

ONE MIXTURE DOESN'T ALWAYS FIT ALL!

Lex van de Weerd looks at the factors to consider when choosing grass seed for a new golf project.



Sowing grass seed on a new golf course is done only at the final 'finishing off' stage of the project. Before this happens, many considerations have to be made in order to decide on the right seed mixtures. Whoever makes this decision – the architect, the course constructor, the grass breeder or the seed supplier – has to look closely at factors which are relevant for good grass growth on the new course.

In practice, the best recommendation can be obtained from breeders who have the most knowledge about grasses. Sometimes, the choice for the best adapted mixtures are easy and standard mixtures can be used, but on many projects the conditions are so unusual or deviant that tailor-made solutions are necessary.

So which factors play an important role in choosing the right seed?

Location

Every new golf course is unique because of its design and location. The latter can influence on the choice of grass. Will it be a links course (flooding or salinity problems to be expected)? What will be the altitude (mountains or flat land)? On which soil type will the course be built? This is important mainly for the fairways and roughs because greens and tees are usually constructed artificially. As the performance of grass species (diseases, thatch build up, availability of nutrients) is influenced by the soil pH, it is important to know this.

For instance, nutrient availability for the plants will become difficult at pH levels > 7.5. This affects P (Phosphorous), Fe (Iron), Mg (Magnesium), Cu (Copper) and Zn (Zinc). Because of deficiencies of these elements in the plants, grass growth is disturbed resulting in slow growth, slow recovery after damage and discolouring of the plants.

Climate

Within grass species, many differences exist among varieties regarding heat stress tolerance, drought resistance, frost tolerance and disease resistance. Therefore, it is necessary to understand in advance the climatic (local) conditions very well. Although greens and tees are often irrigated, it is still important to know the annual precipitation, which is important for roughs, non-irrigated fairways and driving ranges. In areas with severe winters, not only the lowest average temperature is important, but also the snow and the duration of snow cover. This will pose problems for Fusarium.

Water

All golf courses use water, but how they use it differs from course to course or from location to location. Water can come from different sources (drinking water, ponds, ground water wells or sewage water). Quality can vary a lot, except for drinking water. The pH value of the water can have a major influence on good grass growth because it will have an effect on the soil pH. In general, most turf grass pathogens are able to grow at any pH encountered by turf. A low pH (<5.5) gives a worse nitrification, a blocking of P, Mg deficiency. Along with difficulties for plants in taking up elements, other negative factors influenced by high soil pH are:

- Limitation of soil microbial processes (breakdown of Nitrogen).



- More summer patch problems on *Poa pratensis*, *Festuca rubra* and *Poa annua*.
- More problems with *Fusarium*.

A pH between 6-7 is considered the best for nutrient uptake and microbial activity.

In dry areas (hot climates) many golf courses are using, or are forced to use, sewage water. This kind of water usually contains a lot of salts which cause problems to grass.

It is possible to select for salt tolerance – not only from species but varieties too. Some new courses are restricted to using drinking water and if there are no alternatives it is important to choose drought tolerant grasses (e.g. *Koeleria macrantha*, Tall fescue or Bermudagrass) to minimise the usage of drinking water and therefore the cost.

Management

Too often, new golf courses are seeded with grasses without considering the following points in advance:

What is the aim of the club? Will it be private or public (maybe pay and play)? The latter often means more rounds per year, and more wear tolerance is needed. On such courses the choice of perennial ryegrass on tees and fairways is more common than on private courses.

What is the expected quality of the greenkeeping staff? Too often inexperienced greenkeepers are confronted with grasses on their courses which they don't have the know-how to manage.

Monoculture greens (100 per cent creeping bent or 100 per cent Bermudagrass) require more skill from the greenkeeping staff than bent-fescue greens. This problem might be less valid for the UK, where the education level is high, but in many new golf countries (Eastern Europe) it is a real problem.

What is the management budget? Sometimes people want to choose the new generation creeping bentgrass varieties (L93, Penn A4, etc.), but the head greenkeeper lacks sufficient budget to maintain these grasses.

Despite the excellent sward density and close mowing tolerance of these 'new' bents, they need much more verti-cutting due to more thatch, and they also need mowing more frequently. Moreover, adapted mowing machines are necessary, which are often more expensive. This all requires an increased maintenance budget.

Are there any environmental restrictions? If the course is going to be confronted with restrictions for the use of water, fertilizers or chemicals, it is necessary to adjust the grass concept for the course.

Characteristics such as drought resistance, low-maintenance performance and sod density will become essential. Monocultures on

greens should be avoided in favour of bent fescue mixtures. Also, perennial ryegrass is doubtful in such situations.

Miscellaneous

The lay-out of rough varies a lot on courses. Sometimes the natural vegetation will be used and sometimes the architect wants to sow the roughs. For these areas, several solutions are possible. Mainly low maintenance species are required.

Are there any special requirements from the architect? Sometimes architects like to see colour differences in order to distinguish different parts on a hole. This will have consequences for the choice of varieties in a mixture, which at the same time should also be adapted to the area of use.

The sowing period of the course can influence the choice of species. Particularly in tough climates (e.g. mediterranean areas, Scandinavia) it is not always possible to sow every species in the summer or autumn.

Under pressure, a golf course constructor is often forced to sow during a less suitable period of the year which sometimes results in poor establishment of the grass, or even the disappearance of a species. In such cases it is better to use another mixture composition which is more adapted to the sowing conditions.

Will shade cause problems in the future? If a new course is planned in parkland, or will be surrounded by forest, problems might occur. Although architects have learned to better anticipate expected shade problems from trees, it is not always possible to avoid this.

Therefore grass species and varieties should be selected with good shade tolerance. In the last year new species, such as *Deschampsia* and Tall fescue, have been introduced successfully on golf courses.

It is clear that grass plays a major role in the success of a new golf course. Despite a beautiful design, the image of a new project can be ruined by making bad grass choices at the beginning.

Taking into consideration the cost of seed compared with the total investment of a new golf course, it is incomprehensible that in many cases the project management chooses the cheapest offer without looking seriously at the quality of the mixtures.

Although it is possible to sow the whole course with the same mixture, in many cases a long-lasting, beautiful course is only achievable with a variety of mixtures carefully chosen to suit the conditions. One mixture doesn't always fit all!

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