

SPORTS TURF RESEARCH INSTITUTE

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**BUYING
TURFGRASS SEED
IN 1977**

An explanation of the Seeds Regulations
and a check-list of cultivar
availability

November 1976

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FOREWORD

Entry into the EEC has affected all of us to some degree, and those concerned with grass seed as much as any. The UK has had to adopt a completely new system of seed control and labelling; although we are now through the official transition period with its various commencement dates for new regulations, and our friends in the seed trade have got the new system into operation, the real transition period has for many of us only just begun. We must get accustomed to the new philosophy behind the legislation as well as the details of it. The Institute has had to find out how the new system affects it, and we thought it might help others for us to share the resulting information with all those concerned with using grass seed for amenity or non-agricultural purposes. It is a large section of the market, embracing everything from golf and bowling greens or cricket tables to roadside verges and spoil heap reclamation. Those who sell this seed will benefit as much as those who buy it or advise on buying it, if everyone has a clear understanding of the new system. We are very grateful to all those who have helped us, including the staff of the Ministry of Agriculture, Fisheries and Food at Cambridge who have answered queries and checked the accuracy of our interpretations of the Regulations.

In preparing the notes on the new legislation, we found ourselves preparing consolidated lists of cultivar names and from there it was an obvious step to add—with the ready co-operation of our friends in the seed trade—an indication of seed availability in 1977. This is a development of something we have done for some time within the Institute. We hope it will be helpful at least to see the large number of names reduced somewhat by eliminating those not sold in the UK, and then to have an indication of those which might be difficult to obtain.

We do not attempt to deal with turfgrass merit, although some simple grouping in three of the species is intended to focus attention on the main options. The reason is mainly to keep this leaflet simple and uncontroversial, at least in what may prove to be only the first edition. Also, our information on merit is fuller for some species and cultivars than others, and while we are working towards Descriptive and Recommended Lists for all turfgrass species in due course, we could not at present deal adequately with all the cultivars named in the latter part of this booklet.

J. R. ESCRITT,

Director.

SECTION I. HOW THE SEEDS REGULATIONS AFFECT TURFGRASS USERS

1. Introduction

This section describes the recent changes in UK seeds legislation as they affect turfgrasses—i.e. all grasses for amenity (non-agricultural) use, accounting for 20—25% of the total UK grass seed sales. It progresses from species, through cultivars, to seed grades and standards: it then deals with mixtures and labelling, including the various metric quantities covered by the different requirements. It leads on to Section II which gives a check-list of cultivar names and seed availability in 1977. The aim is to help buyers and sellers of seed, particularly those concerned with specifications and tenders.

2. Why the changes in seeds legislation?

The United Kingdom has for long had its own seeds legislation, backed up by Official Seed Testing Stations and Certification Schemes. On entering the EEC the UK has had to adapt to the system worked out by the Community prior to 1973 and most of the recent changes in the UK have been concerned with giving effect to EEC Directives, although there have also been some additional features specific to the UK.

By 1st July 1976, all the EEC Directives in force when the UK joined the Community had been implemented and the UK had "caught up" with its older Community partners. There will, however, inevitably continue to be changes as new Directives are made, and one recent modification affecting turfgrass was the alteration in the rules for small packages of seed due to come into force by 1st July 1977.

3. What does the legislation cover?

Seed quality has two aspects— a) analytical purity and germination (P and G), assessable within a few weeks at any time by seed analysts in a Seed Testing Station and b) genetic purity (cultivar purity) which can not easily be verified and for which purchaser confidence about trueness-to-type rests on certification procedures during seed growing and cleaning. These aspects are covered, for turfgrasses, in the Fodder Plant Seeds Regulations 1976, and equivalent Regulations for Northern Ireland.

Linked to the control of genetic quality is assessment of cultivars themselves: not only must seed be of the cultivar it is claimed to be, but the cultivar itself must be distinct, uniform, genetically stable and, most important, worth using—although official merit testing is not required for turfgrasses (see Section 6). The Seeds (National Lists of Varieties) Regulations 1973 deal with all this. National Lists and amendments to them have been, and are, published in the Plant Varieties and Seeds Gazette.

The Regulations can be obtained from Her Majesty's Stationery Office. The Plant Varieties and Seeds Gazette is available from:

Ministry of Agriculture, Fisheries & Food, Publications Branch,
Tolcarne Drive, Pinner, Middlesex HA5 2DT.

A Guide to the Seeds Regulations was published by the Agricultural Departments in June 1975, to whom enquiries should also be made for official guidance on seeds matters. The addresses are:

Ministry of Agriculture, Fisheries & Food,
White House Lane, Huntingdon Road, Cambridge, CB3 0LF.

Department of Agriculture & Fisheries for Scotland,
Chester House, 500 Gorgie Road, Edinburgh.

Department of Agriculture for Northern Ireland,
Dundonald House, Belfast BT4 3SB.

4. What grasses are concerned?

There are separate Seeds Regulations for each main group of crops, e.g. vegetable seeds, cereal seeds and fodder plant seeds. The Fodder Plant Seeds Regulations 1976 cover all the agricultural grasses and turfgrasses, as well as clovers and other fodder legumes. (The Regulations use the word "kind" rather than "species" to avoid nomenclature problems with some crops, but among grasses the two terms are synonymous in almost every case and "species" is used exclusively here.)

In Table 1 the scheduled grasses are arranged into three groups according to use, the two columns on the right showing which are covered respectively by the Fodder Plant Seeds Regulations 1976 and the Regulations dealing with National Lists. (The botanical authorities for the Latin names are those quoted in the UK National Lists.)

All other grasses (apart from cereals) are outside the Seeds Regulations and the National List requirements: the most notable of these is crested dogstail (*Cynosurus cristatus* L.). Among other non-scheduled grasses that might be of interest to managers of natural grassland, if seed were available, are wavy hair-grass (*Deschampsia flexuosa* (L.) Trin.), lyme grass (*Elymus arenarius* L.), Yorkshire fog (*Holcus lanatus* L.) and creeping soft-grass (*Holcus mollis* L.).

Table 1 deals only with grasses. There are various clovers and legumes (*Trifolium*, *Lotus*, *Medicago* and *Vicia* spp.) among the scheduled Fodder Plants, of possible interest for restoring natural grassland. The Regulations, or the Guide to the Regulations, should be checked for details.

5. What exactly is a cultivar?

A **cultivar**, according to the International Code of Nomenclature of Cultivated Plants, is an assemblage of cultivated plants with clear distinguishing characters of its own, retaining these characters when reproduced.

TABLE 1. SCHEDULED GRASSES

	Scheduled in Seeds Regulations	Scheduled in National Lists
A. Grasses used as turfgrasses		
Perennial ryegrass (<i>Lolium perenne</i> L.)	Yes	Yes
Timothy: large-leaved timothy (<i>Phleum pratense</i> L.)		
small-leaved timothy (<i>Phleum bertolonii</i> DC.)		
Red fescue: Chewings fescue (<i>Festuca rubra</i> L. ssp. <i>commutata</i> Gaud.)*		
creeping red fescue (<i>Festuca rubra</i> L. ssp. <i>rubra</i>)*		
Smooth-stalked meadow-grass (<i>Poa pratensis</i> L.)		
Bents: browntop bent (<i>Agrostis tenuis</i> Sibth.)		
creeping bent (<i>Agrostis stolonifera</i> L.)		
velvet bent (<i>Agrostis canina</i> L. ssp. <i>canina</i> Hwd.)		
Miscellaneous fine fescues:		
hard fescue (<i>Festuca longifolia</i> Thuill.)*	No	Yes
sheep's fescue (<i>Festuca ovina</i> L.)*	Yes	Yes
fine-leaved sheep's fescue (<i>Festuca tenuifolia</i> Sibth.)*	Yes‡	Yes
Miscellaneous meadow-grasses:		
rough-stalked meadow-grass (<i>Poa trivialis</i> L.)	}	
annual meadow-grass (<i>Poa annua</i> L.)		
wood meadow-grass (<i>Poa nemoralis</i> L.)		
B. Grasses normally used only in agriculture		
Italian and Westerwolds ryegrass (<i>Lolium multiflorum</i> Lam.)	Yes	Yes
Hybrid ryegrass (<i>Lolium</i> × <i>hybridum</i> Hausskn.)		
Meadow fescue (<i>Festuca pratensis</i> Huds.)		
Tall fescue (<i>Festuca arundinacea</i> Schreb.)		
Cocksfoot (<i>Dactylis glomerata</i> L.)		
C. Grasses of which seed is not normally sold and used in the UK		
Tall oatgrass (<i>Arrhenatherum elatius</i> (L.) J. et C. Presl.)	No	Yes
Red top (<i>Agrostis gigantea</i> Roth)		
Meadow foxtail (<i>Alopecurus pratensis</i> L.)		
Swamp meadow-grass (<i>Poa palustris</i> L.)		
Yellow oatgrass (<i>Trisetum flavescens</i> (L.) Pal. Beauv.)		

* See special note on nomenclature in the Appendix.

‡ Not named in Seeds Regulations, but the Guide to the Seeds Regulations combines this species with sheep's fescue.

The word was coined from **cultivated variety**. Although the Code recognizes that the terms cultivar and variety (in the sense of cultivated variety) are exact equivalents, use of cultivar enables the word variety to be reserved for unambiguous use in its botanical sense (Latin *varietas*, abbreviated as var.) as a category below that of species.

Although the term cultivar primarily applies to material produced by plant breeders or selectors, it can also be applied to ecotypes which are recognized as distinct and multiplied deliberately by seed production, such as perennial ryegrass 'Kent Indigenous' or browntop bent 'Highland.' (An **ecotype** is a reasonably uniform population selected under natural ecological conditions or agricultural management regimes, rather than selected or created by a breeder.)

A cultivar name should be distinguished in one of two ways:

- 1) by placing the abbreviation cv. in front of it, or
- 2) by using some typographic device such as **single** quotation marks (but not double quotation marks).

The full formal name of a cultivar gives genus and species (both as Latin names in italics) followed by the cultivar name, e.g. *Agrostis tenuis* cv. Bardot or *Agrostis tenuis* 'Bardot.' When the cultivar belongs to a sub-species, this is denoted by a third Latin word, e.g. *Festuca rubra* ssp. *commutata* cv. Highlight. Although a name of this sort is definitive and internationally recognizable, the common English names of grasses will always be widely used. The cultivar name should then strictly be shown after the English common name in the same way as after the Latin botanical name, e.g. perennial ryegrass cv. Pelo or perennial ryegrass 'Pelo.'

The word **variety** as used in agriculture and by most seedsmen is synonymous with cultivar as explained above. It is also the term used officially in registration and in the Plant Varieties and Seeds Gazette. To avoid confusion, the word cultivar—now the preferred term in the turf-grass world—is treated in this booklet as an exact synonym of variety in this sense, and is used even in contexts where variety is the official term (e.g. on the label of commercial seed which is "not certified as to variety").

6. What cultivars can be sold?

The first UK National Lists, one for each crop species, were drawn up in 1972 by the UK Agricultural Departments in consultation with the seed trade and technical bodies. Each List comprised the cultivars currently in commerce and those likely to be marketed in the next few years. Eventually, each list must be reduced to cultivars which are Distinct, Uniform, genetically Stable, and, if intended for fodder use, of Value for Cultivation and Use. (The first three attributes are often abbreviated to DUS; the last one to VCU.) Some cultivars are listed provisionally at present but will be removed by 30th June 1980 unless they meet the requirements; others may be withdrawn because of seed production difficulties or other reasons.

Official testing for distinctness and performance was already in progress in the UK prior to EEC entry, under the Plant Varieties and Seeds Act 1964, and there was an Index of cultivar names for agriculturally useful species such as perennial ryegrass or timothy. There was not, however, any official examination of cultivars of red fescue, smooth-stalked meadow-grass and bents.

Now all species for which there are National Lists undergo testing for distinctness, uniformity and stability (DUS) arranged by the Agricultural Departments in the UK, but merit testing (VCU), essential for fodder grasses under the EEC Directives, is not required for non-fodder grasses and therefore must continue to depend on work done outside the system organized by the Agricultural Departments, as for example that done by the Sports Turf Research Institute.

Under the EEC system, the National Lists of all member states are amalgamated into an EEC Common Catalogue, produced by the Commission. The second complete edition was published on 20th March 1976 (Official Journal of the European Communities, Vol. 19, No. C65, available from HMSO).

Broadly speaking, the National List Regulations make it an offence to sell seed of a cultivar of a prescribed species which is not entered on the National List or the EEC Common Catalogue: and once a cultivar is entered on the National List or the Common Catalogue the seed must be marketed under the name entered for that cultivar and no other name.

New cultivars can be submitted for the Lists, but have to pass the tests before they are included—unlike those included provisionally in the first Lists. Thus, even turfgrass cultivars not intended for fodder production have to show themselves distinct, uniform and stable. Additions and amendments to the National Lists are published in the Plant Varieties and Seeds Gazette, with revised consolidated Lists from time to time.

Section II gives a composite list of names on the National Lists (correct at 30th September 1976) and the Common Catalogue (20th March 1976), together with an indication of seed availability in 1977.

7. What has happened to the old familiar descriptions?

Adaptation to the new requirements is obviously taking time; some seedsmen's catalogues may still retain descriptions which ought no longer to be used. For example, the description "Oregon browntop bent" is no longer permissible: the cultivar name 'Highland' is on the National List and should be used for this ecotype. Other similar descriptions which are now obsolete are "Oregon Chewings fescue," "Canadian creeping red fescue" and "Danish smooth-stalked meadow-grass."

These are simply descriptions of country of origin, not cultivar names entered on the National Lists. Just as 'Highland' is the recognized name for what used to be called Oregon browntop bent, 'Cascade' is now the recognized name for the Oregon ecotype of Chewings fescue. From Canada there are now named cultivars of creeping red fescue such as 'Boreal' and 'Durlawn,' which are replacing the supplies of traditional "Canadian Commercial." Similarly, there are now named cultivars from Denmark. It must be stressed, however, that whereas 'Highland' and 'Cascade' are names that have been given to traditional material which has not been altered by breeding and selection, the named cultivars coming from Canada and Denmark are more or less different from traditional material.

8. What grades of turfgrass seed are obtainable as "straights"?

The term "straights" means seed lots of a single species and, if certified seed, a single cultivar. The contrasting term "mixture" applies to mixtures not only of two or more turfgrass species but also of two or more cultivars of a single species. (The combination of two or more cultivars within a species is often described as a "blend," but the term is best not used in the context of the Seeds Regulations, where "blending" describes the mixing of two or more seed lots of the same cultivar.)

For the species likely to be used as turfgrasses Table 2 shows the categories of "straights" which can be marketed and the distinguishing colour of the appropriate official labels, which are described in more detail in Section 14 later.

TABLE 2. CATEGORIES OF SEED WHICH CAN BE MARKETED

Species	Certified seed (1st generation) (blue label)	Commercial seed (brown label)
Perennial ryegrass	Yes	No
Timothy (including small-leaved timothy)	Yes	No
Red fescue (including both Chewings fescue and creeping red fescue)	Yes	No
Smooth-stalked meadow-grass	Yes	No
Bents (including browntop, creeping and velvet bent)	Yes	Yes
Sheep's fescue and fine-leaved sheep's fescue	Yes	Yes
Miscellaneous meadow-grasses (rough-stalked, annual and wood meadow-grass)	Yes	Yes

Certified seed must be of a cultivar on the appropriate National List. "First generation" refers to the seed multiplication process. Second generation certified seed, with a red label, is marketed for some crops, but not generally for grasses (unless a general licence is issued in exceptional circumstances to permit this).

Commercial seed is described on the official brown label as "not certified as to variety," and therefore there is no official assurance of cultivar identity or reliability. Nevertheless such seed may carry an additional "supplier's label" giving the cultivar name; this might, for example, be used when uncertified seed of a cultivar on the National List is being marketed.

Thus, for some species, certified seed of a cultivar on the National List is the only category of seed that will be available. For other species the purchaser who requires certified seed must be sure to specify it.

Sections 14 and 15 below describe the information given to the purchaser on the label or elsewhere.

9. Are there now official purity and germination standards?

Yes, for "straights" but not for mixtures.

The old Seeds Regulations were based on the principle of freedom to buy and sell, with information supplied by seller to buyer on all important aspects of purity and germination but no official minima.

The basis of the new Seeds Regulations is different—conformity to standards rather than the provision of detailed information about individual seed lots. Therefore, for certified or commercial seed the seller is no longer obliged to give purity and germination figures. Sale as "certified seed" or "commercial seed" implies that at least the minima are satisfied, but no more. Nevertheless some firms give in catalogues or on invoices the purity and germination details of the seed they sell, although there is no obligation under the Regulations to do so. Moreover, if a purchaser specifically requests information about a seed lot the seedsman will generally do all he can to supply it.

The Seeds Regulations provide that, for certified seed, the seller gives a statutory warranty to the purchaser in respect of the following attributes, by implication through describing seed as "certified" or by giving specific declarations for each item if he chooses to do so:—

1. germination,
2. total analytical purity,
3. content of other species, and
4. cultivar purity.

Buyers and sellers may, of course, still negotiate their own minima, better than the official minima, for individual transactions, and the warranty provisions would apply to the seller's declaration in respect of the attributes above, in the same way as for seed that merely "complies with legal standards."

Minimum standards for analytical purity and germination came into effect on 1st July 1974; those for turfgrasses are given in the Fodder Plant Seeds Regulations 1976. These minimum standards were linked to a "new look" in the reports of Official Seed Testing Stations.

10. What are the standards for "straights"?

The standards for **certified seed** of the main turfgrass species are given in Table 3. The sub-divisions of the right-hand columns show the minimum standards (MS) and the Higher Voluntary Standards (HVS), the latter being the same as the previous British Certified seed standard and applying only to certain species.

TABLE 3. STANDARDS FOR CERTIFIED SEED

Species	Minimum % germination	Minimum analytical purity (% by weight)		Maximum weed seed content (% by weight)		Maximum content of other crop seed (% by weight)	
		MS	HVS	MS	HVS	MS	HVS
	All seed						
Perennial ryegrass	80	96	98	1.0	0.5	1.0	1.0
Timothy	80	95	98	0.5	0.5	1.0	1.0
Red fescue	75	90	95	1.0	0.5	1.0	1.0†
Smooth-stalked meadow-grass	75	85	NA	1.0	NA	1.0*	NA
Bents (browntop, creeping and velvet bent)	75	90	NA	1.0	NA	1.0	NA
Sheep's fescue and fine-leaved sheep's fescue	75	85	NA	1.0	NA	1.0	NA
Miscellaneous meadow-grasses	75	85	NA	1.0	NA	1.0*	NA

NA = not applicable.

* = see explanation in text.

† = a sample of 30g must not contain more than a total of 4 seeds of ryegrass, cocksfoot and meadow fescue.

The division into "weed seed" and "other crop seed" is familiar from previous Regulations. "Other crop seed" includes any species scheduled in the various Regulations—cereals, oil and fibre species, etc. as well as other scheduled grasses and legumes. "Weeds" are then any other species. It should be noted that annual meadow-grass (*Poa annua*) is a scheduled fodder plant, and is now reported under "other crop seed" and not as a weed. Crested dogstail and hard fescue, however, are classified in seed testing as "other crop seed" on commonsense grounds even though they are not scheduled species.

This arrangement is likely to end before long, the two categories being amalgamated into "other plant species," although this depends on a change in EEC Directives.

The minimum standards also apply to **commercial seed** (i.e. for bents, sheep's fescue, fine-leaved sheep's fescue and miscellaneous meadow-grasses) except that the standard for other crop species in commercial seed is 3.0%.

The asterisk * in Table 3 denotes that for meadow-grasses there can be up to 1% of other meadow-grasses which need not be counted as an impurity in certified seed, and up to 3% in commercial seed. For example, certified seed of smooth-stalked meadow-grass could have 1% of annual meadow-grass in addition to 1% of, say, ryegrass and fescue. In commercial seed of *Poa annua* the allowance of other meadow-grasses goes up to 10%.

Additionally there are special standards for certain weed species in various categories of seed; and for numbers of seeds of other crop species under the Higher Voluntary Standards for certified seed, in addition to the requirement for red fescue mentioned in Table 3. Details can be found in the Regulations or the Guide to the Regulations. Most of the Higher Voluntary Standards are unlikely to be significant for turf use.

In many respects the minimum standards are below—sometimes seriously below—the levels of purity and germination customary in the turfgrass seed trade. For example, the “crop-free” seed of red fescue from North America contains no ryegrass in 50 grams, whereas the minimum standard of 1% could allow 250 ryegrass seeds or more in 50 grams. Even the Higher Voluntary Standard allows four seeds in 30 grams.

If seed is required to be better than the minima, it can be a matter of negotiation between purchaser and seller. Many seedsmen are voluntarily maintaining their own standards well above the minima and generally supply information to this effect on invoices, etc.

11. What about mixtures?

There are no prescribed standards for the purity and germination of mixtures. Each constituent must meet the appropriate standards, and the minima to be expected for the mixture as a whole would have to be calculated from the minima for each component and the proportion of each component in the mixture.

Sections 14 and 15 on labelling describe the information the purchaser can expect. Often this will be simplified by reference to the proprietary name or description of the mixture, which in the case of small packages for amenity purposes can be “officially recorded,” i.e. recorded in the seedsman’s catalogue or similar document, of which a copy is lodged with the responsible official body, the Certifying Authority, or otherwise notified to the Authority. The purchaser is still entitled of course to obtain details of mixture composition direct from the seedsman on request. Suppliers of larger amounts must ensure that the purchaser is supplied with details of the constituents of the mixture within 14 days, unless he already has such details, for example in the seedsman’s catalogue: the same applies to small packages for agricultural use.

12. How do I make up my specifications for tender?

Percentages are normally understood to be by weight, but it may sometimes be prudent to make this clear in the specifications. As mentioned in Section 8 above, certified seed is the only grade obtainable

for some species, e.g. perennial ryegrass, and therefore, strictly speaking, need not be specified. There is, however, no harm, and there may occasionally be some value, in clearly stipulating "certified seed" even for these species. For species of which commercial seed is permissible (see Table 2) it is of course necessary to specify either certified or commercial seed. A specification might well show two or three alternative cultivars of each species, assuming they are more or less equally suitable for the purpose. Thus a suitable pattern for a tender document would be as follows, the letters 'A,' 'B' etc. to be replaced by the names of the chosen cultivars:—

"Provide a seeds mixture composed, by weight, of:—

x% perennial ryegrass: certified seed of 'A,' 'B' or 'C';
y% smooth-stalked meadow-grass: certified seed of 'D,' 'E' or 'F';
etc."

The tenderer should be asked to make clear which cultivars he would supply.

Commercial seed could be described in two ways, according to what is wanted or available:—

"z% commercial seed of rough-stalked meadow-grass" or
"z% rough-stalked meadow-grass: commercial seed of 'G'."

In the latter example, the specification implies that certified seed—usually preferable because of cultivar reliability—is either not wanted (e.g. for economy reasons) or known to be unavailable.

Seed lots are now increasingly sold by metric weight and prices are based on 50 kg and 0.5 kg instead of cwt. and lb. (50 kg = 110 lb.: 0.5 kg = 1.1 lb.).

13. Can I buy mixtures which include "wild flowers" and other non-scheduled species?

There has been some uncertainty about these "conservation blend" or "wild flower" mixtures, but it now appears that a mixture of any composition can legally be sold provided that the seed of each scheduled species in it satisfied the appropriate standards before mixing, and provided that all the components of the mixture are as fully and accurately described as in more conventional amenity mixtures.

14. How can I tell from the labels what I am buying?

There are three colours of label to look for—blue for certified seed, brown for commercial seed and green for mixtures.

To understand the complex labelling requirements, it is first of all necessary to appreciate that seed may be sold:—

- (a) loose,
- (b) in "small packages" covered by special prescriptions, or
- (c) in larger quantities in sacks or bags. (For convenience, the term "large amounts" is used here to describe the latter type of sale.)

Table 4 sets out the amounts permitted in each category. The requirements are shown for seed both for agricultural and for non-agricultural use, as seed intended for agriculture may sometimes be used for amenity purposes. Furthermore, recently agreed EEC requirements will become effective by 1st July 1977 at the latest to alter the size and labelling of small packages, and introduce the EEC A and B packages mentioned in the Table. Seedsmen may have started phasing in this procedure sooner.

TABLE 4. WAYS AND AMOUNTS IN WHICH GRASS SEED CAN BE SOLD

		1st July 1976— 30th June 1977	1st July 1977 onwards	
		All grass seeds	Seed for agricultural use	Seed for non-agricultural use
"Straights"	loose	Up to 2 kg	Up to 2 kg	Up to 2 kg
	small packages	Up to 15 kg	Up to 10 kg (EEC B package)	Up to 10 kg (EEC B package)
	large amounts	Over 15 kg	Over 10 kg	Over 10 kg
Mixtures	loose	Up to 7 kg	Up to 7 kg	Up to 7 kg
	small packages	Up to 15 kg	Up to 15 kg	Up to 2 kg (EEC A package) and over 2 and up to 10 kg (EEC B package)
	large amounts	Over 15 kg	Over 15 kg	Over 10 kg

Tables 5 and 6 summarize the information that has to be shown, for seed sold in bags or containers (i.e. not loose), on the external labels of the official Certifying or Sealing authority or of the supplier (seedsmen). There are also official internal labels, except when the external one is adhesive; these carry most, but not all, of the information on the external label. In some cases information may be printed on the bag instead of being on a label, if the supplier chooses. Table 5 shows the requirements up to 1st July 1977 and Table 6 shows the subsequent requirements, reflecting mainly the changes due to the EEC A and B package procedure. Seedsmen are permitted to adopt this procedure before the statutory date, so that Tables 5 and 6 will overlap in practice in spite of the formal

dividing line of 1st July 1977. Inverted commas round information items denote the wording actually to be used on the label.

X = information to be given on the label in question.

— = information not required.

The letters "a" — "n" refer to notes on page 16.

For loose sales, the basic requirement is simply to display on or near the container from which seed is sold, the species and cultivar, and the statement "complies with legal standards." Where species and cultivar can not be specified, the original bag or its official label may be displayed.

TABLE 5. SUMMARY OF INFORMATION ON TURFGRASS SEED LABELS
Up to 1st July 1977

Information item	"Straights"				Mixtures (green label)		
	Certified seed (1st generation) (blue label)		Commercial seed (brown label)		Large amount	Small package	
	Large amount	Small package	Large amount	Small package		agric.	non-agric.
1. Type of label: official or supplier's	Off.	Supp.	Off.	Supp.	Off.	Supp.	Supp.
2. Official authority: name or mark	X	—	X	—	X	—	—
3. Supplier: name or mark	—	X	—	X	—	X	X
4. "EEC rules and standards"	X	X	X	X	—	—	—
5. Seed category or mixture description (Note a)	X	X	X	X	X	X	X
6. Ref. no. of seed lot	X	X	X	X	X	X	X
7. Species (kind)	X	X	X	X	Xd	Xd	—
8. Cultivar (variety)	X	X	—	—	—	—	—
9. Country or area of seed production	X	—	X	—	—	—	—
10. Weight	X	X	X	X	X	X	X
11. Other information on label	Xb,c	Xc	Xc	Xc	Xc	Xc	Xc,f
12. Supplementary information on another document	—	—	—	—	Xe	Xe	—

Letters refer to notes on p.16.

TABLE 6. SUMMARY OF INFORMATION ON TURFGRASS SEED LABELS

1st July 1977 onwards

Information item	"Straights"				Mixtures (green label)				
	Certified seed (1st generation) (blue label)		Commercial seed (brown label)		Large amount		Small package		
	Large amt. (over 10 kg)	EEC B package	Large amt. (over 10 kg)	EEC B package	agricultural use (over 15 kg)	non-agric. (over 10 kg)	agric. (up to 15 kg)	non-agric.	
								EEC A package (up to 2 kg)	EEC B package (over 2 kg, up to 10 kg)
1. Type of label: official or supplier's	Off.	Supp.	Off.	Supp.	Off.	Off.	Supp.	Supp.	Supp.
2. Official authority: name or mark	X	—	X	—	X	X	—	—	—
3. Supplier: name or mark	—	Xg	—	Xg	—	—	X	X	Xg
4. "EEC rules and standards"	X	Xh	X	Xh	—	—	—	Xm	Xh
5. Seed category or mixture description (Note a)	X	X	X	X	X	X	X	X	X
6. Ref. no. of seed lot	X	X	X	X	X	X	X	X	X
7. Species (kind)	X	X	X	X	Xd	Xd	Xd	}Xk	}Xk
8. Cultivar (variety)	X	X	—	—	—	—	—		
9. Country or area of seed production	X	—	X	—	—	—	—	—	—
10. Weight	X	X	X	X	X	X	X	X	X
11. Other information on label	Xb, c, j	Xc, j, n	Xc, j	Xc, j, n	Xc, j	Xc, j	Xc	Xc, f, j, n	Xc, f, j, n
12. Supplementary information on another document	—	—	—	—	Xe	Xe	Xe	—	—

Letters refer to notes on p.16.

Notes for Tables 5 and 6

- a. For "straights," whether certified seed or commercial (not certified as to cultivar): for mixtures, intended use.
- b. For turfgrass cultivars exempted from testing for cultivation and use by being declared "not intended for fodder production," a statement to this effect.
- c. Chemical treatment, if any.
- d. The proprietary name of the mixture may be substituted.
- e. The supplier to give on a separate supplier's label, or in a document such as the invoice, within 14 days of marketing, the following details for each constituent—species; cultivar, if appropriate; category; proportion by weight.
- f. "With ryegrass" or "without ryegrass."
- g. With officially assigned serial number on the package or label (not necessary until 1st July 1980 for straights).
- h. "Small EEC B package" instead of "EEC rules and standards."
- j. Information on nature and amount of any solid additives such as granulated pesticides or pelleting substances (though not dusts such as bird repellants).
- k. Composition to be given, either as proportion by weight of the various components by species and cultivar, or by proprietary name of mixture (if officially recorded).
- m. "Small EEC A package" instead of "EEC rules and standards."
- n. Member state or its identification mark (e.g. "packed in the United Kingdom").

15. In simple language, what will the labels of my seeds mixture tell me?

a) Proprietary mixtures

Assuming the order is for a "large amount," e.g. more than 15 kg (see Table 4), the mixture will have to carry the official green label(s). If the seedsman ties or stitches his outer labels, there will be one green official label on the outside of each bag and another more or less similar label inside, both of green card, about 12 x 10 cm. If labels are stuck on the bag, there will be no official inner label and the outer one will be adhesive-backed paper, but the same as the card label in colour and design.

The official outer label carries some wording that is standard (in capitals in the example below) and some details filled in by the seedsman (underlined):—

UNITED KINGDOM SEEDS EXECUTIVE
MIXTURE
PRODUCED IN THE UNITED KINGDOM
LABEL NO. [XYZ 123456]
SEED MIXTURE FOR: Amenity purposes
WEIGHT: 20 kg
NAME OF MIXTURE OR LIST OF KINDS:
Soap's Supergrass Mixture,
with ryegrass
REF. NO. ABC 123
CERTIFYING AUTHORITY: [MINISTRY OF
AGRICULTURE FISHERIES AND FOOD]

In this example, the seed is of a standard catalogue mixture and the proprietary name can be used (see Section 11). The seedsman's catalogue will show the amount and the full description of each constituent. The reference number will probably link up with the order acknowledgement or invoice. Note that "with ryegrass" or "without ryegrass" is likely to be shown somewhere on the official outer label, even though, strictly, not required with large amounts. Note also that there need be nothing on the label to show whether the mixture consists wholly, partly or not at all, of certified seed (although this information must be provided to the purchaser within 14 days of sale, by way of the catalogue or some other document). The square brackets denote, respectively, the serial number unique to each pair of labels and the certifying authority within one or other part of the UK.

The standard wording on the official inner label is:—
INNER LABEL
MIXTURE
LABEL NO. [XYZ 123456]
NAME OF MIXTURE OR LIST OF KINDS:
REF. NO.
CERTIFYING AUTHORITY: [MINISTRY OF
AGRICULTURE FISHERIES & FOOD]

Note that "SEED MIXTURE FOR" and "WEIGHT" are omitted, although the seedsman may well print the same details onto both outer and inner labels.

b) Special orders

If seed is for a special order the information against "NAME OF MIXTURE OR LIST OF KINDS" will vary according to the seedsman. It is unlikely that the kinds (species) will be printed on the official label, because of restricted space apart from any other reason. The mixture may be described in rather general terms, e.g. "Special Playing Field Mixture," or in more detail, e.g. "Mixture for Jubilee Street Playing Field." Thus if two or three different mixtures are delivered at once it may be clear which is which from the official labels themselves or from separate suppliers' labels, or it may be necessary to await the invoice and use the reference numbers to check. The details of the mixture composition will be given on the invoice, or may be on a separate supplier's label inside or outside each bag. The supplier's label has no set pattern and can include as much detail as the seedsman cares to give. The purity and germination of each component (complying with the minimum standards as appropriate) are sometimes given automatically on the invoice, but would in any case generally be supplied if requested.

When ordering seed it may be worth-while to discuss with the seedsman his normal practice and specify any "extras" that are wanted, such as special identification for seed lots that might be confused on the bare "official" information, or special purity and germination requirements.

SECTION II. OFFICIAL LISTS OF CULTIVARS AND SEED AVAILABILITY IN 1977

Cultivar and country of origin

The lists contain cultivars in:—

- a) the UK National Lists as at September 1976 (Plant Varieties and Seeds Gazette No. 140).
- b) the 2nd edition of the EEC Common Catalogue (published 20th March 1976). Cultivars not already included by virtue of being on the UK National Lists are marked "C" in the left-hand margin.

Countries of origin are shown by abbreviations, including the following:—

Bel = Belgium	GDR = German Democratic Republic	
Can = Canada	(East Germany)	
Den = Denmark	GFR = German Federal Republic (West	
Ei = Eire	It = Italy	Germany)
Fr = France	Ne = Netherlands	
	Pol = Poland	
	Swe = Sweden	

Perennial ryegrass and timothy cultivars are grouped on the basis of intended turf use or agricultural persistence ratings, principally the ratings published by the National Institute of Agricultural Botany in the Classified List of Herbage Varieties, England and Wales, 1975/6 (Obtainable from NIAB, Huntingdon Road, Cambridge CB3 0LE). For specialized turf use, particularly intensive use, greater discrimination is likely to be required. In some uses, persistence will be less important than other qualities. Detailed information on perennial ryegrass is given in the STRI publication "Cultivars of perennial ryegrass for turf use : descriptive notes" (STRI Journal No. 50, 1974, or subsequent reprint).

Red fescue cultivars are divided into three groups according to the provisional classification described in STRI Bulletin No. 113.

Other species are not subdivided.

Detailed reports and comment on cultivars of all species have been published from time to time in STRI Journals and Bulletins. Consolidated information, such as the two publications already mentioned, is being prepared as the data warrants it.

Lists are given only for those species already discussed in this booklet as likely to be considered for turfgrass use in the UK. The National Lists and Common Catalogue sections for other species are either currently empty or omitted from this booklet as shown below:—

	National Lists	Common Catalogue
Italian and Westerwolds ryegrass	omitted	omitted
Hybrid ryegrass	"	"
Meadow fescue	"	"
Tall fescue	"	"
Cocksfoot	"	"
Tall oatgrass	"	"
Red top	"	"
Meadow foxtail	empty	"
Swamp meadow-grass	"	"
Yellow oatgrass	"	"
Annual meadow-grass	"	empty

Maintainer and UK agent

Names are given in abbreviated form: full names and addresses are listed at the end in alphabetical order.

The maintainer is given as shown in the Lists or the Common Catalogue; he is responsible for basic seed supplies. A UK agent is generally only shown for a cultivar if the maintainer has no UK branch or base, and for cultivars which are either on the National List or currently

available in the UK. Agents listed here are generally those named in the National Lists, who act as the maintainers' official "contacts" in the UK. They are not necessarily the sole importers or wholesalers of cultivars, and enquiries for seed should only be made to these agents if there are difficulties through normal trade channels.

Seed availability in 1977

Three categories are shown, relating to availability within the UK:—

A = available more or less readily.

LA = limited availability.

N = not available.

Seedsman differ in their interpretation of "limited availability," so the "A" category probably covers a wide range of seed stock quantities, and some cultivars will change to 'LA' or 'N' during 1977.

Synonyms

Some synonyms used outside the UK and mentioned in the Common Catalogue are listed. Obvious synonyms (e.g. 'S.23' for 'Aberystwyth S.23') are not given.

PERENNIAL RYEGRASS

In view of the wide range of material, mostly for agriculture, grouping is made according to agricultural persistence ratings. For more details of classification and the available information on turfgrass merit, reference should be made to the STRI publication "Cultivars of perennial ryegrass for turf use: descriptive notes."

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
i) Diploid cultivars intended for turf use, or cultivars with good agricultural persistence (e.g. NIAB Classified List rating A)			
Aberystwyth			
S.23	UK	WPBS/NSDO	A
Angela	Ne	van der Have	A
Barenza	Ne	Barenbrug (Goldsmith)	A
C Barrage	Ne	Barenbrug	N
Caprice	Ne	Zelder (Germinal)	A
Compas	Ne	Joordens/van Engelen (Pope & Chapman/Sinclair McGill)	A
Endura	Ne	van Engelen (Pope & Chapman)	A
C Ensporta	Ne	van Engelen (Pope & Chapman)	A
C Gazon	GFR	Kruse	N
Goal	Ne	Zwaan & de Wiljes (Picard)	N
Grandstand	Ne	Mommersteeg	A

Perennial ryegrass (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
Karin	Ne	van der Have	LA
Ladi	Ne	Zelder (Germinal)	N
Lamora	Ne	Mommersteeg	A
Manhattan	USA	Rutgers Univ. (Pope & Chapman)	A
Melle	Bel	RvP (Rothwell PB)	A
Midas	Ne	Zelder (Germinal/Cundy)	LA
Mombassa	Ne	Mommersteeg	LA
Monta	Ne	Zelder (Germinal)	A
Moretti	Ne	Mommersteeg	LA
C N.F.G.	GFR	DSV	N
Pablo	Ne	Cebeco (Rothwell PB)	LA
C Parcour	GFR	Petersen	N
Pelo	Ne	van der Have	A
Perma	Ne	Cebeco (Rothwell PB)	A
C Real	Fr	Clause	N
Romney	UK	Kent NFU	LA
Semperweide	Ne	Zwaan & de Wiljes (Picard)	A
Splendor	Ne	Zelder (Germinal)	N
Sportiva	Ne	van Engelen (Pope & Chapman)	A
Springfield	Ne	van der Have	A
Sprinter	Ne	Zwaan & de Wiljes (Picard)	A
Stadion	Ne	Mommersteeg	A
Talbot	Ne	van der Have	A
Wendy	Ne	van der Have	A
ii) Diploid cultivars with fairly good agricultural persistence (e.g. NIAB Classified List rating B)			
Aberystwyth			
S.101	UK	WPBS/NSDO (Hurst Gunson)	A
Akron	Ne	Cebeco (Rothwell PB)	A
Animo	Ne	Mommersteeg	A
Barlenna	Ne	Barenbrug (Goldsmith)	A
Barstella	Ne	Barenbrug (Goldsmith)	A
Cropper	Ne	van der Have	A
C Doublet	Ne	van der Have	N
Fingal	Ei	Univ. Coll., Dublin (Rothwell PB)	A
Gremie	Ne	Zelder (Germinal)	A
Kelvin	UK	Sinclair McGill	A
Kent			
Indigenous	UK	Kent NFU	A
C Oakpark	Ei	Ag. Inst., Oakpark	A (Eire)
Pickmere	UK	Gartons	LA

Perennial ryegrass (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
C Raidor	Fr	Clause	N
RvP Hay-Pasture	Bel	RvP (Rothwell PB)	A
Tresceaver	UK	Rothwell PB	A
iii) Other diploid cultivars			
Aberystwyth S.24	UK	WPBS/NSDO	A
Aberystwyth S.321	UK	WPBS/NSDO	A
Aberystwyth Teilo	UK	WPBS/NSDO	N
Argo	Pol	Rolimpex (Rothwell PB)	N
Bocage	Fr	UCOPAC (Rothwell PB)	N
Castria	UK	Williams/NSDO	N
Combi	Ne	Joordens/van Engelen (Pope & Chapman/Sinclair McGill)	A
Devon Eaver	UK	DCSGA	A
Dux Øtofte	Den	Dansk Plant.	A
Glasnevin Leafy	Ei	Eire D. of Ag./Univ. Coll., Dublin	A (Eire)
Grasmere	UK	Gartons	LA
Grasslands Ruanui	NZ	DSIR (NZ High Comm.)	A
Hadrian	UK	Williams/NSDO	N
Hora	Ne	Cebeco (Rothwell PB)	A
Houba	Ne	Zelder (Rothwell PB)	A
Hunsballe	Den	Hunsballe	N
Lenta			
Pajbjerg	Den	Dansk Plant.	A
C Liperlo	GFR	DSV	N
C Mito			
Daehnfeldt	Den	Daehnfeldt	N
Naki	Pol	Rolimpex (Rothwell PB)	N
C Odengrün	GFR	Süddeutsche	N
C Odstein	GFR	Süddeutsche	N
Parga	GFR	Nord.Pfl. (Twyford)	N
Pax Øtofte	Den	Dansk Plant.	A
Premo	Ne	Mommersteeg	A
Presto			
Pajbjerg	Den	Dansk Plant.	LA

Perennial ryegrass (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
C Primevere	Fr	INRA	N
C Printo	GFR	Nord. Pfl.	N
Scotia	UK	SSRPB/NSDO	N
Spirit	Ne	Zwaan & de Wiljes (Picard)	A
Stormont			
Zephyr	UK	NI D. of Ag./NSDO	LA
C Tailteann	Ei	Eire D. of Ag.	LA (Eire)
Verna			
Pajbjerg	Den	Dansk Plant.	A
C Viktoria			
Trifolium	Den	Dansk Plant.	A
C Weiris	GFR	Nungesser	N

iv) **Tetraploid cultivars** As these have shown no special merit for turf use, and in view of the large range of diploid cultivars, they are only listed for completeness.

Agresso	Fortis	Reveille
Artal	Grimalda	Sceempter Hay
C Atempo	Massa	Taptoe
Barlatra	Meltra	Terhoy
Barpastra	Palaver	Terpas
Barvestra	Petra	Tonga

v) **Synonyms from the Common Catalogue**

Aberylo = Aberystwyth S.24	Mommersteeg's Weidauer =
Angeliter Presto = Presto	Lamora
Pajbjerg	Verna = Verna Pajbjerg
Havier = Petra (Tetraploid)	Vigor = Vigor RvP = Melle
Hubal = Ladi	Viktoria = Viktoria
Melino = RvP Hay-Pasture	Trifolium
= Melino RvP	Weiris = Viris
Mito = Mito Daehnfeldt	

TIMOTHY

There are two species of timothy, as indicated below. Whereas the small-leaved timothy is primarily a turfgrass, large-leaved timothy is primarily agricultural and only the more persistent cultivars are likely to be useful for turf, although all cultivars are listed, with their availability, in view of the likely scarcity of seed of some cultivars in 1977.

Timothy (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
i) Small-leaved (diploid) timothy (<i>Phleum bertolonii</i>)			
Aberystwyth			
S.50	UK	WPBS/NSDO	A
Allgreen	Swe	Weibull (Hurst Gunson)	LA
Maris			
Paviour	UK	PBI/NSDO	N
Match	Ne	Zwaan & de Wiljes (Picard)	N
C Piccolo	Ne	Joordens	N
ii) Large-leaved (hexaploid) timothy (<i>P. pratense</i>): cultivars with good agricultural persistence (e.g. NIAB Classified List ratings A or B)			
Aberystwyth			
S.48	UK	WPBS/NSDO	A
Comet	Ne	van Engelen/Joordens (Pope & Chapman/Sinclair McGill)	LA
C Farol	Ne	Cebeco	N
Grasslands			
Kahu	NZ	DSIR (NZ High Comm.)	A
Heidemij	Ne	van der Have	LA
Intenso	Ne	Zwaan & de Wiljes (Picard)	LA
King	Ne	van der Have	LA
Maris			
Purlieu	UK	PBI/NSDO	N
Mirage	Ne	van Engelen (Pope & Chapman)	N
Motim	Ne	Mommersteeg	LA
Oakmere	UK	Gartons	LA
Olympia	Ne	van Engelen (Pope & Chapman)	N
Pastremo	Ne	Mommersteeg	LA
Pecora	Fr	Vilmorin (Rothwell PB)	A
Timo	Ne	Mommersteeg	LA
C Tiran	Ne	Joordens	N
Winda	Ne	Zelder (Germinal)	N
iii) Other cultivars of large-leaved timothy			
Aberystwyth			
S.51	UK	WPBS/NSDO	A
Aberystwyth			
S.352	UK	WPBS/NSDO	A
Astra	Swe	Weibull (Hurst Gunson)	N
Barmoti	Ne	Barenbrug (Goldsmith)	N
C Bero			
Daehnfeldt	Den	Daehnfeldt	N

Timothy (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
Bounty	Can	Canada D. of Ag. (Can. High Comm.)	LA
Champ	Can	Canada D. of Ag. (Can. High Comm.)	A
Climax	Can	Canada D. of Ag. (Can. High Comm.)	A
Drummond	Can	McDonald Coll./Maple Leaf Mills (Can. High Comm.)	LA
Emma	Pol	Rolimpex (Rothwell PB)	LA
Erecta RvP	Bel	RvP (Rothwell PB)	A
Eskimo	Ne	Mommersteeg	A
Glasnevin Gem	Ei	Eire D. of Ag.	LA (Eire)
Jacoba	Ne	Zelder (Germinal)	N
Kampe II	Swe	Weibull (Hurst Gunson)	N
C Landsberger	GFR	DSV (Rothwell PB)	LA
C Lischower	GFR	Schröder	N
Lofar	Ne	Cebeco (Rothwell PB)	LA
C Mahndorfer			
Lieschgras	GFR	Stroetmann	N
Maris Polka	UK	PBI/NSDO	N
C Melusine	Fr	INRA	N
C Murra	Ne	Zelder	N
C Oberhaunstädter			
Lieschgras	GFR	Süddeutsche	N
Odenwälder	GFR	Süddeutsche (Newgrain)	LA
Omnia	Swe	Swedish Seed Assn.	A
C Pergo			
Pajbjerg	Den	Dansk Plant.	A
C Phlewiola	GFR	Süddeutsche	N
Scots	UK	STSGA	A
C Taca			
Trifolium	Den	Dansk Plant.	A
Teith	UK	Sinclair McGill	LA
Topas			
Øtofte	Den	Dansk Plant.	A
Toro	It	ISCF, Lodi (Can. High Comm.)	A
Vanadis	Swe	Swedish Seed Assn. (Cundy)	A

Timothy (ctd.)

iv) Synonyms from the Common Catalogue

Erecta RvP = Erecta	Enola = Olimpia = Olypia
Jaco = Jacoba	Øtofte A = Topas Øtofte =
Kämpe = Kampe II	Topas
	Pergo = Pergo Pajbjerg

RED FESCUE

(Including both Chewings fescue and creeping red fescue.) There are three main divisions according to presence or absence of rhizomes (underground stems) and number of chromosomes in the plant cells. According to the number of chromosomes, fescues are hexaploid ($2n = 6 \times 7 = 42$) or octoploid ($2n = 8 \times 7 = 56$). The strong creeping red fescues include cultivars used exclusively for turf use and those sometimes used for fodder in other countries, though seldom so used in the UK. The classification, especially of cultivars assigned to slender creeping red fescue, is provisional and may be revised in future.

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
i) Chewings fescue (No rhizomes: hexaploid)			
Amboise	Fr	Hurst Gunson	N
Atlanta	Ne	van der Have (Johnson)	LA
Barfalla	Ne	Barenbrug (Goldsmith)	A
Belmonte	Ne	Mommersteeg	N
Cascade	USA	Oregon State Univ. (Northrup King)	A
Diamond	Ne	Mommersteeg	N
Encota	Ne	van Engelen (Pope & Chapman)	N
Erika	Swe	Weibull (Hurst Gunson)	LA
Famosa	Ne	Zwaan & de Wiljes (Picard)	LA
Flevo	Ne	Mommersteeg	N
Halifax	Ne	van der Have (Johnson)	N
Highlight	Ne	van Engelen (Pope & Chapman)	A
Jamestown	USA	Lofts (Goldsmith)	LA
Koket	Ne	Mommersteeg	A
C Lifalla	GFR	DSV (Rothwell PB)	LA
C Lirouge	GFR	DSV (Rothwell PB)	A
Menuet	Ne	Joordens (Sinclair McGill)	N
C Odra	GFR	Süddeutsche	N
Rasengold	GFR	Steinach (Newgrain)	LA
Rolax	Bel	Labor (Parnell Lang)	LA
C Rudax	Bel	Sevens	N
Sabanna	UK	WPBS/NSDO	N
Waldorf	Ne	van der Have (Johnson)	A
Wintergreen	USA	Northrup King	LA

Red fescue (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
ii) Slender creeping red fescue (Slender or few rhizomes: hexaploid)			
Aberystwyth			
S.59	UK	WPBS/NSDO	A
Chaumont	Fr	Hurst Gunson	N
Dawson	Ne	van der Have	A
Golfrood	Ne	van der Have	N
Grampian	UK	SAI	N
C Linora	GFR	DSV (Rothwell PB)	LA
Merlin	UK	Liverpool Univ. /NSDO	LA
Oasis	Ne	van Engelen (Pope & Chapman)	LA
Pennlawn	USA	Pennsylvania State Univ. (Northrup King)	LA
Polar	Swe	Weibull (Hurst Gunson)	N
iii) Strong creeping red fescue (Many strong rhizomes: octoploid)			
Agio	Ne	van Engelen (Pope & Chapman)	A
Bargena	Ne	Barenbrug (Goldsmith)	A
C Bergère	Fr	Clause	N
Bléré	Fr	Hurst Gunson	N
Boreal	Can	Canada D. of Ag. (Can. High Comm.)	A
C Cottage	Fr	UCOPAC (Rothwell PB)	LA
Dasas	Den	Dansk Plant.	A
Durlawn	Can	Canada D. of Ag. (Can. High Comm.)	LA
Echo	Den	Daehnfeldt (Picard)	A
Engina	Ne	van Engelen (Pope & Chapman)	A
C Envira	Ne	van Engelen	N
C Enzet	Ne	van Engelen	N
Gracia	Ne	Zwaan & de Wiljes (Picard)	LA
C Kos	Pol	Desprez, France	N
C Liebenziger	GFR	Nord. Pfl.	N
Mom Frr 10 (= Mon- corde)	Ne	Mommersteeg	A
C NFG			
Theodor			
Roemer	GFR	DSV (Rothwell PB)	A
Novorubra	Ne	Mommersteeg	A
C Patio	Ne	Joordens	N
C Prostal	Bel	Sevens	N
Rapid	Ne	Zwaan & de Wiljes (Picard)	A

Red fescue (ctd.)

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
Reptans	Swe	Weibull (Hurst Gunson)	A
Roda	Ne	Cebeco (Hurst Gunson)	N
C Roland 21	GFR	Steinach	N
Rubina			
Roskilde	Den	Dansk Plant.	A
Ruby	Ne	van der Have (Johnson)	A
C Taca			
Trifolium	Den	Dansk Plant.	LA

iv) Synonyms from the Common Catalogue

Dasas S.64 = Dasas	Polo = Echo
Echo Daehnfeldt = Echo	Rufus = Rubina Roskilde
N.F.G. = NFG Theodor Roemer	Sceempter tracante = Gracia
Oase = Oasis	Topie = Highlight

OTHER SPECIES

SMOOTH-STALKED MEADOW-GRASS

A34 (= Bensusn)	USA	Warrens (Hurst Gunson)	A
Adelphi	USA	Northrup King	LA
C Apoll = Union			
Aquila	Ne	van der Have (Johnson)	A
C Arena	Ne	Zelder	N
Arina-			
Dasas	Den	Dansk Plant.	A
Arista	Ne	van Engelen (Pope & Chapman)	A
Baron	Ne	Barenbrug (Goldsmith)	A
Barones	Ne	Barenbrug (Goldsmith)	N
C Baronie	Ne	Barenbrug	N
Birka	Swe	Weibull (Hurst Gunson)	N
C Campina	Ne	Joordens	N
Captan	Ne	Zwaan & de Wiljes (Picard)	LA
C Continental	Ne	van der Have	N
Delft	Ne	Cebeco (Hurst Gunson)	A
C EF	Den	Nielsen	N
C Encrona	Ne	van Engelen	N
C Enita	Ne	van Engelen	N
C Enmundi	Ne	van Engelen	N

Cultivar	Country of origin	Maintainer and UK agent	Seed availability in 1977
C Enoble	Ne	van Engelen	N
C Enprima	Ne	van Engelen (Pope & Chapman)	LA
Ensema	Ne	van Engelen (Pope & Chapman)	N
C Entensa	Ne	van Engelen	N
C Entopper	Ne	van Engelen	N
C Eska 46	GFR	Kruse	N
Fylking	USA	Maple Leaf Mills/Swedish Seed Assn. (Germinal)	A
Geronimo	Ne	Mommersteeg	A
C Golf	Ne	Mommersteeg	N
C Kahnstein	GFR	OSG Saat.	N
Kimono	Ne	Mommersteeg	N
C Merion	USA	Jacklin	N
C Modena	Ne	Mommersteeg	N
Monopoly	Ne	Mommersteeg	A
Mosa	Ne	Mommersteeg	N
Newport	USA	Oregon State Univ. (Northrup King)	A
C Nike			
Daehnfeldt	Den	Daehnfeldt	N
C Norma			
Otofte	Den	Dansk Plant.	A
Nugget	USA	Alaska CIA c/o Otto Pick (Pope & Chapman)	A
C Olymprisp	GFR	Süddeutsche	N
Orna	Ne	Cebeco (Hurst Gunson)	N
C Ottos	GFR	DSV (Rothwell PB)	LA
Parade	Ne	van der Have (Johnson)	A
Prato	Ne	van der Have (Johnson)	A
Primo	Swe	Weibull (Hurst Gunson)	A
C S.K.46 = Eska 46			
C Soma			
Hunsballe	Den	Dansk Plant.	A
C Stola 310	GFR	Steinach	N
Sydsport	Swe	Weibull (Hurst Gunson)	A
C Union	GFR	Steinach	N
BROWNTOP BENT			
C Barbinet	Ne	Barenbrug	N
Bardot	Ne	Barenbrug (Goldsmith)	A
Boral	Swe	Weibull (Hurst Gunson)	LA

Cultivar	Country of origin	Maintainer and UK Agent	Seed availability in 1977
	Ne	Zwaan & de Wiljes (Picard)	LA
C Enate	Ne	van Engelen	N
Enbenta	Ne	van Engelen (Pope & Chapman)	N
Goginan	UK	Liverpool Univ./NSDO	LA
Highland	USA	Oregon State Univ. (Northrup King)	A
Holfior	Ne	van der Have (Johnson)	LA
C Igeka	Pol	Kruse, GFR	N
C Ligrette	GFR	DSV (Rothwell PB)	LA
Orbica	Ne	Cebeco (Hurst Gunson)	N
Parys			
Mountain	UK	Liverpool Univ./NSDO	LA
Saboval	UK	WPBS/NSDO (Hurst Gunson)	N
Tracemo	Ne	Mommersteeg	N
Tracenta	Ne	Mommersteeg	A

CREEPING BENT

Carmen	Ne	Mommersteeg	N
Penncross	USA	Pennsylvania State Univ. (Northrup King)	A
Prominent	Ne	Zwaan & de Wiljes (Picard)	LA
Smaragd	Swe	Weibull (Hurst Gunson)	LA

VELVET BENT

C Aca 61	GFR	Steinach	N
C Avanta	Ne	van Engelen (Pope & Chapman)	LA
Barbella	Ne	Barenbrug (Goldsmith)	LA
Kingstown	USA	Lofts (Goldsmith)	N
Novobent	Ne	Mommersteeg	N
Rusta	Ne	Cebeco (Hurst Gunson)	N

HARD FESCUE

Balmoral	Ne	Mommersteeg	N
Biljart	Ne	Mommersteeg	A

SHEEP'S FESCUE

Azay	Fr	Hurst Gunson	N
C Charming	Ne	van Engelen	N
Mecklenburger	GDR	DSG (Hurst Gunson)	N

Cultivar	Country of origin	Maintainer and UK Agent	Seed availability in 1977
FINE-LEAVED SHEEP'S FESCUE			
C Argenta	Ne	Cebeco	N
Barok	Ne	Barenbrug (Goldsmith)	A
Felia	Bel	Labor (Parnell Lang)	LA
C Fertalia	Bel	Sevens	N
Novina	Ne	Mommersteeg	A
Renova	Ne	Zwaan & de Wiljes (Picard)	N
C Sima	Pol	Kruse, GFR	N
ROUGH-STALKED MEADOW-GRASS			
Dasas	Den	Dansk Plant.	A
C Ino			
Daehnfeldt	Den	Daehnfeldt	N
C Omega			
Øtofte	Den	Dansk Plant.	A
WOOD MEADOW-GRASS			
Barnemo	Ne	Barenbrug (Goldsmith)	LA
Novombra	Ne	Mommersteeg	A

NAMES AND ADDRESSES OF MAINTAINERS AND AGENTS

Ag. Inst., Oakpark	Agricultural Institute, Oakpark, Carlow, Eire.
Alaska CIA	Alaska CIA, c/o Otto Pick & Sons Seeds Ltd., Box 126, Richmond Hill, Ontario, Canada.
Barenbrug	Barenbrug Holland NV, Postbox 4, Arnhem, Netherlands.
Canada D. of Ag.	Canada Dept. of Agriculture, Ottawa, Ontario, Canada.
Can. High Comm.	Canadian High Commission, Macdonald House, 1 Grosvenor Square, London, W1X 0AB.
Cebeco	Cebeco-Handelsraad, 31 Blaak, PO Box 182, Rotterdam, Netherlands.
Clause	Clause, Avenue de Mesnil, 91220 Brétigny-sur-Orge, France.
Cundy	Cundy & Son Ltd., Corsham, Wiltshire.

Daehnfeldt	A/S L. Daehnfeldt, PO Box 185, DK 5100 Odense, Denmark.
Dansk Plant.	Dansk Planteforaedling A/S, Overbygaard, DK 7080, Børkop, Denmark. <i>and</i> Dansk Planteforaedling, Didbrook Fields, Toddington, Nr. Cheltenham, Glos.
DCSGA	Devon & Cornwall Seed Growers' Association, Agriculture House, Queen Street, Exeter, Devon.
Desprez	Florimond Desprez, Cappelle, 59242 Templeuve, France.
DSG	Deutscher Saatgut Handelsbetrieb, Berlin-Treptow, Moosdorfstrasse 7-9, German Democratic Republic.
DSIR	Department of Scientific and Industrial Research, Grasslands Division, Private Bag, Palmerston North, New Zealand.
DSV	Deutsche Saatveredelung Lippstadt-Bremen GmbH, 4780 Lippstadt, Postfach 105, German Federal Republic.
Eire D. of Ag.	Department of Agriculture and Fisheries, Agriculture House, Kildare Street, Dublin 2, Eire.
Gartons	Gartons Agram Ltd., PO Box 36, Lord Street, Southport, PR9 0AT.
Germinal	Germinal Holdings, Commercial Road, Banbridge, Northern Ireland. <i>Subsidiaries—</i> British Seed Houses and David Bell Ltd.
Goldsmith	Goldsmith Bros. Ltd., Garland Street, Bury St. Edmunds, Suffolk.
Hunsballe	Frøavlscentret Hunsballe A/S, 7500 Holstebro, Denmark.
Hurst Gunson	Hurst Gunson Cooper Taber Ltd., Witham, Essex, CM8 2DX.
INRA	Institut National de la Recherche Agronomique, 149 rue de Grenelle, 75341 Paris, France.
ISCF, Lodi	Istituto Sperimentale per le Colture Foraggere, 20075 Lodi, Viale Piacenza, Italy.
Jacklin	Jacklin Seed Co. Inc., Dishman, Washington 99213, USA.

- Johnson W. W. Johnson & Sons Ltd., Boston, Lincs.,
PE21 8AD.
- Joordens J. Joordens Zaadhandel BV, Ze Graaf van
Loonstraat 40, Venlo-Blerick, Netherlands.
- Kent NFU Kent County Branch NFU, 26 Faversham
Road, Lenham, Maidstone, Kent, ME 17 2PN.
- Kruse Kruse & Co., 48 Bielefeld, Postfach 5228,
German Federal Republic.
- Labor Labor S.M., Klein Dokkaai 1-5, 9000 Gent,
Belgium.
- Liverpool Univ. The University of Liverpool, Department of
Botany, PO Box 147, Liverpool, L69 3BX.
- Lofts Lofts Pedigreed Seed Inc., Chimney Rock
Road, Bound Brook, New Jersey 08805,
USA.
- Maple Leaf Mills Maple Leaf Mills Ltd., Oakwood, Ontario,
Canada.
- McDonald Coll. McDonald College, Montreal, Canada.
- Mommersteeg Mommersteeg International BV, Postbox 1,
Vlijmen, Netherlands.
and
Mommersteeg International, Station Road,
Finedon, Wellingborough, Northants.
- Newgrain Newgrain, Pivington Mill, Pluckley, Ashford,
Kent.
- NI D. of Ag. Ministry of Agriculture for Northern Ireland,
Belfast, Northern Ireland.
- Nielsen Laurits Nielsen Nyborg A/S, Strandvejen 6,
5800 Nyborg, Denmark.
- Nord. Pfl. Norddeutsche Pflanzenzucht Hans-Georg
Lembke KG, 2331 Hohenlieth, German
Federal Republic.
- Northrup King Northrup King Ltd., 58 Princes Street,
Southend-on-Sea, Essex, SS1 1QF.
- NSDO National Seed Development Organisation,
Newton Hall, Newton, Cambridge.
- Nungesser Nungesser KG, 61 Darmstadt, Postfach 846,
German Federal Republic.
- NZ High Comm. New Zealand High Commission, New Zealand
House, Haymarket, London, SW1Y 4TQ.
- Oregon State Univ. Oregon State University, Corvallis, Oregon,
USA.

- OSG Saat. OSG Saatzuchtgesellschaft mbH, 3 Hannover-Wülfel, Postfach, German Federal Republic.
- Parnell Lang Parnell Lang & Co. Ltd., 16 Okehampton Street, Exeter, EX4 1DX.
- PBI Plant Breeding Institute, Maris Lane, Trumpington, Cambridge.
- Pennsylvania State Univ. Department of Agronomy, Pennsylvania State University, 20 Tyson Building, University Park, Pennsylvania 16802, USA.
- Petersen Petersen, 2391 Flensburg, German Federal Republic.
- Picard J. Picard & Co. (Seed Merchants) Ltd., 34/35 Corn Exchange Chambers, Seething Lane, London, EC3N 4BL.
- Pope & Chapman Pope & Chapman Ltd., 13/19 Hockerill Street, Bishop's Stortford, Herts., CM23 2DH.
- Rolimpex Rolimpex, Zurawia 32/34, Warsaw, Poland.
- Rothwell PB Rothwell Plant Breeders Ltd., Rothwell, Lincoln, LN7 6DT.
- Associated with:—*
- Nickersons Seed Specialists Ltd., Field House, Grimsby, Lincs., DN34 4SX.
- Rutgers Univ. Rutgers State University, Department of Soils and Crops, New Brunswick, New Jersey 08903, USA.
- RvP Rijksstation voor Plantenveredeling, Burg. van Gansbergelaan 57, 9220 Merelbeke, Belgium.
- SAI Scottish Agricultural Industries Ltd., Ingliston, Newbridge, Midlothian, EH28 8NZ.
- Schröder Christian M. Schröder, 207 Grosshansdorf, German Federal Republic.
- Sevens Sevens Jaak & Zoon, Breugelweg 44, 3583 Overpelt, Belgium.
- Sinclair McGill Sinclair, McGill Ltd., PO Box 23, 67 Kyle Street, Ayr, Scotland, KA7 1RY.
- SSRPB Scottish Society for Research in Plant Breeding, Scottish Plant Breeding Station, Pentlandfield, Roslin, Midlothian, Scotland.
- Steinach Saatucht Steinach, 8441 Steinach über Straubing, German Federal Republic.
- Stroetmann Stroetmann, 44 Munster-Mecklenbeck, Postfach 7660, German Federal Republic.

STSGA	Scots Timothy Seed Growers Association, Blair Drummond, Stirling, Scotland.
Süddeutsche	Süddeutsche Saatzucht- und Saatbaugenossenschaft eGmbH, 6935 Waldbrunn 2, Postfach 12, German Federal Republic.
Swedish Seed Assn.	The Swedish Seed Association, Svalöf, Sweden.
Twyford	Twyford Seeds Ltd., Adderbury, Banbury, Oxon.
UCOPAC	Union de Coopératives Agricoles de Céréales pour la Production et l'Amélioration des Semences, 77390 Verneuil-L'étang, France.
Univ. Coll., Dublin	Plant Breeding Department, University College, Ballymun Road, Glasnevin, Dublin 9, Eire.
van der Have	D. J. van der Have NV, Kapelle 3615, Netherlands. <i>and</i> D. J. van der Have NV, Cheverals, Bow Brickhill, Bletchley, MK17 9LA. <i>Associated UK Seedsmen:—</i> W. W. Johnson & Sons Ltd., Boston, Lincs., PE 21 8AD.
van Engelen	van Engelen Zaden BV, PO Box 35, Vlijmen, Netherlands.
Vilmorin	Vilmorin-Andrieux, 4, Quai de la Mégisserie, 75001 Paris, France.
Warrens	Warrens Turf Nursery, 8400 W.111th Street, Palos Park, Illinois 60464, USA.
Weibull	W. Weibull AB, Weibullsholm, 261-20 Landskrona 1, Sweden.
Williams	Professor Watkin Williams, Department of Agricultural Botany, University of Reading, Whiteknights, Reading, RG6 2AS.
WPBS	Welsh Plant Breeding Station, Plas Gogerddan, Aberystwyth, Wales.
Zelder	Kweekbedrijf Zelder, Landgoed Zelder, Ottersum (L), Netherlands.
Zwaan & de Wiljes	NV Zwaan en de Wiljes, Stationstraat 124, PO Box 2, Scheemda, Netherlands.

APPENDIX: NOMENCLATURE OF SOME SCHEDULED GRASS SPECIES

1. Red fescue and Chewings fescue

The species *Festuca rubra* L. has for some time been divided into two sub-species—*F. rubra* ssp. *commutata* Gaud. (Chewings fescue) and *F. rubra* ssp. *rubra* (creeping red fescue), e.g. by Dr. C. E. Hubbard in his definitive book "Grasses" (2nd edition: 1968). This division has been made primarily on absence or presence of rhizomes. Recently, it has become important to distinguish, for turf purposes, two types of creeping red fescue, both rhizomatous, but separated by chromosome number as well as by various general characters.

A lead on the botanical nomenclature of the three groups has been given by the Dutch, as shown in Table 7. The name of the intermediate group has been disputed by Dr. Hubbard, although an alternative system has not been definitely proposed. The English names shown for the two types of creeping red fescue are those now adopted by the Sports Turf Research Institute, being approximate translations of the Dutch names and emphasizing the essential difference between the two types.

The EEC Common Catalogue only recognizes the two sub-species *commutata* and *rubra*. The UK Seeds Regulations and National Lists simply refer to *F. rubra*, as does the generally accepted Flora of the British Isles by Clapham, Tutin & Warburg (2nd edition: 1962).

TABLE 7. ENGLISH AND BOTANICAL NAMES OF RED FESCUE

English names, on right (as adopted and recommended by the Sports Turf Research Institute)	Chewings fescue (No rhizomes: 42 chromosomes)	Slender creeping red fescue (Slender or few rhizomes: 42 chromosomes)	Strong creeping red fescue (Many strong rhizomes: 56 chromosomes)
Botanical names Dutch Rassenlijst 1976	<i>Festuca rubra</i> L. var. <i>commutata</i> Gaud. or <i>F. rubra</i> L. var. <i>fallax</i> (Thuill.) Hack.	<i>F. rubra</i> L. var. <i>trichophylla</i> Gaud.	<i>F. rubra</i> L. var. <i>rubra</i>
C. E. Hubbard: Grasses (2nd edition: 1968)	<i>F. rubra</i> L. ssp. <i>commutata</i> Gaud.	<div style="text-align: center;"> <i>F. rubra</i> L. ssp. <i>rubra</i> </div> <div style="text-align: center;"> <i>F. rubra</i> L. ssp. <i>litoralis</i> (suggested by Dr. Hubbard for at least some cultivars of this type) </div>	

2. Miscellaneous fine fescues

There is much confusion on the naming of certain miscellaneous fine fescues, as Table 8 shows.

Dr. C. E. Hubbard, writing in 1968, recognized three separate species of very fine-leaved fescues—hard fescue (*F. longifolia* Thuill.), sheep's fescue (*F. ovina* L.) and fine-leaved sheep's fescue (*F. tenuifolia* Sibth.).

Prior to that the Flora of the British Isles by Clapham, Tutin and Warburg (2nd edition: 1962) classified sheep's fescue and fine-leaved sheep's fescue as sub-species of *F. ovina*.

TABLE 8. BOTANICAL NAMES VARIOUSLY GIVEN TO SOME FINE FESCUES

Authority	Hard fescue	Sheep's fescue	Fine-leaved sheep's fescue
British botanists C. E. Hubbard: Grasses (2nd edition: 1968) (Authority followed by Sports Turf Research Institute in this matter)	<i>F. longifolia</i> Thuill.	<i>F. ovina</i> L.	<i>F. tenuifolia</i> Sibth.
Clapham, Tutin & Warburg: Flora of the British Isles (2nd edition: 1962)	<i>F. longifolia</i> Thuill.	<i>F. ovina</i> L. ssp. <i>ovina</i>	<i>F. ovina</i> L. ssp. <i>tenuifolia</i> (Sibth.) Peterm.
Continental usage Dutch Rassenlijst 1976	<i>F. longifolia</i> Thuill. or <i>F. ovina</i> ssp. <i>duriuscula</i> (L). Koch	<i>F. ovina</i> L.	<i>F. tenuifolia</i> Sibth. or <i>F. ovina</i> L. var. <i>tenuifolia</i> (Sibth.) Dum.
EEC Common Catalogue	<i>F. ovina</i> L. ssp. <i>duriuscula</i>	<i>F. ovina</i> L. ssp. <i>ovina ovina</i>	<i>F. ovina</i> L. ssp. <i>tenuifolia</i>
UK National Lists	<i>F. longifolia</i> Thuill. or <i>F. ovina</i> var. <i>duriuscula</i> L.	<i>F. ovina</i> L.	<i>F. tenuifolia</i> Sibth.

The Dutch, in their 1976 Rassenlijst, accept the nomenclature used by Hubbard as an alternative to the system adopted in the EEC Common Catalogue, where all three fine fescues are called sub-species of *F. ovina*.

The UK Fodder Plant Seeds Regulations 1974 mention only one Latin name in this group, *F. ovina*, giving it the English name sheep's fescue, although the Guide to the Seeds Regulations 1975 indicates that fine-leaved sheep's fescue must also be considered as coming under *F. ovina*. Neither document mentions hard fescue.

In the UK National Lists, however, there are three separate categories, with nomenclature similar to that of the Dutch Rassenlijst.

In view of the generally accepted practical division into three groups or types, and the convenience of Hubbard's nomenclature which recognizes these as separate species, this is the system followed and recommended by the Sports Turf Research Institute. It is also likely to be most convenient for seedsmen, even though botanists working with Clapham, Tutin and Warburg may disagree.

3. Ryegrasses

In one other respect, the nomenclature of Clapham, Tutin and Warburg (2nd edition) differs from that used in legislation and the seed trade, by dividing *Lolium perenne* into two sub-species, ssp. *perenne* and ssp. *multiflorum* (Lam.) Husnot, instead of recognizing two separate species, *L. perenne* and *L. multiflorum*. The division into two separate species is general practice in the seed trade and elsewhere, and has been adopted also by the Sports Turf Research Institute.

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