

The Wisconsin Greenkeeper Association held its regular monthly meeting at Morse Hills, Beloit, Wis. on July 11, 1955, Fritz Reinert, host superintendent, showed every one a good time. Much praise was heard of the short but sporty 9 hole course that Fritz keeps in top shape. The course is owned by the Fairbanks Morse Company, and is operated for their employees.

After a fine dinner Mr. A. L. Michel (Mike) gave a talk on the new Fungicides that are being placed on the market by various companies and fungicides now in use as well as fungicide practice of a few years ago. Mike explained the need of individual research on your own course to determine the amount of application as well as method and frequency of application—as neighboring courses and different grasses respond differently to the Fungus diseases and Fungicide treatments. The instructions on packages are very broad so that they will cover use in all areas in which they are distributed. After Mike's talk, the Fairbanks Morse Co. showed a film illustrating the building and testing of Diesel Locomotives in their Beloit Plant.

The Wisconsin Greenkeepers and their families will hold their annual picnic at Fond Du Lac County Park—Waupun, Wis. on July 31, 1955. The next regular meeting will be at Shorewood Country Club, Green Bay, Wisconsin, Aug. 15—Owen C. Williams, Superintendent.

We take our hats off to Frank Musback, Superintendent at Blue Mound country club, Milwaukee District. Frankie had his course in top shape for the Miller Open Tournament, and did a remarkable job throughout the tournament.

THE BADGER

#### SUGGESTIONS FOR THE CONTROL OF CLOVER IN TURF

Rhode Island Agricultural Experiment Station

by J. A. DeFrance and S. W. Hart

Many requests are received from home owners and superintendents of athletic fields parks and golf courses expressing an interest in a method to eradicate clover in turf.

Many people feel that clover has no place in lawn turf because it grows in patches and breaks up the continuity of a uniform, even textured turf. The clover may disappear almost overnight during the growing season or may winter-kill leaving unsightly bare areas. However, some people want white clover in their lawn because it usually appears green in dry weather and grows on soil of low fertility.

Clover is one of the most troublesome pests on athletic fields, tennis courts and greens, fairways, and tees of golf courses. It is soft and slippery to walk on, it does not hold up the golf ball, it stains clothing, balls and clubs and it provides a slow, uneven putting surface.

Since many commercial lawn seed mixtures contain clover, it is important to read the label on the package. According to the Federal Seed Law, this label should give the amount, kind, and percentage of purity and germination of the seeds, together with some other pertinent data. Sometimes, even though clover was not in the seed mixture, it will appear in lawns because some seed may be in the soil, blew in, washed in or was brought in by birds.

If clover infestation is not too heavy, the use of high nitrogen fertilizers will discourage it. Tests at the Experiment Station have shown that clover is stimulated by phosphate fertilizer on all soils, by lime on acid soils, and by potash on light sandy soils. High nitrogen discourages clover and encourages the permanent basic grasses.

Sodium arsenite has been used in the past at the rate of 1 to 2 ounces per 1,000 square feet in 5 or 10 gallons of water as a spray to control clover. Two or three or more applications at intervals of 2 weeks or more are usually needed but it is a good plan to apply only 1 ounce per 1,000 square feet for the second or third treatment to avoid turf injury.

Sulfate of ammonia also has been used at heavy rates of 5 to 10 pounds per 1,000 square feet in 1 to 5 gallons of water to produce a burn of the clover for the concentrated salt solution and also to stimulate the grass by the addition of nitrogen which tends to crowd out the clover.

Where clover infestation is heavy, some of the newer chemical weed killers such as Endothal and 2, 4, 5-T when used according to directions will eradicate it without injury to turf.

Tests conducted at this Station and elsewhere have shown that either Endothal or 2, 4, 5-T amine will give satisfactory kill of white clover in lawn turf. Fall treatment with either chemical gave the best control with a minimum of discoloration to the turf.

Endothal applied at the rate of 3 pints per acre in 200 gallons of water has given satisfactory clover control. If used at higher rates, discoloration of the basic turf will occur.

2, 4, 5-T amine (40.9% acid equivalent) at the rate of 2 quarts per acre in 200 gallons of water has proven very effective in controlling clover. Slightly less injury occurred to the turf from the use of 2, 4, 5-T amine than with Endothal in a series of experiments.

Single applications of either Endothal or 2, 4, 5-T may be sufficient if through coverage of the leaves is obtained.

The control of clover on putting greens presents a more difficult problem than on lawn and fairway turf. Since turf on putting greens is maintained under decidedly more artificial conditions, extreme care must be exercised to prevent injury to the turf.

As with a lawn turf, sulfate of ammonia at the rate of 2 pounds per 1,000 square feet in 5 gallons of water has been used to control clover. More than one application is necessary to repeatedly weaken and defoliate the clover and to stimulate the grass to provide competition.

Sodium arsenite has been used at the rate of  $\frac{1}{8}$  ounce per 1,000 square feet in 5 gallons of water. Several applications may be necessary at intervals of 2 weeks or more. Caution should be exercised not to exceed the recommended rate or burn will probably result.

Experimental work has been done on putting greens in Indiana with 2, 4, 5-T amine. One quart of 2, 4, 5-T per acre in 200 gallons of water applied in the fall gave 95 per cent control. One quart of 2, 4, 5-T plus 1 pint of 2, 4-D per acre gave 98 per cent control. Because of limited experimentation with these materials on putting greens, their use is not recommended at this time. It has been shown that 2, 4, 5-T on dense, matted creeping bent sod over dry soil can be very injurious.

In fighting to eliminate clover from turf it is a good plan to withhold potash, or to go very lightly with it. This is true for phosphate also, but not for nitrogen where plenty should be added. Light and frequent applications of nitrogen should be beneficial in helping to eliminate clover from turf. Lime should be withheld or used very sparingly. Remember, the best enemy of weeds is good healthy turf.

John Darrah and his boss, Bill Cleary, attended the Kankakee meeting. They have been doing considerable travelling this spring and summer. John is doing a swell job.