

off the leaves and return it to the soil where it is once more available to the roots of the grass in its best form. Heavy waterings, however, are liable to wash this food away to where it would do no good to the grass.

On a young course where a satisfactory fairway turf has not yet been developed, it generally is necessary to apply more water than will be needed when the turf is older. This is for the double purpose of promoting the growth of young grass and of taking the hard, pavement-like feel away from the ground. Soft ground prevents undue distance being obtained by a rolling ball, to say nothing of making things easier on the clubs, wrists, and tempers of the innumerable golfers who delight in taking turf with every shot, whether there is real turf or bare ground.

Greens' Irrigation

In regard to the irrigation of greens, so many factors crop up that every golf course must be a law unto itself. The age of the green, the state of its turf, the kind of soil on which it is built, the likelihood of weeds, and last, but not least, the wishes of the players—all these have an influence on the method and amount of greens irrigation. To take up the points in turn, young greens like young fairways will require water to be applied more frequently than older greens, other conditions being equal. This is for the sake of softness of the surface and consequent prevention of excessive run of the ball and for giving the young grass a better chance to spread. The kind of soil will have its influence since a top soil containing plenty of humus will naturally absorb and retain more water than one of a more impervious nature. Excessive watering causes many weeds, notably holcus.

The last limiting factor in greens irrigation deserves a paragraph to itself. The universal demand of golfers is a green that will stop a ball while being true and reasonably fast. It is conceded (by greenkeepers) that the majority of golfers play a ball on to a green in any old fashion and expect it to stick where it lands. To accommodate this type of player the green would have to be kept soggy. Still, it is possible to have a green which is reasonably dry and which will stop a hopelessly played ball and be true and fast enough to satisfy most of the players. This can be done by working into the soil, both during construction and subsequent top dressings, large amounts of sand and granulated charcoal. By sand is meant good

coarse sand such as is used for plastering, and which, of course, has been properly washed beforehand to take out any traces of alkali. The fine sand which is ordinarily used for traps and tees is useless for this kind of top dressing because it packs and makes layers, whereas the coarse sand will work its way downwards, cutting through the top inch or two of soil and making the green more porous and healthier. The sand and charcoal, by opening up the soil and allowing air to get to the roots may also be a means of lessening the danger of brown patch. This last statement, however, is by no means guaranteed by the writer.

New England Seeks Course Maintenance Costs

IT seems that the job of getting figures for a study of course maintenance costs is as tough a problem as that of establishing some sort of a standard of maintenance expense. We recall the efforts of the Cleveland and Chicago district golf associations to dig up necessary data, with the earnest laborers finally throwing in the sponge. Now the Golf Service Bureau of New England is striving to get maintenance cost information.

This association's current bulletin says:

Our questionnaire on the costs of maintenance of golf courses brought answers from twenty-five courses.

These answers show up two things plainly:

1—That only a few greens chairmen talk the same language because different reports and different information is desired by them.

2—That the labor costs on eighteen-hole courses vary greatly.

So I am going to ask each club to send me—

(1) WITHOUT any figures, the form of report that is given the green chairmen to tell him what his costs are, and,

(2) I very much desire the following costs for 1929 on golf maintenance:

(a) Total cost of labor on the golf course (without salary of greenkeeper)\$.....

(b) Total cost of merchandise for golf course only (seeds, fertilizer, loam, gas, oil, chemicals, etc.)\$.....

(c) Total cost of repairs to machinery used on golf course..\$.....

(d) Total cost of replacement of golf course machinery.....\$.....