FON
Force of Nature

THE WHOLE TRUTH FROM AN INDEPENDENT PERSPECTIVE from
National Organization Responding Against Hoax that seek to harm the Green Space Industry (NORAHG).
Imagine a turfgrass that tolerates the herbicide glyphosate.
Update
Glyphosate-Resistant Ryegrass

Introducing
Jacklin’s New Gly-Rye™

Jacklin Seed’s
Glyphosate-Tolerant
Perennial Ryegrasses

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Doug Brede, Ph.D.
Jacklin Seed
Simplot Research Department
Selected and adapted excerpts
Introduction to Turf-Type Perennial Ryegrass

Turf-Type Perennial Ryegrass is an important component of turfgrass seed mixtures with Kentucky Bluegrass and Fine-Leaved Fescues.

Seed mixtures with high-levels of Turf-Type Perennial Ryegrass are used extensively for sports fields, and other high-use areas, because of its quick germination during warm weather, its wear resistance, and its ability to regenerate.

In North-Eastern and Central North America, yearly over-seeding of Perennial Ryegrass is required because of its SENSITIVITY to cold temperatures, as well as heat and drought stress.

Turf-Type Perennial Ryegrass can be grown as a permanent ONLY in TEMPERATE climates with MILD WINTERS.

Despite its name, Perennial Ryegrass will NOT survive as a TRUE perennial, but rather as an ANNUAL or SHORT-TERM PERENNIAL.

It does NOT perform well in COLD-WEATHER CLIMATES.

However, in the Pacific Northwest, it can be successfully grown as a PERMANENT PERENNIAL turfgrass.

In areas like Fraser Valley in British Columbia (i.e. Vancouver), where Perennial Ryegrass can perform as a TRUE perennial, it is THE DOMINANT TURFGRASS SPECIES in open sunny lawns and most other turfgrass surfaces.

Turf-Type Perennial Ryegrass is also commonly used in the South-Western United States to over-seed winter lawns composed of Bermudagrass.
Annual Bluegrass is a widespread low-growing bunch-type annual species found in most turfgrass surfaces.

Annual Bluegrass is deemed as an UNDESIRABLE WEED because of its light-green colour, its prolific inflorescence (seed-production), and its sensitivity to environmental stress and certain disease and insect pests.

Because of its ability to produce prolific amounts of seed, Annual Bluegrass will invade virtually all turfgrass surfaces.

Annual Bluegrass is often UNABLE to provide a RELIABLE playing surface for golf course turf.

Incredibly, Turfgrass Experts, like Golf Course Superintendents, are still debating the merits of Annual Bluegrass.

Consequently, virtually ALL golf turfgrass surfaces are composed of substantial quantities of Annual Bluegrass.

In many cases, Annual Bluegrass is ERADICATED with non-selective herbicides, like Roundup (glyphosate), and the surface is re-seeded MORE DESIRABLE PERENNIAL grasses like Bentgrass, Kentucky Bluegrass, or Perennial Ryegrass.
Jacklin’s New Gly–Rye™

Imagine a turfgrass that tolerated the herbicide glyphosate.

Weed control of problem species like Annual Bluegrass (*Poa annua*) would be a breeze.

As a result, Jacklin Seed is proud to announce the release of the first two in a series of perennial ryegrasses that can TOLERATE RATES OF GLYPHOSATE that obliterate Annual Bluegrass.

Glyphosate is the active ingredient in Roundup®, Departure®, Buccaneer® and other generic herbicides.

Prices of generic glyphosate have taken a nose–dive in recent years, making Annual Bluegrass control possible with Gly–Rye™ for as little as 94 cents an acre!

Glyphosate–tolerant cotton and soybean comprise over 90 per cent of U.S. agriculture.

The great thing about Jacklin’s Gly–Rye™ is that it is NOT a Genetically–Modified–Organism (GMO).

The tolerance trait was found as a natural mutation and bred into varieties that withstand 8–12 fl. oz. of glyphosate product per acre, applied in summer.

Note that all glyphosate formulations differ slightly in concentration so tolerance is better expressed in terms of 0.25 lbs. acid equivalent per acre.
Above photo — the little plot that would not die.

A random mutation in this one rye plot out of thousands started the whole process.

Despite two full-strength glyphosate applications, plants in this 1999 plot were still alive.
In the breeding nursery it quickly became clear what a breakthrough we had. Sensitive plants died and glyphosate-tolerant ones thrived. It took breeders several years to refine and concentrate two copies of the naturally mutated gene into each plant.

Throughout 2011, the Jacklin NewsFlash newsletter will contain up–date articles on applications and precautions of Gly–Rye™.
Here are a few questions we’ve been asked on the new products:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tr>
<td>When will Gly–Rye™ be available?</td>
<td>Commercial quantities of ‘JS501’ and ‘Replay’ are available for sale right now, in 2011, even BLUE–TAG CERTIFIED.</td>
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Question —

What does Gly–Rye™ look like as turf?

Answer —

Golf courses that have planted Gly–Rye™ have been impressed by the color, appearance, seedling vigour, and pest resistance.

Quality has been similar to other premium Perennial Ryegrasses.

It looks good enough to grow even if you never spray it with glyphosate.
Update
Glyphosate-Resistant Ryegrass

Question —

Is Gly—Rye™ "biotech" or "transgenic" or "GMO"?

Answer —

NO.

It originated from a natural mutation that occurred in one plant in 1999.

That plant was bred and hybridized to produce varieties with a higher degree of herbicide tolerance and better turf quality.

Being NON–TRANSGENIC means that these varieties have a finite limit in herbicide tolerance, and that it is important to stay within our recommended application rates.
How do these grasses differ from crops that are Roundup Ready®?

Roundup Ready® crops contain a gene and promoter that were inserted in the laboratory.

The gene is from a bacteria and the promoter (which switches on the gene) is from a virus.

The virus promoter turns on the gene «full blast 24/7», giving it high levels of glyphosate tolerance.

Because Gly-Rye™ is a NATURAL PRODUCT, these grasses tolerate a reduced level of glyphosate.

And because the promoter is all natural, precautions are necessary under certain weather and growth stage conditions.
Update
Glyphosate-Resistant Ryegrass

Question —

What are the precautions?

Answer —

Mature Gly–Rye™ is safe for glyphosate application at our recommended rates as long as temperatures are above 50°F.

DO NOT apply glyphosate when cold temperatures are in the long-range forecast.

Gly–Rye™ seedlings are safe for glyphosate application, as long as the application is made within 2 weeks of emergence or after 6 weeks from emergence.

AVOID glyphosate application from 3 to 5 weeks after emergence as the seedlings go through a sensitive transition period.
Question —

Is this rate of glyphosate high enough to kill Annual Bluegrass?

Answer —

Yes, and in most cases with one application.

As a matter of fact, you should be careful about treating areas with high quantities of Annual Bluegrass because you will end up with open turf.
Any other recommendations?

Answer —

DO NOT blend other (intolerant) varieties with Gly–Rye™.

Plant Gly–Rye™ to your whole property, but spray ONLY the areas where you need Annual Bluegrass control.
This is a Report presented by National Organization Responding Against Huje that seek to harm or misinform the Green Space Industry (NORAHG). It is part of a series of Reports destined for the Green Space Industry, nationwide across Canada, the United States, and overseas. This Report has been developed for the education and entertainment of the reader by providing TECHNICAL INFORMATION WITH COMMENTARY.

This Report is TOTALLY INDEPENDENT of any trade association or business operating within the Green Space Industry. Don’t thank us. It’s a public service. And we are glad to do it.

All information, excerpts, and pictures contained in this Report were found somewhere on the Internet, and may be considered in the public domain, serving one of the following purposes — archive, education, promotion, publicity, or press release.

The information presented in this Report is for preliminary planning only. Before making a final decision, the turf manager is expected to obtain trusted expert advice from extension specialists, local distributors and/or agronomists. All decisions must take into account the prevailing growing conditions, the time of year, and the established management practices.

All products mentioned in this Report should be used in accordance with the manufacturer’s directions, and according to provincial, state, or federal law. For the official advantages, benefits, features, precautions, and restrictions concerning any product, the turf manager must rely only on the information furnished by the manufacturer. The mention of trade names does not constitute a guarantee or a warranty.

This series of Reports, and their various incarnations, is the brainchild of William H. Gathercole and his entourage. Mr. Gathercole is a principal founder of the Modern Professional Lawn Care Industry in both Ontario and Quebec. He holds a degree in Horticulture from the University of Guelph, and another pure and applied science degree from McGill University. He has worked in virtually all aspects of the Green Space Industry, including golf, professional lawn care, and distribution. Mr. Gathercole has supervised, consulted, programmed, and/or overseen the successful execution of hundreds of thousands of management operations in the urban landscape. He has trained, instructed, and advised thousands of turf managers and technicians. Mr. Gathercole has also been an agricultural agronomist. Mr. Gathercole is personally credited for crafting the Exception Status that has allowed the Golf Industry to avoid being subjected to the PROHIBITION–TERRORISM policies of pest control products. He is also the creator of the signs that are now used for posting after application. Mr. Gathercole is now retired, although his name continues to appear as the founder of these Reports.

Innovation distinguishes between a leader and a follower.