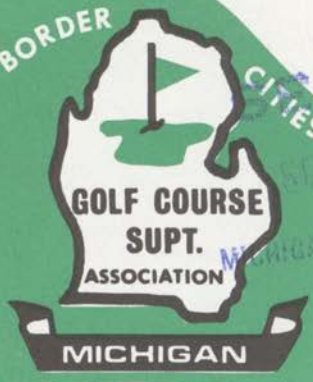
August 1979



A PATCH of GREEN

Official Publication of the
Michigan & Border Cities Golf Course Superintendents Association

"A PATCH OF GREEN"

Published monthly by the
MICHIGAN AND BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION

Circulation: 1,250

Ted Woehrle, CGCS, Oakland Hills C.C.
James Timmerman, Orchard Lakes C.C.
CO-EDITORS

Printed At
BLAKEMAN PRINTING COMPANY
31823 Utica Road
Fraser, Michigan 48026
Phone: (313) 293-3540

This Month's Advertisers...

Century Supply Company
Crown Lubricant & Specialties Ltd.
FDS Fertilizers, Inc.
Golf Car Distributors
Lakeshore Equipment Corporation
Lawn Equipment Corporation
Lebanon/Agrico
W.F. Miller Garden & Equipment
Oxford Peat Company
O.M. Scott & Son, Inc.
Wm. F. Sell & Son, Inc.
Sprinkler Irrigation Supply
Terminal Sales Corporation
Tire Wholesalers, Inc.
Trees Inc.
Turfgrass, Inc,
Turf Supplies, Inc.
USS Agri-Chemicals
Wilkie Turf Equipment Company

AS THE SEASONS CHANGE, SO DOES THE GREENSAVER® AERATOR.

The condition of the soil on any golf course or fine turf area changes throughout the year. And for proper turf management, you need to change the way you aerate.

Now you can, with the Cushman Greensaver aerator. Three interchangeable drums let you pick the type of tines that are right for the soil and the season, while you aerate up to ten times faster than walk-behind aerators.

The Greensaver attaches easily to any Cushman Turf-Truckster chassis equipped with the hydraulic system and dump set. You travel between areas quickly, raising and lowering the Greensaver without leaving the driver's seat.

The standard ½" coring drum provides maximum soil removal for normal aeration. In the fall, during slow-growth periods, you can use the ⅜" coring drum to remove less soil. And for the hot stress periods of summer, you can use the slicing drum.

With the coring drums you can collect the cores as you aerate, or leave them on the turf. Either way you get an accurate 3¼" x 4" pattern of holes up to 2½" deep.

CUSHMAN® TURF-CARE EQUIPMENT

GREENSAVER SPECIFICATIONS

SLICING TINE DRUM

Pattern Width: 22¾"
Pattern: 3¼" x 4"
Drum: Heavy 12-gauge steel drum.
Tines: 112 tines per unit. Special heat treated formed steel. 2½" deep 2¾" base.
Frame: Heavy steel welded construction. Method of attachment: 3 pull pins.

⅜" TINE DRUM

Core Size: ⅜" x ⅞"
Pattern Width: 22¾"
Pattern: 3¼" x 4"
Drum: Heavy 12-gauge steel drum. Trap door for core removal.
Tines: 112 tines per unit. Special heat treated formed steel.
Frame: Heavy steel welded construction. Method of attachment: 3 pull pins.

½" TINE DRUM

Core Size: ½" x ¾"
Pattern Width: 22¾"
Pattern: 3¼" x 4"
Drum: Heavy 12-gauge steel drum. Trap door for core removal.
Tines: 112 tines per unit. Special heat treated formed steel.
Frame: Heavy steel welded construction. Method of attachment: 3 pull pins.

CALL NOW
For a demonstration and price quotation.
(313) 338-0425

GOLF CAR DISTRIBUTORS

1980 W. Wide Track Drive (U.S. 10)
Pontiac, Michigan 48058
Phone: (313) 338-0425

Ideal playing conditions make "MONSTER" just another course

The 61st PGA Championship is now history. One hundred and fifty golfers teed it up on Thursday, August 2, 1979 and began scoring unheard of low scores on the fabled "Monster" of Oakland Hills. Many reasons for these unheard of low scores were given by unqualified writer spectators that never left the *Press Tent.* Among reasons given were: slow greens, short roughs, soft greens and wide fairways.

The real reason could be summed up as "ideal" playing conditions. The greens never did firm up as expected because of daily rains. The speed finally increased to slightly over 10' 3" on Saturday only to slow up again to below 10 feet on Sunday despite triple mowing on a daily basis.

Except for a short time on Saturday afternoon, during a brief rain storm, and again on Sunday morning the tournament was played under windless conditions.

The greens were holding all shots and the ball was rolling smooth and true. I have never seen more long putts dive into the cup as on Saturday and Sunday. There was some outstanding golf played.

Two other reasons remain as dominant factors in my opinion. The athlete of today in the game of golf is much stronger than those of just a few years ago. Many of the contestants were driving the ball beyond the bunkers which range from 230-275 yards finding a perfect lie on the fairway to hit their second shot to the green.

Another reason for the lower scores and perhaps one that was overlooked by the press was the relatively easy pin locations the first three days. The Sunday locations were all true tournament positions and David Graham and Ben Crenshaw must be congratulated for playing some outstanding golf.

The Championship was a huge success. The gallery was pleased. The telecast was outstanding and we on the grounds staff at Oakland Hills were proud of our efforts.

Breaking par was inevitable. After all, the four minute mile was eventually broken too. A revamping of the fairway bunkers and the lengthening of a few holes should be considered before another tournament is hosted at Oakland Hills if the "Monster" reputation is to be maintained.

Superintendent,
Ted Woehrle

Benefit Golf Outing date set

The annual Turfgrass Benefit Golf Outing, October 1, 1979. The Bay Pointe Golf Club will once again be the site of the evening festivities and awards after the participants return from their respective golf matches at cooperating Country Clubs in the Metro Detroit area.

Members are reminded to sell their ticket allotment as soon as possible. The proceeds go to turfgrass research at MSU.

We're sorry for being late

These last two issues of "A Patch of Green" are extremely late because of my busy schedule this summer.

Hopefully, the next few months will not be as hectic.

Editor,
Ted Woehrle

What happened to the fairway roots?

By Ted Woehrle

Shortly before the PGA Championship our fairways at Oakland Hills C.C. looked weak and discolored despite our precautions to eliminate Anthracnose and the Ataenius Beetle. The fairways seemed under stress. Cart tracks were obvious most afternoons despite our stepped up vigilance and syringing.

I became quite concerned and called the MSU Turf specialists. After a thorough investigation, it was decided that most of our common pests were not present so what could be wrong? A closer examination indicated that our fairway turf had absolutely no roots penetrating the soil. There were plenty of roots in the thatch however.

What caused us to lose our roots which normally have always been deep? Compaction certainly should be considered. The soil is very tight. The thatch is also thicker than in the past. Our earthworm population is also reduced. The golf carts are a prime suspect for compaction. Some of the thatch increase can also be attributed to compaction. The lack of earthworms could be caused by chemicals used to control the Ataenius Beetle or perhaps some of the Fungicides used to control Anthracnose.

After deciding that aerification was out of the question because of the closeness of the tournament, we decided to try to live with our problem until later.

Early in the week of the Tournament several neighboring Superintendents visited the course and they too indicated that they were having problems with their roots in the fairways.

So what happened to our Roots?

On July 23, 1979, I received a letter from Dr. Bill Daniels of Purdue, as though someone in heaven was looking out for me. I would like to share this letter and article with you.

Mr. Ted Woehrle, Editor, A Patch of Green *7/18/79*
Oakland Hills Country Club
P.O. Box 111
Birmingham, Michigan 48012

Dear Ted:

This spring and summer I've given a talk about roots at local Golf Course Superintendents' meetings. The audience reaction encouraged me to work up an article. I'm sending a copy to twelve local editors hoping those who wish can use it in their publications.

Perhaps the essence of the idea is a need of respect for roots.

Cordially,
W. H. Daniel, Turf Specialist

Some ideas about roots

Dr. W.H. Daniel, Purdue University
July, 1979

Introduction
1. What is a root?
2. Where are the roots?
3. Roots are plant membranes
4. What is water-air balance for roots?
5. Roots are strong
6. How would you insult roots?
7. What could you do to favor roots?

Conclusion

Roots - Turfwise

Our historical roots, as a family and individuals, have recently received special attention. However, the roots of concern in turf are those little white stringy things that supposedly are below the grass you see on the surface.

First, what is a root? Roots are initiated at the nodes occurring along stems. These may be concentrated in a crown or spread along a stolon. Portions of mature roots are mainly conductive tissue plus providing some storage of nutrients, especially starches.

The working part of any root is the soft adsorptive root tip and the root hairs near it. This is where the payload of water and elements are adsorbed for transfer to the crown, stems, and leaves known as the turf cover. And, woe is the plant which had *lost* its root tips! So, a living root is that plant tissue joined to the node and extending to and including a root cap. Although some branching is normal, when individual root tips die, the older root parts seldom initiate new root tips. Physiologically, the plant's response is to initiate a new root at the node and just start again (provided extra energy is available and time is allowed). In other words, the energy path is to start a new root, which has least transfer distance for nutrients. So, keeping root tips alive and active is the first challenge of turf managers.

Bud Esterline at Muncie one time said, "Bill, on Monday I cut the cups and could see roots about five inches deep. It was dry, so Monday evening we made a big effort to water the greens real good. Tuesday morning early it rained and it was so cloudy and wet that we couldn't mow Tuesday. Although still raining, we finally mowed a little Wednesday afternoon, and the rain just set in there. Brown patch began to show. We finally got our greens mowed on Friday, and on Saturday the weather cleared up and all I had for roots were a few black strings! I lost my complete root system between Monday night and Saturday morning." Now what? Bud knew he had to lightly water those greens, to watch for wet wilt, to keep the leaves moist enough so they wouldn't wilt until new roots would generate. If he could get by for about seven days he'd have new roots growing, and later some good roots working again, and back to normal. Five days of wet weather cost Bud his root system, and then it took him ten days to get partial replacement.

Where are the roots? Would you believe 90 percent of root length is in the upper two inches or 5 cm. In West Germany my friend, Dr. Boecker, reported extensive testing.

Roots			
inches	cm	%	
0-2	0-5	90	Boeker found 81 to 91% for fescue
4	-10	5	86 to 94% for bluegrass
6	-15	3	85 to 93% for bentgrass
	below	2	Root distribution in June and December were near equal.

Don't fret over this distribution; just realize that it is the active root tips doing the work.

Continued

Some ideas about roots cont.

Ideally, a diffuse extensive root system is desired, but for every use, management, rootzone and irrigation, what is normal, adequate, and necessary will vary. As turf managers, you want all the roots possible or practical.

Roots have been found over 100 inches long under Bermuda in California tests. However, roots of three feet for fescue and zoysia, 2 feet for bluegrass and bentgrass would be considered quite long. When trenches are made across roughs or tall grass areas the long root extension in the soil profile is usually impressive.

Roots are plant membranes. "Here, you root; do this! Absorb (take in) 5000 pounds of water plus one pound of elements the plant must have. By the way, *keep out the excessive and avoid the unneeded.* Meanwhile, let's hope nematodes make no holes, and rhizoctonia doesn't infect. And, while you're constantly expanding, we'll try to keep the leaves healthy, the mower sharp, the wear distributed, the drouth averted, and we'll try to avoid scalping or other turf stress." After all, the top must send energy clear down to the root tip. When energy is short the number of root hairs diminishes, the diameter reduces, and the root initiation slows.

Roots are powerful adsorbers. Before the plant wilts roots will take water from soils down to 13.6 atmospheres, a pF of 4.5 or tension equivalent to 14 meters of water. The wise turf manager has every reason to utilize the reservoir of moisture within a rootzone between irrigations. In other words, it is foolish to ignore the rootzone moisture storage potential when managing fine turf.

What is water-air balance for roots? Incidentally, that root tip must have some oxygen as it works. Waterlogged soils are hard on roots. Being waterlogged for more than 24 hours under stress weather is a cause for concern. Most turf managers have seen roots growing over the surface of the ground in an attempt to be where there is air. Roots may be deep or shallow just in response to air supply. We've seen roots grow in water when air is added, but remember, oxygen travels through water 1000 times faster than through wet compacted soils.

Roots are strong! When roots are numerous their combined strength is in athletic fields, tees and traffic areas. New roots in new soils always look good. A measure of success is to have sufficient roots to hold the soil mass for their entire depth of penetration when held by the surface sod.

Research on rooting of sods has been conducted to determine resistance to an upward pull after one month of growth.

How would you insult roots?

1. Reduce the air at root tips

Continued on page 16

- Large or small trees planted or transplanted - up to 10" Dia. trunks.
- A variety of trees available - both conifer and deciduous.
- Utilizing proven methods and the most modern equipment available.
- Tree management and counseling services.
- Experienced in golf course techniques and requirements.
- We invite our fellow members of the Michigan and Border Cities Golf Course Superintendent Association to call upon us anytime to talk about trees.

TREE RELOCATION EXCAVATION SPECIALISTS

627-9155 · GRAND LEDGE

TREES INC.

4874 SAGINAW HWY.
GRAND LEDGE, MI 48837
Phone: 517-627-9155

Concluded from last month

Don't give your grass a "Nervous Breakdown"

Stress management of turfgrass

by John R. Hall, III, Extension Specialist, Turf
Virginia Polytechnic Institute and State University

In Virginia we start our soluble nitrogen fertilization program on golf greens in September at about 1 lb. N per 1000 sq. ft. We come back in October, November and December with 1 to 1½ lb N per 1000 sq. ft. If the turf is growing on into January we will even come back again in January with 1 to 1½ lbs of soluble nitrogen. In May and June the equivalent of ½ to 1 lb of soluble nitrogen per 1000 sq. ft. is applied if needed. Slow release fertilizers are also utilized in our programs. Timing and amounts of nitrogen do vary with the slow release materials.

We have observed in our area the following advantages of late fall fertilization; increased density, increased root growth, decreased spring mowing, improved fall to spring color, decreased weed problems in terms of warm summer grasses like crab grass and goose grass, increased drought tolerance and decreased summer disease activity. We have very poor summer conditions for cool season grasses in Virginia. In the Rocky Mountain West you do not have the serious summer stress that we have, and might not see as great a benefit as we do from late fall fertilization.

Obviously we can create stress in our total management program with turf cultivation. With aeration, stresses are created by the frequency and timing of aeration as well as the core size that you select. Timing is important since you should not get on bentgrass greens before they are growing in the spring. Then again you do not want to get on them too late in the fall after the bentgrass quits growing. If you go in too early in the spring or too late in the fall you are exposing that green to *Poa annua* L. invasion. If you go in too late in the spring or too early in the fall you expose it to crabgrass invasion.

Topdressing follows the same principle as cultivation - the amount, the frequency and timing can all increase or decrease stress in your total management program. When topdressing is applied too late and bentgrass is not growing because of cooler temperatures, the cultivation simply prepares a seedbed for annual

Continued on page 16

TORO®

worth more

TURF PRO 84™

The hydraulic Turf Pro 84™ needs less maintenance — that, alone, makes it worth more.

Toro presents the first all-hydraulic tri-plex, for the same good reasons you find hydraulic power in heavy construction equipment – low maintenance, less shop time, high reliability and outstanding performance.

All of which adds up to a tri-plex worth more to you than any other make you can buy!

WILKIE TURF *Equipment Company*

P.O. BOX 749 • PONTIAC, MICHIGAN 48056
1050 OPDYKE ROAD • PHONE (313) 373-8800

ARE YOU INTERESTED IN JOINING THE *MICHIGAN AND BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION?*

FILL IN THE QUESTIONAIRE BELOW AND MAIL TO:

BRUCE WOLFROM
BARTON HILLS COUNTRY CLUB
639 Barber Street
Ann Arbor, Michigan 48103
Office 662-8359, Residence 663-9213

DATE _____

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

OR YOU MAY CONTACT THE NEXT GOLF COURSE SUPPLIER WHO CALL ON YOU AND GIVE HIM THE INFORMATION NEEDED FOR APPLICATION.

Credit – GCSA of New England

The ethics syndrome

From a presentation by Robert Mitchell

Viotations of accepted ethics among golf course superintendents are on the increase. Why?

"It's baffling to me," offered Bob Mitchell. "I look around at my profession and I see a lot of fine, dedicated, decent people. Yet, reports of unethical behavior are beginning to flood the country. I wish I could pinpoint the reason.

Mitchell, a former president of the Golf Course Superintendents Association of America, presented some in-depth information on the state of ethics during the University of Massachusetts Turf Conference. And from the very beginning of his treatment, he admitted that too many variables entered the problem and its solution.

"This is a controversial subject," he sighed. "And when you attempt to come to a conclusion, there is a myriad of principles to be considered. I suppose it all boils down to the affected parties. One sees it one way, the other sees it differently."

Mitchell, presently the superintendent at the Greenbriar in White Sulphur Springs, West Va., told of a number of test cases in which the GCSAA's code of ethics was challenged. The results of those confrontations reflect no cut and dried decisions. In most, no severe penalties were handed alleged violators. It's as Mitchell suggests. . .no one can prove that the verdicts are indisputable.

For example, is it a violation of the code of ethics if a superintendent takes his expertise to another course under the urging of that club's members and the knowledge of their own super? In one section of the country, the double-dipper - if you will - was suspended from the local chapter.

"If someone asked me to prove that such a practice was wrong, I'd have a tough time doing it," Mitchell remarked. "Naturally, I am in agreement with the feeling that one job has been eliminated by a super taking over an additional course. But, in the long run, does it really hurt the profession? And, more important, how can we control the hiring methods and philosophies of the employer? Frankly, it's none of our business even though it raised the question of an ethics violation."

Mitchell is the second of a third-

Continued on next page

The ethics syndrome cont.

generation golf course superintendent family. His father has had a successful and rewarding career, he is in the midst of duplicating and perhaps surpassing that and his son shows signs of eclipsing dad and grandfather.

What has this to do with the ethics' situation?

"Well, it just might be that attitudes change from generation to generation," Mitchell proposed. "I look back at my father and see a different outlook than I have now. He's from the old school which treats the profession as a religion. I inherited some of that outlook but leaned heavily on education. But my son approaches the profession as part of a business. Don't get me wrong. He's good, darned good, but he can be good without offering as much input into the job as my father and I have."

It is this evolvement of attitudes that perhaps answered the question of why ethical violations are more prevalent today than they were in the past. I'm only guessing at this," Mitchell cautioned. "But, I suspect that younger supers don't have the same traits as their predecessors. Call it lack of compassion or whatever. And, then again, maybe I'm all wrong."

Mitchell's perplexity in determining the reasons for the unethical upswing is matched by the lack of a definitive method of determining the social malady. "It all goes back to the cases I mentioned," he said. "You can listen to both sides of an ethical-associated accusation and have a difficult time deciding whether it is a violation in the true spirit of the code."

Nonetheless, it's a documented fact that the GCSAA has seen fit to rewrite its code of ethics in the face

Continued on next page

The ethics syndrome cont.

of a continuing incidence of alleged violations. And this is justifiable reason in itself for all members of the profession to show some concern.

"I believe that GCSAA members have an obligation to themselves, their profession and their national organization to become acquainted with our code of ethics," Mitchell summed up his personal view. "If a super accepts membership in the GCSAA, he should accept the responsibility of adhering to its bylaws and its code of ethics. If all the rules are followed, there will be no need for a discussion of ethics."

Despite the human flaw in recognizing violations of the code, the problem does exist. It is high time that these violations be accepted as such and every attempt made to prevent their recurrence.

Gerry Finn

– MBCGCSA ROSTER – Changes and Additions

READ, JOHN D
3534 Rockwell
Windsor, Ontario Canada N9E 2A9
969-0323
Dominion Golf and Country Club
969-4350

Help us keep our Membership Roster and mailing list up to date. If you have changed your address please fill out the form on page 18 and return it to us.

Some ideas about roots cont.

2. Increase the water to excess
3. Compact the soil; use equipment and carts
4. Smear, seal the surface
5. Raise the temperature
6. Overcrowd the plants
7. Lose leaves to diseases; lose energy
8. Reduce leaf surface
9. Shade by trees, buildings, other plants
10. Overfertilize and stress plants.

What would you do to favor roots?

1. Increase oxygen in rootzone
2. Avoid any overwatering or continued wetness
3. Vertically core, spike, slit open rootzone surface
4. Topdress to raise cutting height
5. Topdress to minimize surface compaction and effect of thatch
6. Increase leaf surface
7. Avoid or spread wear
8. Avoid disease or turf weakening
9. Lower the temperature - cooling when possible
10. Reduce shade or competition
11. Fertilize - low to medium nitrogen
12. Provide ample potassium and minor elements

Turf managers and their crews can't make a root! You can help; let the plants make them. You can kill the root or slow it down.

What can we do to stimulate roots?

1. Avoid compaction. Keep carts in rough.
2. Aerify when weather permits.
3. Fertilize lightly.
4. Syringe when needed to cool turf.
5. Raise mowers - a must if indicated.
6. Avoid diseases and insects.

Stress management cont.

bluegrass. So amount, frequency and timing of topdressing are very important in determining or contributing to total stress in the management program.

Improper timing of dethatching on a

green can be suicidal, and can lead to the invasion of smooth crabgrass or goosegrass. Even if a pre-emergent herbicide has been applied, annual grass problems can be serious with poorly timed dethatching. In our area we cannot dethatch too late in the spring because it turns out to be a seedbed preparation for crabgrass establishment, nor can we dethatch too late in the fall for that is seedbed preparation for *Poa annua* L. invasion. So our dethatching must be timed in such a way that we have time for the turf to heal before it goes into summer slowdown or winter dormancy.

Be aware that the pesticides that you are using are not coming to you free of stress cost. The man that said there is no free lunch knew what he was talking about. This applies to herbicides and other pesticides, whether they be fungicides, or insecticides. I am sure that you are aware of the stresses that herbicides create on grass plants. I think that in the next 5 years we will come to realize that just about all pesticides cause stress of one form or another. Some of them do appear to be less damaging than others, but any pesticide that we are using is coming to us at a stress cost to the desirable plant.

In work we did at the University of Maryland using repeated applications of preemergence herbicides for 7 years, we were able to increase some of the subtle long term, detrimental effects on the Kentucky bluegrass turf (1). In root count data taken 360 days after the 7th yearly spring application of herbicides, Bandane caused an 83% reduction in roots to a 3" depth; with tricalcium arsenate there was a 52% reduction in the root systems. Balan had a 29% reduction, Betasan 26%, Dacthal 12% and Siduron actually had an increase of 5%. Be aware that when you develop your management program, you are not using any of these pesticides free of cost in terms of creating total stress

If you have changed your address, please let us know so we can keep our addressing plates up to date.

Present Address:

NAME

ADDRESS

CITY STATE ZIP

Fill In New Address:

NAME

ADDRESS

CITY STATE ZIP

Mail this form to:

A PATCH OF GREEN
31823 Utica Road
Fraser, Michigan 48026

on the desirable plant.

Insect invasion and stress may go hand in hand. Insects and diseases are creating pressure on the grass plant. Be aware, as you set down to develop your management program, that you cannot alter any one of these factors without having an effect on the total stress on the grasses. Be sure to note that if you decrease the mowing height, you in fact increase the need for irrigation. You cannot increase irrigation without money. By decreasing the mowing height you are going to change the need for cultivation practices such as aeration and topdressing and dethatching and once we lower that mowing height we will see the need for the use of a herbicide for control of crabgrass, goosegrass, *Poa annua,* etc.

Remember that when we go to that lower mowing height we have a grass plant that needs a babysitter in terms of nutrition. If you increase fertilizer use then, that will increase the need for irrigation and it is going to increase mowing frequency, and none of these come without a monetary cost to you and a stress cost to the plant.

After you set up your management program with these principles in mind and this philosophy as your foundation, then you need to continually check for signs of plant stress. You have to know when the grass begins to go over the line in total stresses. Our management systems may, and often do, create "nervous breakdowns" in our turf. We must continually attempt to reduce the total stress on the grass plant. Temperature, repairs, fertilizers, pesticides, equipment, light, water, labor and money must all enter into the stress calculation and you as a turf manager must understand, and be able to diligently manipulate all of these factors. Remember, ". . . there is no single effect" in turfgrass management.

HOWARD

COMMERCIAL TURF EQUIPMENT

COMMERCIAL 60" MOWER

The Howard 60" Commercial Mower with forward mounted cutting head affords maximum visibility, non-tracking performance and unparalleled trimming capabilities around and under bushes, chains, guard rails, picnic tables, etc. By having your cutting head out in front, independently attached, you can actually see the mower following the contour of the ground, not the tractor. The Howard Commercial Mower with hydrostatic transmission enables you to set your cutting speed to an infinite range, between the speeds of 0 and 6.2 M.P.H., depending on your mowing conditions. The heavy duty transmission and differential allows for a responsive, yet smooth, operating forward and reverse action in open or congested areas. The transmission is backed by the strongest warranty in the field. The outstanding versatility of our tractor is evidenced by the attachments which are available. The attachments are quick change and may be run off our live P.T.O.

L&E DISTRIBUTOR • L&E CHEMICAL • LAWN EQUIPMENT CORP

LAWN EQUIPMENT CORPORATION

520 W. 11 MILE ROAD ROYAL OAK, MICH. 48068

TELEPHONE: (313) 398-3636