

Golf course, both in Washington, are covered with the finest turf ever grown anywhere at any time.

But there is the inevitable fly in the ointment. The bents are greatly subject to the "brown-patch" disease which so greatly injures putting greens in July and August and which, indeed, is the most serious menace to fine turf that we have to confront. The vegetative greens suffer no worse than seeded greens, but fully as much. Many selections of creeping bent have been made in the hope of finding strains immune to the disease. Thus far strains more resistant to the disease have been found, but none truly immune. If such a one can be found, the vegetative method for creeping bent could be recommended without stint. Even as it is, the beauty and perfection of vegetative greens are far superior to seeded greens, and the cost of making them not much greater. Indeed, after a turf garden is once established, the vegetative method is quite as cheap as seeding. If a turf nursery such as above described is left undisturbed two years, the turf will be perfectly solid and can be lifted as sod.

Many member-clubs will doubtless wish to try out the vegetative method. To a limited number of such a supply of one of the best selected strains of creeping bent sufficient to start a turf garden can be supplied. These runners should be planted in well prepared ground, in rows 6 feet apart, in September. A 100-foot row will in one year give enough material to plant one putting green.

Killing Chickweed with Arsenite of Soda

ALAN D. WILSON

Some years ago my lawn was infested with chickweed. In turning to that ever-present help in all grass troubles "Turf for Golf Courses," I found that the annual variety could be killed with a spray of arsenite of soda in solution but that the perennial kind could only be gotten rid of by cutting out. The difficulty was that I was too ignorant to know whether my chickweed was annual or perennial. Some time later two of my friends who were in the neighborhood looked over the lawn and told me that as far as chickweed, went I was entirely catholic, as I had both varieties. I knew it would be quite impossible to explain the difference between the two to the gardener, especially as I was not at all clear about it myself, and so I bought him the arsenite, told him the proper amount to use, and instructed him to spray every patch of chickweed he could find on the lawn, thinking that in this way we would at least kill the annual variety.

The results went beyond all expectations, as the solution not only killed the annual but also the perennial, and without at all injuring the grass. This was reported to my friends with the statement that their medicine cured more than they claimed for it, and while they did not frankly disbelieve me I suspect they thought the result of the experiment was a pure freak.

This year the third fairway on the west course of the Merion Cricket Club was in rather bad condition and was literally filled with chickweed, patches from 6 to 18 inches in diameter, some of the common kind (the annual), but nearly all, certainly 98 per cent, of the perennial or mouse-ear chickweed, the fellow with the deep green color and the hairy leaves (*Cerastium vulgatum*), also called "Creeping Charley."

Encouraged by my success at home, we determined to try to eradicate it with the arsenite solution, using 8 pounds to 50 gallons of water and applying with a spray-pump. We made the application about April 10, one man pushing the barrel, which was on wheels, and working the pump, and the other man locating the patches and directing the spray. It took them 8 hours to cover the entire fairway and they used 2 barrels of water and 16 pounds of arsenite. A few days later the chickweed turned brown, and 10 days later it was dead, and the small amount of grass and yarrow which was in the chickweed patches was entirely uninjured. The fairway was reseeded and topdressed and now, 7 weeks after the application, the young grass is growing nicely. In a few instances there are signs that the chickweed is growing again from the old roots, but these are very few—certainly less than one per cent, and on the 99 per cent, we seem to have gotten complete destruction.

We had thought that the early spring was the best time to do this work, as it would kill the chickweed before it had gone to seed, and that we would get a better germination of the new grass seed. The only objection we have discovered is that crab grass is beginning to grow in the bare patches, as it naturally would, we having prepared for it what is really a perfect seed bed. This makes us wonder whether it would not be better to do the work late in August, when the germination of the crab grass seed would be over, and then plant the grass seed and topdress by the first of September. We have two other fairways which are quite badly affected and intend to treat them in this way late in August.

This method is so simple, its action so prompt, and its expense so small, that we thought it might be of use to other people. The cost for one fairway was as follows:

16 pounds arsenite of soda at 32 cents.....	\$5.12
Wages, 2 men, 8 hours, at 35 cents.....	5.60
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	\$10.72

I have not included the cost of reseeding and topdressing, as we would have been doing that in any event.

Of course, this treatment is still largely experimental; it may well be that our results here can only be obtained in this or a few other localities, but we would be glad to have other people try it elsewhere, in a small way at first, and see if they get the same result.

We would not recommend this treatment for the greens, as it would leave unsightly brown spots which could not be covered for 3 or 4 weeks. There, the best cure is to cut out the chickweed with a hole cutter and replace with good grass. If, however, you have a green that is so full of chickweed that it would be impossible or impracticable to cut it out and you do not wish to go to the large expense of resodding the entire green, it might be well to try this method on one green, or part of one, as an experiment, and if the new seed was planted by the first of September you ought to be rid of your chickweed at a very small cost and be able to play the green 6 weeks later.

One word of caution.—Apply the solution with a spray and not with a watering pot. My gardener tried the latter method the second year, because he knew better than to do as he was told, and while he succeeded admirably in killing the chickweed he also killed the grass. The theory

of this is that when applied with a spray, the broad pulpy leaves of the chickweed absorb a large quantity of the solution, while the narrow, hard leaves of the grass absorb very little; when applied with a watering pot the solution goes to the roots and kills the grass.

The Use of Chemical Weed Killers on Golf Courses

ALBERT A. HANSEN

The use of chemical plant poisons as a means of eradicating and controlling weeds originated about 1895; hence the method is comparatively new. Although the use of chemicals offered great promise, further experimentation has demonstrated that the method has but limited practical use. There are situations, however, in which chemicals are helpful. There is a great deal of popular interest in the subject; but public knowledge concerning chemical weed killers is very scant. It is the purpose of this article to show where chemicals are useful in dealing with weeds on golf courses and to point out the limitations of the method.

In general, weeds on golf courses are troublesome mainly on putting greens, except in the cases of perennials, especially those possessing wind-distributed seeds, as the dandelion, growing in the rough and on the fairway. Weeds of this type should be eliminated whenever practicable in order to prevent the possibility of infesting nearby greens.

Chemical Control of Annual Weeds

In general, such annual weeds as crab-grass, shepherd's purse, and pigeon-grass can not be controlled economically on golf courses by chemical means. These plants must be controlled by (1) improving the turf so the grass will be vigorous, thus tending to crowd the weeds out, or (2) by hand weeding.

With one species, common chickweed, successful results have been obtained by spraying with a solution of sodium arsenite prepared at the rate of 6 pounds of the chemical in 50 gallons of water. To be successful, the work must be commenced early in April, before the chickweed has made a heavy growth. Iron sulphate* has also been quite effective against chickweed. For this purpose the solution should be prepared at the rate of 100 pounds of the sugar form of iron sulphate dissolved in 50 gallons of water and applied as a fine, driving mist. Compressed-air hand-sprayers suitable for this work can be purchased for about \$8. Neither the arsenite nor the iron sulphate spray will cause permanent injury to the turf, but the arsenite is a potent internal poison and grazing animals should not have access to the sprayed vegetation.

Chemical Control of Perennial Weeds

Perennial weeds as they occur on golf courses are of two general types, those that reproduce from running underground parts, such as

*The names of dealers in iron sulphate and other chemical weed killers and of distributing agents for weed-killing devices can be obtained on application to the secretary.