

cial figures are not yet in for median strip applications, but Ueckert and McGinty see sizable savings on the horizon.

Two techniques are being applied under the chemical control program, which uses triclopyr and clopyralid:

1) **The stem spray method.** The lower 12 inches of the plant is sprayed with a mixture of 15 percent triclopyr and 85 percent diesel fuel. "This can be done any time of the year, but it's more effective when temperatures are high," says Ueckert.

2) **The leaf spray method.** Using 0.5 percent triclopyr and 0.5 percent clopyralid, the materials are mixed with 5

Ueckert applies the leaf spray only during the June-September growing season.

percent diesel fuel in water, plus a commercial emulsifier or liquid dish soap. "The leaf spray can only be applied during the growing season—June through September."

The equipment needs are minimal.



Turf 101: hot + humid = disease pressure in the summer

July and August was a rough time for golf course turf across the Midwest this year.

The reason: the summer's "Extreme Environmental Conditions," as reported by turf scientists from the Ohio State University.

Air and soil temperature went way beyond the ideal ranges, for multiple days at a time, putting intense pressure on cool-season root systems. With the root systems weakened, the turf was unable to combat disease pathogens.

Soil temperatures, which are ideal in the 50-60°-range, rose to 100° F at mid-day. According to OSU scientists, bentgrass will not initiate new roots when soil temperatures exceed 90° F.

"High soil temperatures resulted in root decline and no opportunity for root regrowth and recovery," reports OSU.

In heavy rainfall, oxygen was pushed from the soil, and roots were suffocated. Extensive dieback and complete turf failure occurred so suddenly, that according to OSU professors, superintendents were

able to fix complete turf failure to a specific date and time.

Fertilize for winter survival

Richard Buckley, director of Rutgers University's Plant Diagnostic Lab, says it's essential that golf greens and ornamental plants are well-fed for winter.

According to Buckley, most of the drought-related problems he examined took the form of summer patch and anthracnose.

"Summer patch pushed turf to the limit," says Buckley, "and turf wasn't able to meet the transpiration demands necessary for survival."

Unfortunately, trees and new plants are going to show the effect of summer stress, come spring, says Buckley, even if those plants were well-irrigated during and after the heat wave.

"Plants don't respond as well to irrigation as they do to regular rainfall," says Buckley, who says he saw some early leaf drop in areas of Pennsylvania, New York and Connecticut. □

"You can use a \$25 spray rig," Ueckert points out. "The backpacks work fairly well if your brush is dense."

A three-person crew can be highly cost-effective when assigned to an all-terrain vehicle equipped with a 14- to 20-gallon tank with three hoses. Two walk and spray while the driver drives and sprays. "You can cover a lot of ground with those. You can cover a 40-foot swath."

Less herbicide is used when compared with broadcast applications. "The key thing is that it's low impact" on desirable species and the environment, Ueckert says.

Plans are afoot to augment the ATVs with a speedy device called the "Brush Robot."

"We want to automate this even more," Ueckert reports. "These sensors feel the brush and activate the spray nozzle," he explains. "You're putting the herbicide directly on the target and you have very little contact with wildflowers or prairie grasses."

Best of all are the savings to Texas taxpayers: "Chemical controls will only need to be applied every three or four years." This is a big improvement over multiple mowings that don't even work and result in additional hazards to the traveling public. Says Ueckert: "Instead of growing more thorns, we want to kill them." □

—Terry McIver