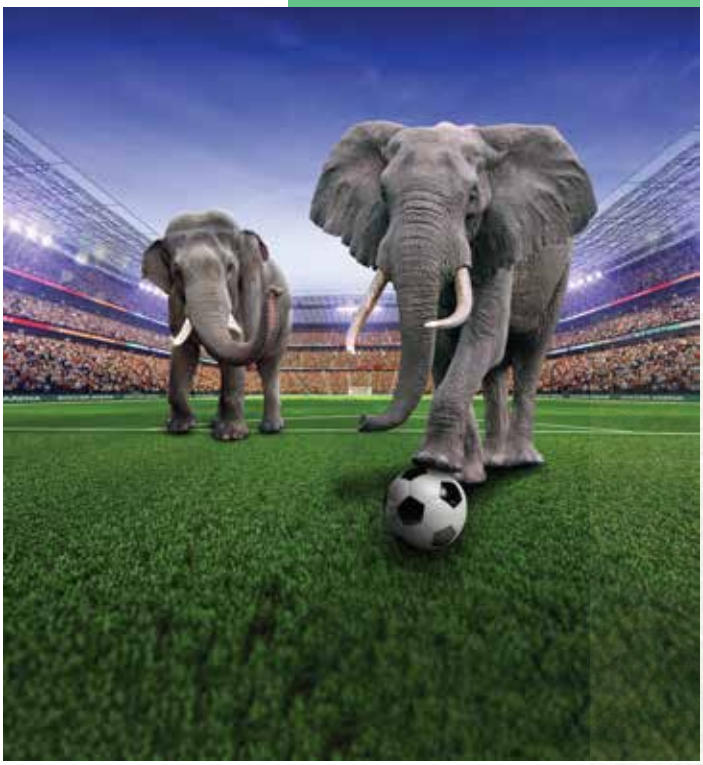
4turf™
Tetraploid Perennial Ryegrass

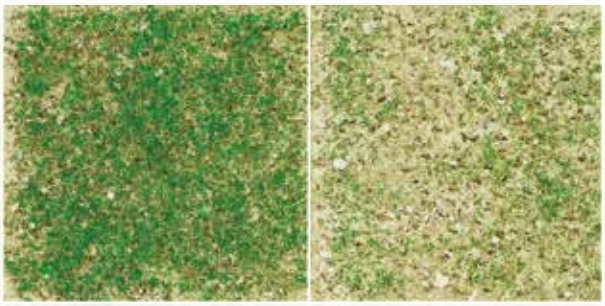
DLF PICKSEED
SEEDS & SCIENCE

4turf

Stress resistance
as a standard



- **Exceptional color, needs less water**
- **Drought, salt, disease resistance**
- **Outstanding winterhardiness**
- **Stronger Establishment (Cold or Warm)**



Turf growers 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. Agricultural grass-growers 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 turf growers. 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.

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 artificially 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.

DLFPICKSEED.COM

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