Wetting Agents—

They Reduce Soil, Moisture Tensions,

Enable Water to Circulate More Freely

and Carry Nutrients to Plant Roots

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CORRECT or incorrect use of water can mean life or death to turf. For centuries people have dealt with water as if it were sacred — as if nothing could be done to change it. Yet, in 1959, a number of supts. in areas with adverse weather conditions produced turf that responded differently. Their turf was denser, more disease resistant, better rooted. It was turf that was tougher in relation to wear, temperature, humidity, and wilt. It was produced from freely moving, more available water and nutrients — grown consistantly under low soil-moisture-tensions.

We have seen many slides and charts with response curves. These should, and someday will, show at least two sets of response curves — one for normal moisture tensions; the other for low moisture-tensions.

These tensions can be changed — and when changed, the turf produced responds differently. Clearly two factors stand out as fundamental in growing superior turf:

1) the rate at which water displaces itself in a soil;
2) the availability and rate of utilization of water and nutrients as evaluated in terms of soil-moisture tensions.

With any soil condition and moisture content, what has to be proved is that a plant's physiology is affected by the soil-moisture tension of its environment. Tension of this environment is directly affected by non-ionic wetting-agents.

Most of us are familiar with the mechanical aspect of non-ionic wetting-agents where the reduction in tension of water allows water to penetrate more readily into problem areas such as hard spots, thatch, localized dry spots, banks, etc. Here, we can easily get lost in a tangle of dissension as to what the problem is and how it should be solved. Should we change our fertilizer program? aerify? aerify and apply soil-wetting-agents? should we renovate? try new grasses? is the problem one of soil composition?

Dr. D. B. Peters, at the USDA experiment station in Urbana, Ill., studied the effects of soil-moisture-tension. His findings showed that soil-moisture-tensions control:

1) movement of water and nutrients in soil;
2) the uptake of water and nutrients by the plant;
3) that nutrient starvation set in under high tension conditions before water starvation (or wilt.)

Thus a plant's growth can be determined by the tension of the soil moisture in which it lives. Before, it was shown that these tensions can be controlled by non-ionic wetting-agents.

Nursery Stock Greatly Improved

Let's turn to the ornamental nursery field where a great deal of information is now available and more will be pub-

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lished this year. What happens to nursery stock grown under low soil-moisture-tensions? One big advantage in the nursery field is that a person is able to take plant material and follow its development over a period of months or years. Plants grown consistently under low-moisture-tensions make better growth, are denser, more disease wilt resistant and develop better root systems.

You can take the best prepared soil, physically change its moisture, and you will get a result that is utterly new. These same results are being obtained by the few supts. who have maintained their turf under low-moisture-tensions.

These results raise such questions as: What does constitute a proper soil mixture for a green? What is the most effective fertilizer program? What grasses are most desirable? To each question we can point to case after case where changing the physical characteristics of water gives us a new insight into our use of this basic ingredient of life itself. This requires a new look at all the good maintenance practices that have been developed over the years — a reevaluation of them in terms of low-moisture-tensions.

Program Must Be Followed

It can truthfully be said that this is a new philosophy of growing plant material. That is under low soil-moisture-tensions. But these results do not happen overnight! A program must be followed. A blend of non-ionic wetting agents should be used according to this general plan:

1) Every year apply a total of 24 to 32 ozs. of non-ionic wetting agent per 1,000 sq. ft. Each application should be at the rate of 8 ozs. per 1,000 sq. ft.
2. Under severe conditions apply 8 ozs. per 1,000 sq. ft. at monthly intervals during the season.
3) To promote deeper rooting, make both an early spring and fall application.
4) For maximum performance keep your program on schedule.

These rates of application are based on using a blend of non-ionic wetting agents that is 100 per cent active ingredients. Your average yearly cost for such a program should be in the neighborhood of $2.00 to $3.00 per 1,000 sq. ft. In terms of all greens, collars, approaches and tees on an average 18 hole course, the cost would be less than $450 a year.

What can be expected from following such a program? After consistenely growing under low-moisture-tension conditions, supts. have essentially eliminated syringing. They report very little evidence of wilt. Their fungicidal program and control are more effective. Their turf is denser, more resistant to wear and deeper rooted. During 1959 they had had more play than ever before and their greens were better than ever.

Our thinking shouldn't be confined to past experiences where soil wetting agents were used sparingly. This is not a one shot proposition — it is a program.

Royal Canadian Association Releases Annual Report

The pres. and board of governors of the Royal Canadian Golf Assn., released its annual report late in February. The assn., in its 64th year, pointed out that the highlights of 1959 were development of a Junior program and introduction of two major competitions for youngsters, Canadian Junior Match Play championship and the Junior Interprovincial team matches. RCGA, the report said, will continue to abide by the Royal & Ancient rules on lost ball, ball out of bounds and unplayable lie in 1960 and not follow the lead of the USGA in reducing the penalty on these.

In 1959, the RCGA's excess of revenue over expenses was $5,600, with a total revenue increase of $3,800. Surplus account of the organization was increased to nearly $30,000.

Receipts from the 1959 National Golf Week were $11,771 and it took $3,841 to promote the event. Net receipts were distributed to eight provincial associations.

The 1960 pres. of the RCGA is V. C. Holdroyd of Toronto. H. C. Lyle of Vancouver and Dr. J. E. Leddy of Saskatoon are vps and C. E. Robinson of Toronto is secy.-treas.

Southern California Costs

Southern Calif. GA's cost analysis committee recently published a survey of golf course maintenance costs at member clubs for 1958 and the following information was revealed: Of 25 clubs reporting, four said their course maintenance costs exceeded $100,000 a year; four were in the $90,000 to $100,000 bracket; three were in the $80,000 to $90,000 bracket; seven clubs put their expenses at between $70,000 and $80,000; two had them pegged between $60,000 and $70,000; and five were under $60,000. The average for the 25 clubs figures out to $80,000.