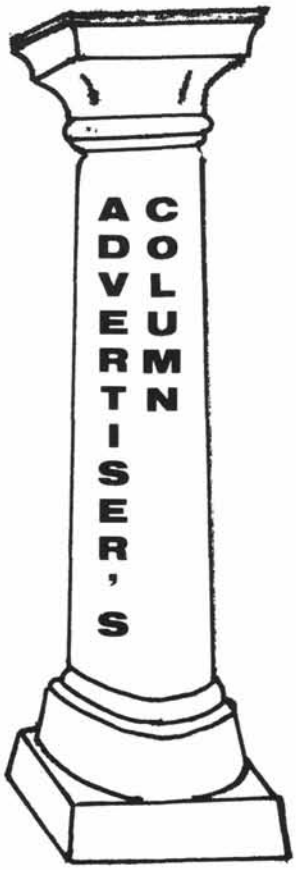

The Grass Roots of Huber Ranch Sod Nursery, Inc.

In 1929, three brothers formed a trucking company with a silver cup contract to haul bread from Louisville to Chicago. What happened after that was a natural chain of events which led up to 1934 when Wm. C. Huber moved to Chicago to get that part of the Huber & Huber Motor Express operation strainghtened out before he moved back to Kentucky. In the following years, he said many times that he never could get it straightened out the way he wanted to though he had worked 7 days a week to accomplish it.

In the late forties, Huber & Huber Motor Express had grown to the 20th largest truckline in the country. In order to get away from the trucking business for a short time each week he purchased ½ of a farm in Schneider, Indiana at a public auction. Later on that week he decided that he must have the other ½ of the farm in order to start toward his goal of a beautiful cattle farm. Through a great deal of bargaining and an extra $100/acre he was able to put the 850 acre operation back together again. After much traveling and bartering he was able to put together the nucleus of a registered, white-faced, polled Hereford herd which was to achieve 2 National Champions within the next 6 years after his death in 1985, with the assistance of his son, Harold Huber, and an able manager.

By 1964, Harold had moved to Louisville to help with the complexities of Huber & Huber Motor Express which resulted in its sale that year. Since Harold and his family decided to stay in Kentucky after the truck line's sale, Wm. J. Huber decided to take over the farm after the cattle were sold if he could find its best possible use. With the help of Dr. Wm. H. Daniel of Purdue University, they determined that its best use would be a sod farm because of its level sandy loam mineral soil and its ample water supply. Leaving the trucking business allowed Bill to take over the operation and convert it slowly into a full fledged sod operation. The farm was Bill's father's dream and so in his honor, the new operation was called Huber Ranch Sod Nursery. The first turf was seeded in the fall of 1965. The first sales occurred in the spring of 1967 using Ryan sod cutters, and loading everything by hand.

While sod production was progressing, in order to meet cash flow, Bill put together a 500 head feedlot cattle operation and a thousand head hog finishing operation. As the sod operation grew, the cattle feeding seemed to be the first part of the operation that should go. In 1972, the feed lots came out and the silos came down. The hog operation was profitable and continued on until 1975, when the company turned to distribution of garden center supplies as the diversification end of the business.

In 1981, Huber Ranch Sod Nursery started growing creeping bent sod because the soil is ideal for use on greens. The soil's main features include: 75% black sand, 5 - 9% organic materials, and high porosity. It allows air and water to move freely through the soil after transplanting. It also allows water and fertilizer to move rapidly to the root zone to establish the sod quickly.

Since moving into the creeping bent sod market, Huber Ranch has taken on a complete line of complimentary items such as chemicals, grass seed, hydro mulch, greens covers, golf course equipment and mowers. Now, in its 20th year, the entire farm is in bluegrass sod production except the acreage in Penncross and Penneagle bent sod. The third generation, namely John and Jim Huber, insure that we are here to stay. Since the farm is in full production, the entire organization is concentrating on better and better service to its customers.

Systemic Fungicides and Plant Growth Regulation

by Randall T. Kane - CDGA Turf Advisor

In recent years, several systemic fungicides have been developed which control a wide range of turf diseases including the "new" patch diseases. Many of these compounds are toxic to fungi because they inhibit the enzymes involved in sterol biosynthesis - an important point that I will come back to later. Fungicides of particular interest to turf mangers are Elanco's Rubigan and Mobay's Bayleton. These fungicides are active at relatively low application rates, are absorbed and translocated by plant roots, and have long term residual activity. Another interesting aspect of these products is their ability to cause visible changes in the color and growth habit of treated turfs. Growth effects observed in the field include dark green to blue green leaf coloration, increased stand densities, and reduced leaf growth. These responses are not observed consistently however, and many questions remain as to the factors controlling expression of growth regulating activity. (cont'd. page 18)

(Systemic Fungicides and Plant Growth Regulation cont'd.)

While at Cornell, Prof. Richard Smiley and I conducted studies under controlled conditions in the greenhouse to try to determine the nature and extent of the plant growth regulating activity of the sterol-inhibiting systemic fungicides. We also tested several plant growth regulators including Elanco's Cutless, which has a chemical structure similar to Rubigan. Chemicals were applied as soil drences to 6-week-old Merion and Fylking Kentucky bluegrass seedlings. These plants were grown up from single seeds and selected for uniformity. We used relatively high application rates in this study (1-2 oz. a.i/1,000 ft.$_2$) since higher rates are often required to control patch diseases and are correlated with growth effects in the field.

Our results indicated that the sterol-inhibiting fungicides did reduce leaf growth rates and caused darker green color of leaves. However, we did not measure an increased chlorophyll content (leaf weight basis) in many cases. In contract to field observations, we found that tiller densities decreased at high application rates. In some instances the highest rates of Rubigan were phytotoxic. This toxicity was expressed as total inhibition of leaf growth and tiller formation, with rust colored lesions appearing on leaves.

The growth retardant Cutless had effects similar to the fungicides, except that it caused a significant increase in tillering. However, application rates for Cutless were ¼ x those of Rubigan and Bayleton. Since Cutless and Rugiban are closely related compounds, the difference in application rate may have been the cause of the different effects on tillering, but this effect is more likely the result of chemical differences between the two compounds.

As I have alluded to, the compounds which have plant growth regulating activity inhibit sterol biosynthesis in fungi. In plants, synthesis of the growth promoting hormone gibberellin is controlled by the same types of enzymes that are involved in sterol biosynthesis. Persumably then, sterol inhibiting fungicides gain their plant growth regulating activity by inhibiting gibberellin synthesis in plants. In fact, we have shown in our studies that addition of gibberellin to Cutless treated plants reversed the growth inhibition. Several products other than those mentioned are known or believed to be sterol/gibberellin inhibitors. Experimental products under development by Ciga-Geigy (CGA 64250-"Banner") and ICI Americas (PP 333-paclobutrazol) may appear for use on turfgrasses in the future.

It is likely that the variable effects on plant growth seen in the field are due to differences in fungicide uptake and translocation (i.e., a dosage response). Under natural field conditions, the amount and length of exposure can be highly variable and depend on many factors such as temperature, rainfall, microbial activity, and, of course, application rate.

Chemical compounds such as Rubigan and Bayleton may act as fungicides, plant growth retardants, or even herbicides depending on the application rate and length of exposure. As always, read and follow label directions to avoid phytotoxicity problems.

(This article is a summary of research conducted by R. Kane and R.W. Smiley at Cornell University which was originally published in Agronomy Journal (Vol. 75, May - June, 1983, p. 469-473). Reprints of the journal article can be obtained from R. Kane at CDGA offices in Oak Brook.)