

slight covering. The seed bed soil should be at least comparatively fine and fertile. Some use enclosed beds, others rows and sow seed not too thick and not too deep. Seed, berries or nuts should be covered over about twice their circumference deep. The top soil itself should be loose. Sand and fine earth are admirable for this, but the seeds are better if lightly packed. Conifers or evergreens are better if slightly shaded and cheese cloth tacked over the sashes is splendid. Although laths wired together about  $1\frac{1}{4}$  to 2 inches apart are used a great deal.

The majority of perennials grow well from seed either sown in spring or about July or early August. Dividing of perennials may be easily done. The early flowering kinds are best done fairly soon after blossoming is over whilst with the late flowering forms, spring is the best time usually.

Varieties of shrubs far removed from the original species do not always come true from seed and so an artificial method of perpetuation must be followed. This is why the vegetative, asexual or cutting systems are made use of.

In the fall or early winter the use of matured wood for propagation work is popular and gives wonderful results. Most shrubs may be handled in this fashion. The recent year's growth, or even older, will respond quite well. Shoots or twigs cut into lengths of about 6 to 8 inches are the usual thing but these are cut just below the bud at the base or larger end of the shoot and at the reverse end or top, the cut is made just above the bud. Following this the cut twigs or shoots, usually

called cuttings by propagators, may be set out of doors in trenches and placed well down from half to three-fourths their length and the soil well firmed around them. In very cold spots in clay sections if the work be done quite late in the winter these cuttings may be tied in bundles, covered with soil or sand or leaves and placed in a cool cellar or shed or in a sheltered place outside. Cuttings must not be allowed to become dry. In spring the bundles must be untied and the cuttings planted singly out-of-doors in rows as already described. During summer frequent cultivation is wise to aid rooting conditions in the soil and to control weeds.

## GREENKEEPING PROBLEMS

in

## LEACH'S MAIL BAG

### June Bug Control.

Dear Mr. Leach:

We have been sufferers on our course from the June bug for a number of years, having had a rather severe infestation last year resulting in a grubbing up of the fairways to a considerable extent. The soil here in Kentucky is a rather heavy clay variety and may be difficult to penetrate.

We have, however, decided to try the arsenate of lead treatment and intend using it both on the greens and fairways.

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We have a somewhat peculiar situation in that several years ago an addition to the course was made and on the new part we have no infestation of the bugs, but the old fairway is badly infected. We therefore intend using the arsenate of lead both on the greens and fairways of that part of the course showing infestation.

I have made a rough estimate of the amount of arsenate of lead required and figure that we will require about five tons, using 250 pounds to an acre. How much milorganite will be required to dilute the 250 pounds per acre?

In order to repair the damage done by the grubs last year we thought we would use a chemical fertilizer and resow the fairways along in February or March, according to the season, and use the arsenate of lead treatment some time between the 1st and 15th of June, anticipating the appearance of the beetles.

I would like to have your opinion regarding this plan about the early fertilizing and seeding of the course with the later application of the arsenate of lead and milorganite.

G. C. H. (Kentucky).

Reply.

The infestation of the older portion of

your course and the lack of infestation of the new portion of the course may be due to a difference in the organic matter or rather the degree of organic matter present in the two portions of the course. As a general rule the June beetle grub prefers soil in which the organic content is high. For this reason, in the south, June beetle grubs frequently become serious when manure is applied to the fairways and greens. They are always the worst on the greens and approaches where the soil contains an abundance of organic matter. I do not of course infer from this that manure should not be used on turf. Far from it. Use the manure and hold the grubs by chemical means.

For use as a filler with lead arsenate, milorganite may be used at the rate of one pound of the arsenate to 3 pounds of milorganite if you can arrange to spread the mixture on quiet days when blowing is at the minimum. Otherwise I would mix one pound of lead arsenate with 5 pounds of milorganite.

The use of a good chemical fertilizer in early spring on this damaged turf would be good business as well as the grub-proofing application in early June or as soon as the beetles appear. Would suggest that

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you hold off on the seeding until fall. The spring application of fertilizer will give a decided impetus to the grass now remaining on the fairways and the lead arsenate application will hold the crabgrass down and give the fine turf grasses a chance to fill in all during the growing season. By fall you may find that you have a pretty good fairway after all, so that maybe a bit of seeding here and there will round out the job.

B. R. Leach.

### "Raincoats" for Greens.

Dear Mr. Leach:

It has been called to our attention that some of the clubs in the east have been using waterproof canvas covers to throw over their greens from time to time to prevent excessive moisture during heavy rains, as an aid to the control of brown-patch. I saw a newspaper article to this effect some time ago, but I am not able to locate it at the present time. If you have any information, as to the benefits to be derived from such procedure, I would be very glad to hear from you.

N. E. E. (Georgia).

### Reply.

This idea, like many others of the same apparent simplicity, is a whole heap sim-

pler in theory than in practice. Covers are costly and you would find in practice that most of the rain had already fallen before the covers could be put in place. Just about as many rain storms begin after dark as during daylight. If it begins to rain at 2 a. m. how are you going to get your help on the job to put the covers in place? If on the other hand, you cover the greens every night, you'll have more trouble with disease than ever, for covering in this way will effectively prevent the night cooling of the soil surface.

B. R. Leach.

### Bent Won't Grow.

Dear Mr. Leach:

Our grounds are in a creek valley and adjacent bluffs, the valley soil being a water-deposited silt, the bluffs a clay, both underlaid with gravel at a depth of four to six feet. Our greens were made by plowing up the soil, cultivating, and adding thereto ten tons of humus per green.

This humus is claimed by many to be a wind-blown peat. It is fine in texture, very black, holds about 120 per cent of its weight in moisture, makes a friable soil. When left on the ground, it kills the grass, and when left in piles does not support

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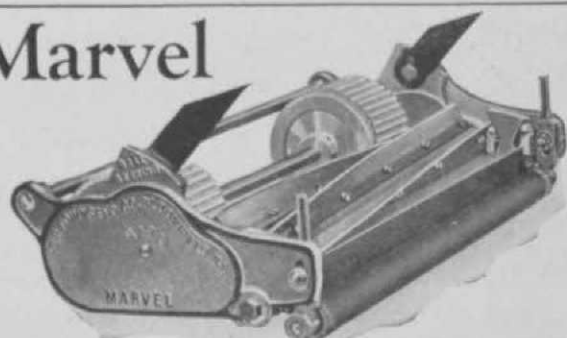
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