

## STATE OF THE LANDSCAPE INDUSTRIES

ket to the Green Industries.

Kline predicts the turf and landscape market will grow at a rate of 10 percent annually to 1986, measured in current dollars. It sees lawn care growing by 24 percent annually in the same period. A growth rate of 12 percent was set for fertilizers.

The dilemma of farm equipment manufacturers is well known. International Harvester is trying to restructure its debt and even John Deere is cutting back production this year. High interest rates are keeping landscape businessmen away from large equipment purchases the same as farmers. However, the prospects for a quick recovery are better for the landscape market as equipment efficiency is stressed to cut labor and interest rates drift downward.

Equipment distributors called by *Weeds Trees & Turf* did not paint a dismal picture. Jack Cantu, president of Wesco-Zaun, a Toro distributor in St. Petersburg, FL, said new golf courses and tourists escaping severe winters up north are keeping his customers busy. Even Bert Bradshaw of Lawn Equipment Enterprises in Detroit has good words for his equipment business. Apparently, laid off auto workers are buying mowers and snow blowers to compete with professionals.

Equipment is pushed harder and on a daily basis in landscaping. Down time is critical. Unreliable equipment can't be tolerated. Replacement equipment simply must be purchased regardless of interest rate or price. If the prime rate falls two points this year, the landscape maintenance industry will be buying. It simply doesn't pay to wait for interest rates to drop to previous levels.

Since many landscape businessmen have trimmed staff this year to cut costs, they will know fairly accurately how much labor reduction saved. When they compare this figure to similar savings offered by more efficient equipment, they will be looking for larger but still highly maneuverable mowers. The lessons of cost cutting will not be forgotten quickly.

The turf and landscape market also purchases \$140 million in turf seed each year. Advances in low maintenance turfgrasses are being applied by landscape businessmen. Renovation with improved turfgrasses will continue as landscape managers seek a turfgrass that grows slowly, looks good, and survives on less, water, fertilizer and fungicides. Improved tall fescues and hard fescues, as well as hardier Kentucky bluegrasses and perennial ryegrasses are available today. Seed companies expect adequate quantities of these lower

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"The lessons of cost cutting will not be forgotten quickly."

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maintenance grasses within two years.

The survey shows both an increase in the use of lower maintenance plant material and a reduction in the amount of ornamental planting. Until new construction returns to previous levels the nursery market will be supplying replacement or renovation material, at least to the professional market. The logic that the economy would encourage customers to fix up their property is sound according to NLA figures. NLA members indicated they offset new construction losses to a large extent by residential renovation work. Henry Weller, president of the American Association of Nurserymen reports nurserymen saw some cancellations. Weller encourages fellow nurserymen to adjust to present conditions rather than waiting for a turn around in sales. Turf seed experts like Doyle Jacklin, of Jacklin Seed Co., Post Falls, ID, believe the hope for large sales increases brought

about by homeowners fixing up has not been realized yet. Retail seed sales have not shown dramatic improvement nor has the purchase of sod for home renovation been encouraging.

Jacklin and Jay Glatt of Turf Seed in Halsey, OR, suspect seed distributors and retailers are keeping smaller inventories, relying instead on delivery from the seed company within a week. Facing a good harvest, the seed growers need to move their inventories of Kentucky bluegrass from last year.

### The Golf Market

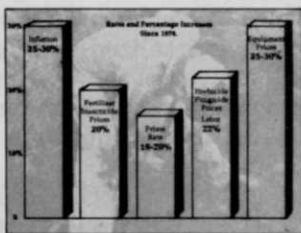
With the number of golf courses growing at one percent per year and maintenance budgets increasing at 8 to 9 percent, the golf course market is considered a mature but consistent performer. Growth is not the only qualifier of a good market to manufacturers and suppliers. Reliability is the main concern during a recession.

The Kline report estimates annual consumption of chemicals and fertilizers by golf courses as \$175 million, or \$10 million less than residential and commercial lawn care. This is the first indication that golf is not the biggest market in the landscape industry.

Golf associations are aware of their growth problem and, for the first time, are all working together to improve it. "For the first time in its history, we see a marshalling of forces, a unification of key organizations in the industry to meet the challenges of the next decade... to take a fresh look at management of the game and to revive its economic viability," says Jim Wiley, president of the Golf Course Superintendents Association of America. "Old adversaries such as inflation, lack of adequate participation by the younger generation, the expense level and the time it takes to play golf are challenges that have built up over the years. In addition, new challenges, such as resource limitations, water and energy, must be faced. These add up to economic threats to a business and sport that has gracefully survived world crises through the years when other sports were similarly threatened."

Wiley feels the results of industry

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self examination will find a receptive audience. An Allied Technical Research Task Force has been established to facilitate management practices. "The GCSAA and the U.S. Golf Association will be playing pivotal, cohesive roles in lower maintenance turfgrasses, water source and utilization research, computer resource development, and other ways of doing more for less," Wiley claims.

Golf Journal managing editor George Eberl puts it this way in a report on the high cost of golf, "When these expenses (maintenance costs) are combined with rapidly escalating property taxes, the two-headed economic monster of inflation/recession, and the proliferation of other competing sports activities, it is little wonder that golf course development has slowed considerably over the past several years and what we have is confined chiefly to resort and real estate complexes, most often in the Sunbelt States."

The National Golf Foundation has been the keeper of golf industry statistics. NGF reported out of the 150 course openings in 1981, 78 percent were linked to real estate developments and only 90 of these were totally new courses. NGF reported 118 golf construction starts in 1981.

Joe Finger, a golf course architect in Houston, TX, cites development and construction costs as the major roadblock to new courses. He estimates costs of \$2.5 to \$5.6 million to purchase land, build the course and clubhouse, install irrigation, and buy carts. To accomplish this, a "strictly membership club" would have to charge an initiation fee of about \$9,000 to \$18,000 for 300 members, or \$4,000 to \$9,000 for 600

members.

Finger suggests cutting the length and area of the course, reducing the number of bunkers, and installing more efficient irrigation systems with fewer heads.

Superintendents of existing courses have delayed equipment purchases and reduced crew size to work from tighter budgets. Nearly 40 percent of the superintendents in the WTT survey said they had adjusted plans for course improvements and cut back on travel to conferences. The least likely items to be cut are chemical applications, mowing frequency, and irrigating only critical areas. Less than a fifth of the superintendents said they would lower maintenance standards to cut costs, but one fourth said they have let some areas go natural.

Even though almost 80 percent of the superintendents said they had delayed equipment purchases, 48 percent said they were using larger

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"Today it costs \$2.5 to \$5.6 million to build a golf course."

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mowers to cut labor time. More than half said they have converted part of their trimming to chemicals from equipment. More than 40 percent said they are improving irrigation systems for efficiency. Use of sod for repairs was reduced by a third of the superintendents. Other cost cutting procedures used by 25 percent or less of the respondents are use of growth regulators, eliminating some bunkers, use of fertilizer/herbicide combinations, and renovation to lower maintenance grasses.

On the income side of golf, courses have increased membership dues an average 12.5 percent since 1980, hiked greens fees an average 15 percent, and raised cart rental fees by 13.5 percent. These increases have not kept pace with inflation of 12.5 percent in 1981 and an estimated 7 percent this year. Rounds played increased in 49 percent of the courses reporting by an average of 15.7 percent. Speed of play and marketing the course to

groups are two areas contributing to increased rounds.

Demographics are becoming a prime consideration of golf promoters. They know young golfers (17 and under) play 30 percent of their rounds on municipal courses. The senior golfer plays more than twice as many rounds as the junior golfer. But, 75 percent of rounds played are by persons between the ages of 17 and 65. The dominant part of the market has time constraints due to employment. Women's golf is being slowly diminished by working women and their time constraints. Time is the key factor.

NGF estimates that 360 million rounds were played in 1980 with a 7 percent increase in 1981. Municipal courses make up 15 percent of all courses but carry 22 percent of rounds. Daily fee courses make up 45 percent and carry 45 percent of the rounds. Private courses make up 40 percent of the market and carry 33 percent of the rounds.

Some courses supplement course income with restaurant and bar and golf cart rental. Golf cars figure in time saving and cart use is increasing.

Golf courses simply can't allow maintenance costs to increase rapidly. It becomes the superintendent's responsibility to control them. Hazards which penalize the golfer and slow down play not only are maintenance headaches they are irritants to the golfer. The local course should be fast and enjoyable. The well-to-do golfer can travel to courses with the challenge they desire. The key is to increase rounds by decreasing time. The golf industry will need the 80's to find the answers to growth.

### Lawn Care Market

The economy has apparently had the least effect on lawn care. It is the volume maintenance service of the landscape market. Each year it gains a greater share of the existing residential market. There are 68 million residences in the United States. Lawn care companies currently service ten percent (6.8 million) and hope to increase the percentage into the twenties during the eighties.

Growing in the past few years at  
*Continues on page 44*

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March 18, 1982

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*Terry Turnquist*  
Terry Turnquist  
Assistant Superintendent  
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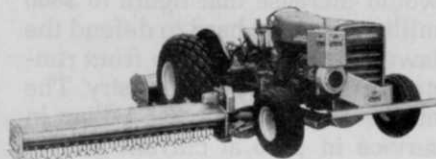
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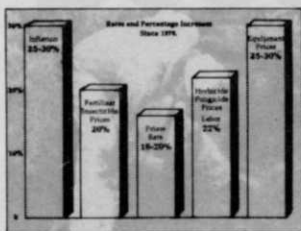
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25 percent annually, this growth is expected to continue through 1986 (Kline Report). Housing starts will raise the number of residences to perhaps 75 million by 1986. Lawn care businessmen will meet their goal of 20 percent easily before then. By 1986, 20 million residences will have a lawn care service and this would represent 27 percent of the market, a figure currently reached by retail lawn care product companies.

Lawn care is divided into two major categories, mowing/maintenance and chemical application. In 1981, the market grossed \$870 million in chemical and \$627 million in mowing/maintenance for a total of \$1.5 billion, according to a *Lawn Care Industry* magazine survey. The Kline Report estimated residential and commercial lawn care markets to consume \$185 million in chemicals and fertilizers in 1981. If growth rates are accurate, the lawn care market will consume more than \$560 million in chemicals and fertilizer by 1986, in 1981 dollars. Annual inflation of 6 percent would increase that figure to \$800 million. It is not hard to defend the lawn care market as the front runner in the landscape industry. The market will perform \$6.5 billion in service in 1986 at current growth rates.

Chemical lawn care is practiced by 75 percent of the companies according to Lawn Care Industry's survey of its readers. LCI readers serve 6.7 million chemical accounts at an average annual charge of \$130. Seventy-two percent of LCI's 10,200 readers do mowing/maintenance at an average annual charge of \$1,483 for 423,000 accounts.

The survey respondents averaged 22 percent profit by charging

roughly \$4.25 per 1,000 square feet on chemical application and \$21 per hour for labor and equipment on mowing/maintenance. They spend an average of 4 percent on advertising.

As a volume oriented business, lawn care is restricted from entering time consuming landscape functions such as planting, trimming, and tree care. It is limited also in mowing work. Soliciting residential mowing accounts is not sensible at today's labor rates and overhead costs. Commercial mowing makes more sense and is more common. A residential customer will accept four to six treatments at \$40 each, but might not accept a weekly charge of \$40 to mow his lawn.

The line between mowing/maintenance by lawn care firms and landscape maintenance by landscape contractors is fuzzy. Landscape contractors and landscape nurserymen have claim to

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"By 1986, 20 million residences will have lawn care services."

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much of the same work.

Lawn care companies have experimented with tree spraying and even golf course maintenance. Tree spraying and fertilizing appear viable as an additional service to present customers.

A definite trend is offering a variety of treatments from one spray truck. Hand controls and truck controls for injection of chemicals needed for the job are being used on a limited basis. The chemical applicator can apply only what is needed and has the ability to apply specialty chemicals, such as fungicides and insecticides, where required. This cuts down on chemicals used unnecessarily in tank mixes.

Marketing sophistication may be the main reason why a part of landscape maintenance became a separate market. Specializing in one area and using promotion to gain volume made lawn care climb from meager beginnings in the late 50's to the leading landscape market of

the 80's.

## The Landscape Contracting Market

The fact that most of the growth in the landscape market has been from splinter groups from landscape contracting is a testament to its health. Lawn care and interior landscaping are both on the map to stay.

Without including the dollars from lawn care, the landscape contractor represents the third largest buyer of chemicals and fertilizer in the total landscape market at \$110 million. It represents the greatest variety of work on a profit basis in the market. The diversity of the market gives it the flexibility to balance any weakness in any of its parts.

The majority of landscape contractors gross under \$250,000 per year according to the Associated Landscape Contractors of America. WTT research indicates the average gross in less than \$100,000. The landscape nurserymen remains a factor in the market although the real backbone of the market is maintenance. This becomes most apparent when construction work falls off and maintenance becomes the only reliable cash flow.

Construction, however, is the type of service provided by most landscape contractors. WTT survey results show 85 percent of landscape contractors in construction and 72 percent in maintenance. The health of the landscape architect represents a good future for construction. "People are beginning to understand the professionalism and importance of landscape architecture to the solution of current and future land planning and land use planning," says Calvin Bishop, president of the American Society of Landscape Architects. "Today, there are 25,000 to 30,000 practicing landscape architects according to the U.S. Bureau of Labor Statistics, and it reports there will be at least 1,200 job openings annually for landscape architects between now and 1990."

More than 40 accredited landscape architecture schools currently have 5,500 students enrolled. Certification exams are required in

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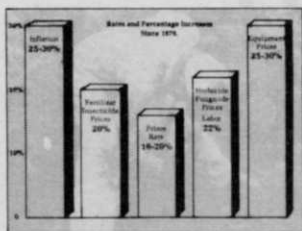
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37 states as of 1982.

The 1978 Census of Agriculture identifies 34,483 landscape planting and maintenance services. California represents a third of the market. Florida and New York each have roughly 2,500 firms according to the 78 Census. The report lists gross receipts for planting and maintenance as \$1.4 million and \$1 million for arborist services with 10,000 firms.

The 1978 Census gave a wholesale value of trees and shrubs produced by nurseries in the U.S. at roughly \$700 million if you take out fruit and nut stock. For the same year it listed foliage (tropical plants) sales of \$425 million. Both this figures contain consumer purchases as well as professional purchases. Nevertheless, it shows the market for plant materials well exceeds \$1 billion.

A recent survey by the National Landscape Association, a division of the American Association of Nurserymen, showed gross sales by members increased 11 percent in 1981 and a predicted increase of 7 percent for 1982. Approximately half the NLA members reported new residential landscaping and commercial renovation down in 1981, but residential renovation and commercial construction up. They anticipate commercial renovation to get worse or stay the same for 1982 and residential renovation to increase again. Loss in two areas, new residential and commercial renovation were balanced by increases in residential renovation and commercial construction. Loss of commercial construction can be balanced too by their 82 predictions.

The growing influence of the landscape architect is a positive

factor in the landscape market as supported by the growth of design/build firms. ASLA's Bishop predicts, "The coming years will require continuing expansion and strengthened relationships within the entire Green Industry. Professionalism and cooperation will create, attract, and preserve the need for environmentally sound landscapes. There is a great breadth of practice in landscaping, from traditional residential design, parks and recreation, highways, military, golf, shopping centers, institutional projects, and campuses, to environmental improvement statements, landscape planning, design/build, historic preservation, research and computer assisted analysis using satellites."

The success of the Interior Plant-scape Association indicates healthy growth in that market which began in the late 60's. Certification is keeping a handle on standards and the reputation of a

**"85% of sod growers report losses from construction."**

group more aligned to contracting than to the florist industry. Changes in office and shopping center design are creating greater opportunity each year.

The increase of contracting out by public agencies in the late 70's is slowing down. The WTT survey shows less than 10 percent of landscape contractors perform public work under contract. They point out problems with poor specifications and bidding practices. Public agencies are reporting decreases or the same level of contracting out to landscapers.

### The Sod Market

"After 21 years in the sod industry, I feel our position in the industry is being threatened," said one respondent to our survey. Clearly there is a problem when 40 percent of the growers have converted some of their sod acreage to alternate crops like soybeans, corn, wheat, potatoes, onions, cabbage, spearmint and peppermint.

The problem is centered in the

north with Kentucky bluegrass sod. Southern sod growers indicate business is in better shape than up north. Sun Belt growers are selling Floratam St. Augustine grass as fast as they can grow it.

Kentucky bluegrass growers face more sobering challenges with 85 percent reporting losses to housing and construction. Thirty-eight percent of the growers reported decreasing their sod acreage in the past two years. Nearly half the growers half cut prices to spur demand. More than two thirds have cut back on labor. Fertilizer rates have been lowered by nearly half the growers. A third of them have also trimmed marketing and advertising costs. Equipment purchases have been delayed by 81 percent of the respondents. A third reported cutting seed purchases by 50 percent since 1979.

The business from the landscape contractor and the homeowner is off severely. Only a fifth of the growers felt fast germinating, improved perennial ryegrasses have hurt the demand for Kentucky bluegrass sod.

One grower said he has been selling sod at the same price for five years out of necessity. A New York sod grower reported Canadian growers selling sod in the U.S. at 25 to 40 percent below local delivered prices. The market apparently has had some challenges to meet before construction fell off. Sod producers will have much to discuss at their meeting in Denver in July. Members and non-members of the American Sod Producers Association should make plans to be there by contacting ASPA, 9th and Min-

*Continued on page 48*

**TABLE 3.**  
Services Performed by Landscape Contractors

Service	Percent
Exterior Landscape Construction	85%
Exterior Landscape Maintenance	72.6%
Exterior Landscape Design	81%
Erosion Control	38%
Irrigation Installation/Maintenance	23%
Interior Landscape Installation	13%
Interior Landscape Maintenance	12%
Interior Landscape Design	13%
Nursery Retail	42%
Nursery Wholesale	22%
Sod Production	5%

# PURDUE TURF PROGRAM FOCUSES ON STUDENTS

By ROBIN RICHARDS, assistant editor

A grant from the U.S. Air Force was the unlikely origin of the first university turfgrass research and education program at Purdue University. From this peculiar beginning, the program has since grown over the years and sent almost 300 graduates into the industry.

Technically, first turf program began in 1937, under the auspices of the Purdue department of physical education. It was not transferred to the agronomy department until 1940. That year, Professor George Mott had a group of students working on a runway stability project financed by the Air Force. While still working for the Air Force, a number of students shifted their interests and ideas toward golf greens. During the war years, the program's concentration remained on the original work in turf stability for runways. Though the program was still functioning after the war, as a result of the Air Force grants, Mott and his aides turned primarily to golf course and pasture work.

The golf course area got a big boost when the Midwest Regional Turf Association and its foundation formed. No longer dependent upon sporadic grants from the Air Force, the Purdue turf researchers could finally count on a consistent income from the association for their research. With this security, the program began to roll.

In 1950, William Daniel, the current head of the program, was hired as the first full-time turf researcher. George Mott was then able to devote his full time toward work on pasture. When the chemical 2,4-D was introduced, Daniel and his colleagues were able to make a concerted effort in the study of turf quality and selective weed control that was not possible before. Concurrently, Purdue graduated its first turf student in 1952.

During this period, the accomplishments at Purdue were being



W. H. Daniels

supported by the strong regional membership that was being built by the MRTA. The annual Midwest Regional Turf Conference held by the association had become extremely popular as an educational resource for the area's turf managers. Each year from 1948 on, the activities and speeches at the conference were published for reference in the Conference Proceedings. The conference reached a peak attendance in 1963 when 700 members and visitors were present.

By 1963, of course, Purdue was no longer alone in the field. Similar programs were growing in other universities around the country. The MRTA and Purdue can lay claim to being the model for many later curriculums, although they lost the support of some of the fringe areas to the research stations

at Michigan and Ohio.

Dr. Daniel emphasizes that Purdue still stands out for having the most extensive undergraduate four-year program. Normally, about 50 undergraduates with a turfgrass concentration are enrolled at any one time. Of those that complete the course, Daniel estimates that up to 90% stay in the green industry.

As Junior Jennifer Scifres explained, the curriculum consists of basic schedule of biochemistry, microbiology, organic chemistry and soils courses. Turf concentrators then take three specific courses: basic turf management, turf science and a seminar that allows the students to go beyond the books and formulate their own theories and solutions to turf issues.

*Continues on page 48*

In conjunction with the educational functions, Purdue also produces a constant stream of research findings to improve the quality of the region's turf. Both Drs. Daniel and Freeborg are credited with much of the significant early work in the use of arsenic for selective weed control. In the period from 1951 to 1975, their work shifted from lead to calcium arsenates. Each was a popular subject that the professors frequently lectured on. Consequently, the research and promotion of this treatment was a major part of the turf program from 1951 until it was banned in 1975 because of its tendency to drift. Stemming from that development, a current project in the department is research in to a flowable form of the arsenate herbicide.

Daniel rates the PURR-wick system as one of his major accomplishments, describing it "the best thing I've ever done." An acronym for Plastic Under Reservoir Root (Zone), the PURR-wick system was

developed in 1966 for greens in need of exceptional drainage. It incorporates an impermeable plastic base topped with drainage pipes and a sand medium. The grass is then planted in the sand, providing the entire system with superb drainage.

The concept behind the PURR-wick system was taken one step further with the advent of the Prescription Athletic Turf (PAT) System. This advancement entailed connecting a pump to a similar drainage system, enabling the turf manager to remove water at will during the wet season and irrigate from beneath the turf to conserve water during dry periods.

The breeding of new grass varieties such as Sodeo and Wabash bluegrasses has been another contribution of the turf department.

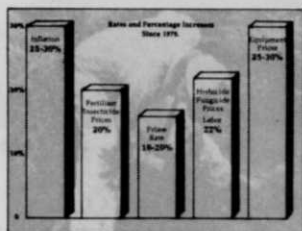
The researchers are currently working on projects involving adding fiber to root zones, growth regulator application on the roots of bentgrass and the development of a new dwarf type of bluegrass.

The research group made up of Drs. Daniel, Freeborg, a technician and nine part-time student helpers, has been making itself accessible to companies to assist with research and development. Headed by Dr. Freeborg, these projects are financially beneficial to the turf area which receives less than \$100,000 annually out of the Agronomy Department's \$3 million budget.

With the Purdue turf program in a relatively secure position, Daniel can see himself eventually easing into retirement. First, he would like to gradually give up some of his responsibilities to a younger individual who could then move in to a tenure track and take over on a full time basis.

Daniel does not expect the size of the research staff to change much either. Purdue's turf department is definitely leaning in the direction of the undergraduates, and will most likely continue to do so. The University is comfortable in the educational role it has carved for itself. **WTT**

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nesota, Hastings, NB, 68901.

The 1978 Census of Agriculture lists 1,060 growers, using 98,472 acres to produce \$206,611,000 on sod and sprig sales. Since prices have not increased and acreage may now be shrinking, the 1978 figures should be similar to those of the next census.

The bankruptcy of Roll N Grow, a company making a sod mimic with seed imbedded in a rolled jute base, also points to weakness in the acceptance of the technology involved in laying down sod or simi-

lar product. Erosion control remains a solid market for sod products. So does commercial and residential construction when they recover. Sod has a future and a niche that other products can't fill.

Whereas the sprig market in the Sun Belt has a bright future, the sod market will adjust to balance supply and demand. Prices have to go up. The small grower filling the gaps during good times and keeping prices down has to be discouraged from reentering either by certification or lack marketing ability.

**The Arborist**

Nature is lending a hand to this stable landscape industry. The spread of the gypsy moth has offset any decreases caused by the economy.

Erik Haupt, president of the National Arborist Association, says, "The general consensus of our members was that the current economic crisis has not affected our industry to the degree it has many

other businesses. Interestingly enough, our officers and directors from areas particularly hard hit by inflation/recession indicate demand for their services is back to normal after a slow start in the first quarter."

Still, Haupt is concerned about the impact of growing insurance,

"Arborists in hard hit areas report demand normal after slow first quarter."

tax and interest costs, in a addition to increased government regulation. "Organizations that recognize the importance of responsible business practices and utilize all available technical assistance will survive and will emerge as a stronger operations," Haupt concludes. **WTT**



# VEGETATION MANAGEMENT

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

**Q:** I have noticed that sometimes the roots of trees stockpiled in wood chips grow several feet during the winter. Do tree roots normally grow in the winter, or is this unusual? (Ohio)

**A:** Temperature is the controlling factor in root extension of many trees during the winter months if the roots are well aerated and supplied with adequate moisture. The decomposition of chips may provide sufficient heat for root growth during the winter months.

In many angiosperms and gymnosperms in the temperate zone, there is a peak period of active root growth in the spring, often before bud break. The rate of growth and number of roots is reduced during the summer followed by another peak of activity in the fall. The majority of roots become quiescent in the winter because of low soil temperatures.

**Q:** We have not been able to control goosegrass for the past two years. What is the best pre-emergent control that can be applied as a granular application to turf? (Virginia)

**A:** Tests conducted at the University of Maryland indicate that, of the pre-emergent herbicides currently labeled for goosegrass control in turf, Balan and Ronstar provide the best control.

**Q:** What can we use to control algae in a pond which contains fish and the water is used for irrigating plants? (Michigan)

**A:** Cutrine-Plus is registered for fish ponds and, according to the label, treated water can be used to irrigate turf, fairways, putting greens and ornamental plants.

**Q:** I have read several articles that said charcoal could be used to tie up pre-emergent herbicides if you want to reseed with Kentucky bluegrass soon after their application. However, I can not find what rate you should use or how long you have to wait after spreading the charcoal before seeding.

**A:** About seven pounds of activated charcoal is recommended on each 1000 square feet of turfgrass. A new seeding can be made the same day.

**Q:** Could you recommend an herbicide that can be used to control Kudzu along drainage ditches? (Maryland)

**A:** Glyphosate (Roundup) is registered for the control of Kudzu and for use on ditch banks.

**Q:** We have been spraying Diazinon for hemlock woolly aphid without any noticeable control. Are we using the wrong material or the wrong timing (mid-April - June), or both? (Pennsylvania)

**A:** Diazinon is recommended for the hemlock woolly aphid (adelgid), but your timing is wrong. The latest information indicates that a late June spray is effective in the control of developing nymphs, and late

September-early October sprays will control overwintering adults. Severe infestations are difficult to control.

**Q:** Since Silvex is no longer available, is there another herbicide which will control poison oak? (California)

**A:** Glyphosate, under the trade name Ortho Systemic Weed and Grass Killer is an effective substitute. Amitrole also is registered for poison oak control.

**Q:** Are there any approved retardants for turf? (Pennsylvania)

**A:** Growth regulators currently available for turfgrass use are maleic hydrazide (Royal Slo-Gro by Uniroyal) and melfluidide (Embark by U. S. Borax), which affect meristematic activity by inhibiting growth or stopping seed head formation.

Melfluidide suppresses growth and seed head production of turf and many broadleaf weeds by inhibiting cell division or meristematic activity of plant parts with which it comes in contact. It is systemic but apparently does not translocate downward in the plant as readily as maleic hydrazide.

For specific use on grass in golf courses or home lawns, refer to label specifications or contact manufacturer. At the present time the predominant use for growth retardants is low maintenance sites where growth control is a greater priority than sustaining high quality turf.

**Q:** I have several large *Ficus retusa* trees which are constantly covered with thrips. I have tried everything. Do you have any recommendations? (California)

**A:** Cuban laurel thrips, *Gynaikothrips ficorum* (Marcal), were first reported in Florida in 1887. They are found throughout the tropics, wherever *F. retusa* (nitida) is planted, and in the United States they are recorded from California, Florida, Hawaii and Texas.

Adult thrips feed on the tender light-green leaves. A heavy leaf drop may occur at the first heavy rain after an extended period of dry weather. Most species of *Ficus* are immune to infestation, but when thrips become abundant on their preferred or specific host, *F. retusa*, they tend to cause leaf deformation and defoliation of all new leaves.

Orthene is recommended for thrips control on several ornamental crops. Research data from the University of Florida indicate that Orthene provided excellent control of thrips of *F. retusa* for five weeks. Plants should be treated as soon as thrips appear, and repeat applications may be necessary.

**Send your questions or comments to: Vegetation Management c/o WEEDS TREES & TURF, 757 Third Avenue, New York, NY 10017. Leave at least two months for Roger Funk's response in this column.**

## PRODUCTS

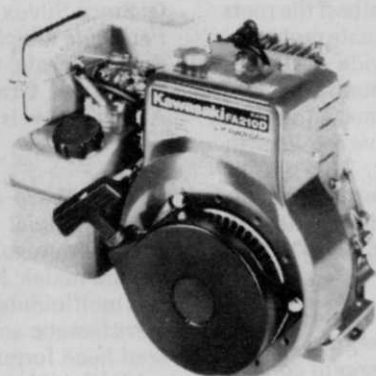
**Jacobsen** has a 5-gang mower frame that can be hydraulically raised on carrier wheels for moving between mowing locations. With the carrier wheels positioned for road travel, the Ram Lift Ranger has 6-in. clearance for curbs.



Accommodating both hydraulic and ground driven reels, the frame produces cutting widths of 10-ft. 10-in. with five gangs of 6-ft. 10-in. with 3 gangs. For maximum efficiency, the company recommends 6- or 10-blade hydraulic mowers.

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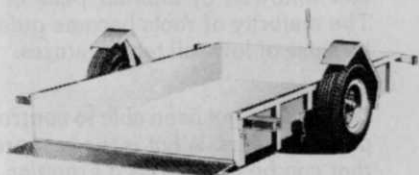
**Kawasaki** presents the FA210 five horsepower engine. Made of a light-weight die-cast aluminum silicon alloy, it has a easily lubricated, cylinder wall



for long life without the weight of iron. The engine will operate at 3600 rpm. The horizontal shaft engine is available

with a pulse pump carburetor that can provide up to 7.88 ft.-lbs at 2600 rpm. Circle No. 136 on Reader Inquiry Card

**Magline** has a new series of Trailevators which automatically lower to ground level, permitting equipment to be easily rolled or driven aboard. The load can then be hydraulically lifted to towing position by the double acting 5000-psi pump, located in the front of the trailer, for easy manual operation.



The trailers can carry between 2000 and 3000 lbs. with trailer bed sizes up to 70-in. wide by 10-ft. long. Options include electric brakes, lunette eye couplers, cargo restraints, and three sizes of stake racks.

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Introducing the new Vermeer LS-150A. Easy to operate. Easy to maintain. Easy to transport. Affordable for the professional and homeowner alike. No need to lift logs. Splitting tower tilts vertically and splits 'em up to 24" long. Rapid 16-second stroke cycle. Interested? Contact your nearest Vermeer dealer today or call us toll-free at 1-800-247-2347 for complete information.\*

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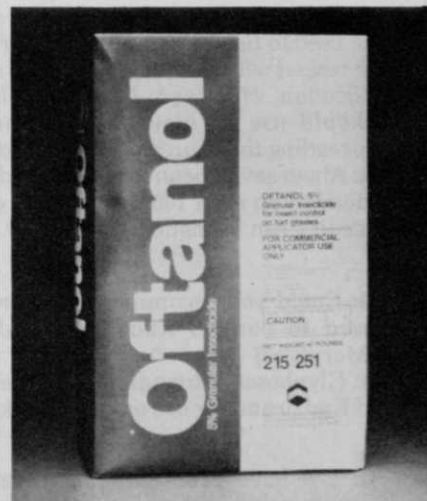


**Vermeer**  
Vermeer Manufacturing Company  
8807 New Sharon Road, Pella, Iowa 50199

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**Mobay Chemical's Oftanol** is designed for use on both commercial and residential turf for control of turf pests. It comes in a granular form and is recom-



mended for mole cricket control at an application rate of 40-lbs. acre. Oftanol is also effective in controlling white grub larvae, billbugs, chinch bugs and sod webworm.

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