

# Michigan Short Course Gives Close-Up on Problems

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**NINETY ENTHUSIASTIC** greenkeepers answered roll call at the Michigan State College's second annual short course for greenkeepers. Representatives of clubs from all sections of Michigan were present, including County Agent J. G. Wells of the upper peninsula who represented the greenkeeper's association of that section. In addition, the college welcomed 3 men from Illinois, one each from Ohio and Indiana and one from West Virginia. Among those present were the four Dustin brothers, one of whom, Sylvester, of Cascade Hills C. C., won the championship at the greenkeeper's tournament staged last summer at the Lansing C. C. when the Western Michigan Greenkeepers Assn. served as host.

Lectures and demonstrations presented

during the course aimed to give the greenkeepers information that was most serviceable in solving their immediate problems and in giving them a background for arranging future management programs that would tend to avoid difficulties. Suggestions from both the Detroit and Border Cities Greenkeepers Assn. and from the Western Michigan Greenkeepers Assn. under the leadership of presidents Herbert Shave and M. F. Webber, respectively, were followed in arranging the program. The time of holding the course was also set to meet the convenience of those planning to attend, as expressed during their midsummer meeting. It was expected that early in December all reconstruction work would be completed and the growing season would be so recently closed that

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ECONOMY and EFFICIENCY in these times more than ever are the watchwords of every alert business man. Due to the deflated condition of many golf club treasuries, it is necessary for the person in charge to look carefully into VALUES before making his purchases for seed supplies.

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specimens of turf and weeds would have to be kept in the greenhouse for use in the laboratory. As it proved, the season was so warm that specimens of weeds and various grasses could be brought direct from the field; the identification of these with short discussions concerning their growth habits by Dr. Darlington of the Botany dept. proved very interesting.

### No Safety in Set Schedule

The outstanding feature of the program was the talk given by Dr. John Monteith, Jr. of the U. S. G. A., Green Section. His illustrated lecture, with many colored slides on the diseases of turf grasses, was of such absorbing interest that it held the absolute attention of all in the room for well over an hour. While reviewing the commonly accepted methods for controlling large and small brown-patch and snow-mold, Dr. Monteith pointed out the necessity of care in diagnosing the trouble and in following directions accurately in the application of fungicides. He especially emphasized the importance of adjusting fertilization and watering programs to prevailing climatic conditions as a means of keeping grass in a healthy condition and of warding off disease attacks. He made clear that no set program for watering and fertilization can be laid down, as soil conditions, previous treatment, temperature, rainfall, and immediate condition of the grass are determining factors in what treatment should be applied or procedure followed.

In discussing scald, Dr. Monteith pointed out that the term is applied to a multitude of difficulties, the causes of which the greenkeeper cannot explain. Some times irrational fertilization, improper watering, uneven distribution of fungicides and insecticides bring about an unhealthy condition of the grass, which causes it to go out under adverse conditions. All such difficulties are rather commonly designated as scald by the greenkeeper for want of a correct explanation of the difficulty.

A lengthy discussion on fertilizers and greens fertilization was led by Dr. Tyson, of the Soils Dept., and Dr. Monteith. Dr. Tyson discussed the various nitrogen carriers, grouping them into organic and inorganic compounds. He pointed out that most of the inorganic or mineral compounds of nitrogen are readily available and on the whole water-soluble, while the organic nitrogen compounds vary greatly in the availability and depend on biological action in the soil to make them available.

When much of such compounds have been applied to the greens, the nitrogen may lie dormant for a long time until climatic conditions become satisfactory for bacterial action, when a large quantity of nitrogen is liberated at once. This unbalances the food condition for the grass and makes it tender and very susceptible to disease and mechanical damage. Only a limited quantity of organic nitrogen, therefore, should be included in fertilizers applied to greens.

Dr. Tyson further pointed out that superphosphate contains phosphorus in available condition and on the whole is more desirable than bone meal and other phosphate carriers. Potash is supplied largely as muriate which is water-soluble. The fact that fertilizer analyses are expressed in symbols or figures such as 12-6-4, 6-8-6, etc., in which the first figure stands for total nitrogen, the second for available phosphoric acid, and the third for water-soluble potash, was mentioned. When a greenkeeper purchases the ingredients and mixes his own fertilizer the necessity for repeated scooping from one pile into another to insure thorough mixing was emphasized.

### Explains Fertilizer Make-up

The question arose as to why fertilizers are not 100 per cent plant food, instead of 20 to 21 per cent nitrogen in the case of sulphate of ammonia, 20 to 45 per cent phosphoric acid in the case of superphosphate, and around 50 per cent potash in the case of muriate of potash. It was explained that phosphoric acid and potash themselves are of such a nature that they cannot be handled or applied through machinery without serious damage to the worker and the machinery and if applied to the grass would immediately destroy the vegetation. Nitrogen, it was said, in its pure form is a gas and, of course, cannot be applied in that condition. It was made clear that these elements must be combined with other materials in order to put them in a form that may be applied without damage to hands, machinery, or vegetation. In combining the plant food elements with other constituents to put them in a condition suitable for use, the percentage present is necessarily reduced.

Dr. Monteith pointed out that a rational system of fertilization consists in the addition of a complete fertilizer to greens once a season, usually in early spring. During the remainder of the season soluble nitrogen should be applied as needed. Care in obtaining uniform distribution of the ni-

trogen fertilizer was emphasized. Dr. Monteith pointed out that this system of fertilization has been found to give satisfactory results on virtually all soils suitable for green construction. This result is doubtless due to the fact that grass on greens is grown under such artificial conditions that forces which otherwise would be determining factors are largely overshadowed.

### Tells About Motors and Pumps.

In demonstrating the advantages and disadvantages of the split-phase motor and the repulsion-induction motor, Prof. Gallagher of the Agricultural Engineering Dept., pointed out that the repulsion-induction type will not only start with a heavy load but will come up to the maximum speed very quickly while carrying the load. Only about 50 per cent more current than its rated running current is used by a repulsion-induction motor when starting with a heavy load, thus making it possible to protect the motor by means of a fuse of proper capacity. Another advantage of this type of motor is the fact that it will carry a large overload for a short time without damage.

The split-phase motor is much more expensive than the repulsion-induction type, said Prof. Gallagher, but it has a very small overload capacity. In addition it cannot start with its rated load. In starting, the motor uses about seven times its normal load current and in consequence it cannot be adequately protected with a fuse.

Prof. Gallagher stated that all motors of three horse-power or larger should be protected with thermo-overload cutouts in order to protect them against burning out.

Mr. Sheldon of the Agricultural Engineering dept., discussed centrifugal and reciprocating pumps which he designated as types of pumps suitable for use on golf courses. When storage tanks are used, the reciprocating pump is more suitable for small capacities, that is, those of 50 gal. per minute or less. When greater capacities are required, the centrifugal pump is recommended. For watering greens by pumping directly without the use of a storage tank, the centrifugal pump is preferable because when the flow of water is cut down, no excessive pressure is built up. While the centrifugal pump is cheaper, the reciprocating pump is more efficient and also primes itself, while the centrifugal pump must be primed. It was further pointed out that the centrifugal pump is a

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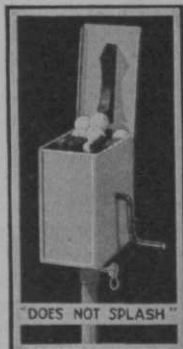
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### Advices on Landscaping

Prof. Halligan, of the Dept. of Landscape Architecture, discussed growth habits and other characteristics of various hardy shrubs and trees suitable for use in increasing the attractiveness of Michigan golf courses. He gave examples of undesirable plant combinations and then suggested many harmonious groupings and arrangements of plant materials which would lend to the beauty of the course. Various placements of trees and shrubs were described, designed to add materially to the subtleness of the course and thus appeal to the sporting spirit of the players.

### Appraise Topdressing

One interesting feature of the course consisted of the examination of topdressing soils brought in by the greenkeepers. There were many samples of such soil presented. During the course the greenkeepers were asked to examine these soils and pick out those which they thought were of superior merit. Later, Dr. Tyson, of the Soils dept. and Dr. John Monteith, Jr., of the Green Section, judged the samples and selected the three which they thought were superior. They also selected those which they thought had outstanding defects. These selected samples were then

presented to the greenkeepers for examination and study.

### Pest Problems Discussed

Prof. Pettit, of the Entomology dept. was bombarded with questions regarding the sod webworm, which caused much damage on golf courses during the past season. Professor Pettit recommended the use of *pyrethrum*; which is an extract from a Persian plant. Experiments now under way to acclimate the Pyrethrum plant to conditions in the U. S., in order to supply a cheaper source of this insecticide. The extract of pyrethrum is contained in various commercial compounds, such as Evergreen. Prof. Pettit recommended that such material be used strictly according to directions on the package, as the commercial preparations are of different strengths.

For control of ants, Prof. Pettit suggested a mixture of one part Paris green to sixteen parts dark brown sugar. This poison, sprinkled over the grass, will be carried as food to the nests of the ants, thus eradicating the colony. Some question was raised regarding the advisability of using Paris green, which contains copper, on greens, since an accumulation of copper from the use of Bordeaux and other copper-containing compounds may prove detrimental to the grass.

In the treatment of white grubs Professor Pettit pointed out arsenate of lead is

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not entirely satisfactory under all soil conditions. He suggested the use of carbon disulphide emulsion. The strength of the emulsion should be governed by the soil temperature; for example, with a soil temperature of 40 to 50 degrees Professor Pettit recommended 68 C. C. of carbon disulphide per gal. of water. When the soil temperature goes to between 50 and 60 degrees only 57 cc. of carbon disulphide to a gallon should be used. With higher soil temperatures running between 60 and 70 degrees the quantity of carbon disulphide should be cut down to about 45 cc. per gal. After stirring the carbon disulphide into the water thoroughly so as to make a uniform emulsion about 2½ gal. per 1000 sq. ft. of area should be applied and drenched down into the ground with water.

### Tee Business Status Makes Pros Study Prices

ONE OF THE pro business developments of 1931 that threatens lasting injury to a neat bit of pro profits was the retail price attack on patented tees. With slightly over 93,000,000 rounds of golf played during the year and a tee production estimated at 100,000,000, the manufacturers were caught knee-deep in tees and shoved them out on the market at liquidation prices. The situation was thrown out of control by so many of the tee makers being newcomers to the field and having as main assets a small investment in automatic woodworking machinery and hope of escaping patent infringement suits.

The damage done by the hit-and-run club manufacturers was repeated in the tee field. The pros at the 18-hole clubs average about \$200 a year profit on tees. The direct profit is only part of the tee advantage, as the boys have found that tee requirements bring into the shops a lot of people who are subjected to the buying attraction of other well-displayed merchandise.

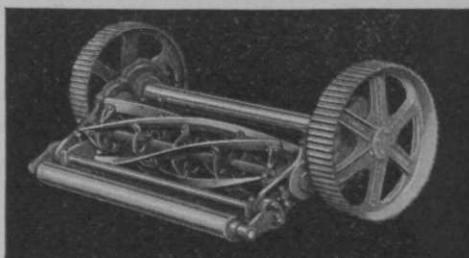
Tees of the leading manufacturers have been selling for 25c a box, with no one getting rich on the deal and none of the customers complaining. Part of the tee sales income went for some effective advertising that had the direct result of speeding the general adoption of the patented tees with a consequent saving of thousands of dollars to golf courses in the elimination of sandbox maintenance. Considerable adver-

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