green world

AN INDUSTRYWIDE PUBLICATION OF THE NEW JERSEY TURFGRASS ASSOCIATION

NJTA

Vol. 19 No. 3 December 1990

Poa Trivialis: A Specialty Use Turfgrass

by Dr. Richard Hurley, Vice President, Director of Research & Agronomy, Loft Seed, Inc.

Poa trivialis is native to all of northern Europe, temperate Asia, and North Africa. It was introduced into North and South America and Australia. Brought to the United States from Europe during the Colonial Period, it is best adapted for turf in moist, shaded areas from Newfoundland and Ontario, Canada, to North Carolina and west to Minnesota and South Dakota. It has been reported in Colorado, Utah, and as far south as Louisiana. Poa trivialis can be readily found on the west coast from southern Alaska to California.

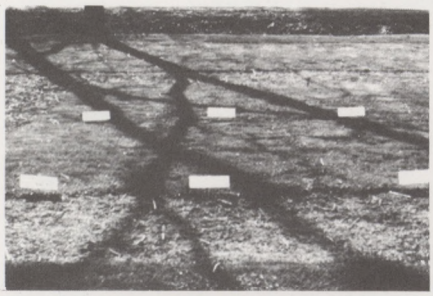


Figure 1: Poa Trivialis test plots (Lofts). Note the good early spring growth before the appearance of deciduous tree shade.

Identification and Growth Characteristics

Poa trivialis often shows as yellow-green clonal patches in Kentucky bluegrass turf. Its range of leaf width is similar to that of Kentucky bluegrass. In contrasting the plant tillers of the two species, Poa trivialis has a larger ligule, scabrous leaf sheath and general characteristics of the bluegrass leaf.

The root system of Poa trivialis is fibrous, relatively shallow and annual in nature. This species is intolerant of drought; with dryness, it can decline severely, disappear temporarily, or die. This is more true on sandy than organic soils.

Poa trivialis has approximately 2.3 million seeds per pound. Seed of this introduced species occurs naturally in soils of its adapted North American range and the plant often colonizes in turf areas and natural open spaces of moist, cool regions. The seed germinates under a wide temperature range with peak germination occurring at approximately 50° F, with a reported base temperature of 40° F. Base temperature refers to the temperature below which germination will not occur.

Brown patch (Rhizoctonia), leafspot (Helminthosporium) and dollarspot (Lanzia and Moellerodiscus spp., or formerly known as Sclerotinia h.) are the most common diseases associated with Poa trivialis. Gray snow mold (Typhula blight), pink snow mold (Fusarium patch), Ophiobolus patch, Pythium blight, Fusarium blight, rust (Puccina spp.), stripe smut (Ustilago) and powdery mildew (Erysphe graminis) have been reported on this species.

Poa trivialis is commonly known by its scientific name, but it is also referred to as rough bluegrass, rough-stalked bluegrass, shade bluegrass, rough-stalked meadowgrass, and rough meadowgrass. Poa trivialis produces a moderately fine-textured, light to medium green, medium-dense turf. It is a cool season, sod-forming perennial which spreads by creeping

— continued on page 3

Better Turfgrass Root Systems

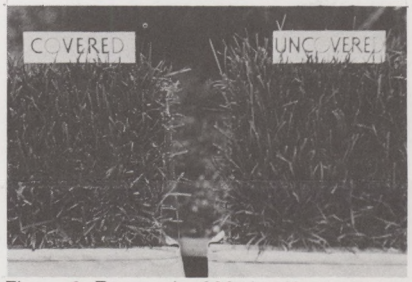


Figure 2. Regrowth of Merion Kentucky bluegrass from covered and uncovered sod.

While studying sod rooting some years ago, we asked ourselves what difference early spring growth would make on root development of Kentucky bluegrass. This was part of John Dunn's thesis study (before he went to the University of Missouri). The plan was to initiate early spring growth with a small, low greenhouse-like covering with and without extra nitrogen. Dr. Dunn built a neat, clear plastic hood that could be raised on warm days or left at turf level on very cold days and at night. A major green-up didn't occur during the limited time we ran the treatment because of cloudy cold weather. Nevertheless, it seemed appropriate to harvest and test the two types of sod.

— continued on page 4

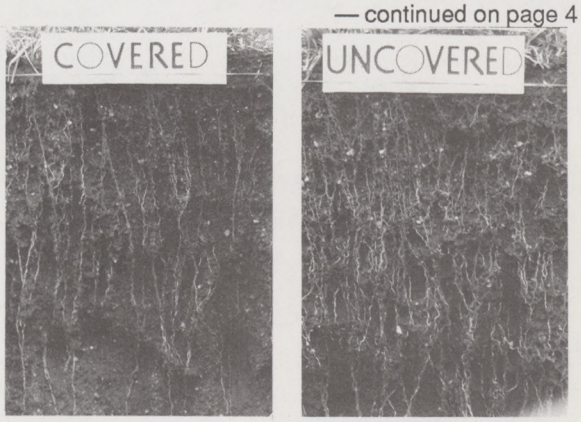


Figure 3. Roots grown from sod that received late winter covering (left), and no covering (right).

OPINIONS AND COMMENTS

Alternatives to synthetic pesticides are "scarce"

It is often suggested in recent years that natural alternatives be used to replace synthetic pesticides. Public and private sectors have been working on such alternatives as crops resistant to pests, IPM, and organic production" (without synthetic chemicals), biological controls and low input sustainable agriculture (LISA). A careful study of the efforts in this direction shows there is little prospect that any of them will have a major impact on the total amount of pesticides needed for the hundreds of pests that attack fruit and vegetable crops in the next few years. This is due to a lack of satisfactory alternatives — not on reluctance of producers to use them. Insistence on no synthetic pesticides will cause vegetables and fruits to become more scarce and expensive. Abstracted from NEWS CAST, volume 18: 1,4, Wintar 1990-1.

[Editors comments: The reader might take note that plant growers and scientists have not resisted alternatives to chemicals. Turf growers first used Milky Spore Disease for Japanese beetle grub over 50 years ago.]

Humor for women

Woman's faults are many;
Men have only two:
Everything they say,
and everything they do!

Sustaining Members of NJTA

A-L Services Incorporated
A. Lombardi Landscaping
Aabar, Inc. / The Morie Co.
Alpine Country Club
Aqua-Flo, Incorporated
Aquarius Irrigation Supply
Aquashade, Incorporated
Aquatrols Corp. of America, Inc.
Arthur's Landscape & Irrigation Co.
Associated Marketing, Incorporated
Barefoot Grass Lawn Service, Inc.
Basking Ridge Golf Course, Inc.
Benco Services, Landscape Div.
Brouwer Turf Equipment
Cedar Creek Golf Course
Champion Landscape and Tree, Inc
Chux Landscaping, Inc.
Coger Farms & Garden Center
D & J Landscaping
D. Marzano Landscaping, Inc.
De Lalio Sod Farms, Incorporated
Debuck's Sod Farm
Del Val Design Landscape
Double Eagle Equipment Company
Dow Chemical, USA
Dowelanco
DuBrows's Nurseries
Duke's Lawn Service, Inc.
Ehrlich Green Team
Evergreen Lawn Sprinklers
Fairview Country Club
Fairway Green Inc.
Farmstead Golf & Country Club
Ferti-Soil Turf Supply, Incorporated
Fiddler's Elbow Country Club
Florence Landscape Services, Inc.
Forest Hill field Club
Forsgate Country Club
Fredette Landscaping
Freehold Township Parks & Rec.
G & L Lawn Service, Inc.
Gajarsky Contracting Inc.
Garfield Williamson, Incorporated
Glen Summit Nurseries, Inc.
Grass Roots, Incorporated
Green Grass Landscape Svc., Inc.
Green Oasis Landscaping
Hoffman-LaRoche, Inc.
Homestead Landscaping
Homestead Lawn Sprinkler Co., Inc.
Honor Tree & Lawn Services
Hopewell Valley Golf Club
Horizon Estates
Ingersoll Rand Division
Irrigation Unlimited, Incorporated
JEP Sales, Incorporated
Lakewood Country Club
Lawn Champ
Lawn Doctor Incorporated
Lawn Doctor Mountainside/Cranford
Lawn Spray Company
Lebanon Chemical Company
Lee Rain, Incorporated
Leon's Sod Farm
Leonard Reinhardt, Incorporated
Lesco, Incorporated
Lofts Seed Incorporated
M.J. O"Brien Contractors Inc.
MacAndrews & Forbes Company
Meadowbrook Lawn Service, Inc.
Mid Atlantic Equipment Corp.
Middletown Sprinkler Company
Montco Products Corporation
N.E. Criaris Enterprises, Inc.
National Lawn Services of NJ, Inc.
NJ Nursery & Landscape Assn., Inc.
NK Lawn & Garden Company
Northern Turf Management
Paige Electric Corporation
Partac Peat Corporation
Pennink Arrimour Inc.
Pennsauken Country Club
Pierson's Mill Co.
Pine Hill Youth Association
Pine Island Turf Nurseries, Inc.
Pocono Turf Supply Company
Rancocas Valley Regional H.S.
Rapp Sod Farm
Reed's Sod Farm
Reid Sod Farm
Rich Green Lawns
Riverside Cemetary
Rockland Chemical Company
Rosedale & Rosehill Cemetery Assn.
Royal Lawns of Monmouth
Rumson Country Club
S & A Irrigation & Lawn Services
Sacco's Landscape, Incorporated
Sandoz Crop Protection
Scian's Landscaping Incorporated
Seabright Lawn Tennis Club
Seacoast Labs
Sequoia Lawn Care
Shearon Environmental Design / NJ
Sleepy Hollow Country Club
Spring Meadow Golf Course
Spring-Green Lawn Care
Stephen Kay Golf Course Architects
Storr Tractor Company
Superlawns of Atlantic City
Surf Landscaping
Sweeney Seed Company
The Bedens Brook Club
The Brickman Group Ltd.
The Green Machine, Inc.
The Scotts Company
Toms River Lawn & Sprinkler Inc.
Trenton Country Club
Turf Grass Sod Farms, Inc.
Turf Seed Inc.
Upper Montclair Country Club
W. A. Cleary Chemical Corporation
Wayne Board of Education
Wayne Township Parks Department
Wells Lawn Service, Incorporated
Wilfred MacDonald, Incorporated
Willow Run L/M Division, Inc.
Woodbridge Center
Woodbury Public Schools
Woodruff/Lerco Lawns of So. Jersey
Wrtco Incorporated

Green World is published three times a year by the New Jersey Turfgrass Association, P.O. Box 231, New Brunswick, NJ 08903. Consulting editor: Dr. Ralph Engel; advertising chairmen, Sam Leon and Steve Stys; production editor and layout artist: David Crismond.

Poa Trivialis: A Specialty Use Turfgrass

— continued from page 1

leafy stolons, and may be found growing in soils with a pH ranging from 5 to 8, with best growth occurring between pH 6 and 7. Besides being well adapted to damp, shaded locations, it is also found growing in wet meadows, as a component of high fertility grasslands and along ditch banks. It has the ability to germinate and grow at low temperatures, displays good color retention in the fall, produces early spring green-up, germinates rapidly, has good seedling vigor, and has excellent winter hardiness.

Original Sources and New Varieties

Until recent years, most of the Poa trivialis grown from seed in North America came from Europe. These common types were often taller growing, light in color and formed loose growing sod. Along with the variability of types, the seed was usually pasture harvested and contained troublesome quantities of weed seed.

"Sabre" Poa trivialis was released in 1977 by the New Jersey Agriculture Experiment Station as the first man-made cultivar. It has been used in winter overseeding of bermudagrass greens and in seed mixtures on shaded lawns of cool, moist temperate regions. This cultivar, and others, were selected for lower growth habit, darker green sod, more dense sod and improved disease resistance. Reduced seed shattering, before and during harvest, is also sought in the newer types.

A recent Poa trivialis release of interest is the Cultivar "Laser." This variety was known in RH-86 in research tests and commercially as Laser Rough Bluegrass. RH-86 was developed and released by Lofts Seed, Inc., Bound Brook, New Jersey. Some of the germplasm used in the development of this cultivar was obtained from the New Jersey Agricultural Experiment Station. Plants selected from old turfs in New Jersey, Pennsylvania, New York, and California, provided the original source of the germplasm used in the development of Laser.

Laser is a leafy, moderately low-growing, turf-type rough bluegrass capable of producing a more compact, fine-textured turf of medium high density. It has a slower rate of vertical growth than common rough bluegrass and a bright, medium dark-green color. Laser germinates rapidly,and has good seedling vigor under cool conditions. It has excellent winter hardiness, the ability to grow at rather cold temperatures, and excellent tolerance of cool shade and wet soils. It shows the poor heat and drought tolerance characteristics of its species. Laser is useful for the winter overseeding of dormant warm season turfs in many parts of Southern United States. It is normally mixed with an improved turf-type perennial ryegrass (Lolium perenne L.) for this purpose. Laser can also be used for lawn-type turf or mixed with other cool-season grasses where shade is a problem under cool, moist conditions of temperate climates.

Summary of Poa trivialis characteristics

1. Poa trivialis is a cool-season grass that is best adapted to moist soils.
2. It is injured or dies in hot, dry weather; but it grows well in cool, shaded locations. Often, it will become the primary grass species found in this type habitat of old lawns, fairways, and parks. It may become the only suc-

— cont. on page 4

Poa Trivialis: A Specialty Use Turfgrass

— continued from page 3

cessful species with the very severe conditions of damp shade where air circulation is pocketed.

3. With high cut, Poa trivialis forms a rather loose turf which has low-wear tolerance. Closer-lawn cuts will give more compact, attractive appearance.

4. Poa trivialis has extensive and shallow surface roots which make irrigation desirable or necessary in hot, dry weather.

5. Poa trivialis grows at low temperatures, displays good color in the fall, produces early spring green-up, germinates rapidly, has good seedling vigor and excellent winter hardiness.

6. Its greenness in winter, quick establishment and tolerance of close-cut make it useful for overseeding warm-season turf.

7. It develops new cover rapidly from decumbent stems and stolons with good fertility in its mid-spring growth period.

Uses of Poa trivialis

Poa trivialis has been recommended for use in lawns growing in moist, shade environments in climates where cool season grasses are well-adapted, especially with closer mowing. An additional use of Poa trivialis has been for winter overseeding of dormant warm-season turfs in southern United States. For this purpose, it is usually seeded in combination with the improved turf-type perennial ryegrasses, with mixtures containing between 10% to 15% Poa trivialis by weight.

1. Poa trivialis is used in lawn seed mixtures for sites where cool, moist dense shade conditions exist.

2. It is used for green winter color and winter playing surfaces on greens, tees and lawns of warm-season grasses of S.E. United States and similar conditions.

3. On a few occasions it has been overseeded in bentgrass-annual bluegrass fairways that are wet and boggy.

4. It has been mixed with bentgrass for new seedings and overseeding of greens when quick cover is needed with the remaining growing weather in the fall of temperate zones.

The two latter uses are not new but are probably overlooked for emergency situations

USE #1 — For shade in moist, cool temperate areas. For use as a permanent turf on damp shaded sites in Zones 1,5,6, and 7 (see Figure B). If seeded in warmer, sunny areas Poa trivialis can become unwanted because of its patchiness from light green types and its poor tolerance of heat, drought, and traffic.

— continued on page 5

Better Turfgrass Root Systems

— continued from page 1

The pictures in Figure 2 and 3 illustrate the effect of brief covering on regrowth and rooting of two sod cultures.

We expected some difference in growth response from the covering treatments, but the modest change in appearance of the turf never suggested the magnitude of growth difference that occurred. While a modest difference in temperature of the two treatments could be expected to change the availability of food reserves, the increase in top and root growth of the uncovered culture seemed disproportionately large based on the early green-up. The lack of apparent change from the brief covering and the cold weather didn't suggest much respiration. Should the warmed culture give quicker rooting and more root growth? The advantages with the uncovered sod in cold early spring were published and shown. There has been no research that explains the quick, major differences in growth that developed. Did some starch change to sugar during this very cold weather? The carbohydrate totals for the covered and uncovered treatment sources did not suggest any change in this food.

Forgive me for surmizing (theorizing) — a change in carbohydrates seems too simple for an explanation of the sudden major change in growth and rooting when the plant goes from dormant to less dormancy in very early spring.

•REE

Poa Trivialis: A Specialty Use Turfgrass

(a) Intense damp shade —
100% Laser or Sabre Poa trivialis.
Seeding rate: 2 lbs./1000 sq. ft.
{Editor's note: Seedling vigor of Poa trivialis permits seeding the species alone, especially for overseeding.]

OR

(b) Moderate lawn shade —
30% Laser or Sabre Poa trivialis,
30% Ram I Kentucky bluegrass (or other shade-tolerant varieties)
20% Jamestown Chewings Fescue
20% Palmer, Prelude or other turf-type perennial ryegrass
Seeding rate: 4 lbs./1000 sq. ft.

USE #2 — For overseeding of warm-season turfgrasses to provide winter cover on golf course greens and tees in Zones 3,4, and 8.

(a) Poa trivialis only — 100% Laser Poa trivialis Seeding rate:10 lbs./1000 sq ft

OR

(b) Poa trivialis with turf-type ryegrasses — 85%Palmer or Prelude turf-type perennial ryegrasses
15% Laser Poa trivialis
Seeding rate: 25 lbs./1000 sq. ft.

OR

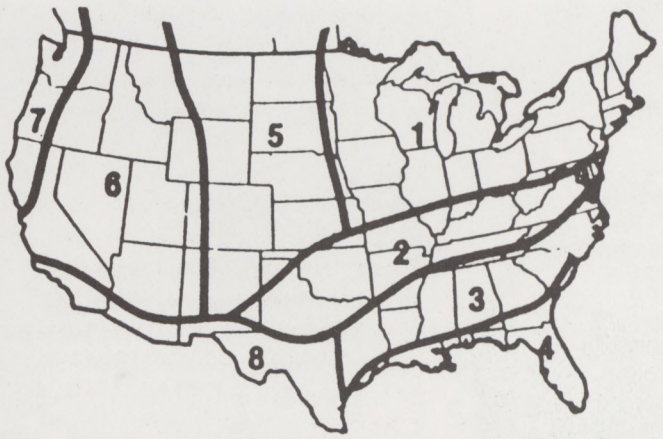
(c) Poa trivialis, turf-type ryegrasses and fine fescue — 60%Palmer or Prelude turf-type perennial ryegrasses
25% Jamestown Chewings Fescue
15% Laser Poa trivialis
Seeding rate: 25 lbs./1000 sq. ft.

[Editor's note: Substitution of similar cultivars can be made on the above seed recommendations.]

Management of Poa Trivialis Turfs

Cutting height - Poa trivialis may be cut at a lower height of cut (1/2 inch) compared with other cool season turf grasses, (1/2" to 2" is recommended). It

Zones of grass adaptation in the United States



Key to climate zones:

1 — Cool humid
2 — Transition
3 — Warm humid
4 — Sub-tropical
5 — Cool semi-arid plains
6 — Cool semi-arid intermountain
7 — Cool humid
8 — Warm arid

Figure B: Poa trivialis can be used as turf on damp, shaded sites in Zones 1,5,6, and 7.

Poa Trivialis: A Specialty Use Turfgrass

— continued from page 5

loses its best quality with the higher lawn cuts used on shaded lawns.

Use of fertilizer - Applications of 25-5-10 or equivalent complete fertilizer should be applied in early spring before trees leaf out and in the mid- to late-fall after leaf removal. Poa trivialis will heal a poor turf cover rapidly with generous nitrogen as the days lengthen in spring.

Irrigation - Since Poa trivialis is heat-sensitive and shallowly rooted, it makes best turf on damp soils, and because of this, it benefits from light but frequent irrigation.

Weed control - Dandelion and broadleaf weeds may be controlled with 2,4-D, however, injury to Poa trivialis may occur if this herbicide is applied at higher than normal rates or when temperatures are above 85° F.

[Editor's note: The temptation to use generous nitrogen fertilization to heal shade troubled turf areas in spring and fall is great. Especially in mid- to late-spring, a fungicide may protect nitrogen soft turf from injury that follows in the first very hot, wet weather of late spring. Dr. Bruce Clarke suggests an application of a maneb type or iprodione (Chipco 26019) fungicides for protection to lush growth at this season.]

Pesticide Residues in Fruits and Vegetables

Government tests show 50 to 75% of our fruits and vegetables have no detectable pesticide residues. "However, there is little or no health risk involved because the residues are not consistent for kind of crop, its origin, or type of pesticide. Imports are about the same as domestic supplies, except the former have more instances of residues from pesticides that have no U.S. tolerances.

It is reassuring to find no recognized group of toxicologists or medical experts who claim current levels of pesticide residues in fruits and vegetables pose important health hazards to either adults or infants."

Abstracted from News CAST, Vol. 18:4, Winter 1990-91.

[Editor's comment: A trace of pesticide residue may seem frightening. Our assurance on this concern comes from government regulations that are very strict about registering chemicals that show slight indications of hazard: the tolerance levels are set far above what they consider the danger level. The amount of residue should be less frightening than some of the natural chemicals developed by plants.]

•REE

PATRONS LISTING

Samuel Leon
LEON'S SOD FARMS
Instant Lawn-Cultivated Grass Sod
RD#1 Box 169 Frenchtown, NJ
(201) 996-2255 08825

Marty Futyma
FERTL-SOIL TURF SUPPLY, INC.
Greens, Top-dressing, Turf Supply
514 Martin Road
Scotch Plains, NJ 07076
(201) 322-6132

Bob Scott
DOWELANCO
560 Ashwood Road
Springfield, NJ 07081
(201) 376-7290

W.A. CLEARY CHEMICAL CORP.
1049 Somerset Street
Somerset, NJ 08873
(201) 247-8000 [Turf Chem & Fert]
Call: Barbara Cleary or Russ Ward

Drew Madzin
ROYAL LAWNS
P.O. Box 236
Farmingdale, NJ 07727
(201) 780-4950

Rick Apgar, Joe Stahl
METRO MILORGANITE, INC.
365 Adams St.
Bedford Hills, NY 10507
(914) 666-3171

Joe Bianco & Son
GREEN THUMB SERVICES
1910 Fourth Street
North Brunswick, NJ 08902
(908) 297-3333

Ken Stattel
BROOKREST SOD FARM
P.O.Box 122
Marlboro, NJ 07746-0122