

Water is lost from the mesophyll cells into the intercellular air space (hence the desire to keep this at a minimum) and then leaves the blade of grass through a mouth-like opening called the stomata. Leaf impressions of the grass blade show these areas clearly, figure 4A and 4B. Note the size of the epidermal cells with respect to the stomata, from frequently watered grass.

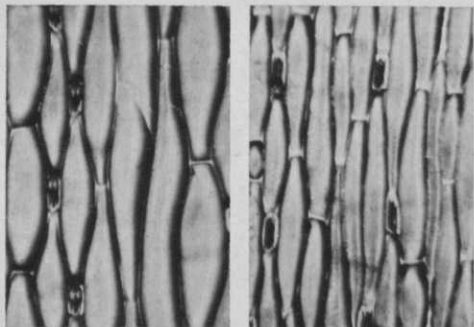


Fig. 4 Epidermal layer impressions. A (left) — Frequently watered. Note large epidermal cells (two cells per stomata.) B (right) — Infrequently watered. Note small epidermal cells (four cells per stomata.)

In figure 4B we see the impression of infrequently watered grass. Note that the stomata are the same size, but here the epidermal cells are more compact — actually twice as many per stomata. The wetting agent tended slightly to further increase the number of epidermal cells per stomata (a move in the direction of decreasing wilt). A chemical control of the stomatal opening was found and in 4B you see the results on an un-irrigated fairway. (Time: end of July, after 25 days of no rain.) The poa has gone out, the bluegrass is going dormant, the fescue has stopped growing. The treated half still had to be mowed and showed little signs of thinning.

By the use of soil wetting agents we can effectively handle water. Through a conscientious program, deeply rooted turf (figure 5 is pure poa in late July) that is uniform and pleasing can be grown in the face of bad weather and inexperienced help. So, we stress these points:

- 1) Soil wetting agents lower the tensions of water and permit a more rapid and more uniform infiltration, transport, and drainage (Part 1).



Fig. 5. Roots in pure poa annua turf from collar area of green (Time — July 18, 1963). Soil treated with wetting agents. Stomatal openings controlled chemically.

- 2) Soil wetting agents lower the soil moisture tension and, thereby increase the availability of water and nutrients (Part 1).
- 3) Lower tensions decrease the frequency of watering. Less frequent watering improves the *wilt* resistance of grasses.
- 4) Soil wetting agents decrease the intercellular air space in grass, and, thereby, improve the wilt resistance of the grass.

Purdue Offers 4-Year Course in Landscape Horticulture

Starting in the fall of 1964, Purdue University will offer a course in landscape horticulture. The curriculum will cover four years, according to Leslie Hafen, professor of horticulture.

Landscape horticulture is defined as the art and science of land planning and involves the arrangement of homes, subdivisions, parks, recreation centers, highways, public buildings, etc. It is rated a \$13 billion business.

The Purdue course will provide instruction in architecture, sociology, city planning, art and design and engineering. Employment opportunities for trained landscape personnel are said to be excellent. Starting salaries for graduates range from \$5,000 to \$7,000.

Information about the new curriculum can be obtained by writing to the Office of Admissions at Purdue, which is located in West Lafayette, Ind.