*A South Florida favorite. The friendly scrub jay at Loblolly Pines.*

*Stocking the lakes at Loblolly Pines with bass, bream, and catfish, and letting pond perimeters not in play to develop naturally provide food and cover for this great egret.*

**Insecticides/nematicides:**

- Season, target and weather determine timing of applications.
- Scouting programs in place, beginning the week prior to the full moon, starting in March and continuing through October.
- Three days before full moon, necessary pesticide applications made on *as needed* basis to flagged areas only.
- All applications are posted.
- Treat mole crickets *as needed* with applications made during the full moon. Feeding stimulants and detergents are added for increased control.
- Spot treatment.
- Toleration of nematodes, again with raised tolerance.The club accepts nematode damage as *part of.* Where possible, raised cutting heights to allow for more root mass and application of a little more fertilizer and water in these particular areas. ➥

**'We are proud to have Loblolly as a fully certified course in our Cooperative Sanctuary program and commend their philosophy to manage land at one with nature'**

**Herbicides:**

- With exception of one annual pre-emergent application, herbicides are applied only *as needed.*
- Do not water roughs, keeps weeds down. Rotary mowers are used in roughs to control broadleaf weeds.
- Lightweight mowers with high clip frequencies are used to ensure turf density, which results in fewer weeds.
- Judicious control of equipment and traffic patterns helps with weed problems.
- Hand pull weeds that can't be mowed.
- Sterile grass carp used in lakes.
- Blue marker dye used with applications to avoid overuse of herbicides.
- TOLERANCE is the key. We as a club accept species such as broadleaf, grassy, sedges, etc., as part of the natural Loblolly look.
- Pesticide applications always made with weather conditions in mind.

**CLOSING**

Jean McKay, Staff Ecologist with the New York Audubon says, "Loblolly is a unique property that illustrates that wildlife and golf courses can coexist. They've also taken this philosophy beyond their course to the community through their Blue Pearl Tournament. This tournament raised money for local schools to participate in making their schoolyards more environmentally friendly. We are proud to have Loblolly as a fully certified course in our Cooperative Sanctuary program and commend their philosophy to manage land at one with nature."

Dick Gray: "Our original concept in 1987 was *Back to Nature,* and to a large degree this theme dictated design and construction of the golf course. We weren't unique in this. Several golf courses had the same philosophy, probably throughout the history of golf. The benefit we derived from membership in the ACSP is twofold. First, it validated our efforts and intentions to our members, which created a lot of member involvement. Second, their awareness allowed us to enhance our original plan. From this natural look, we were able to gain credibility for the Blue Pearl and additional publicity that golf courses can be environmental enhancements. Everybody wins. The critters win. Mankind wins. Golf wins."

Dick has left Loblolly and has moved up the road where he is now Designer/Builder of The Florida Club, which is under construction with a proposed opening date of August 1996. One thing that we can be sure of is that the critters around The Florida Club are in good hands.

Fred Hinkle is now the Superintendent at Loblolly Pines Golf Club. Fred and Dick have known each other for more than 15 years and are from the same hometown in Indiana

When Dick knew he would be leaving to build the new golf course, he called Fred and asked him to come to Florida to take over for him at Loblolly. It hasn't taken Fred long to get attached to his surroundings.

"I have seen a lot of golf courses in my time, but Loblolly is special," Fred said. He added that Loblolly will **definitely** continue to work with the ACSP and that everyone there is very committed to this program. He also says that he has seen more wildlife stick around this year than ever before.

Does it have anything to do with their involvement in the ACSP?

"I do think it plays a role, sure."

So, the commitment to environmental enhancement continues at Loblolly. After all, it is their way of life; **one with nature.**

# Wildlife Inventory—Loblolly Pines

**Birds:**
Sandhill Crane
Kestrel/Sparrow Hawk
Cardinal
Bobwhite Quail
Scrub Jay
Fish Crow
Mockingbird
Osprey
Turkey Vulture
Red tail Hawk
Mourning Dove
Blue Jay
Common Crow
Common Grackle
Cowbird
Green Heron
Little Blue Heron
Great White Heron
Great Blue Heron
Cattle Egret
Great Egret
Snowy Egret
Common Egret
Pileated Woodpecker
Yellow Shafted Flicker
Downy Woodpecker
Red Bellied Woodpecker
Common Galinule
Blue Grey Knatcatcher
Red Winged Blackbird
Belted Kingfisher
Vireo
American Coot
Ibis
Roseate Spoonbill
Ring Billed Gull
Louisiana Heron
Chuck-wills Widow
Great Horned Owl
Killdeer
Double Crested Cormorant
Anhinga
Mottled Duck
Royal Tern
Thrush
Palm Warbler
Common Seagull
Pelican
Woodstork
White Ibis
Hooded Merganser
Egyptian Geese
Bald Eagle
Whippoorwills

**Reptiles and Amphibians:**
Alligators
Soft Shell Turtles
Gopher Tortoise
Coach Whips
Coral Snake
Indigo Snake
Lizards
Green Tree Frog
Southern Toad
Leopard Frog
Squirrel Treefrog

**Mammals:**
Armadillo
Panther
Raccoon
Bobcat
Gray fox
Gray Squirrel
Marsh Rabbit
Rat
Cotton Rat
Opossum

**Fish:**
Catfish
Bream
Bass
Shell Crackers

**Other:**
Butterflies

*Mechanical sand rakes are a labor saving necessity in large bunkers like this.*

Photo by Darren Davis

# Hunker in a Bunker

BY JOEL D. JACKSON, CGCS

I'd like to thank the 30 superintendents who took time to share their bunker management techniques for this article by answering the Bunker Questionnaire that we sent out. Mike Hamilton, CGCS of the Grey Oaks CC also wrote a great article on how he has managed to reduce labor hours for bunker maintenance.

Playing conditions in sand bunkers, formerly known as *sand traps* before the USGA deemed the term politically or technically incorrect, are receiving more attention all the time. The chief complaint being that bunkers are too soft. Too many *fried egg* lies out there. And I suppose poorly designed and constructed bunkers can also be too wet if they don't drain properly. As we respond to the increasing demand for excellence, we find there are some basic guidelines that can improve our bunker conditions.

The number one critical factor that will reduce or eliminate most of your problems is to use the proper sand in your bunkers. That answer is repeated over and over in the answers to solving soft and wet conditions. What is the proper sand?

The proper sand is the one you selected based on its physical properties: size, shape, composition, angle of repose, and color. These factors excluding color will dictate how well the sand will pack and firm up for that *perfect lie* we are asked to deliver. How often you rake and cultivate to produce the desired conditions is a matter of individual preference.

Your peers are using at least 10 different types of sand in their bunkers. I will list them here with definite concern for some of the choices. The number in parentheses is number of courses reporting:

**Ortona 200** (3); **Standard's M-37** (7); **Standard ?** (4); **FM200** (3); **DOT** (2); **"220"** (3); **GASH 200** (1); **"180"** (1); **Jahna Trap** (2); **Misc ?** (4).

I challenge you to call your vendor and get the exact specifications.

The respondents to the survey are basing their answers on maintaining as few as 22 bunkers to as many as 126 bunkers per 18-hole course.

All of the reporting courses use mechanical sand rakes. They are a part of modern golf course management. Hand raking is still used in steep pot bunkers and other green side bunkers by choice. Even the modest hand rake has undergone modification from a traditional rake with 2 inch tines to curved and cylindrical shapes with one-half inch teeth. Courses spend anywhere from 2.5 hours to 24 hours to complete one raking cycle: 37% of the courses rake bunkers four to six times per week; 30% rake daily; 30% rake three times a week; and 3% rake twice per week.

The choice of attachments was divided mainly between leaf rakes with or

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without tines; grooved flaps with or without tines; and the old cutter bars with flaps. It isn't surprising to find private clubs and public courses using different schedules. Resorts may only see their guests once and so they tend to rake more often. Private clubs tailor their routines to the members wishes and hopefully see a higher level of golf etiquette and participation than public venues.

Edging routines also varied widely depending on practices, available labor and expectations of the clubs. Weekly and bi weekly routines were common, followed by monthly and bimonthly to a minimum of three times a year. String trimmers, stick edgers, and reciprocating edgers have become the predominant edging tools.

Only four superintendents reported using non-selective herbicides to chemically edge bunkers. On the other hand, eleven courses reported using PGRs to reduce flymowing. Only four courses said they overseeded bunker lips.

On the issue of correcting soft bunker conditions, suggestions included: Using proper sand; reduce raking frequency and use of tines or cultivators; hand water; tamp; use granular wetting agents; tire packing (a PGA recommendation); drag mat and rental compactor.

Concerning wet conditions, the offerings are: Install drains; repair and flush drains; shovel silt and debris before raking; use tines to break up crust; increase use of tines and raking frequency; allow to dry before raking (USGA recommendation). For water damage and washouts the first response is judicious use of push blades on sand rakes to put sand back in place. Good old shovel and rake work is also required.

Chronic washout areas are corrected in the long run only by diverting runoff from the bunker or sodding or rebuilding a bunker face that is too steep. Remember "angle of repose" as one of those critical factors in sand selection? Construction sand has an angle of repose of 35 degrees. Any bunker face steeper than that defies the laws of physics. Golf course architects take heed!

Last but not least is a discussion of where to put hand rakes. Sixteen of the courses put the rakes on the course.

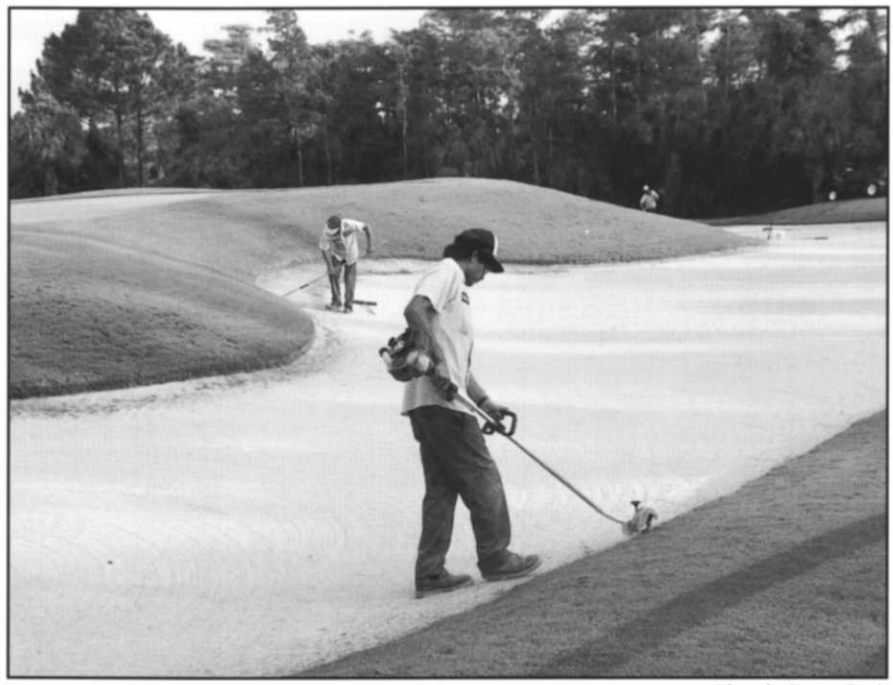

Photo by Darren Davis

*String trimmers, reciprocating edgers and stick edgers(pictured) have all but replaced square point shovels and halfmoon spades for edging bunkers.*

Nine said they put the rakes *in the bunkers.* Three said definitely on the course but *out of the bunkers.* Four more just said *on the course.*

For your information, the USGA recommends that rakes be placed outside of the bunkers. The other fourteen courses put the bunker rakes on the golf carts. The big drawback for rakes on carts is that golfers are forever forgetting to bring the rake back to the cart.

Cary Lewis at the Stouffer Vinoy GC has a great idea to help alleviate that problem. At the Stouffer, they have two remote rake stations stocked with extra rakes on holes #3 and #13. Those with rakes on the course cite member preference as the dominant reason followed by walking golfers. Those with rakes on carts cite aesthetics, theft, damage and labor savings as the reasons for their choice.

Bunker management is entering a new era. The demands and expectations of improved playing conditions includes bunkers. Materials, equipment and techniques are improving rapidly. I hope this overview helps. Check out the next article to see how Mike Hamilton solved some specific problems at his course.

## Bunker Maintenance at Grey Oaks C.C.

BY MIKE HAMILTON, CGCS

At Grey Oaks Country Club we have 96 large bunkers with steep faces, so it has become essential for me to find ways to efficiently maintain them. With the help of a Trims computer program, I have always tracked the labor at Grey Oaks. The highest labor area has always been our bunkers.

In our first year of existence we spent 16,250 hours in labor on bunkers, which was 14.2% of our overall labor. The following year we spent 15,000 hours in labor on bunkers, which was 9.3% of our overall labor. This year that percentage is down further to 8.7%. How have we reduced the labor on our bunkers? With chemicals, new equipment and training.

It is truly amazing how far bunker maintenance has come since I was on a crew. On a good day three people could edge 15 bunkers a day.

Today, I can send two people out and they can neatly edge all 96 of my bunkers in one day. Wow! Now that is a big-time money saver. How is it possible to do

this? I stay on a scheduled program of chemical and mechanical edging, and also use growth regulators.

About a year ago I purchased a 15-gallon battery-operated sprayer with a coiled hose. At the end of the spray wand we attached an inverted funnel with square edges. Once a month, one person driving a utility vehicle and one steady-handed well-trained person using the spray device and a non-selective herbicide can neatly chemically edge all 96 bunkers in one day. Because the funnel is square and open ended, I do not get the jagged edge I used to get with a shield attached to a spray wand.

Chemical edging does not eliminate mechanical edging, but it does reduce it tremendously. Back in the old days, if we were to keep our bunkers neatly edged all the time we had to mechanically edge them 15 to 20 times a year. Today, because of chemicals, I need only mechanically edge bunkers four times a year. In the last few years I have discovered the *stick edger*. A stick edger is simply an edger blade attached to a weedeater.

Photo by Mike Hamilton

*An inverted square-mouthed funnel attached to a spray wand gives a nice crisp edge when chemically treating bunkers.*

The speed at which an operator can trim edges, and the mobility they have, has made mechanical edging fast and easy. One operator edging and one person with a leaf rake can edge and clean all

*Mike Hamilton demonstrates his modified version of the Flymow.*

96 bunkers in a day, and if I am closed one person can do all 96 bunkers. The small amount of debris that is clipped off will be tilled into the sand the next day with the mechanical rakes.

Another big labor item for me has always been mowing the step bunker faces. When I first arrived at Grey Oaks, it took 84 hours a week to mow the bunker faces. Although my budget is not bad, it is by no means exorbitant, so I had to find a way to reduce that labor. By modifying my flotation mowers and with the use of growth regulators, I have reduced that 84 hours a week to 84 hours a month.

The worst part about spending all that time mowing bunker faces was that even though I was mowing them once a week, they were still always brown, either from scalping or stress due to the run off of water, nutrients and chemicals. I knew the higher I could maintain the turf, the easier it could cope with the stress of this severe environment. The problem was that the highest my flotation mowers would cut was 1½ inches. We came up with the idea of mounting a 1½-inch PVC pipe to the bottom of the mower to raise the height to three inches. The three-inch height seems to be a better one for the turf under the extreme conditions.

Growth regulators have also become a part of my bunker maintenance program. Because we are cutting bunker faces at three inches, I can use high rates of the regulators without the turf going off-color. The higher rates allow me to mow the bunker faces on a monthly basis rather than weekly. The turf tightens up and rarely gets scalped when we mow it. At first, I was concerned that the three-inch turf would look out of place with our normal rough, but it doesn't. The slopes are steep enough that very few balls get hung up in the face of the bunker. I get more compliments because the bunkers are green than I get complaints because someone lost their ball in the turf. The growth regulators also help me with my bunker edging.

I have my spray technician treat the entire edge of the bunker when he is spraying faces, and it reduces the runners in the bunkers tremendously.

I don't think enough can be said about how training employees properly can make any task more efficient. We spend a lot of time with our bunker crews to make sure we are getting peak performance out them because it is such a labor-intensive area.

One of the most important persons on that crew is the person who does the chemical edging. If that person is not meticulous in his task, he could cause more work than he reduces. Make sure you spend a lot of time with that person, and make them realize how important the task is.

Using these techniques I have reduced our labor on bunkers by 5.5%, and our bunkers are always well-kept and manicured. That reduction in bunker labor has benefited the entire golf course, because we can concentrate more labor on other parts of the course.

Photo by Mike Hamilton

*Crew member, Gene Paul, drives while Jose Godines chemically edges a bunker at Grey Oaks with a modified spray wand attached to a 15-gallon electric sprayer.*

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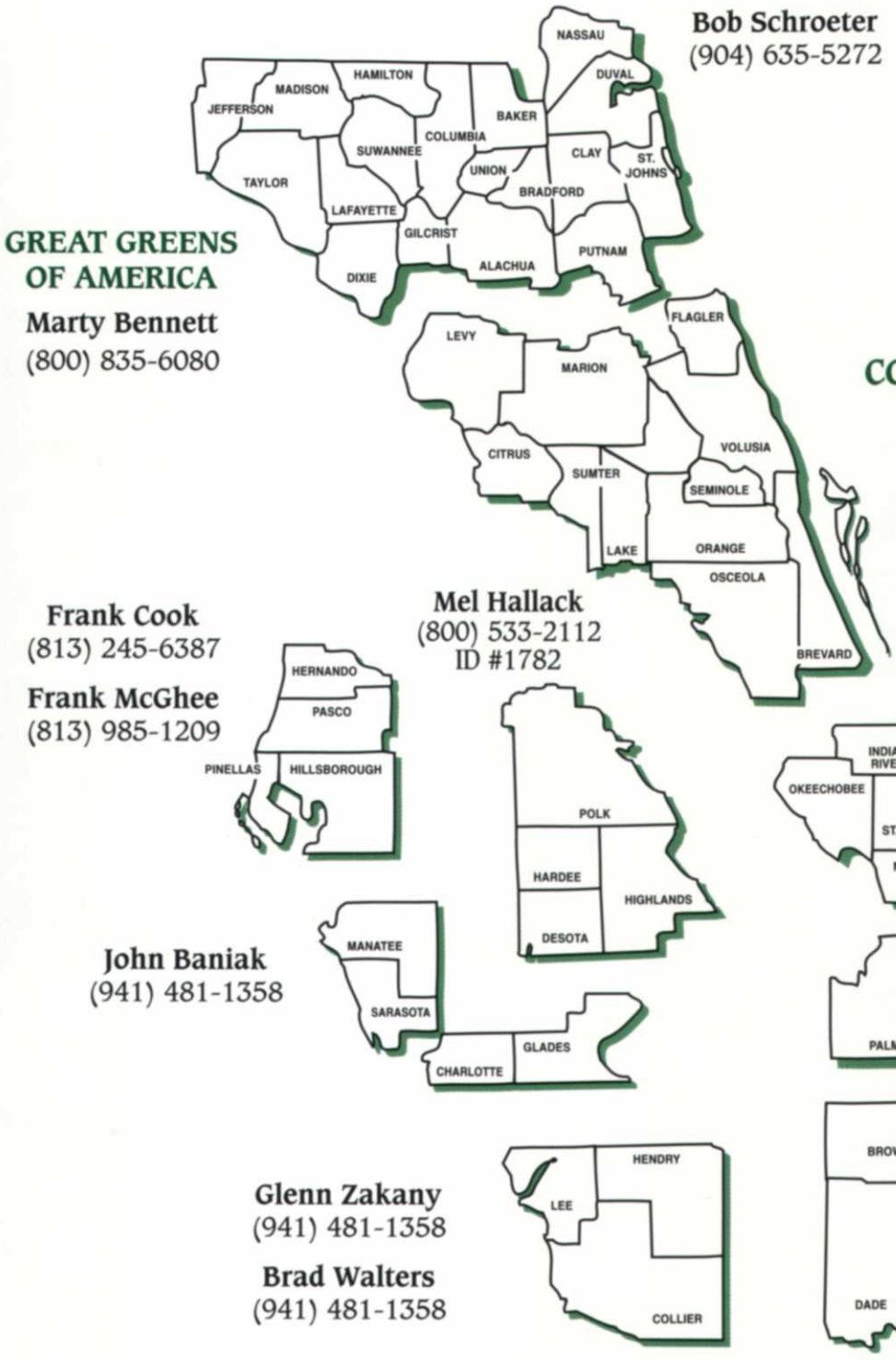


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# On the Oregon seed trail

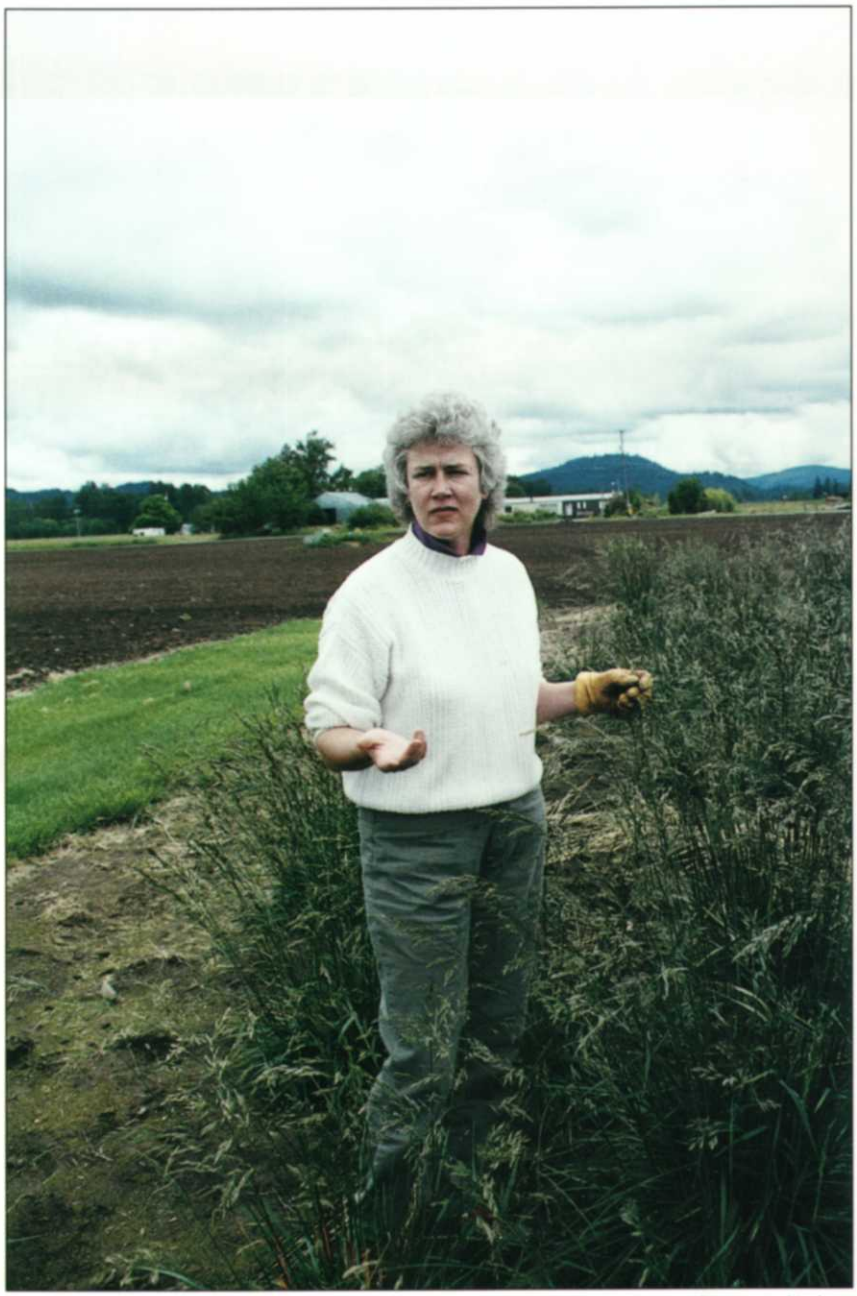

Photo By Joel Jackson

*Lofts' Turfgrass Breeder, Dr. Virginia Lehman, explains the lengthy process of getting a new grass variety from the research farm to the marketplace.*

## The Oregon Seed Trail

BY JOEL D. JACKSON, CGCS

You say, "Willa met." I say, "Will lamb it." But no matter how you pronounce "Willamette," a valley by any other name would not be the seed growing capitol of the United States.

Lying between Oregon's coastal mountain range to the west and the Cascade Mountains to the east, the Willamette River runs from Albany north to Portland. Blessed with mild temperatures year round and abundant light rainfall nine months out of the year, the Willamette valley is one of the nation's most fertile growing areas.

The Jackson family had the pleasure of touring the Pacific Northwest this past June. The trip was only for a week, so we each picked something special we wanted to see besides the gorgeous scenery. Susie needed to touch base with cousins in Seattle she hadn't seen in 40 years and a childhood friend now living in Walla Walla. My daughter, Jennifer, opted for Powell's City of Books in Portland, the