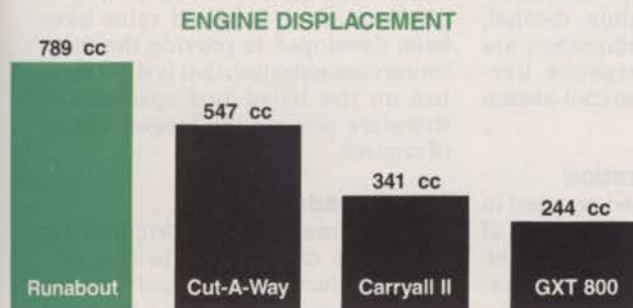




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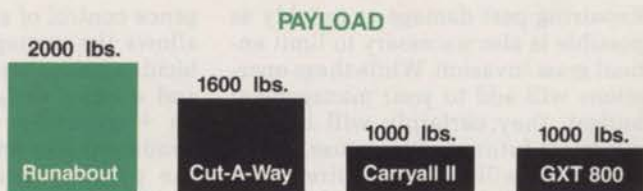
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TABLE 1

## HERBICIDES FOR CONTROLLING ANNUAL GRASSY WEEDS IN TURF

Always follow the label directions for application rates and proper timing. For extended preemergent control of annual grass weeds, apply a second application 6 weeks after the initial application at 1/2 the original rate.

Herbicide	Company	Trade Names & Formulations	Weeds controlled		
			Annual bluegrass	Crabgrass, foxtails, barnyard-grass	Goosegrass
benfenin	Elanco	Balan 2.5G, 85DG	1s	es	..
	Lesco	2.5 Benfenin Granular (2.5G)			
bensulide + oxadiazon	Scotts	Goosegrass/Crabgrass Control	1s	es	..
benfenin + trifluralin	Elanco	Team 2G	1s	es	..
bensulide	ICI	Betasan 2.9E, 4E, 3.6G, 7G, 12.5G	1s	es	..
	Royalgard	Roysan 4E, 12.5G			
	PBI/Gordon	Betamec 4LF			
	Lesco	Lescosan 4E, 7G			
DCPA	Fermenta	Dacthal 75W	1s	es	es,ej
ethofumesate	Nor-Am	Prograss 1.5 EC	es,1s	..	..
oxadiazon	Rhone-Poulenc	Ronstar 2G, 50WP	1s	es	es
pendimethalin	Scotts	Turfgrass Weed Control 1.71G	1s	es	..
		Weedgrass Control 60DG			
	Lesco	Pre-M 60DG			
siduron	DuPont	Tupersan 50WP		es	..

es—Apply in early spring before weed emergence. 1s—Late Season

Source: Dr. Fermanian

Repairing pest damage as quickly as possible is also necessary to limit annual grass invasion. While these operations will add to your management budget, they certainly will help to minimize future pesticide use. While herbicides will still be required, they will be needed less frequently.

#### Pre-emergence herbicides

With even the best cultural management, annual grasses sometimes present an aesthetic problem.

The seeds of many annual grass species can be viable for many years in the soil. Any herbicide strategy, therefore, must focus on controlling germinating seeds. Pre-emergence herbicides on the market today generally fit this requirement.

(Table 1 lists currently labelled herbicides targeted for annual grass control in cool-season turfs, along with their manufacturing company, trade name and formulations).

Turf managers have a wide range of herbicides available for pre-emer-

gence control of annual grasses. This allows the manager to select a herbicide appropriate for price, longevity and selected turfgrass species. Benfenin + trifluralin, bensulide, dacthal, pendimethalin and oxadiazon are the primary pre-emergence herbicides labelled for use on cool-season turfs.

#### Determining concentration

All of the herbicides listed are used in a similar manner. An application of the material is made to the targeted turf prior to the generation of the expected annual grass.

The herbicide must develop a chemical barrier within the upper level of the soil. The germinating seedling will then intercept the pesticide and absorb it through the growing shoot and/or root.

For effective control, the concentration of herbicide must be high enough to stop the growth of the intended weed. This minimum concentration is called the threshold of effective control.

tive control.

If concentrates are too high, they might possibly cause injury to the desirable turf (called the threshold of phytotoxicity). Labelled rates have been developed to provide the maximum concentration that is still safe to use on the listed turf species and therefore provide the longest period of control.

#### Soil degradation

All pre-emergence herbicides are subject to degradation in the soil, which reduces the concentration of active ingredient available for weed control.

Materials are added to the soil in a concentration that is higher than the threshold of effective control but lower than the threshold of phytotoxicity.

After application, the concentration in the soil slowly dissipates until the level is no longer above the threshold of effective control. At this time, for extended control, a second

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TABLE 2

## PRE-EMERGENCE CONTROL FOR SELECTED BROADLEAF WEEDS

Apply these herbicides prior to weed seed germination. Read and follow label directions for appropriate turfgrass species, timing, and application rates. The following pre-emergence herbicides are commonly used to control annual grasses in turf. They have also been shown to have some control activity on the broadleaf weeds listed.

Herbicide	Weeds Controlled
DCPA (Dacthal)	spotted and prostrate spurge
pendimethalin (LESCO pre-M, Scotts Turf Weedgrass Control)	prostrate spurge, yellow wood sorrel, knotweed, chickweed, henbit
oxadiazon (Ronstar)	yellow woodsorrel

Source: Dr. Fermanian

application is necessary. For extended control in hot, moist seasons, it is useful to apply a second application of herbicide six to eight weeks after the initial application.

Since some herbicide remains in the soil, the second application can be made at a lower rate which will then boost the total concentration above the threshold for effective control.

This dual application is quite necessary for short residual oversight, such as benefin. Additionally, it allows applications to be made at lower rates, which minimizes the risk of exceeding the threshold of phytotoxicity (see Figure 1). It will help provide equally effective periods of control for all herbicides.

#### A varied arsenal

The major herbicides used to control crabgrass species and other warm-season annual grasses such as foxtail, barnyardgrass, and others are: benefin, benefin + trifluralin, bensulide, dacthal, pendimethalin and oxadiazon. Siduron is used for controlling crabgrass and other annual grasses during the period of seeding and early turf establishment. Siduron is the only preemergence herbicide that is safe to use in seedling cool-season turfs.

Goosegrass is much tougher to control in cool season turfs and requires higher rates for materials such as dacthal and benefin. Excellent goosegrass control can be obtained with oxadiazon with the same rates used to control crabgrass. As always, the label should be consulted for final instructions on the applications of these materials.

An important consideration in the effectiveness of pre-emergence herbicides is the absorption of the materials to clay particles in the soil. A

higher clay content will mean greater absorption, leaving less herbicide available for absorption into emerging plants.

Herbicide labels often instruct the user to apply more material in heavy clay soils to compensate for this process. In lighter, sandy soils, it is necessary to reduce the rate of application to minimize the potential for injury to turf.

Second applications, often at reduced rates, are sometimes necessary to provide season-long weed control.

#### Secondary benefits

Providing control of annual grasses is the primary use of pre-emergence herbicides. A second benefit is the control of annual broadleaf species. This minimizes the need for post-emergence control of broadleaf annual weeds.

(Table 2 shows the annual broadleaf weeds often controlled with pre-emergence annual grass herbicides).

Spotted and prostrate spurge are often difficult to control once well established, but can be controlled with a pre-emergence application of DCPA or pendimethalin.

The annual broadleaf weed yellow wood sorrel or oxalis is also tough to control. Oxadiazon or pendimethalin can help to minimize or eliminate the germination and development of this troublesome weed.

These are just two examples of annual broadleaf control achieved through the use of an annual grass pre-emergence herbicide. The mechanism for control is similar to that for grasses. However, the timing can be considerably different. It is important to apply the materials prior to the earliest germinating species, grass or broadleaf, and, if necessary, insure

thorough season-long control with secondary applications.

#### Annual/perennial control

Gallery (DowElanco) is a herbicide for controlling a larger group of annual and perennial broadleaf weeds. Gallery can be effective in controlling most broadleaf weeds if applied prior to their germination. Consult the Gallery label for the weeds controlled and the optimum application rate.

Appropriate cultural controls and accurate application of pre-emergence herbicides will minimize annual weeds, minimize herbicide requirements and provide an attractive, weed-free turf. **LM**



Dr. Thomas Walter Fermanian is associate professor of turfgrass science at the University of Illinois department of horticulture. He is currently researching qualitative data analysis for agriculture, crop modelling and simulation, and the development of cost effective turfgrass management systems.



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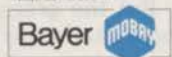
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# 'L' WORDS FACE INDUSTRY IN THE '90s

No one can escape today's onslaught of legislation and litigation in the green industry. But there are ways to sidestep many of the minefields that could land you in court.

by Will Perry, managing editor



**T**hough George Bush was able to use an "L" word successfully in his bid for the presidency in 1988, two other "L" words could pose real problems for the green industry in the 1990s: litigation and legislation.

Americans are playing a "litigation lottery" today, according to attorney Richard Lehr, who represents the Professional Lawn Care Association of America (PLCAA). The skyrocketing number of cases dragged in to American courts can be traced to four developments, says Lehr.

## Here comes the judge

First, the green industry is heavily regulated at the local, state, and federal level, as are most businesses where employees drive company vehicles. But the green industry faces additional challenges because its employees drive vehicles and use pesticides.

Second, more and more Americans

are looking to the courts for vindication. Lehr suggests this may be because there are too many lawyers out there spurring them on. "Our country has many more lawyers than we need," he says. There are more than 40,000 lawyers in Washington D.C., more than 100,000 in California, and more than 35,000 new attorneys churned out of law schools annually. In fact, says Lehr, there is one attorney for every 356 Americans.

Third, consumers and employees are more aware of the statutory and regulatory rights extended to them. "Whether employees know their rights or think they know their rights, they end up in the same place: raising issues before regulatory agencies, government, and the courts," says Lehr.

Lastly, management has a spotty track record of keeping up with current developments and, therefore, often fails to take action to prevent

problems from arising.

Landscape managers need to be aware of the changing work force in the 1990s and the effect these changes will have on their management practices (see related story).

There are steps one can take early in the hiring process to avoid age and sex discrimination cases later on, says Lehr.

Concerning age discrimination, Lehr suggests you ask direct, job-related questions of all applicants. "If you're concerned about an applicant's physical ability to do the job, consider giving them a 'piece-of-the-job' test," he says. Also, don't assume that a decline in performance is the result of age. More than half are medical related, such as drug or alcohol abuse or some other physical impairment.

The first step toward avoiding sex discrimination is to get rid of any stereotypes you may have that men work in the field and that women work in the office. "Using these generalizations will only lead to liability," warns Lehr. Also, simply because men prefer field work is not a permissible reason not to place a woman in the field.

## Equal compensation

Employers must base compensation on factors unrelated to gender. "For example, if a woman is hired to work in the field, and she is married, do not pay her less because she is married," says Lehr. "Do not pay her less because you believe that the men working in the field are the primary breadwinners in their families and therefore should earn more money. Any distinctions in pay must be based on factors other than sex, such as quality of work, quantity of work, length of service, or any other non-sex-based factor."

Lehr says managers can reduce the sex discrimination minefield by avoiding generalizations about height, weight and strength during



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the hiring process. Apply job-related factors consistently to both men and women.

If women performing the same job as men are earning less in your company, re-evaluate the situation or be prepared to state non-sex-based reasons for the difference. Also, train managers and supervisors to comply with the statutes and regulations forbidding sex discrimination and harassment.

### Terminating employees

You can fire an employee whenever you want, unless your reasons for doing so violate federal law, public policy, or an employer-created contract, says Lehr.

Employer-created contracts include verbal representations or written communications to applicants or employees, such as handbooks or benefits packages. "Be sure that the employment application and/or employee handbook contain proper disclaimer language," says Lehr.

Consider requiring employees to sign written contracts, adds Lehr. "Such a contract should include a non-compete, confidentiality clause. Also, if you are in a state whose juries tend to be employee-oriented, such as Michigan, New York or California, consider a mandatory arbitration clause for breach-of-contract disputes," he says.

### Customer litigation

Often you can tell when a customer is likely to become a future litigant. They're the ones who make repeated sales calls or complaints and/or fail to pay for services because they say they weren't properly performed.

To deal with problem customers, Lehr suggests you train workers to involve management in dealing with these matters as early as possible. If there is a disagreement regarding whether work was performed properly, consider involving a neutral party to analyze the situation and prepare a report. Inform your attorney and insurance agent of a potential claim, and consider the use of arbitration as a dispute resolution procedure before litigation, says Lehr.

### Legal discipline

Discipline is an essential management resource, but discipline poorly administered can lead to litigation. Proper discipline involves five steps:

**Step 1.** Be sure the employee understands what is expected of them and that they are capable of performing as expected.

**Step 2.** If the employee does not perform as expected, ask the employees to

## Understand tomorrow's workforce

America's workforce changed considerably over the past decade and will continue to do so in the 1990s. Managers in the green industry need to be aware of these changes in order to comprehend the direction and impact of impending legislation.

Perhaps the most significant change in the workforce is the growing number of women participants. More than 60 percent of all U.S. women work, compared to 54.3 percent in 1980 and 47.3 percent in 1975. Women comprise 45 percent of the entire U.S. workforce. Over the next 11 years women, minorities and first-generation immigrants will make up 80 percent of all new employees, according to industry consultant Richard Lehr.

### Fewer workers, income

Another significant change is the age of the American worker. Employees are retiring earlier. Jobs paying \$20,000 a year or more have declined while the number of temporary and part-time jobs has increased (60 percent of which paid less than \$7,000 annually in the

1980s). The "baby bust" generation is now entering the workforce, limiting the number of available employees, says Lehr.

These changes will be reflected in the "L" words: litigation and legislation. For example, Lehr expects a rise in the number of cases involving age and sex discrimination, breach of employment contracts and consumer litigation.

### Impending legislation

Concerning upcoming legislation, the agenda in 1990 will feature the Americans With Disabilities Act, parental leave legislation, minimum wage legislation, and mandated health insurance legislation.

Lehr suggests the green industry support its associations by making financial commitments for activities intended to influence the regulatory and legislative process. "Making contributions to certain candidates enhances your opportunity to influence the processes," says Lehr.

Also, practice problem prevention in your business and react aggressively to proposed hearings or legislation.

—Will Perry □

explain their actions and determine whether the problem was due to teaching or "won't do" or "can't do" by the employee, says Lehr. Explain what the employee needs to do, be sure they know how to do it, and follow up your actions with a memo to the employee which you review together.

**Step 3.** If the problem continues, repeat Step 2, emphasizing the importance of performing as expected and the implications for failing to do so.

**Step 4.** Again repeat Step 2, this time explaining that failure to alter behavior may result in termination.

**Step 5.** "De-hire," says Lehr. "The employee, through his or her behavior, has said that they do not want to work for your company."

### Document your actions

Documentation insures there is no misunderstanding and that you acted fairly. The document should include the date of preparation, a summary of the incident and previous discipline, and action required. A supervisor should sign the document and a copy should be given to the employee. The employee should be offered an oppor-

tunity to respond if they disagree, adds Lehr, but it should be written on a separate document.

During the "de-hiring", make sure you state your case, ask the employee if he believes he has been treated fairly, review the type of reference the company will provide, review confidentiality, and prepare a summary of the meeting immediately after.

Lehr adds that association support, financial commitment for activities intended to influence the legislative or regulatory process, and practicing problem prevention can help minimize the effect of the "L" words on the green industry in the 1990s.

"An aggressive reaction to hearings about proposed legislation or regulations will not hurt you," says Lehr. "A delayed reaction will not help you."

LM

Richard I. Lehr is a partner in the law firm of Sirote, Permutt and chairman of the firm's Labor and Employment Department. He is PLCAA's general counsel and spoke at the association's Tenth Anniversary Conference in November 1989.