

Grass roots wisdom

A review of grass seeds suitable for golf courses

GRASS is probably the most successful family of plants occurring naturally in the British Isles, where it grows almost everywhere in abundance. The world contains approximately 10,000 species of grass, but Britain has only about 160 occurring naturally, of which eight have been selected for characteristics which make them useful in the production of domestic and professional turf.

Grass habitats are very diverse, and extend from the mountainous terrain of the north to tidal mudflats far out in estuaries of the south.

One of the most commonly sown species of plants, it has an important role to play in virtually every private garden and public recreational area,

● **This review is abridged from a book by GEOFF TAYLOR, turfgrass adviser to W. W. Johnson & Son Ltd., of Boston, Lincs.**

from golf courses to city parks. It is a natural foil for the bright colours of a flower bed, and with little attention will enhance any area.

So it is hardly surprising that grass tends to be taken for granted, largely due to the British climate, which favours its growth and disguises the many important factors which contribute to the production of good turf.

At this point it is perhaps sensible to remind ourselves what the word turf means. The term is usually applied to a community of plants, ideally consisting of grasses only. The word turfgrass is now being generally accepted to describe any area of grass that is used for non-agricultural purposes, and includes for example, ornamental areas, verges, and all the many sporting applications.

These diverse roles call for different species, as clearly the grasses which are

able to produce the fine dense turf of the golf green are not suitable for the heavy wear and tear of the professional football pitch. In practice, it is not usual to sow pure varieties of grass, as a greater degree of flexibility is obtained from a mixture.

A mixture can respond to environmental changes more successfully and will also resist weed invasion and attacks from disease. Pure stands of any species always run the risk of disease, which has a greater opportunity to reproduce on susceptible plant material. This can even lead to the breakdown of a variety's resistance to a particular disease.

Today, with the aid of varieties, the basic eight species are used to provide different mixtures that will approach quite closely in most cases the ideal requirements of most turfgrass situations. The species may be divided in different ways, but probably the most important factor is the ability to tolerate close mowing.

Other important characteristics are tolerance to wear, fineness of leaf, disease resistance, and habit of growth in particular, whether it produces runners and if so, whether they are rhizomes or stolons (growing below or above the soil).

The golf course is one recreational area that illustrates quite well the importance of prescribing the correct mixture for each of the various playing areas. Although the management will vary from course to course, it is possible to distinguish quite easily four types of turf with different needs—the greens, the tees, the fairways and the rough.

Each area has two principal considerations—the height at which the turf will be mown, and the degree of wear imposed upon it. There are, of course,

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the other factors listed earlier which need attention, as they tend to be inter-dependent. For example, low mowing, at 8mm. ($\frac{1}{8}$ in.) or less will put stress on the plants and increase the risk of disease.

THE GREEN, as the focal point of every hole, needs to be maintained in a really first-class condition. Besides providing a playing surface which should be uniform although not necessarily level, it is used throughout the year and must, ideally, always remain attractive.

On most other sports turf there is a season when the grass can be rested and many of the man-made stresses relaxed to allow a thorough recovery from the rigours of use. But in golf this is not possible. It is important, therefore, to make full use of the modern improved varieties which offer really significant benefits over the older types that frequently have little to commend them over commercial seed.

The green is very closely mown and is traditionally composed of a mixture of chewings fescue and browntop bent, in proportions that nowadays are usually 80% to 20%. These species tolerate close mowing of 5mm. ($\frac{1}{4}$ in.) better than others, and produce the very fine textured turf that is essential for the surface of the green.

There are a number of varieties of chewings fescue, but one which is commercially available for the first time in 1974 is Waldorf, which has received excellent reports from trials conducted over a number of years both here and abroad. It has been singled out for its superior ability to produce a truly neat, compact turf which has a very high degree of disease resistance, ensuring that its colour will remain attractive.

Browntop is available also in a number of varieties, but in this case, there are two quite distinct types. On the one hand there is Highland Bent which has good winter colour, is inclined to be uneven in growth, produces both rhi-

zomes and stolons, and is very aggressive when compared with the growth habits of other species.

On the other hand, there are the bred strains from Holland, such as Holfior, which are uniform, have good summer colour and produce rhizomes only. It is considered sound sense to blend the bents so that good colour is obtained all the year round with the additional benefit of greater uniformity.

In the case of **THE TEE**, the prerequisite is clearly not the closeness of mowing, but the degree of wear. Courses which have more than one tee per hole are able to reduce this severe burden on the grasses, but it is still vital that the mixture used should consist principally of wear-tolerant, vigorous rhizomatous species.

Recommendations vary, but the principal specie must be smooth stalked meadow grass, sometimes known as Kentucky blue grass, or more correctly *poa pratensis*. This would be combined with a second rhizomatous specie, creeping red fescue, making up the major part of the mixture. Other ingredients would be chewings fescue and browntop. The two principal ingredients, plus the bent, are included for their ability to repair and recolonise scarred and bare areas.

Once again, modern varieties of all the species in the mixture are vastly superior in their ability to produce a dense, harder-wearing turf, with greatly improved colour all the year round plus disease resistance. In particular, *poa pratensis*, with varieties like Prato and Fylking, are so much better that the commercial Danish seed is by comparison a non-starter.

In the case of creeping red fescue, it would be preferable to use Dawson, a member of the group 1 category, typified by fine leaves and relatively dwarf growth habit.

The third type of turf area, **THE FAIRWAY**, is similar to the tee in some respects, but differs in that the degree of

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wear is not confined to one small area. The local soil type is also more likely to have an influence on the mixture, particularly if variations exist.

In view of this it is often advisable to include timothy, which may replace part or all the *poa pratensis*. Where timothy is used instead of the *poa*, it is necessary to increase the proportion of creeping red fescue.

In many cases it is possible to use the same mixture as for the tee, although where soil conditions are heavy or the area is prone to wetness timothy would be a valuable sward component. Timothy is an interesting specie which tolerates wear, but it is available in two forms.

One type is a very dwarf creeping form which is best known in the Aberystwyth variety S.50. The other is the common one, which is also used extensively in agriculture and is available in several varieties, the best of which are the prostrate types such as King and S.48½.

Finally, there is **THE ROUGH**, which by comparison with the other three turf

areas is an area of relatively low or no maintenance. Cutting or topping if carried out is minimal, and the turf is largely left to its own devices. The slow, low-growing species would be chosen where the rough is to be produced from seed, and one additional specie not recommended for use elsewhere would be fine-leaved sheep's fescue. The mixture would also include the other two fescues, *poa pratensis* and browntop, but in proportions that enable each specie to play a more or less equal role, since close mowing and wear are irrelevant in this instance.

Grass is something that is generally taken for granted because it is to be seen everywhere and grows quite freely under British conditions.

Good turf is **not** natural, however, and is obtained only by the use of good varieties.

The cost is usually higher than for commercial seed, but it is possible to reduce sowing rates substantially with the superior varieties, so that the total outlay on seed is no higher. In view of this it is not surprising that professionals are turning to the better grasses, which are more in keeping with the needs of the modern community.

NOW, eleven specialist seedsmen give their recommendations for mixtures covering all the requirements of greenkeepers on British courses.

Cannock Fertilisers Ltd., Cannock Staffordshire WS11 3LW.

GREENS

Mixture No. 23—80% Highlight chewings fescue; 20% Highland browntop bentgrass.

TEES

Mixture No. 24, for newly seeding or repairing — Highlight chewings fescue; Cascade chewings fescue; Newport smooth stalked meadow grass; creeping red fescue; Highland browntop.

FAIRWAYS

Mixture No. 22—Perennial ryegrasses Aberystwyth S.23 and S.321; creeping red fescue; browntop bent.

Eastern Cultivated Turf Farms Ltd., Cranley Nursery, Cranley Gardens, Muswell Hill, London N10 3AR.

Growers of Warren's A-34 bluegrass, available as seed and turf. This smooth-stacked meadowgrass is disease-resistant and withstands shade up to 65%. It will thrive in open sunlight and varying soil conditions, and withstands short mowing down to ½ in.

Goldsmith Brothers Ltd., Bury St. Edmunds.

GREENS

Heavy soil: 70% Barfalla chewings

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fescue; 30% Bardot browntop.

Light soil: 80% Barfalla chewings fescue; 20% Bardot browntop.

TEES

Heavy soil: 30% Baron smooth stalked meadow grass; 25% Bardot browntop; 45% Barfalla chewings fescue.

Light soil: 30% Baron smooth stalked meadow grass; 20% Bardot browntop; 50% Barfalla chewings fescue.

FAIRWAYS

Heavy soil: 35% Baron smooth stalked meadow grass; 25% Bargena creeping red fescue; 30% Barfalla chewings fescue; 10% Bardot browntop.

Light soil: 40% Baron smooth stalked meadow grass; 40% Bargena creeping red fescue; 15% Barfalla chewings fescue; 5% Bardot browntop.

W. W. Johnson & Son Ltd., Boston, Lincs. PE21 8AD.

GREENS

Blend J1—80% chewings fescue; 10% Holflor bentgrass; 10% Highland bentgrass.

Mowing: 5mm. ($\frac{1}{4}$ in.). The sward is quite capable of persisting at this mowing height but should be supported by judicious management.

Blend J2—40% Waldorf chewings fescue; 40% Dawson creeping red fescue; 10% Holflor bentgrass; 10% Highland bentgrass.

Mowing: 8mm. ($\frac{1}{3}$ in.). At this height a really dense turf will be obtained with a somewhat reduced management requirement. If desirable the mowing may be at 5mm. but the need for more exacting management will be increased.

TEES

Blend J3—30% Waldorf chewings fescue; 30% Dawson creeping red fescue; 5% Holflor bentgrass; 5% Highland bentgrass; 30% Prato smooth stalked meadow grass.

Mowing: 20mm. ($\frac{3}{4}$ in.). This is the best height at which to mow for normal purposes but where 15mm. ($\frac{1}{2}$ in.) is preferred this can be done provided the sward is rested and mown at levels of

not less than 1 $\frac{1}{4}$ in. for 3–4 months.

FAIRWAYS

Blend J4—30% Waldorf chewings fescue; 20% Dawson creeping red fescue; 20% Ruby creeping red fescue; 5% Holflor bentgrass; 5% Highland bentgrass; 20% King timothy.

Mowing: 20mm. ($\frac{3}{4}$ in.). A reduction to 15mm. in mowing height is possible but is normally undesirable.

Maple Leaf Mills Ltd., Seed Division, Oakwood, Ontario, Canada.

Fylking bluegrass is an ingredient of many seed mixtures, and is a large-seeded variety. There are approximately 1,130,000 seeds per pound, comparing well with other bluegrasses which can number up to 2,100,000 per pound.

Fylking thrives mowed to half an inch and is resistant to disease. It endures light shade and reduces the frequency of mowing. For the purpose of sod growing, the turf is ready for lifting 80 to 90 days after seed planting. Once established, Fylking should require three or four feedings annually, each to provide about 1 lb. of nitrogen per 1,000 sq. ft.

Individual plants resemble fine fescue, suggesting that some chewings or penn-lawn in a Fylking seed blend should prove compatible as a nurse for new plantings. In fact, if mowed less than a half inch, the tillers grow near the ground, much like a bentgrass. The name originates from the ancient Nordic language, and means a dense crowd or battle formation.

The Miln Marster Group Ltd., Chester and Kings Lynn.

GREENS

Mixture No. A1—30% browntop; 70% chewings fescue. Sow at the rate of 2oz. per square yard.

TEES

Mixture No. B2—10% browntop; 45% chewings fescue; 35% creeping red fescue; 10% rough stalked meadow grass. Sow at the rate of 2oz. per square yard.

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FAIRWAYS

Mixture C3—30% Aberystwyth S.23 perennial ryegrass; 10% browntop; 20% chewings fescue; 30% creeping red fescue; 5% crested dogstail; 5% rough stalked meadow grass. Sow at the rate of 1oz. per square yard or 2 cwt. per acre.

ROUGH

Mixture D4—10% Aberystwyth S.23 perennial ryegrass; 70% short seeded perennial ryegrass; 10% chewings fescue; 10% creeping red fescue. Sow at the rate of $\frac{1}{2}$ oz. per square yard or 1 cwt. per acre.

Mommersteeg Seed Co., Station Road, Finedon, Wellingborough, Northants. NN9 5NT.

GREENS

Mixture MM11—80% Koket chewings fescue (OECD Certified); 10% Tracenta browntop (OECD Certified); 10% Highland browntop (OECD Certified); dressed with 'SAIsan'. Sowing rate: 1oz. per square yard; mowing height: $\frac{3}{8}$ in.

TEES

Mixture MM14—45% Koket chewings fescue (OECD Certified); 25% Fylking smooth stalked meadow grass (OECD Certified); 20% Monopoly smooth stalked meadow grass (OECD Certified); 10% Highland browntop (OECD Certified); dressed with 'SAIsan'. This mixture is rather slow in its initial establishment, and should not be used for very early or late sowings. As an alternative the universal mixture (MM 22) may be sown. Sowing rate for repair work: $\frac{1}{2}$ oz. per square yard; mowing height: $\frac{3}{8}$ in.

FAIRWAYS

Adaptability is an important quality of any golf course fairway; soil conditions, shade intensity and the ground water table can vary quite markedly in different areas of the course. Heavy divot scarring of the turf, particularly on par four holes from approach and pitch shots, can be concentrated in specific areas, so the turf must be able to tolerate this and quickly recover from any

damage. Therefore a high proportion of rhizomatous grasses must be included in the seed mixture. Sowing rate: $\frac{1}{2}$ oz. per square yard; mowing height: $\frac{1}{2}$ in.

ROUGH

Mixture MM13 — 50% Novorubra creeping red fescue (OECD Certified); 45% Monopoly smooth stalked meadow grass (OECD Certified); 5% Highland browntop (OECD Certified); dressed with 'SAIsan'.

Nickersons of Rothwell, Field House, Grimsby, Lincs. DN34 4SX.

GREENS

Mixture Gold Seal—50% Highlight chewings fescue (OECD Certified); 30% Erika chewings fescue (OECD Certified); 20% Boral browntop bent (OECD Certified). Sowing rate: $1\frac{1}{2}$ oz. per square yard.

TEES

Mixture Silver Seal—35% Reptans creeping red fescue (OECD Certified); 10% Dawson creeping red fescue (OECD Certified); 15% Sydsport smooth stalked meadow grass (OECD Certified); 10% Primo smooth stalked meadow grass (OECD Certified); 10% Boral browntop bent (OECD Certified). Sowing rate: $1\frac{1}{2}$ oz. per square yard.

FAIRWAYS

Mixture Green Seal—20% Melle perennial ryegrass (OECD Certified); 25% Sydsport smooth stalked meadow grass (OECD Certified); 25% Primo smooth stalked meadow grass (OECD Certified); 10% Heidemeij timothy (OECD Certified); 20% Repteans creeping red fescue (OECD certified).

Plantagenet Seeds Ltd., 9a Market Place, Pickering, Yorks. YO18 7AA.

A new nine-hole golf course at Ganstead, near Hull, has been built with Tana grass, the first in the world to be completed by this method. The greens and tees are all now ready for play, and the comments on the course, at this early stage, undoubtedly reflect the correct choice of varieties, as well as the contribution from the Tana grass system.

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The varieties chosen were Highlight and Koket chewings fescue, and tracentenate and Bardot agrostis tenuis. The proportion was 80% chewings fescue and 20% agrostis tenuis.

At Bridlington municipal golf course 13 greens have been completed this year, again using Highlight chewings fescue and enate and Bardot agrostis tenuis, with 20% S59 creeping red fescue included to strengthen the grass in view of the close proximity to the sea and the somewhat impoverished nature of the soil.

It is recommended with Tana grass that care be taken to keep it moist by irrigating for the first 7-10 days, preferably morning and evening. The first cut is taken 2-3 weeks after laying; thereafter repeat cutting to one inch height is maintained for the following two months, after which the cutting height is gradually brought down to $\frac{1}{8}$ in., or whatever height is desired for play. The height of the mower is raised to $\frac{3}{8}$ in. during the winter if play has not already commenced.

Each of the greens receives a basal fertiliser dressing before Tana is laid, and a folia feed at the time of, or soon after, laying. Thereafter repeated light doses of suitable top dressing fertiliser such as Growmore is applied. Each green also receives a top dressing of sharp sand/peat/sterile soil, though in lighter quantities than would normally be applied after sowing or laying natural turf.

Also advocated is the use of a preventative fungicide, particularly when the cutting height is reduced from one inch, and of course, during those

periods of the year when fungus diseases are most active.

It is, of course, possible to include all varieties of seed in Tana production, and a number of trials are being conducted including various species, such as agrostis stolonifera and poa pratensis. On the Continent poa pratensis is a favourite, and a number of varieties are being tried, including Fylking, which has so far stood out as an excellent variety.

Suttons Seeds Ltd., Advisory Service, Reading, Berks.

GREENS

Mixture No. 25—A blend of the agrostis and festuca species, which consists of seeds of the highest purity and germinating ability. A sowing rate of 1 to 2 oz. per square yard is advised. This mixture consists of Certified Highland bent, Certified Highlight chewings fescue, Certified Oregon chewings fescue, and creeping red fescue.

Mixture 26—A mixture within a single species to produce the needle-like sward occurring on many of the links courses. A sowing rate of $1\frac{1}{2}$ to 2 oz. per square yard is advised.

The mixture consists of:— Certified Highlight chewings fescue, Certified Oregon chewings fescue, Certified Aberystwyth S59 creeping red fescue, Certified OECD Dawson creeping red fescue.

TEES

Mixture 23—A hard-wearing blend of grasses which may be sown equally well in spring, summer or autumn for divot repair or general over-sowing on existing tees, or for producing a rapid cover on new tees.

This blend consists of Certified Highland bent, Certified Oregon chewings

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fescue, Canadian creeping red fescue, Finnish timothy, American smooth stalked meadow grass, Certified Kentish perennial ryegrass, Certified Ruanui perennial ryegrass.

FAIRWAYS

Mixture 24A—Some fairways are almost pure agrostis and festuca species; others have poas and perhaps Cynosurus cristatus, and on the heavier land probably a percentage of lolium perenne.

We offer two standard prescriptions and advise seeding rates of between 2½ and 5 cwt. per acre.

The non-Ryegrass prescription consists of Certified Highland bent, N.Z. crested dogstail, Certified Cascade chewings fescue, Certified Oregon chewings fescue, Canadian creeping red fescue.

Mixture 24B — Including perennial ryegrass, made up of Certified Highland bent, Canadian creeping red fescue, Finnish and Canadian timothy, Certified N.Z. Ruanui perennial ryegrass.

Twyford Seeds Ltd., Adderbury, Banbury, OX17 3HL.

GREENS

Penncross—agrostis palustris; sowing rate ¼oz. per sq. yd.; or A1 green mixture—80% OECD Certified Barfalla chewings fescue; 20% Certified Blue Tag Oregon browntop; sowing rate 1-1½oz. TEES

A2 tee mixture—30% OECD Certified Barfalla chewings fescue; 35% OECD Certified Bargaena creeping red fescue; 25% OECD Certified Baron smooth stalked meadow grass; 10% Certified Blue Tag Oregon browntop; sowing rate 1-1½oz. per sq. yd.

FAIRWAYS

Fairway mixture—40% OECD Cer-
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[Grass Review continued]

tified Barfalla chewings fescue; 35%
OECD Certified Bargena creeping red

fescue; 15% OECD certified Baron
smooth stalked meadow grass; 10%
Certified Blue Tag Oregon browntop;
sowing rate 1½-2 cwt. per acre.

Seed Measurement Table Quantities to nearest ⅛ cwt.

	Yards	Square yards	1oz. per sq. yd. cwt.	2oz. per sq. yd. cwt.	4oz. per sq. yd. cwt.	1lb. per sq. yd. cwt.
Eighteen (average) golf greens	625 each	6¼	12½	25	100	
Quarter acre	1,210	⅝	1⅜	2¾	11	
Half acre	2,420	1⅝	2¾	5½	22	
One acre	4,840	2¾	5½	11	44	

Some Grasses grouped according to habitat (which might indicate their uses in turf)

CHALK/LIMESTONE FORMATIONS	SANDY SOILS	SANDY SEA SHORES/ MUD FLATS	STIFF MOIST CLAYS/ LOAMY SOILS
Festuca rubra	Poa pratensis	Poa maritima	Phleum pratense
Festuca ovina	Agrostis tenuis	Poa bulbosa	Poa trivialis
Crested Dogstail	Agrostis canina	Agrostis stolonifera var. compacta	Agrostis stolonifera
Wavy hairgrass	sub spp. Montana		Crested Dogstail
Ryegrass	Festuca rubra		
Timothy	Festuca ovina	Festuca rubra var. arenaria	Festuca rubra
Agrostis— stolonifera/tenuis			Lolium perenne

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