Fungicides hit the see pages 24.25 Spot

Clemson

to create

course/

University

laboratory

THE NEWSPAPER FOR THE GOLF COURSE INDUSTRY

A UNITED PUBLICATION **VOLUME 4, NUMBER 7 JULY 1992**

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Gunning for better disease resistance

Newest biogenetic research goes biolistic

By PETER BLAIS

The U.S. Golf Association, seed companies and others are taking their first baby steps into the area of genetically engineered turfgrasses, hoping research will eventually lead to plants that are resistant to many turf ailments.

Recent advances in the technology of transferring genetic material, specifically the biolistic method, has helped make that possible, according to Dr. Peter Day of Rutgers University's Cook College.

Basically this involves taking a plastic projectile with a surface layer of tungsten or

Reregistration claims another industry victim

By HAL PHILLIPS

The specter of EPA reregistration has doomed another chemical product to the dustbin of history.

Miles Inc. announced in early April that its Dyrene fungicide products, which contain the active ingredient anilazine, have been voluntarily canceled due to the cost of obtaining data for reregistration support.

"There are a lot of people around here who are sad to see it go," said Rick Robb, marketing manager for Miles. "But it was a business decision. We have another fungicide product (Baleton) pending reregistration and it was too expensive to go ahead with Dyrene."

Continued on page 45



The projectile is fired

with a 22-caliber cartridge

toward a steel plate with a

small hole. A partial vacuum

containing grass cells is on

the other side of the plate. The steel stops the projec-

tile, but the DNA continues

through the hole and hits

the target cells. Some of the

DNA

nucleus.

penetrates the

Continued on page 22

Jeff Martin

By MARK LESLIE

A living, breathing, working laboratory in which handicapped and able-bodied people alike can play championship-level golf.

That's what the folks at Clemson University hope to develop on a 250-acre plot of land that contains peach orchards and borders manmade Lake Hartwell on their Clemson, S.C., campus.

This project hits all the hot buttons," said Bob Wilson, the National Amputee Golf Association national director who is involved as a consultant for the

Continued on page 32



NEW IDEAS FROM AN OLD MASTER

Architect Robert Trent Jones Sr. stands on the first tee at his Oxmoor Valley course in Birmingham, Ala. Built by Sunbelt Golf Corp., Oxmoor Valley is one of eight golf complexes constructed with Alabama state pension funds. For related story, see page 5.

Average maintenance expense per hole by region \$30,000 1990 \$20,000 \$10,000

PKF report says rounds up, maintenance costs down at resort and daily fee courses

By PETER BLAIS

Signs of recessionary times: Rounds were up, revenues stayed even and maintenance costs went down at daily-fee courses from 1990 to 1991.

That's the message contained in the first "Trends in Resort and Daily Fee Golf" published by the National Golf Course Owners Association and Pannell Kerr Forster Consulting Inc., the accounting firm that also does the "Clubs in Town & Country Report" for the pri

Continued on page 42

Clemson University to build course for handicapped

course which will be built to be accessible to physically challenged golfers.

Jeff Martin, director of conference and guest services at Clemson, said: "We will use the course for our golf team, plus we have a tremendous amount of academic work that will be done with it."

Anxious to work on the course are faculty and students in biology, agronomy, horticulture, parks and recreation and tourism management, and even engineering, where they are already modifying equipment like golf cars for the handicapped.

Dr. Lawrence Allen, head of the Department of Parks, Recreation and Tourism

Management, said: "We have all the players in line on campus and have support from various outside groups."

The National Center on Accessibility at Indiana University, National Amputee Golf Association, United States Golf Association, National Park Service and other organizations are interested and excited about the prospects of the project, Allen said.

Indeed, it might be all things for all

• Dr. Fran McGuire, a professor in the therapeutic recreation program, said he hopes the university will become "a national clearinghouse for the needs of the handicapped.'

· Ron Kendall, director of wildlife toxicology, sees it as an exciting research opportunity that will lead to developing a model for future golf course design and construction.

Martin said he hopes the facility, which will include a \$4.5-million conference center, will gain final state approval by mid-July, builders will start moving dirt by September and "we'll be playing golf by next October or November.'

Plans for an \$8.4-million hotel have been deferred, said Martin, who will operate the

The conference center is being built with state bond funds. The golf course is being

backed as an investment by the university foundation, a private corporation.

"This will be a money-maker, especially the golf operation," Martin said. "The foundation is investing \$2.2 million, expecting a return with interest."

The course will cost \$3.7 million to build, he said, with \$2.2 million from the foundation and \$1.5 million from memberships.

OUTDOOR CLASSROOM

While Martin already has more than 275 paid members in hand without a membership drive, others at the university are rubbing their hands in anticipation of a living classroom.

"The focus is to develop a high-quality course and playing surface but a very sensitive approach to environmental issues, such as what chemicals might be used, the design of the course, and so on," Kendall

"We're looking at water-quality issues and the wildlife associated with the site and how to enhance the wildlife while maintaining the course so that it is challenging."

"The wildlife research could be significant," Kendall said. "I'd like to see how wildlife uses the course for breeding, feeding... The key is to build our database so that we can enhance the game and at the same time encourage the natural environment. If managed properly, golf courses can be extremely valuable as wildlife habi-

Kendall said the course will require some fertilizers and pesticides as it matures, and faculty would like to be directly involved in selecting and monitoring the chemicals.

"We are still learning so much about the environmental chemistry of pesticides and the influence of climate and turf conditions and many other factors that affect the movement and fate of pesticides."

A host of studies can be done, he said, including integrated pest management approaches using university expertise in entomology, plant pathology and other ar-

MODEL FOR HANDICAPPED

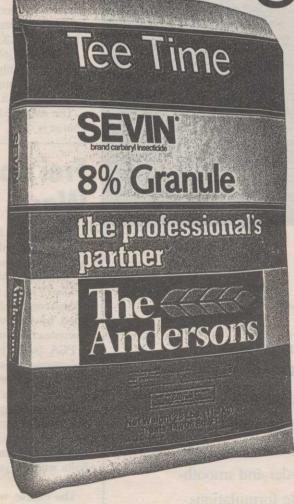
Meanwhile, McGuire said the therapeutic recreation faculty wants to "expand the scope of the golf course beyond golf" and is proposing that it be "a demonstration site for physically challenged golfers."

Four proposals are:

- · Incorporate design ideas necessary for physically challenged golfers. "We would like to act as a laboratory to try out those things," McGuire said.
- Investigate changes that have been made to equipment and expand on them, such as the Engineering Department's work on golf cars.
- · Develop "instructional, educational and advocacy strategies so that people with disabilities who don't golf can be introduced to the game, educated to its benefits and persuaded that it isn't hard to begin.
- · Communicate with other golf courses that the physically challenged should be

'We're looking at the whole system of golf from the physical layout, which is why this project is so exciting to the advocacy role because we're at the ground floor, even before the design process," McGuire





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