



BULLETIN NO. 11.

THE AGRICULTURAL COLLEGE OF MICHIGAN

BOTANICAL DEPARTMENT.

MAKING A LAWN. — MIXED LAWN GRASS SEEDS ANALYZED.

Thorp & Godfrey, State Printers and Binders, Lansing.

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"Grass is the most lowly, the simplest, and the loveliest element to be used in the adornment of home. A smooth, closely shaven surface of grass is by far the most essential element of beauty on the grounds of a suburban home."—*F. J. Scott.*

"It would be a great gain to horticulture if ten out of every twelve flower-beds in Europe were blotted out with fresh green grass."—*Robinson's Parks of Paris.*

"A lawn is the ground work of a landscape garden."—*H. W. Sargent.*

"We love the soft turf which is thrown like a smooth natural carpet over the swelling outline of the smiling earth."—*A. J. Downing.*

Many of the farmers of Michigan, as well as large numbers of people who own, each one or more, lots in or near town, are seeking to improve their homes. In embellishing a place, we agree with the excellent authorities cited above, that nothing gives more satisfaction for the outlay than a well established and well kept plat of grass called a *lawn*.

Owing to the difficulty of learning to recognize the seeds, the purchaser is usually at the mercy of the dealer, whose interest it is to enshroud in mystery the whole subject of grasses for the lawn.

Most of the leading seedsmen of our country are advertising extensively and appear to be selling large quantities of "mixtures" of lawn grass seeds for which there is quite a variety of attractive names.

The writer has frequently examined these mixtures and has watched the success of several of them in various portions of the Northern States. For

the benefit of the people who have so liberally supported Michigan Agricultural College, I present below the results of a careful "analysis" of the mixed lawn grasses sold by some of our largest growers and dealers in seeds.

In former years, the vitality of the rarer grass seeds has universally been found to be very low, while the germinating power of the common sorts, such as are raised in this and neighboring States, has been satisfactory.

The accompanying report does not contain a test of the vitality of the seeds, as a few of the packages have been kept over a year.

Owing to the great labor of assorting the seeds only a small portion of each package was "analyzed." A considerable quantity was carefully mixed and evenly spread on a table when two to five grams (about one-fifteenth to one-sixth of an ounce avoirdupois) was selected from each package. It is not probable that this analysis furnishes the exact proportions of the grasses found in a peck or a bushel of the mixture, but it approximates the correct result and gives the names of all the seeds which are found in any considerable quantity. An attempt has been made to procure mixtures which were thought to be the best in the market. These packages were not purchased directly of the seedsmen by us, but were ordered by friends in neighboring towns.

CHICAGO PARKS MIXTURE.

Sold by J. C. Vaughan, Chicago, Illinois.

The table shows the relative proportion of the different kinds of seeds found:

June Grass, or Kentucky Blue Grass, <i>Poa pratensis</i> , L., in the chaff.....	1740
White Clover, <i>Trifolium repens</i> , L., clean.....	90
Sweet Vernal, <i>Anthoxanthum odoratum</i> , L., in chaff.....	37
Perennial Rye Grass, <i>Lolium perenne</i> , L., in chaff.....	35
Orchard Grass, Cock's Foot, <i>Dactylis glomerata</i> , L., in chaff.....	30
Red Top, Brown or Creeping Bent, <i>Agrostis</i> , in chaff.....	16
Timothy, <i>Phleum pratense</i> , L., clean.....	6
Mixed and containing traces of the following.....	15
Velvet Grass, <i>Holcus lanatus</i> , L., in chaff (a weed).	
Sedge, <i>Carex</i> (worthless).	
(Narrow?) Dock, <i>Rumex</i> (a weed).	
Panic Grass, <i>Panicum</i> (worthless).	
Chickweed, <i>Stellaria</i> (a weed).	

This mixture is advertised as *especially adapted to the inland and western States*, and costs 25 cts. per quart, or \$4.00 per bushel.

As will be seen, it consists mainly of June grass, which the same house offers at \$1.50 per bushel; and the latter, if pure and sowed alone, is far preferable for a lawn to this mixture. Besides those marked weeds, the others which are most objectionable are orchard grass, a coarse, bunchy grass, timothy, which is too coarse and short lived, perennial rye grass, which just takes the cream of the soil for a few years and then dies out.

FINE MIXED LAWN GRASS.

Sold in bulk by D. M. Ferry & Co., Detroit, Mich.

Table showing the proportions:

June grass, or Kentucky blue grass, <i>Poa pratensis</i> , L., in chaff.....	627
Perennial rye grass, <i>Lolium perenne</i> , L., in chaff.....	470
Timothy, <i>Phleum pratense</i> , L., clean....	340
White clover, <i>Trifolium pratense</i> , L., clean.....	220
Red Top, Brown or Creeping Bent, <i>Agrostis</i> , in chaff.....	217
Mixed and containing traces of the following:.....	15
Velvet Grass, <i>Holcus lanatus</i> , L., in chaff (a weed).	
Orchard Grass, <i>Cock's Foot</i> , <i>Dactylis glomerata</i> , L., in chaff.	
Chess, <i>Bromus</i> , some species. (A weed).	
Crowfoot, <i>Ranunculus bulbosus</i> (?) (a weed).	
Dock, <i>Rumex</i> (a weed).	
Lance-leaved Plantain, <i>Plantago lanceolata</i> , L., (a weed).	
Shepherd's Purse, <i>Capsella Bursa-pastoris</i> , Mönch. (A weed).	

This mixture is sold at 50 cents per pound, or \$4 per bushel, and is not so good as the Chicago parks mixture noticed above, because it contains a much smaller proportion of June grass and a much larger proportion of perennial rye grass and timothy.

FLINT'S LAWN GRASS.

Sold by D. M. Ferry & Co., Detroit, Mich.

Table showing the proportions:

Perennial Rye Grass, <i>Lolium perenne</i> , L., in chaff.....	526
Sheep's Fescue and Hard Fescue, seeds much alike, <i>Festuca ovina</i> and <i>var. duriuscula</i> , L.....	295
June Grass, or Kentucky Blue Grass, <i>Poa pratensis</i> , L., in chaff.....	255
White Clover, <i>Trifolium repens</i> , L., clean.....	227
Red or Mammoth Clover, <i>Trifolium pratense</i> or <i>medium</i> , L., clean....	130
Timothy, <i>Phleum pratense</i> , L., clean.....	105

Meadow Foxtail, <i>Alopecurus pratensis</i> , L., in chaff.....	103
Italian Rye Grass, <i>Lolium perenne</i> , var. <i>Italicum</i> , in chaff.....	47
Sweet Vernal, <i>Anthoxanthum odoratum</i> , L., in chaff.....	35
Hair Grass, <i>Aira flexuosa</i> , L., in chaff (a weed).....	25
Chaff.....	80
Mixed seeds containing traces of the following.....	30
Chess, <i>Bromus</i> (a weed). Fescue, (species?) Velvet Grass (a weed). Self Heal, <i>Brunella</i> (a weed). Sorrel, <i>Rumex</i> (a weed). Ribbed Grass, <i>Plantago lanceolata</i> , L. (a weed). Chickweed (a weed). Nonesuch, <i>Medicago lupulina</i> , L. A sedge, <i>Carex</i> . Two or three others not recognized.	

This mixture is sold at ---- per quart or per bushel.

In addition to the objections made to the two former mixtures are the following:

Sheep's fescue and hard fescue grow in tufts or bunches and will not produce a lawn of even appearance. The red or mammoth clover will also produce a coarse patchy lawn, and the former will die out in two or three years. Italian rye grass will kill out the first winter. Hair grass is a weed substituted for crested dog's tail, which is a feeble grass of no value in this country.

FINE MIXED LAWN GRASS.

Sold by Hiram Sibley & Co., Rochester, New York.

Table showing the proportions :

June Grass, Kentucky Blue Grass, <i>Poa pratensis</i> , L., in chaff.....	995
Perennial Rye Grass, <i>Lolium perenne</i> , L., in chaff.....	373
Orchard Grass, Cock's Foot, <i>Dactylis glomerata</i> , L., in chaff.....	327
Red Top, Brown or Creeping Bent, <i>Agrostis</i> , in chaff.....	212
Velvet Grass, <i>Holcus lanatus</i> , L., in chaff (a weed).....	22

Mixed and containing traces of the following:

Chess, *Bromus*, Sp. (?) (a weed).

Lance-leaved Plantain, Ribbed Grass, *Plantago lanceolata*, L. (a weed).

Dock or Sorrel, *Rumex* (a weed).

White Clover, *Trifolium repens*, L.

Timothy, *Phleum pratense*, L.

Crowfoot, *Ranunculus bulbosus*, L. (?) (a weed).

Shepherd's Purse, *Capsella Bursa-pastoris*, Moench (a weed).

The above is sold at \$4.00 per bushel.

For objections to some of these ingredients, consult the comments inserted in connection with the former mixtures.

CENTRAL PARK LAWN GRASS SEED.

Sold in bulk by Peter Henderson & Co., New York.

Table showing the proportions:

June Grass, or Kentucky Blue Grass, <i>Poa pratensis</i> , L., in chaff.....	648
Red Top, Brown or Creeping Bent, <i>Agrostis</i>	528
White Clover, <i>Trifolium repens</i> , L., clean.....	158
Timothy, <i>Phleum pratense</i> , L., clean.....	38
Ergot of <i>Agrostis</i> , or Red Top, (infested with fungus).....	10

Mixed and containing traces of the following:

Eggs of insects.

Dung of insects.

Dead insects.

Panic Grass, *Panicum* (a weed).

Chickweed.

Shepherd's Purse, *Capsella Bursa-pastoris*, Mœnch (a weed).

Dock, *Rumex* (a weed).

Orchard Grass or Cock's Foot, *Dactylis glomerata*, L.

Eleocharis, a rush or grass like plant (a weed).

Round Leaved Mallow, *Malva rotundifolia*, L. (a weed).

This is sold for \$5.00 per bushel, and is a good mixture omitting the seed of timothy. The house claims to have sold 70,000 packages in 1885. The same house offers June grass for \$2.25, and Bent grass for \$4.00 per bushel.

THE "HENDERSON" LAWN GRASS SEED.

Sold by Peter Henderson & Co., New York.

Table showing the proportions:

Brown or Creeping Bent or Red Top, <i>Agrostis</i> , in chaff.....	880
June Grass or Kentucky Blue Grass, <i>Poa pratensis</i> , L., in chaff.....	715
White Clover, <i>Trifolium repens</i> , L., clean.....	120
Sheep's or Hard Fescue, <i>Festuca ovina</i> or var. <i>duriuscula</i> , L., in chaff.....	110
Perennial Rye Grass, <i>Lolium perenne</i> , L., in chaff.....	95
Sweet Vernal, <i>Anthoxanthum odoratum</i> , L., var. <i>Puellii</i> , in chaff....	17
Timothy, <i>Phleum pratense</i> , L., clean.....	10

A few seeds of Chickweed, some *Panicum*, Mallow, *Malva rotundifolia*, L., (a weed), Ergot, some other weeds not recognized.

This is much like the Central Park lawn grass previously noticed. This one contains some seeds of small fescues apparently mixed, a little Perennial

Rye grass, which is no benefit to it, and a very little timothy, which would be better to omit, and a small amount of Sweet Vernal, which apparently is the annual variety and of no value. The three leading ingredients are the June grass, Bent grass, and white clover. The seller claims this as a new mixture for lawns, and the successful result of two years' (!) experimenting.

It was the freest from weeds of any mixture examined. It is sold for 25 cts. per quart or \$5.50 per bushel. The same house sells June grass for \$2.25 per bushel, Bent grass for \$4.00 per bushel, white clover for 40 cts. per pound.

The preceding tables and the remarks below each should be studied in connection with what follows :

The lawn surrounding the State capitol in Lansing has been much admired. To begin with, the land is clay, and was thoroughly tile-drained, deeply trenched and well fitted in every respect. I am not certain what mixture of seeds was sown, but for a few years, the lawn contained much perennial rye grass, none of which now remains alive, at least none to amount to anything. There was some ribbed grass and other weeds which have been carefully removed at a great expense of labor. The main things to be seen in the land this season were June grass and white clover, with some fine red top or bent grass.

At the Agricultural College, numerous plats in various seasons and soils, mixed and separate, have been tried, and those grasses of most value are June grass and a small red top. White clover often thrives well with these, but it varies much with the change of seasons. Sod taken from a rich old pasture or the roadside usually makes an excellent lawn as soon as laid, but it is too expensive for a large plat. The main grasses making such a turf are those last mentioned, June grass and red top, with perhaps some white clover.

In making a lawn, too little stress is usually placed on thorough trenching or subsoiling and enriching the land. The surface should be harrowed and hand-raked till it is in the finest condition.

Our experience fully accords with the following from A. J. Downing, who long ago wrote on many rural topics :

"Now for the sowing : and here a farmer would advise you to 'seed down with oats, or some such established agricultural precept. Do not listen to him for a moment. Do not suppose you are going to assist a weak growing plant by sowing along with it a coarser growing one to starve it."

With the writer's experience, having tested for some years over two hundred kinds of grasses and clovers, both native and foreign, for Michigan and places with similar climates, he would sow about two bushels of seeds (in

the chaff) of June grass, *Poa pratensis*, L., and two bushels of some small bent grass, known as Rhode Island Bent, Brown Bent, or Creeping Bent, or as red top. The latter grasses vary much and are usually much mixed, as they were in all the samples above examined.

A few ounces of white clover may be added, if the owner prefers, but it is by no means very important. Each one of these two or three kinds of plants will appear to cover the ground all over, so it will look uniform.

To the farmer who is accustomed to sow coarse seeds for a meadow or pasture the above quantity of seeds appears to be enormous. But the aim is to secure many very fine stalks instead of a few large coarse ones.

If a little sweet vernal and a little perennial Rye Grass are used a careful observer, at certain seasons of the year, will see that the lawn looks "patchy." Especially in early spring, or in very dry weather, some of these and others often recommended, will grow faster than the rest and assume different shades of green. For a lawn *never* use any timothy, orchard grass, tall oat grass, red clover, meadow fescue or other large grass or clover, but only the finest perennial grasses or clovers. Sow the seeds in September or in March or April, without any "sprinkling" of oats or wheat, and as soon as the grasses get up a little and the straggling weeds get up still higher, mow them, and keep mowing every week or two all summer.

Avoid purchasing mixtures advertised in seed catalogues, as it will be much cheaper and safer to buy each sort separately, and only one or two or three sorts are desirable. The rarer grasses are mostly imported, and up to the present time, as was said, have been found to possess very low vitality; besides, bad foreign weeds are very commonly mixed with these grass seeds. There are good reasons, then, for buying common sorts, and, if possible, those raised and cleaned in a careful manner.

James Hunter, of England, in his manual of grasses, says: "Careful analysis of the mixed lawn grass seeds sold by some large seed houses at high prices prove them to consist of from 40 to 50 per cent. of rye grass, whereas not a single seed of rye grass should be included in any mixture for producing a lawn."

The Royal Agricultural Society of England employs a consulting botanist, Wm. Caruthers, who, for small fees, tests the seeds for its members. He finds it best to avoid purchasing mixtures for lawn, pasture or meadow.

The editor of the *Gardener's Monthly* echoes the sentiments of our best judges in this matter when he advises for lawn to sow June grass or red top either one alone or both mixed.

E. S. Carman, one of the editors of the *Rural New Yorker* and manager of a fine homestead and an experimental farm, writes: "Thirteen years ago we sowed on different parts of an acre of lawn blue grass, red top, Rhode Island bent and the 'lawn mixtures' sold by seedsmen. To-day the red top presents the finest and brightest appearance, while the 'lawn mixture' portion has since been re-sown with red top and blue grass."

IN CONCLUSION.

If not so already, make the soil strong, drain thoroughly, deeply pulverize, harrow and hand rake the surface carefully. In early spring, or in early autumn if not dry, sow, without any wheat or oats, three or four bushels to the acre of June grass or red top, either one or a mixture of both in any proportion.

W. J. BEAL,

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AGRICULTURAL COLLEGE, MICH., March 10, 1886.