

Herbicides remedy annual clover menace

BY MARK LESLIE

More bentgrass fairways and certain application and maintenance practices have made clover a more severe menace at golf courses in recent years, according to agronomy experts.

Though other weeds cause problems regionally, superintendents nationwide agree that clover infestations generally cause some of the biggest headaches. So Golf Course News surveyed chemical companies to see what is on the market to fight clover.

The universal standbys have been MCP (mecoprop), Dicamba and 2,4-D. But the Environmental Protection Agency and other groups are scrutinizing 2,4-D and Dicamba amidst charges they are dangerous.

"There has been a lot of concern that a widespread ban of 2,4-D is coming," said Assistant Professor Clark Throssell of Purdue University's Department of Agronomy. "Some people feel there are health risks with 2,4-D. But that hasn't been established one way or the other. If a ban is passed, it would surely be a hardship. The industry would have to search for a new chemical."

Cornell University Professor Joseph Neal said he anxiously awaits the results of a 2,4-D study done by Chemlawn Research and Development, in cooperation with the National Cancer Institute.

"This will give us some of the best and most definitive numbers regarding use and exposure of 2,4-D," Neal said.

Steve Carrell, a direct lawn-care sales representative with PBI Gordon, which claims a major portion of the turf market, said tests being run on 2,4-D will cost the industry about \$18 million. The immediate impact of that testing is escalated product prices. If 2,4-D is banned, the effect will be long-lasting and cause major adjustments in available herbicides.

Meanwhile, superintendents are faced with clover that, even if it's just an annoyance, reflects on their groundskeeping.

What to do?

"It's very frustrating to control because it comes back so well," said Jim Snow, national director of the United States Golf Association Green Section. "I have one little trick: Spray when there's a good dew on the grass. When the turf's dry the herbicide just beads on the grass and rolls off. Clover's little leaves don't accept spray very well. And when people spray dry grass that's one reason they don't get control."

Throssell said some reasons clover is more prevalent today than in the past are that more creeping bentgrass is being grown on golf course fairways, the turf is being cut lower, and less nitrogen is being applied — "and that gives weeds more of an avenue to invade."

Michael Shaw of Dow Elanco agreed: "Cultural practices today favor clover, particularly with bentgrass fairways. The close mowing and lower nitrogen fertility. A lot of superintendents are

cutting back on nitrogen compared to 10 years ago."

Throssell said in cases of Kentucky bluegrass or ryegrass, the low cutting makes the desired species more susceptible and allows more weeds.

He suggested herbicides be applied in the fall, at least where cool-season turf is grown. "People try to control it too early in the spring," he said.

Neal said products on the market to fight clover work well.

"MCP, 2,4-DP, Dicamba, Banvel, the Turflon products — they all work well. There are all kinds of three-way mixes to use them. A new prod-

uct, Confront, is dynamite," he said. "There's enough on the market that clover should not be a problem."

Citing golf course superintendents as normally being good applicators, Neal said, "Invariably, when you examine your applications methods, no matter how good they are they can improve."

He suggested:

- Use the correct equipment and calibrate it properly.

"Golf courses often use the same spray equipment for fungicides and herbicides. But low-volume applications are generally better for herbicides while high-volume is better for fungicides. Herbicides are applied

at less than 60 gallons per acre and we have had some people use less than five gallons per acre with beautiful results; fungicide is normally used at much higher volumes of water," Neal said.

He said the nozzles of sprayers used for fungicides on greens are too close to the ground, and the uniformity is not good off the green.

"You need a separate boom — one that's higher and with wider nozzle spacing and lower pressure and gallonage," he said.

- Use the correct herbicide.

Different combinations will be more effective than others, he said, adding that the correct mix depends

on what a superintendent wants to fight. "Dicamba can control clover, but alone you have to use more of it than with a mix," Neal said.

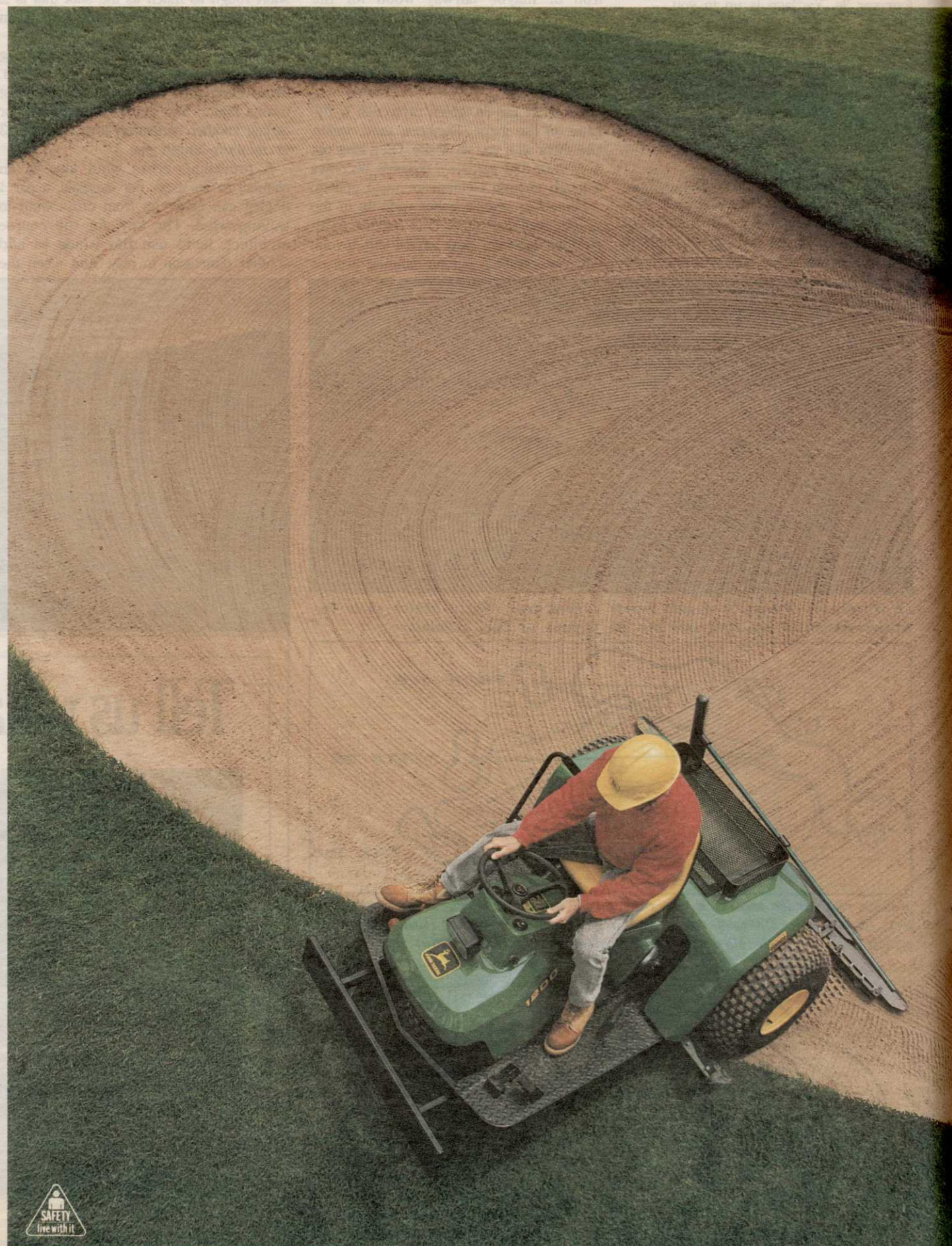
Throssell agreed, saying a mixture will fight a broader spectrum of weeds.

"2,4-D is good on dandelions but not on clover. MCP is good on clover but not on dandelions," he said.

PBI Gordon, for instance, sells Super Trimec for a broad range of weeds and Mecomec to specifically fight clover.

Dow Elanco's Shaw confirmed that Confront — with active ingre-

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Course development forecast cloudy

BY PETER BLAIS

Tracking golf course development is the centerpiece of National Golf Foundation programs and concerns the entire golf industry, according to a panel of experts assembled at last month's Golf Summit '90 in Palm Springs, Calif.

"Golf course development affects everyone (in the industry) either directly or indirectly in our pocket-books. A lot of our future economic well-being is dependent on golf course development," said Richard Norton, vice president/general manager of National Golf Foundation Consulting.

Progress and Trends

While not as prolific as the glory days of the 1960s, new course development has been very strong the last four years. More than 300 courses are expected to open in 1990 alone.

Summit

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likely to be restricted because of potential to contaminate ground water. We may lose popular pesticides through special review."

He said 2,4-D is in "a tenuous situation."

The agency proposed new applicator certification and training regulations in early November and the golf industry had 120 days to present comments to the agency. The final rule will be written some time in 1991, he said.

Also next year, the EPA's agricultural chemicals and ground water strategy will be released. States will develop management plans that will have to be tailored to local ecological and soil conditions, he said.

"Pesticides will be banned in areas that are vulnerable to contamination. If states don't have those plans, pesticides won't be able to be used there," Crampton said. But he added that the research agenda the GCSAA and USGA are coordinating is crucial because it is "tailor-made" to this approach.

Regarding wetlands, Crampton said, "The law is pretty clear... If wetlands are involved you can go elsewhere to build your development unless you can prove that another site is impossible, that environmental problems will be mitigated and you will not harm the existing ecosystem."

Delays in permitting can be skirted if a site's wetlands are considered early in a project.

Yet, with all the discussion about the environment, the very lack of public knowledge may be the biggest stumbling block to golf development, Crampton inferred.

"The decision to allow a golf course to be built in a community is an emotional one. It is not scientific... Increasingly, environmental problems are being given to stop courses from being built," he said. "Developers and course architects are going to have to get in at the front end, dialogue with the community, and make the sale based on the facility's environmental benefits, and other benefits the facility can bring.

"This requires your developing a

'A fairly healthy inventory in the pipeline means a pretty healthy situation near term.'

— NGF VP Richard Norton

"A fairly healthy inventory in the pipeline means a pretty healthy situation in the near term," Norton said. "But many have been in the pipeline for months or years and may not reflect the uncertainties of today's economy. Some may drop out, although the near term looks pretty good."

The upswing in new course development has been driven by a strong public demand to play golf, investors recognizing the game's profit potential, and the existence of more and better experienced management companies to run new courses properly, Norton said.

New courses continue largely dependent on residential real es-

tate with about 50 percent of new courses being associated with new subdivisions, Norton said. That means new development is vulnerable to the predicted recession. But there are mitigating factors, Norton said.

First, in a recession, the strong survive. Many golf course developers are "well-financed, well-connected and will continue to use golf as vital element to sell real estate," Norton said.

More importantly, he added, golf is being viewed by private and community developers as a stand-alone unit that can be profitable. That makes them less susceptible to a downturn in the real estate market.

Herbicides

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dients clopyralid and triclopyr — "really blasts" clover. But he added, "I caution wall-to-wall application of Confront on bentgrass until we study it for another year."

Neal added that grounds crews should keep a constant eye out for thin or damaged turf and exposed soil.

"Divots, places where skunks or golf cars have dug up the turf — these are places where clover can germinate and re-establish," he said. "Clover seed remains viable in soil for at least 10 years and probably longer. If it gets a foothold in an exposed spot it can then creep out and re-infest the turf."

Neal disagreed that lower nitrogen fertilization was a root of the clover problem. Courses he is familiar with have reduced nitrogen applications "but only to the range of optimum fertility for bentgrass," he said. "If it reduced the vigor of bentgrass, you'd have a bigger problem with poa annua."

The future

While PBI Gordon's Carrell said most non-phenoxy products "are not an economically feasible option right now," other experts say scientists are concentrating their research on non-phenoxy, post-emergence products.

"There are a number of products that can replace 2,4-D but are a lot more expensive," said Dow Elanco Product Marketing Manager David Maurer.

"Our research and development people are looking primarily at triclopyr and others in that same line of chemistry, with very low rates of application," he said.

Maurer said, "This is true of most companies. Society is telling us they don't want pounds and pounds of chemicals going out."

He said that, typically, it costs \$40 million to \$60 million and takes eight to 10 years to develop a new product from the laboratory to the marketplace.

"In today's environment we have to do a battery of environmental impact and toxicology studies, and it takes years," he said.

NGF studies show parts of the United States have too many golf courses. Far more have too few. With Baby Boomers lining up to enter the golf market, the limiting factor for golf is not demand, Norton said. It's supply.

"If Boomers act like their parents, there's a lot of potential demand for courses out there," the NGF official said.

Existing courses will help satisfy a potential demand the NGF says could almost double from 474 million rounds annually in 1990 to 884 million by the year 2000. But with existing facilities at 85-90 percent of desired capacity, there isn't much

room there to meet increased demand, Norton said.

That means new courses are needed. But they can't be placed anywhere. They must be built "where they're needed, at the right price, at the right investment and for the right fee," Norton said.

While there is a need for new facilities, Norton said there are four main factors constraining golf course expansion — global and domestic economies, upward cost pressures, profitability and financing.

New construction is affected by external economic factors. For

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