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THESIS

Examination of
Lawn Grass Mixtures

M. H. Lapham

1899

THESIS

Laws

Landscape architecture



GRADUATING THESIS.

of

Mary Harvey
M. H. LAPHAM--1899.

EXAMINATION OF LAWN GRASS
MIXTURES.

AN EXAMINATION OF LAWN GRASS MIXTURES.

In the embellishment of our city parks and the adornment of our homes, there is no more important factor than the lawn. The very simplicity of a well kept lawn lends it a grace and beauty that at once catches the eye and fascinates the lover of both nature and art. Though occupying a humble position in the realm of nature, what is more pleasing or beautiful than a rich, green, elastic, even sward of turf, nature's carpet for both the rich and the poor?

Yet, too seldom are the merits of the lawn, in the beautifying of the garden and landscape, realized, and too often are our dooryards crammed full of dismal or stuffy flower beds or rank shrubbery, which might be replaced by the simpler but more beautiful turf.

Though an elegant lawn may be had with comparatively little trouble, yet, some skill and knowledge are required in preparing the soil and selecting the seed, and constant watchfulness and care in attending to it after it has once been acquired. The three primary requisites of a good lawn are fineness, permanency and uniformity of color, and perhaps we should add a further requisite, without which the foregoing are of no value, viz., freedom from weeds. These features of the lawn can be obtained only by patience and time. A good lawn can not be had by scratching the dooryard with a garden rake, sprinkling the surface with the variety of grass which one happens to have on hand, and then calmly waiting for the fresh green grass to spring up and beautify the earth. But it is to the selection of seed that we wish to confine ourselves in this thesis. In selecting the material for our lawns we must not forget to choose that variety of grass which will give the most desirable color,--a rich emerald green. If more than one variety is to be used, choose such mixtures as will produce a uniform color, otherwise the lawn will take on a spotted or mottled appearance at different periods of the year. The texture of the grass or grasses used should be fine, so as to yield a fine, even sward of turf, and the turf-forming habits should be studied so as to choose those which will spread evenly, not forming hillocks or bunches. Only those grasses which spread by creeping rootstocks, or by creeping habits, are good turf formers. If attention be given to details, the soft, vel-

vely turf so much desired is not difficult to produce.

COLOR:

In regard to color, the rich green of Kentucky Blue Grass or June Grass (*Poa pratensis* L.) will furnish us with an ideal, and may be used as a standard in determining the color value of other grasses. Creeping Bent Grass or Rhode Island Bent (*Agrostis*) is a little lighter in color, although more desirable in some respects for turf-forming habit.

TEXTURE:

The leaves must be soft and velvety, not stiff and wiry. The narrow-leaved varieties are not necessarily those best suited to produce a fine texture. Some of the Fescues, although having very fine narrow leaves, are harsh and unpleasant to the touch. Creeping Bent Grass is one of the very best for forming a fine, velvety turf. Orchard Grass (*Dactylis glomerata* L) although frequently found in lawns, is decidedly a bunch grass, producing tussocks, and hence has no place in the lawn. June Grass has a fine texture and forms a sod by its creeping rhizomes, which send up an abundance of leafy shoots, thus producing a very dense turf. It is also very hardy, and is one of the best grasses to produce a permanent lawn. All annual grasses or unhardy perennials should be at once discarded.

WHAT VARIETIES TO SELECT:

Sow only good seed. Beware of cheap mixtures or seeds which often contain weeds, or are adulterated with old and worthless seeds. The so-called lawn mixtures, so largely handled by dealers, are generally unsatisfactory. They not only increase the danger from weeds, but uniformity of color and texture can not be obtained from their use. Much better results may be had by the judicious use of some single variety, or a home-made mixture of two or three varieties, unless it be for a special purpose, as shaded portions, terraces, road embankments, etc., when, perhaps, some few of the many special lawn mixtures might be used with good results. The best lawns are obtained from pure cultures of single, well selected varieties, as June Grass, Creeping Bent or Rhode Island Bent Grass. If desired a little White Clover may be mixed with June Grass, if used, as the color is practically uniform. In most places pure cultures of June Grass or of Creeping Bent Grass give the best results, sowing

from four to five bushels per acre. In the Boston parks the following mixture is largely used+-

Sow per acre: 2 bu. Red Top, 2 bu. June Grass, 6 lbs. White Clover.

June Grass is very hardy in cool and temperate climates. It starts quickly in the spring and after cutting, is not easily injured by cool or by dry weather, and forms a thick, fine mat of turf. Creeping Bent Grass is similar in its habits to June Grass, but is better adapted to wet lands.

Among the more common and less valuable varieties of grasses found in mixtures might be mentioned the following:-

Festuca elatior, L. (Tall Meadow Fescue), generally growing in tufts.

Festuca ovina, L. (Sheep's Fescue), densely tufted.

Anthoxanthum odoratum, L. (Sweet Vernal Grass), Its only pleasing feature consists in its aromatic odor.

Holcus lanatus, L. (Velvet Grass). Soft and velvety, but of no value in the lawn.

Cynosurus cristatus, L. (Crested Dog's Tail). Culms wiry; of no value.

Phleum pratensis, L. (Timothy). Coarse and short lived.

The mixtures containing these varieties of grasses which are placed upon the market by the dealers are usually much more expensive than are the single cultures of grasses sold by the same dealers. Often one pays a higher price for a mixture, supposing that he is to get a fine ^{lawn} when for half the price, by sowing June Grass or one of the Bent Grasses, much better results are secured.

Following will be found the results of an examination of a number of mixtures sold by prominent seedsmen in various places. Part of the seeds were obtained by Dr. Beal several years ago, while the remainder were purchased in the spring of 1898.

Each mixture was carefully sampled, examined, and all seeds identified, and the approximate relative amount of each noted. The grasses are named in the order of the amount of seed found. For common names see page following list of results of the examinations.

Festuca ovina, L.: three or four varieties in rather large amounts.
Poa pratensis, L.: rather a large amount.
Agrostis alba, L.;--perhaps some *A. vulgaris*, L.: large amount.
Cynosurus cristatus, L.: somewhat less than above.
Lolium perenne, L.: - - - - - a little
Trifolium repens, L.: - - - - - " "
Veronica sp.,--a weed: - - - - - " "
*Anthoxanum*th *odoratum*, L.: - - - - - " "
Molinia coerulea, Mich.: - - - - - very little.
Aira caespitosa, L.,--a weed: - - - " "
Myosotis palustris, With.,--a weed " "
Rumex sp.,--a weed: - - - - - " "

"The Henderson Lawn Grass Seed."

Agrostis vulgaris, L.: a large amount.
Agrostis alba, L.: " " "
Poa pratensis, L.: " " "
Trifolium repens, L.: considerable
Phleum pratense, L. " "
Veronica sp.,--a weed: " "
Festuca ovina, L.: moderate amount.
*Anthoxanum*th *odoratum*, L.: small amount.
Lolium perenne, L.: " "
Myosotis palustris, With.,--a weed: very little.
Rumex acetosella, L.,--a weed: " "
Panicum dichotomum, L.: - - - - - " "

"Landreth's Lawn Grass Seed."

Poa pratensis, L.: - - - - - very large amount.
Trifolium hybridum, L.: - - - - - small amount.
Lolium perenne, L.: - - - - - " "
Trifolium repens, L.: - - - - - " "

Phleum pratense, L.: - - - - - very little.

Capsella Bursa Pastoris, Moench,--a weed: " "

This is a very fair mixture, consisting almost entirely of Poa pratensis, L. (June Grass), and is comparatively free from weeds and dirt.

"Lawn Grass Mixture."

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

Agrostis vulgaris, L., or A. alba, L.: large amount.

Poa pratensis, L.: - - - - - considerable.

Trifolium repens, L.: - - - - - small amount.

Veronica sp.,--a weed:- - - - - a little.

Eragrostis major, L.: - - - - - very little.

Anthoxanthum odoratum, L.: - - - - - " "

Cyperus sp.: - - - - - " "

Plantago aristata, Grey,--a weed: - - - " "

"Gardiner's Special Evergreen Lawn Grass

Mixture No. 27."

Agrostis vulgaris, L., or A. alba, L.: rather a large amount.

Poa pratensis, L.: - - - - - a little less than above.

Festuca ovina, L.: - - - - - considerable.

Cynosurus cristatus, L.: - - - - - "

Trifolium repens, L.: - - - - - "

Molinia coerulea, Mich.: - - - - - a little.

Phleum pratense, L.: - - - - - " "

Anthoxanthum odoratum, L.: - - - - - " "

Lolium perenne, L.: - - - - - " "

Trifolium medium, L.: - - - - - -very little.

"Lawn Grass--Fine mixed."

From D. M. Ferry & Co., Detroit, Mich.

- Poa pratensis, L.: - - - - - large amount.
- Agrostis alba, L., or A. vulgaris, L.: large amount.
- Trifolium repens, L.: - - - - - considerable.
- Phleum pratense, L.: - - - - - "
- Veronica sp.,--a weed:- - - - - a little.
- Capsella Bursa--Pastoris, Moench,--a weed: " "
- Rumex Acetosella, L.,--a weed:- - - - -very little.
- Myosotis sp.,--a weed:- - - - - " "

Grass Seed.--Extra Fine Mixed.

"Central Park Mixture."--From D. M. Ferry & Co.

- Poa pratensis, L.: - - - - - a large amount.
- Cynosurus cristatus, L.: - - - - -somewhat less.
- Festuca ovina, L.: - - - - - about the same as above.
- Trifolium repens, L.: - - - - - considerable.
- Anthoxan^{um} odoratum, L.: - - - - - "
- Aira flexuosa, L.: - - - - - "
- Agrostis alba, L., or A. vulgaris, L.: "
- Aira caespitosa, L.: - - - - - "
- Lolium perenne, L.: - - - - - "
- Festuca elatior, L., or F. pratensis, Huds., "
- Glyceria distans, M. & K.: - - - - - small amount.
- Holcus lanatus, L.: - - - - - a little.
- Bromus mollis, L.: - - - - - " "
- Hypochaeris glabra, L.: - - - - - " "
- Brunella vulgaris, L.,--a weed: - - - - - " "
- Phleum pratense, L.: - - - - -very little.
- Trifolium pratense, L.: - - - - - " "
- Plantago lanceolata, L.,--a weed: - - - - - " "
- Carex sp.,--a sedge:- - - - - " "

This mixture contains the greatest abundance and variety of weeds and worthless grasses of any examined.

The following mixtures were purchased in 1898,-the name of the dealer and the price being given with each mixture.

"Vaughan's Chicago Parks Mixture."

Purchased of Vaughan's Seed Store, Chicago, Ills.

Price per lb., 25¢; per 100 lbs., \$15.75.

Poa pratensis, L.: - - - - - a large amount.
 Agrostis alba, L., or A. vulgaris, L.: " "
 Trifolium repens, L.: - - - - - a little.
 Phleum pratense, L.: - - - - - " "
 Veronica sp.,--a weed:- - - - - " "
 Arenaria serpyllifolia, L.,--a weed: " "
 Rumex Acetosella, L.: - - - - - " "
 Panicum sp.: - - - - - " "
 Chenopodium Album, L.,--a weed: Very little.

Lawn Grass,--"Columbia Mixture."

Purchased of Vaughan's Seed Store, Chicago, Ills.

Price per lb., 25¢; per 100 lbs., \$14:00.

Poa pratensis, L.: a large amount.
 Agrostis alba, L., or A. vulgaris, L.: " "
 Lolium perenne, L.: - - - - - considerable.
 Trifolium repens, L.: - - - - - a little.
 Phleum pratense, L.: - - - - - " "
 Lolium perenne, var. Italicum:- - - - - " "
 Festuca elatior, L.: - - - - - " "
 Holcus lanatus, L.: - - - - - " "
 Capsella Bursa--Pastoris, Moench,--a weed: "
 Anthoxanum odoratum, L.: - - - - - " "

Stellaria media, Smith,--a weed:- - - a little.

Rumex crispus, L.: - - - - - " "

Lawn Grass,--"Golf Links."

Purchased of Vaughan's Seed Store, Chicago, Ills.

Price per lb., 25¢; per 100 lbs., \$18.00.

Poa pratensis, L.: - - - - - a large amount.

Agrostis alba, L., or *A. vulgaris*, L.: " "

Festuca ovina, L.: - - - - - considerable.

Lolium perenne, L.: - - - - - "

Festuca elatior, L.: - - - - - "

Aira flexuosa, L.: - - - - - a little.

Trifolium repens, L.: - - - - - " "

Phleum pratense, L.: - - - - - " "

Holcus lanatus, L.: - - - - - " "

Anthoxanum odoratum, L.: - - - - - " "

Rumex sp.,--a weed: - - - - - " "

Lawn Grass Seed sold in bulk by G. W. Hill, Detroit, Mich.

Price per lb., 20¢.

Poa pratensis, L.: - - - - - large amount.

Agrostis alba, L., or *A. vulgaris*, L.: considerable.

Festuca elatior, L.: - - - - - "

Lolium perenne, L.: - - - - - a little

Trifolium repens, L.: - - - - - " "

Phleum pratense, L.: - - - - - " "

Bromus mollis, L.: - - - - - " "

Holcus lanatus, L.: - - - - - " "

Anthoxanum odoratum, L.: - - - - - " "

Rumex sp.,--a dock: - - - - - very "

Plantago sp.,--a weed: - - - - - " "

"Fine Mixed Lawn Grass."

Purchased of D. M. Ferry & Co., Detroit, Mich.

Price per lb., 35¢; per 100 lbs., \$15.00.

- Poa pratensis, L.: - - - - - large amount.
- Trifolium repens, L.: - - - - - " "
- Agrostis vulgaris, L.: - - - - - " "
- Veronica sp.,--a weed:- - - - - considerable.
- Phleum pratense, L.: - - - - - "
- Lolium perenne, L.: - - - - - "
- Festuca elatior, L.: - - - - - "
- Rumex Acetosella, L.,--a weed:- - - - - "
- Arenaria serpyllifolia, L.,--a weed: a little.
- Carex sp.,--a sedge:- - - - - very little.
- Chenopodium album, L.,--a weed: - - - " "
- Holcus lanatus, L.: - - - - - " "
- Plantago Aristata, Grey,--a weed: - - " "
- Capsella Bursa--Pastoris, Moench,--a weed: very little.

"Extra Fine Mixed Lawn Grass,"--"Central Park Mixture."

Purchased of D. M. Ferry & Co., Detroit, Mich.

Price per lb., 50¢; per 100 lbs., \$25.00.

- Poa pratensis, L.: - - - - - large amount.
- Agrostis vulgaris, L., or A. alba, L.: " "
- Trifolium repens, L.: - - - - - " "
- Festuca ovina, L.: - - - - - considerable.
- Festuca elatior, L.: - - - - - "
- Phleum pratense, L.: - - - - - "
- Anthoxanthum odoratum, L.: - - - - - "
- Lolium perenne, L.: - - - - - "
- Aira flexuosa, L.: - - - - - a little.
- Rumex Acetosella, L.: - - - - - " "

Panicum sp.: - - - - - a little.
 Plantago lanceolata, L.,--a weed: - - - " "
 Arenaria serpyllifolia, L.,--a weed: very little.

Although very expensive this mixture is seen to be much inferior to the cheaper mixtures.

"Sunny South Lawn Grass."

Purchased of Peter Henderson & Co., New York.

Price per qt., 35¢; per bu., \$7.00.

Agrostis alba, L., or A. vulgaris, L.: large amount.
 Festuca ovina, L.: - - - - - " "
 Poa pratensis, L.: - - - - - -considerable.
 Cynodon Dactylon, Pers.: - - - - - "
 Trifolium repens, L.: - - - - - "
 Lolium perenne, L.: - - - - - "
 Festuca elatior, L.: - - - - - "
 Achillea millefolium, L.: - - - - - a little.
 Arenaria serpyllifolia, L.,--a weed:- - " "
 Rumex Acetosella, L.: - - - - - very little
 Chenopodium album, L.: - - - - - very little
 m Plantago sp.: - - - - - " "
 Aira flexuosa, L.: - - - - - " "
 Molinia coerulea, Mich.: - - - - - " "

"Terrace Sod Lawn Grass."

Purchased of Peter Henderson & Co., New York.

Price per qt., 35¢; per bu., \$7.00.

Festuca ovina, L.: - - - - - considerable.
 Poa pratensis, L.: - - - - - "
 Agrostis alba, L., of A. vulgaris, L.: "
 Cynosurus cristatus, L.: - - - - - a little.

Trifolium repens, L.: - - - - - a little.
 Veronica sp.,--a weed:- - - - - " "
 Lolium perenne, L.: - - - - - " "
 Molinia coerulea, Mich.: - - - - - very little.
 Antoxanthum odoratum, L.: - - - - - " "
 Hypochaeris glabrus, L.: - - - - - " "
 Aira flexuosa, L.: - - - - - " "

"The Henderson Lawn Grass Seed."

Purchased of Peter Henderson & Co., New York.

Price per qt., 25¢; per bu., \$5.00.

Agrostis alba, L., or A. vulgaris, L.: large amount.
 Poa pratensis, L.: - - - - - " "
 Festuca ovina, L.: - - - - - -considerable.
 Lolium perenne, L.: - - - - - "
 Trifolium perenne, L.: - - - - - "
 Phleum pratense, L.: - - - - - a little.
 Aira flexuosa, L.: - - - - - " "
 Ambrosia artemisiaefolia, L.,--a weed: " "
 Holcus lanatus, L.: - - - - - " "

"Golf Link Lawn Grass."

Sold by Peter Henderson & Co., New York.

Price per qt., 30¢; per bu., \$6.00.

Agrostis vulgaris, L., or A. alba, L.: large amount.
 Poa pratensis, L.: - - - - - " "
 Lolium perenne, L.: - - - - - " "
 Festuca ovina, L.: - - - - - -considerable.
 Phleum pratense, L.: - - - - - a little.
 Holcus lanatus, L.: - - - - - " "
 Veronica sp.,--a weed:- - - - - " "

"Shady Nook Lawn Grass Seed."

Purchased of Peter Henderson & Co., New York.

Price per qt., 35¢; per bu., \$7.00.

- Poa pratensis, L.: - - - - - large amount.
- Festuca ovina, L.: - - - - - considerable.
- Agrostis vulgaris, L., or A. alba, L.: " "
- Trifolium repens, L.: - - - - - " "
- Alopecurus pratensis, L.: - - - - - a little.
- Aira flexuosa, L.: - - - - - " "
- Rumex Acetosella, L.,--a weed:- - - - - " "
- ThAnthoxanum odoratum, L.: - - - - - " "
- Lolium perenne, L.: - - - - - " "
- Carex sp.,--a sedge:- - - - - " "
- Bromus mollis, L.: - - - - - very little.

COMMON AND SCIENTIFIC NAMES.

For convenience the common with the scientific names of the most abundant grasses and weeds found in the mixtures are here given.

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<u>Scientific Name.</u>	<u>Common Name.</u>
Achillea Millefolium, L., - - - - -	Common Yarrow.
Agrostis alba, L., - - - - -	Creeping Bent Grass.
Agrostis vulgaris, L., - - - - -	Red Top.
Aira flexuosa, L., - - - - -	Wary Mountain Hair Grass.
Alopecurus pratensis, L., - - - - -	Meadow Foxtail.
Ambrosia artemesiaefolia, L., - - - - -	Ragweed.
Anthoxanthum odoratum, L., - - - - -	Sweet Vernal Grass.
Arenaria serpyllifolia, L., - - - - -	Thyme-leaved Sandwort.
Bromus mollis, L., - - - - -	Soft Chess.
Brunella vulgaris, L., - - - - -	Common Self-heal.
Capsella Bursa--Pastoris, Moench, - - - - -	Shepherd's Purse.
Cynodon Dactylon, Pers., - - - - -	Bermuda Grass.
Cynosurus cristatus, L., - - - - -	Crested Dog's Tail.
Chenopodium album, L., - - - - -	Pig Weed--Lamb's Quarters.
Festuca ovina, L., - - - - -	Sheep's Fescue.
Festuca elatior, L., - - - - -	Tall Meadow Fescue.
Holcus lanatus, L., - - - - -	Velvet Grass.
Lolium perenne, L., - - - - -	Perennial Rye Grass.
Lolium perenne, var. Italicum, - - - - -	Italian Rye Grass.
Myosotis palustris, With., - - - - -	Forget-me-not.
Plantago lanceolata, L., - - - - -	English Plantain.
Plantago Aristata, Grey, - - - - -	Plantain.
Phleum pratense, L., - - - - -	Timothy.
Poa pratensis, L., - - - - -	June Grass.
Rumex crispus, L., - - - - -	Curled Dock.
Rumex Acetosella, L., - - - - -	Sheep Sorrel.
Stellaria media, Smith, - - - - -	Common Chickweed.



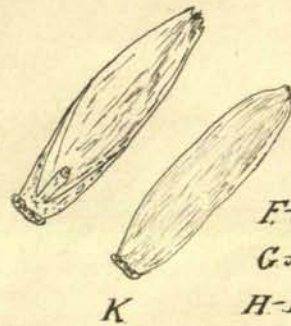
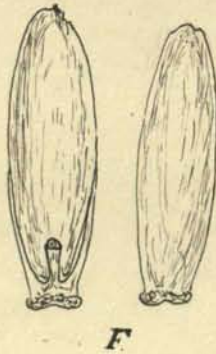
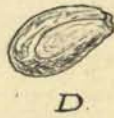
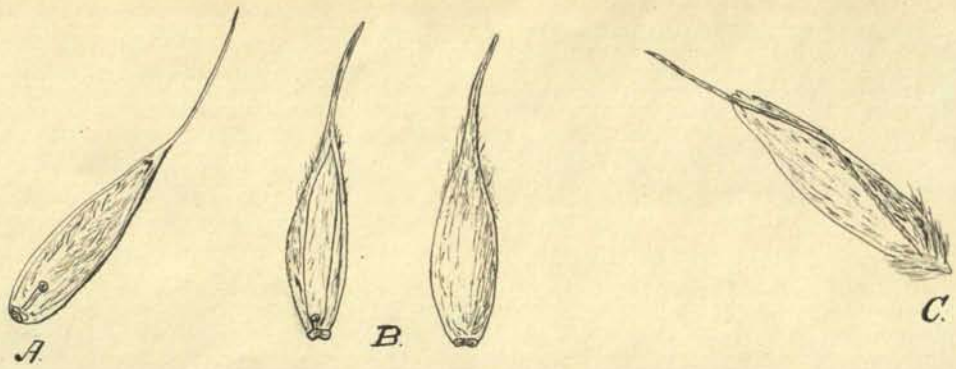
Scientific Name.

Common Name.

Trifolium repens, L., - - - - -	White or Dutch Clover.
Trifolium hybridum, L., - - - - -	Alsike Clover.
Trifolium medium, L., - - - - -	Mammoth Clover.

The following plate shows some of the more common seeds most frequently found in the mixtures:

From the identifications made it will be seen that all the mixtures contain more or less of the grasses which are valueless for lawn purposes, while many contain a large amount of noxious weeds. These mixtures should not be sown, at least without knowing something as to their purity and reliability.



A-Festuca ovina, L.

B-Cynosurus cristatus, L.

C-Aira flexuosa, L.

D-Capsella Bursa-pastoris, Moench.

E-Rumex acetosella, L.

F-Lolium perenne, L.

G-Anthoxanthum odoratum, L.

H-Holcus lanatus, L.

I-Plantago lanceolata, L.

J-Bromus mollis, L.

K-Festuca elatior, L.

