

course economy is concerned. Concentrate it all into one paragraph, and it should read as follows:

If you construct, do it from the bottom up, not from the top down; and when completed, keep what you have. Keep it by eternal vigilance. You can waste your entire investment by neglect of your original building. This refers especially to the putting greens, but includes also fairways and tees.

Manure Heaps in Relation to House Flies

DR. C. V. PIPER

House flies are no less undesirable at a country club than in a home. The insects breed largely in manure, and especially in horse manure, but will lay their eggs on a great variety of decaying vegetable and animal substances. Manure is, however, the great nursery. Therefore every greenkeeper should take care that his manure piles do not infest the neighborhood with flies. Each female lays on the average 120 eggs at a batch and lays about four such batches during her breeding life. On the average the egg develops into an adult fly in 10 to 14 days. So the rate of increase is very rapid.

Manure piles can easily be treated so that they will not breed flies, and the treatment does not affect the value of the fertilizer. Powdered hellebore is the best thing to use. Hellebore contains a number of chemical compounds known as alkaloids. Alkaloids are organic substances, of which quinine, morphine, and cocaine may be mentioned as examples, which act very intensely on the animal body. For the treatment of manure a water extract of the hellebore is prepared by adding $\frac{1}{2}$ -pound of the powder to every 10 gallons of water; after stirring this it is allowed to stand 24 hours. The stock mixture thus prepared is sprinkled over the manure at the rate of 10 gallons to every 8 bushels (10 cubic feet) of manure. From the result of 12 experiments with manure piles treated under natural conditions it appears that such treatment results in the destruction of from 88 to 99 per cent of the fly larvæ. Amounts of hellebore less than $\frac{1}{2}$ -pound to every 8 bushels of manure are not so effective, while stronger applications, of course, will give somewhat better results.

Bacteriological studies of the treated piles proved that the bacteria were not injured or their development retarded, and chemical analysis showed that the composition of the manure was unaltered. Furthermore, several field tests were made in growing cabbages, turnips, lettuce, potatoes, wheat, and a few other crops on plats which had been fertilized with hellebore-treated manure, with the result that there appeared no injury whatever that could be ascribed to the use of this substance. The only possible objection to the use of hellebore seems to be the possibility of poisoning farm animals, as might happen if, for example, the barrel or tank in which the stock solution was prepared were left uncovered in an accessible place. It is quite safe to say that chickens will not be injured by pecking at hellebore-treated manure. This has been tested carefully. Hellebore can be obtained both in ground and powdered form, but the powdered form gives the best results in the destruction of fly larvæ. The present wholesale price of white hellebore powder is 16 to 17 cents per pound.

The whole subject of the house fly is concisely but thoroughly treated in Farmer's Bulletin No. 851, U. S. Department of Agriculture, which can be secured free upon application to the Department. From this bulletin the above information is extracted.

New Member Clubs of the Green Section

(For Previous Lists See Pages 190 and 220 of This Volume)

Hanover Country Club, Hanover, N. H.
 Jackson Heights Golf Club, Elmhurst, L. I., N. Y.
 Longue Vue Club, Verona, Pa.
 Lawrence Park Golf Club, Erie, Pa.
 Biltmore Forest Country Club, Biltmore, N. C.
 West End Country Club, New Orleans, La.
 Cloquet Golf Club, Cloquet, Minn.

Questions and Answers

All questions sent to the Green Committee will be answered as promptly as possible in a letter to the writer. The more interesting of these questions, with concise answers, will appear in this column each month. If your experience leads you to disagree with any answer given in this column, it is your privilege and duty to write to the Green Committee.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

1. **Inadvisability of mixing redtop with bent seed.**—We have been advised not to mix bent and redtop seed for seeding putting-greens, but inasmuch as we will want to play nine of our greens just as early next season as possible, do you not think that a mixture of bent and redtop seeds would give us quicker and surer results?—(Indiana.)

As for mixing bent and redtop seed for the greens, we advise against this. The bent seed is quick in germinating. It germinates quite as quickly in fact as does the redtop seed, and there is practically no advantage from mixing these from the standpoint of getting turf at an early date.

2. **Planting creeping bent runners in green construction.**—Will you kindly give us information relative to the proper method of planting creeping bent stolons?—(Missouri.)

While the whole process of vegetative planting seems very simple to us, we have found by experience that it is not a safe one for everyone to handle unless directions are followed very carefully. In the first place it must be thoroughly understood that it is living material that is being handled and which must not be allowed to dry out during the planting process. The proper way to go about it is to have the green prepared just as one would if he were going to seed. Then the runners are taken up, chopped into lengths of 2 or 3 inches, and spread out as evenly as possible on the ground, after which they should be covered immediately with a thin layer of top-dressing material, say about one-eighth of an inch. At this point we would advise to just dampen it with a fine spray of water—not enough to make the ground wet but sufficient to allow it to pack when rolled with a light hand roller. After this rolling, about $\frac{3}{8}$ to $\frac{1}{2}$ inch layer of top-dressing is applied evenly and rolled again. It is necessary at this stage to keep the ground continually moist for at