

Genetic information needed for metropolitan trees

Progressive arborists and nurserymen have demonstrated impressive gains from exploiting genetic variation in certain characteristics of street trees. But the authors of a recent report suggest it is time for a more comprehensive approach, not only to make fuller use of these gains, but to achieve even greater genetic progress.

The report was prepared at Pennsylvania State University by H. D. Gerhold, professor of forest genetics; A. J. Long, former assistant professor of forest genetics; and M. E. Demeritt, former research assistant.

"The metropolitan regions of the Northwest offer diverse, and increasingly inhospitable, environments for trees," their report says. "Stresses include not only the familiar ones — adverse soils, droughts, freezes and disease organisms — but also other insults that accompany urbanization such as air pollutants

and deicing salts. Only fragmentary information is available about the effects of such stresses on the health of various species and clones, and little is in a form that can be readily applied."

They set up a genetic information system, with the principal components including:

- Taxonomic categories — species, varieties, clones.
- Tree characteristics — appearance traits, adaptive traits.
- Environments of trees — hardiness zones, planting situations, urban stresses, diseases and insects.
- Organizations — municipalities, highway departments, nurseries, seed companies, government and university research agencies, arboreta.

They saw the principal functions of the genetic information system as follows:

- To organize performance tests of important trees at representative geographic locations.
- To obtain performance test data periodically on important characteristics from cooperating specialists.
- To interpret performance data and other pertinent data, transforming it into practical predictions of tree qualities in various environments.
- To distribute performance predictions periodically to cooperating individuals and organizations.
- To analyze for nurserymen trends in planting rates of species and clones.
- To analyze for breeders relative needs for improving various characteristics.

They surveyed arborists and nurserymen and several dimensions of metropolitan tree planting in 13 northeastern states were defined. About 100,000 trees were planted annually from 1962 to 1972 along highways in this region and about 200,000 were planted by municipal agencies — together an investment of \$12 million.

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With a little bit of luck . . .

Fred Slagle transformed 200 acres into Ohio's toughest 72 par course with unorthodox methods

by mick baker

With common sense, good luck and God's help, what can one man do? Three years ago Fred Slagle started to build a golf course for himself. He took 200 acres of rolling farmland in northeastern Ohio, complete with 10,000 white pines and other trees native to that scenic area, and turned it into a blossoming championship course with 13 lakes, 14 water holes and 62 sand traps.

He must have done something right, because the course has been rated the hardest 72 par course in the state three months after it opened. Its nine-month-old turf was unbelievable to those with two or three-year-old courses and the envy of some with older ones.

Although Slagle attributes the success to "common sense, a lot of good luck and conditions that can only be called God's help," his foresight and preparation, as well as what some call his creative genius, have played an important role in the transition of a tract of rural countryside in Madison, Ohio into Thunder Hill Country Club, which is worthy of being called a resort.

"I've been successful by just starting to do it," says Slagle, a real estate broker who had never built a golf course before. "I never intended to build a championship golf course, but I like a challenge and I didn't want to cater to the average golfer. I wanted a course with interest and challenge."

So three years and \$1.5 million later he has exactly that. Other builders may not benefit much from his good luck, but a little of his "common sense" philosophy might very well help some.

A unique aspect of the course is the extensive use of lakes and watersheds. Fifteen of its 60 acres of fairways are under water.

The hilly terrain has a topography naturally suited for lakes and ponds. Instead of using tile or open ditches to drain the course, Slagle decided to dam up the swells and let the water run off the predominantly clay soil into them, forming watersheds and lakes.

Use of water in this manner has other advantages. It beautifies the course, adds more hazards and saves maintenance costs, since 15 of the 60 acres of fairways do not have to be cut, seeded or fertilized. It also saves a step in construction since little tile must be put in. Slagle only used about ten percent of the tile that a comparably sized course would have needed. He said the expense of building the lakes enabled him "to spend money more wisely to have a more beautiful course."

The presence of one of those lakes saved the builder more than he was expecting it to — about \$150,000 in green mix to be precise. The lake was losing water and he suspected the presence of porous material. His grass consultant discounted the possibility of sand, saying the area was entirely clay. Slagle dug four holes five feet into the ground near the lake with a bulldozer and came up with a bucket of soil that was analyzed as a good combination for green mix, minus peat moss. Slagle was happy and the consultant was shocked.

Preparation and the right equipment were two key elements in the course's construction. "The secret of our success was careful soil prepara-

tion," said Slagle, adding that 600 soil samples were taken at the course. They were taken before disturbing the land, after moving it and just before seeding. After each sample was taken, corrections were made to bring the soil up to ideal growing conditions.

Some 500,000 yards of dirt were moved during construction and Slagle was careful where he put it. When he removed topsoil from an area he immediately dumped, where it would be eventually needed, rather than leaving piles and coming back to them later. After damming up the swells to be filled with water, he took the topsoil and added it to the tee areas. He claims this bit of foresight will keep his tees in better condition and give the course variability.

The larger tees provide the opportunity to move the pins more often, thus insuring minimal use to any particular spots on the tees. The extra topsoil also allowed him to build tiers on the tees, as many as six on some. The pins can be set in such a number of places that shots can be changed. "We can change the tees so the shots are different everytime," said Slagle, "and the golfer can be facing a whole new course." This is to keep Thunder Hill from becoming a boring course, which he claims can cause golfers to stop concentrating.

When he realized how much soil would have to be moved, Slagle decided to buy the needed equipment and do his own moving. To have had it contracted would have cost upward from \$1.25 a yard. Buying the equipment was a fortunate choice for him in present market

With a little bit of luck . . .

conditions. With the price of equipment rising steadily, he was able to sell it two or three years after purchase at the same price which he paid for it. On some of the machinery he even turned a profit.

Among the pieces that were helpful in the construction of Thunder Hill, according to Slagle, was the Miller disc, not normally

used in golf course construction. The disc is used in heavy farm conditions to eliminate plowing, as in the case of corn stubbles. He used the disc to correct a problem caused by a previous owner of the land. To discourage hunters, a farmer had plowed erratic furrows, which developed into deep ruts through erosion. They were almost impossible

to walk across. Slagle saved a step in construction with the disc, as the other alternative was to plow and disc.

Other earth movers Slagle used included two John Deere self-loading pans, which he said were ideal for golf courses because of their high speed. He mentioned the Case 1150B bulldozer was highly auto-



Fred Slagle plays his Thunder Hill course. (Photo by Jack Lardomita.)

Meeting Dates

Tennessee Nurserymen's Association, Annual Meeting, Mountain View Hotel & Motor Lodge, Gatinsburg, Sept. 16-17.

Transworld Home Horticultural Exhibit, Chicago Expo-center, Sept. 19-22.

The Fertilizer Institute, International Fertilizer Conference, Waldorf-Astoria Hotel, New York, Sept. 19-22.

Indiana Golf Course Superintendents Association Meeting, Westbrook Elks, Sept. 21.

Lawn and Garden Distributors Association 6th Annual Convention, Hyatt Regency, San Francisco, Cal., Sept. 22-24.

Farwest Nursery Show, Memorial Coliseum, Portland, Ore., Sept. 22-24.

Wy-Mont Golf Course Superintendents Association meeting, Ramada Inn, Billings, Mon., Sept. 24-25.

Annual Midwest Field Day, Purdue Agronomy Farm, West Lafayette, Ind., Sept. 27.

California Association of Nurserymen, 66th Annual Convention, Sheraton Inn Hotel, Fresno, Sept. 28-30.

Florida Nurserymen and Growers Association, Hort-I-Scope International Short Course, Curtis Hixon Convention Center, Tampa, Sept. 30-Oct. 1.

Fourth Annual Drip Irrigation Conference, "Drip '76", Fresno, Cal., Sept. 30-Oct. 6.

Nebraska Golf Course Superintendent Association Meeting, Hillcrest Country Club, Lincoln, Oct. 4.

Northern California Turfgrass Council Turf and Landscape Irrigation Seminar, Asilomar Conference Grounds, Pacific Grove, Oct. 1-3.

Florida Nursery and Allied Trade Show, Curtis Hixon Convention Center, Tampa, Oct. 1-3.

Society of American Foresters, New Orleans, Oct. 3-7.

Hill Land Symposium, West Virginia University, Morgantown, Oct. 3-9.

Midwest Association of Golf Course Superintendents Meeting, Butler National Golf Club, Oct. 4.

Nebraska Golf Course Superintendents Association Meeting, Hillcrest Country Club, Lincoln, Oct. 4.

Tri-State Golf Course Superintendents Association Meeting, Owensboro Country Club, Kentucky, Oct. 5.

Northern California Turfgrass Council, Irrigation Seminar, Oakland Hilton Inn, Oct. 6.

Fertilizer Institute International Fertilizer Conference, The Fairmont, New Orleans, La., Oct. 6-8.

Florida Turfgrass Association Management Conference and Show, Sheraton Hotel and Convention Center, Orlando, Oct. 10-14.

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Indiana Golf Course Superintendents Association Meeting, Eagle Creek, Oct. 12.

Ohio Golf Course Superintendents Association Meeting, Westfield Country Club, Oct. 12.

Philadelphia Association of Golf Course Superintendents Meeting, Concord Country Club, Oct. 12.

Kentucky Turfgrass Conference and Field Day, Dam Village State Resort, Gilbertsville, Oct. 12-13.

Northern Michigan Turf Managers Association Meeting, Sugar Loaf Village, Cedar, Oct. 13.

Greater Cincinnati Golf Course Superintendents Association Meeting, Glennview Golf Course, Oct. 19.

11th Annual Industrial Weed Control Conference, Texas A & M University, Rudder Center, College Station, Oct. 20-21.

The Sixth Southern Forest Soils Workshop, Southern Forests Council, Charleston, S.C., Oct. 20-21.

Southern California Turfgrass Council 16th Annual Turfgrass Equipment and Materials Educational Expo, Orange County Fairgrounds, Costa Mesa, Oct. 20-21.

Rocky Mountain Golf Course Superintendents Association Meeting, Willis Case Golf Course, Col., Oct. 21.

26th Central Plains Turfgrass Conference, Kansas State Union, Manhattan, Oct. 21-22.

Southwest Turfgrass Conference, New Mexico State University, Las Cruces, Oct. 21-22.

Irrigation Conference, Center for Continuing Education, Appalachian State University, Boone, N.C., Oct. 21-22.

Seventh Technical Conference on Irrigation, Drainage and Flood Control, Spokane, Wash., Oct. 21-23.

Oklahoma State Nursery Research Field Day, Oklahoma State University, Stillwater, Oct. 25.

Wisconsin Golf Turf Symposium, Pfister Hotel, Milwaukee, Oct. 27-28.

Fourth National Turf Conference, Iluska Motor Inn, Surfers Paradise, Queensland, Austl., Oct. 31-Nov. 5.

Tennessee Golf Course Superintendents Association Meeting, Lakewood Country Club, Tullahoma, Nov. 1.

Tri-State Golf Course Superintendents Association Meeting, Western Hills Country Club, Mt. Vernon, Ind., Nov. 2.

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Sprinkler Irrigation Association Annual Convention and Business Management Seminar, Newporter Inn, Newport Beach, Calif., Nov. 7-10.

Sixth National Institute on Park and Grounds Management, Marriott Hotel, Atlanta, Ga., Nov. 8-10.

National Golf Foundation Eastern National Daily Fee Golf Course Management Workshop, Pheasant Run Resort, St. Charles, Ill., Nov. 8-10.

Indiana Golf Course Superintendents Association Meeting, Delaware Country Club, Nov. 9.

Philadelphia Association of Golf Course Superintendents Meeting, Sunnybrook Golf Course, Nov. 9.

Southern California Golf Course Superintendents Meeting, Los Robbles Greens Country Club, Nov. 9.

10th Annual Clemson Turfgrass Conference, Clemson House Hotel, Clemson, S.C., Nov. 9-10.

Missouri Turfgrass Conference, Ramada Inn, Columbia, Nov. 11-12.

30th Annual New York State Turfgrass Association Conference, The Turf Inn, Albany, Nov. 16-18.

Greater Cincinnati Golf Course Superintendents Association Meeting, Belwood Country Club, Nov. 16.

Seventh Annual University of Georgia Turfgrass Short Course, Center for Continuing Education, University of Georgia, Athens, Nov. 22-23.

31st Oklahoma Turfgrass Conference, Oklahoma State University, Stillwater, Dec. 1-3.

Texas Turfgrass Conference, Rudder Conference Center, Texas A & M University, College Station, Dec. 6-8.

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