

# Newsletter Professional Turf



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### Improved wear tolerance

Over the past decades, wear tolerance of sports pitches has been improved considerably. Important factors in this have been breeding, increased sowing rates and improved fertilisation.

### Breeding

The Dutch recommended list was used for evaluating the progress in wear tolerance in Perennial Ryegrass by plant breeding.

### Sowing rate

The effect of sowing rate on wear tolerance was evaluated by overseeding a heavily worn sward with a Perennial Ryegrass mixture. The trial was established at six different seed rates [0, 12.5, 25, 50, 75, 100 g m<sup>2</sup>].

### Fertiliser

The combined effect of sowing rate and iSeed® fertiliser seed coating was tested in a field experiment in 2008.

## Improved Wear Tolerance



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### Continued positive effect of breeding on wear tolerance

Each year new and better varieties are taken into the recommended list trials. As the average score stays constant from one year to another, it means that listed varieties are gradually getting lower scores.

On average this decrease was close to 0.1 point over the past 35 years in the Dutch recommended list. Expressed as a percentage of the average score of 8, wear tolerance improved by 1.1% per year, or by 39% over the past 35 years. Assuming a standard 300 hours per field per year in 1975, this results in 117 extra playing hours, or a possible total of 417 hours per field per year in 2010.

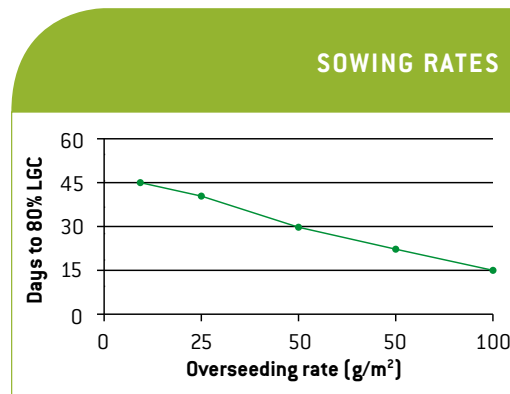


Figure 1. Time to 80% live ground cover [LGC].

### Higher sowing rates improve wear tolerance

The time to 80% live ground cover is often taken as a measure for the moment the field is fit for play. Increasing the sowing rate reduces the time to being fit for play by 30 days (fig. 1). At a playing intensity of 2 hours per day, this means an increase in playability by 60 hours per year.

By increasing the seed rate from 25 to 75 g/m<sup>2</sup>, the overall mean score for wear tolerance increased from 5.5 to 6.3, or by 15% [results not shown]. Based on the 400 hours standard in 2006, this would mean an increase by 60 hours/year.

### Fertiliser seed coating further increases effect

In existing football pitches, iSeed® treatment resulted in fields that were fit for play earlier, and showed an increased wear tolerance thereafter. Field trials showed that the iSeed® effect is similar at both 200 and 350 kg/ha sowing rates. It is estimated that iSeed® adds another 30-50 hours per year.



### From 300 to 600 playing hours per year; wear tolerance has doubled

Breeding, sowing rates and fertiliser coated seed together all increase wear tolerance of sports pitches. Translated in the number of hours/year that a pitch can take, this is an increase of approximately 250-300 hours per year since the late 1970s.

## Salt Tolerance can make the Difference



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### Why is salt tolerance in grasses important?

In many locations around the world, people experience increasing problems with plants, including grasses suffering from salt stress. Leaf tip burns, discoloration and difficulties in controlling pests are common symptoms and implications for turf grasses stressed by elevated salt levels. Salt stress problems are most pronounced in areas with low precipitation where nutritional salts are deposited in the soil due to high evaporation rates. But salinity problems can also be induced either by insufficient irrigation or by irrigation with low quality water, which is often practiced in urbanised and coastal areas. In addition, in northern areas, de-icing roads has resulted in high salt levels along roadsides. Significant Improvement of the turf conditions in these areas can be achieved rather easily by choosing the right species and varieties.

### Differences between species

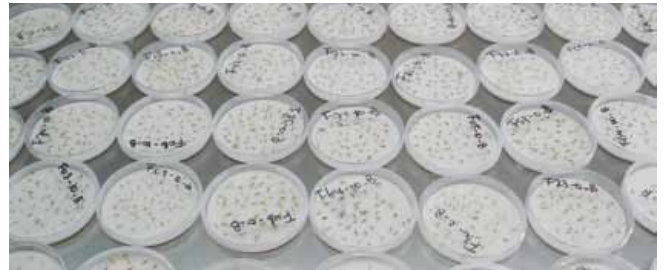
Over the years many salt tolerance rankings of grass species have been produced. In general the order, from salt tolerant to sensitive is: Tall Fescue > Red Fescue > Annual Ryegrass > Perennial Ryegrass > Creeping Bentgrass > fine-leaved Fescues > Smooth-stalked Meadow-grass > Browntop Bent > Rough Bluegrass > Annual Bluegrass.



### Differences between varieties

If rankings in different publications are compared, the order of the species is not always the same and most rankings are based on one or a few varieties per species. DLF-TRIFOLIUM is now in the process of screening the complete portfolio of species and varieties for salt tolerance of germinating seeds, seedlings and mature plants. So far we found great variation not only between species but also between varieties within each species.

The screenings also demonstrated the importance of testing plants at different life stages as some varieties show strong tolerance under germination while others show tolerance primarily at maturity.



### Mixtures

Based on the results from these experiments we are now able to design the best blend of salt tolerant varieties for various conditions and purposes.

