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TURF AND LAWN GRASS ASSOCIATION
INCORPORATED
BETTER TURF THROUGH RESEARCH AND EDUCATION

Turf Bulletin

Vol. I, No. 4

December, 1961

From The President

I am pleased to announce that this is the first issue of a NEW type of bulletin highlighting subjects of both local and national importance in the turfgrass field.

Our Public Relations and Education Committee Chairman, Professor Joseph Troll of the University of Massachusetts, is the Technical Advisor and Mr. Douglas T. Hawes, a senior majoring in agronomy, is the editor.

It is the hope of the directors of this association that this bulletin will become a regular publication containing timely items of interest to all turf-minded persons. Copies of this issue are being sent to the secretaries of many other organizations who are actively engaged in turf and lawn management. These copies will be distributed to their members.

For those of you who are unfamiliar with this association its objectives will be of interest:

1 — To instigate and engage in any activities directed towards the advancement and improvement in turf and lawn culture in Massachusetts.

2 — To encourage comprehensive research programs in the culture of turfgrasses in this state.

3 — To disseminate present knowledge and new facts in the field of turf and lawn culture to its members.

—To foster the free exchange of information and ideas among its members.

I trust that those of you who have received this Bulletin for the first time will be inspired to take an active interest in this Massachusetts Turf and Lawn Grass Association.

ELLIOTT F. ROGERS

Crabgrass Control

At the University of Massachusetts

By J. Troll, J. Zak and D. Waddington

The chemicals used in 1961 trials for pre-emergence control of crabgrass were those which had performed satisfactorily in 1960 along with new introductions.

The established turf consisted of Kentucky bluegrass, bentgrass, and some ryegrass. The area was heavily infested with crabgrass. The soil was a sandy loam brought in for the construction of the lawn. Fertilizer was applied to the area in the spring of 1961. The chemicals were applied at the manufacturer-recommended rates on April 14, 1961.

Estimated Crabgrass Control August, 1961

Dacthal	—	95%
Zytron, Dry	—	100%
Dimet P.C.C.+	—	81%
Chlordane	—	99%
Diphenylacetonitril ¹	—	98%
Calcium propyl arsonate	—	8%
U7513	—	0%
Zytron Emulsion M2025	—	100%

CONCLUSIONS

Dacthal, granular Zytron, Chlordane, and Dimet P.C.C.+, all of which showed good crabgrass control in the 1960 trials, again showed excellent pre-emergence control of crabgrass. Increased control with Dimet P.C.C.+ was obtained upon doubling and tripling the rates of application². No injury to the permanent grasses was observed with the increased rates of application. In all our trials, chlordane at 80 pounds of actual per acre rate has given good control. The new chemical, diphenylacetonitril, showed excellent crabgrass control. The higher rate (28.4 lb/acre, as shown

¹ Also called Diphenatril.

² The lowest application of 413 lb. of actual ingredients per acre is shown here.

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 here) of active ingredient per acre gave better control. Zytron emulsion M2025, applied in high volumes of water, controlled the crabgrass 100 per cent. This improved formulation did not injure the basic grasses.

At Waltham Field Station

By Dr. J. R. Havis

Plot size 80 sq. ft. 3 Replications. Area top-dressed lightly and seeded with crabgrass seeds prior to application of herbicides in the middle of April. Rates according to manufacturers suggestions. No irrigation. Standard fertilization practices used. Mowed weekly at about 1½ inches.

Estimated Crabgrass Control 8/11/61

Zytron	—	99%
Ca Arsenate	—	85%
Bandane	—	85%
Dacthal	—	83%
Diphenatril	—	53%
Pax	—	42%
Ca propyl Arsonate	—	23%

Residue Effect

A Study of the Residue Effect of Four Pre-emerge Crabgrass Herbicides

By J. Troll, J. Zak, and D. Waddington

To determine the residual effect of four chemicals in controlling crabgrass germination some of the plots treated last year with these chemicals were not treated this spring. Some of these plots were seeded with viable crabgrass seed to obtain a truer picture of residual effects.

Percent Control Given By Residue

<i>Plots not Retreated</i>		<i>Plots Reseeded</i>	
Rid	— 16%	Rid	— 17%
Zytron (granular)	— 2	Zytron	— 46
Pax	— 15	Pax	— 18
P.M.A.	— 1	Dimet P.C.C.+	— 39
Dimet P.C.C.+	— 53	PMAS	— 11
Zytron emulsion	— 41	Zytron emulsion	— 69
Chlordane	— 59	Chlordane	— 63

Dimet P.C.C.+ , Zytron emulsion, or Chlordane were less susceptible to reinfestation. The apparent residual control of these chemicals could have come about by control of seed redeposited in these areas or possibly by a greater kill of existing seed in 1960. The fact that fair control was seen on the plots seeded with crabgrass appeared to indicate that there was some carry over of these chemicals from 1960 to the 1961 season. An explanation for the discrepancy in the results of the Zytron treated plots in this phase of the experiment is not offered.

Pheneral it is the uniformity of a mowing, light, that governs attractiveness. A newly lawn, even at three inches, looks most attractive, if weed-free and of good color. Clipping

The will vary with the kind of grass, but with any species a sudden lowering of clipping height will expose brown leaves and stubs. Low cutting favors invasion by weeds, whose different greens. Olsen's work indicates that clay content of a soil may be used to predict the amount of fertilizer needed to reach a certain level of available phosphorus in the soil.

The amount of phosphorus in soil solution determines how much phosphorus is available to the plant. A particular plant species requires the same amount of phosphorus to produce top yields, regardless of clay content. The minimum level of phosphorus in the soil solution which would produce good growth was determined. It was found that a clay soil required almost four times as much phosphorus fertilization as a fine sand loam in order to reach this minimum level of phosphorus in the soil solution. Comparisons of calcareous soils having different clay content lead to the finding that for equal yields an additional 50 pounds of fertilizer phosphorus (P₂O₅) per acre was needed for each 10% increase in clay content of the soil.

Cool temperatures were found to increase the effect of the clay content on phosphorus while hot temperatures reduced it. The effect of temperature appeared to be related to the release of phosphorus from organic matter in the soil. Organic matter usually increases with an increase in clay content. This may somewhat reduce the need for more fertilizer phosphorus in clay soils.

In time information such as this may change our minds on the value of descending ratio turf fertilizers.

P & K Fertilization

Soil Tests Reveal Needs

PHOSPHORUS along with nitrogen and potassium of course is considered one of the major plant food elements. Phosphorus has been one of the major elements applied to most crop land and is therefore high in most fertilizer mixtures. Until the last few years, little scrutiny was made of phosphorus in turf grass fertilizers mixtures. However, results such as those presented in this article show that over a long period of time, high amounts of phosphorus have accumulated in our soils. The reason that phosphorus is so accumulative is the fact that it does not leach readily from the soil profile. Also, it has been found that phosphorus is used in considerably lesser amounts than potash and nitrogen, as far as turf grass needs are concerned. Now, add this to the fact that most fertilizers are usually higher in phosphorus

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phorus than they are in potash and it is readily apparent that this is why so few turf grass soils are deficient in phosphorus. Laboratory results in Washington indicate that less than 5% of the putting green soils tested are deficient in phosphorus.

POTASSIUM presents an entirely different picture in Washington. Approximately 48% of all putting green soil samples tested are deficient in potash. Perhaps the most important reason for this is the fact that turf grasses remove large amounts of potash from the soil. There seems to be no real reason for this high use of this particular nutrient except for the fact that it is there and it is taken up by the plant. Not all of the functions of potash are known or understood by plant physiologists, but it is a known fact that turf grasses which are well supplied with potash, no other element being deficient, are healthier, greener and more vigorous than those with potash deficiencies. It has also been mentioned by certain investigators that adequate potash levels tend to produce plants with greater resistance to disease attacks.

What does grass remove from the soil? The following information on the removal of nitrogen, phosphorus and potash from putting greens was presented by Mr. O. P. Noer of the Milwaukee Sewage Commission in 1956. Since most areas of the United States are about the same in nutrient removal we shall consider here only the results from Milwaukee, Wisconsin. From 97 lbs. of dry matter mowed from a putting green test plot throughout one season, it was found that .7 lbs. of nitrogen, 1.7 lbs. of phosphorus and 3.1 lbs. of potash were removed from these putting green soils.

Washington recommendations for fertilizer use on golf course putting greens on the basis of soil test results for the last two years has been on the basis of a 3-1-2 ratio of nutrients. Since the same general trend has been true for lawn soils as well, these same recommendations have been made. The best advice is test your soil, then fertilize accordingly.

*This article was taken from an article by Roy L. Goss in the Northwest Turfgrass Topics, Vol. 3 No. 2, June, 1961.

Nematodes

By Professor Joseph Troll

Examination of many diseased turf plugs this last summer has shown that they are very frequently heavily infested with nematodes. It was thus thought that there might be a synergetic action between certain fungi, *Culvularia* spp. and *Fusarium* spp., and parasitic nematodes. However, the survey made this summer of plugs from infested and non-infested turf showed that both contained parasitic nematodes, therefore no synergetic action could be proven.

Clay Aggregates

Evaluation of Calcined Clay Aggregates

Taken from an article in the Proceedings of 1961 Turf Conference, Purdue University, by Robert Montgomery upon the completion of his research.

1. Calcined clay aggregates do offer desirable possibilities for green construction.
2. Non-calcined, or inadequately calcined aggregates, do not remain stable after weathering, and should not be used in or on golf greens.
3. Some calcined products are more stable to the action of freezing and thawing than are others.
4. When a stable calcined clay aggregate is mixed with a soil of medium fine texture, infiltration is much faster than in a soil alone.
5. The 8" depth of mixture seemed to be adequate when sub-surface drainage was provided.
6. High-quality creeping bentgrass turf was grown on several mixtures which included calcined clay aggregates.
7. At least 8 of the mixtures tested were encouraging; one of the more promising under the tests conducted was 2 parts of a stable calcined product, 3 parts brick sand, and 1 part peat.

Questions Yet to Be Answered

1. Will these calcined products continue to hold up over a period of years?
2. How well will the established turf on the various mixtures withstand the winters?
3. How different must management of fertilizers, fungicides and water be from established procedures?

(Editor's note: Calcined means fused by heat. An example of a commercial calcined clay in aggregate form is Turface.)

Of Seasonal Interest

Are skunks and moles digging up your turf? If so, it is time to get some chlordane, dieldrin or aldrin on that turf or next spring you will really have a problem. Reports of skunk activity have been quite numerous this fall. For rates of application follow manufacturers recommendations.

★ ★ ★

Have you put on a mercury-containing fungicide for snow mold protection? Time to start thinking about it. If the snow is already covering your greens mix the fungicide with a dark colored fertilizer this will sink down to the soil level.

New Books

"Weed Control: As A Science"

By Glenn C. Klingman

"Weed Control: As A Science" by Glenn C. Klingman. An excellent book on just that subject. It was published this year by John Wiley & Sons, Inc.; New York. Contained in this work are chapters on brush and undesirable tree control; soil sterilants; lawn, turf, and other ornamentals in weed control; and a chapter on aquatic weed control. This book is now being used as the text for a weed control course at the University of Massachusetts.

"The Lawn Book"

By Robert W. Shery

The following paragraphs were taken from the above book by the editor to show the members the excellent material to be found in this work now out by Robert W. Shery.

Rolling when the soil is wet, or with a very heavy roller, can compact the soil, causing harm. If the soil surface is uneven, pitted, a surer way of correcting the trouble is to scatter weed-free or sterilized soil ("top-dressing"), no thicker than one-fourth of an inch at a time. This will sift into the depressions. Most grass that heaves because of frost in winter settles back into the soil; in any event root breakage has already occurred, and smashing the plant back into the ground will be of little help.

Seldom is any soil completely perfect — or useless. Learning the major soil deficiencies and coping with them should permit an excellent lawn without bringing in topsoil. Lawns on difficult soils may need a little extra attention, as discussed in subsequent chapters, but they are far from impossible.

Nurse grasses are needed to get better grasses started. This can be disproved on any roadside or lawn. Nurse grasses usurp space and nutrients that the permanent grass should have for a fast start; they later die out, leaving voids for weeds. Stay away from the so-called nurse grasses.

Moss appears on compact, poorly drained, or sterile soils where grass languishes. Soil acidity has little to do with the problem. Fertilizer and aeration usually are a better cure than lime.

In general it is the uniformity of a mowing, not height, that governs attractiveness. A newly clipped lawn, even at three inches, looks most attractive, if weed-free and of good color. Clipping height will vary with the kind of grass, but with almost any species a sudden lowering of clipping height will expose brown leaves and stubs. Low clipping favors invasion by weeds, whose differing texture then detracts from the lawn, even when newly mown.

The lawn is dormant in winter. In appearance this is true. But there are intervals even in the middle of winter when grasses are growing appreciably. This is especially so below ground, where roots and rhizomes lengthen when the soil is not frozen. Even frozen soil has some "life," as evidenced by its ability to trap fertilizer applied in winter.

Fungi are harmful. It is true that a few pathogens give trouble, but the great majority of fungi perform the vital service of decaying organic material, thus releasing for reuse the elements contained. Without fungi, life as we know it would not exist.

... evening sprinkling would save water because of reduced evaporation. However disease thrives under high humidity, and it is best to put the lawn to bed as dry as practicable. Even a light evening sprinkling will promote heavy dew, while morning watering has disappeared from the foliage before the day is far along.

Don't Forget

TURF CONFERENCE

March 8th and 9th

University of
Massachusetts
Amherst, Massachusetts