

How Water Helps Better Turf Campaign

By D. T. COULL

IRRIGATION is one of the largest items in the expenditure of a golf course on the Pacific Coast today. This being so, it may not be out of place to inquire into the uses of irrigation. The average golfer who takes an interest in his course, says, during the hot summer months, "Now, boys, give her lots of water," the idea no doubt being that grass will come more easily through soil softened by water than through hard soil. This is, of course, true, but it is not the whole story.

It cannot be emphasized sufficiently that the true function of water applied to the soil is to dissolve plant foods and thus make them available to the plant in a form which it can use. Plant foods contained in the soil cannot be assimilated by the plant until they are dissolved. The growth of a plant, insofar as that is controlled by man, is limited by two factors; first, the food necessary to its growth, and second, the means by which that food is made available to the plant.

Good Soil Needs Little Water

Maximum growth will occur when the greatest possible amount of plant food is dissolved in the soil moisture and conveyed to the growing parts of the plant. In the case of a rich soil a comparatively small amount of water will provide as much food as a large amount on a poorer soil. When a soil is rich in plant food, a limited amount of moisture may keep a growing plant healthy by dissolving only enough food for that purpose. On the other hand, the use of heavy irrigation on a poor soil in the attempt to produce satisfactory growth may also be the means of making the soil still poorer by causing what food there is to be leached away.

Water is not a substitute for food

to a plant any more than it is to a human being. However, there may be plant food in water even before it is applied to the plant. For example, it is always observed that rainfall will produce bright green grass and freshen up other crops and plants, while an equal amount of irrigation water will not be so productive of picturesque results. But one must remember that rain on its journey through the atmosphere collects many impurities which are splendid plant foods. The same rain water collected in a reservoir and kept for some time before being used would not do as much good as it would by falling naturally on the crop. Probably rain water in storage loses some of its good qualities either to the air as gas or to the floor of the reservoir as sediment. But this does not get away from the fact that water primarily is a conveyor of plant food.

Economy Necessary

Since irrigation by artificial means is so expensive, it is the duty of every greenkeeper to economize in the use of water while at the same time giving his greens, tees, and fairways enough to insure satisfactory turf. One practical method of economy is in use on every golf course; this is allowing cut grass to remain on the course and spreading grass cut from greens on thin portions of the fairway. Cut grass forms a very satisfactory mulch in that it prevents evaporation to a very great extent.

It may be mentioned here that this practice results in a great saving of plant food. The roots of growing grass assimilate the available plant food dissolved in the soil water. This food is passed to the leaves and when they are cut, successive irrigations wash the food

Pacific coast greenkeepers have to be "up" on watering for that vital phase of the work of many of them constitutes a major item of maintenance expense. The accompanying article by D. T. Coull, taken from their fine "family" paper gives a helpful summary of the function of water in soil.

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.....\$.....