

sprout the following season and account for much of the increase in the nutsedge problem.

Since yellow nutsedge is hard to kill and its presence is increasing in turfgrass areas, there is a need to find herbicides that will provide selective control.

Sixteen tests were conducted from 1971 through 1978 on Kentucky bluegrass being grown for sod. The turf was maintained at a height of about 1½ inches and varied in age from 2 to 18 months.

The herbicides studied were bentazon (Basagran, BASF Wyandotte) and various metha-

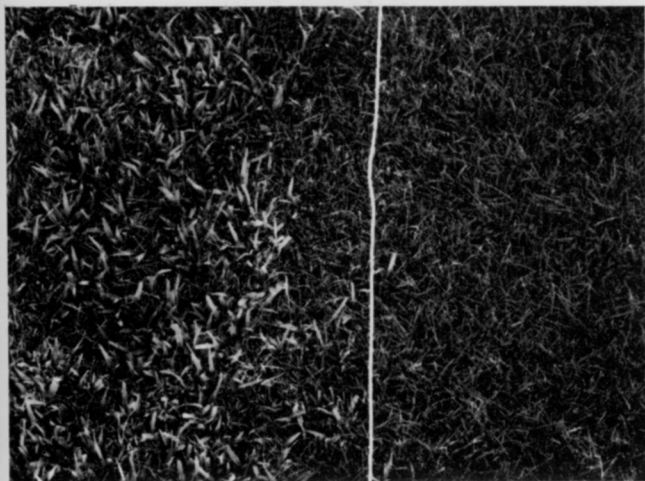
## Conversion of crop lands to sod farms and the use of this soil for topsoil and topdressing has accelerated the spread of nutsedge.

nearsonates (MSMA, DSMA, MAMA, AMA). They were applied to replicated plots and were applied as sprays using 50 to 172 gallons of water per acre. Postemergence treatments were applied from May to August. Nutsedge emergence usually started in late May or early June.

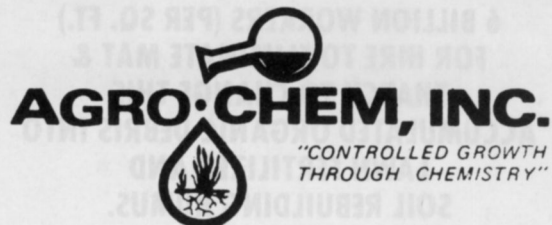
Visual estimates of grass stands or injury were recorded during the tests. Nutsedge plant counts (up to 53 per square foot) or estimates of percent cover (up to 55 percent) were made in August or September. Control was determined by comparing treated to untreated plots. Four test areas were observed the year following treatment to determine the change in the nutsedge population under sod conditions.

### Results of Studies

Our studies have shown that certain treatments of bentazon and methanearsonates provide ex-



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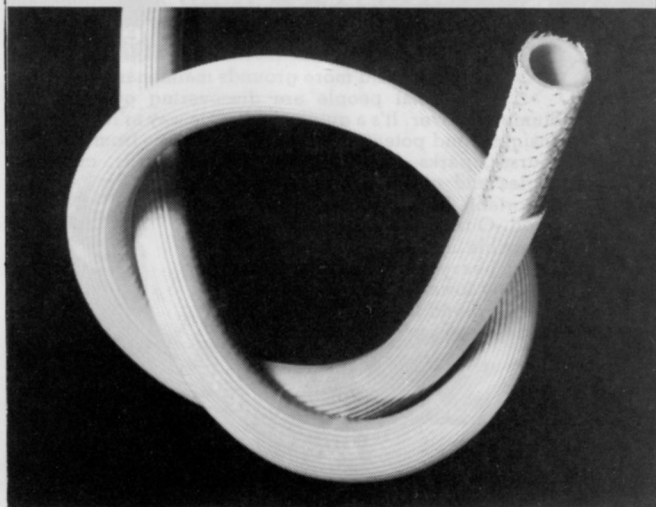
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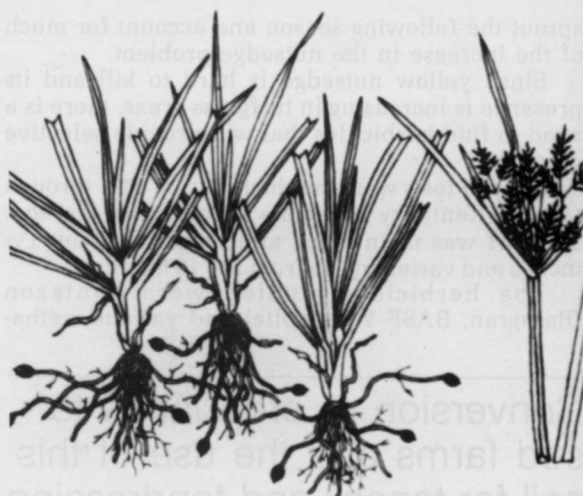
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**Nutsedge plant** with rhizomes formed and nutlets starting.

cellent postemergence control of nutsedge without injuring Kentucky bluegrass.

Two applications of a herbicide at low rates and at 10-day intervals were usually more effective than a single application at higher rates. In these studies, we found that as the season progressed from June through July less herbicide and/or fewer applications were needed for control. And with methanearsonates, nutsedge was easier to control when growing in competition with grass than in open soil areas.

Kentucky bluegrass has shown greater tolerance, especially at high rates, to bentazon than to methanearsonates. Comparative results were obtained from the liquid and wettable powder formulations of bentazon, and the 50 to 172 gallon per acre spray applications of bentazon or methanearsonates.

We also discovered that there was a natural decrease in the nutsedge population in untreated sod areas the following season. The reduction ranged from 45 to 98 percent. There was an additional reduction, 89 to 100 percent, in areas treated the previous season with bentazon and methanearsonates. However, even with a reduction of 89 percent, there were still about three plants per square foot.

**Comments**

At present the methanearsonates such as AMA, DSMA, MAMA and MSMA are available for the control of nutsedge in turfgrass. They can be used at the same rates and with the same techniques as suggested for postemergence crabgrass control.

Bentazon is a product of the BASF Wyandotte Corp. call "Basagran". It is used as a herbicide in soybeans and is available for use on turfgrass. Because of its effectiveness the tolerance of Kentucky bluegrass and its value in seedling broadleaf weed control, this herbicide should prove very useful. Our data suggest good results from two applications at a rate of one half to one pound per acre spaced 10 days apart in July. **WTT**

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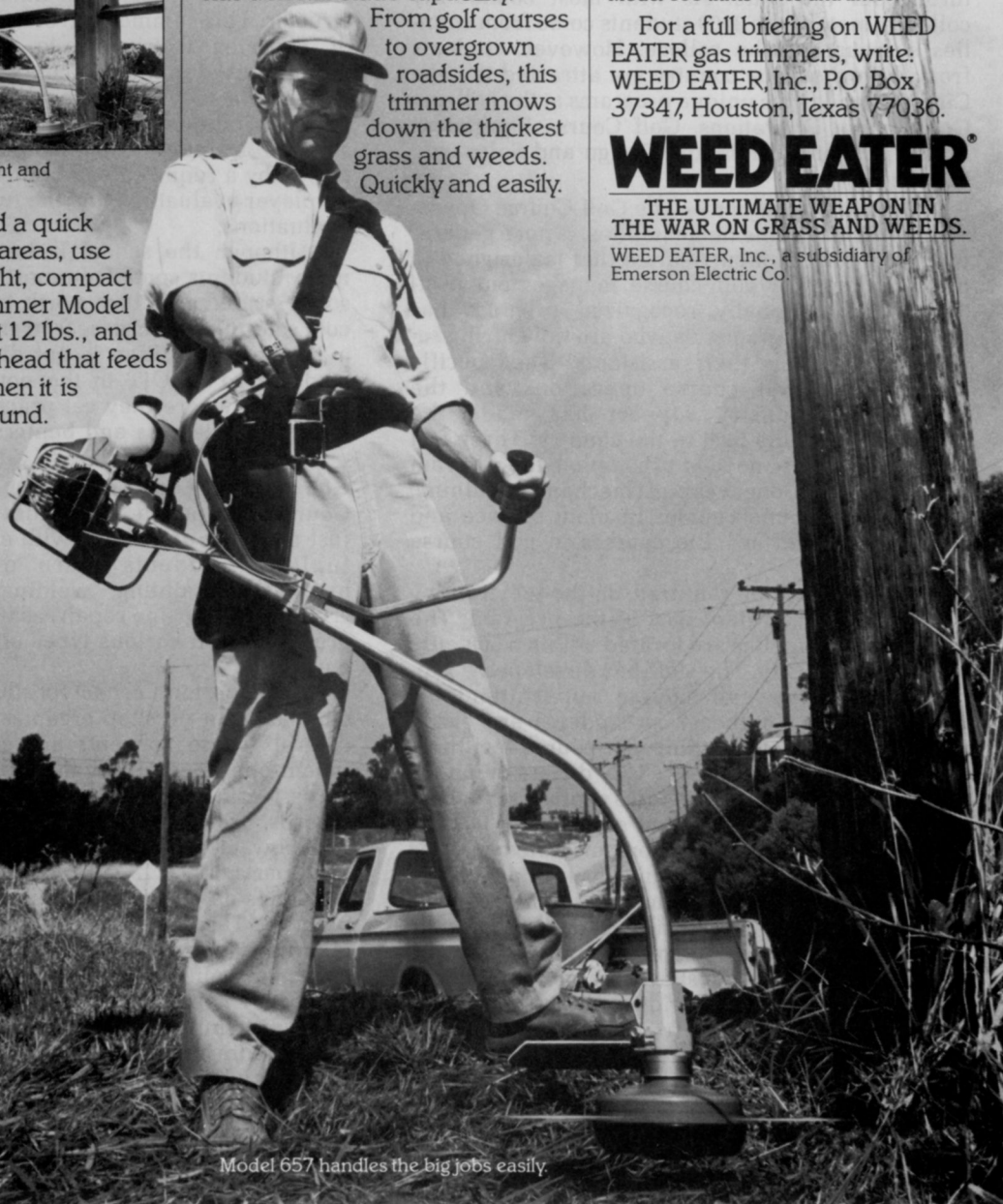
Model 698 trims vines and limbs.

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# LAKE CITY COMMUNITY COLLEGE: TRAINING TO MEET INDUSTRY NEEDS

by John R. Piersol, Instructor, Landscape Design and Sales,  
Lake City Community College, Lake City, Florida

The horticulture industry has always needed trained personnel. This is more important today as sophisticated technologies and new government rules and regulations increase the complexity of horticultural jobs. For ten years, Lake City Community College has been successfully training students to meet the personnel needs of the green industry.

The Lake City Community College campus is carved out of the pine forests of North Florida. The college, under the leadership of Dr. Herbert E. Phillips, has an excellent scholastic reputation throughout the state. As with most community colleges, most of the 3000 students come from counties surrounding the college. However, students from throughout the country are attracted to Lake City to attend three unique programs at the college: Golf Course Operations, Golf Course Equipment Mechanics, and Landscape Design and Sales.

**Golf Course Operations** — The Golf Course Operations Program, as the name implies, is not a general turf program, but a curriculum that is designed to train students for golf course management positions. This nationally recognized program has many successful graduates who are now hiring recent graduates as their assistants. The specific emphasis on golf course operations and the tremendous industry support has made the program one of the best in the country. Three full years of study are needed to complete the program which includes one year of mechanics training, general background courses in plant science and pest control, and specific courses in golf course management.

Two summers of required on-the-job training (OJT) are an important part of the program. The summer training sites are located within a 500-mile radius of Lake City. The staff has developed a rapport with many golf course superintendents throughout the Southeast, so students are easily placed on many outstanding golf course facilities.

The OJT program at Lake City differs in important ways from similar programs at other schools. A golf course superintendent's attitude toward education is considered before his golf course is selected as an OJT site. This insures a positive training atmosphere. The students submit requests specifying golf course facilities and geographic areas they desire for summer training. Then the staff matches the requests with a golf course environment known to provide good training. Students are discouraged from returning to golf courses at which they were previously employed, at least for the first OJT. This rule forces students to learn new methods of golf course maintenance and personnel management.

During the summer, the instructors travel throughout the Southeast evaluating student progress at each training location. This gives the

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The first in a series of articles on educational programs established for the various horticultural professions. Two-year and four-year programs will be included. Instructors of such programs are invited to write *Weeds Trees & Turf* about their program. The hope is to compare different programs to judge curricula, the significance of two-versus four-year programs, and the importance of on the job training.

---

staff a chance to talk with the student and the employer to evaluate the learning environment. Each site is visited twice, each time by a different instructor. This summer travel has the added benefit of exposing instructors to new materials and methods used in the golf course industry. Students earn while they learn since they are paid by the employer and receive 12 college credits for their summer training. Their summer grade is determined by a required comprehensive report, by an employer evaluation, and the two on-site instructor evaluations.

Although the school is located in the South, many students come from northern states. In fact, some graduates return north to accept jobs. Both cool season and warm season grasses are taught, so a northern transition is not difficult. Also, many students go on OJT in the northern parts of the Southeast where they get practical experience on both bermudagrass and bentgrass.

**Golf Course Equipment Mechanics** — The Golf Course Equipment Mechanics program requires just one year of training with excellent job opportunities. Students learn diesel mechanics, hydraulics, painting, welding, sharpening and grinding, gas engine repair, as well as maintenance procedures on various types of golf course equipment.

An important aspect of this program is the emphasis put on shop organization and inventory control. These concepts are essential to the efficient operation of any maintenance facility. Students learn how to keep equipment maintenance records, how to properly order replacement parts, and how to establish an inventory of frequently used parts.

Hands-on experience is an integral part of this program. The curriculum includes both lecture and laboratory periods. During the labs, students work on actual golf course equipment supplied by the school, by nearby golf courses, and by turf equipment distributors. Summer classes include week long training sessions at various equipment distributors where students get an opportunity to work with experienced mechanics.

The tremendous industry demand for mechanics far exceeds the number of mechanic students. This situation provides a lucrative job

*Continues on page 59*



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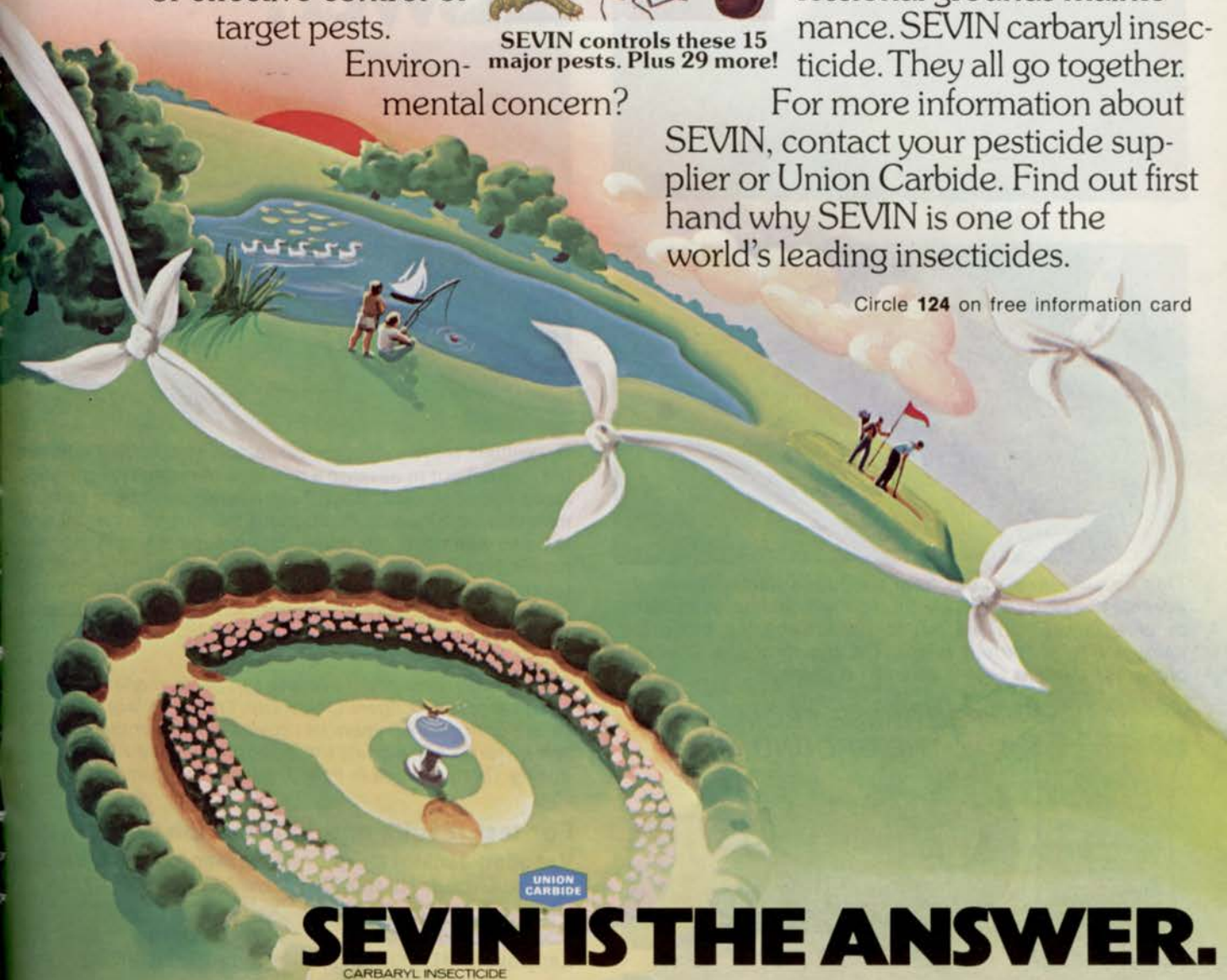
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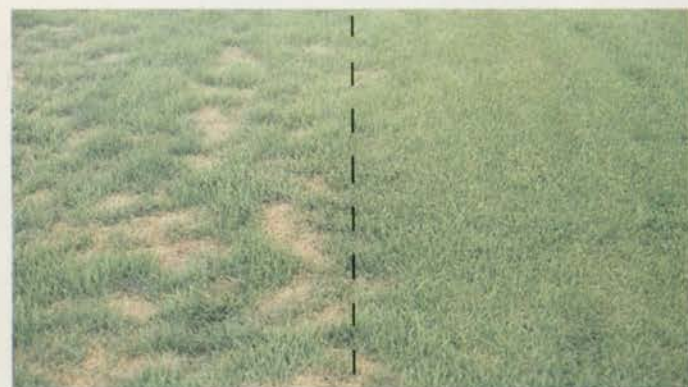
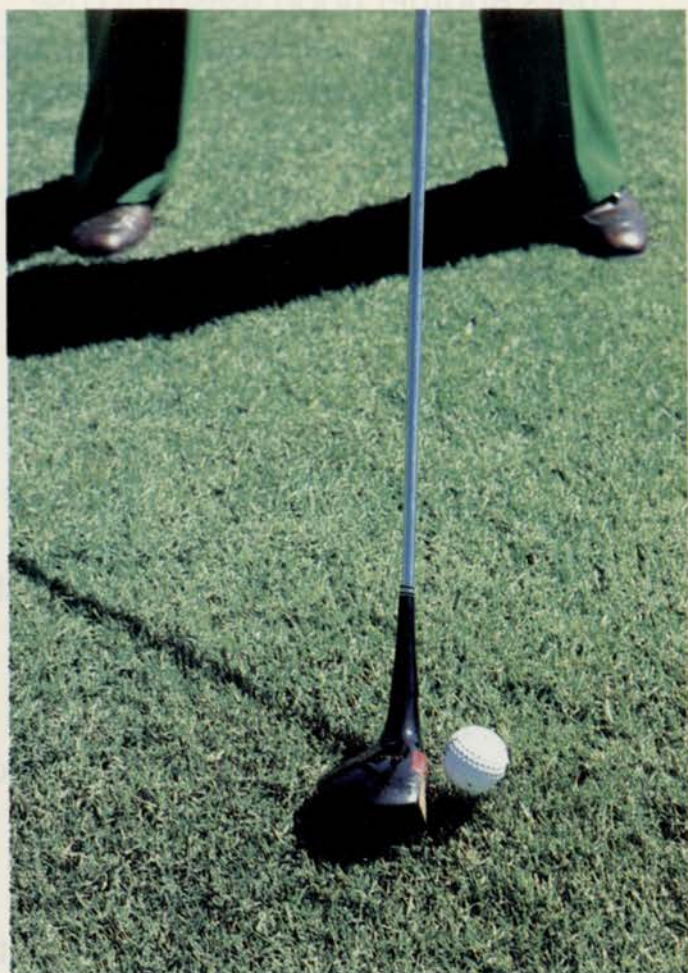
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market for graduates of this program. With the increased sophistication of golf course equipment, and the resultant increase in prices, the need for trained mechanics will continue to grow. Last summer, each mechanic graduate had several job offers with starting salaries ranging from \$4.00 to \$6.00 an hour. Any student interested in mechanics should take a good look at the Golf Course Equipment Mechanics Program which provides an excellent return on a student's educational investment.

**Landscape Design and Sales** — Landscape Design and Sales is a two year program. What used to be a general horticulture program was changed two years ago to emphasize more design and sales. The curriculum includes general plant science courses, pest control, specific courses in landscape installation and maintenance, landscape design, interiorscaping, and business courses. Changes were made with industry input so that the curriculum would train the types of personnel the landscape industry needs.

Two summers of on-the-job training are an integral part of the Landscape Design and Sales program. Ideally, students get installation and maintenance experience on their first OJT and design experience on the second OJT. This is a logical split, but summer training is customized to meet the specific needs of each student.

Other unique aspects of the Landscape Program include required fall and spring tours during the senior year. Outstanding facilities in South Florida are visited during the fall tour, and Central and North Florida facilities are visited in the spring. These tours provide students and instructors with an opportunity to ask questions of successful Florida horticulturists and to observe various techniques of landscape installation, maintenance, and design.

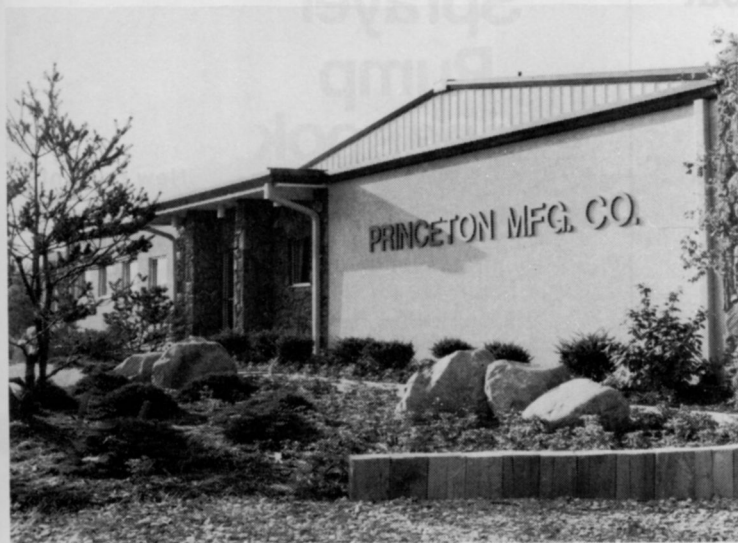
Many green industry professionals are brought on campus to take part in a senior seminar course and to assist in Advanced Landscape Design. The idea is to expose students to a variety of landscape concepts as presented by various practicing horticulturists.

Existing department facilities that strengthen the Landscape Design and Sales Program include modern greenhouse facilities, a spacious drafting laboratory, and a half acre arboretum. There are presently plans to add an additional acre to the arboretum which confirms the staff's desire to constantly improve existing facilities.

Anyone interested in Golf Course Operations, Landscape Design and Sales, or Golf Course Equipment Mechanics should contact:

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# VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

**Q:** How does IBDU fine differ from powdered ureaform? I would like to know which one to use in my lawn spray service.

**A:** Isobutylidene diurea (IBDU) is a relatively insoluble source that releases urea through hydrolysis (water dissolution). The urea is further mineralized by bacterial action to ammonium ( $\text{NH}_4^+$ ) and nitrate ( $\text{NO}_3^-$ ) ions, the two forms of nitrogen readily absorbed by plant roots.

The release rate of IBDU is dependent primarily upon two factors — the amount of available water and the particle size. Standard or coarse IBDU has a particle size of 0.7 to 2.5 millimeters in diameter and has excellent release characteristics when applied to turf as a granule. Unfortunately, when coarse IBDU is ground to a particulate size fine enough to pass through a traditional spray system (40 mesh or smaller), the solubility and availability are increased by as much as 33%. In addition, the constant agitation of the water bath and the hydraulic pressure and abrasion from the pumping system further increases the rate of dissolution, reducing the slow-release properties of IBDU.

By comparison, the breakdown and release of

available nitrogen from ureaformaldehyde (UF) is not dependent upon particle size or the concentration of water. Ureaform is decomposed almost entirely by microorganisms in the soil which release urea and, ultimately, ammonium and nitrate ions. Therefore, UF can be ground to a fine powder and sprayed in a water carrier without significantly affecting its slow-release characteristic.

**Q:** We have been using pre-emergent control for crabgrass, but it has no effect on other wide-blade nuisance grasses. What post-emergent control can you recommend to be applied without injury to desirable turfgrasses? What is the best time to apply?

**A:** Pre-emergent herbicides control only the germinating seedling, thus would have no effect on existing perennial grasses. Perennial grass weeds can be killed with a non-selective herbicide such as Roundup, Dalapon or Amitrol-T; then, after the appropriate waiting period, the area can be reseeded.

The organic arsenicals such as DSMA and MSMA are labeled as post-emergent herbicides for



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