9 | 37.4 | 37.2 | 21.4   |
| 12    | As 10, and Super. (3½ cwt.) and Sulph. Soda (366 lb.)     | 62.6  | 62.9 | 62.4 | 62.6 | 62.6 | 44.6                         | 44.3 | 42.0 | 48.8 | 44.9 | 26.8   |
| 13    | As 10, and Super. (3½ cwt.) and Sulph. Potash (200 lb.)   | 63.8  | 63.3 | 63.7 | 63.4 | 63.6 | 50.5                         | 51.3 | 50.9 | 60.8 | 53.4 | 30.6   |
| 14    | As 10, and Super. (3½ cwt.) and Sulph. Magnesia (280 lb.) | 62.4  | 61.9 | 62.8 | 63.4 | 62.6 | 45.6                         | 44.6 | 43.8 | 53.4 | 46.8 | 26.8   |
| 15    | As 5, and 412 lb. Sulphate Amm. all applied in Autumn     | 64.6  | 64.3 | 64.1 | 64.0 | 64.2 | 43.4                         | 46.8 | 41.2 | 62.4 | 48.4 | 28.2   |
| 16    | As 5, and 550 lb. Nitrate of Soda                         | 63.7  | 64.0 | 63.0 | 63.4 | 63.5 | 52.2                         | 50.8 | 45.5 | 63.4 | 53.0 | 35.2††   |
| 17    | Minerals alone as 5 or 412 lb. Sulphate of Ammonia        | A64.1   | 64.0 | 64.4 | 63.6 | 64.0 | 45.8                         | 45.1 | 42.2 | 56.4 | 47.4 | A28.1*   |
| 18    | alone in alternate years                                  | M62.5   | 62.8 | 62.7 | 63.9 | 63.0 | 12.5                         | 15.4 | 13.9 | 51.4 | 23.3 | M12.3  |
| 19    | Rape Cake (1,889 lb.)                                     | 64.0  | 63.6 | 63.2 | 62.6 | 63.4 | 34.5                         | 35.5 | 34.2 | 56.0 | 40.0 | 22.0 †   |
| 20    | As 7, without Super                                       | 64.2  | 63.6 | —    | —    | 63.9 | 31.2                         | 33.2 | —    | —    | 32.2 | 18.6§  |

† Includes straw, cavings, and chaff. \*A = Ammonia series. M = Mineral series.  
 †† Twenty six years only, 1900-25. † Thirty-three years only, 1893-1925. § Eighteen years only, 1906-1925 (no crop in 1912 and 1914). ‡ Forty-one years only, 1885-1925. § Eighteen years only, 1906-1925 (no crop in 1912 and 1914).  
 §§ Complete mineral manure : 3½ cwt. Super., 200 lb. Sulph. Potash, 100 lb. Sulph. Soda, 100 Sulph. Magnesia. Sulphate of Ammonia is applied as to one-third in Autumn and two-thirds in Spring except for Plot 15. Nitrate of Soda is all given in Spring, there being two applications at an interval of a month on Plot 16.  
 CULTIVATIONS Etc.—Cropped sections : Ploughed : August 8-12. Harrowed : October 9, 12, 13 and 14, April 5 and 6. Seed sown : October 13 and 14. Variety : Red Standard. Manures applied : October 9 and 12, April 3-5 and 27. Harvested : August 1-3. Fallow section : Ploughed : August 8-12. May 10, July 16-17, August 15-21. Harrowed : October 9 and 12, February 24, April 5-6, July 14. Cultivated : April 20, June 16, 18 and 25. Rolled : June 22 and 29, August 15-21.

BARLEY—HOOS FIELD, 1934

| Plot | Manuring (Amounts stated are per acre)   | Dressed Grain, bushels per acre (in some cases estimated from half or quarter bushel) | Total Grain, cwt. per acre | 76 Years' Average, Dressed 1928 Grain per acre | Bushel weight in lb. (in some cases estimated from half or quarter bushel) | Total Straw, cwt. per acre | 76 Years' Average, Total Straw 1852-1928 per acre cwt.† |
|------|--|---|----------------------------|--|--|----------------------------|---|
| 10   | Unmanured  | 27.8††  | 15.2††                     | 13.4   | 55.2††   | 22.0††                     | 7.8   |
| 20   | Superphosphate only (3½ cwt.)  | 61.4  | 31.6                       | 19.0   | 54.4   | 30.0                       | 9.8   |
| 30   | Alkali Salts only (200 lb. Sulphate of Potash; 100 lb. Sulphate of Soda; 100 lb. Sulphate of Magnesia) | 38.7  | 20.5                       | 14.3   | 55.9   | 23.0                       | 8.7   |
| 40   | Complete Minerals; as 30 with Superphosphate (¾ cwt.)  | 67.1  | 34.9                       | 19.0   | 55.6   | 36.3                       | 11.2  |
| 50   | Potash (200 lb.) and Superphosphate (¾ cwt.)   | 60.5  | 31.3                       | 15.5   | 55.7   | 32.8                       | 9.4   |
| 1A   | Ammonium Salts only (206 lb. Sulphate of Ammonia)  | 23.5  | 12.6                       | 23.7   | 54.8   | 16.0                       | 13.7  |
| 2A   | Superphosphate and Amm. Salts  | 58.7  | 30.8                       | 20.5   | 53.3   | 29.5                       | 20.4  |
| 3A   | Alkali Salts and Amm. Salts  | 27.8  | 14.8                       | 25.8   | 55.4   | 22.7                       | 16.0  |
| 4A   | Complete Minerals and Amm. Salts   | 64.2  | 33.5                       | 33.3   | 55.1   | 33.4                       | 23.6  |
| 5A   | Potash Super and Amm. Salts  | 57.7  | 30.6                       | 33.8   | 54.7   | 37.4                       | 21.7  |
| 1AA  | Nitrate of Soda only (275 lb.)   | 28.3  | 14.9                       | 24.3*  | 55.0   | 21.0                       | 15.4*   |
| 2AA  | Superphosphate and Nitrate of Soda   | 64.9  | 34.0                       | 38.8*  | 54.6   | 35.2                       | 23.1*   |
| 3AA  | Alkali Salts and Nitrate of Soda   | 29.9  | 15.9                       | 24.5*  | 56.0   | 22.7                       | 16.6*   |
| 4AA  | Complete Minerals and Nitrate of Soda  | 61.8  | 32.7                       | 37.7*  | 54.4   | 38.8                       | 23.6*   |
| 1AAS | As Plot 1AA and Silicate of Soda (400 lb.)   | 39.4  | 20.4                       | 30.2*  | 55.6   | 24.0                       | 18.2*   |
| 2AAS | As Plot 2AA and Silicate of Soda (400 lb.)   | 65.7  | 34.7                       | 39.7*  | 54.7   | 35.0                       | 23.9*   |
| 3AAS | As Plot 3AA and Silicate of Soda (400 lb.)   | 38.0  | 20.4                       | 31.2*  | 56.7   | 28.3                       | 19.9*   |
| 4AAS | As Plot 4AA and Silicate of Soda (400 lb.)   | 64.0  | 34.2                       | 39.9*  | 54.5   | 42.4                       | 25.4*   |
| 1C   | Rape Cake only (1,000 lb.)   | 52.4  | 29.1                       | 35.5   | 55.3   | 26.7                       | 20.6  |
| 2C   | Superphosphate and Rape Cake   | 65.6  | 34.8                       | 38.1   | 54.6   | 34.0                       | 22.0  |
| 3C   | Alkali Salts and Rape Cake   | 50.2  | 27.2                       | 33.7   | 55.7   | 28.3                       | 20.4  |
| 4C   | Complete Minerals and Rape Cake  | 68.5  | 35.1                       | 37.5   | 54.5   | 38.7                       | 22.6  |
| 7-1  | Unmanured after dung (14 tons) for 20 years (1852-71)  | 53.0  | 27.3                       | 22.5†  | 55.6   | 29.3                       | 13.5†   |
| 7-2  | Farmyard manure (14 tons)  | 65.5  | 34.2                       | 44.6   | 53.6   | 42.1                       | 28.1  |
| 6-1  | Unmanured since 1852   | 41.6  | 21.6                       | 14.7   | 55.6   | 24.8                       | 8.6   |
| 6-2  | Ashes from Laboratory furnace  | 44.6  | 23.1                       | 15.7   | 55.4   | 24.1                       | 9.3   |
| 1N   | Nitrate of Soda only (275 lb.)   | 26.2  | 14.0                       | 28.7§  | 55.0   | 19.6                       | 17.8§   |
| 2N   | Nitrate of Soda only (275 lb.)   | 41.6  | 21.9                       | 31.7§§   | 55.6   | 23.8                       | 20.0§§  |

In 1912 and 1933 all plots were followed. † 1 cwt. 2.15 bushels. † Total straw includes straw,avings and chaff. \* Sixty years 1868-1928. ‡ 56 years, 1872-1928. § 75 years, 1853-1928. †† Sulphate of ammonia was applied to four-fifths of this plot by mistake. The yields given refer to the unmanured portion, the yields on the manured portion being:—grain: 31.7 bushels or 17.0 cwt. per acre and straw: 21.3 cwt. per acre. The weight per bushel was 65.2 lb.

CULTIVATIONS, Etc.—Ploughed: February 2. Harrowed: March 27 and 28. Rolled: March 27 and 28. Manures applied: January 29, March 26 and 27. Seed sown: March 27 and 28. Variety: Plumage Archer. Harvested: August 9 and 10.