

in combination with fertilizer.

"This is the real key to our success, I think," Graf says. "We apply fertilizer in accordance with precise soil analysis to build up the vitality and strength of our grass. Then we apply herbicides as we need them. This adds up to a highly effective one-two punch that we feel is the answer to many of our management problems here."

On sand traps, Graf has developed a special program that he feels shows a lot of promise. "We have a really serious problem in the sand with quackgrass," Graf says. "The usual weeds are tough enough, but quackgrass is something else!"

Graf devised a program that he indicates knocks out the quack problem without causing any potential chemical residue problem or injury to the greens. "We spray Dowpon

and Amitrol T at special rates," he reports. "Results have been good."

"We try to put on about 160 pounds of nitrogen per acre to improve fertility on fairways. We divide that into three applications—spring, summer, and fall," he says. "In the spring we apply about 1¼ pounds of N per thousand square feet in combination with Balan herbicide. In the summer he applies Milorganite, a natural organite fertilizer. In the fall he puts on a final application of 24-0-12."

Fairways are about 50 percent bentgrass, the rest mostly fescue and bluegrass. Graf has mixed feelings about which variety is best. "Bentgrass is really the golfers choice, but we feel bluegrass is much more practical and easier to manage. There are bluegrass varieties coming

along that are said to combine the advantages of both."

Costs? Graf states that his present overall budget is about \$650,000 for his 77 hole complex. Management budgets are being stressed he points out, because of the competitive factors mentioned by superintendents Ragan and Griffith.

"In the last five years or so we have seen a type of 'boom' in golfing and along with it an increasing public demand for better quality courses," Graf reports.

We find this reflected in public courses, too, where the golfers are demanding the kind of turf quality that once was provided only by the better private clubs. We think we have gone a long way toward providing it here," Graf says. Besides turf protection chemicals and pre-

A Control Program For *Poa Annua*

To course superintendent Hobart Burgan at Quail Creek Country Club in Oklahoma City, greens management gets down to the question of whether you want it made up of *Poa annua* or bentgrass.

"We prefer the Cohansey creeping bentgrass, of course; so we are on a pretty intensive *Poa* control program," he says. "We also have quite a bit of crabgrass."

Burgan estimates that without an effective control program his greens would soon run up to more than 80 percent *Poa*. "We have an effective program applying Betasan right after we aerify and top dress," he says.

"If we didn't keep after it, the

seeds start blowing in or tracking in from the fairways and reinfest the greens.

"We have a fairly constant wind here—it averages about 14 miles per hour—so we know there is always some seed blowing in on the greens. This is a problem we have to live with and keep after," Burgan says.

His weed control program is supplemented by a high fertility program.

"We feel the grass is going to benefit more from it and compete better with the weed population," he says. "When you add the chemical program to that, it makes for effective management."

Burgan applies Betasan both in the spring and fall and sometimes in mid-summer if the

weather is moist enough to encourage weed growth.

"Usually, though, it's hot and dry, so that we don't need the summer application," he says. "What we try for is season-long control."

His main problem is and probably will continue to be traffic. "Heavy use of the course is the greatest test of our maintenance program," Burgan says. "We feel we are handling the problem adequately today, but work has to be done to improve traffic movement to minimize the wear and tear on the course.

"We also look for better, more refined equipment to make the job of keeping a quality course in good shape with a minimum of time and labor."

Without an effective weed control program, this fairway would be more than 80 percent *Poa*. Burgan has been able to keep greens and other turf areas relatively free of this weed.

Traffic is the main problem at Quail Creek Country Club. And it's on the increase. Heavy use has tested this superintendent's management skills.

