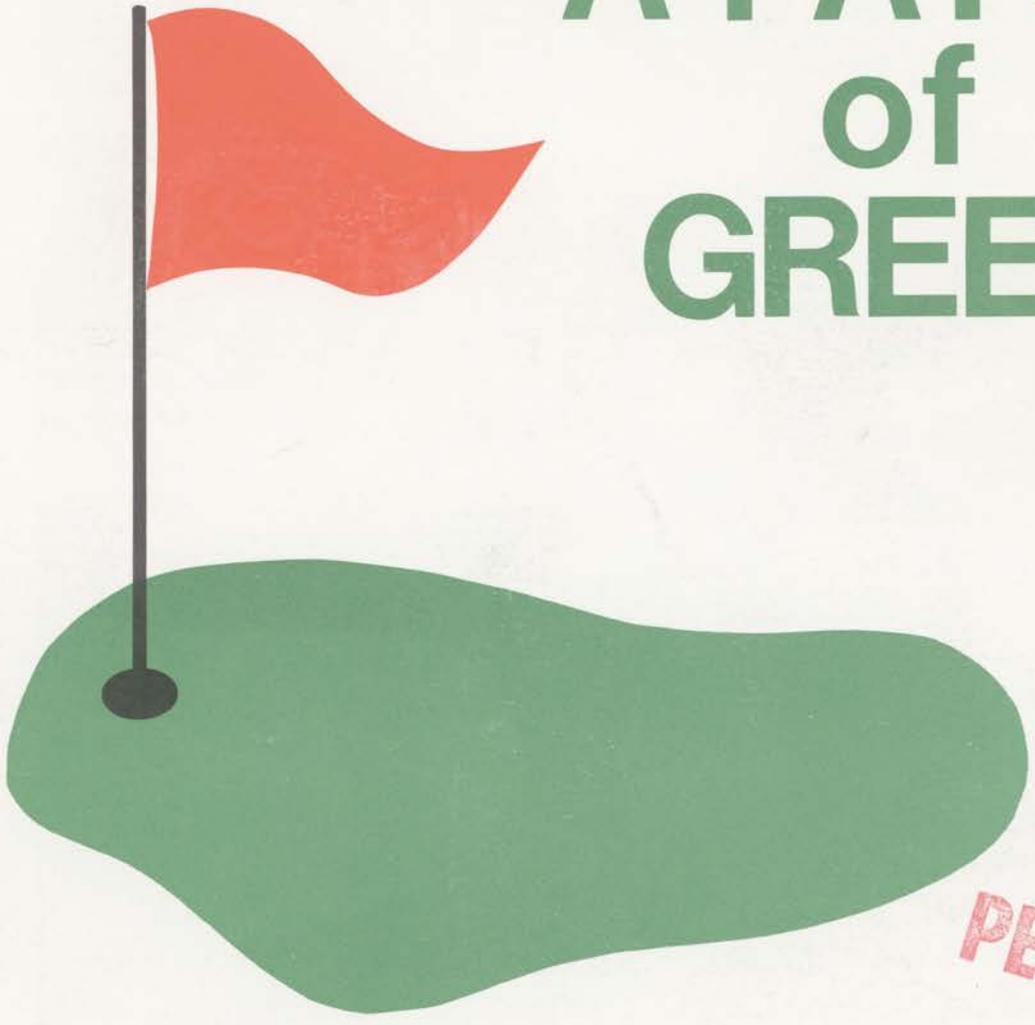


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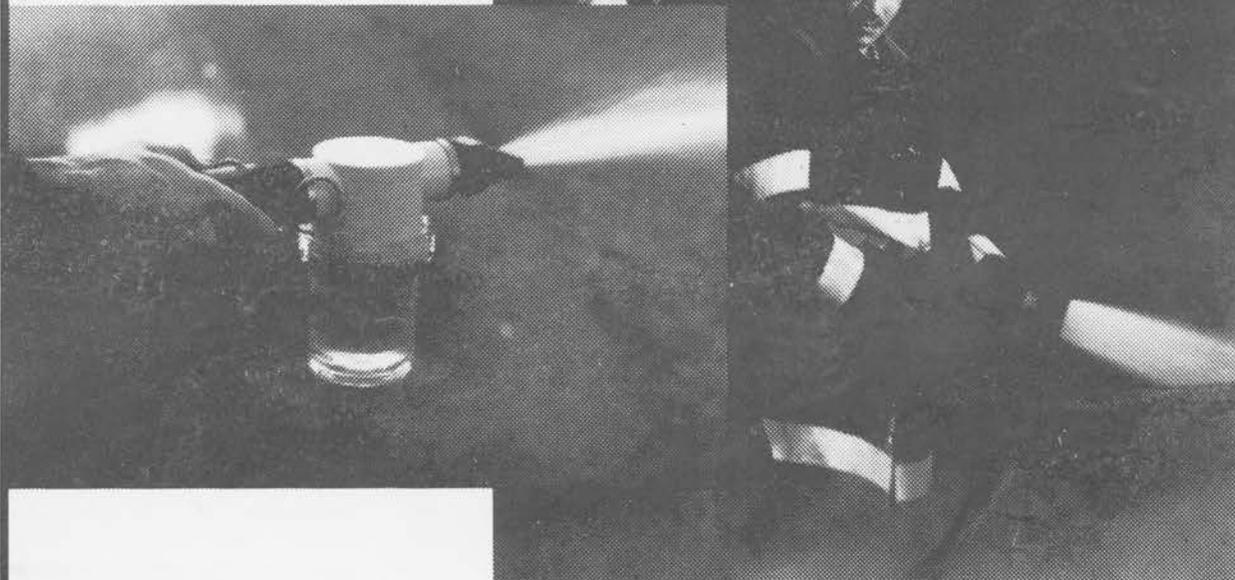
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PROFESSIONALISM and the GOLF COURSE SUPERINTENDENT

Credit: Long Island GCSA
"The Hole Nine Yards", March, 1990

The Golf Course Superintendent come across the term "Professional" on a regular basis. Whether it be watching professional football, basketball, baseball or hockey players compete or watching the Golf Professionals compete on the PGA Tour, it is a word that comes into view quite often.

The word **profession** as defined in the American Heritage Dictionary is "an occupation or vocation requiring training in the liberal arts or the sciences and advanced study in a specialized field." The word **professional** when used as a noun according to the American Heritage Dictionary is "one who has assured competence in a particular field or occupation."

The term professional, when it applies to the Golf Course Superintendent, is a combination of both previously mentioned definitions. One who has training in the sciences through advanced study (hands on experience and continuing education) in a specialized field (golf course maintenance) which creates an assured competence in that

particular field. It sounds like nonsensical rhetoric but it really does make sense.

TO BE VIEWED AS A professional by your club or employer requires different sets of circumstances in varied situations.

Some clubs want to see their Golf Course Superintendent clad in golfing attire without a trace of grime or grit on them. Fine. Other clubs or companies want to see their Golf Course Superintendent dressed in jacket and tie and carrying out only administrative duties from his office while delegating other responsibilities. This is fine. Some clubs want to see their Golf Course Superintendent dressed in blue jeans, wearing sneakers or the like, and not minding one bit if he had to jump in and help out in certain situations on the golf course. This is fine also. Each situation is different and one is no more professional than the other.

CONTINUED PAGE 28

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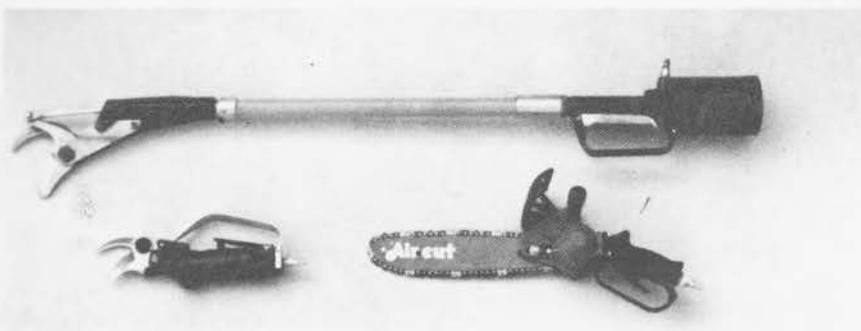
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WHO CALIBRATES YOUR SPRAYER?

University of Nebraska researchers found that
only one of six golf courses
are accurately applying pesticides.

What would they find at your course?

by David Varner, Ph.D, and Robert Grisso, Ph.D.

Last summer, researchers visited 53 of the 60 golf courses of the Nebraska Golf Course Superintendent's Association (NGCSA) and found that only one of six were accurately applying pesticides.

Their calibration accuracy study showed that only 17 percent of the courses applied pesticide carrier volumes within five percent of their intended amount (though this number may be conservative because possible tank mixing errors were excluded [Spray equipment not delivering within five percent of the desired pesticide carrier volume should be adjusted and recalibrated according to the **Guide for Private and Commercial Applicators**]).

How bad was it?

The average applicator error was 26 percent. However, the magnitude of errors ranged from a mere 0.1 percent to an alarming 177 percent over-application.

Cooperators who over-applied did so by an average of 19 percent. For a quick estimation of over-applied costs, assume an average preventive rate of Daconil 2787 at 4 oz. per 1,000 sq. ft. was used (Daconil 2787 was the most frequently-used pesticide among the study's cooperators at an average of \$37 a gallon).

Correctly applied, the cost of Daconil would be \$1.16 per 1,000 sq. ft. However, using the average over-application error of 19 percent, the cost of application would be an additional \$0.21 per 1,000 sq. ft. These costs escalate when considering the total treated area with multiple treatments throughout the season.

In many turf programs, pesticides are key elements in management programs, but are useful only if applied according to label directions. If not properly used, pesticides may become our worst nightmare rather than a proven management tool as we begin the 1990s.

Over-application may also cause turf damage, excessive pesticide residue, increased potential for human exposure and water contamination through surface run-off and percolation — Another costly venture.

Golf courses are unique in the fact that they are often positioned near residential areas with a body of water nearby, and are designed to attract people for entertainment. This makes awareness and accuracy of pesticide application even more important.

Those who under-applied pesticides did so by an average of 34 percent. This can be just as costly as over-application. Under-application may require additional applications, which increase pesticide, fuel and labor costs.

In addition to quantity of pesticide applied, sprayer performance was evaluated on the quality of pesticide application. Quality of application refers to the consistency of nozzle discharge across the boom. This was determined by measuring discharge measurements from each nozzle along the boom.

Eighty-four percent of the cooperators were within guidelines. This suggests that cooperators are maintaining nozzles appropriately. If two or more nozzles were discharging more than 10 percent above or the discharge average, operators were advised to replace them all.

Frequency of calibration was closely associated with application accuracy. Two-thirds of the applicators who calibrated before each spray operation were within the 5 percent application error criteria. Comparatively, only five percent of those who calibrated less than once a year were within 5 percent. More than one-third of the cooperators calibrated less than once a year.

CALIBRATION METHODS

The "known area" calibration procedure was the most common procedure used on golf course. However, only 14 percent of the superintendents employing this procedure were considered accurate applicators.

The most accurate cooperators were those who used spray monitor and controller systems. Sixty-seven percent of these applicators were accurate.

The most common application equipment used on Nebraska golf courses were Cushman Trucksters equipped with Broyhill sprayers, centrifugal pumps and fan nozzle tips. A common problem among sprayers in the study involved pressure gauges showing a system pressure different than the actual nozzle pressure.

Random inspections of pressure consistency among sprayer systems found differences as large as 30 psi. The most probable cause for most of these pressure differences were faulty gauges. Many gauges showed signs of corrosion, had broken crystals, or had a

THE HONEYMOON IS OVER!!!

Dave Fearis, CGCS
Blue Hills Country Club
Kansas City, Missouri

In 1983 when I was working for Scotts, I remember making a routine call on a golf course superintendent in southern Illinois. In our conversation, he made mention of the fact that this was his third year at that course and after this year "the honeymoon was over." I asked him what he meant, and he explained that he had found that a new golf course superintendent can get most of his requests for new equipment, projects, etc. in his first three years. After that it was much harder.

I had never really thought about that theory but started thinking back to my first three years at courses and other golf course superintendents that I new in similar situations. The more I thought about it, the more truth I saw in the theory. In fact, a classic example was the golf course at which I had been superintendent for 12 years. I had tried to get an automatic irrigation system for the fairways for that period without success. Within two years after my departure, the new superintendent was able to convince the membership

to install an automatic fairway system.

Why does the three-year theory hold true? A new golf course superintendent offers the membership many new and, what they consider fresh, ideas. The enthusiasm on both the membership and the superintendent's part is there, which equates to improvements on the golf course.

Does this have to end after three years? Definitely not, if the golf course superintendent can keep "the honeymoon going." The main way to do this is through a positive attitude, good public relations and communication. After being at a course for a few years, it is very easy to develop an attitude where you become very possessive of the golf course.

Don sweda, CGCS, superintendent at Beechmont Country Club in Cleveland, Ohio alluded to this in an article in the May, 1988 issue of *Golf Shop Operations*. He referred to it as the "my" attitude. This is "my" course, and we are going

CONTINUED PAGE 22

TURFTRAK SYSTEM... FOUR-WHEEL DRIVE POWER WITH MAXIMUM VERSATILITY

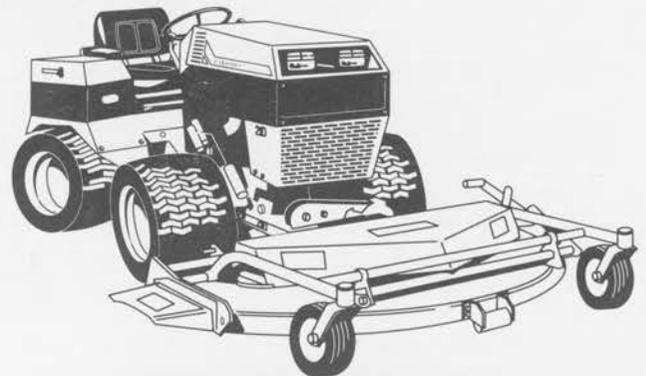
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THE LAWN INSTITUTE 1990 PRESS KIT

TURF GROWING TIME

Autumn is turf growing time, according to The Lawn Institute. This is the time of year when next summer's lawn quality is determined. How can that be?

The plant reserves that carry lawngresses through periods of hot weather next summer are stored up in plants during cool, autumn days. At this time of year, days are becoming shorter and growth rates are slower. Lawngresses make more carbohydrate than they use to sustain themselves, so some of it is stored for future needs. This storage continues on into the winter as long as the leaves are green. Thus, the Fall season is the only time of year that lawngress plants actually gain weight.

In the Spring, as soils warm and days become longer, most of the carbohydrates produced each day are used to replace foliage removed in mowing. There is little excess to be stored. The faster the grasses grow, the more carbohydrates needed. Thus, spring fertilizing improves the appearance of the lawn as it thickens the turf, but it doesn't help build reserves as does autumn fertilizing. Thus, in Spring, lawngress plants actually lose weight.

When hot summer weather arrives in late spring, and night temperatures are higher, rates of respiration increase. At these times, the stored carbohydrates are called upon to maintain healthy turf. Not enough are produced during the day to sustain growth and meet respiration needs at night too.

In situations where inadequate amounts of carbohydrate reserves are available, the lawngresses become more susceptible to diseases.

They lose vigor, thin out and weeds gain a foothold. Insect damage is more severe during these periods because grasses are not able to survive loss of plant parts. Roots stop their growth during hot weather and some die back occurs. This causes a less extensive root system for uptake of water and nutrients. The combination of these conditions weakens the lawn and causes it to become unattractive. Thus, during summer months, cool season grass plants may lose so much weight that life processes cease.

Autumn fertilization is the only means for preventing next summer's growth decline. Just remember, now is turf growing time.

GRASS ROOTS— OUT OF SIGHT BUT NOT OUT OF MIND

Lawngress roots may be out of sight, but they shouldn't be forgotten. Essentially all of our ornamental plants obtain water and mineral nutrients through their roots. An adequate supply depends on the size of the root system and the volume of soil with

which roots have contact. The more roots and the deeper they grow into the soil, the better.

All grasses establish a balance between growth of foliage and roots. Grasses that are not clipped, or perhaps cut infrequently, have the most extensive root systems. Under these conditions, the resulting cover is more like pasture than lawn.

Where lawngresses are mowed frequently, for example once a week, the lower the height of cut, the more limited the root growth. Good mowing practice calls for the removal of leaf tips when growth is about one third more than the cutting height. For example, a lawn cut with a mower set at one and one half inches should be mowed soon after growth has reached two inches. Clippings of this length, about one and one half inch, will filter down through the lawn, decompose and enrich the soil below.

In general, lawns that are mostly bentgrass are clipped at heights ranging from one half to one inch; lawns that are mostly fine leaved fescues, bentgrasses and perennial ryegrasses are clipped at heights ranging from one to two inches. Only workaday species, like tall fescue, are clipped much above two inches.

Setting the mower at the proper clipping height is important because this determines how much leaf surface is maintained, not only to produce more leaves, but also to provide the energy necessary to promote root growth.

AUTUMN SEEDING FOR BEST LAWN RESULTS

Nature's way is usually the best way after all. And, autumn seeding comes close to being Nature's way. By this time of year, temperatures are cooling off, days are getting shorter and soil moisture is ideal for germination of seed and early seedling establishment. At this time, many annual weeds like crabgrass have finished their growth cycle and will not compete with seedling lawngress plants.

Four to six weeks before the first autumn frost is about the ideal time to plant a new lawn or overseed one that has suffered through an unfavorable summer. Lawns started or improved then will be ready for sturdy growth next summer.

Kentucky bluegrasses are considered the real basic ingredient of lawn seed mixtures used in the cool, humid regions of the country. There are named Kentucky bluegrass hybrids selected for dense, low growth and fine texture. There are also cultivars derived from natural selection that feature the best adaptation that nature has to offer. These are called common or natural bluegrasses.



TREES AND YOU



Paul R. Roberts
Meramec Community College

Let's take a break from turf and examine another group of plants used on the golf course, **TREES**. Through the season, we spend most of our time looking down at our turf very carefully examining the root and leaves. Let's take a moment to look up and examine our trees.

Trees play an integral part of the golf course in design, function and aesthetics. Due to their important roles golf course superintendents should expand their awareness of trees on the golf course. This awareness may extend to the impact that trees not only have on the golf course, but on the environment. Trees play an important ecological role by removing carbon dioxide and cooling the environment. This has been recognized by the American Forestry Association which has recently initiated Global Relief and has a goal of planting 200 million trees by 1992 in an effort to deal with environmental problems and global warming. Global Relief is supported by many national organizations.

TREES AND THE GOLF COURSE

Trees provide several functions on the course. Most importantly trees provide a visual frame for the fairway and a background for the green. They also create interest as the golfer may need to strategically play around a tree. Trees are an integral part of the game as well as the aesthetics of the landscapes and sometimes good places to sit in the shade.

These roles played by trees are also important reasons to treat trees with respect. Remember, the golf course is a system — a collection of micro-environments that are intensely managed. Trees are a part of the system and need to be included in the overall maintenance program of the course. Trees on the course become an asset to the course.

Tree care is an investment. Not all superintendent courses can afford to allocate a part of the budget to maintain trees. A good part of tree care is common sense. Understanding the basics of a tree

as a system, how it grows and proper maintenance procedures is important to establishing a tree care program. Many tree maintenance activities may be achieved during the off season, and time may more easily be allocated toward tree care.

Knowing some basic facts about trees may help you establish a very simple tree care program. Many times, tree maintenance comes through preventing problems in the first place. Some things to remember:

The root system is the most important part of a tree. Without healthy roots the top is sure to suffer.

Tree roots extend upward and outward far beyond the drip line. Roots may cover 2-4 times the area of the crown.

Tree roots need oxygen. Any activity interfering with oxygen diffusion into the soil is harmful to the root system.

Most of the root system is located in the upper 12 inches of the soil. Many roots grow near the soil surface where oxygen levels are highest. Never grade soil over the root system and never grade soil away from the root system.

Any injury or extensive wounding of the roots or crown may provide easy access for pathogens.

Building "wells" around the trees for the purpose of changing grades most often does not work.

Trenching under trees is harmful. Proper distances should be followed to minimize damage.

The crowns of the tree should be treated with the same respect as the root system. Minimize wounding, follow proper pruning techniques and avoiding any mechanical damage is prudent. Remove dead wood and poorly formed branches before they

can lead to greater problems.

If in doubt, don't do it, call a professional for advice. Common sense is the best approach to tree management.

GLOBAL RELEAF

Global Releaf is a program initiated by the American Forestry Association. Many national organizations are now in partnership with A.F.A. to help educate people about trees, environmental concerns and to plant 200 million trees by 1992. Every day we are reminded of global warming and its effects on the environment. The A.F.A. will hopefully be successful in its campaign and meet its goal. Environmental concerns should be a part of everyone's agenda.

Global Releaf is a national campaign. National and local organizations and individuals provide a broad base for support. Through the National Association of State Foresters coordinators were selected in each state to serve as facilitators for state-wide efforts. Jim Rocca, Missouri Department of Conservation, is state coordinator for Missouri. His responsibility is to provide a link between Global Releaf and Individuals responsible for local efforts across the state.

The in the St. Louis area, Gary Besff, Commissioner for Forestry, St. Louis and Elana Erwin, Project Coordinator for St. Louis Bright Side Program, are coordinating local efforts for Global

Releaf. Goals for the St. Louis Area Global Releaf are: 1) Develop a public awareness campaign that will educate people about trees and their environmental importance; 2) Encourage proper maintenance of existing trees; 3) Initiate tree planting projects that will encourage individuals and organizations in tree planting programs. Many activities are planned during the Global Releaf campaign. One activity was part of Earth Day, April 22. Many programs were scheduled for the entire weekend in the St. Louis area, ranging from educational programs to the tree planting activities.

If you are interested in information about Global Releaf in the St. Louis area call Global Releaf at 781-4556. Is Global Releaf a program that MVGCSA (and other GCSA) should participate in and endorse?

Since trees are a part of the golf course, superintendents have the opportunity to plant trees and incorporate proper tree care practices into the maintenance program. As individuals, we can make small differences by planting trees. But as a group, we can make a big difference. Plant a tree and help the environment.

From "The Gateway Green"
Mississippi Valley GCSA Newsletter, Spring, 1990

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Misdirected Good Intentions Can Spell Trouble: Are You Chemically Dependent?

by James F. Moore
Director, Mid-Continent Region,
USGA Green Section

The greatest challenge ever to our careers, our industry, and our game is racing toward us with the speed and power of a bolt of lightning. That challenge is the concern for the environment. And these thoughts are directed toward representatives of every aspect of the golf industry — club leaders, superintendent, golf professionals, managers, architects, golf course builders, trades people, researchers, and players.

I take great pride in calling myself an optimist. I admire people who, when you ask them how things are going, answer with an emphatic "Good!" Perhaps it is this optimism that leads me to believe that the entire environmental issue (which many of you may see as a threat at this time), will actually benefit our game and industry in the long run.

However, I also believe that we are in for some very tough times at first. While optimism is wonderful, pessimism suggests that many of us will

not be up to the challenge. Let me share my perception of the near future that is blended with optimism, pessimism, and what I hope you will agree is a great deal of realism.

In the near future, the number and amount of pesticides available will decrease tremendously. No amount of lobbying will prevent this. Public perception, whether right or wrong, is growing that ALL pesticides are bad, and those who use them are harming the environment. Once this occurs, some superintendents will find the "tools" they have relied on so heavily in the past are no longer available.

Not all superintendents are good turf managers. There are those who are able to keep their courses in good condition because they can apply enough pesticides and spend enough money to compensate for a lack of turf management skills. There are also many who actually cause more problems on their

CONTINUED PAGE 14

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Paul E. Rieke
Crop and Soil Sciences Department
Michigan State University

Prepared for the Michigan Turfgrass Foundation

SAND TOPDRESSING

Sand topdressing of greens has been quite widely accepted on golf courses in Michigan. In a sand topdressing study began in 1981 at the Hancock Turfgrass Research Center, we have demonstrated the necessity of following the prescribed program carefully to prevent development of layers. This means 2-4 cu ft of sand every 2-4 weeks, depending on growth rate of the grass (consider this every 4 weeks during slow growth periods and every 2 weeks during spring and fall). Once a sand topdressing program has begun it is essential that it be followed regularly. If soil layers are allowed to develop this will create problems with rooting or drainage at some future time. Topdressing programs are building the soil for the future so they must be done correctly the first time. In other studies where organic matter has been added to the sand, greens turf quality has been higher than when sand was applied alone. These studies are continuing to determine the long term benefits of adding organic matter to the sand.

CULTIVATION

Core cultivation (aerification) studies have been continuing. Results indicate both hollow and solid tines can be used with vertical operating units to loosen the soil for turf. The solid tines have been particularly useful (usually 1/4 inch tines) during the summer to open the soil to permit water infiltration with little disruption of the playing surface. When there is need to bring soil to the surface hollow tines are required, of course. For relief of deep compaction the use of larger vertical operating aerifiers which penetrate deeper into the soil has proven effective loosening soil and improving turf response.

FERTILIZER STUDIES

A long term study on potassium fertilization demonstrated the need to apply potash frequently on intensively used turf growing on sands (as greens and tees). Unlike loams and clays, sandy soils have little cation exchange capacity to hold potassium, so it is wise to apply potash at least monthly. Potash has proven very important in maintaining wear, stress and disease tolerance.

Adequate phosphorus should be applied to all turfs. The need for phosphorus can be determined by soil tests, but we have demonstrated on plots and have seen in the field that phosphorus deficiencies have developed on both golf course greens and on home

lawns where phosphorus had not been applied.

Applications of flowable sulfur resulted in color and growth response on Kentucky bluegrass growing on a clay loam sub-soil. These responses have been evident up to one year after application. Other sulfur materials gave limited responses or none at all. No significant effect on pH occurred from either 10 or 20 pound per 1000 square feet treatments. The pH on this site was 7.2-7.5. The study is continuing.

TURFGRASS VIDEOS

A set of 6 videotapes on turf management tips was jointly developed by the Michigan Turfgrass Foundation and the Cooperative Extension Service at Michigan State University. These videotapes range in

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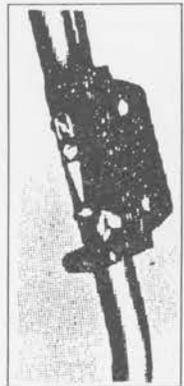
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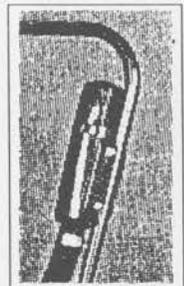


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CHEMICALS, CONT.

courses than they correct. Some apply chemicals as nonchalantly as they do water. Their "preventative program" includes applying products to protect against virtually every known turfgrass pathogen. Imagine what would happen to your health if your physician used this same logic.

Invariably, it is this superintendent who finds his greens suffering one crisis after another. His response is to apply even more chemicals on a curative basis. This superintendent and his course are truly chemically dependent. When allowed to progress far enough, this vicious cycle of events often results in the failure of large area of turf and eventual replacement of the superintendent.

Because the science of our industry has not yet progressed to the point that we can completely eliminate pesticide use while meeting the demands of the player, even the best turf managers are likely to experience problems when pesticide restrictions are significantly increased. However, their courses will fare much better than most and will serve as a clear indication of the value of a skilled superintendent. His stock will rise significantly. Those of you who fall into this category will gain from the demise of your less-skilled colleagues.

Soon a superintendent will not be able to apply pesticides based only his perception about when they should be applied. The leadership of golf clubs will determine when and if applications can

be made. Their decisions will be based upon reducing the club's liability to the extent possible. The risks of lawsuits will be given much higher priority than the superintendent's assessment of the risk from pythium and brown patch. The first reaction to reduce the club's legal exposure will very likely be to require all pesticide applications to be made when the club is closed. While this may seem a blessing at first, since more superintendents would love to see their courses closed one day each week, it is likely that such a restriction would actually backfire in terms of reducing pesticide use.

Superintendents would find themselves applying pesticides based strictly on the calendar rather than on actual need. If brown patch pops up on Wednesday, how many superintendents will be able to wait until the following Monday to treat? Since most feel they cannot, the natural reaction will be to treat every Monday to ensure problems do not arise during the mid-week.

In the not-too-distant future, the cost of applying pesticides will skyrocket. The products will cost more due to testing expenses, labeling requirements, and lawsuits against the manufacturers. Pesticides and the rinsate will require special handling and storage containers. Insurance akin to malpractice carried by physicians will be required by superintendents. To compensate, clubs will be forced either to increase the maintenance budget or accept a

CONTINUED PAGE 17



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CHEMICALS, CONT.

reduction in the overall appearance of the course. Realistically, most clubs will choose a combination of these two options.

The application of fewer pesticides on golf courses will result in course that are less immaculate than the average golfer has come to expect. While the perceived quality of most courses will suffer, those courses managed by a superintendent who has relied too heavily on pesticides will deteriorate the most. Without the equalizer of unlimited pesticide availability, the varying abilities of turf managers will be highly visible to all.

You may not accept all of these predictions. However, if you accept even one, you must also accept that our industry and the game of golf will be strongly affected. Many will choose to ignore the inevitable until it is too late. You assume the industry associations will handle your public relations, the researchers will develop grasses that don't need pesticides, and the chemical companies will develop chemicals that are so safe they will have Rachel Carson's picture on the label. You will not be up the challenge and you will not survive.

If you are a superintendent, you might blame your demise on the USGA and the Stimpmeter. The architect can blame the golf course builder who did not follow his plans. The builder can blame the superintendent who can't properly "grow in" the course. The USGA agronomist can blame the architect who made the course too difficult to maintain. What a party we can have. Ironically, the only thing that may keep us all from cutting each other's throats will be shared dislike of the organizations we consider environmental radicals, along with their lawyers.

Or. . .

We can each take steps right now to prepare ourselves. Let's become "survivalists" not by stockpiling guns and ammunition but by reducing our exposure to the threat.

Immediate options are available to each branch of our industry.

To the superintendent: Learn to be a better turf manager. Emphasize your skills in water management, disease identifications, soil cultivation, and fertilization. Review the principles you learned in Turfgrass 101 and simplify your programs as much as possible. A strong, healthy turf is unquestionably your best defense. You have a history of being the greatest and boldest experimenters with new products. It is time to begin to experiment more with doing less. Use every skill you have to reduce your chemical needs.

To players and club officials: Realize that you will be affected by these changes in the industry. Understand that absolute perfection on the course is no longer a realistic goal. Greater emphasis should be given to playing quality and the agronomic needs of the turf. Quit judging a superintendent's worth based on the speed of the greens.

Realize that nature cares very little about your tournament schedule and that maintenance practices must be given higher priority than they have in the past. Consistent management is vital. Develop long-range plans and quit changing green chairmen every year.

To the architect and golf course builder: All those involved with the development of new courses must make major changes. Stop selecting grasses with total disregard of local climate. Just because a turf can be grown (with enough pesticides and a big enough budget) does not mean it should be. Stop cutting corners on green construction. Stop building greens in holes where air movement is non-existent. Pay greater attention to drainage throughout the property.

To the researcher: Give us facts. Prove that what we are presently doing is not harmful, if that is the case. However, of equal and even greater need in my eyes is the identification of what to expect and do under low or no pesticide use. And, of course, the continued development of superior turf-grasses is critical.

To the golf professional: Emphasize playing quality to the golfer. Remind players that golf is a game to be enjoyed, not an exercise in frustration or an opportunity to be critical. Emphasize the positive aspects of your course. With the help of a good pro, even the shortest nine-hole course with the smallest budget can give great enjoyment to the player.

To my colleagues in the USGA: Let us avoid the temptation to offer quick but short-lived fixes to problems. While solid agronomic advice may not be glamorous or offer instant improvement, it is what is needed most of all. We are perhaps in the best position to gather the facts from other groups and disseminate them to the entire golf industry.

To the leadership of the USGA: I hope our organization will use its tremendous influence to educate golfers and make them more receptive to changes that are coming. Equally important will be the continued funding of turfgrass research.

To those who are not a part of golf: Realize that golf is an industry that does care for the environment. Golf course have tremendous positive effects on both the land and the people who use it. This should not be a case of you versus us. We will stand a better chance of achieving common goals if we work together.

As I said, I am an optimist. I see the significant challenges we face as an opportunity to better our industry, our game, and ourselves. Let's make the power of the lightning bolt work for us instead of against us.

Reprinted from USGA Green Section Record,
March/April, 1990

Legislative Awareness — A Must Today

In recent months, various government instrumentalities have attempted to enact legislation which could have had an adverse effect upon the operation of golf courses and their resultant quality. In several instances, attempts have been initiated which could have limited or banned the use of fertilizer on golf courses. Additionally, we have seen trial balloons flown concerning rationing of fuel, real estate taxation methods and increasingly harsh regulations of necessary pesticides.

Government, be it local, state, or federal, continues to be felt more and more on the golf course. The time when golf courses were seldom affected by such matters has long since passed, and now the superintendent and all other supervisors at a golf course must consider these laws with almost every action they take.

We may be an industry guilty of complacency and not mindful of serious inroads which have been made and others which some contemplate that could easily alter this picture if allowed to continue unaltered. Consider for example that most decisions made concerning golf are based upon the premise that golf courses as they have become known, will continue. Recent governmental attempts in some areas cast a dark shadow across all golf courses, and in some instances, endanger their very existence.

When professional associations of "greenkeepers" were established some fifty years ago, the primary reason for their formation was to assist the members in scientific areas of turfgrass management through the dissemination of new information. While this reason still exists today, an important new area is that of being in a position to react to potential government actions.

Graphic examples of cooperation between professional associations and governmental bodies can be found daily. Within the golf course superintendent's profession, there are several excellent examples of how a united group can insure that its interests are represented and considered prior to final action. First at the federal level and more recently at the state level. Massachusetts and Michigan for example, some legislators proposed the banning of non-farm fertilizer usage. While individual or local interest was first aroused, this was closely followed by organizational efforts to present information to legislators which was vital to a complete and thorough understanding of the problems which would follow such a ban. Fortunately, we can say today that these federal and state proposals were permitted to die without moving beyond the committee level. However, this is not to say that further attempts by these or other governmental bodies will not be forthcoming, nor can we afford to become relaxed on the issue. Unfortunately, the golf superintendent's interests may not always receive the mindful considerations they deserve by the lawmakers.

The Golf Course Superintendents Association of America (GCSAA) made determined efforts on the Massachusetts and Michigan fertilizer bills and on a Wisconsin pesticide bill by advising the chapters in those states of those proposals, followed by suggested actions and/or GCSAA position information. Superintendents in those states acted in unison through a letter writing campaign and in offering testimony to support their concerns.

This is not a totally new area of action for GCSAA, with it having given testimony, concerning

C. CONTINUED PAGE 20

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pension reform legislation, as well as in dealing with the Environmental Protection Agency; however, involvement in the state level legislation is relatively new and caution must be taken to insure that counter-productive measures are not permitted through a conflict of actions by the state and national organizations. Neither should GCSAA attempt to supercede the chapter's prerogatives in state level actions, because the impetus must remain at the local level where those who will be most directly affected will have the greatest input. GCSAA's intended posture is that of acting as a hot-line to disperse information and to serve as a reservoir of resource information and prepare nationwide position papers.

Because more and more legislation is of concern to golf courses and historically it has been demonstrated that legislative actions are duplicated from the local and state levels to the national level and vice versa, a seemingly minor item of legislation may soon become so significant that it is affecting the profession nationwide. Additionally, a piece of legislation may appear to be insignificant at the time of passage and later, through interpretations and enforcement policies, become of tremendous import to the profession and the superintendent's ability to perform his required tasks.

Based upon these trends and historically documented cases, each member of the chapter must be on the alert for legislative developments within his geographic area and report to the chapter. Next,

the chapter must determine if the proposal could be harmful or helpful and what would be the best approach to the matter. If the chapter feels this development is of a considerable magnitude or if possible assistance is desired, they could report the item to the GCSAA officers or headquarters personnel. In some instances, GCSAA may advise chapters of impending legislation or seek the assistance of persons within the chapters to represent the national organization at the local level.

Individual superintendents may not be able to be aware of all legislation which could affect them, nor would they always be able to bring to bear the impact an organized effort would. However, it is the individual superintendent who must bring these matters to the attention of the organization so that the appropriate actions can be taken. This effect could become even broad based if a course's golfers could be encouraged to become involved to the extent of reporting items of interest to their superintendent.

We can ill afford to be legislated out of existence and fortunately through our professional association, we can position ourselves to insure that our interests are represented on all items of legislation which could negatively or positively effect our ability to provide the type of conditions that today's golfers have learned to expect and appreciate.

Preceding article from May, 1975
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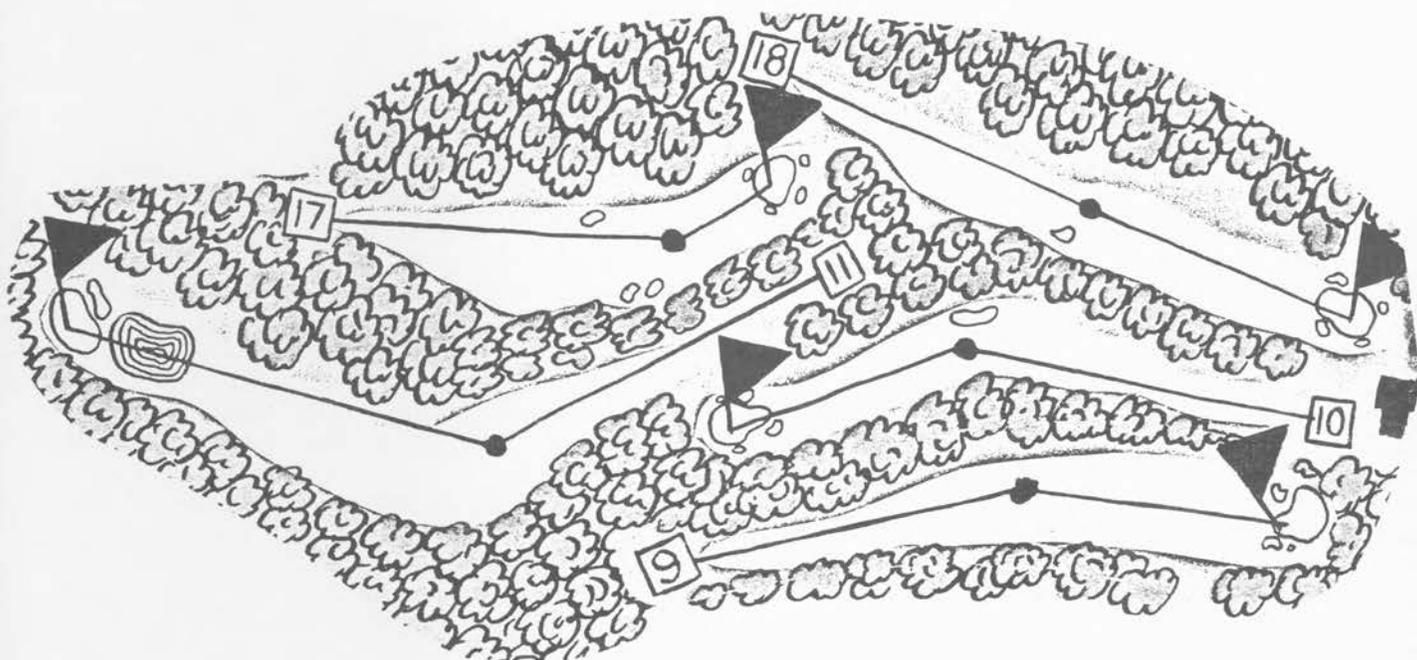
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HONEYMOON, CONT.

to do this "my" way. If a member asks you a question or offers a suggestion, you immediately go on the defensive. It's a bad attitude but easy to develop.

I believe that if you keep a positive, good attitude you can keep your enthusiasm and that part of the membership high. Be visible; be a communicator and a good public relations person. I have lunch with the general manager, club manager and the golf professional at least three times a week in the dining room. The membership knows this and often times comes by and asks us questions.

Then I talk to the Ladies' 9- and 18-hole leagues twice a year and let them know what is going on on the golf course. Do not ignore the ladies because they exert a large influence in most clubs. I author a monthly article in the club's newsletter. I put on a lawn clinic one night during the winter where members come and ask questions about their yards.

I have also heard of golf course superintendents who put on a maintenance building "open house" where the golfers can come and tour the maintenance facility. Staff members are present to explain the operation of various pieces of equipment. I think that this is a great PR tool. Also, I play golf with the members once every two to three weeks. I put a sign-up sheet on the first tee for this. It lets me see the course as a golfer and also acquaints me with the membership

better.

I have mentioned throughout this presentation about fresh ideas and proposals. I found that one easy way to relate this to the golf course is by the use of a master plan. We have a master plan at Blue Hills developed by Dick Phelps. One Saturday a few years ago, the green committee met and went through the entire proposed plan. We recorded what we wanted to do hole-by-hole and presented this to the Board of Directors. Each fall we do something on that master plan. So each year there is a major improvement to the golf course. This has been very well received by the membership.

A golf course superintendent's job is very stressful. After a trying season or seasons, how can a superintendent keep the membership's enthusiasm up if he or she cannot keep his or her own up? I believe that you have to have an outside interest. Mine happens to be in the local golf course superintendents association and serving on some national GCSAA committees. True, it is still related to golf, but it is not directly related to my course. It gets my mind off of the day-to-day affairs at Blue Hills.

Other people hunt, fish or become involved in church or school activities. Of course, we all have to pay more attention to our families. If you have an unhappy family life, you will have an unhappy job situation. It is directly related. I saw it time after time at golf courses I called on when I traveled

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The three-year theory can also relate to your crew at the golf course. They want to prove their worth to you those first few years. It is a matter of job security to them in this situation. Then they get used to you and you to them. Things often times can get a little lax, and the crew's enthusiasm can falter. How can you keep it going?

At Blue Hills we have crew meetings every two weeks from April through October and every three weeks during the winter. At these meetings we discuss situations which happened or will be happening on the golf course. If the crew has a complaint with me or I with them, it is aired at this time.

I often mention their names or have their picture in the monthly club newsletter. I have seen a "Meet the Crew" section on the bulletin board at the first tee or near the clubhouse. This section contains each new crew member's picture and a brief biography about that person. It is a real ego builder for them. We have a "Blue Hills night" at a Kansas City Royals game in the summer. Also, we offer all our employees discounts on theater tickets. We collect aluminum cans and have a party at the end of the summer. We have a special dinner around Thanksgiving where everyone on the crew brings a covered dish, and I furnish the turkey.

Then there are other "perks" — health insurance, dental insurance, a pension plan, uniforms and a Christmas bonus. I might add that when we receive our Christmas bonus we send a thank-you note to the Board of Directors — just one more public relations tool. I believe it is true that a golf course superintendent is only as good as his crew.

In conclusion, the three-year theory is a reality. However, today's golf course superintendent is a professional just as much as is a lawyer or a doctor. He or she can show this professionalism by means of a positive attitude, good communications and public relations.

Credit: **Our Collaborator**, July, 1990
Article from 1990 GCSAA Conference Proceedings

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LAWN INSTITUTE, CONT.

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There are three good ways to prepare a seedbed for lawns according to The Lawn Institute. The first is recommended for new lawns; the second and third are ideal for improving an existing, but poor lawn.

For a new lawn, the soil is prepared by use of a rototiller or similar device. Stone and debris are removed, fertilizer and lime added as needed, and the area settled and raked to form a surface true to grade. When finished, the soil must be firm, not fluffy. The soil surface is raked or scarified to provide a loose one quarter to half inch surface. This traps seed as sown. Rolling presses soil in tight around seed and promotes a uniform germination and stand of grass. A straw mulch covering helps speed rate of establishment.

For a lawn that is more than fifty percent dead grass and weeds, the elimination of all living vegetation with an herbicide, such as glyphosate (Roundup®) is advised. Directions for use of these herbicides call for a period of chemical

activity and breakdown prior to slit seeding. A machine is used to cut grooves in the soil through the dead vegetation. At this time, lime and fertilizer may be applied as needed. When seed is sown, it is trapped within the stubble and in the grooves.

For a lawn that is less than fifty percent dead grass and weeds, and where existing turf is thin and weak, sod-seeding will thicken up and improve the turf with new grasses. Bare spots large enough for soil to be scratched with a rake should be worked. The entire lawn will likely require fertilizer and lime to improve growing conditions. A soil test will help in determining what fertilizer to use and how much to apply. Seed bare spots and otherwise scatter directly into the thin grass stand. Vertical cutting machines may also be used to make grooves within the soil to trap some seed.

All three methods of seeding require watering following seeding to promote germination and lawngrass establishment. Climatic conditions are most favorable for lawn seeding during early autumn.

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and reduced use of fertilizers and pest control chemicals.

As late as the mid-1950's, seeded grasses were essentially common types. The term "natural" was also used and this emphasized a broad genetic base that characterized these grasses. Great variation existed among individual plants of colonial bentgrass, Kentucky bluegrass, fine fescue, as well as ryegrass and tall fescue. This variation was viewed as an asset since the grasses that made up the lawn were supposed to adjust to the ever changing climate by shifting dominance from one eco-type to another depending on conditions. Even now, much common or natural type lawn-grass seed is planted each year. Seed is readily available.

To a certain degree, this type of lawn culture works well. As long as low maintenance practices are followed, some grasses persist each year and provide good ground cover. Many of these grasses are weakened by close mowing and by forcing growth through use of fertilizer and water. Extremes of natural heat and cold, moisture and drought, also affect lawns adversely. Often these grasses have not satisfied gardeners who like to see a positive response to their lawn care efforts. The net result has been a failure of these grasses to meet high maintenance lawn requirements of the 1970's and 1980's.

The first real breakthrough in new seeded lawn-grass development came in 1947 when Merion bluegrass was released cooperatively by the USDA

Crops Research Division, Agricultural Research Service and the United States Golf Association Green Section. Merion came from a single plant selected by Joseph Valentine at the Merion Golf Club, Ardmore, Pennsylvania in 1936. Some 10 years of developmental work was required to get Merion ready for release.

The result is history. The greatly improved resistance to Helminthosporium disease, the dark green uniform foliage and tolerance of lower clipping heights created instant demand. Merion was also responsive to fertilizer and water applications such that improved quality turf was most satisfying to both professional turf managers and home gardeners.

Now, with increased emphasis on low maintenance lawns, both natural types and new improved types are being used effectively in fall seeding.

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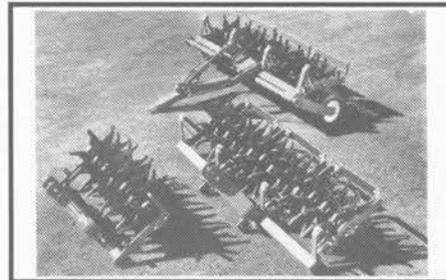
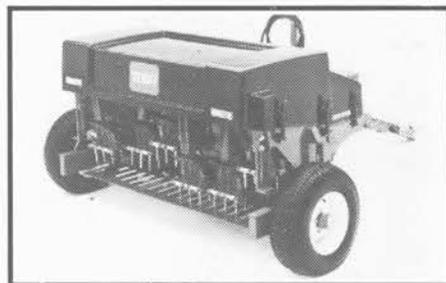
Gardeners often feel that when it comes to lawns, it's all or nothing. If the lawn looks poor, the thing to do is rototill it up and start again. This may be the correct course of action in those few instances where changes in grade or contour are necessary. Often this is done to correct surface drainage and collection of water in low spots. Also, complete reconstruction may be required to improve a poor soil that is not capable of producing a good lawn.

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INSIDE THE SPRAYER

Dr. William E. Steinke
Extension Agricultural Engineer
Agricultural Engineering Department
University of California, Davis

The many components of a modern pesticide sprayer must work together in order to produce the desired result — a biological effect. If even one of the components is damaged or not functioning properly, the sprayer may not be able to correctly deliver material to the target pest. Proper sprayer design, setup, repair, and maintenance is essential for a successful pesticide application.

In this article we will look at the components of a sprayer, describe their function, describe how to tell whether or not they are operating properly, and how to maintain and repair them.

Screens and Filters

Screens and filters are absolutely essential to proper function. Screens and filters should be checked and cleaned at least every time the tank is refilled. If you notice a partially or completely plugged nozzle, loss of pressure, or lack of liquid getting to the pump, even though the tank still has liquid in it, screens and filters should be checked immediately.

When working with sprayers remember to wear appropriate safety clothing. Screens can serve to collect and concentrate the pesticide as they filter the

CONTINUED NEXT COLUMN

NEBRASKA STUDY, CONT.

measuring range too large to accurately measure typical operating pressure.

NOZZLE PROBLEMS

Restrictive plumbing systems, which included exces-

NEBRASKA STUDY AT-A-GLANCE

Who: Nebraska researchers interviewed 53 of the 60 golf course superintendents in the Nebraska Golf Course Superintendent's Association (NGCSA).

What: On-site interviews and sprayer performance tests were conducted to determine how accurately superintendents were applying pesticides.

The results: Only one of six cooperators was found to be applying pesticides within five percent of their intended amount. The average application error was 26 percent, with the magnitude ranging from 0.1 percent to an alarming 177 percent.

Eighty-four percent of the cooperators were within recommended guidelines for sprayer performance. The most accurate applicators were those who calibrate sprayers most often.

sive lengths, inadequately sized and kinked hoses, improper screen sizing and anti-drip devices, were other faults leading to reduced pressure at nozzles.

Educational programs focusing on pesticide application accuracy should continue to address safety concerns for both the applicator and the environment. These programs need to educate applicators to calibrate their equipment and explain why calibration should be mandatory for any individual who deals with pesticide applicators. Applicators need to be certified for their own safety, the safety of their clientele, the general public and the environment.

LEARNING PROCEDURES

Applicators should learn to use one or two calibration procedures consistently to assure regular pesticide application accuracy. Procedures should include measuring and adjusting system pressure, ground speed and nozzle discharge. These procedures should be used before each spray operation. Equipment failure and changing sprayer operations warrant this routine.

Sprayer discharge capacities and pressure gauges should be tested for adequacy and accuracy. Pressure gauges should either be replaced or tested at least once a year.

From Rub of the Green
Reprinted from Indiana Superintendent's News, 1990

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solution. **NEVER** clean a screen or filter by putting it in your mouth and blowing into it. Screens should be cleaned with a soft brush and rinsed with clear water before replacing. You may be able to get a special nozzle and screen cleaning brush from your dealer. If not, use a toothbrush and keep it with your other tools used with pesticides, NOT in your locker.

A sprayer may have four sets of screens or filters. The first is a screen over the tank inlet. This is usually supplied by the manufacturer and is designed to prevent large pieces of debris from entering the system.

The second is often called a suction strainer, because it is located on the suction side of the pump, between the tank and the pump. This screen protects the pump, pump valves, pressure regulator, control valves and nozzles by capturing particles that could damage these components. A filter here is recommended to be a 30 mesh screen size although a larger size such as 16 or 24 mesh may sometimes be used. A 50 mesh screen may be appropriate at application rates of 0.3 gpm per nozzle and smaller.

The in-line strainer comes after the pump and before the pressure relief valve or any other control valves. This is where you want to capture any particles and unsuspended or unmixed product, not at the nozzle strainer. The mesh used here should be the same size as in the nozzle strainers.

Screens at the nozzle are essential for proper nozzle flow rate and pattern. They capture any remaining small particles such as rust or unmixed product. Guidelines for the appropriate mesh for in-line and nozzle strainers are given below.

Nozzle strainers can be either screens or slotted strainers. Some may also incorporate a check valve to stop the nozzle from dripping after the boom or nozzle is turned off. These also need to be checked for proper operation and freedom from corrosion or clogging.

Every sprayer should have, at a minimum, a suction strainer and screens at every nozzle. The inlet tank or screen and in-line filter may or may not be present, depending on the manufacturer or your equipment and the design of your particular sprayer. If your sprayer is missing either of these two screens, or its been more than a day since they've been checked, add them or clean them before using the sprayer. Their presence and proper function will help you succeed.

From **Thru The Green**
Golf Course Superintendents Association of
Northern California

IN BEING CONSIDERED A professional by your peers or employers there are some definite requirements. While at your place of employment to be always clean shaven, hair neatly combed or brushed, teeth clean, and dressed as neatly as the situation dictates is of utmost importance.

When representing your club at a Golf Course Superintendents meeting or at an educational seminar it is important to wear a jacket and tie or a jacket with a golf shirt at minimum. Looking good never hurts in these situations.

While attending board or green committee meetings always dress as the situation dictates. Some clubs have laid back dress requirements at those functions, others don't. Dress accordingly.

Being considered a professional by your employers obviously will hinge a great deal on your finished product — the golf course. Producing the best quality golf course possible with the particular funds available while always giving one hundred percent effort in all categories will gain the respect of most people.

BEING VIEWED A professional by your fellow Golf Course Superintendents has its own set criteria. Participation at the local level is of utmost importance. Involvement at the board level, on a committee, at monthly meetings, hosting monthly meetings, and contributing when asked are all vital in being considered a professional. Everyone's involvement in our local Association will only help solidify our being viewed a group of professionals. So get involved, it's only going to help.

The Golf Course Superintendents involvement with available continuing education is a must in becoming a professional. Through GCSAA regional seminars are offered. They are excellent and you're missing out if you don't participate. Local Golf Course Superintendent Association's offer educational seminars with varied topics. Try to participate, they are excellent also. And above all, local Golf Course Superintendent Association's monthly golf/educational meetings are on going and excellent. When speakers are present they are usually excellent and interesting. I learn more at times just talking with my fellow Golf Course Superintendents about related problems than I do in many other situations, educational or other. Having five or six Golf Course Superintendents sit down and discuss whatever comes to mind can be a tremendously educational experience.

ANOTHER PART IN being considered a professional is in how you treat people. Always treating your employees with respect and dignity will show in their work on the golf course. Your ability to communicate with golfers and members at your club while treating them with respect will help insure your being viewed as a professional.

CONTINUED NEXT COLUMN



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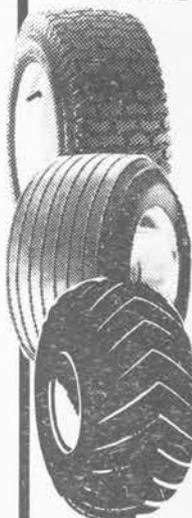


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In conjunction with the aforementioned subject matter, to be viewed as and to become a professional, four matters are of the utmost importance.

FIRST, YOU MUST ALWAYS USE common sense. Taking unnecessary chances and not thinking things through are examples of not using common sense. Second, one must become adept in the art of people management. Properly communicating with people from all levels of society is a must in succeeding as a Golf Course Superintendent. Third, you must be or become educated. Whether you are a two or four year college graduate, a holder of an educational certificate, a holder of a Masters degree, or a person who is involved with continuing education as a Golf Course Superintendent, becoming educated is vital.

Fourth, and last is participation. To be considered a professional you must have participated or are participating now on a local level. Remember, everyone's involvement on a local level will solidify our being viewed as professionals. Get involved. You'd be surprised how it will help.



RIEKE, CONT.

length from 14 to 26 minutes and have been widely accepted for training seasonal employees as well as for use in formal and informal education. Videotapes are available from the Michigan Turfgrass Foundation.

ACKNOWLEDGEMENT

Major financial support for these and other research projects was provided by the Michigan Turfgrass Foundation. Financial support was also provided for some travel and soil analysis expenses as we served the turf industry in Michigan through our Cooperative Extension Service activities. This support from the Michigan Turfgrass Foundation is vital to these programs and is gratefully acknowledged.

Be a pro With Your Equipment

Hazards are intensified when equipment is allowed to deteriorate. A hand tool that needs repair could mean a serious injury — or worse.

ELECTRIC POWERED TOOLS

The hazard of electrocution cannot be ignored. Defective or damaged tools should be reported to your supervisors immediately.

Do you understand the importance of the three-wire power cord? Removing the grounding wire (cutting of the third prong on the plug) is not only illegal, but is also downright hazardous. An exception is approved double-insulated tools, which require special testing and inspection procedures.

Are you a pro with your equipment? Are the constant-pressure switches on your tools fully operational? Constant-pressure switches are required on circular and chain saws: lock-on controls are prohibited.

Drills, tappers and grinders with wheels that are greater than two inches in diameter are required to have constant-pressure switches; lock-on controls are optional. Some workers remove the lock-on controls from drills to prevent spinning of the body if the drill bit siezes.

Do you use power cords to hoist or lower tools? Are the guards on your tools in good condition and securely in place? Do you use socket retainers on impact wrenches?

AIR POWERED TOOLS

Do you know that tool lubricants that are used in the presence of piped oxygen will explode? If piped oxygen outlets are used in the workplace, provisions should be made to prevent the accidental connection of an air hose.

Do you use tools retainers on equipment where tool may eject? Do you check spindle speeds on grinders before wheels are installed? The maximum operating speed is marked on the wheel. Check the wheel before use and discard any wheel that has been dropped.

Are the guards and safety devices on your tools in good condition and securely in place? Are hose connectors and fittings designed for the pressure and service for which you use them or are makeshift parts being used? Fittings can prevent accidental disconnection.

EXPLOSIVE ACTUATED FASTENING TOOLS

Have you been trained in the operation and use of powder-actuated tools? Only workers who have received training are permitted to use these tools.

Do you store these tools and powder charges in a locked area? Do you know what to do in case of a misfire? Do you ever leave these tools unattended, such as during lunch or breaks?

Inspite of numerous safety features that are built into powder-actuated tools, they are not foolproof. Fatal accidents have been caused by horseplay and by failing to make sure that easily penetrated material, such as wall board, is backed by a heavier material. Fasteners passing through lighter material could become flying missiles. Remember, eye protection is required.

Be a pro with your equipment and remember — each power tool has its own special hazards.

From Divots,
Official Bulletin of the Miami Valley GCSA,
July, 1990



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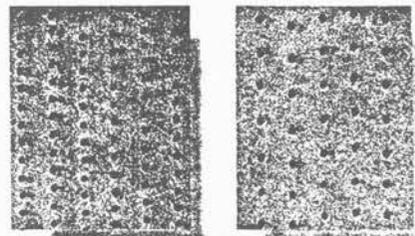


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1.50	8,440	38.4	38,400
2.00	11,250	28.8	28,800
2.25	12,660	25.6	25,600
2.50	14,060	23.0	23,000
2.75	15,470	20.9	20,900
3.00	16,875	19.2	19,200
3.50	19,690	16.5	16,500
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The new Jacobsen Tri-King 1684D makes heavy cumbersome 84" mowers things of the past.

Jacobsen ushers in a new age in heavy-duty 84" triplex mowing with a truly lightweight, highly maneuverable package. So now you can say goodbye for good to those costly, one-ton monsters the competition turns out.

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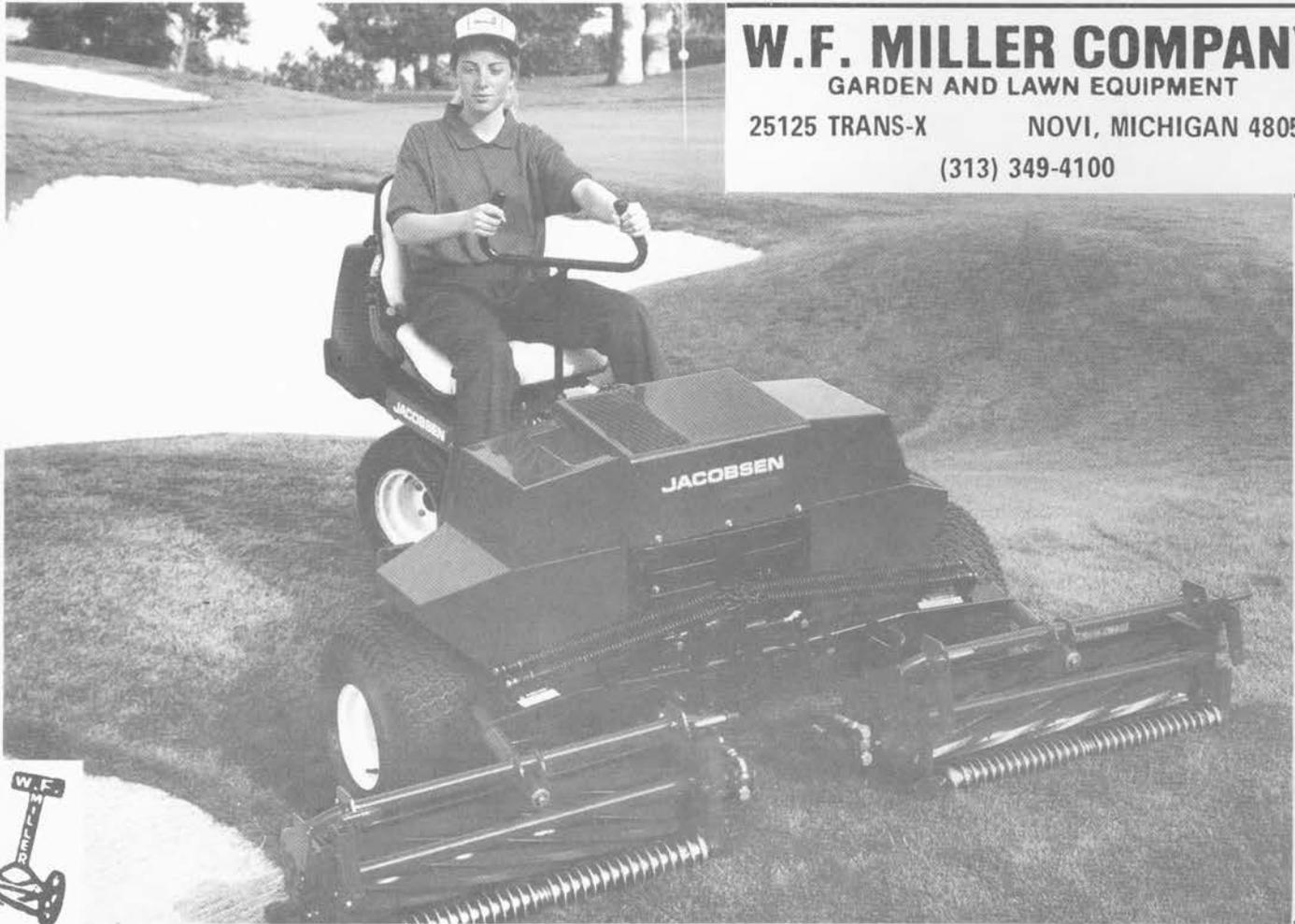
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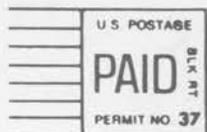
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