

Applewood Golf Course: Reintroducing the Shortgrass Prairie and Links-Style Golf

by **RON CONARD**

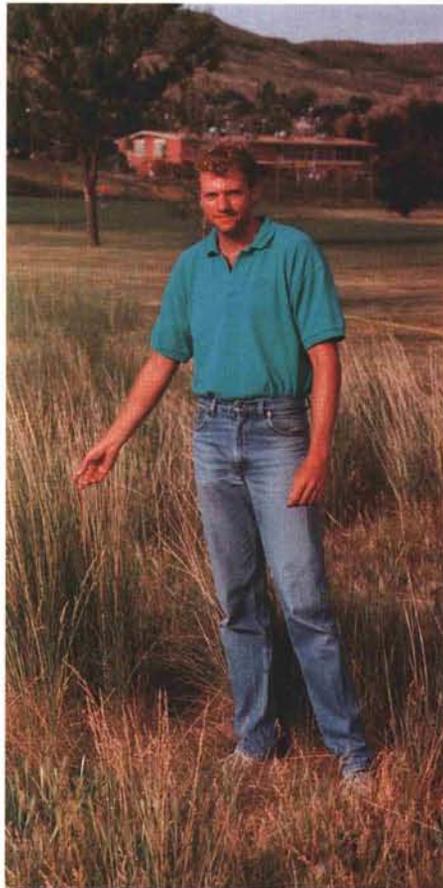
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OUR STORY begins in the fall of 1987, when American Golf Corporation signed a stringent lease to operate Applewood Golf Course. Our lessor wanted to prevent and minimize the risk of groundwater contamination by greatly reducing irrigation acreage, reducing irrigation rates, and by reducing chemical inputs. The eventual goal was to eliminate pesticides completely.

With each passing day available water in the West becomes more precious, and our native prairie grasslands are shrinking in size. It makes sense to adopt a links-style course if only for water savings. The time has come when the plush, wall-to-wall bluegrass golf course is an environmental albatross. True, the American golfer has come to expect this as the norm, but does anyone believe the British golfer enjoyed the game any less a hundred years ago? We can still provide immaculate conditions; they just need to be in the right places, such as greens, tees, and fairways.

To satisfy the needs of our lessor and our customers, we needed a design concept that was both environmentally pure and playable. Mike Heacock, vice president of maintenance for American Golf, decided to borrow a couple of design techniques from other areas around the golfing world. First, to insure that we provided competitive conditions with a minimal amount of fertilizers and pesticides (we have been entirely pesticide free since 1989), we adopted the target-style golf of the desert Southwest. This has allowed us to more intensively maintain a much smaller portion of the golf course. Greens, tees, landing areas, and approaches, totalling 27 acres, are pampered. Within these areas every facet of cultural pest control is employed, from computerized irrigation control with a state-of-the-art weather station to frequent aerification, hand-weeding, biological insect control, and cultural control of such diseases as snow mold.

By focusing the majority of our efforts on specific areas of the golf course, and due in part to our favorable climate, we have been



Ron Conard, superintendent at Applewood Golf Course, checks how well the western wheatgrass is doing in the native roughs.

able to eliminate entirely the need for pesticides. The second step to satisfy our lessor was to adapt the remaining 110 acres into drought-tolerant and low-fertilizer-use grasses. In short, we borrowed the links-style concept from the British.

The remainder of Applewood is broken down into three separate areas of maintenance. The first area receives single-row irrigation, and we term it the "other fairway area." Slit seeded predominantly with fine

fescues and hard fescues, the other fairway area is located between the landing areas and the approaches. The fescues have performed fairly well with less nitrogen fertilization and less irrigation. In fact, we are irrigating our ryegrass landing areas and approaches at about 60% evapotranspiration levels (ET) for the season, while the fescues are performing well at 50% ET. The theory is that when the golf course is hit with inevitable drought restrictions, we will be able to stop irrigation on the 35 acres of other fairway area for a period of time and the fescues will bounce back when favorable conditions return.

A second distinct maintenance zone is the primary rough. Maintained at 2½" and not irrigated, except for establishment purposes, this area has posed our biggest challenge at Applewood. The difficulty of establishment has been addressed in two ways. First, in the fall of 1988 we attempted our first dormant seeding of the primary rough area. The original superintendent, Guy Auxer, without whom many of the innovative techniques applied at Applewood would not have been instituted, decided to experiment with dormant seeding. The theory behind dormant seeding is that by seeding late enough in the late fall (November 15th in our area) the seed will not germinate until the onset of warm, moist conditions in the spring.

We slit seeded 35 acres of primary rough with a mixture of tall fescue, hard fescue, and common bluegrasses to encourage drought resistance and recoverability. I remember looking at the rough with Guy in the summer of 1989 and deciding we had failed miserably. However, it turned out later that the hard fescue in the mixture was our saving grace. Dormant seeding did work, but we learned to use the right species.

We now have about 40% of primary rough in hard fescue just from that first dormant seeding. Another 40% consists of old bluegrasses which survived from when the course was irrigated wall to wall. They continue to thrive in our heavier soils, and receive just 14 inches of precipitation per

year. The other 20% of the primary rough is still very thin and in need of further work.

The second establishment method involves temporary irrigation during the spring and summer months. Due to weed competition, we have come up with mixed results. Without herbicides and with supplemental irrigation during the growing season, various weed species get a jump on the turf seedlings and severely compete with them for water, nutrients, and sunlight. This fall the remaining 20 acres of rough will be dormant seeded with wheatgrass, blue grama, and buffalograss. During the next few years we should gain some insight as to how these grasses perform under drought conditions and traffic.

The third zone of drought-tolerant grasses consists of 40 acres which have been established into native shortgrass prairie. Personally, this project has been the most rewarding because of the excellent wildlife habitat we have developed. It is very rewarding to see beaver swimming in the ponds, an occasional bald eagle joining in with numerous hawks to hunt in the grasslands, and pairs of coyotes balancing a once-rampant goose population.

It also is amazing to see the development and maturity of many different native grasses and wildflower species in a semi-

arid region. Most of our grasslands were established through dormant seeding, much the same way in which we established our primary rough areas. Originally we were going to plow large areas and irrigate for establishment during the summer months. Again, without the use of herbicides, this would have been a tremendous mistake. By disturbing the soil profile through plowing and irrigating afterwards, we would have had an uncontrollable weedy mess. Instead, we have taken the patient road of imitating Mother Nature in our seeding process.

We now seed after November 15th by running an Aerway slicing aerifier through the grasslands, broadcasting the seed, and then dragging the seed into the holes with a harrow. The Aerway does not disturb enough of the soil profile to germinate a lot of weed seed. For the most part, our grasslands are coming along much faster than anyone anticipated. Over 30 acres are now dominated by species of wheatgrass, blue grama, buffalograss, needle and thread, green needlegrass, creeping foxtail, purple three-awn, and sand dropseed.

This is not to say that we don't have areas of the golf course which now could be considered weedy. We currently are working with our local fire district to obtain an open

burning permit to help control annual weeds and certain shallow-rooted perennials. Fire is an important part of the grassland ecosystem. Soon after a wildfire has done its damage, one will find green, grassy shoots bouncing out of the soil, seemingly stronger than before. Also, annual weeds and shallow-rooted perennials are reduced due to the lack of recuperative mechanisms.

No one should get the idea that this concept is not being accepted by the American golfer. Though we received many complaints in the past about the difficulty of hitting out of the grassland areas, and some golfers still feel that traditional parkland golf courses are more appealing, Applewood Golf Course is one of the most heavily played courses in the Denver area. Our green fees are equal to or slightly higher than most of our competition. Also, we consistently rate as good or better than our competition in terms of conditions and playability.

Naturally, we are not the only ones experimenting with this concept. Superintendents and officials at other golf courses who are trying to implement water conservation techniques should be commended. If the American golfer accepts the links style of the courses of the British Isles, and if such a course benefits our earth, then let's develop more of them.



(Above) A close-up of meadow foxtail (Alopecurus pratensis). (Right) The native grasses provide a sharp contrast to the course, but blend in well with the rugged Colorado scenery. The native areas have excelled since stakes and rope were installed as traffic control measures.

