SEPTEMBER 1983

A PATCH of GREEN

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MICHIGAN & BORDER CITIES GOLF COURSE SUPERINTENDENTS ASSOCIATION

"A PATCH OF GREEN"

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Ted Woehrle, CGCS, Oakland Hills C.C.
EDITOR

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Pythium, Sand Topdressing

Increasing Evidence for PYTHIUM Induced Root Dysfunction of Creeping Bentgrass Grown in High Sand Context mixes Clinton F. Hodges, Department of Horticulture Iowa State University, Ames, Iowa. The presentation made by me at the 1981 M.G.C.S.A. annual conference implicated Pythium in a root dysfunction of creeping bentgrass grown on reconstructed high sand content greens. The disease in question killed grass very rapidly and in a manner typical of Pythium "Cottony Blight." Examination of diseased plants, however, failed to yield Pythium or any other pathogen from above ground portions of the plant. Pythium was found throughout the root system of diseased plants. It is believed that when a green on an old golf course is rennovated to sand, Pythium may infest the sand from the collar and apron soil of the old green. The sand probably offers little microbiological competition for the Pythium and increased levels of irrigation and fertilization of sand greens may further promote the Pythium. There also is some evidence that more root mechanical damage may occur in sand than in soil; this could contribute to Pythium infection. This problem has not been observed in the roots of plants grown in traditional soil mixes. To date, we have isolated oufr species of Pythium from the roots of creeping bentgrass associated with rapid death of infected plants. We are currently in the process of identifying the isolates to the species level and testing them for pathogenicity. It has been possible to infect roots in greenhouse studies and in some cases reduce the rate of growth of infected plants. We have not been able to kill inoculated plants. Our present, observations suggest that the Pythium's in question may infect the roots and co-exist with the plant with minimal damage under mild growing conditions. It may necessitate some form of environmental or cultural stress before death occurs. There are two outstanding problems for the superintendent relative to this disease. These are diagnosis and control. The rapid death of infected plants appears to be due to a foliar pathogen. However, examination of dying leaves usually fails to yield any pathogens and often times even saprophytic organisms are not present. When the root systems are examined they usually appear normal in size and color. Because of this it is assumed that root pathogens are not present. These normal appearing roots can, however, be severly infected by Pythium. The Pythium's associated with this problem do not cause a rot and the degree of discoloration may not be detectible with the naked eye. We have found that when we properly incubate what appears to be a healthy root from these diseased plants, Pythium will grow from the root within six hours. We are suspicious that these Pythium's damage plants by interfering with water relations, not by rotting.

Control of this problem in the field remains elusive. Intense aerification followed by application of Pythium specified fungicides into the aerifier holes may slow the disease. There is some indication that wetting agents used in conjunction with the fungicides

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PROS AND CONS OF SAND TOPDRESSING

In our travels as agronomists for the USGA Green Section we are frequently asked what can people expect from and what are some of the problems we envision with sand topdressing. I have attempted to briefly list some of these pros and cons along with a few words of explanation for each. As you can see from the list there are 15 pros and 13 cons. Perhaps this is why this type of putting green program remains so controversial. There is no absolute or clear cut answer to what is the best topdressing to use on every golf course. It really comes down to what type of putting greens you want in terms of appearance and playability and then having to accept that particular type of management program often for many years to come.

THE PROS:

1. Firmer greens (not hard greens) - Properly sized and sand "bridges" resulting in firm greens but not hard greens. 2. Smoother greens - Any topdressing program will smooth out depressions and the sand program because it is performed so frequently during the season will definitely give you smoother putting surfaces. 3. Less thatch-straight sand seems to accelerate the decomposition of excessive organic matter. 4. Allows for lower cutting heights - the crown of the grass plant are insulated and protected by the layers of topdressing sand. In reality, the grass plant is actually growin through the sand that has been lightly dusted on the putting surface. In this way, cutting heights can be lowered with the mowers only cutting the grass blades and not necessarily the stems or crown of the plant. It

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Wisconsin's Experience with Yellow Patch Disease

We first observed the disease in May 1974, affecting greens on a golf course near Neenah. The weather had been cool and wet. Symptoms disappeared after about three weeks, but reportedly returned in the fall of 1975. We isolated a Rhizoctonia-type fungus from the affected tissue, but did not test its pathogenicity. It has since been observed on several courses affecting Penncross, Seaside and Poa annua. Fertility levels have been highly variable ranging from marginally low to very high rates of nitrogen. Thatch levels have also varied and are probably not significant in the development of this disease.

Unlike reports of other states, some of our courses have observed yellow patch in mid-summer furing periods of high temperature. Symptoms are dramatic (easily seen) not serios (tissue not killed and the putting surface is not strongly affected).

No control has been developed. Chemicals in use by superintendents at the time symptoms first appeared have included Tersan LSR, Tersan 1991, Cleary's 3336 and Actidione. Apparently these don't work. Dyrene and Daconil (6 oz./1000 ft^2) were subsequently used by two superintendents and are the disease subsided. However, this does not affirm their effectiveness, as the weather patterns changed and may have stopped yellow patch disease. The disease is of some significance to us in Wisconsin, in part due to the suggestion that the casual organism may be contributing to our "necrotic ring spot" disease. Our original isolate has lost viability and we seek additional disease specimens from which to attempt isolation. Suspect samples are difficult to submit by mail, as the symptoms frequently disappear in transit.

History: Yellow patch disease is an interesting new disease that has been identified within the last decade. Typical symptoms are chlorotic or tan rings ranging from a few inches to three feet or more in diameter. Sometimes the rings are incomplete, or they may appear as snake-like (serpentine) streaks. Less frequently the symptoms appear as a chlorotic blighted patch. Unlike typical Fusarium blight, the ring of affected turf is narrow, and the affected tissue rarely dies. The chlorotic patches or rings often "recover" due

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

HOW FAST IS FAST?

In the English language, the word fast has many meanings, such as you can run fast, hold fast, go on a fast, have fast women and have fast greens.

The topic of conversation around the locker and grill rooms of golf clubs these days is "how fast are the greens today?" In some areas of the country it is referred to as "the roll of the green." It all boils down to the speed of the ball on the green. Lost is the art of stroking the ball – today a tap is all that is required. I think some of the golfers want the ball to roll into the cup just by looking at it. At some clubs they post the speed of the green on the bulletin board for the day.

Are we becoming victims of the stimpmeter, fast greens and tournament play? When big tournaments are on TV all we hear about is how fast the greens putt, that they double cut the greens every day, even triple cut, and yes, on some greens quadruple cut to increase the speed.

Whenever a group of golfers or superintendents congregate, golf and turf are naturally discussed, greens speed for the average club is a favorite topic. Seven, eight, nine, ten or more feet is suggested.

Has the superintendent contributed to the dilemma? Yes, in a way. He probably has perfected his course to the point where only incredible fast greens will save par. Also the competition to have faster greens than your neighbor is not helping the situation in any way.

In any event, an increasing amount of pressure is put on the Superintendent to increase the speed of the greens.

Every Superintendent has heard the following remarks: "Are the greens going to be mowed today?" "When are you going to lower the height of cut?" "The greens at such and such a club are faster than ours."

Seriously, I am concerned about this trend of "fast greens". Can we afford to maintain greens of this caliber – that require frequent topdressing; frequent verticutting; daily cutting or double cutting of greens; close, close mowing – even to the point of grinding the underside of already thin bedknives.

And in all my conversation and reading and listening, I have never heard anyone mention a thing about the little grass plant. How is it standing up under all this abuse? I was tutured under the late Professor Lawrence Dickenson of Massachusetts and one of his often quoted phrases was "Give the grass plant half a chance. It wants to live." Under these conditions of shaving the grass plant to ⅛" or less are we giving it "half a chance?" I do not think so. We are giving it very little chance. Sooner or later we are headed for trouble.

We all know that the root growth of the grass plant is in proportion to the top growth. That the grass plant needs leaf surface for survival – for transpiration, respiration, the manufacturing of carbohydrates to maintain life and growth. It also needs nitrogen and other nutrients that we are witholding so as to increase speed by limiting plant growth.

I predict that in the not too distant future we will get back to the basics of a good putting green surface – that the demands of the grass plant will be given equal or more consideration than the demands of the golfers. A firm, true, healthy green with reasonable speed is much more preasurable than putting on dead grass and plain soil. We will return to stroking the ball, not tapping it.

Credit - Tee to Green, May 1983
Sherwood A. Moore, Supt.
Winged Foot Golf Club

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NOSTALGIC LOOK BACK

The President's Message

As the season nears its end, we must look back and reflect on our responsibilities and how we handled them. Did we attack our problems in a business like manner? Did we panic when the going got tough? Did we keep the members informed about our problems?

This past summer was a difficult one to grow good turf. Many small but important decisions had to be made on a moments notice.

A cool wet spring after a cloudy wet fall gave us a weak shallow-rooted grass plant. Along came leafspot to weaken the plant even more.

We really didn't get much of a chance to use our irrigation systems until the 20th of June. The last week of June and again the third week of July, we received unusually large amounts of rain. A real test of our drainage systems.

Late in August and early September, we found ourselves in an extended hot spell - 10 days over 90 degrees - with high humidity!

Now we are in an extended drought. What next? Hang on! The Christmas party is coming up sooner than you can imagine.

Your President,
Ted Woehrle

This article appeared in the September, 1973 issue of the Patch of Green magazine. Serving with Mr. Woehrle the Board Members included: Vice-President – Gerald Gill, Tam-O-Shanter C.C.; Secretary, Treasurer – Bob Hope, Knollwood C.C.; Board of Directors – C.H. Wolfrom, Jr., Detroit G.C.; Albert Kaltz, Maple Lane G.C., Roger Gill, Royal Oak G.C.; George W. Prieskorn, Burroughs Farms G.C.; William Milne, C.C. of Detroit; Don La Fond, Bay Pointe G.C.; President Emeritus – Ward Swanson, Plum Hollow G.C.

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TO: SOUTHEAST MICHIGAN PESTICIDE DEALERS AND GOLF COURSE OPERATORS

A problem has been brought to the attention of the Michigan Department of Agriculture and the Michigan Department of Natural Resources concerning the use of pesticides on golf greens which could possibly result in a public health concern. Specifically, zinc phosphide used in the control of mice and fungicides containing mercury such as PMA (phenylmercury acetate), CaloGran and Calo-Clor used for snow mold are being applied in a manner such that geese are eating exposed treated seeds or granules. Although labeled for such uses, these products are being applied at a time that concides with the fall goose hunting season which, in southeast Michigan, is quite liberal in an attempt to control the size of the resident flock.

There have been die-offs of geese which autopsies have shown to be caused by consumption of pesticides used by golf courses. Concern for any possible health effects, no matter how remote, arises because of the possibility of persons consuming geese or other waterfowl that may have some level of the pesticide or degradation products such as heavy metals or organic contaminants in the body tissue. To avoid this possibility and to prevent the accidental, unlawful killing of geese, we request that special precautions be taken by pesticide applicators and to use pesticides in a manner that they will not be inadvertently consumed by geese or other birds or animals. Such precautions could include covering all seeds or granules, or making the bait as unavailable or unattractive as possible. One method found to make the bait unattractive is to apply the zinc phosphide on whole oat groats, dyed black. University studies shown that this bait is much less attractive to nontarget wildlife than is treated corn.

Some golf courses have already been contacted regarding problems that have occurred in the past. As suppliers and users, we are asking that you provide precautionary advice to all applicators buying and using these products so that similar problems can be eliminated or mitigated to the greatest extent possible.

Your cooperation and assistance in this matter will be appreciated. If you have any questions, please call Carl Dollhopf, Michigan Department of Agrigulcture, Plant Industry Division, 1120 W. State Fair, Detroit 48203, (313) 368-2230.

Frank Opolka, Chief
La Enforcement Division
Michigan Department of
Natural Resources
John C. Dreves, Acting Chief
Plant Industry Division
Michigan Department of Agriculture

Wisconsin Yellow Patch, Cont.

to growth of symptomless foliage into the diseases area. It is not uncommon for symptoms to remain two or three weeks before recovery is complete.

The disease is associated in most instances with cool wet weather of spring or summer. Several different turfs are reportedly affected. We have observed it with certainty only on golf course Poa annua and bentgrass greens, although some suspect chlorotic bluegrass areas have been observed. In other states it has been reported to affect bluegrass in patterns resembling Fusarium blight.

What Causes Yellow Patch?: The fungus associated with yellow patch disease has most recently been identified as Rhizoctonia cerealis. Earlier, it has been identified as Rhizoctonia solani (the brown patch fungus) and Ceratobasidium spp. The taxonomy of this fungal group is difficult to work with, since only the negative characteristics can be very difficult. Whether the final word on fungal identification has been written is uncertain. However, pathogenicity has been well demonstrated – it is a legitimate disease.

CHECKING TURNOVER

People change jobs for any number of reasons. Often it's for a better opportunity or a fatter paycheck. But even with the lure of more money, people who are reasonably content with their work and their bosses seldom seek other jobs.

Some bosses have a higher turnover among their workers than others, sometimes embarrassingly so. And often it's the better people who leave. This can be a costly and frustrating problem.

Sometimes, of course, people are offered opportunities or salaries that are so extraordinary you can't possibly match them. All you can do in such cases is let them go and wish them good luck. However, before you absolve yourself of all your blame when employees leave, ask yourself a few questions and answer them as honestly as you can.

1. Did I let these people know how important they were to me and to the company? Or did I more or less take them for granted? 2. Did I give them a chance to be proud of themselves? Did I pass along all the authority I possibly could – or keep them tied to my apron strings? 3. Did I give them the credit and recognition they deserved from me and others in the company? Or did I tend to leave them in the shadows? 4. Was the job a real challenge? Dis I do my best to make it so? 5. Did I make their work as varied and interesting as possible? Did I show them the possibilities of a promising future? Or did I simply leave them in a rut and exploit their abilities to my own advantage? Don't be too quick to let yourself off the hook. If you were responsible, to any degree, it's smarter to realize it than to hide your head in the sand. Unless you change your attitude or actions, you may lose more than just good people. You may be on the verge of damaging your company or career as well.

Obviously, the best time to think of these things is before you lose good people rather than after.

SAFE MOWER OPERATION MAY REDUCE INJURIES

The greatest danger while mowing a lwan is from accidental contact with the rotating blade.

The U.S. Consumer Product Safety Commission estimates that 64 percent of all walk-behind mower injuries are caused by contacting the blade. This can occur when the operator is clearing the discharge chute of grass clipping while the blade is rotating.

Other blade-contact accidents occur when the operator adjusts the cutting height of the mower with the engine running and when the operator's foot slips under the mower housing.

Three percent of all blade injuries result in amputation of the toes or fingers.

Fifteen percent of blade-contact injuries produce fractures or dislocations. Seventy percent result in lacerations.

CPSC estimates that there are more than 120,000 power lawn mower accidents each year. In 1979, reports submitted to CPSC by hospitals across the nation indicate that over 65,000 persons were treated in hospital emergency rooms for rotary lawn mower injuries.

CPSC offers these safety tips to reduce chances of a mower injury:

– Before mowing: pick up all debris (stones, wire, toys, etc.) on the lawn. Check for objects near shrubs, trees and fences.

WHOSE JOB IS IT?

This is a story about four people named everybody, somebody, anybody and nobody. There was an important job to be done and everybody was asked to do it. Everybody was sure somebody would do it. Anybody could have done it. But nobody did it. Somebody got angry about that because it was everybody's job. Everybody thought anybody could do it but nobody realized that everybody wouldn't do it. It ended up that everybody blamed somebody when nobody what anybody could have done.

WELL WATER TEMPERATURE

A mistaken idea held by some is that well water, owing to its low temperature, will chill turf when discharged directly through a sprinkler and considerable sums of money have been needlessly spend on the construction of so called "tempering ponds" to hold and warm well water before its use for irrigating.

In the Chicago area we have three main sources of well water and the temperatures of the water delivered from them at ground level is as follows: 1. Where the well is about 400 feet in depth the water is obtained from the crevices in the Niagaran limestone formation and is produced at 53 deg. F. temperature. 2. Where the well is about 800 feet in depth the water is obtained from the St. Peter sandstone formation and is produced at 56 deg. F. temperature. 3. Where the well is about 1500 feet in depth the water is obtained from the Galesvile sandstone formation and is produced at 59 deg. F. temperature.

It will be noted that the water temperature increases in relation to the

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GOLF SEASON

Did you ever wonder why most golfers will not fix ball marks? Why when you put a rope, chain or some other restraining device they feel they have to go through that area? Why do they complain about bad hole cups and then try to scoop the ball out with their putters? Why do they moan when a low line drive does not stop dead and a high pitch does?

Why trees are the place to drop empty cans, cups, etc. instead of containers provided?

Why they will take 4 practice swings, 4 big divals and only replace the dival when they hit the ball? (I guess 1 out of 5 isn't bad)

Why the wettest area is where they drive the carts?

Why when you want to spray, its always windy, and very calm when the sprayer is broken down?

Why is it always hot and dry when you're having problems with the irrigation system?

Why when you schedule a major project, half the help is either late or no show?

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"Him stop here, Kemo Sabe—hit practice shots."

(July/August Conn. Clippings)

WHAT'S YOUR EXCUSE?

HUNDREDS of policemen entered a contest to find "America's most creative excuse for speeding". Among the entries were:
"My car is so light that the wind blew it over the spped limit."
"I was sppeding to get away from my mother-in-law."
A woman claimed she was speeding to keep up with the cars behind her.
A man said he had a "right to speed" while making up for time lost in a construction zone.
Another man was speeding after being detained at a farewell party, where speakers included a lot of stuttering children.
Still another man was speeding because he was furious that his wife had just received a ticket for speeding.
(This one incidently won the contest.)
"I have to go to the bathroom." was the most common excuse.

Well Water Temp., Cont.

depth of the well.
Regardless of any of the above temperatures it will be found that when the water is discharged and properly broken up into droplets by a modern sprinkler that these droplets in falling through the air will almost even themselves up to the existing air temperature. It might be noted that the reverse action takes place with high temperature water.

C.E. (Scotty) Stewart

Golf Season, Cont.

Why the part you break is the one that has to be back-ordered?
Why the pin is in front when you are at the back and visa versa?
Why the salesman you want to talk to shows up when you are the busiest?
I am sure many more items can be added to this list and they tell me that they fall under "Murphy's Law". So I wonder why this law has to cover so much???

John Stephenson

COMING EVENT

The 18th Annual Wisconsin Golf Turf Symposium will be held at the Pfister Hotel, Milwaukee, on October 26 and 27, 1983. The subject will be, "Facts and Fallacies in Poa annua Management."

Subject matter will range from protection of Poa annua through new methods of suppression to replacement with other species. The program is expected to give an update on all angles of Poa annua production or control(?).

More information will be forthcoming as it is developed.

James M. Latham, Manager
Marketing and Agronomy

Pythium, Sand Topdressing, Cont.

may be beneficial. It also appears that following renovation of a green the first time the disease strikes it is most severe; each subsequent year it becomes less severe.

Our primary research objectives for the next 2-3 years will be as follows: 1) Continue to collect and identify Pythium species associated with roots. 2) Determine pathogenicity of the Pythium species and the conditions necessary for injury or death to occur. 3) Determine the nature of the pathogenicity; i.e., in that the roots are not rotted, how are the plants ultimately killed. 4) Examine approaches to control.

Pros & Cons, Cont.

allows for safer lower cutting heights. 5. Faster greens - the combination of smoother greens with less thatch and lower cutting heights will give you faster putting greens. There just is no doubt about it. 6. Tightens the surface - less grain and leafiness results. Between the lower cutting heights and the actual matting-in or the dragging process, the putting greens surface tightens up and has good texture. This is a combination between the topdress and the actual process of working it into the greens.

7. Less compaction - properly sized sands don't compact anywhere near what a topsoil based topdressing which contains large amounts of silt and clay. 8. Better roots - roots grow in between soil particles. A properly sized sand has outstanding aertion allowing the roots freer movement through the new soil medium. 9. Better drainage - Because these sands have such good aeration water tends to soak freely into them and they seem to dry out quicker after a rain, firm up earlier in the spring and stay firm later into the fall. All of this relates back to a sandier, firmer and better draining topdressing. 10. Less weeds and weed grasses - because the greens are topdressed on a frequent basis seeds are physically buried. Certain of our weed seeds need direct rays of sunlight to germinate so by constantly buring them, they just never germinate. 11. Generally less disease - less free water on the surface and because most of our disease are related to surface moisture there is the potential for less disease. 12. Generally less insect activity - Perhaps this is related to less thatch? 13. Generally less winter injury - less ice injury due to better drainage and as this program will tend to encourage the development and spread of creeping bentgrass over Poa annual there is less potential for winter injury Poa annua is the most susceptible grass in this part of the country to winterkill so the less Poa annua you have the less potential you will have for winter injury. 14. General ly an extended playing season - greens that have been on a good sand topdressing program will generally tend to firm up earlier in the spring, are less spongy through the season and generally are quicker to return for play after a rain. 15. Generally a fairly inexpensive program when compared to topdressing efforts using commercially prepared materials. It is a very economical program in most instances.

THE CONS: 1. Increased wear and grinding of reels and bedknives - the light, frequent applications of topdressing sand always tends to leave some particles on the surface and when

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the greens are cut this sand causes extensive wear and dulling of the cutting blades and bedknives. Also, because of lower cutting heights it is also necessary to grind some of the thickness off of the bedknives . . . which can significantly decrease their life. So, between using thinner bedknives and the abrasiveness of the sand you can expect to use more bedknives and do more maintenance on the mowers. 2. Firm greens - some golfers don't like firm greens (they won't hold as well) - Firmer greens simply won't hold as many shots as will softer greens. Firmer greens can cause some objections from at least one segment of golfers.

3. More hydrophobic dry spots - Hydrophobic or isolated dry spots seems to occur more frequently on high sand soils. Thus, with a sandy topmix you can expect more of these dry spots (increased useage of spot coring and wetting agents) than with topsoil based topdressings. 4. Lower or different microbial activity levels - Dr. Clinton Hodges has been studying some of the effects of these high sand soils on the flora and fauna in the soil. When you are dealing with a straignt sand grass growing medium things are different in terms of soil microbes than a more native or natural type of soil. This may or may not be a problem but it is a different environment to deal with. 5. Lower nutrient holding capacity - sand soils just don't hold nutrients as efficiently as a topsoil type of topdressing. Their Cation Exchange Capacities (CEC) are generally lower. 6. Lower moisture retention - high sand soils just don't hold as much water. 7. Different diseases to manage - whereas a sandy topmix would generally tend to decrease overall disease problems those diseases which still are active will tend to be more of the soil borne type (again referring to Dr. Hodges' work) and not necessarily the traditional diseases common on golf courses. In a nutshell, these high sand soils are different environments for the growth of organisms and this can sometimes lead to some very unusual disease problems. Also, it has been our experience that you tend to get more algae with sands.

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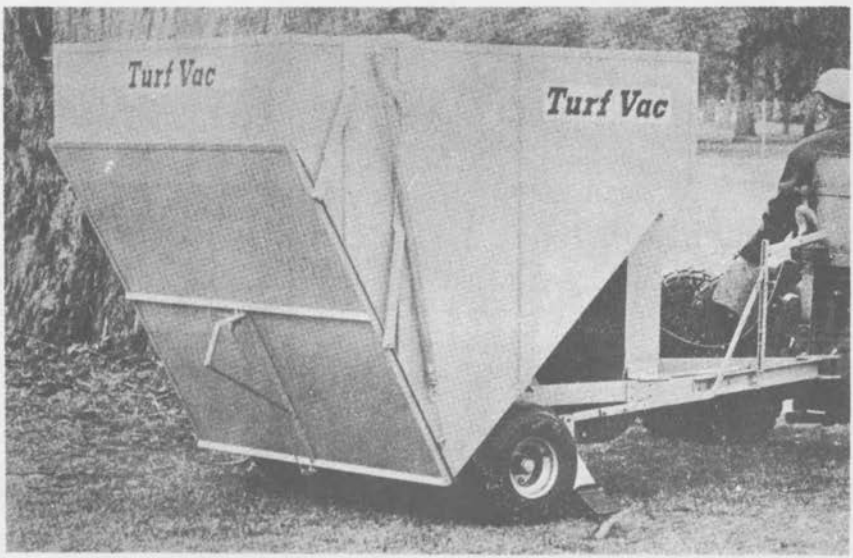

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