

4turf®

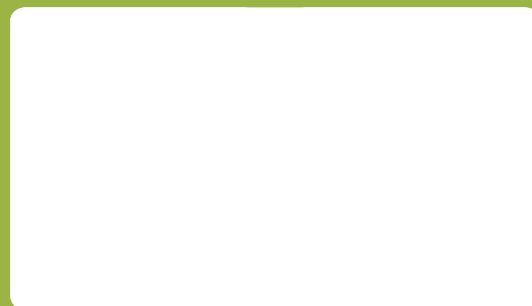
by DLF

Stress resistance as standard



More amenity less maintenance

4turf® is the market-leading portfolio of tetraploid perennial ryegrass varieties. The technology behind 4turf® was developed by our plant breeders, who continue to breed new varieties to meet the demands of professional turf growers and everyday turf users around the world. 4turf® needs less maintenance because it's more resilient, makes a faster recovery from stress, and enjoys a longer growing season.



The environmental solution for landscaping and lawns

- Fast establishment, even at lower temperatures
- Excellent year round colour
- High disease resistance - less maintenance
- Environment friendly

4turf® – tetraploid perennial ryegrass bred with you in mind

As a landscaper or landscape architect you have high standards. You want to grow perfect, yet easily maintained turf because that's what your customers expect. And you want to run an efficient business based on lower input costs and maximum output of top-quality turf.

Our innovative 4turf® makes this happen. We bred it for the business-building characteristics you need.

4turf® is a new turf-type tetraploid perennial ryegrass. Farmers have long understood the value of tetraploid perennial ryegrasses: rapid establishment, growth in cool temperatures, and better environmental stress tolerance. Our breeders set out to pass on these characteristics to landscapers. They developed tetraploid technology to the point where you too, can experience the tetraploid advantage in a unique range of fine-leaved, high-density turf-type tetraploid ryegrasses. 4turf® ryegrasses are as far removed from agriculture as their diploid relatives.

4turf® – tetraploid perennial ryegrass explained

Diploid and tetraploid plants have different amounts of chromosomes in the nucleus of each plant cell. Diploid plants have two sets of chromosomes in each cell; tetraploid plants have four. Polyploidy – the ability of a plant to contain more than two sets of chromosomes – can be induced by the application of the natural alkaloid plant hormone, colchicine. Colchicine, which is derived from the autumn crocus, acts as a mitosis inhibitor; it leads to a doubling of chromosomes within each cell.

Historically, perennial ryegrasses bred for amenity use have been diploid. Tetraploid perennial ryegrasses are a technological step forward. They perform better because they have twice as many chromosomes and therefore twice as much chloroplast in each cell. The extra chloroplast boosts chlorophyll production, creating a healthier, high-energy plant. Tetraploids are robust and hard-wearing, with improved stress-tolerance and ability to recover, even in cooler temperatures.

4turf® – proven performance you can trust

Tetraploid perennial ryegrasses out-perform diploids in numerous ways. They have larger, high-energy seeds for rapid establishment, even when soil temperatures are as low as 4°C. Rapid establishment reduces *Poa annua* invasion, while low-temperature winter growth gives you a healthy hard-wearing turf all year round. Beneath the surface, the increased root mass improves drought-tolerance and increases the efficiency of the plants use of nitrogen in the rootzone.

Tetraploid cultivars are also better at fighting disease. Independent researchers (for the GEVES Turfgrass List and Scandinavian Scanturf) recorded excellent tolerance to microdochium patch, red thread and rust diseases. The UK STRI turfgrass seed trials repeated these results and measured exceptional tolerance to red thread.

Shade tolerant

In trials, our latest tetraploid cultivars exhibited greater shade and wear tolerance. Even at reduced light levels of 60% PAR (photosynthetic active radiation), they had greater ground cover and wear-tolerance.



4turf® – from back gardens to global sports events

Although 4turf® is relatively new to the amenity market, it has become hugely popular among turf professionals. For numerous gardeners, park managers, green keepers, and groundsmen, 4turf® tetraploid ryegrasses are their first-choice grass seed. Across the world, sports fans have seen how well 4turf® performs at the highest level of international sport.

4turf® tetraploids blend well with other grasses. They can be mixed with diploid ryegrasses, fescues and *Poa pratensis* for a beautiful hard-wearing turf that's easier and cheaper to maintain. They also help to protect the environment because they need less water, nitrogen, or chemical applications.

4turf® varieties from DLF:

4turf®
TETRAGREEN

4turf®
TETRAMAGIC

4turf®
TETRASTAR

4turf®
FABIAN

4turf®
TETRADARK

4turf®
TETRADRY

4turf®
TETRAGAME

4turf®
DOUBLE

Faster establishment crowds out annual meadow grass and broad leaved weeds.

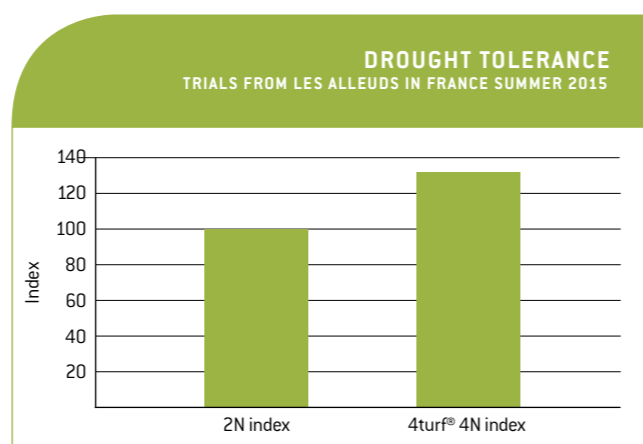
The greater energy reserves within 4turf[®]'s larger seeds support stronger, faster establishment and healthy plant development. Faster plant growth at the critical establishment phase helps fight Poa invasion.



Stronger rooting for enhanced stress-tolerance and less watering

4turf[®] needs less water during a drought. Its larger root system and natural water reserves help it stay greener for longer. 4turf[®] varieties are not just drought-tolerant, they also recover quicker when the rain returns.

Drought trials conducted in the Loire Valley in France confirmed that 4turf[®] cultivars were significantly more drought-tolerant than diploids.



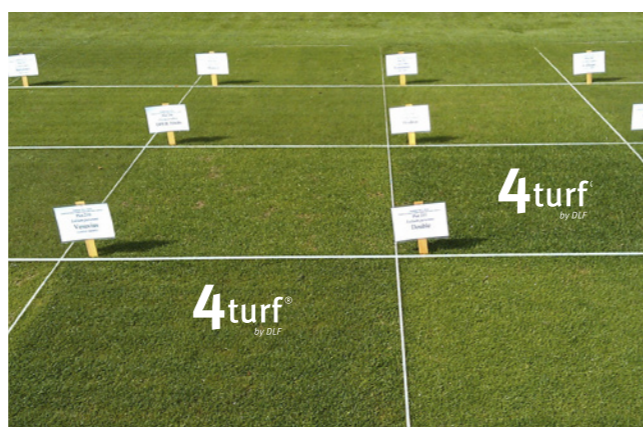
Exceptional disease resistance and winter hardiness for reduced maintenance and chemical applications

4turf[®]'s larger energy reserves significantly increase natural disease resistance. This valuable characteristic helps maintain a healthy looking turf during autumn and winter. In trials undertaken in Finland, 4turf[®] Fabian showed superior winter hardiness. And in Scandinavian Scanturf trials, it ranked No 1 for general turf quality.



Attractive deep green colour and enhanced nitrogen use efficiency for beautiful turf and reduced fertiliser applications

4turf[®] is more attractive than traditional ryegrass varieties. Its leaves are a deeper and glossier green, which makes it more inviting. With an improved cellular structure and more efficient photosynthesis, 4turf[®] cultivars keep their colour all year round, even when light levels are low. Better colour and increased root mass means 4turf[®] uses nitrogen more efficiently. That's good for the environment and for turf managers because 4turf[®] needs less nitrogen fertiliser.



Dog patch resistant lawns – scientifically proven

Dogs and dog-walkers love open green spaces. Public spaces give dogs a chance to run free and to relieve themselves. But the unsightly yellow patches that result are not so popular with maintenance teams and other park users.

Keep your green spaces green

4turf[®] reduces the problem of dog patches

Our researchers have conducted extensive trials on the effects of dog pee on 168 varieties from seven species of turf grass. Tetraploid perennial ryegrass outperformed all other species including diploid perennial ryegrass. There's even evidence that the growth of tetraploid perennial ryegrass was more vigorous when it came in contact with dog pee.

The best 4turf[®] varieties for dog pee

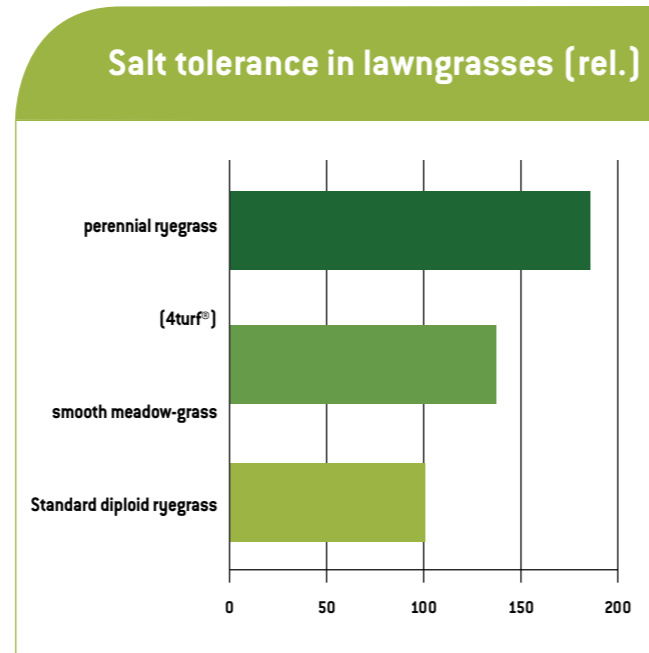
Choosing 4turf[®] for its resistance to dog pee is by far the safest and most cost-effective way to reduce dog patches. Pee-resistant 4turf[®] can help to maintain a lush green surface on which dogs and other park users can run and play, while demanding minimum maintenance from the park management team.



Increased salt tolerance

Clean irrigation water is becoming a luxury and a scarce resource now and even more in the future. Whether the salinity is due to salt in the soil, salt spray, or contaminated irrigation water our 4Turf tetraploids are proven to be significantly more salt tolerant than standard diploid ryegrass. This gives a better plant growth and healthy looking turf. It is a known fact that sportfields, lawns, roadverges, golf courses etc. have problems in saline soils or in salty conditions. It doesn't matter where the salt comes from: the soil, water supply, or wind-blown spray, if there's too much salt, ordinary grass won't grow to its potential. To solve this problem, DLF offers 4salt® mixtures, that will perform with or without salinity problems.

The 4salt® logo is used to identify varieties and mixtures optimized for saline conditions. Our 4salt® mixtures will also perform well without salinity problems, so it is no risk to choose them as a safeguard, and be prepared for changes in the quality of irrigation water.



4turf® – For the future

” Tetraploids were first seen in a lawn grass situation over 25 years ago when the standard of turf quality in general was not as high. What is new is that this new generation of varieties we have developed are able to compete in performance and appearance with the best modern standard varieties. It has taken us over 20 years to achieve this. Even that first variety many years ago exhibited improved stress tolerance and this is what has motivated us as breeders to continue improving and refining 4turf®. 4turf® will open new horizons in Perennial ryegrass breeding. ”

*Christophe Galbrun
Plant breeder*



Bus landscapers

” I am using 4turf® in my grass mixtures. This extends my seeding season so that I can seed in the spring and in the autumn. With 4turf® I get a quick establishment of the lawn, which leads to happy and satisfied customers. 4turf® ensures an attractive healthy lawn, we can always rely on good results. ”

*Morten Petterson
Project manager
Bus landscapers, Denmark*



Danny Vansweevelt - Landscaper

” Since the introduction of 4turf® by DLF, I am using the 4turf® mixture RecreaMaster ProNitro®. As a professional gardener, I need a grass seed mixture that ensures a perfect lawn in no time. The fast and strong development ensures a nice, uniform germination and growth. The goal is to be ahead of the weeds so they don't have a chance to establish. I usually use the grass seed mixture with 4turf® in combination with the ProNitro® coating. Both when sowing new lawns and when renovating, it has proved to be a perfect mixture.

The seed is somewhat heavier, which means that it sows well and gets good soil contact even when it is windy. ”

*Danny Vansweevelt
Landscaper
Tuinen Danny Vansweevelt, Belgium*

