



## Which Do YOU Buy ?

Only about a third of the lawn seed and grass seed mixtures offered for sale for lawn seeding purposes last year in nine of the state's largest cities were suitable for establishing even-textured, fine-leaved lawns.

by **Eliot C. Roberts and L. E. Everson**

**M**ANY OF the lawn and grass seed mixtures sold in Iowa for lawn seeding purposes contain large percentages of coarse-leaved annual or perennial grasses such as tall fescue, ryegrass and red-top. If you're interested in an even-textured, fine-leaved lawn,

mixtures containing these aren't suitable. Lawns planted with such mixtures don't have a uniform appearance. The broad-leaved grasses grow more rapidly than the fine-leaved grasses and "stand out" in the lawn. Also, these coarse grasses fail because they aren't adapted to standard lawn-maintenance practices such as close cutting.

What kinds of grasses should you plant for a beautiful lawn?

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When you buy lawn seed, think of more than the size of the package and its price. Large-seeded coarse grasses, for example, often are packaged in large containers and sold at lower prices than fine-leaved grasses. Even where a coarse rough turf is desired, these bargain packs aren't necessarily the "good buy" they seem to be. This is because seeding rates are from 2 to 4 times greater than for small-seeded, fine-leaved grasses.

Depending on the kind of lawn or turf you want, there's a *difference* between *lawn seed* and *grass seed*. That's what this article is about.

### What's Available?

In 1960 we conducted a survey to determine the relative quality of lawn seed sold in Iowa. We visited stores selling grass seed mixtures in nine of the state's larger cities and recorded the different mixtures offered for sale as lawn or grass seed intended for lawn seeding.

Less than 30 percent of the grass and lawn seed mixtures contained 70 percent or more of perennial fine-leaved grasses (see table 1). On this basis alone, a person would have about a one in four chance of getting a really good lawn seed mixture—unless he knew what he wanted and read the label to make sure he was getting it.

Kentucky bluegrass (*Poa pratensis*) generally is considered as the queen of the lawn grasses in the Midwest. Approximately 70

TABLE 1. Percentage of fine-leaved perennial grasses in grass seed mixtures offered for sale, 1960.

Range in amount of fine-leaved perennial grass present <sup>a</sup>	Mixtures containing these amounts
90-99% .....	9%
80-89% .....	9%
70-79% .....	9%
60-69% .....	12%
50-59% .....	7%
40-49% .....	4%
30-39% .....	6%
20-29% .....	9%
10-19% .....	13%
0- 9% .....	22%

<sup>a</sup>Fine-leaved perennial grasses: bluegrasses, bentgrasses, Chewings and Creeping Red fescues.

NOTE: For lawn purposes, we consider that a minimum of 70 percent should be fine-leaved, but only 27 percent of the mixtures contained this amount.

percent of the mixtures, however, contained 35 percent or less of bluegrass (see table 2).

TABLE 2. Percentage of bluegrasses<sup>a</sup> in grass seed mixtures offered for sale, 1960.

Range in amount of bluegrass present	Mixtures containing these amounts
90-99% .....	1%
80-89% .....	0%
70-79% .....	0%
60-69% .....	4%
50-59% .....	12%
40-49% .....	9%
35-39% .....	5%
30-34% .....	4%
20-29% .....	10%
10-19% .....	17%
0-9% .....	38%

<sup>a</sup>Bluegrasses include common Kentucky bluegrass (*Poa pratensis*) and named strains, Canada bluegrass (*Poa compressa*) and rough stalk bluegrass (*Poa trivialis*).

NOTE: For lawn purposes, we consider that a minimum of 35 percent of the mixture should be Kentucky bluegrass, but only about 30 percent of the mixtures contained this much.

### What Protection?

The main requirements of the Iowa Seed Law for lawn and grass seed mixtures are that they be accurately labeled as to kind, variety, purity and germination. The law sets no minimum percentage for desirable turf grasses in lawn seed mixtures sold in the state. Neither does the law set any maximum for undesirable kinds.

This means that a grass seed that contains *no* desirable lawn species may be legally sold for lawn seeding purposes. Also, species present may have a very low

—or even zero—germination. While reputable seed companies sell seed of good purity and germination in their mixtures, there's still much poor lawn seed available on the market in Iowa.

### What is Lawn Turf?

How can you tell a good lawn seed mixture from a poor one? Before we can answer this, it's important to clearly describe the characteristics of a desirable type of lawn. Individuals may differ in their idea of what a lawn should look like. But the following definition would satisfy the demands of most persons for lawn turf:

*A lawn is an area established in perennial grasses which are persistent when properly managed and clipped at a 1½-inch height of cut or lower, depending on the species and strains established.* This definition states three growth characteristics which are most commonly desired.

(1) The lawn should consist of perennial grasses which won't winterkill or die out annually and require reseeding. Extremes in climatic conditions occasionally result in severe injury to the best of the perennial fine-leaved lawn grasses. But instances requiring reseeding should be the exception rather than the rule.

(2) Some perennial grasses aren't persistent under normal lawn-maintenance. Continued clipping at a 1½-inch height reduces the vigor of some species so

that they die even when other conditions for growth are favorable. A lawn, then, should consist of grasses which will tolerate a clipping height of 1½ inches or less. Coarse-leaved grasses won't do this, and grass clipped higher than this normally loses its uniform appearance and isn't considered of lawn quality.

(3) A lawn requires some degree of management and care. Grasses included in lawn mixtures should respond to reasonable fertilization and watering practices by producing a good, uniform ground cover.

### What Seed?

Before deciding on a seed mixture for your lawn, determine the kind of turf that will best meet your needs. Pay particular attention to the growth characteristics of the various grasses. This is to make sure you can satisfy their maintenance requirements.

**Kentucky Bluegrasses** (*Poa pratensis*) include common Kentucky bluegrass and the strains, Merion, Park, Newport and others. These are the best-adapted lawn grasses for the cool, humid regions of the United States. Bluegrasses are medium-textured, hardy, long-lived, sod-forming grasses which spread vigorously by means of underground stems. They may be seeded as bluegrass mixtures or as mixtures of bluegrasses and red fescues. All bluegrasses produce the best lawn



A coarse, rough-textured turf may be established by seeding tall fescue alone (left), but tall fescue is considered a weed when found in clumps in a Kentucky bluegrass lawn (photo at right).

turf where soils are fertile, well drained and nonacid.

Bluegrass is tolerant of drouth. It survives normal summer temperatures. It tolerates dry periods by becoming dormant, and the foliage turns brown. To be kept green throughout most summers, bluegrass must be watered. Of the various bluegrasses, Merion will tolerate a cutting height of  $\frac{3}{4}$  to 1 inch; the others should be clipped at  $1\frac{1}{2}$  inches.

Merion needs more fertilizer than the other bluegrasses and should have 5 to 8 pounds of nitrogen per 1,000 sq. ft. per year applied as a lawn fertilizer. Other bluegrasses normally thrive on 3 to 4 pounds of nitrogen per 1,000 sq. ft. per year. Disease susceptibility increases at higher rates of fertilization. Common Kentucky bluegrass is particularly susceptible to leaf spot and root rot diseases. Merion is very susceptible to rust, while Park and Newport are somewhat tolerant of both kinds of diseases. A mixture of these four bluegrasses produces a maximum of disease resistance in an established lawn.

None of these grasses is persistent under dense shade. Overfertilization, excess watering and close clipping often encourage bentgrasses to take over a bluegrass lawn, and a patchy, spotty turf may result.

Bluegrasses are relatively slow in germinating and becoming established; Merion is particularly slow. To protect slow-developing bluegrasses from extremes of climate, seed a bluegrass-red fescue mixture. The red fescues develop sturdy seedlings faster than the bluegrasses and aid in the rapid establishment of the lawn.

**Rough Stalk Bluegrass** (*Poa trivialis*) differs from common Kentucky bluegrass in its growth characteristics. It's more tolerant of shade and produces better turf under moist soil conditions; use it only in locations where these conditions prevail.

**Chewings and Creeping Red Fescues** (*Festuca rubra*) are fine-leaved grasses well adapted to shade and poor, sandy soils. They thrive under infertile soil conditions and are highly tolerant of



Colonial bentgrass alone makes an extremely fine-textured lawn.

drouth. Though quick to germinate and to become established, they're not competitive with bluegrass in exposed locations or where soil fertility is high. They give most satisfactory growth at a  $1\frac{1}{2}$ -inch height of cut.

Differences in growth characteristics among common Creeping Red fescue and the strains, Illahee, Pennlawn and Ranier, are slight. Pennlawn is considered more aggressive than the others and equally persistent. Red fescues may be used as pure seedings where there's shade or in bluegrass mixtures for exposed locations.

**Colonial Bentgrasses** (*Agrostis tenuis*) require heavy fertilization and watering. In pure seedings, bentgrasses should be clipped at  $\frac{1}{2}$  to  $\frac{3}{4}$  inch in height. Apply fungicides often to give protection against diseases. In mixtures with bluegrasses and red fescues, there's a tendency for bentgrass to form patches. At a clipping height of  $1\frac{1}{2}$  inches, the bentgrass patches develop into thick mats that are often scalped in mowing. Also, under these conditions, bentgrass often produces tufted foliage at the ends of bare shoots. Removing the tufts by normal lawn clipping leaves a bald spot of brown stubble. Either injury means an unattractive turf.

Highland Colonial bentgrass seed results in more of this type of response than found with plants

from Astoria Colonial seed. The bentgrasses produce the best quality turf when seeded alone where their growth requirements can be fully satisfied without being detrimental to other grasses. If used in mixtures, not more than 5 percent should be included.

**Ryegrasses** (*Lolium multiflorum* and *Lolium perenne*) produce a coarse-textured turf that's non-sodforming and not tolerant of a  $1\frac{1}{2}$ -inch clipping height. Areas seeded to ryegrass germinate and become established quickly. Ryegrass seedlings are strong competitors and are effective in rapidly stabilizing soil surfaces. But the vigor of the turf gradually declines under continued close clipping until little grass cover is left. Where common or annual ryegrass is used, little growth can be expected after the first year, though perennial ryegrasses persist for longer periods of time.

When ryegrass is included in seed mixtures to provide protection for the slow-developing bluegrasses or for soil stabilizing purposes, the amount included shouldn't exceed 25 percent. Annual ryegrass is preferred to perennial since it provides equal early protection but is less competitive and persistent in the mature turf.

**Tall Fescues** (*Festuca arundinacea*) include the strains, Alta, Goar, Kentucky 31 and others.

They all have similar growth characteristics when used for turf. They're coarse-textured clump grasses that are non-sodforming. High plant populations thin out rapidly when continually clipped at a 1½-inch height. Where tall fescues and bluegrasses are seeded together and clipped at this height, the bluegrasses will become dominant, and the fescues will form unsightly clumps.

At a cutting height of 2 to 4 inches, however, tall fescues generally are persistent and produce a thick, tough turf suitable for sports, play areas and other locations which have heavy traffic. Tall fescues require little supplemental watering and have relatively low fertilizer requirements.

**Redtop and Timothy** (*Agrostis alba* and *Phleum pratense*) are both coarse-textured grasses, not tolerant of a 1½-inch height of cut. Seeds of these grasses germinate quickly, and seedling establishment is rapid. They're more competitive than annual ryegrass and, thus, are considered undesirable in lawn seed mixtures. They're useful, however, as pure seedings and in mixtures for establishing rough turf areas.

### Lawn Seed Mixtures . . .

**Kentucky Bluegrass and Red Fescue Mixtures:** There are many mixtures of grass seed that contain recommended turfgrass species and strains in the proper proportions for lawn establishment. Permanent grasses, such as bluegrass and fine-leaved red fescue, should amount to 70 to 100 percent of the total; 35 to 100 percent bluegrass and 30 to 65 percent red fescue is recommended. If Colonial bentgrass is included, not more than 5 percent is advised. Mixtures which include red fescues should *not* contain ryegrasses. Table 3 shows an example of a suitable bluegrass-red fescue mixture for a recommended seeding rate of 3 to 4 pounds per 1,000 sq. ft.

**Mixtures of Kentucky Bluegrass Strains:** Lawn mixtures may be formulated to exclude all but bluegrasses. Mixtures of blue-

TABLE 3. Example of a suitable bluegrass-red fescue lawn seed mixture for use in Iowa.

Grass species and strains	Desirable		
	Purity	Germination	Mixture <sup>a</sup>
Kentucky bluegrass <sup>b</sup>	85%	75%	60%
Red fescue <sup>c</sup>	98%	85%	40%

<sup>a</sup>Percent by weight minus small variations for impurities, etc.

<sup>b</sup>May be any one or a mixture of the following: Common Kentucky, Park, Newport, Merion.

<sup>c</sup>May be any one or a mixture of the following: Pennlawn, Illahee, Ranier, common Creeping or Chewings.

grasses with strains of varying growth requirements adjust better to changing environmental conditions without decreasing lawn quality. Pure seedings of only one bluegrass strain may deteriorate quickly as growth conditions become unfavorable. Only where lawns can be carefully managed—fertilized, watered, constantly protected from disease infections, etc.—will a single strain produce as good a lawn as would normally be expected from a mixture. Three different bluegrass mixtures considered suitable for use in Iowa at a seeding rate of 2 pounds per 1,000 sq. ft. are shown in table 4.

### Kentucky Bluegrass-Ryegrass

**Mixtures:** Lawn seed mixtures containing ryegrass to aid in rapid establishment shouldn't contain more than 25 percent of annual ryegrass. Red fescues contribute little to a bluegrass-ryegrass mixture and may be omitted. Common Kentucky bluegrass will compete with ryegrass as well as, if not better than, other strains, so we advise 75 percent of this grass seed. This bluegrass-ryegrass mixture may be justifiably classed as lawn seed. But it should be considered inferior to a Kentucky bluegrass-red fescue mixture except where especially rapid lawn establishment is required. In such cases, we recommend a seeding

rate of this mixture at 4 pounds per 1,000 sq. ft.

### Grass, Turf Mixtures . . .

Where a coarse, rough turf is desired and a high clipping height isn't objectionable, the use of 100 percent tall fescue seeded at a rate of 8 to 10 pounds per 1,000 sq. ft. is recommended.

For a temporary cover of coarse grasses, pure seedings of ryegrass, timothy or redtop or mixtures of these grasses are recommended. Pure ryegrass, timothy or redtop should be seeded at rates of 6, 3 and 2 pounds, respectively, per 1,000 sq. ft. Where these grass seeds are mixed, the seeding rate should be adjusted according to the proportions of each in the mixture—close to 5 pounds when using high percentages of ryegrass, close to 3 pounds when using high percentages of timothy and redtop.

### Remember . . .

When you plan to seed your lawn, decide first what kind of lawn you want. Consider next the conditions under which it will be grown and the amount of care you're willing to give. Then, decide on the kinds of seed to buy.

At this point, keep in mind that *there is a difference between lawn seed and grass seed*. Read the label information carefully before you buy to make sure that you're getting what you want and that the seed is of high purity and germination. Finally, make the necessary plans to maintain the lawn according to recommended lawn maintenance practices (see the April, May and June 1960 issues of IOWA FARM SCIENCE or reprints FS-863, FS-868 and FS-869, available from your county extension office or the Publications Distribution Room at Iowa State).

TABLE 4. Examples of suitable bluegrass lawn seed mixtures for use in Iowa.

Bluegrass strains <sup>a</sup>	Desirable			Suitable mixture <sup>b</sup>		
	Purity	Germination		No. 1	No. 2	No. 3
Common Kentucky	85%	75%		40%	40%	50%
Park	90%	80%		20%	30%	—
Newport	90%	80%		20%	30%	—
Merion	85%	75%		20%	—	50%

<sup>a</sup>Any of these may be maintained as pure stands where they receive special care.

<sup>b</sup>Percent by weight minus small variations for impurities, etc.