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## 1990 MGCSA Meeting Sites

Date	Site	Event
January 8	Woodhill Country Club	Winter Outing
March 21	Lafayette Club	Mini Seminar
April 16	Owatonna Country Club	
May 15	Oak Glen Country Club	
June 11	Stone Brooke Golf Club	
July 9	Northfield Golf Club	
August 13	Hazeltine National Golf Club	MGCSA Championship
Sept. 24	Dellwood Hills Golf Club	Stodola Scramble
October 8	Baker Park Golf Club	

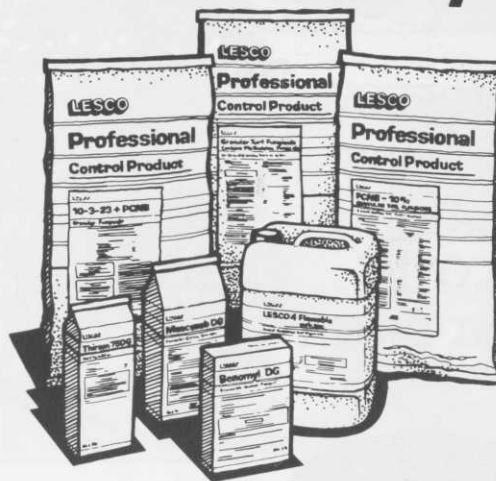
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to those whose friendship  
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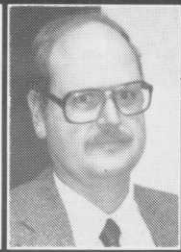
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# THE EXTENSION LINE

By Bob Mugaas  
Minnesota Extension Service



Effective January 1, 1990 in the Twin Cities metropolitan area and January 1, 1992 in greater Minnesota, leaves cannot be mixed in with regular garbage.

To better help the public utilize their fall leaves, the Minnesota Extension Service of the University of Minnesota has published a new bulletin entitled *Composting and Mulching: A Guide to Managing Organic Yard Wastes*. It is available free by calling a county extension office.

**The approved uses of Avid miticide/insecticide** for control of spider mites and leafminers have been expanded to include woody landscape plants.

Previously the product had been registered by the EPA for use on flower crops, foliage plants and other non-woody ornamentals. The manufacturer expects the expanded use approval to be particularly beneficial to nurseries. Avid can now be used for mite control on shade and flowering trees and broadleaf evergreens. The product has not been cleared for use on conifers.

Avid kills all active stages of spider mite although it is not directly toxic to the eggs. It has not been found to disrupt the beneficial activity of insects that feed on mites and other pests.

The active ingredient in Avid is abamectin, a natural compound produced from a soil micro-organism. It has effectively controlled mites

and leafminers resistant to other pesticides, the manufacturer claims.

**Gallery 75 Dry Flowable** has received Environmental Protection Agency (EPA) approval for use in established warm—and cool—season turf. The selective pre-emergence herbicide contains a new chemical compound, isoxaben, which controls annual grass and 44 broadleaf weeds including chickweed, henbit, plantain, purslane, oxalis, spurge and white clover.

Gallery's dry-flowable formulation mixes with water and is compatible with other turf chemicals. The product is stable on the soil surface but must be activated by one-half inch of rainfall or irrigation within 21 days.

**A chemical barrier system** has been developed that can protect sidewalks and streets, swimming pools and tennis courts, and other structures such as foundation walls and septic systems or sewer lines from damage by tree roots.

Typar Biobarrier root control system was developed through a joint effort of Reemay, Elanco Products and Battelle Pacific Northwest Labs. The biobarrier can last in excess of 100 years.

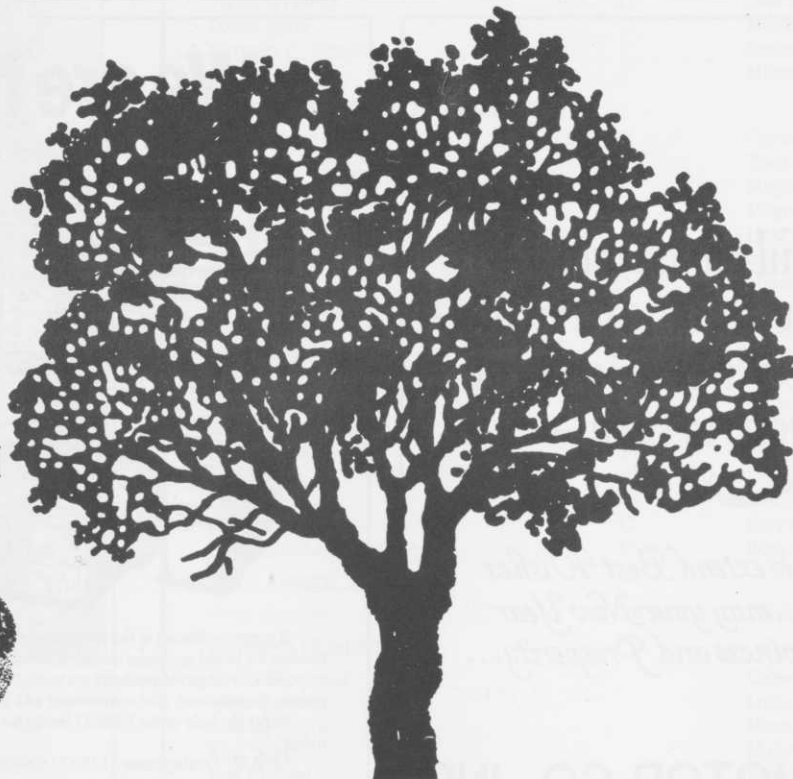
Treflan herbicide mixed with carbon black and polyethylene is formed into pellets. The carbon black and polyethylene provide a reservoir for the herbicide and protect it from being degraded by ultraviolet light. At the same time, they help control the rate at which the Treflan is released into the soil.

Treflan will inhibit root growth without killing the plants. The pellets, molded into hemispheres, are attached to Typar 3401 geotextile, a non-woven spunbonded polypropylene fabric that is permeable to water and air

\* \* \* \*

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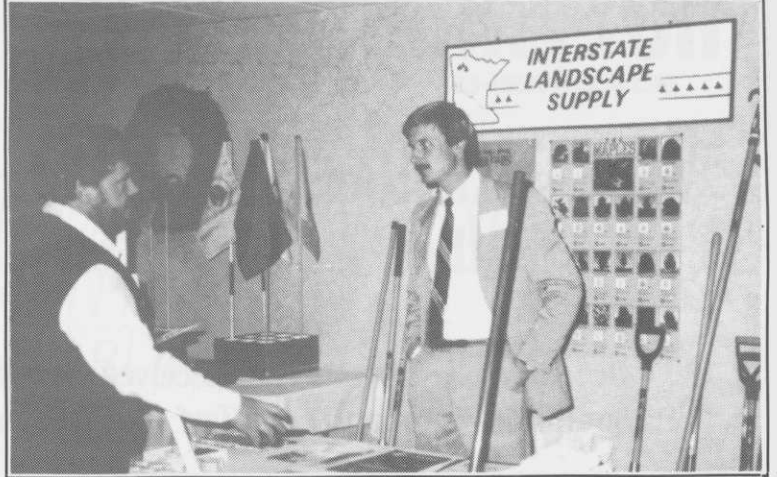
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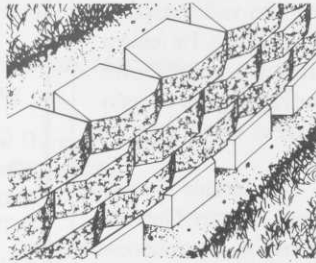
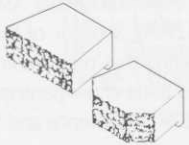
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## There's Another Famous Watson In the World of Golf

\* \* \* \*

### Dr. James R. Watson Has Received Several Awards in Agronomy and Turf Management

Besides Tom Watson, there's another famous Watson in the world of golf, and he's visited more than 5,000 courses, received numerous awards for his contributions to the game, and probably knows more about the environment of golf than any other professional in the business.

He's Dr. James R. Watson, the world's Ph.D. of Turfgrass Agronomy, namesake of the patented Marvalawn, and Toro's vice president of agronomy/turf management.

**During his 43-year career,** Dr. Watson has received numerous recognition awards, including the 1976 Green Section Award for distinguished service to golf from the U.S. Golf Association, the 1977 Agronomic Service Award by the American Society of Agronomy, the Distinguished Service Award from the Golf Course Superintendents of America and the 1987 Fred V. Grau Turfgrass Science Award from the Crop Science Society of America.

He was an organizer of the International Turfgrass Research Conference and has served on the Board of Directors of the International Turfgrass Society, and as its president. In 1982, he was appointed to the U.S. Golf Association Turfgrass Research Committee and, the next year, was appointed adjunct professor in the Department of Horticulture Science and Landscape Architecture at the University of Minnesota. He has also earned the title of "Man of the Year" from both *Landscape Management* and *Landscape and Irrigation* magazines.

Watson travels to countries around the world, visiting with golf course superintendents, giving lectures on course maintenance and researching and writing textbooks on turfgrass science. In his travels, he has had the chance to meet thousands of superintendents, many whose jobs go far beyond the daily maintenance of the greens.

"The pioneering superintendents were the nucleus for the development of the field," says Dr. Watson. "They were leaders. They pushed for the training, education and advancement the industry enjoys today."

**The contributions of early golf superintendents** include experimenting with various types of grass in an effort to reduce labor costs and improve the quality of the course, says Dr. Watson. He remembers Joe Valentine, who grew the first Merion bluegrass at Philadelphia's Merion Club, and Bill Gluver, former superintendent at Fairfax Country Club in Virginia, who was the first to use *Zoysia* grass. Superintendents like these cultivated slow growing grasses that enabled maintenance crews to cut down on the number of cuttings and therefore decrease course maintenance costs.

Other early superintendents whom Dr. Watson has had the opportunity to meet include Marshall Farnham of the Philadelphia Country Club and Bill Benesford of the Los Angeles Country Club. Bill kept a greenhouse on the grounds, in which he grew the flowers that were placed on the clubhouse tables at dinner. And Gomer Simms of Texas, who moved to California after oil was discovered on the homestead. According to Watson, these and other superintendents were masters of course management and upkeep, all contributing to the industry in their own way.

Since becoming involved with the Golf Course Superintendents Association of America (GCSAA) in 1947, Dr. Watson has watched the job of maintaining golf courses evolve from an apprenticeship position to the task of total club management today, and he has observed a recent rise in the number of degreed professionals. Watson says that, along with a new surge in the popularity of golf, there is an increasing interest in the superintendent field. With more than 200 golf courses currently under construction in the United States, more opportunities in golf course management are now available. According to Dr. Watson, the stress of today's work environments makes an outdoor job more desirable to many professionals.

**"Besides being able to work in a healthy environment,** the managing and maintenance of



**Dr. James R. Watson**

The World's Ph.D. of Turfgrass Agronomy

golf courses is a challenge," says Dr. Watson. "Superintendents must be able to keep their courses safe for golfers as well as environmentally sound."

After all, he believes, golf courses serve as refuges for many types of wildlife. Not only are golf courses a wonderful place to work and play, their turf and root systems are instrumental in purifying ground water and breaking down pollutants from the atmosphere.

Thousands of golfers around the world, including professionals like Tom Watson, know that the quality of the greens on which the game is played is critical to the success of the golfer. Although the cutting, watering and raking may go unnoticed, every player can appreciate the effort of the superintendent each time he steps on the course for a day of golf.

### 15,000 Expected At 61st International Show In Orlando

Orlando is set to host an expected 15,000 attendees for the 61st International Golf Course Conference and Trade Show.

The Golf Course Superintendents Association of America (GCSAA), sponsor of the annual event, is predicting that new records for both attendance and trade show participation will be set with the 1990 Conference and Show Feb. 19-26.

More than 70 new exhibitors are already scheduled to display their lines at the 1990 show. The total number of exhibitors for the 1990 show is expected to be between 475-500. The 1989 GCSAA Trade Show in Anaheim, Calif., featured 463 exhibitors from the United States and around the world.

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## 1990 COMMITTEE ASSIGNMENTS

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ETHICS	Tom Fischer, Rick Fredericksen, Jim Nicol and Jerry Murphy
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MEMBERSHIP	Greg Hubbard
NEW MEMBER SCREENING	Keith Scott, Greg Hubbard, John Harris and Rick Fredericksen
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***Where:*** University of Minnesota, Waseca, Room S112

***Time:*** 9:00 a.m. - 3:30 p.m.

***Cost:*** \$60.00 per person includes Minnesota resident tuition,  
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# GREEN CLIPPINGS

**Paul Mayes** has moved to Brackett's Crossing...**Guy Green**, assistant executive director of the MGA, has tendered his resignation to pursue his interest in radio and comedy. Listen to Guy on American Public Radio's "First House on the Right" radio program on Minnesota Public Radio...**Ross Galarneault** of the MGA has been promoted to fill Guy's position. Many thanks for the fine work, Guy, and good luck in the future!...**Rick Fredericksen** is new superintendent at Woodhill...Over 15,000 people are expected to attend the GCSAA International Turf Conference in Orlando. Look for the **MGCSA Hospitality Room** at the Park Suites Hotel, Friday, February 23, of convention week...Many thanks to **Par Aide Company** for its special \$75 donation to the Research Fund area...More than 30 people enjoyed a fine lunch at the November meeting at **Faribault Golf & Country Club**. It's rumored that some even thought of playing golf, though none ventured out...**Kevin Clunis** has arranged all 1990 meeting sites. Looks like a fine lineup of golf courses. (See Page 11) Thanks to those who have offered their courses. Consider hosting an event yourself. There's no better opportunity to have that many experts on your side offering comments and compliments...Look for the **Mini Seminar** to be hosted by John Harris' Lafayette Club March 18-19. The GCSAA sponsored seminar, "Business Communication Assertiveness Techniques" precedes the Mini Seminar on March 19-20, also at Lafayette. A new Membership Screening Committee has been formed, co-chaired by the By-Laws Chairman and Membership Chairman. It's looking into beefing up Association eligibility requirements for future applicants. The past president will also be on this committee...Welcome to our new photographer, **Dale Wysocki** of Faribault GT&CC...Join East Side St. Paul Superintendents at Joseph's Restaurant every Wednesday morning for breakfast and roundtable discussions. Contact Kevin Clunis for more info...Look for the **Northland Inn** to be the new site of the annual turf conference beginning in 1990...Welcome to **Jim Sinkel** of Oak Ridge Country Club and **Bob DeRusha** of Cloquet Country Club--new members of GCSAA...Many thanks for the fine work **Mike Netzel** has done for MGCSA. Mike resigned from the Board at our annual meeting...**Cary Femrite** and **John**

## FUN AT FARIBAULT



**DALE WYSOCKI** was an excellent host at the November 30 meeting at Faribault Golf & Country Club.

**MacKenzie** were the lucky winners of \$250 each at the Annual Meeting...**Rick Fredericksen** won the TV which was raffled off during Casino Night...Look for an LPGA Tour event to be held at Edinburgh USA during the third week of August, 1990...New Minnesota PGA offices will be at Bunker Hills...Associated Member liasons will be appointed to the Board of Directors soon.

### Turf Conference

(Continued from Page 5)

son, "This Association is known nationally for its fine conferences, education/research work, donations to the USGA/GCSAA and for its dedicated membership." For this we should all be a part of what we do in this profession and participate whenever possible in all available education that can be obtained.

As we head into the '90s, we must lean on each other to be prepared for further restrictions and to build a strong defense for what we need to perform our daily duties as "keepers of the green".

My Thanks to you all!

—Kerry J. Glader, CGCS  
Twice Wounded Lame Duck Conference  
Chairman

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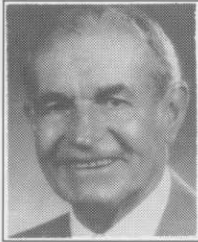
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# GCSAA to Present Highest Award to Member Superintendent

For the first time, the Golf Course Superintendents Association of America (GCSAA) will bestow its highest honor—the Old Tom Morris Award—upon a member superintendent.

Sherwood A. Moore, CGCS, 50-year GCSAA member and past president of the association, will receive the award during the closing banquet of the 61st GCSAA International Golf Course Conference and Show on Feb. 26 in Orlando, Fla. "Sherwood's a great superintendent, sure, but he's more than that," said Dave Marr, ABC Sports commentator, former PGA Tour player and friend of Moore's for 35 years. "He is the kind of person I would assume young people at...all the fine turfgrass schools would aspire to be like. Sherwood Moore is a worthy recipient of the Old Tom Morris Award."



Moore was superintendent at Winged Foot Golf Course in Mamaroneck, N.Y., from

1957-1967, then he moved to Woodway Country Club, Darien, Conn., but returned to Winged Foot, when this course was selected to host the first Senior Open in 1980. In 1984 he left to join The Captains Golf Course in Brewster, Mass. Recently retired, Moore still continues to work as a consultant at The Captains.

GCSAA established the Old Tom Morris Award in 1982 to recognize individuals who have made outstanding lifetime contributions to the game. The award is named in memory of Old Tom Morris, greenkeeper and golf professional at the Royal and Ancient Golf Club of St. Andrews, Scotland, four-time British Open champion, clubmaker, ballmaker and golf course architect.

Moore joins the host of golf luminaries who are past Old Tom Morris Award winners: Arnold Palmer, Bob Hope, Gerald Ford, Patty Berg, Robert Trent Jones Sr., Gene Sarazen and Chi Chi Rodriguez.

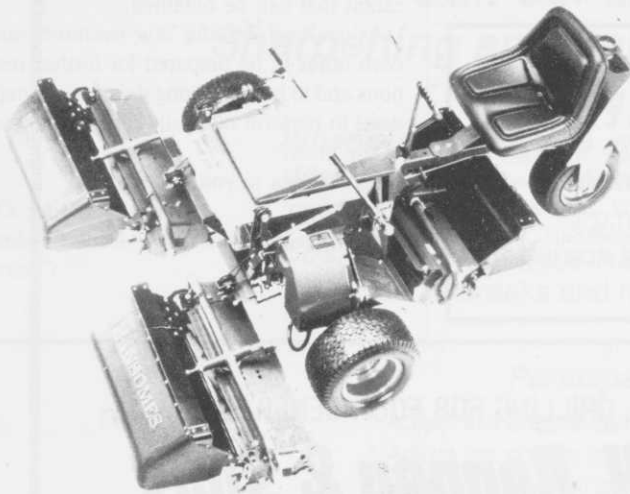
\* \* \* \*

**The Leo Feser Award**, honoring the author of the best superintendent-written *Golf Course*

*Management*, article of the year, will be presented to Ted Horton, CGCS, director of sports and grounds at Westchester Country Club, Rye, N.Y., and Mary Medonis, assistant superintendent at Westchester. The award is named in honor of the **late Leo Feser of Minnesota**, a pioneer golf course superintendent and a charter member of GCSAA. Feser is credited with keeping the association's official publication alive during the Great Depression.....

**Gerald L. Faubel, CGCS**, has been nominated for the presidency of the Golf Course Superintendents Association of America (GCSAA) for 1990-91. Faubel, superintendent at Saginaw Country Club, Saginaw, Mich., currently serves as vice president. The organization's officers and directors will be elected during its annual meeting at the conference in Orlando. Vice presidential candidates are Stephen G. Cadenelli, CGCS, of the Metedeconk National Golf Club in Jackson, N.J., William R. Roberts, CGCS, of the Lochmoor Club in Grosse Pointe Woods, Mich.

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# Pesticide Fate in Turf

By Dr. Bruce E. Branham  
Michigan State University  
East Lansing, Michigan

## PART I

A critical issue facing agriculture and the turf-grass industry is the fate of pesticides in our environment. In this context "fate" means the ultimate disposition of a pesticide after it has been applied. Why all of the concern about chemicals? First, use of pesticides has been increasing steadily since the 1960s.

Secondly, the ability of scientists to detect pesticides has increased at least 1000 fold in the last ten years (i.e. in the 1970s limits of detection were in the parts per million (PPM) range; currently levels of detection for organic pesticides are in the parts per billion (PPB) range). There have been many articles in the turf and agricultural literature talking about parts per billion with the general thrust of the articles being that a part per billion is such a tiny amount it can't hurt you.

As an example, the average extra strength aspirin tablet contains 500 mg of aspirin per tablet. Dissolving the entire tablet in 1 liter of water (16.8 ounces) would yield an aspirin concentration of 500PPM. To get an aspirin concentration of 1 PPB would require us to dissolve only 1/500,000 of the aspirin tablet in one liter of water. Thus, a 1 PPB concentration is a very small amount of a toxin, but that does not mean it is harmless.

The USEPA has recently adjusted the maximum allowable concentration of lead (Pb) in drinking water to 10 PPB. The maximum allowable concentration of atrazine (commonly used corn herbicide) in drinking water is 10 PPB. A third reason pesticides are more of a concern is that scientists have recently begun testing ground water and have been finding pesticides with considerable regularity. Because ground water accounts for almost 50 percent of the drinking water supplies in the United States, protection of this source of fresh water is essential.

These three points have focused attention on the use of pesticides. A fourth reason is an undeniable hysteria in the general public over the use of pesticides. The level of risk associated with the use of pesticides is not commensurate with the level of fear of pesticides amongst the general public. A recent article in *Newsweek* (Dangers in the Vegetable Patch, Jan. 30, 1989, p. 74-75) quoted Dr. Richard Jackson, Chairman of the American Academy of Pediatrics Environmental Hazards Committee, who estimated that for children between the ages 0-5, 25 percent of them

will eventually contract cancer. That would equate to 4.5 million cases of cancer over the lifespan of these children.

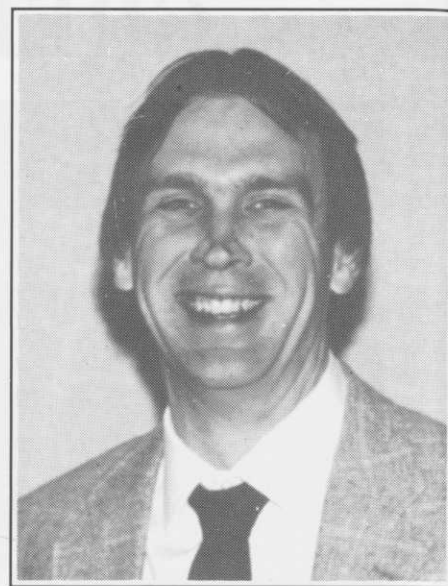
Dr. Jackson then estimated that 5,000 of these cancers may be caused by pesticides. What is left unmentioned is that scientists (1) estimate that at least 75-80% of all cancers are caused by our environment. This would include such areas as diet, smoking, lack of exercise, exposure to carcinogens, etc. Using the 75% figure then, 3.4 million cases of cancer are caused by our "environment" and are thus preventable. While I am not trying to minimize the grief that 5,000 cases of cancer would cause, the preventable cancers caused by pesticides as estimated by Dr. Jackson's figures are less than two tenths of a percent. Our national energies should be expended in those areas where the bulk of cancers occur.

Regardless of the extent of the risk caused by using pesticides, it is incumbent upon all who use pesticides to understand the processes that control the fate of these compounds in the environment.

## Pesticide Fate Processes

Pesticide fate generally is concerned with the disposition of pesticides after they reach the soil surface. Thus, spray drift is often omitted from discussions of pesticide fate because it is largely controlled by the type of sprayer used and is not dependent upon the physical and chemical properties of the individual pesticide molecule.

The processes affecting pesticide fate can generally be grouped into two categories—transformation and transportation. Transformation results in the alteration of the chemical structure of the pesticide. This is generally a desirable



Dr. Bruce E. Branham

process since most organic pesticides used today are made less toxic or non-toxic by these processes.

Transportation processes are more of a concern because these fate processes often result in the movement of a pesticide away from the site of application. The transportation and transformation processes are displayed in Table 1. Each will be discussed individually.

The most important factor to consider in pesticide fate studies is leaching. Leaching is the downward movement of pesticides through soil. It is the process responsible for ground water contamination. A pesticide fate process that is strongly correlated, in fact one of the three primary determinates of leaching, is adsorption. Adsorption is the physical binding of a pesticide to soil organic matter or clay, which are the primary adsorptive sites in soil.

Some pesticides are strongly adsorbed to soil, and this reduces their availability for leaching. Adsorption, or more accurately, strength of adsorption, plays a critical role in determining whether a pesticide will leach. With some exceptions, most notably paraquat, which because

(Continued on Page 2)

Table 1: Factors affecting pesticide fate.

- | 1) Transportation: | 2) Transformation          |
|--------------------|----------------------------|
| A) Leaching        | A) Microbial Decomposition |
| B) Volatilization  | B) Chemical Degradation    |
| C) Runoff          | C) Plant Uptake            |
| D) Spray Drift     | D) Photodecomposition      |
| E) Adsorption      |                            |