

MICHIGAN
TURFG RASS
REPORT

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TURFGRASS VARIETIES FOR MICHIGAN

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The selections of adapted grasses is essential to the development of a good turf. Planting grass seed unadapted to a particular site, environment, soil condition, management level, or use will result in failure or an undesirable turf.

Permanent grasses such as Kentucky bluegrass and red fescue should compose a major portion of a lawn mixture for Michigan. Cheap, quick growing lawn mixtures are generally a poor buy since they may contain large quantities of temporary and weedy, perennial grasses which are unsuited for a beautiful lawn.

Only good quality seed which meets certain minimum purity and germination percentages should be used. The Michigan Seed Law requires proper labeling of germination, purity, and composition of lawn mixtures. However, the buyer is responsible for selecting a suitable seed mixture. Details of these standards for the common turfgrasses used in Michigan are listed on page 6.

PERMANENT LAWN GRASSES

KENTUCKY BLUEGRASSES

Kentucky bluegrass (*Poa pratensis*), the most widely used lawn grass in Michigan, is best adapted to well-drained, heavy, fertile soils. It is a perennial, cool season grass having good sod forming characteristics due to its rhizomatous growth habit. There are a number of varieties of Kentucky bluegrass, some having distinctly different management requirements. It is important to carefully select the variety best suited to a particular management level. All Kentucky bluegrasses should be mowed at 1 1/2 to 2 inches. Cutting shorter than 1 1/2 inches will seriously weaken the turf.

COMMON - The most widely utilized of the Kentucky bluegrasses, it has superior early spring and late fall growth and color but may become dormant in midsummer. This variety is very susceptible to leafspot diseases which cause severe thinning and browning in early summer. Although resistant to leaf rust, it is quite susceptible to powdery mildew which can cause severe injury in shaded areas. Common Kentucky bluegrass withstands traffic moderately well and should be a basic component of a majority of lawn mixtures in Michigan which are to be maintained at a medium to low fertility level.

DELTA AND PARK - These two varieties of Kentucky bluegrass are very similar to Common. Both are susceptible to leafspot but they recover from injury much more rapidly in the fall than Common. These two varieties are outstanding in establishment vigor.

MERION - This bluegrass variety produces a turf of high quality when properly managed. It forms a dense sod of medium texture and has a wide, dark green leaf. Its chief attribute is resistance to leafspot diseases, which results in superior summer performance when compared with Common, Delta or Park. It is susceptible to powdery mildew which can severely thin turf under heavy shade. Leaf and stem rusts are also a problem with Merion but can be overcome by a good fertilizer program. Merion is susceptible to stripe smut, which is most prevalent under heavy thatch conditions. Although stripe smut has been found in Michigan, it has not as yet become as severe a problem as in states farther south. With the advent of cool fall weather, Merion shows a reduced growth rate and turns a characteristic purplish-green color.

Merion demands a high management level (compared to other bluegrass varieties) and requires twice the rate of nitrogen fertilization (6 to 8 pounds of actual nitrogen per 1,000 sq. ft. per year). Merion should be used only by individuals interested in investing the extra time and money required for a high quality lawn.

NEWPORT - A bluegrass variety similar to Merion in growth habit which blends well with Merion. Its main virtue is excellent fall vigor. The leafspot resistance of Newport is questionable with some reports of severe thinning in the third and fourth years. It is not as vigorous in rhizome production and sod formation as Merion.

BLUEGRASS BLENDS

The blending of several bluegrass varieties which possess different plant growth, leaf type, color, thatch and disease characteristics is becoming more common. The blend is suited to a broader area of adaptation and disease tolerance than a single variety.

RED FESCUE

Red Fescue (Festuca rubra) is a perennial, cool season grass of fine texture particularly adapted to light sandy soils, shady conditions and lower management levels. It is superior to the bluegrasses in establishment vigor and, when mixed with bluegrasses, often serves as a valuable companion grass. Too much nitrogen will cause severe thinning. All commercially available varieties of red fescue are susceptible to leafspot diseases which cause extensive patchy, dead areas in the turf in midsummer. Available varieties include Pennlawn, Rainier, Illahee, Trinity and common creeping red fescue which spread by underground creeping stems plus Chewings red fescue which has a bunch type growth habit. All of these varieties are similar in turf performance with a slight edge to Pennlawn and Rainier. A minimum cutting height of 1 1/2 inches is recommended. If any percentage of "other crop" is listed on the label when purchasing red fescue, be sure it is not tall fescue.

SPECIAL PURPOSE LAWN GRASSES

ROUGHSTALK BLUEGRASS

Roughstalk bluegrass (Poa trivialis) is a light green, prostrate growing, perennial grass which is particularly adapted to moist, shady conditions. It is superior to Kentucky bluegrass in establishment vigor but will not tolerate traffic or hot, dry conditions due to its shallow rooting habit.

BENTGRASS

Bentgrass (Agrostis sp.) is a vigorous, perennial grass with the ability to withstand close cutting. It is used primarily on putting greens and fairways of golf courses. It requires extensive, costly management; including the use of fungicides because of its high susceptibility to diseases (dollarspot, brown patch and snow mold). As a result of high cost and management requirements, bentgrass is only utilized to a limited extent as a lawn-grass in Michigan. Stoloniferous bentgrasses are a serious weed in bluegrass lawns.

TEMPORARY LAWN GRASSES

PERENNIAL RYEGRASS

Perennial ryegrass (Lolium perenne) is a short-lived perennial due to its susceptibility to winterkilling. As much as 80% injury can occur during the initial winter with complete killing by the end of the third winter.

It is susceptible to rust and is difficult to mow due to the tough, fibrous nature of the leaves. Its main attribute is rapid germination and establishment which makes it an ideal grass to be used as a temporary lawn or as 20% of a mixture to serve as a soil stabilizer and cover until the slower permanent grasses become established. The problem is to avoid excessive competition from the ryegrass to the permanent grasses in the mixture.

ANNUAL RYEGRASS

Annual ryegrass (Lolium multiflorum) is an annual, bunch type grass. It is similar to perennial ryegrass in germination and establishment vigor with a lighter green color and coarser texture. Use is similar to perennial ryegrass.

REDTOP

Redtop (Agrostis alba) is a gray-green, short-lived perennial grass which tends to thin out under lawn turf maintenance. As a result, it will remain as scattered tufts which disrupt turf uniformity. Its main advantage is rapid germination and tolerance to wet, acid soils. However, it is of no value in a quality lawn mixture.

GRASSES NOT WELL ADAPTED FOR MICHIGAN LAWNS

TALL FESCUE

Tall fescue (Festuca arundenacea) is a frequently misused grass. It is a coarse-textured, perennial grass which resists heavy wear and high temperatures. It is vigorous in establishment but is susceptible to snow mold and subject to winterkilling under turf conditions. The two most common varieties are Kentucky 31 and Alta which are very similar in performance. Due to its coarse texture it's generally not suited for home lawns. If planted as less than 70% of the mixture, it becomes clumpy and undesirable. Best use is on athletic fields and heavy use areas. Do not confuse the Kentucky 31 variety of tall fescue with Kentucky bluegrass.

ZOYSIA

Zovsia (Zoysia japonica) is a perennial, warm season grass which turns straw colored with the first hard freeze and remains brown until late spring. It is established vegetatively by sprigs or plugs and requires more than one full growing season for establishment. The Meyer variety is relatively winterhardy in southern Michigan. Emerald will winterkill severely. Zoysia is of questionable value in Michigan.

LAWN SEED MIXTURES

In home lawns where a wide range of soil and environmental conditions usually exist, a mixture of desirable perennial grasses offers distinct advantages over an individual turfgrass species. Shade, sandy soil pockets and exposed subsoil from excavations are conditions which require specific grasses.

The following is offered as a guide in selecting a lawn mixture for meeting these varied requirements. Quality turfgrass mixtures which fall within the percentage ranges listed are available or may be purchased individually and mixed. Percentages are given on a weight basis.

A. Sunny areas of medium to low maintenance:

Kentucky Bluegrass (Common, Delta, Park) 70 to 40%
Creeping Red Fescue (Pennlawn, Painier, Common, Chewings) . . 30 to 60%

B. Sunny areas of high maintenance:

Merion Kentucky Bluegrass 20 to 10%
Kentucky Bluegrass (Newport, Delta, Park, Common) 50 to 30%
Creeping Red Fescue (Pennlawn, Rainier, Common) 30 to 60%

C. Moist, shaded areas:

Kentucky Bluegrass (Common, Delta, Park) 20 to 30%
Creeping Red Fescue (Pennlawn, Painier, Common, Chewings) . . 70 to 40%
Roughstalk Bluegrass 10 to 30%

Use the higher percentages of red fescue under shady conditions or light sandy soils. Add 15 to 25% ryegrass to the mixture under the following adverse conditions:

- a. Poor time of year for seeding such as mid-summer.
- b. Sloping areas which are subject to erosion.
- c. During droughty periods when the area cannot be properly irrigated or mulched.

Bentgrass, redtop, tall fescue and timothy should not be used in lawn seed mixtures to obtain a high quality turf. They eventually produce a patchy and otherwise undesirable appearance. These weedy perennial grasses cannot be selectively removed from the desirable grasses with the herbicides presently available. As a result, they can become the most undesirable of turfgrass weeds.

SEEDING RATES AND QUALITY SEED CHARACTERISTIC OF TURFCASSES

Common Name	Scientific Name	Minimum Purity %	Minimum Germination %	Approximate Number of Seed per Pound	Seeding Rate In Pounds per 1,000 sq. ft.	Major Use
Bentgrass, colonial	<u>Agrostis tenuis</u>	98	90	7-8,000,000	1-2	Greens, fairways, tees and high quality lawns.
Bentgrass, creeping	<u>Agrostis palustris</u>	98	90	6-7,000,000	1/2-2	Greens, tees, and fairways.
Bentgrass, velvet	<u>Agrostis canina</u>	95	90	8,000,000	1-2	Greens
Bluegrass, Canada	<u>Poa compressa</u>	95	85	2,250,000	1-2	Low fertility, coarse turfs.
Bluegrass, Kentucky	<u>Poa pratensis</u>	90	75	2,200,000	1-2	Major component of most general use turfs.
Bluegrass, roughstalk	<u>Poa trivialis</u>	92	85	2,500,000	1-2	Moist, shady areas.
Red fescue, creeping and chewings	<u>Festuca rubra</u>	98	85	600,000	3-5	Lawns; general use turfs; shade; light soils.
Redtop	<u>Agrostis alba</u>	95	90	5,000,000	1-2	Temporary cover.
Ryegrass, annual or Italian	<u>Lolium multiflorum</u>	98	90	250,000	5-7	Temporary cover.
Ryegrass, perennial or English	<u>Lolium perenne</u>	98	90	250,000	5-7	Temporary cover.
Sheep fescue	<u>Festuca ovina</u>	90	80	600,000	3-5	Non-use areas.
Tall fescue	<u>Festuca arundinacea</u>	98	85	500,000	4-6	Coarse turfs, heavy wear areas.

BENTGRASSES FOR PUTTING GREENS

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Grasses utilized for putting green turfs should be characterized by a uniform, true putting, grainless surface. The bentgrasses are best adapted for this purpose due to their dense sod forming nature and ability to tolerate a close mowing height (3/16 to 3/8 inch). Based on growth habit and method of establishment the bentgrasses can be divided into three major groupings. For a long term quality putting turf the vegetatively propagated bentgrasses are preferred to the seeded bentgrasses due to improved uniformity. However, the uniformity of stoloniferous bentgrasses should be insured by obtaining them from a reputable grower.

VEGETATIVELY PROPAGATED CREEPING BENTGRASS VARIETIES

Toronto (C-15). Toronto is an aggressive, yellowish-dark-green creeping bentgrass having good resistance to snow mold. It is superior in rate of establishment. Thus, due to this vigor, thatching and puffiness may become a problem especially if not properly managed. Spring and fall color are good as is winterhardiness. It is currently the most popular vegetative bentgrass in Michigan and has rated well in variety trials.

Cohansey (C-7). Cohansey is a strong yellow-green creeping bentgrass with a superior rate of establishment. It is susceptible to dollarspot and brown patch but heals quickly from injury. Thatching and puffiness are minimal due to the more open type of growth. In bentgrass variety trials Cohansey has ranked well but has not been widely used.

Washington (C-50). One of the oldest varieties, Washington is a dark green, even textured creeping bentgrass which performs best in hot weather. During spring and fall the growth rate is severely reduced and a bluish off-color develops. It ranks medium in rate of establishment and disease susceptibility; being resistant to snow mold and brown patch but quite susceptible to dollarspot. Through the years, Washington has been the old standby and currently is utilized in a major portion of the putting greens in the state.

Congressional (C-19). Congressional is a dark green creeping bentgrass having good snow mold resistance. It has a minimum thatching tendency but average disease resistance. Not currently in wide use but has ranked high in the variety trials.

Old Orchard (C-52). Old Orchard is a dark-yellowish-green creeping bentgrass with good adaptation to hot weather. It is average in rate of establishment and disease susceptibility. Not in wide use in Michigan.

Arlington (C-1). Arlington is a moderate-olive-green creeping bentgrass with average disease resistance. It has a tendency to swirl and is of doubtful value in Michigan.

Pennlu (10 (37) 4). Pennlu is a strong, bluish-green creeping bentgrass selection from Penn State. It has good dollar spot and brown patch resistance. Due to the vigorous growth habit there is considerable thatching tendency and puffiness. Its use in Michigan is questionable due to its unique management requirements.

Evansville. Evansville is a dark-green, vigorous creeping bentgrass recently released from Purdue. It is quite susceptible to snow mold. Thatching and puffiness can be a severe problem due to its vigorous nature of growth. Its place in Michigan is questionable.

Nimisilla. Nimisilla is a moderate yellow-green creeping bentgrass with superior rate of establishment. Due to the vigorous growth habit it tends to be puffy and form a thatch. This plus disease problems make it of questionable value in Michigan.

SEEDED CREEPING BENTGRASS VARIETIES-

Pencross. Pencross is a strong, green creeping bentgrass with fair to good disease resistance. It has a vigorous growth habit and thus can have thatching tendencies. A seeding rate of one-half pound per 1,000 square feet is recommended. Ranks as the outstanding seeded bentgrass for putting greens in Michigan. Seed costs are high.

Seaside. Seaside is a strong green creeping bentgrass of medium vigor. It has average disease resistance and is quite susceptible to snow mold. Of the seeded bentgrasses it ranks second to Pencross for greens and is commonly used for fairways.

SEEDED COLONIAL (NON-CREEPING) BENTGRASS VARIETIES

Astoria. Astoria is a yellow-green colonial bentgrass which has some creeping tendencies. It has an open texture and a minimum thatching tendency. In the past it has been widely used in northern Michigan but currently offers no advantage over the creeping bentgrasses.

Highland. Highland is a grayish-green colonial bentgrass having good drought resistance. It has good hardiness but is not used for greens due to poor quality.

PLANTING BENTGRASS GREENS

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1. After allowing a period of time for settling, the green should be graded to the desired contour with adequate surface drainage (no depressions).
2. Work 10 to 15 pounds per 1,000 sq. ft. of 12-6-6, 12-12-12, 10-6-6 or similar fertilizer into the seedbed. Also, apply lime if soil tests show a need.
3. Remove stones and rake area smooth. If the soil is loose and fluffy a light rolling is suggested to firm the seedbed.
4. Planting procedures may involve either vegetative propagation or seeding. Planting should be completed before October 1.
 - A. Vegetative Propagation. Spread stolons evenly at a rate of 8 to 10 bushels per 1,000 sq. ft. Press stolons into the surface of the seedbed by rolling or use of a steel mat. Cover stolons with 1/2 cubic yard (1/4" to 3/8") of prepared topdressing material per 1,000 sq. ft. The topdressing material should be of the same composition as the upper six inches of the seedbed. After topdressing, the area should be rolled again.
NOTE: Plant only 1,000 sq. ft. at a time.
 - B. Seeding. Broadcast or spread the seed uniformly at a rate of 1 to 2 pounds per 1,000 sq. ft. In the case of Penncross, use only 1/2 pound to 1,000 sq. ft. Due to the lightness of the seed, planting when the wind is at a minimum will avoid blowing. Mixing the seed at a rate of 1 part to 4 parts of finely screened topsoil will aid uniform distribution. Cover the seed to a maximum depth of 1/4 inch by raking lightly or topdressing. Immediately roll the seedbed and mulch.
5. Water the seedbed and keep moist until the first mowing.
6. The first mowing at 1/2 inch should be done when the grass reaches a height of one inch. Cut stolons should be returned. When a sod begins to develop the cutting height should be gradually reduced to 1/4 inch over a period of 3 to 4 weeks. Early mowing should be combined with rolling and topdressing at 1/4 to 1/2 cubic yard per 1,000 sq. ft. to produce the desired density and uniformity.
7. Light applications of soluble nitrogen (1/2 pound of actual N per 1,000 sq. ft.) at two week intervals will aid in rapid sod formation.