

square centimeters of recovery were calculated using SigmaScan Pro 5 (Richardson et al., 2001). Mixed models and regression analysis were conducted to determine significant differences between treatments.

Results

The Ohio State experiments showed coring and filling the holes with the coated sand enhanced core hole recovery based on number of holes visibly present 11 days after treatment (Figures 2 and 3). The use of a plant growth regulator had little or no effect on core hole recovery.

The Penn State experiments showed average divot size over the seven-week period was smallest in the coated-sand treated plots (Table 1). Divot recovery (percentage) was accelerated by all fertilizer treatments when compared to the control. However, among fertilizer treatments, plots topdressed with the coated sand had significantly greater recovery over the experimental period.

This observation was most stark in the period three to seven weeks following topdressing, and affirmed by orthogonal contrast statements. Images illustrating stolons extending from adjacent bentgrass into divots show rapid growth with no signs of phytotoxic injury (Fig. 4).

Summary

During the summer of 2004, the coated sand showed good performance as both sand topdressing and steady-release nitrogen fertilizer in two independent studies.

Recovery of a treated L93 fairway was four to five times more rapid than ordinary sand in the two weeks following aerification. Likewise, divot recovery on a PennEagle fairway was significantly enhanced when the coated sand was used in the topdressing compared to both ammonium sulfate and isobutylidene diurea spiked sand in the seven weeks following treatment.

Moreover, advantages demonstrated in the latter study do not account for costs associated with in-house sand-fertilizer blending; burn risk or non-uniform application of improperly homogenized sand-fertilizer blends.

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Black Mesa

Magic

Developers, architect and Indian tribe work together to produce an award-winning golf experience in New Mexico for a mere \$3.5 million

BY BRUCE ALLAR



Near Santa Fe, with its intriguing amalgam of Native-American, Hispanic and Anglo cultures, residents often attribute fortuitous events to “synchronicity,” as if not-always-aligned forces magically join together to drive local developments. That was certainly the case at Black Mesa Golf Club, located 15 minutes from Santa Fe in La Mesilla, N.M. Here, a magical coming together of the developers, the architect and the Santa Clara Pueblo tribe has produced an award-winning golf experience.

Named the “Best New Affordable Public Course for 2003” by *Golf Digest*, Black

Mesa was constructed for just \$3.5 million (\$3 million for 18 holes and a practice facility, and \$500,000 for a clubhouse and maintenance building). Its greens fees were initially set at \$35 to \$40, and are now \$50 during the week and on weekends (golf cars cost an extra \$16). Yet it receives accolades normally reserved for much pricier tracks: “Top 10 new course you can play” (*Golf Magazine*), “a stunning layout” (*Golfweek*), “gorgeous, tough, enigmatic” (*Travel + Leisure Golf*), to name a few.

In the late 1990s, Eddie Peck, Pat Brockwell and Paul Ortiz were involved in planning a new golf facility on nearby

PHOTOS COURTESY OF BLACK MESA GOLF CLUB

state trust land. Because that site was adjacent to property owned by the Santa Clara, the developers approached the tribe for easement rights to run pipes to carry sewage effluent for irrigation. By coincidence, Calvin Tafoya, a former governor of the Santa Clara Pueblo and now the CEO of a tribal development corporation, had been considering a tribe-owned golf course. He came up with a proposal that suited everyone. The timing, in this case, was everything.

"I pointed out to them," Tafoya recalls, "that rather than us competing, why don't we work together on tribal lands."

"We had a great site, but this one was better," says Brockwell, who is Black Mesa's superintendent. "And partnering with the tribe

also simplified a lot of the planning and permitting. It got us down to one set of rules instead of dealing with state, county, neighborhood associations and everyone else."

That saved time and money, naturally. In addition, the jaw-dropping scenery at the course site — with the namesake Black Mesa and mountain vistas in the background and rugged sandstone ridges and sparse native vegetation in the foreground — made it easy for the developers to let the land determine the links, not the other way around. This was another big cost-cutter.

"If you have a routing plan that utilizes natural features, you don't have to disturb as much land to create sculpting so that you have cer-

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Black Mesa Magic

Continued from page 83

tain elements of play," says Baxter Spann, the course's architect, a partner in Houston-based Finger Dye Spann. "You're able to use the land as it is and disturb less of it, which means there's less grading, there's less irrigation, there's less grassing, there's less water use. I think we have somewhere around 85 acres of irrigated turfgrass, and that includes a pretty large practice facility."

Other budget-preserving steps made Black Mesa possible for \$3.5 million:

■ **California greens.** Spann says about \$60,000 to \$80,000 was saved using this technique instead of USGA-type greens. The native soils and climate favored this type of construction, which eliminates a gravel blanket layer by placing 12 inches of seedbed sand directly over the subgrade. "We found no detriment at all to building the greens that way," Spann says.

■ **Irrigation control.** Water is a precious commodity in New Mexico, and its use was limited by allowing natural vegetation (or rock) to populate areas to the sides of fairways, which are not irrigated. The developers also simplified the watering of tees, greens and fairways by installing a block system with decoders. Because each valve in this system runs two or three sprinklers, there are fewer valves with less-pressurized pipe and a less-complex wiring system. Brockwell estimates a 15-percent savings when compared with the more common practice of valve-and-head irrigation.

■ **Limited revegetation.** By disturbing little native ground, the builders were required to replant only about 6 acres, most of it on the banks of tee areas. "There was nothing else that had large areas that were disturbed and needed to be revegetated, which is a real chore in our climate," says Brockwell, who has seen courses in his region with up to 50 acres to repair. "There's just no help from Mother Nature. Those areas on other courses tend to require some kind of temporary irrigation, and it's several years before they look natural again."

■ **Gravel cart paths.** The arid climate allowed Black Mesa's developers to forgo paved paths for less-expensive crushed rock. The result blends more naturally with the course's environment, which is isolated from roads and residences.

■ **Few chemicals.** "I've saved a lot of money on pesticides," Brockwell says. "We have a strong organic component to our fertility and maintenance and that's really suppressed a lot of disease problems." All pesticide so far has been applied with hand-held sprayers, and fungicides and herbicides have hardly been needed. "Our climate helps us there," he adds. "I can always dry things out. We maintain the course on the dry side so it plays more like a true links course."

■ **Grow your own.** No sod was laid, even on greens and tees. "We used straw mulch mats on areas that would normally have been sodded, and they were very effective," the superintendent says.



The greens were planted with creeping bentgrass (Penn A-4) and the fairways are Kentucky bluegrass. The grow-in suffered because of an unusually hot, windy year. But because those areas were irrigated, the course that was planted in April 2002 was able to open for play exactly one year later.

The arid climate allowed Black Mesa's developers to forgo paved paths for less-expensive crushed rock.

■ **Budget bunkers.** The developers planted fine fescues around the bunkers, making them no-mow areas and saving maintenance costs. The wispy, Scottish-links look is easy on the eye but a sore sight for errant shotmakers, who now pray they wind up in the sand rather

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The course saved nearly \$80,000 by using California greens. The native soils and climate favored this type of construction.



than the high grass. "It gives those bunkers a lot more respect," Brockwell says.

The Santa Clara Pueblo tribe owns the majority interest in the course, with the development team of Peck, who is the principal, Brockwell and Ortiz, who did the construction work, holding the rest. This team acts as Black Mesa's managing partners.

Tafoya says the group projected profitability within three to five years of opening and that it is "pretty much on schedule" to achieve that. Greens fees, which were set low to compete against municipal courses in an area not noted as a golfing destination, are expected to creep upwards as the reputation of Black Mesa grows.

Tribal leaders approved the golf course plan on their property because the area was considered otherwise difficult to develop and because it gave the Santa Clara a way to preserve more of their water rights. "In New Mexico," Tafoya says, "it's getting more and more a case of, if you're not using (water capacity), you might lose it."

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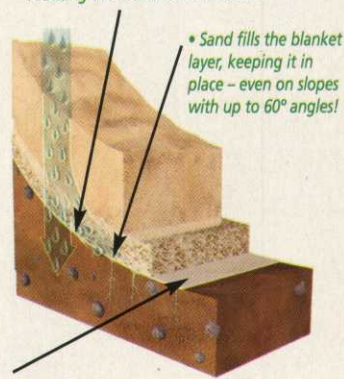
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Black Mesa Magic

The builders disturbed little
native ground and had to
replant only about 6 acres.



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Allowing the site to be the star appealed to the Native-American residents, and Tafoya sees that as a lesson. "The biggest thing is when you design your golf course you don't need a big name to do it," he says. "The hills and the mountainsides were the features here, not a name from the high ranks of the golf community."

Synchronicity was at work on the design end as well. Ortiz had worked with Spann on other projects in the area and introduced him to Peck early in the process that would eventually birth Black Mesa. The Finger Dye Spann firm is developing a niche in designing affordable golfing venues, but the project in northern New Mexico became something special to Spann the moment he looked over the proposed site.

"I was in awe of it," Spann says. "It was a fantastic piece of ground. It has all of those 100- to 200-foot sandstone ridges that go right through the middle of it and then little spurs that peel off of those. My initial thought was it looked like an Irish or Scottish links setting with those dune-like formations and all this grass blowing in the wind."

A key to success — and to staying on the low budget — was the deep personal commitment of all principal players. "We had ownership involved in key roles; it wasn't hired out," Brockwell says. "This was the project for us, not just another project, so we were able to build at a wholesale cost and with an ownership eye."

"Everyone involved in the creation of this agreed that we

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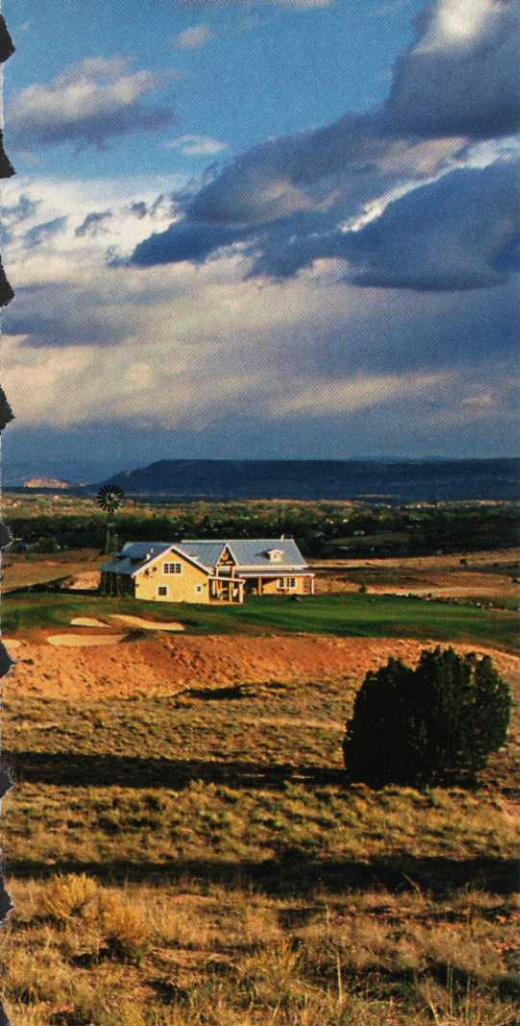


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wanted to keep it as natural as possible," Tafoya points out. Those who lived in the Santa Fe area knew the vegetation there and what it could withstand, what could survive wind and sun exposure, and what could not.

The sole member of the team from outside the area, Spann, compensated by being on site more than 100 days during construction. "He could be there at the initial clearing of a fairway and be working with the shaper the first time through," says Brockwell. "He was able to get it right the first time rather than visiting every six weeks and making a bunch of changes."

Spann accomplished his noteworthy design by allowing the landscape to shape his thoughts. This process of suspending design conventions liberated him to create some quirky holes. The first is an example. It features a semi-blind tee shot that is normally a no-no for a round's opening drive. But the backbone of a ridge rising above the tee could not affordably be taken out, so

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How to Choose the Right Seashore Paspalum

There's been a lot of talk about some of the newer seashore paspalums over the last few months. Don't believe everything you read. Do your homework. And be sure to remember the old adage, "If it sounds too good to be true, it probably is."

1. Ask for University-Generated Research Data on Turf Quality

National Turfgrass Evaluation Program trials are an important source of performance data for most turfgrasses. However, NTEP trials have not been conducted for the seashore paspalums due to the newness of these cultivars in the turf arena. For now, you should insist on reliable data from universities or individuals who develop and release new cultivars. Valid data implies replicated trials, statistically analyzed data, more than one year of evaluation, and data on particular abiotic and biotic stresses.

2. Ask for Data on Salt Tolerance Before Choosing Your Cultivar

If you're going to be managing a salt-affected site, or using seawater to irrigate, it's important to make sure you have reliable data on how your particular cultivar responds to salt.

3. Talk to Other Superintendents

Talk or visit with other superintendents with conditions similar to yours to find out what kind of experiences they've had with a particular cultivar.

4. Make Personal Visits to Research Plots, Golf Course Sites and Grower Fields

Go see the grass in the field, including research plots and/or golf course test plots. Putt on the greens. Hit drives off the tees and shots from the fairways.

5. Plant a Practice Green or Tee Using the Cultivar Under Consideration

Plant a practice green or practice tee with the variety under consideration. Plant a problem area in one of your fairways to see if the grass will tolerate your course conditions. Conduct trials for at least a year so you experience an entire growth cycle.

6. Purchase Only Certified Plant Material to Help Ensure Quality and Varietal Purity

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Black Mesa plays 7,300 yards from the tips, but the carries are long because the course sits more than a mile above sea level.

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Spann fashioned a 100-yard-wide bowl of a landing area on its other side that is actually quite easy to hit. The result: Golfers are intimidated by the view and then exhilarated by the result — sitting in the fairway and aiming for the green.

“Allow the site to give you what it has, and don’t try to impose pre-set criteria on the form of the golf hole,” Spann says. “Let it be a wild and semi-uncontrolled ride through the landscape.”

Black Mesa plays 7,300 yards from the tips, but the carries are long because the course sits more than a mile above sea level. Well-planned yardages from the other tees make it enjoyable for hitters of any length. Varying winds change shots, providing a different challenge nearly every time out. And with a few par 4s that might be drivable as well as par 5s reachable in two, it can yield some very low scores on certain holes while extracting 7s and 8s on those that are played poorly.

“It’s a little bit tricky because it’s so exposed and treeless. When the wind kicks up, it can really be brutal,” the architect says. “So we tried to keep some width to the fairways and sort of a random placement of bunkers that are totally out of play on one day but will be extremely integral to the play of the hole (on another day). It’s the kind of course that gives you a lot of variety from day to day.”

The wild, rugged experience appeals to many golfers. It brings them back, as does knowing that they’ll be in for a challenge, though not an impossible one.

Says Brockwell, “I know with other projects I’ve been involved — and with some big-name designers — we’d have moved a lot of mountains, and it would’ve cost a lot of money. And it wouldn’t have turned out as well as this.

“Having a few quirks out there isn’t a bad thing.” ■

Bruce Allar is a freelance writer from Floyds Knobs, Ind.

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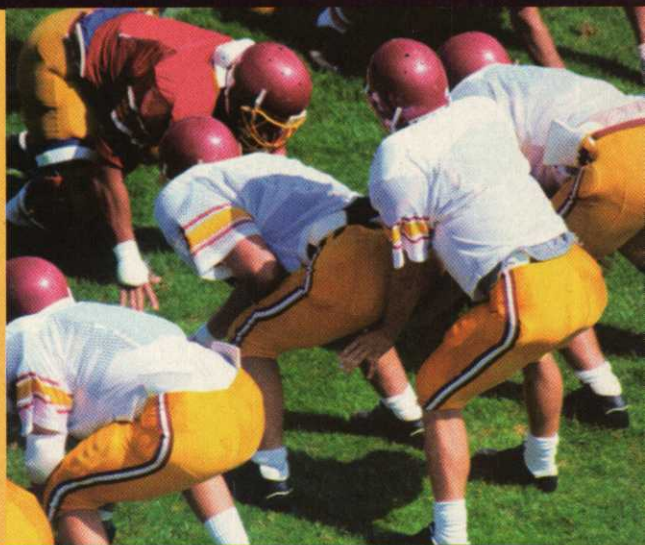
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