Uneven Pre-seeding Fertilization Is Hidden Cause of Trouble

By L. S. DICKINSON

THE UNEVEN appearance of newly seeded areas has caused much worry to greenkeepers and green-chairmen. It has also caused much speculation as to the cause of the unevenness, and the stubbornness of greenkeepers to admit that an uneven distribution of pre-seeding fertilizer could possibly be the cause has made the writer go after proof.

Undoubtedly the reason why greenkeepers are loath to admit uneven fertilizer distribution as a cause, is due to the fact that many are still on the defensive, and feel that such a cause reflects upon their skill and judgment. Except in extreme cases they are wrong in feeling that way.

To obtain convincing evidence that pre-seeding fertilization can affect the unevenness of a newly seeded area, the writer selected a nearby putting green that was very noticeably affected by the pre-seeding fertilization.

The putting green in question was well built, as to foundation, subsoil and topsoil, and the seed bed was in excellent condition at the time of seeding. As a pre-seeding fertilizer nitrophoska was applied at the rate of slightly over 10 lbs. per 1,000 sq. ft., 60 lbs. being applied to the 5,500 sq. ft. of green surface. While such a rate is quite heavy it is not excessive if evenly distributed.

The fertilizer was raked into the soil at the same time the final seed bed was prepared. A seed mixture containing 10 lbs. of Colonial bent, 10 lbs. South German bent, and 12 lbs. redtop, or a total seeding of 32 lbs. was very evenly sown, lightly raked in, and the area rolled. The seeding job was well done.

Rain Helps

The seed was sown April 15. A cool dry spell of weather followed, and it was April 25 before the young grass plants appeared as a very uniform stand of young grass.

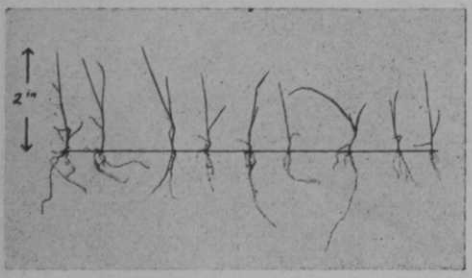
The young grass plants grew normally and appeared much benefited by several light showers, the heaviest of which was .14 inch. On May 8, the rainfall was .97 inch and on May 10, 1.65 of an inch fell. These two rather heavy showers wet the

The pencils mark the edges of a strip of restricted turf growth, due largely to uneven distribution of fertilizer prior to seeding.

ground several inches deep and undoubtedly brought into solution much of the highly soluble nitrophoska.

On May 12, two days after the heavy rain, small, irregularly shaped areas of grass showed symptoms of being in serious trouble. A majority of these troubled areas were circular, about 3 inches in diameter, and the remainder oblong in shape and about 4 inches by 2 inches in size. At this time a distinct yellowing of the grass tips was the most noticeable sign of trouble. The grass outside of the affected areas was very healthy and in good color.

The yellow tips became yellow leaves which turned red. Naturally the grass thus affected did not grow. It became stunted and approximately sixty per cent died. The unaffected grass continued to grow and



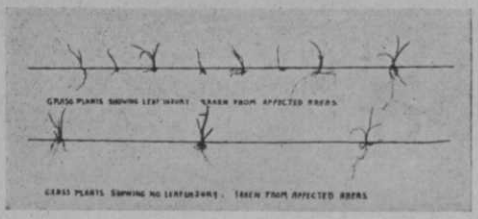
Grass plants taken from unaffected areas. Compare with cut in next column, which is drawn to same scale.

maintained good color. In fact it grew so well that it was necessary to clip it on May 23. The clipping accentuated the affected areas and the accompanying photographs together with soil samples were taken May 26, or 49 days after seeding.

Symptoms and Diagnosis

With the above facts in mind, let us return to the symptoms and diagnosis. As the seeding came up evenly, neither the seed or seeding technique could be blamed for the unevenness. Small brown patch could not be blamed, as the grass in the affected areas was not killed over-night, neither did it show the dry brown color characteristic of the disease, nor was there any signs of the presence of the fungus. Damping-off might cause unevenness, but in this case the first color was yellow, instead of red, and there was not the decided wilting of the grass. Sunscald reddens the turf without a pre-yellowing so that cause was eliminated.

The outstanding symptoms were restricted growth, followed by some killing,



Stunted growth in affected areas.

and the yellowing of the grass tips. Tip discoloring indicates root injury. Yellowing can indicate excessive soil acidity, and excessive available potash. The symptoms clearly indicated an uneven distribution of the pre-seeding fertilizer. "How was the fertilizer unevenly distributed?" The question is quite in order as the fertilizer *was evenly* distributed on the surface. The unevenness was brought about by the raking in process. Carefully observe the way the workmen rake the soil when raking in fertilizer and leveling the seed bed. After watching the men, try your own hand at it. Practical experience and observations convinces the writer that no matter how carefully the work is done, it is almost impossible not to cause concentrations of the fertilizer. The forward and backward movement of the rake is bound to leave more surface soil in one area than another. Small depressions are filled, the surface soil is raked into a *windrow* and not entirely smoothed by subsequent raking.

Need Cautious Program

The workman or greenkeeper should not be censored. A practical condition exists that must be understood and tolerated. Injury from uneven distribution of pre-seeding fertilizer occurs only when the surface application is excessive or very near the dangerous amount. When the fertilizer is applied in moderation, the uneven distribution shows as small tufts of longer and deeper colored grass, caused by the concentration of the fertilizer to a degree of high stimulation.

The proof of the statement that much of the spotty appearance of newly seeded areas is due to uneven distribution of pre-seeding fertilizer lies in the results of the soil tests and the actual grass plants taken from healthy and unhealthy areas.

Soil from affected areas showed a pH value of 4.5; soil from the healthy areas a pH of 5.00. Nitrophoska is known to have an acid effect upon the soil, therefore

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CANOPY TEE BENCH AT LOW PRICE

Muncie, Ind.—W. M. Sample Co., makers of golf course accessories, are featuring a low priced golf tee bench with canopy top.

The bench is 6 ft. long, with enameled, electric welded angle steel construction, and striped canvas drop. The top is enameled steel. Bottoms of legs are constructed to prevent marring of turf.

The benches are furnished with, or without, tops and golf bag racks. Full details will be supplied on request by the Sample company.

Uneven Fertilization Causes Trouble

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the presence of an excessive amount of nitrophoska could easily cause a change in soil reaction from pH 5.00 to pH 4.5.

A test for available phosphoric acids showed that there was five times as much available P_2O_5 in the affected areas as in the healthy areas. Again, the presence of an excess amount of nitrophoska could easily account for the increased amount of available P_2O_5. Nitrophoska I. analysis is 15-30-15.

A third proving fact is that excessive amounts of potash has a restricting effect to grass root growth. The illustration shows the comparative root and top growth of the grass taken from healthy and unhealthy areas.