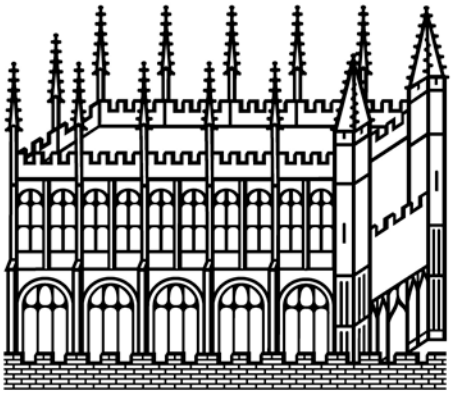


CONCISE NOTICES

OF

BRITISH GRASSES,

BEST SUITED FOR

AGRICULTURE,

WITH

PRESERVED SPECIMENS OF EACH KIND.

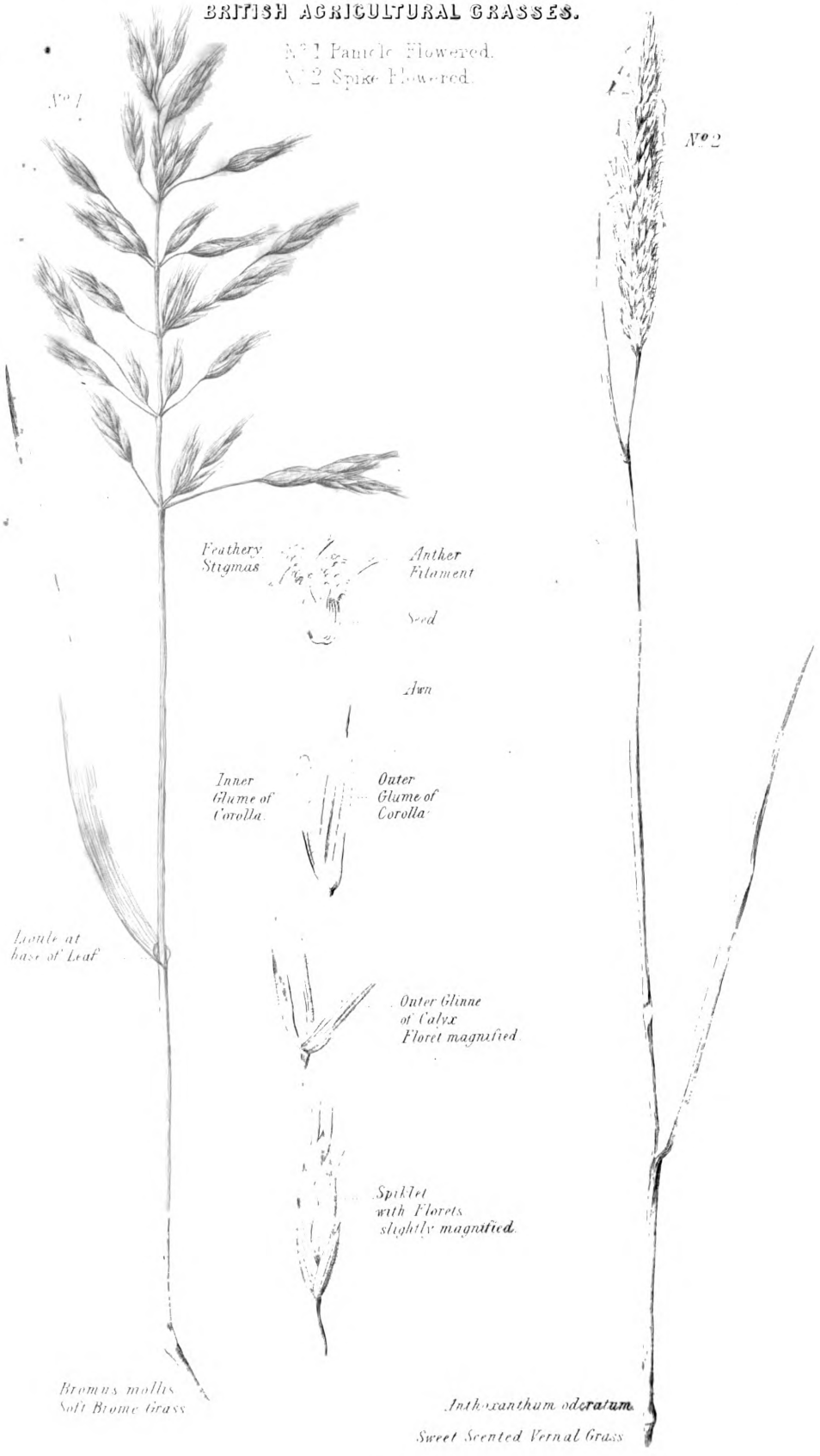
BY

DAVID MOORE, M.R.I.A., A.L.S.
&c., &c., &c.,
CURATOR OF THE ROYAL DUBLIN SOCIETY'S BOTANIC GARDENS, GLASNEVIN.

SECOND EDITION.

DUBLIN:
JAMES M^cGLASHAN, 21 D'OLIER-STREET.
WILLIAM S. ORR AND CO., PATERNOSTER-ROW, LONDON.
Price Seven Shillings and Sixpence.

EXAMPLES OF THE TWO MODES OF FLOWERING WHICH OCCUR AMONG BRITISH AGRICULTURAL GRASSES.



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1850.

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PRINTED BY ALEXANDER THOM, 87, ABBEY-STREET.

PREFACE TO THE SECOND EDITION.

ENCOURAGED by the assurance of some of my friends, that this simple Treatise on the Agricultural Grasses has, to a considerable extent, answered the purpose for which it was intended, namely, as affording a medium through which Practical Agriculturists and Amateurs might make themselves acquainted with this important tribe of Plants, at a cheap rate and in an intelligible manner, without much trouble to themselves, besides ascertaining the kinds of grasses best suited for the different localities, and the proportionate quantities of seeds required per acre, I have been induced to undertake the preparation of a Second Edition on a rather more extensive scale. Previous to the publication of this work in 1843, there was no book containing preserved examples of Grasses, to which the Farmer or Amateur could refer for assistance, to ascertain the kinds which prevailed on his meadows; and works with good plates are always expensive, besides being difficult to understand, where the species resemble each other closely, as they often do. It is true, a limited number of copies of the folio edition of Sinclair's "Hortus Gramineus Woburnensis" were published, in which preserved specimens of some of the Grasses are contained; but nothing had been done to render the subject popular by such means—the great amount of manual labour required operating seriously against effecting this to any considerable extent. That this important branch of rural economy is now exciting much attention is manifest, from the extensive sale of works lately published which treat on it, and the increased demand for grass seeds to our seedsmen. Since 1843, two small Treatises on Irish Grasses have appeared, edited by Professor Murphy, of Queen's College, Cork, and one of very great importance both to the Botanist and Agriculturist, on the Grasses of Scotland, by Dr. Parnell.

The public exhibition of so extensive a series of preserved native and foreign Grasses as are now contained in the Agricultural Museum

of the Royal Dublin Society, has been a great means of leading to more general and particular inquiry on this subject; and the culture of the best kinds having been lately extended in the Botanic Gardens, has enabled the Agriculturist to judge better of their comparative merits.

From more matured experience, I have been able to make considerable additions and alterations in the observations on the different kinds of Grasses, and also in the tables; besides having added a few more species. It has been considered that it would enable reporters on drainage operations to make their reports with more accuracy, if some of the plants which constantly prevail in situations saturated with moisture were added: I have therefore introduced a species of Sedge Grass, and a Rush which exemplify genera of plants, that, for the most part, clearly indicate ground so circumstanced. Finally, practical utility has been alone aimed at in the present instance.

GLASNEVIN, *April*, 1850.

BRITISH AGRICULTURAL GRASSES.

GENERAL OBSERVATIONS.

The importance of the grass tribe of plants to man and many of the inferior animals, along with the general distribution of the species over the surface of the globe, are circumstances familiar to those who have studied the subject. From the equator to the utmost limits of vegetation, approaching the poles of the earth, and from the sea-shore to the greatest altitude at which phœnoragamic plants grow on high mountains, through every variety of climate, grasses occur, supplying a large amount of food to animals. Notwithstanding this, it is not a little remarkable how few among the great number of kinds known to botanists have hitherto been considered worthy of being cultivated singly, on account of their superior merits.

About 2,000 species are said to have been already collected, which Dr. Lindley computes to bear a ratio, in proportion to all other phœnoragamous plants known, of 1-20th part. Of these 116 are indigenous to the British Isles, 96 to Scotland, and 82 to Ireland.

Yet among all the British and Irish grasses not more than a dozen of kinds are calculated for being cultivated singly, and to rank as first class; about the same number of second class are valuable for forming part of a mixture of good sorts; and those of the third class are only to be desired under peculiar circumstances.

Ireland has long been proverbial for her green fields, and the luxuriant development of her pasture grasses, where, owing to a combination of climatic circumstances, the growth of grass can scarcely be said to cease during the whole year. In winter, the mean temperature is comparatively high, and in summer low, the latter chiefly owing to the quantity of vapour almost constantly floating in the atmosphere. This, though highly favoured by nature, the little which has been done by the hand of man to assist is manifest, in every county, through the length and breadth of the Island; in most of which extensive tracts of meadow land occur, producing little else than Rushes and Carices, with some of the coarser grasses. That want of drainage prevents the nutritive kinds from growing is quite clear; for even without the breaking up of land and sowing of good seeds, after drainage has been properly effected, it is surprising how soon the coarse herbage begins to disappear, and a better sward to take its place. A good example of this has lately been afforded in the Phœnix Park, to those who have watched the

progress of the drainage operations, where the Rushes and Carices gradually disappear as the ground becomes pervious, and their places seem to be supplied with white clover and daisies, which seldom grow on ground soured with stagnant water; whilst on the other hand, the prevalence of *juncus uliginosa, juncus glaucus, carex panicea,* and *carex recurva,* is a certain indication of a soil surcharged with moisture resting on a subsoil in want of tapping. These, along with many more of our native plants, afford excellent data to judge from, both of the quality of the soil and its condition, if agriculturists would avail themselves of the hints nature thus affords them, which is too seldom the case at the present time. The prominent position which agriculture now holds in the Queen's Colleges, forming, as it does, a part of the curriculum of industrial education, will tend greatly to diffuse a sounder and more scientific knowledge of its various branches. We may, therefore, expect soon to find young farmers conversant with most of our indigenous grasses, and able to apply them to the situations they are best suited for.

The introduction of Italian rye-grass of late years may be considered to have effected for the Agriculturist, in hay and green-fodder grass culture, what mangel wurzel has for bulbous and tap-rooted plants; yet it is unfit for permanent pasture, or for any situation where the ground is not in good heart and a little sheltered. A knowledge of the natural grasses is requisite before due advantage can be taken of the varied circumstances which constantly occur in the progress of agriculture.

PRACTICAL OBSERVATIONS.

The disputed question, whether grass seeds sown with or without a crop is most advantageous, appears to be almost generally decided in favour of the former mode, by those best qualified by experience to form a just opinion on the subject. Professor Skilling, of Queen's College, Galway, who has had much practice in the growing of artificial grass crops, advises the various kinds of rye-grass to be sown with clover along with the spring corn, or among wheat in the months of April and May, at the rate of three-fourths of a bushel with ten pounds of clover seed to the statute acre of the perennial rye-grass, and as much as from two and a half to three bushels of the Italian rye-grass, which does not incline to tiller so much as the perennial.

Respecting the best time for sowing grass seeds, practice has proved the months of March and September to be periods when a good braird is almost certain. If the latter be moderately moist, a greater number of seeds out of a given quantity will vegetate than at any other time, which may be accounted for by the ground having arrived at its maximum degree of heat in September. But although these are the most favourable months, yet grass seeds seldom fail to vegetate in Ireland if sown at any time, excepting November, December, and January.

There is nothing more fatal to the success of grass seeds than over-deep covering, which can scarcely be avoided when the work is done with the common harrow. The best method is to run over the ground with a brush harrow, and then roll with a weighty roller. On this subject the Messrs. Drummond, of Stirling, made some curious experiments lately, by covering the seeds of different kinds of grasses at various depths, from three inches to nothing; the result was, a fine crop vegetated where barely covered, few vegetated at a greater depth than *one* inch, and none at *three;* thus clearly proving the importance of light covering.

BOTANICAL OBSERVATIONS.

According to the artificial system of Linnæus, most of the grasses belong to the third class, TRIANDRA, in consequence of there being three stamens, or male organs, in each flower, (which are figured with their filaments and anthers in the annexed plate,) and second order, DIGYNIA, from each flower having two pistils, or female organs, which are termed feathery stigmas in the plate. The sweet-scented vernal grass has, however, only two stamens in each flower, for which reason it is placed in the second class, DIANDRIA, whilst many of the foreign grasses produce stamens in one flower and pistils in a separate, which renders it necessary to place them in the twenty-first class, MONŒCIA. It will thus be seen that the grasses afford many examples for objecting to this system of classification.

The natural system being now almost universally adopted by botanists, the grasses form one of the best marked groups to be found, and are placed into a natural order called GRAMINEÆ, among the ENDOGENS; the latter term signifying, that the youngest growth of the plant takes place from the interior or centre, one of the principal characters depended on for separating this section of the vegetable kingdom from the still larger section which increase in circumference by additional new matter being constantly made to the outside—hence called EXOGENS, such as our common trees, &c.

The former section is analogous to that called MONOCOTYLEDONS, in some botanical works, and the latter to DICOTYLEDONS, terms which signify plants sprouting with one seed-leaf, as all our grasses do, and those sprouting with two seed-leaves, such as turnips, &c.

Most grasses flower in loose bunches, which are called *panicles* (see example in plate); others produce the flowers, with scarcely any footstalks, close to the axis, in which case the flowers are said to be in *spikes*.

KINDS AND QUANTITIES OF GRASS SEEDS, CLOVERS, AND VETCHES, REQUIRED, PER ACRE.

I.—For Alternate Husbandry.

SEEDS.		Irish Acre.						Statute Acre.					
		Light and Medium Soils.			Heavy Soils.			Light and Medium Soils.			Heavy Soils.		
		For One Year's Hay.	For One Year's Hay and One Year's Pasture.	For One Year's Hay and Two Years' Pasture.	For One Year's Hay.	For One Year's Hay and One Year's Pasture.	For One Year's Hay and Two Years' Pasture.	For One Year's Hay.	For One Year's Hay and One Year's Pasture.	For One Year's Hay and Two Years' Pasture.	For One Year's Hay.	For One Year's Hay and One Year's Pasture.	For One Year's Hay and Two Years' Pasture.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Grasses,	Perennial Rye,	12	10	9	15	10	9	9	8	7	12	8	7
	Italian Rye,	25	10	7	25	10	6	20	8	5½	20	8	5
	Cocksfoot,	–	7	7	–	6	5	–	5½	5½	–	5	4
	Meadow Foxtail,	–	3	4	–	3	4	–	2½	3	–	2½	3
	Meadow Fescue,	–	–	3	–	–	3	–	–	2½	–	–	2½
	Timothy,	–	–	–	–	3	4	–	–	–	–	2½	3
Clovers,	Red,	12	9	5	11	10	5	9	7	4	8½	7½	4
	White,	–	6	8	–	5	8	–	5	6	–	4	6
	Yellow,	–	3	–	–	5	4	–	2½	–	–	4	3
	Perennial or Cow Grass,	–	–	3	–	–	3	–	–	2½	–	–	2½
Vetches,	The Cultivated kind,	6	–	–	6	–	–	5	–	–	5	–	–
	The Bushy one,	–	4	4	–	–	–	–	3	3	–	–	–
	Totals,	55	52	50	57	52	51	43	41½	39	45½	41½	40

It is to be observed, that the quantities and kinds of Grasses recommended in Table I., and the three following Tables, have been calculated for ground of medium quality, which has undergone drainage to some extent, and has been worked up to a good tilth. When this is not the case, but the tilth coarse and the ground sour for want of drainage, the quantities will require to be increased. On the other hand, when proper drainage has been effected, with a corresponding degree of fineness of tilth, lesser quantities may be sufficient. The periods of the season at which the sowings are made ought also to be considered: if, for example, the seeds were sown so late as October, larger quantities would be required, in consequence of the young plants being liable to perish during the winter, and the weak seeds not to vegetate.

It is further to be observed, that when the ground is moderately dry and good, and the situations not at too great elevations, experience has proved the great superiority of the Italian Rye-grass over all the other kinds with which we are hitherto acquainted, for being used when a grass crop of only *one* year is required. This species might therefore be advantageously sown alone, leaving out the Perennial, at the rate of from 2½ to 3 bushels per statute acre.

II.—For Permanent Pasture.

SEEDS.		Irish Acre.						Statute Acre.					
		Light Soil.		Medium Soil.		Heavy Soil.		Light Soil.		Medium Soil.		Heavy Soil.	
		With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Grasses,	Perennial Rye,	10	12	10	10	9	12	8	9½	8	8	7	9½
	Italian Rye,	5	6	6	6	5	6	4	4½	4½	4½	4	4½
	Meadow Foxtail,	5	5	5	6	5	6	4	4	4	4½	4	4½
	Cocksfoot,	5	5	5	6	6	7	4	4	4	4½	4½	5½
	Sweet-Scented Vernal,	2	–	1	1	–	–	1½	–	1	1	–	–
	Hard Fescue,	2	2½	1½	1½	1	1	1½	2	1¼	1¼	¾	¾
	Creeping Fescue,	–	2	1½	1½	1	–	–	1½	1¼	1¼	¾	–
	Meadow Fescue,	2	2½	2	2	2	3	1½	2	1¾	1¾	1½	2½
	Tall Fescue,	–	–	–	–	1	1	–	–	–	–	¾	¾
	Smooth Stalked Meadow,	2	2	1½	1½	2	3	1½	1½	1½	1½	1½	2½
	Rough Stalked Meadow,	–	–	2	4	–	–	–	–	1¾	3	–	–
	Timothy,	–	–	1½	2	5	6	–	–	1¼	1½	4	5
	Crested Dogstail,	1	2	–	–	–	–	¾	1½	–	–	–	–
	Tall Oat,	–	–	2	2	1	1	–	–	1¾	1½	1	1
	Yellow Oat,	–	–	–	–	1	1	–	–	–	–	1	1
	Upright Brome,	–	–	–	–	1	1	–	–	–	–	1	1
Clovers,	Red,	1½	2	1½	1½	2	2	1¼	1½	1¼	1¼	1½	1½
	White,	5	8	6	8	6	8	4	6	4½	6¼	4¾	6¼
	Yellow,	3	2	2	3	2	2	2½	1½	1½	2½	1½	1½
	Perennial,	2	5	1½	4	3	5	1½	4	1¼	3	2½	4
	Bush Vetch,	4	4	4	4	4	4	3	3	3	3	3	3
	Totals,	49½	60	54	64	57	69	39	46½	43½	50¼	45	54¾

The above Table has been drawn up with a view of combining economy with a good selection of Seeds, such as will insure a good pasture. Small quantities of a few other plants might be added, and would be useful, among which are Lucerne, Millfoil, and Rib-grass.

In case of difficulty in procuring all the above sorts, the following will produce a good permanent sward :—

Grasses,	Perennial Rye,	10	14	11	15	10	15	8	11	9	12	8	12
	Meadow Foxtail,	8	8	8	8	9	10	6	6	6	6	7	8
	Cocksfoot,	8	8	8	8	9	10	6	6	6	6	7	8
	Meadow Fescue,	4	6	4	6	6	6	3	5	3	5	5	5
	Timothy,	4	6	4	6	6	6	3	5	3	5	5	5
	Yellow Oat,	3	4	3	4	3	4	2½	3	2½	3	2½	3
	Rough Stalked Meadow,	3	3	3	3	3	3	2½	2½	2½	2½	2½	2½
Clovers,	Red,	1	1½	1	1½	2	2	1	1¼	1	1¼	1	1
	White,	6	6	6	6	6	8	4½	4½	4½	4½	5	6
	Yellow,	3	3	3	3	2	2	2½	2½	2½	2½	1	1
	Totals,	50	59½	51	60½	56	66	39	46¾	40	47¾	44	51½

III.—For Permanent Pasture for Ornamental Parks.

SEEDS.		Irish Acre.						Statute Acre.					
		Light Soil.		Medium Soil.		Heavy Soil.		Light Soil.		Medium Soil.		Heavy Soil.	
		With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.	With a Crop.	Without a Crop.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Grasses,	Perennial Rye,	15	16	16	16	14	16	12½	12½	12½	12½	11	12½
	Cocksfoot,	3	3	3	3	5	5	2¼	2½	2½	2½	4	4
	Hard Fescue,	3	4	4	4	3	4	2¼	3	3	3	2½	3
	Meadow Fescue,	3	3	4	4	4	4	2¼	2½	3	3	3	3
	Creeping Fescue,	2	4	2	3	–	–	1¼	3	1½	2½	–	–
	Smooth Stalked Meadow,	1	1	1	1	–	–	1	1	1	1	–	–
	Rough Stalked Meadow,	–	1	3	4	3	5	–	1	2½	3	2½	4
	Wood Meadow,	–	–	–	4	1½	2	–	–	–	3	1¼	1½
	Fine Bent,	1	1	–	–	–	–	1	1	–	–	–	–
	Stoloniferous Bent,	1	1	1	1	2	2	1	1	1	1	1½	1½
	Timothy,	–	–	1½	3	4	5	–	–	1¼	2½	3	4
	Meadow Foxtail,	1½	2	2	3	3	5	1	1½	1¼	2½	2½	4
	Sweet-Scented Vernal,	1½	1½	2	1	1	1	1	1	1½	1	1	1
	Yellow Oat,	1	1½	–	–	–	–	1	1½	–	–	–	–
Clovers,	Red,	–	–	1	2	1	1	–	–	1	1½	1	1
	White,	6	8	6½	8	6	8	5	6	5	6	4¾	6
	Yellow,	2	2	2	2	1	2	1½	1½	1½	1½	1	1½
	Perennial,	2	4	2	3	2	3	1½	3	1½	2¼	1½	2½
	Totals,	43	53	51	62	50½	63	34½	42	40	48¾	40½	49½

To the above may be added 1 lb. of each of the following: large Birdsfoot Trefoil, common Birdsfoot Trefoil, Rib-grass, and Bush Vetch, especially if the ground be good and heavy.

The following will produce a good permanent pasture:—

Grasses,	Perennial Rye,	15	15	15	16	15	18	12	12	12	12½	12	14
	Meadow Foxtail,	6	6	6	6	6	9	4½	4½	4½	4½	4½	7
	Cocksfoot,	3	3	3	3	4	6	2½	2½	2½	2½	3	4½
	Meadow Fescue,	4	4	6	6	6	6	3	3	4½	4½	4½	4½
	Hard Fescue,	3	3	2	2	2	2	2½	2½	1½	1½	1½	1½
	Timothy,	2	2	2	2	4	5	1½	1½	1½	1½	3	4
	Smooth Stalked Meadow,	2	2	2	2	2	2	1½	1½	1½	1½	1½	1½
Clovers,	White,	6	8	6	8	6	8	4½	6	4½	6	5½	6½
	Yellow,	2	2	2	2	2	2	1½	1½	1½	1½	1½	1½
	Totals,	43	45	44	47	47	58	33½	35	34	36	37	45

IV.—For Fine Lawns, intended to be Closely Mown; for Orchards, Young Plantations, and for Thick Shady Woods.

SEEDS.		Irish Acre.			Statute Acre.		
		Fine Lawns to be kept constantly Mown.	Orchards and Young Plantations.	Thick Shady Woods.	Fine Lawns to be kept constantly Mown.	Orchards and Young Plantations.	Thick Shady Woods.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Grasses,	Perennial Rye,	14	12	–	11	9½	–
	Cocksfoot,	–	6	6	–	4½	4½
	Hard Fescue,	6	–	–	4½	–	–
	Creeping Fescue,	1	–	–	1	–	–
	Meadow Fescue,	–	2	–	–	1½	–
	Rough Stalked Meadow,	–	3	–	–	2½	–
	Wood Meadow,	3	3	5	2½	2½	4
	Tall Oat,	–	2	–	–	1½	–
	Yellow Oat,	1½	–	–	1	–	–
	Sweet-Scented Vernal,	1	3	3	1	2½	2½
	Meadow Foxtail,	–	2	–	–	1½	–
	Wood Bent,	–	1½	4	–	1	3
	Fine Bent,	1	–	–	1	–	–
	Crested Dogstail,	10	–	–	8	–	–
	White Grass,	–	–	2	–	–	1½
	Wood Brome,	–	–	7	–	–	5½
	Tall Brome,	–	–	8	–	–	6
	Wood Millet,	–	–	4	–	–	3
Clovers,	White,	6	4	–	4½	3½	–
	Yellow,	1	2	–	1	1½	–
	Perennial,	–	2	–	–	1	–
	Large Birdsfoot Trefoil,	–	–	3	–	–	2½
	Bush Vetch (*vicia sepium*),	–	4	4	–	3	3
	Totals,	44½	46½	46	35½	36	35½

These calculations are made for lands of medium quality, and it is to be observed, that light lands will not require quite so much seed, and heavy a little more. A similar observation is to be made with respect to the manner of sowing with or without a crop, at the time of laying down the lands; if with a crop, about four pounds less seed will do.

The following kinds will answer the purpose almost equally well:—

Grasses,	Perennial Rye,	–	14	–	–	11	–
	Cocksfoot,	–	10	10	–	8	8
	Hard Fescue,	4	–	–	3	–	–
	Rough Stalked Meadow,	–	6	–	–	4½	–
	Yellow Oat,	2	–	–	1½	–	–
	Sweet-Scented Vernal,	4	–	–	3	–	–
	Crested Dogstail,	16	–	–	13	–	–
	Wood Brome,	–	–	4	–	–	3
	Wood Millet,	–	–	6	–	–	4½
	Agrostis Vulgaris,	4	–	8	3	–	6½
	Wood Meadow,	6	–	10	4½	–	8
	Meadow Foxtail,	–	10	–	–	8	–
Clovers,	White,	6	–	–	4½	–	–
	Yellow,	–	–	–	–	–	–
	Totals,	42	40	38	32½	31½	30

V.—For Lands liable to occasional Inundations; for Reclaiming of Deep Bogs for Pasture; for such Marshy Grounds as are under Water a considerable portion of the Year, and cannot well be Drained; and for Salt Marshes.

	SEEDS.	Irish Acre.				Statute Acre.			
		Lands occasionally Inundated.	Deep Bog.	Marshy Grounds.	Salt Marshes.	Lands occasionally Inundated.	Deep Bog.	Marshy Grounds.	Salt Marshes.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Grasses,	Perennial Rye,	10	8	–	–	8	6	–	–
	Cocksfoot,	–	8	–	–	–	6	–	–
	Creeping Fescue,	–	–	–	10	–	–	–	8
	Tall Fescue,	–	–	3	–	–	–	2	–
	Rough Stalked Meadow,	4	–	4	–	3	–	3	–
	Creeping Sea Meadow,	–	–	–	5	–	–	–	4
	Water Meadow,	–	–	8	–	–	–	6	–
	Floating Meadow,	4	–	8	–	3	–	6	–
	Tall Meadow,	1½	–	–	–	1	–	–	–
	Reflex Meadow,	–	–	–	5	–	–	–	4
	Tall Oat,	1	–	–	–	1	–	–	–
	Sweet-Scented Vernal,	1½	6	–	–	1	4	–	–
	Meadow Foxtail,	1½	–	–	–	1	–	–	–
	Jointed Foxtail,	1½	–	2	–	1	–	1½	–
	Stoloniferous Bent,	3	6	6	10	2½	4	4½	8
	White,	2	8	–	–	1½	6	–	–
	Timothy,	4	6	–	–	3	4½	–	–
	Reed Canary,	2	–	4	–	1½	–	3	–
	Water Whorl Grass,	–	–	2	–	–	2½	1½	–
Clovers,	Large Birdsfoot Trefoil,	3	3	2	–	2½	–	1½	–
	Lucerne,	–	–	–	4	–	–	–	3
	White,	–	3	–	4	–	2½	–	3
	Yellow,	–	–	–	2	–	–	–	1½
	Perennial,	–	–	–	3	–	–	–	2
	Totals,	39	48	39	43	30	35½	29	33½

It may be here observed, that in the case of reclaiming of deep bog, when only one year's hay is intended, a mixture of Cocksfoot, Fibrous white grass, and Stoloniferous bent grass, should be sown in the proportions stated above; and if the ground be mixed with loam, about 1½ lbs. of Timothy grass would be a good addition. If top-dressed with marly clay, which is favourable to the growth of clover, a mixture of both red and white is recommended.

The following kinds will, in general, be suitable, when the above cannot be readily procured:—

Grasses,	Perennial Rye,	14	8	–	–	11	6	–	–
	Stoloniferous Bent,	5	6	–	10	4	4½	–	8
	Sweet-Scented Vernal,	6	–	–	–	5	–	–	–
	Rough Stalked Meadow,	6	–	–	–	5	–	–	–
	Floating Meadow,	–	–	6	–	–	–	4½	–
	White,	–	8	–	–	–	6	–	–
	Cocksfoot,	–	16	–	–	–	12	–	–
	Tall Fescue,	–	–	14	–	–	–	11	–
	Water Meadow,	–	–	6	–	–	–	4½	–
	Reed Canary,	–	–	6	–	–	–	4½	–
	Water Whorl Grass,	–	–	6	–	–	–	4½	–
	Creeping Fescue,	–	–	–	10	–	–	–	8
	Reflex Meadow,	–	–	–	10	–	–	–	8
	Jointed Foxtail,	–	–	–	10	–	–	–	8
	Timothy,	8	8	–	–	6	6	–	–
	Totals,	39	46	38	40	31	34½	29	32

VI.—For Heathy and Moory Lands, which have been Reclaimed, with a view to their Producing better Pasturage, and for Sandy Ground and Rabbit Warrens.

	SEEDS.	Irish Acre.		Statute Acre.	
		Warrens and Sand Hills.	Heathy Moory Lands.	Warrens and Sand Hills.	Heathy Moory Lands.
		lbs.	lbs.	lbs.	lbs.
Grasses,	Perennial Rye,	10	12	8	9
	Hard Fescue,	–	2	–	1½
	Creeping Fescue,	6	–	4½	–
	Smooth-Stalked Meadow,	3	1	2½	¾
	Fine Bent,	3	–	2½	–
	Common Bent,	–	3	–	2½
	Crested Hair,	2	–	1½	–
	Downy Hair,	3	–	2½	–
	Cocksfoot,	–	6	–	4½
	White Grass,	–	4	–	3
	Sweet-Scented Vernal,	–	6	–	4½
	Stoloniferous Bent,	–	2	–	1½
	Meadow Foxtail,	–	2	–	1½
Clovers,	Birdsfoot Trefoil,	2	3	1½	2½
	Millfoil,	1	–	1	–
	Lucerne,	4	–	3	–
	Slender,	3	–	1	–
	White,	5	4	4	3
	Yellow,	4	2	3	1½
	Totals,	46	47	35	35¾

The following may be considered the best kinds for these localities, in case of there being much difficulty in getting the above sorts:—

For Sand Hills and Warrens.			For Heathy Moory Lands.		
Seeds.	Irish Acre.	Statute Acre.	Seeds.	Irish Acre.	Statute Acre.
	lbs.	lbs.		lbs.	lbs.
Creeping Fescue,	20	15	Perennial Rye,	12	9½
Hard Fescue,	5	4	Agrostis vulgaris,	6	4½
Smooth-Stalked Meadow,	10	8	Cocksfoot,	8	6¼
Birdsfoot Trefoil,	10	8	Sweet-Scented Vernal,	10	7
			White Clover,	7	5½
			Yellow ditto,	3	2¾
Totals,	45	35	Totals,	46	35½

Average Prices of Hay, Pasture Grasses and Clovers, &c.

It has been considered the simplest and most accurate method to calculate by weight, as measures vary in different localities.

Grasses.

		Per lb. s.	d.
Agrostis stolonifera,	Marsh Bent Grass,	1	0
——— vulgaris,	Common Fine Bent Grass,	1	3
——— canina,	Brown Moor Bent Grass,	1	9
Aira cæspitosa,	Turfy Hair Grass,	0	9
Alopecuris geniculatus,	Jointed Foxtail Grass,	3	0
——— pratensis,	Meadow Foxtail Grass,	1	6
Ammophila arundinacea,	Common or Sea Bent Grass,	2	6
Anthoxanthum odoratum,	Sweet-Scented Vernal Grass,	1	6
Arrhenatherum avenaceum,	Tall Oat Grass,	0	6
Avena flavescens,	Yellow Oat Grass,	2	6
Brachypodium sylvaticum,	Wood Brome Grass,	1	3
Bromus giganteus,	Tall Wood Brome Grass,	1	0
Cynosuris cristatus,	Crested Dogstail Grass,	1	0
Dactylis glomerata,	Cocksfoot Grass,	0	8
Festuca duriuscula,	Hard Fescue Grass,	0	9
——— elatior,	Tall Fescue Grass,	0	10
——— loliacea,	Spiked Rye Grass,	1	0
——— ovina,	Sheep's Fescue Grass,	0	9
——— pratensis,	Meadow Fescue Grass,	0	8
——— rubra,	Creeping-Rooted Fescue Grass,	0	9
Glyceria aquatica,	Water Sweet Grass,	1	3
——— fluitans,	Float Sweet Meadow Grass,	1	0
Holcus lanatus,	White Grass or Yorkshire Fog,	0	4
——— mollis,	Creeping-Rooted White Grass,	0	6
Lolium italicum,	Italian Rye Grass,	0	8
——— perenne,	Perennial Rye Grass,	0	2½
	The Improved Varieties of Rye Grass,	0	3
Milium effusum,	Wood Millet Grass,	2	0
Phalaris arundinacea,	Reed Canary Grass,	2	0
Phleum pratense,	Timothy Grass,	0	7
Poa annua,	Annual Meadow Grass,	3	6
—— nemoralis,	Wood Meadow Grass,	1	6
—— pratensis,	Creeping-Rooted Meadow Grass,	1	0
—— trivialis,	Rough-Stalked Meadow Grass,	1	0

Clovers, &c.

Clover, Red,	0	7
——— Perennial or Cow Grass,	0	9
——— White,	0	7
——— Yellow,	0	4
Lotus major, Great Birdsfoot Trefoil,	2	6
Lucerne,	1	0
Plantago lanceolata, Rib Grass,	0	6
Millfoil or Yarrow,	2	6
Cultivated Vetch,		

The following may be considered the average weight in lbs., per bushel, of a few of the principal Grass Seeds:—

Anthoxanthum odoratum,	6½	Dactylis glomerata,	11½
Agrostis stolonifera,	15	Alopecuris pratensis,	6
Cynosuris cristatus,	30	Festuca pratensis,	12
Lolium perenne,	23	Poa trivialis,	16
Phleum pratense,	44		

BRITISH AGRICULTURAL GRASSES,

WITH

DRIED SPECIMENS OF EACH KIND.

AGROSTIS STOLONIFERA.

STOLONIFEROUS BENT GRASS.

A very general species on low lying lands, such as are usually termed "damp bottoms," especially where the soil happens to be retentive or boggy. It is not considered one of the best grasses for planting on good ground, capable of producing the superior kinds in perfection, but for low lands, liable to occasional inundations, it is well adapted, or for reclaimed bog. This is the once famous *Fiorin* of the late Doctor Richardson, who tried it extensively through the northern counties, both on inland situations and on the sea coast.

The *Fiorin* is a late flowering grass, even with favourable weather, whilst in cold backward seasons it only flowers sparingly, if at all; therefore good seed is not often produced in Ireland, and the method of propagating it by planting portions of the stems, has been very generally resorted to with success. The first three or four joints of the culms or stems lie flat on the surface of the damp soil, emitting roots in abundance, which if cut and strewed over the surface of the ground in damp weather, and afterwards partially covered by scattering moist earth over them, a sufficient quantity will root to produce a plentiful crop. The observations I have made on this grass in its natural state, and also under cultivation, do not warrant me to suggest either the planting of it from offsets or the sowing of seeds to much extent in Ireland; though I do not consider its place so low in the scale of agricultural grasses as to term it a "vile weed," as it has recently been by a writer of considerable authority; on the contrary, I have found it to constitute a very large proportion of the grasses of our richest natural pastures, in almost every county in Ireland, especially where the situations were inclined to damp. I have further observed it to be in general one of the first grasses to grow spontaneously on bog after the turf has been cut. It is eaten by all kinds of cattle, and is really valuable, as it grows naturally in this moist country, but not a grass which requires to be artificially increased.

There are several very distinct varieties of it, some of which have been raised to the rank of species by some authors, but now considered only different forms of the plant, caused by growing in situations differing in various degrees of moisture, shade, &c.; yet I have found these varieties to retain their respective characters under cultivation during several years. The wood and marsh varieties, *Agrostis nemoralis* and *A. palustris*, are the most distinct; the former occurs in moist woods, the latter in watery meadows.

AGROSTIS STOLONIFERA—STOLONIFEROUS BENT GRASS.

AGROSTIS VULGARIS.

COMMON FINE BENT GRASS.

A very common and useful grass in some of the situations where it grows naturally, such as elevated heathy moors, cold bleak sides of mountains, &c., as well as mountain glens, where it constitutes one of the principal grasses cattle have to depend on when turned out to the hills. It is also a very general grass on dry pastures; and even lawns in pleasure-grounds which are kept closely cut, are, in many instances through the county Dublin, chiefly composed of it. Late in autumn, when most other grasses have ceased to grow for the season, this species continues vigorous, and may be observed in mountainous parts of the country, forming lively green patches on spots bare of heath, as well as by the sides of water rills. Among all our indigenous grasses this is the one which is most generally diffused in Ireland; and, although considered inferior to most of our pasture kinds, and not even deserving of notice, farther than being enumerated as a species by some writers on the subject, it may not be too much to state, that it supplies at least one-sixth part of the food which our pasture-fed cattle fatten on.

There are two very distinct varieties:—the dwarf and awned, *Agrostis pumilla* and *A. aristata;* the former of which seldom attains a greater height than from three to five inches, when in full flower. The latter is a strong growing variety, and more resembles the *A. stolonifera.*

Besides the two species, with their varieties, of which examples are here given, a third species, *Agrostis canina,* Brown Bent Grass, is indigenous to Ireland. It is not so common as the others, but occurs occasionally on moist meadows. It may be generally distinguished from *A. vulgaris,* by its more slender appearance, but particularly by the florets having small awns attached to them, which protrude half their length beyond the summit of the scales of the flowers. It is not considered of more agricultural interest than to form a small portion of any mixture of grasses about to be sown on boggy land for permanent pasture.

The variety *pumilla* varies from two to four inches in height, and generally occurs on light sandy pastures, where its small tufted stems afford a scanty supply of food for sheep, goats, &c.

AGROSTIS VULGARIS—COMMON FINE BENT GRASS. VARIETY PUMILLA.

AIRA CÆSPITOSA.

TURFY HAIR GRASS.

One of the coarsest of our natural grasses, growing abundantly on damp boggy land, where it forms dense tufts, called by the country people, "hassocks," which are both useful and safe to step on when crossing over deep bog. Although a beautiful grass, it is nearly worthless for agricultural purposes, farther than being well calculated for covering hay and corn ricks, cabins, &c. It also affords good under-covering for game, where it grows naturally, and might be useful to sow in boggy moist woods for that purpose. Wherever this grass is produced in quantity, it indicates a soil much in want of draining, as it luxuriates most where water stagnates about its roots. It is therefore of more importance to get rid of it than to produce it, a process which is best effected by drainage of the land, and afterwards by digging up the coarse hassocks in autumn when dry, which, if burnt then or in spring, and the ashes scattered over the surface of the ground, some of the superior grasses, along with White Clover, will soon be found to spring up spontaneously to take its place.

AIRA FLEXUOSA.

ZIGZAG HAIR GRASS.

Of little importance as a meadow grass, but for mountainous pastures, where rocks and stony places prevail, this grass becomes more valuable, as it only grows well in such places, and will not thrive elsewhere.

It is one of the few species which grow at a great elevation on the mountains, where it affords a considerable portion of the pasturage which sheep feed on. They appear to relish it, and eat it down in common with the Fescue grasses, which generally grow along with it.

AIRA CÆSPITOSA—TUFFY HAIR GRASS.

AIRA FLEXUOSA—ZIGZAG HAIR GRASS.

AIRA CARYOPHYLLEA.

SILVER HAIR GRASS.

This beautiful little grass, though of minor consideration in an Agricultural point of view, occurs frequently on dry gravelly pastures, producing its foliage and flowering early in spring, before any of the superior grasses are much advanced.

AIRA PRÆCOX.

EARLY HAIR GRASS.

This small species closely resembles the last, and grows generally in company with it, on dry wall-tops and banks. As the specific name implies, it is one of the earliest of all our grasses to flower.

AIRA CARYOPHYLLEA—SILVER HAIR GRASS.

AIRA PRÆCOX—EARLY HAIR GRASS.

TRISETUM FLAVESCENS.—LINDLEY.
AVENA FLAVESCENS.—SMITH.

YELLOW OAT GRASS.

Generally ranked among the superior grasses. It grows naturally on rather light meadow-land, producing an average supply of both leaves and stems, which contain a good proportion of nutritive matter, and are much relished by cattle. It requires to be grown with other stronger growing kinds, in order to prevent its weak stems from lodging, which they are much inclined to do, so that in a mixture of good grass seeds for laying down permanent pastures, its merits entitle it to form a portion; especially if intended for sheep walks, as they prefer it to most other kinds of grasses. It is also valuable to introduce in a mixture for sowing down lawns in pleasure-grounds.

TRISETUM PUBESCENS.—LINDLEY.
AVENA PUBESCENS.—SMITH.

DOWNY OAT GRASS.

This occurs generally on light ground or on dry sand hills near the sea-coast, and is only valuable for such places.

The leaves, which are short and downy, are not much relished by cattle, and the stems, when allowed to become old and hard, get very wiry. Its beautiful silvery panicle shows to advantage among other grasses early in June.

In an Agricultural point of view, it is only fit for sowing as part of a mixture, on dry gravelly or sandy places, where, however, it produces a considerable supply of herbage early in the season. In sheltered situations, the foliage is rather luxuriant by the middle of March.

AVENA FLAVESCENS—YELLOW OAT GRASS.

AVENA PUBESCENS—DOWNY OAT GRASS.

ARRHENATHERUM AVENACEUM.

TALL OAT-LIKE GRASS.

A very general species on both dry and moderately moist meadows, where it may be at once recognised, by shooting out taller than any of our other meadow grasses. Its merits entitle it to rank among the superior species, inasmuch as it produces a large quantity of both leaves and culms, besides having the additional merit of shooting rapidly into after-grass. The stout culms assist other weaker growing kinds from lodging, in which respect it is valuable, and should form part of a mixture of grass-seeds for sowing on good land.

A variety, *A. bulbosum* (of some authors), grows on dry lands, and has knotty roots, known to the country people by the name of *pearl*.

Mr. Sinclair, in his experiments on the nutritive properties of grasses, found them increase, in this species, when grown on a heath soil, resting on a clay subsoil; but in every case there was too large a proportion of bitter extractive and saline matters, to warrant its cultivation, excepting along with a considerable admixture of other kinds.

Among the large collection of grasses in the Botanic Gardens, this is one of the earliest to produce its foliage plentifully By the middle of March, when most of the other kinds have scarcely commenced to grow, the grass on this species is sufficiently far advanced to afford a considerable supply of herbage—a circumstance which enhances its value, when early feeding for sheep is an object. It ought, however, to be observed, that as soon as the Fescue grasses shoot forth their foliage, these animals will invariably be found to incline most to feed on them, and reject the other kinds.

ARRHENATHERUM AVENACEUM—TALL OAT-LIKE GRASS.

AMMOPHILA ARUNDINACEA.

SAND REED OR BENT GRASS.

Not of any value for cattle, though they will crop the very young leaves, when turned out on a sandy sea coast.

It grows naturally on the sand hills and rabbit warrens near the sea shore, where its extensively creeping roots bind the shifting sand firmly together, for which purpose, combined with the sea lime grass, *Elymus arenarius*, they are much used both in this and other countries, especially Holland.

The culms are cut, and wrought into many useful purposes, such as foot-mats, coverings for stairs, &c., in the manufacture of which, many families residing along the coast, are employed most of the year.

The value of these grasses for resisting the encroachments of the ocean, has been long recognised. During the reign of William III., the Scottish Parliament of that period passed an Act for their preservation on the sea coasts of that country. This law, with further enactments, were rendered applicable to the English coasts in the reign of George II., when it was held penal for any individual (not even excepting the lord of the manor) to cut Bent, or to be in possession of any within eight miles of the coast.

AMMOPHILA ARUNDINACEA—SAND REED OR BENT GRASS.

ANTHOXANTHUM ODORATUM.

SWEET-SCENTED VERNAL GRASS.

A very common species, growing well on almost every kind of soil, from the low marshy bog, to a considerable elevation on the mountains.

On account of its earliness, and the great proportion of nutritive matter contained in the leaves and stems, its merits entitle it to form a portion of any mixture of grass seeds about to be sown on newly reclaimed bog, or moist meadow, where it attains great perfection. This is the species which is supposed to afford that agreeable smell peculiar to newly mown hay. It is considered one of the most common grasses throughout the whole of Europe, as well as in the most northern parts of North America.

SESLERIA CŒRULEA.

BLUE MOOR GRASS.

This may be considered the most alpine grass among all our Irish species, with the exception of Poa alpina; though, in this country it descends to nearly sea level. At Portumna, in the Marquess of Clanricarde's deer park, it forms the principal part of the pasturage in many places, growing to the edge of the waters of the Shannon; whilst on Benbulben mountain, near Sligo, it occurs at a great elevation. It is not a common species in Ireland.

ANTHOXANTHUM ODORATUM—SWEET-SCENTED VERNAL GRASS. SESLERIA CŒRULEA—BLUE MOOR GRASS.

ALOPECURUS PRATENSIS.

MEADOW FOXTAIL.

One of the best of all our natural grasses, for either pasture or meadow-land, resting on ground which is not too wet. It occurs very generally through Ireland, and forms a considerable portion of all the best meadows, being one of the earliest to shoot into flower, as well as leaf, consequently valuable for ewes during the lambing season.

On good land, the quantity of herbage produced equals that of any other of the superior kinds, with the exception of Cocksfoot, for a hay crop, besides, it affords fine after-grass, and retains firm possession of the soil; it is therefore well suited also for permanent pasture.

For alternate cropping it is not so desirable, in consequence of not arriving at full perfection sooner than the third year after sowing. Although the quantity of herbage produced is not so large as that of the Cocksfoot grass, it contains more nutritive matter. Mr. Sinclair considers, that an acre of ground, of medium quality, laid down with the Foxtail grass and white clover mixed, is sufficient to support five couple of ewes and lambs. Sheep are very fond of it; and luxuriating as it does, on the localities best adapted for their pasturage, it should form a large proportion of any mixture of grass seeds about to be sown on land intended principally for sheep walks, as well as for other purposes, particularly where permanent meadow is desired.

ALOPECURUS GENICULATUS.

JOINTED FOXTAIL.

A small species, which grows in moist situations, generally occupying the furrows of ridges where water lodges during the winter. It is not worth cultivating where any of the good grasses will grow, but might be useful for sowing as part of a mixture on wet boggy land, or cold retentive clay. Cattle are rather fond of it, and during dry weather it affords them a grateful bit, when other herbage is much dried up.

ALOPECURUS PRATENSIS—MEADOW FOXTAIL. ALOPECURUS GENICULATUS—JOINTED FOXTAIL.

BRIZA MEDIA.

QUAKING GRASS.

A beautiful species, but of no great value for Agricultural purposes.

It occurs on light dry soils, in considerable quantity, in many parts of the country, where the silvery *spikelets* of the panicles render it very attractive; and in such situations, a mixture of it, with other kinds suited for similar localities, will be found useful.

The stems seldom attain to a greater height than from twelve to fourteen inches; but on the wet banks along the sides of both the Royal and Grand Canals, it frequently grows two feet high; which indicates that a moist retentive soil is that on which it arrives at greatest perfection. This idea is, however, contrary to the opinions given by most writers on grasses, who consider the Quaking grass to grow best on very poor soil. The spikelets of the panicle are for the most part of a silvery grey colour; but a pretty variety, with straw-coloured spikelets, is not uncommon near Dublin.

On analyzing this grass, it has been found to contain most nutritive matter when the seed is nearly ripe. The weight of nutritive matter which is lost by taking the crop at the time of flowering, "exceeds one-seventh part of its value."

Briza Media—Quaking Grass.

BROMUS MOLLIS.

SOFT BROME GRASS.

A common grass on dry poor meadows and waste grounds, but an inferior species to many others, and not much to be recommended for good land. On dry sandy or gravelly soils it becomes more useful, producing a tolerable supply of both leaves and stems.

Being only of one year's duration it arrives quickly at perfection, ripening seeds earlier than the other species which generally grow in company with it; consequently in most cases where cheap grass seeds are sown on land, a large proportion of the produce will be found to be this grass: these so called cheap mixtures being principally the sweepings of hay lofts, and composed of the most worthless grasses, along with pernicious weeds, which ripen their seeds before the superior grasses.

BROMUS ERECTUS.

UPRIGHT BROME GRASS.

A good grass, but not by any means of general occurrence through the country, though it grows in most of the good meadows on the North side of Dublin, where it shows conspicuously among the other species on account of its tall upright stems, which, as Mr. WHITE long ago observed, are very useful mixed with other grasses, which they prevent from lodging. It furnishes well with leaves at bottom, and should always form a portion of any mixture about to be sown on good ground. It has the additional merit of shooting into leaf early in spring.

BROMUS MOLLIS—SOFT BROME GRASS. BROMUS ERECTUS—UPRIGHT BROME GRASS.

BUCETUM GIGANTEUM.—PARNELL.
BROMUS GIGANTEUS.—SMITH

TALL BROME GRASS.

A tall growing species, which only occurs in woods and shady places, and is there of some consideration, being one of the few grasses which will grow under the shade of trees, where it affords cover for game, and is also eaten by cattle. It is not suitable for meadow or pasture, and therefore a misnomer to call it an Agricultural grass. But the species which will grow under the dense shade of trees being of much importance for such localities, a knowledge of them is also necessary, to those who desire to take advantage of the resources which nature has supplied for assisting to improve every part of an estate. The ripe seeds of the Tall Brome Grass afford food to different kinds of birds, though the leaves, which are produced in abundance, do not contain much nutritive matter for cattle.

BROMUS GIGANTEUS—TALL BROME GRASS.

BROMUS STERILIS.

BARREN BROME GRASS.

A species of little importance to the Agriculturist. It generally occurs on hedge banks and sides of woods, throwing up a considerable quantity of soft green foliage early in the year, when it is eaten by cattle, which refuse it as soon as other grasses are to be had. The nutritive powers of this grass are contained chiefly in the culms and leaves, which form a comparatively small portion with the large flowering panicles. Like the Wall Barley Grass, the long sharp awns, which are produced on the scales of the flowers, prevent cattle from eating it after they become hard, as the seeds approach to ripeness.

BRACHYPODIUM SYLVATICUM.

WOOD BROME GRASS.

The prevailing grass in dry shady woods and on ditch banks, along the borders of plantations, &c., where in such places it is only useful. Cattle dislike it on account of its coarse harsh nature; but along with the Tall Brome, and a few other kinds, it is very good for affording cover where other grasses will not grow.

BROMUS STERILIS—BARREN BROME GRASS. BRACHYPODIUM SYLVATICUM—WOOD BROME GRASS.

CYNOSURIS CRISTATUS.

CRESTED DOGSTAIL GRASS, OR TRANEEN.

A fine sheep grass for dry pastures or for forming lawns. This valuable species constitutes a large portion of most of the best sheep walks in this country, particularly those resting on limestone or basalt. The leaves are produced in close tufts near the ground, shoot very quickly after being cropped, and are much liked by cattle. The roots strike deeply into the earth, and enable the plant to resist the effects of drought longer than most other species. The culms are frequently left untouched by cattle, and appear dry and withered on sheep walks in autumn, which is not supposed to result from any dislike they have to them, but rather on account of there being an abundant supply of young leaves at the time the stems are produced, which are more relished. They are, however, very troublesome to the eyes of sheep, which they irritate so much as to make the animals uneasy while feeding. The Crested Dogstail is therefore not so desirable a species for sheep walks as the Hard Fescue, which generally grows along with it; but among any mixture of grass seeds, to be sown on land intended for permanent pasture of any description, the "Traneen" should be included to a considerable extent, especially if the situations be dry and rather elevated: for lawns in pleasure-grounds, it might form fully one-third part of the quantity.

CATABROSA AQUATICA.

WATER WHORL GRASS.

A species of general occurrence in moist watery situations, where it frequently constitutes a considerable portion of the best herbage.

It is much relished by cattle, which eat it greedily down to the water's edge. It is also useful for low watery meadows, that are not easily drained, and liable to be under water a considerable portion of the year. Ducks and other aquatic fowl feed on the seeds, which renders it of considerable importance to grow near their haunts.

CYNOSURIS CRISTATUS—CRESTED DOGSTAIL GRASS. CATABROSA AQUATICA—WATER WHORL GRASS.

DACTYLIS GLOMERATA.

COCKSFOOT GRASS.

An excellent species, affording the largest quantity of herbage of all our natural grasses, and suitable for most kinds of soils, which are not too wet. It grows in the greatest profusion naturally, on rather dry calcareous land, but answers for sowing on peaty ground also. It shoots quicker after being cut or cropped than any of the other British species, and is relished by cattle while in a young state; but when allowed to stand too long, it becomes hard, and loses much of its nutritive matter. It would therefore be advisable, when growing it for a hay crop, to have it cut before the flowers ripen into seeds, at which time the juices are in the greatest perfection. This valuable species should form a considerable portion of any mixture of grass seeds for moderately good land.

It is also highly commended by persons of much experience, as being one of the best to sow on newly reclaimed bog, which is not too wet. Mr. Sinclair, however, found by his experiments, that although the produce was greater of this species when cultivated on a peaty soil, the grass was of inferior quality, and did not contain so much nutritive matter, as when grown on a sandy loam.

In the "Quarterly Journal of Agriculture" it is stated, that the Cocksfoot Grass has been known to yield the astonishing weight of seventy-three tons per acre, at three consecutive cuttings, combined in one season. If, however, it be allowed to remain uncut until the seeds begin to ripen, the herbage loses much of its nutritive substances; it is therefore one of the grasses which ought to be cut before it becomes in full flower, when grown for a hay crop.

DACTYLIS GLOMERATA—COCKSFOOT GRASS.

FESTUCA PRATENSIS.

MEADOW FESCUE GRASS.

This is perhaps the best meadow and pasture grass we have, possessing, as it does, most of the good properties in large proportion.

It is not of common occurrence, excepting on rich meadows, where it frequently forms a large portion of the produce. The culms are of rather firm texture, but contain a sufficient quantity of succulency to cause it to be relished by all kinds of cattle, particularly horses. It is not so well calculated for being grown alone; but in combination with other grasses it is very valuable, and might always form a considerable part of any mixture of seeds for good lands, especially where permanent pasture is intended. If due observation be exercised, it will be found that sheep incline most to the Fescue grasses, when they can get them as readily as they can other kinds.

The Meadow Fescue should be cut when in flower, as the nutritive matter in the herbage decreases very considerably as the seeds ripen. Sinclair states the relative value to be as three to one in favour of cutting when in flower, to letting it remain until the seeds ripen.

FESTUCA DURIUSCULA.

HARD FESCUE GRASS.

For sheep walks this is one of the best of all our indigenous grasses, and much more common than the preceding, from which it is easily distinguished by the awns on the outer glumes of the corolla. It occurs in greatest abundance naturally on dry or sandy soil, where it produces an abundant supply of foliage, which is much relished by all kinds of cattle, particularly sheep. It is also useful for being sown on ornamental lawns, on pleasure-grounds, where its fine leaves and perennial roots form a desirable portion of close turf. It should therefore constitute one-third of any mixture for that purpose. Like the preceding species, its nutritive powers are greatest when in bloom, and decrease as the seeds ripen. Being one of the most general of all our native grasses, growing on every kind of soil and situation, from the sea level to the tops of the highest mountains in Ireland, several distinct forms or varieties of it occur, which are influenced chiefly by soil, altitude, and aspect.

FESTUCA PRATENSIS—MEADOW FESCUE GRASS.

FESTUCA DURIUSCULA—HARD FESCUE GRASS.

FESTUCA RUBRA.

CREEPING FESCUE GRASS.

Grows on dry banks and other places along the sea-coast, where it is of greater value than elsewhere, though it will grow well on inland situations also. It is an excellent species for such places as are liable to be occasionally inundated by the sea, where its creeping roots enable it to keep hold of the soil. Cattle will frequently leave good pasture and repair to salt marshes where the Creeping Fescue grows, to feed on it, which may probably arise more from the saline taste left on the herbage, than from any particular quality in the grass.

When once established, this species will retain possession of the soil for many years, which renders it the more suitable for a lawn grass on pleasure-grounds, besides the fineness of the foliage. It is doubted by some botanists whether this grass be not a mere variety of the Hard Fescue, distinguished chiefly by its more extensively creeping roots; this distinction, however, continues in cultivation, as so does the reddish brown colour of the culms near the roots, though far removed from the influence of the sea.

FESTUCA OVINA.

SHEEP'S FESCUE GRASS.

One of the smallest of our perennial species, and only valuable for sheep walks at considerable altitudes, where its hardy nature enables it to grow and produce herbage when most other species are dormant. It is particularly relished by sheep; but is not so productive, or even so nutritive as the Hard Fescue, which should always be sown in preference, when the situations are suitable for both. A curious variety, the *Festuca Vivapara* of some authors, occurs in elevated situations, which will not produce seeds even when brought to low warm localities, but continues to produce young plants on the panicles where the flowers ought to be.

FESTUCA RUBRA—CREEPING FESCUE GRASS.

FESTUCA OVINA—SHEEP'S FESCUE GRASS.

BUCETUM ELATIOR.—PARNELL.
FESTUCA ELATIOR.—SMITH.

TALL FESCUE GRASS.

A tall strong growing species, not common on meadows, excepting those that lie along the banks of rivers or rest on very moist low ground. This grass has been brought into some notice lately on account of the large quantity of herbage it produces, which, though of a coarse nature, is much relished by all domestic animals. In a country like Ireland, where so much marshy land occurs, a more general application of such grasses as the present, would no doubt lead to good results, and as forming part of a mixture, greatly improve the hay on low wet ground, where the natural herbage is so frequently of a coarse quality. In the Botanic Gardens it continues to grow luxuriantly, although planted on a dry calcareous soil; but that best adapted for its growth is a tenaceous clay, on which it becomes highly productive. Like most other strong growing kinds, the produce of this species is rather of a coarse nature, and gets very hard when allowed to remain too long before being cut, but if cut rather before flowering it is not so, and the after-grass is tender.

BUCETUM LOLIACEUM.—PARNELL.
FESTUCA LOLIACEA.—SMITH.

RYE GRASS OR SPIKED FESCUE GRASS.

A good species for rich moist meadows, but not of general occurrence through the country, nor are the seeds very easily procured, proving often abortive in the spikelets. Where it occurs naturally, it furnishes a good supply of both leaves and stems, which are relished by all kinds of cattle. Sinclair, in his experiments, found this species superior to the Rye grass in point of produce, and also to contain more nutritive matter.

Festuca Elatior—Tall Fescue Grass.

Festuca Loliacea—Rye Grass or Spiked Fescue Grass.

FESTUCA MYURIS.

WALL FESCUE GRASS.

Not of much value for Agricultural purposes, though it sometimes constitutes a considerable portion of the herbage on thin gravelly or sandy ground. The tops of walls and dry banks are its favourite localities.

GLYCERIA AQUATICA.

WATER SWEET MEADOW GRASS.

A large growing species, generally occurring on the margins of slow running streams, or on moist ground where water remains a considerable portion of the year. It produces a large bulk of herbage, which, although very coarse to appearance, is nevertheless soft and nutritious, and when young is relished by cattle.

It is only valuable, in an Agricultural view, for very wet places which cannot be sufficiently well drained.

The extensively creeping roots of this grass render it important for binding the banks of canals and rapid running rivers, where in such places, when once introduced, it spreads quickly. It is not general in Ireland.

Although a coarse kind, and altogether unsuited for ground where any of the superior grasses will grow freely, it might, notwithstanding, be grown advantageously in many parts of the country, which at present are only producing coarse, half aquatic plants, which afford miserable food for cattle.

FESTUCA MYURIS—WALL FESCUE GRASS. GLYCERIA AQUATICA—WATER SWEET MEADOW GRASS.

GLYCERIA FLUITANS.

FLOAT SWEET MEADOW GRASS.

A very common species, occurring in almost every marshy pool through the country, where the long leaves may be observed floating on the surface.

It is only useful for such places—but there valuable—where the superior grasses will not grow. Cattle relish it much, and will wade to a considerable depth to get it; and although its natural localities are marshy places, it will also grow on very damp bottoms, which are only occasionally irrigated, where its long stems lie close to the moist earth. The seeds of this species are gathered in Poland and Germany, and used for human food. Ducks and other aquatic birds are fond of them also; and trout are even said to eat them.

GLYCERIA FLUITANS—FLOAT SWEET MEADOW GRASS.

HOLCUS LANATUS.

WHITE GRASS OR YORKSHIRE FOG.

One of the most abundant of all our natural grasses, occurring, as it does largely, on most of the meadows throughout Ireland.

Considerable differences of opinion prevail relative to its value and comparative merits: some writers on the subject asserting that it is perfectly worthless as either a meadow or pasture grass; others state it to be an average good grass. Our observations have led us to consider its importance chiefly to depend on the situations where it grows naturally, or where it is required for.

On good lands, capable of producing the superior kinds in perfection, it may not possess sufficient merit to entitle it to take a prominent place; but for being grown on peaty bog, or for damp inferior soil, it is no doubt a suitable species, because such are the situations where it luxuriates when growing spontaneously, and where it will produce a fair crop of hay even if sown alone. It arrives at its full growth the second year, and produces a tolerable crop the first year, if sown early. It is not, however, equal to the Cocksfoot for rich peaty soil, which should always be preferred.

In consequence of the general prevalence of the White Grass, and its aptitude to produce seed, it is too extensively sold, particularly by dealers, who do not make it their particular study to select only the best kinds of grass seeds.

HOLCUS MOLLIS.

CREEPING SOFT GRASS.

One of the worst grasses to be introduced on good land, and only fit for being sown on dry barren wastes. This bad kind may be readily distinguished from the *Holcus Lanatus* by its creeping squitch-like roots, and smaller and whiter panicles, that species being fibrous rooted.

Holcus Lanatus—White Grass or Yorkshire Fog.

Holcus Mollis—Creeping Soft Grass.

HORDEUM PRATENSE.

MEADOW BARLEY GRASS.

A rather prevalent grass in good meadows, though not much noticed.

It answers better for pasture than meadow, on account of shooting early into leaf, and the roots keeping a good hold of the ground; besides, the herbage contains a very considerable degree of nutritive matter. It is said to be the prevailing grass in some pastures in Norfolk, which are considered excellent for sheep.

At the time of flowering, the greatest quantity of nutritive matter is contained in this species, which diminishes as the seeds approach to ripeness. The crop ought therefore to be cut as nearly at that time as possible. It likes to grow in the society of other kinds, and is seldom found alone; it is therefore only suitable for forming a portion of a mixture.

HORDEUM MURORUM.

WALL BARLEY GRASS.

A species of no importance for Agricultural purposes, generally found growing by road sides and on wall tops near large towns, but not common through the country, which is fortunate, being a grass rather to be avoided than encouraged.

The long awns on the florets render it dangerous for the mouths of cattle, by causing inflammation when they feed on it.

HORDEUM PRATENSE—MEADOW BARLEY GRASS.

HORDEUM MURORUM—WALL BARLEY GRASS.

LOLIUM PERENNE.

PERENNIAL RYE GRASS.

One of the best of all our known grasses for Agriculture, and more generally in use throughout Britain than any other species. It possesses many of the good qualities in large proportion: soon arriving to its full growth; growing on all kinds of soils; the herbage containing a large proportion of nutritive matter, and being easily made into hay: but although it will grow on any kind of soil, it likes strong loams or clays best, and is not well suited for newly reclaimed bog.

Several varieties of this valuable grass have been from time to time recommended, and still continue to be considered superior to the original, as Pacey's, Stickney's, Russell's, Whitworth's, &c.

The two former have been cultivated in the experimental ground in the Botanic Gardens, along with the original, to which they are no doubt superior, by producing a greater quantity of more succulent herbage.

It is not of so permanent a nature as its appellation indicates, and therefore not one of the best grasses for converting good ground into rich meadow. The same plants are not often of more than two years' duration; but in consequence of their seeding freely the first year, a young crop is produced from the seeds which drop; and in this way it holds its place until the third year, when the more permanent kinds cover the ground, and the so-called Perennial Rye Grass frequently disappears altogether. It should, however, always be in considerable proportion with any mixture for permanent meadow, on account of it yielding a good crop the first year, and continuing to afford a supply of herbage, while the more permanent, but slower growing kinds, are attaining to perfection. Its greatest value is for sowing with Red Clover, on land which is only intended to be one or two years under grass.

LOLIUM PERENNE—PERENNIAL RYE GRASS.

LOLIUM ITALICUM.

ITALIAN RYE GRASS.

This species is here introduced in consequence of its great importance for Agricultural purposes, and being now naturalized. It is a native of the South of Europe, consequently, I have had no opportunity of remarking it, farther than seeing it cultivated along with other good grasses in the Botanic Gardens, and extensively through the country, where it is very generally and deservedly preferred to the former species, than which, it grows much faster, produces thicker leaves, and more succulent stems; but when allowed to stand too long uncut, it becomes harsh, and then appears a very coarse grass. There can, however, be no doubt of it being a most desirable addition, and exceedingly useful for alternate husbandry. With a view of testing its duration, by frequent cuttings, a portion of it was cut *four times* in one year, the last time in November; another portion of the same plat *only twice*. The latter portion had almost died out during the winter, while the former remained, and produced a good crop the second year.

For high farming, on good ground, this is decidedly the best species yet known. In early spring, when the other kinds have made but little progress, the Italian Rye Grass will be fit to cut for soiling; and with equal rapidity after-grass will be produced during the season until November, by which time it may have yielded four, or even five, crops.

LOLIUM TEMULENTUM.

DARNEL RYE GRASS.

This is the only one of our British grasses which is deleterious, and therefore rather to be avoided than encouraged. Nothing marks out bad husbandry more clearly than its prevalence, as it inclines most to grow on poor worn-out soils, especially where oats have been frequently repeated as a crop. In such places it sometimes forms a large portion of the produce; and on the grain being made into meal, the Darnel mixes with it, affecting the head and stomach of those who partake of it, as we have oftener than once experienced.

Lolium Italicum—Italian Rye Grass.

Lolium Temulentum—Darnel Rye Grass.

MELICA CÆRULEA.

PURPLE MELIC GRASS.

A very coarse species, which only occurs on cold boggy ground, where water lodges a considerable portion of the year. Its harshness makes it disliked by all sorts of cattle, which will only eat it when compelled by hunger. It is known in the country under the name of *blue grass*.

Mr. Parnell states, that the inhabitants of the Orkney and Shetland Isles manufacture the stems into ropes, and in England the country people make broom whisks of it.

I have frequently observed this to be almost the only grass growing on wet meadows in some parts of Ireland, which, along with rushes and a few other aquatic plants, constitute the miserable winter fodder of the cattle when made into hay.

MELICA UNIFLORA.

WOOD MELIC GRASS.

This pretty grass is not suitable for being cultivated, excepting in rather dry shady woods, which are its natural habitats, and where it grows freely. It might form part of a mixture for being sown where cover is required in woods.

MELICA CÆRULEA—PURPLE MELIC GRASS.

MELICA UNIFLORA—WOOD MELIC GRASS.

MILIUM EFFUSUM.

WOOD MILLET GRASS.

A comparatively scarce species, only occurring in dry woods, under the shades of trees, where it is valuable, particularly in game preserves, on account of it producing a large quantity of small hard seeds, which are much relished by pheasants and other birds. Mr. Sinclair observes,—"were this grass more cultivated, it would tend to save the corn fields near where that species of game is encouraged;" and should therefore be grown for that purpose. The Millet Grass is also very ornamental where it grows naturally, with its elegant spreading pale panicles of florets.

The seed should be sown soon after it ripens, which generally occurs in August. Previous to sowing, the ground should be well stirred about the roots of trees and other spots which are considered desirable to occupy with it, when the seeds should be scattered, and partially covered in by a rough long-toothed rake.

NARDUS STRICTA.

HEATH MAT GRASS.

A very common species on dry heathy moors; but even there it is seldom eaten by sheep or other cattle, on account of its very harsh substance. Goats are almost the only animals which feed on it, and it is only where other kinds of herbage is scarce they will touch it.

MILIUM EFFUSUM—WOOD MILLET GRASS.

NARDUS STRICTA—HEATH MAT GRASS.

PHALARIS ARUNDINACEA.

REED CANARY GRASS.

A species of very general occurrence along the margins of rivers, lakes, and on low alluvial ground.

It produces a weighty crop of herbage, which contains considerable nutritive powers, and is eaten by cows and other cattle if cut or grazed while young; but when allowed to run to seed, its culms get hard and coarse, when it is more useful for covering ricks, thatching cottages, &c., purposes for which it is frequently used.

It commences to grow early in the season, which might render it of some value for being more extensively planted on wet ground, that will not produce better sorts.

PHLEUM PRATENSE.

MEADOW CATSTAIL OR TIMOTHY GRASS.

An excellent grass for cultivation on rich moist meadows, situations it naturally prefers, particularly where the ground is liable to be occasionally flooded.

In Mr. Sinclair's extensive analyzation of grasses, this species was found to contain more of nutritive matter than any other kind. It produces the leaves early in spring, which shoot quick from seed the first year, and continue long in full verdure: the culms are of a firm texture, not so liable to be injured by winds or heavy rains as most other grasses, qualities which render it valuable as part of a mixture with other weak growing kinds. Next to the Perennial Rye Grass, this is the most extensively cultivated of all our indigenous species, and is frequently sown without mixture, though much inferior to either Perennial or Italian Rye Grass, for ground which is only intended to be one year in grass. For permanent meadow, on rich alluvial moist soil, this is a very valuable species, and should form fully one-half of any mixture of grasses to sow on such places, but for dry light land it is not suitable. It is further considered to be one of the best kinds for sowing on reclaimed bog, though, in our opinion, inferior to the Cocksfoot for that purpose.

PHALARIS ARUNDINACEA—REED CANARY GRASS. PHLEUM PRATENSE—MEADOW CATSTAIL OR TIMOTHY GRASS.

POA ANNUA.

ANNUAL MEADOW GRASS.

The most general of all our grasses, growing on every kind of soil and situation, from the sea shore to the mountain top; and frequently a very troublesome weed on garden walks, yards, and paved courts, where a good method of getting rid of it is to sprinkle the place with common salt, which will destroy the roots, and prevent the seeds from vegetating, for a time, at least.

POA NEMORALIS.

WOOD MEADOW GRASS.

A valuable species for being sown in woods and young plantations, in consequence of it thriving well under the shade of trees, as well as in open meadows; and when cultivated along with other grasses, it makes a good component part of a mixture. The early growth of this species, and its fine succulent herbage, render it a very suitable kind to sow among grasses intended for sheep walks, especially if the ground be rather shady.

Its greatest value is, however, for woods, where it will continue to grow after all the other superior species disappear, when the trees become too dense for their thriving; it should therefore be sown in large proportion with any mixture in young plantations, where the ground has been well trenched and prepared before planting.

Poa Annua—Annual Meadow Grass.

Poa Nemoralis—Wood Meadow Grass.

POA TRIVIALIS.

ROUGH STALKED MEADOW GRASS.

An excellent species, very common in moist rich situations. The herbage contains highly nutritive properties, and is much liked by all kinds of cattle, it should therefore form part of a mixture for all good pastures, especially such as are rich and damp. It is, however, liable to lodge when it occurs in large proportion, without a mixture of the stronger growing kinds among it, as may be seen by examining any rich meadow where partial lodgment has taken place; the prevailing grass on the lodged spots will generally be found to be this species. It is well suited for irrigation, thriving best when the roots have a constant supply of moisture. Oxen, horses, and sheep have all a peculiar relish for the Rough Stalked Meadow Grass, which is kept constantly eaten down when other species are little touched.

This grass should be cut when in flower, as it loses much of its nutritive matter when the seeds approach towards ripeness. The difference is said to be as three to one in its favour when early cut.

POA PRATENSIS.

SMOOTH STALKED MEADOW GRASS.

A very common species on dry ditch banks, wall tops, and meadows, where its extensively creeping roots enable it to resist drought longer than most species, and by which it may be effectually distinguished from the *P. trivialis*, which has fibrous roots, and soon suffers during a continuation of dry weather in consequence. The Smooth Stalked Meadow Grass occurs in sufficient abundance naturally on the situations best adapted for its growth, and therefore not much to be commended for sowing where the superior grasses will grow freely. There are several very distinct varieties of it, which appear to be affected chiefly by the situations where they grow.

Poa Trivialis—Rough Stalked Meadow Grass. Poa Pratensis—Smooth Stalked Meadow Grass.

POA MARITIMA.

SALT MARSH MEADOW GRASS.

Only valuable for salt marshes, where it is often the principal grass produced, and there much relished by cattle, which will frequently leave good pasture to browse on it. It is by no means an inconsiderable species in Ireland, where so much ground of this nature occurs round the whole island; nor does it ever occur, excepting in the immediate neighbourhood of the sea.

POA DISTANS.

REFLEXED MEADOW GRASS.

A species which only occurs naturally on salt marshes along the sea shore, and will not thrive elsewhere—consequently only valuable for being sown in such places.

Poa Maritima—Salt Marsh Meadow Grass.

Poa Distans—Reflexed Meadow Grass.

TRITICUM REPENS.

CREEPING WHEAT OR SQUITCH GRASS.

A species well known to the Agriculturist, on account of its extensively creeping roots, which become one of the greatest pests on good land, when once allowed to get dirty. The young leaves are eaten by cattle, and it generally forms no inconsiderable part of pastures; but to know how to eradicate it, is of greater importance than to grow it.

TRITICUM CANINUM.

BEARDED WHEAT GRASS.

This, in some localities, becomes of considerable importance. For example, in moist shady woods, where it grows naturally, the foliage is produced early, and relished by all kinds of cattle. It is one of the few species which will thrive well under the shade of trees, and should therefore form part of any mixture for such situations.

This being a fibrous rooted species, it might be tried to advantage in the reclaiming of deep bog. With respect to its nutritive properties, it was found by Mr. Sinclair to rank very high among the superior grasses.

TRITICUM REPENS—CREEPING WHEAT OR SQUITCH GRASS. TRITICUM CANINUM—BEARDED WHEAT GRASS.

TRIODIA DECUMBENS.

DECUMBENT HEATH GRASS.

A very common species in Ireland, on wet retentive spongy ground, especially along the bases of hills, and on rather elevated situations, where it often constitutes a considerable portion of the herbage. Although not disliked by any kind of domestic cattle, its principal value is for ground not suitable for producing the superior grasses, and where in such situations it generally grows in sufficient abundance spontaneously.

ROTTBOELLIA INCURVATA.

HARD SEA GRASS.

This species is confined to salt marshes along the coast, where, though it frequently composes the principal portion of the herbage, may yet be considered of very little Agricultural importance.

TRIODIA DECUMBENS—DECUMBENT HEATH GRASS.

ROTTBOELLIA INCURVATA—HARD SEA GRASS.

CAREX RECURVATA.

GLAUCOUS HEATH CAREX.

This species of sedge grass, and the Pink-leaved Sedge Grass—*Carex panicea*—may be readily distinguished from most other kinds, by their leaves bearing a good deal of resemblance to those of our common garden pink. They generally grow in company; and wherever they occur in abundance, the circumstance may be looked on as a sure indication of the subsoil being retentive, and the ground in want of drainage.

The Sedge grasses are very abundant in many parts of Ireland, where they frequently constitute a large proportion of poor pastures, especially those resting on wet sour land. Cattle will sometimes crop them down in common with other herbage, which arises principally from their being so mixed up with it, as they seldom eat any of the species if they happen to be growing separately. The specimen here inserted will enable those who are unacquainted with plants to recognise the Sedge grasses from the true grasses.

JUNCUS ULIGINOSUS.

LESSER BOG JOINTED RUSH.

This rush abounds extensively in most parts of Ireland, especially on cold wet retentive soil, where in such localities it often constitutes the bulk of the herbage produced. None of our indigenous plants mark a soil more surely in want of drainage than this does; consequently, wherever it luxuriates, or occurs in large quantities, the soil may be reckoned on as sour, and much in want of being dried. There are several other species of Juncus which bear a considerable resemblance to this kind, that frequently grow along with it. All the Rushes denote a soil surcharged with moisture; but the different species indicate as well different qualities of soil. For example, the Soft Rush, *Juncus effusus*, grows mostly on ground that would be productive if drained and reclaimed. The Hard Rush, again, indicates ground of inferior quality; and in this manner the natural herbage which is produced seldom fails to point out both the nature of soils and their conditions, when consulted aright.

CAREX RECURVATA—GLAUCOUS HEATH CAREX. JUNCUS ULIGINOSUS—LESSER BOG JOINTED RUSH.

FOREIGN GRASSES,

Which might be useful to add as Mixtures for Meadow or Permanent Pastures.

Festuca Nigrescens—Blackish Fescue Grass.

This is a strong growing species, and the earliest grass among the whole collection now in the Botanic Gardens. The leaves are a dark green colour, inclined to black, and fully as strong as those of *Festuca elatior*. It is a very hardy kind, and seems to recommend itself for being grown on upland pasture. Roots fibrous.

Festuca Heterophylla—Various Leaved Fescue Grass.

This is a very fine leaved kind, growing stronger than our Sheep's Fescue—*Festuca ovina*, and might be useful for sowing as part of a mixture for upland sheep pastures, or fine lawns. Roots fibrous.

Festuca Fasciculata—Fascicled Fescue Grass.

This is also a fine leaved kind of Fescue, which might improve sheep walks, and finely kept lawns in pleasure-grounds. Roots fibrous.

Poa Nervata—Nerved Meadow Grass.

This species bears considerable resemblance to the Wood Meadow Grass—*Poa nemoralis*, than which it is much better adapted for growing in open meadows. The leaves are fine, and produced in great abundance. It grows freely in the Botanic Gardens, on dry limestone soil; and being a very hardy species, it produces herbage early, and retains firm possession of the ground when once established. Roots fibrous.

Alopecuris Nigricans—Blackish Foxtail Grass.

This seems to be an excellent species, as seen growing with our common Foxtail. Both grass and culms are stronger than those of the latter, and produced fully as early. It grows freely on limestone soil in the Botanic Gardens. Roots somewhat creeping.

Hordeum Bulbosum—Bulbous-rooted Barley Grass.

This is an excellent species, which grows freely, and produces a large quantity of herbage, which is much relished by cattle, particularly horses. It is a much stronger growing kind than our Meadow Barley Grass, *Hordeum pratense*, and would be preferable to add as part of a mixture if the seeds could be obtained in sufficient quantity. Roots partly bulbous and partly fibrous.

Bromus Schraderi—Schrader's Brome Grass.

This strong growing species of Brome has been lately recommended for cultivation, but does not appear to have realized the favourable expectations which some Agriculturists entertained concerning it. No doubt it grows very fast, and produces a large quantity of herbage, which, however, is of a very coarse quality, and seems to be disliked by cattle. It being an annual species, ripening its seeds quickly, they drop and vegetate at once when the weather is moist; and the young plants, which vegetate about the end of July or beginning of August, continue to grow all the winter, and are green when every other species is in a dormant state. Owing to this circumstance, it might be of considerable importance for sowing as part of a mixture.

Falkland Island Tussac Grass.

This grass, about which so much has been said and written of late years, has certainly not by any means realized the sanguine expectations which were held respecting it. Plants of it have been sent from the Botanic Gardens to more than one hundred individuals, located in different parts of Ireland, all of whom were requested to report what progress the grass made; but, although it is now nearly two years since the plants were distributed, there has not yet been any favourable account of them. Those who have reported, for the most part agree in stating the difficulty they have experienced in keeping the plants alive during the winter, when the summer made Tussacs are very liable to damp off; and this statement exactly corresponds with our own experience of it under cultivation in the Botanic Gardens. The plants grow freely enough, but they have never yet been stronger than we have seen good Cocksfoot grass, (to which this species bears considerable resemblance) and one-half of them annually perish during winter.

It propagates readily by parting the roots in spring, and might soon be increased to a very considerable extent by that means, if it were found of sufficient value to repay the outlay and labour consequent on its increase. The most likely places for it flourishing would be on the several islands along the coast, where the sea vapour and spray would there constantly influence it, circumstances which appear to be necessary for its perfect health and vigour. It has not, however, been sufficiently well tried yet in these countries.

Gynerium Argenteum—Pampas Grass.

This splendid grass, which covers the extensive pampas of South Brazil, has proved to be quite hardy in Ireland; but the herbage is altogether of too coarse a nature for being of any Agricultural importance. In the Botanic Gardens it grows in large tufts, producing leaves six feet long, with the flowering stems ten feet high. The panicles of flowers are silvery white, and about a foot and a half long, appearing like the large white feathers worn in military caps.

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DUBLIN: PRINTED BY ALEXANDER THOM, 87, ABBEY-STREET.

CONCISE NOTICES

OF

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BY

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WILLIAM S. ORR AND CO., PATERNOSTER-ROW, LONDON.
Price Seven Shillings and Sixpence.