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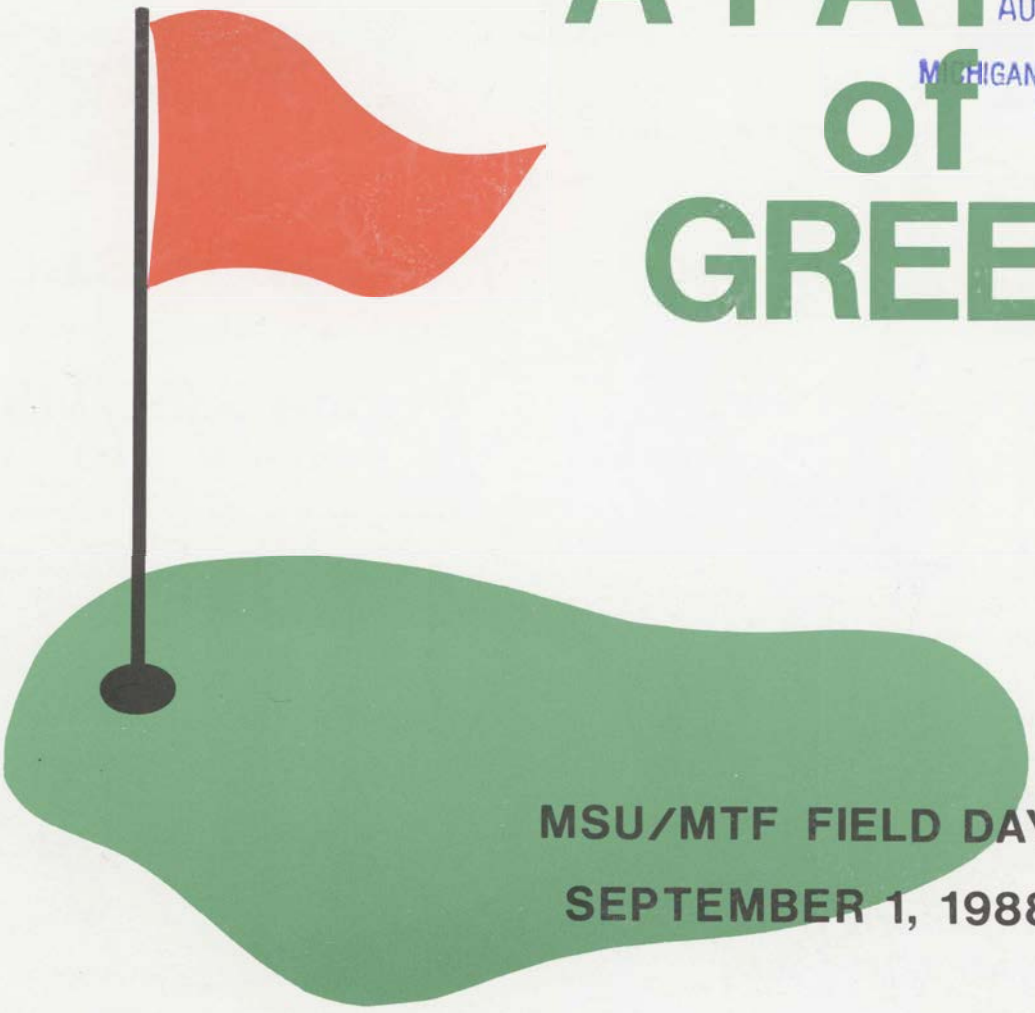

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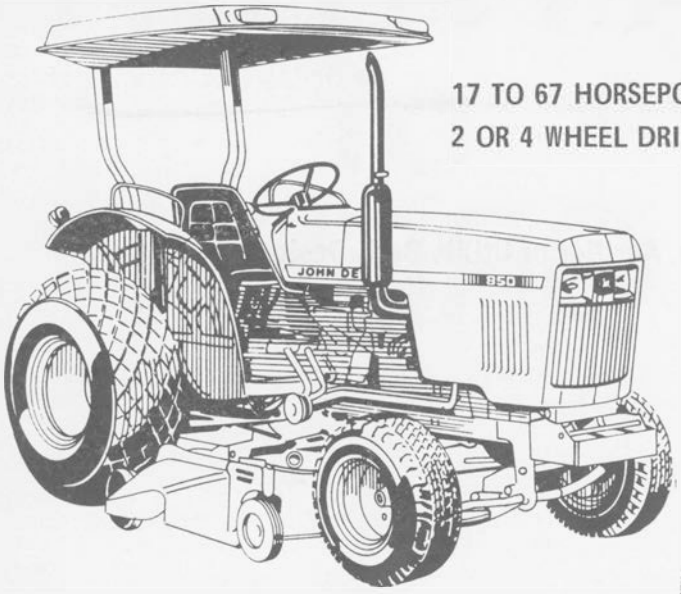

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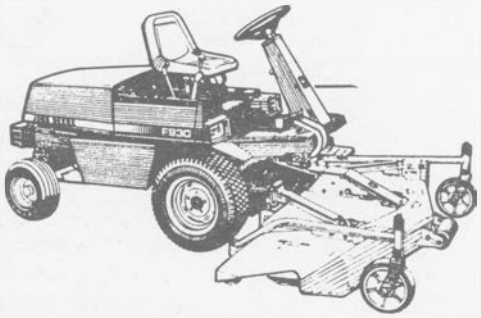

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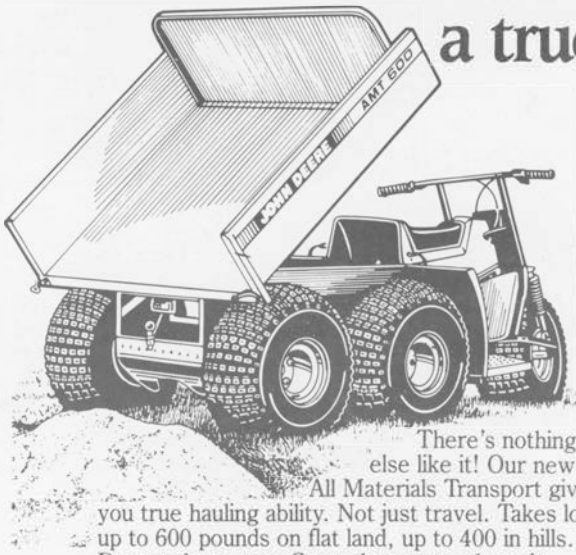

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SO YOU ARE OUT OF WATER, NOW WHAT?

by Ted Woehrle

This a question that many golf courses in Michigan are asking. Many courses are operating without their normal water supply for various reasons.

Those pumping out of streams and ponds have found their water supply limited. Some find that the low water levels have caused a concentration of pollutants that affect the quality of water. Some low levels of water have caused pumping problems - silt, sand, and mud have caused pump failures. Some levels are so low that the centrifugal pumps cannot lift the water.

Water levels in wells have also dropped - old pumps are failing - low voltage problems - have all caused problems.

Some municipalities have curtailed watering schedules and others have cut the water off completely.

Whatever the problem, there is one question that must be answered. What now? How do I cope with the shortage?

First you must decide what amount is optimum and what is the least you can get along with and still have a nice, playable course.

SET PRIORITIES

Priorities must be set. The number one priority would be greens, then tees, and then fairways - or portions of fairways. If you are really short on water, how long will the various grasses live without water?

This is a difficult question to answer, because as of this writing, the drought of 1988 is over six weeks old - accompanied by high temperatures and low humidities early in the season. We have no records of similar conditions by which comparisons can be made.

A lot will be learned about the survival of the various grass species - what soils can support grass for the longest periods of time.

Some of our rough areas that are unirrigated will not survive - we see Bluegrasses and fine leafed fescues failing already on the heavier clay soils. There is considerable damage to trees and shrubs in the same areas. For some reason the same plants are doing better in the sandy loam soils. However, the real coarse gravely areas show similar damage to the clay soils. It seems that the two extremes in soils are not

CONTINUED PAGE 26

"A PATCH OF GREEN"

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MUCH ADO ABOUT NOTHING

ABC's Friday Evening, March 18, 1988

DOWNS: Warning: this next report may be hazardous to your beliefs. For two decades now, we of the media have brought story after story where experts warn of links between all kinds of pollutants and cancer. But tonight a distinguished research scientist makes a case that many of the warnings we hear are unnecessary, that all the concern about this toxin, that pesticide, is "Much Ado About Nothing."
Would'nt it be nice if he was right? Is he right? Has fear and hysteria replace common sense? Well, John Stossel looks at the polluted world according to Dr. Ames.
(Video clip with background song, "Everything gives you cancer."

JOHN STOSSEL: (voice over) It seems every day another chemical is linked to cancer.
ANNOUNCER: Asbestos causes cancer.
ANNOUNCER: An exposure to toxic chemicals may be a leading cause of lung cancer.
JOHN STOSSEL: (voice-over) Sometimes it makes you feel as if nothing is safe. But today a number of well-respected scientists say, "This is nonsense."
DR. BRUCE AMES, Cancer Researcher: We're the healthiest people in human history and everybody's worrying, worrying, worrying.
STOSSEL: Dr. Bruce Ames is one of the more outspoken scientists on the subject. At sedate scientific meetings, he often shocks his colleagues, saying things like -
DR. AMES: The types of tests that we're looking at have been around a long time and ther isn't any evidence that the chemicals in the modern world are causing all this.
STOSSEL: (voice-over) Who is this man and where does he get off making claims like that (on camera) Ames is probably best known for a test he invented, a test that gives scientists a cheaper and faster way to see if a chemical causes mutations and, therefore, probably cancers. (Voice-over) The traditional way to test a substance is to feed big doses of it to animals and wait and see if they get cancer or have babies with birth defects. But these tests can take 2-3 years and cost $100,000. So, Dr. Ames said, "Instead of testing animals, why not test bacteria? You can study a billion of them on just one dish and you don't have to wait long for the next generation. Bacteria reproduce every 20 minutes." The test proved successful. Since then, it's been hailed as a major scientific breakthrough and today, worldwide, it's the standard test for seeing if chemicals cause mutations. (Voice-over) It's called the Ames Test and its first use in the 70's showed carcinogens in hair dye and children's pajamas. Ames helped get the chemicals banned. But then, continued testing led him to question those bans.
DR. AMES: People started using our test and finding mutations everywhere - in cups of coffee, on the outside of bread and when you fry hamburger a lot of these things turned out to be carcinogens - and so I started getting what I feel is a more realistic view of the whole world.
STOSSEL (Voice-over) He concluded that the popular assumption that man-made chemicals are much more carcinogenic than natural substances is just wrong.
DR. AMES: There's a whole movement of people who are committed to the idea that man-made chemicals are causing a lot of cancer. It's just - I don't think there's much science behind it. In fact, the science is all going the other way.
STOSSEL: (on camera) As evidence, he points to cancer rates. Thousands of new chemicals have been introduced over the past 40 years. If they were giving people cancer, says Ames, then there should be an epidemic of cancer in this country, but there isn't. It's true that lung and skin ancer have increased (voice-over) but The American Cancer Society says that's because 20 or so years ago more people started smoking and doing more sunbathing. Other forms of cancer, says the Society, have on average stayed pretry level. Ames says this is more evidence that most industrial chemicals, most air pollution, most pesticides are no more carcinogenic than the food we eat every day.
DR. AMES: Practically everything in the supermarket, if you really looked at it at the parts per billion level, would have carcinogens. Vegetables are good for you yet vegetables make toxic chemicals to keep of insects, so every vegetable is 5% of its weight in toxic chemicals. These are Nature's pesticides. Celery, alfalfa sprouts and mushrooms are just chock full of carcinogens.
STOSSEL: Over there if says "Organic Produce." Is that better?
DR. AMES: No, absolutely not, because the amount of pesticide residues - man-made pesticide residues - people are eating are actually trivial and very, very tiny amounts. We get more carcinogens in a cup of coffee than we do in all the pesticide residues you eat in a day.

CONTINUED PAGE 14

1987 Turf Management and Weed Control Report

Bruce E. Branham
Department of Crop and Soil Sciences
Michigan State University

Research in 1987 continued on golf course fairway management strategies. Specifically, research was aimed at converting annual bluegrass fairways to creeping bentgrass. Our research continued to focus on plant growth regulators (PGR's) such as flurprimidol and paclobutrazol or the herbicide ethofumesate (Prograss®) as a means to convert fairways to creeping bentgrass. The PGR products are thought to work as competition shifters, that is they make annual bluegrass less competitive but do not actually kill the annual bluegrass plants thus over time allowing a shift to creeping bentgrass. Our research at the Hancock Turfgrass Research Center has shown these products to be mostly ineffective. On the other hand, our research with ethofumesate has shown it to be a very effective selective annual bluegrass control.

In an attempt to definitively answer the question of which products are most efficacious on golf course turf, we initiated a long term research project in the late summer of 1987 at six golf courses in Michigan. This study compares two rates of flurprimidol, one rate of paclobutrazol plus fertilizer, and three rates of ethofumesate. Each site was rated for percent creeping bentgrass in August, 1987 and will be reevaluated each spring and fall for the next two years. At the end of this time, the results should give conclusive evidence as to the effectiveness of these products. The six courses are Bloomfield Hills Country Club, Orchard Lake Country Club, Barton Hills Country Club, Walnut Hills Country Club, Kent Country Club, and Blythefield Country Club. In addition a seventh site was selected at Traverse City Country Club for an ethofumesate trial.

Our own research at the Hancock Turfgrass Research Center has emphasized the use of ethofumesate. We have studied application rate, timing, and frequency and are beginning to develop a better understanding of how this product works. Our studies on the effect of ethofumesate on bentgrass overseeding have resulted in a change in label recommendations. Current labeling recommends a delay of at least six weeks after bentgrass germination before applying ethofumesate.

We have also examined overseeding practices for converting fairways to creeping bentgrass. Again, we have seen that ethofumesate is very effective in this application. Even if you decide to renovate fairways using Roundup, a follow up application of ethofumesate will prevent significant reestablishment of annual bluegrass. Our research showed that where we used Roundup alone during renovation we observed 50% annual bluegrass populations the following spring. However, when we used Roundup followed four weeks later with an ethofumesate application we had only 5% annual bluegrass. Another approach which has shown promise is to use a PGR such as mefluidide (Embark®) to reduce competition from the existing turf during overseeding and then using ethofumesate to eliminate the annual bluegrass. The benefit of this approach is that it avoids the use of Roundup herbicide which kills all the existing turf and consequently takes the golf course out of play for most of the fall.

We fell that within the next two years we will develop the understanding needed to eliminate, if desired, annual bluegrass from golf course fairways. We are now also examining programs to remove annual bluegrass from golf course greens.

EXECUTIVE SUMMARY
Prepared for the
Michigan Turfgrass Foundation

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

Soil Preparation for Turf Establishment

Proper soil preparation techniques are essential for establishment of a healthy, stress tolerant turf. Frequently, turf is established by laying sod on compacted subsoil. Ultimately, the consumer is dissatisfied because of poor quality turf. In a study of soil preparation techniques, both rototilling to a 4-inch depth and the use of solid tines on a vertically operated aerifier loosened the soil sufficiently to permit rapid rooting of newly laid sod into the soil below. Use of this type of aerifier would permit easier soil preparation than rototilling. This technique should be very helpful for landscapers by reducing preparation costs and improving the stress tolerance of the turf.

Cultivation Studies

Core cultivation of greens reduced the amount of organic matter in the thatch layer. This is likely caused by removal of a small amount of grass and thatch with the soil core as well as by somewhat reduced growth of the grass due to the injury from the cultivation treatment. Core cultivation is a very important practice for helping to control thatch and to reduce compaction on all types of turf where these problems exist.

Topdressing Studies

A frequently asked question regards topdressing for greens. A soil-based mix (light loamy sand texture) is still me preferred material for topdressing but availability of quality soil mixes is limited and difficult to duplicate. As a result the use of sand topdressing has become widespread. Topdressing with sand must be practiced faithfully (prescribed program is 2-4 cu. ft. per 100 sq. ft. applied at 2-4 week intervals) to prevent development of soil layers. The program must be adjusted for growth, traffic and environmental conditions. After 7 years of research in sand topdressing it continues to be evident that the golf course superintendent must follow this program carefully. As the sand layer grows to 1 inch or more one needs to apply nitrogen, potash and irrigation at lighter rates and more frequently.

In another study plots topdressed with a soil-based mix (60% sand, 20% peat, 20% loamy soil) and with a sand-peat mix (80% sand, 20% peat) produced greener turf on several dates than on plots treated with sand alone. These mixes hold more nutrients and water than does sand. The use of Sand Aid applied with sand topdressing on a green growing on 100% sand improved turf compared to sand applied alone.

Fertilization

A long-term study on putting green turf evaluated nitrogen fertilizer programs on 3 creeping bentgrasses: Penncross, Penneagle and Emerald. Those plots receiving late fall applications of nitrogen resulted in good quality turf throughout the year. Late fall nitrogen should be applied after growth stops in the fall. There were few differences among the three grasses although Emerald had greater susceptibility to doolarspot and produced less organic matter than the other 2 grasses. Increasing nitrogen rate tended to increase the depth of thatch which accumulated. Plots receiving high rates of nitrogen during the summer were more susceptible to wilt. These observations would apply to Kentucky bluegrass and other turfs as well.

Acknowledgement

Major financial support for these and other products 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 through the Cooperative Extension Service activities. This support form the Michigan Turfgrass Foundation is vital to these programs and is gratefully acknowledged.

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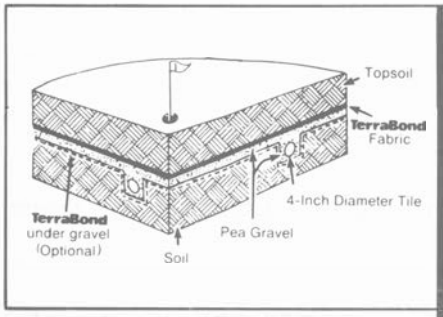
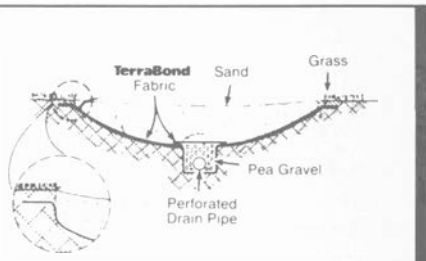


Use TerraBond as a replacement for the usual 2" coarse sand layer between the greens mix and the gravel drainfield. The fabric will eliminate downward migration of the mix into the gravel and the subsequent reduction of water flow from the green.

TerraBond's high water permeability and highly engineered uniform density and EOS (AOS) make it an ideal fabric for this use. It will not rot in the soil-water environment. Its horizontal (planar) flow characteristic moves excess water horizontally out to the sides.

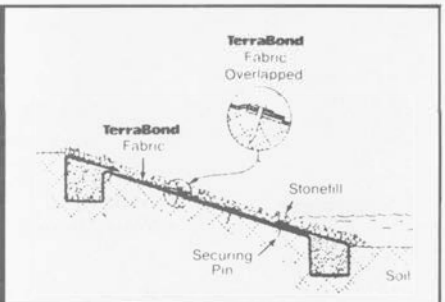
SANDTRAP LINING



Line the entire golf sand trap with TerraBond, including 6" under the surrounding sod. The sod's roots will knit the fabric to the soil beneath. Clay and rocks will be totally restricted from moving up into the sand.

Sand wash-down in rainstorms will be dramatically reduced, because TerraBond interrupts the interface of sand/soil. Rakeup will be greatly reduced. Time will be saved. Also, "wrap the gravel" in the trap drain to keep it flowing indefinitely. TerraBond's polyester will resist chemical and ultraviolet degradation.

SLOPE EROSION CONTROL



TerraBond is utilized beneath cut slope stone protection (rip-rap) as shown above. The fabric provides long-term confinement of cut slope or fill material.

Being constructed of soft and pliable needle-punched polyester, TerraBond will remain stable and functional for many years, in spite of potential exposure to the sun's ultraviolet rays and/or concentrated hydrocarbons such as gasoline, diesel fuel, oil or hydraulic fluid.

TerraBond also can be used in weed control, gravel path construction, retaining wall filtration, subsurface drainage, patio construction and planter filtration/separation.

Warren's® TerraShield™

Polyester † Geotextile Ground Covering

. . . the best greens BLANKET in the business.

THE EXPERTS AGREE

Winter 1984-1985 Wind Desiccation Damage Test on bentgrass greens
(Univ. of Nebraska-Test compared the protection of TerraShield cover with clear plastic cover and uncovered control area.)

- Desiccation injury around test site was severe. Uncovered control area had 60% damage. TerraShield covered area had no injuries. Control area produced only 36% of the green cover obtained under TerraShield blanket.
- Green-up occurred 24 days earlier with TerraShield . . . and remained significantly greener than the uncovered control area for 21 days after cover was removed.
- TerraShield produced 3 times the recuperative potential of the control area . . . and twice that of clear plastic covered area.
- TerraShield enhanced soil temperature compared to uncovered control area.
- TerraShield remained in place all winter with no ripping or tearing despite heavy winds.

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You Are A Turfgrass Professional

When someone comes to your golf course and asks "Is the Pro around?", everyone, including you, will proceed to tell the someone "The Pro is in the Pro shop, or giving lessons, or home in the shower."

I look forward to the time when the answer to the question "Is the Pro around?", the answer will also be a question "Which Pro do you mean? The Turfgrass Pro or the Golf Pro?"

remember, not too many years ago your job was called the Greenskeeper. Then some farsighted people began to raise the image of your position by referring to the Golf Course Superintendent. Not too bad for a start, but not too professional either considering the knowledge you must have and the ability to cope with not only the turf and tree problems on your course, but to cope with the people problems also.

Is your name on nice plaque over the entrance to your Turfgrass Pro's office? You probably don't even have your name and position painted on an old board in many cases. Even if the club does not buy you the plaque, you should! And it should say - TURFGRASS PRO - George Somebody.

The Golf Pro has the God-given ability to hit a ball fairly far and fairly straight. Some of them are even pretty good teachers of the game of golf. And they all have the financial advantage of taking a cut out of selling clubs, balls, shirts and shoelaces. And it doesn't take too much professionalism to sell shoelaces to a person who has just broken his or hers. And he has his name on a nice plaque over the door to his office!

If the greens, the fairways, the trees and flowers which really make the good golf course, go to pot, do the members want to fire the Golf Pro? They want to replace you with someone who is more professional at making things grow. They want a new Turfgrass Pro - and that's you!

So what is more important to the golf course - the greens, the fairways, the ornaments, or the variety of colors of balls, shirts and shoes in the Golf Pro's shop?

You have spent many hours in classrooms, in turfgrass meetings, in consulting with other Turfgrass Pros, and many years in learning how to make turfgrass grow to improve the game of golf, and you should be recognized at your club as the TURFGRASS PROFESSIONAL!

Spencer H. Davis, Jr.

Credit: The Greener Side

GOLF ASSOCIATION OF MICHIGAN MEMO

A recent letter sent to GAM member clubs soliciting support for the MTF - they need our help to promote this effort.

Seven years ago, the Golf Association of Michigan initiated an appeal to its member clubs to contribute on an annual basis to the Michigan Turfgrass Foundation for research. Our goal this year is to achieve 100% participation from all GAM member clubs.

These funds have gone to the Robert W. Hancock Turfgrass Field Laboratory at Michigan State University and are used only for turfgrass research relating to golf courses.

Our Golf Course Superintendents and Green Committees know the tremendous benefits which have flowed to our golf courses as a direct result of research done at the Hancock Research lab. Drs. Joseph Vargas, Paul Rieke, Bruce Branham, Dave Smitley, and recently retired Dr. Kenyon Payne have achieved remarkable results in resolving disease and maintenance problems, turfgrass varietal improvement and physiology research. Thay have also acted as a damage control and crisis management team for those of us whose courses have been hit by new or little known diseases.

We are enclosing an "Invoice" which is not an obligation, but a request and is intended only to assist your accounting procedures. We suggest a guideline of $1.00 per club member or a total of $350 and up per club, but, of course, any amount will be gratefully accepted.

Please give our appeal serious consideration as an investment in the future health of your golf course.

Yours sincerely,
Neil J. MacPhee,
Chairman, GAM Green Committee

If your club is not participating in this effort you may wish to show them this letter.

HOW TO BUILD YOUR ASSOCIATION IN 13 EASY STEPS

by Michigan Irrigation Contractors Association

1. Attend every Association meeting you can. Your presence is important.

2. Don't find fault with Association operations; rather, try to make suggestions as to workable improvements.

3. Say "yes" when you are asked to serve on a committee or be an officer.

4. If it happens you aren't asked, continue to think up and propose practical suggestions for building the Association, and you'll soon be noticed.

5. After you are named, attend all board or committee meetings.

6. When you attend meetings, sound off on how things should be done inside the meeting, not after you leave.

7. Work for the Association every chance you get: don't criticize the "Old Reliables" but instead join them.

8. Help make sure all meetings, seminars and conferences are, to the best of your ability, worthwhile expenditures of members' money.

9. If meetings are strictly business, use your ability to help reach wise decisions as quickly as possible, then have fun with members when the business is completed.

10. If you are asked to sit at the meeting table, accept gracefully and happily.

11. If you aren't asked to sit there, make good use of the time this gives you to talk shop with others at the table where you are sitting.

12. Pay your dues promptly when notified. You'll know from your own experience how hard it is to draw up the Association's budget, and how every bit of cash flow helps.

13. Read mail from the Association as soon as it arrives. Return phone calls. Reply to questions asked or opportunities offered as soon as possible.

NINE WAYS TO KILL AN ASSOCIATION

Here are the Nine Commandments for making sure your association meets a certain death:

1. Don't participate beyond paying your dues - let "them" handle things. Then complain that members have no voice in what goes on.

2. Decline all offices and committee appointments - you're too busy for them. Then offer vociferous advice on how "they" should do things.

3. If appointed to a committee, don't work - it's a courtesy appointment. Then complain because the organization has stagnated.

4. If you do attend management meetings, don't initiate new ideas. Then you can play "devil's advocate" to those ideas submitted by others.

5. Don't rush to pay your dues - they're too high anyway. Then complain about poor financial management.

6. Don't encourage others to become members - that' selling. Then complain that membership is not growing.

7. Don't read the mail from headquarters - it's not important anyway. Then complain that you're not kept informed.

8. Don't volunteer your talents - that's ego fulfillment. Then complain that you're never asked, never appreciated.

9. And, if by chance the organization grows in spite of your contributions, grasp every opportunity to tell the youngsters how tough it was, how hard you worked in the old days to build the organization to its present level of success.

from The Buckeye Nurseryman
The Landscape Contractor
February, 1987

VANISHED MAMMALS

Several of Michigan's most interesting mammalian species disappeared with the advent of the non-native American, although in some cases the disappearance may not have been the result of pioneering activities.

Some of these species have already been mentioned in preceding articles of this (Michigan Wildlife Sketches) series. These are the wolverine, fisher, marten, lynx, and elk. It is true that elk have been imported and released, and that a small herd exists in the state at the present, but our native elk are extinct. It is also true that an occasional lynx is taken, perhaps strayed across from the Canadian forests. Both fishers and martens have been restocked in the Upper Peninsula.

In the case of three species, and most interesting species they were, the disappearance was complete, and no reliable reports of their presence have been heard for a century. These are the bison, the caribou, and the puma.

It may surprise many people to learn that the bison, or buffalo, as it was commonly but erroneously called, once roamed the open areas of southern Michigan. Nevertheless, it certainly did so, and was reported by many early explorers and pioneers. It was probably never so abundant and conspicuous in Michigan as it was on the great prairies of the west.

Bison Once Among Most Important

The bison is the largest of American mammals, and was at one time the most important game animal as well.

Everyone is familiar with the story of the slaughter of the bison on the western prairies by Buffalo Bill and other famous characters of the wild west era in American history. After careful research, Ernest Thompson Seton estimated the population of bison in America in primitive times to have been at least 60,000,000 animals. Their range at this time covered some 3,000,000 square miles reaching from the Atlantic to the Pacific, and from Great Slave Lake to the Gulf of Mexico. Yet with the settlement of America, this vast number of animals was reduced to almost zero in less than a century, principally by hunters. In 1900 there were but 800 bison alive in all America, of which 200 were captive animals within enclosures.

On the western plains bison congregated in huge herds when climate and pasture compelled annual migrations. Ordinarily, however, the bands composing these vast assemblages were much scattered, moving about in single file, so that in the early days the plains were crisscrossed by paths worn deeply into

CONTINUED PAGE 17

STOSSEL (Voice-over) In a cup of coffee? Where does he get that?. Well, to put the risks in perspective Ames and his staff analyzed the results of every cancer test done on rats and mice. By comparing the dose that gave the rodents cancer to the typical exposure people are likely to get they came up with a rnaking of the dangers. Pesticides such as DDT and EDB cam eout much lower than herb tea and peanut butter. Alcohol was higher on the list and so were mushrooms.
(interviewing) These natural things, they are as carcinogenic as the chemicals that -
DR. AMES: Sure, sure.
STOSSEL: Incredibly powerful poisons are no worse?
DR. AMES: Right, right, so one raw mushroom gives you much more of carcinogens than any polluted water you're going to drink in a day.
STOSSEL: So you're saying we shouldn't eat fresh produce?
DR. AMES: No, no. Fresh produce is good for you. Here, I'll eat a raw mushroom even though it's full of carcinogens.
STOSSEL: (on camera) Now, many people listening to Ames conclude he's a nut, he's promoting a far-out minority viewpoint. Yet, among serious scientists, it's not a minority viewpoint. Science Magazine published his cancer rankings and published them only after other independent scientists scrutinized and approved his research. We went to even more experts. We showed samples of his writings to scientists at the American Cancer Society and the American Medical Association. It may surprise you that they said, "Yes, Ames is by and large, right." (voice-over) The Environmental Protection Agency, which now is revising its cancer risk assessments, generally agrees with Ames, too, though their spokesman was a little more critical.
DR. PETER PREUSS, Environmental Protection Agency: I think Bruce Ames has a very important message. We don't know today what really causes cancer and what contributes to it, but it doesn't do anybody any good to over simplify the thing, to say it's none of the pollution exposures that are a problem. I don't think the science supports that kind of a sweeping statement.
STOSSEL (voice-over) Ames agrees that his risk comparisons are imperfect because the animal research is imperfect. For one thing, the doses are extreme. That saccharin study was true. The rates got cancer only after drinking the equivalent of 800 cans of diet soda a day. At doses like that, lots of substances might cause cancer, so Ames says don't worry about all of these things. If you do, you're less able to focus on what's really dangerous. And what's that? Ames points to things like cigarette smoking, eating too much saturated fats (interviewing) and, as far as environmental threats, working with asbestos ar living with radon.
DR. AMES: Regulators ought to be working on important problems, so radon coming out of the ground - which is a radioactive gas - might be important, might cause 10,000 cases of lung cancer a year and you'd probably want to work on that. Things that are - that may be causing one case of cancer in the country you don't want to work.
STOSSEL: Does that mean we can only worry about one thing at a time? Couldn't we try to get -
DR. AMES: Oh, sure, we can worry about lots of things but you always want to make lists of waht's most important. People want no residue. Okay, well, again, getting nothing - it costs an enormous amount of money to get from this tiny amount to something even tinier, to get something even tinier, it's where do you stop? Where do you put your money and how do you spend your money to get the most health increases for the dollar.
STOSSEL: (on camera) If what Ames says is true, it has enormous consequences for public policy. When we ban cyclamates people eat more sugar. (voice-over) When we ban pesticides, insects destroy more of our crops and food costs more and sometimes the replacement pesticides prove even more dangerous. And what about when the government evacuates a town like Times Beach, Missouri? Several years ago, the government shut the town down because traces of dioxin were found in the soil.
TIMES BEACH RESIDENT: (comforting crying child) She doesn't quite understand what's happening to her life.
STOSSEL: (voice-over) At great Expense - emotional and financial - the residents were told to move. We reporters were confused about the extent of the danger. (interviewing) I reported on one of the dioxin dumping scares.
DR. AMES: Yes.
STOSSEL: And I was there walking around with the people who lived there and right next to us were the government employees in their space suits, carefully covered heads -
DR. AMES: Iknow, they dress people up just to be - ther again, you go to this extra prudance that everybody gets scared because somebody's in a space suit. If you relate how much dioxin are you getting into you, relative to the amount that does something, it's still was less dangerous as causing birth defects than a beer.
STOSSEL: (voice-over) Now the EPA says dioxin may be 16 times less dangerous than they thought during the Times Beach scare. And what about the well-publicized case of Woburn, Massachusetts? Local chemical companies were accused of dumping TCE in the drinking water. Around that time 16 children got leukemia.
YOUNG BOY: I need to go in the hospital a lot of times and get I.V.'s.
STOSSEL: Robbie and six others died.
(interviewing) Well, what about these clusters of cancer around -
DR. AMES: But that can - so there are clusters of anything, but some of that, most of that's just due to

chance. And so we can take any census district in the United States, it's high in something. There are so many different kinds of birth defects and cancer just by chance thing. So for example, the number of storks in Europe has been going down for years, the birth rate's going down for years. If you plot one against the other, it's a beautiful correlation but it doesn't mean storks bring babies.

STOSSEL: If there was more leukemia around Woburn, Massachusetts, it doesn't mean that the -

DR. AMES: The water in Woburn, Massachusetts was safer than ordinary tap water.

STOSSEL: (voice-over) It was never proven that the chemicals in the water caused the leukemia but when the Woburn families sued the W.R Grace Company, saying it was responsible for the pollution, Grace avoided a trial by paying them a reported 8 million dollars.

(interviewing) Why do the companies pay?

DR. AMES: There are always people willing to say - and make good money - "but yes, that part per billion caused that lady's cancer." And there's a whole group of professional witnesses that'll do that. And juries tend to go to the big pockets so if there's a company and there's somebody who has a case of leukemia - "oh well, the company can afford it."

STOSSEL: (voice-over) And then there's the most famous case, Love Canal in upstate New York.

LOVE CANAL RESIDENT at meeting: Quit using me as a guinea pig! Let me get my family out of there!

STOSSEL: (voice-over) Everyone was certain that toxic wastes there had already caused birth defects and cancer. Houses were bulldozed. The government moved everyone away from the dump but several years later the Center for Disease Control did a more scientific assessment of the dangers and said the cancer rates of Love Canal residents were no higher than average. It did say the studies should continue.

(interviewing) How do you know that 20 years from now there aren't going to be real chemical clusters, cancer clusters around chemical plants for -

DR. AMES: Well, because we're so much - I mean, modern life is so much safer than life - People forget, back in 1900, they have this view of idyllic life, but the streets were full of horse manure and there was more dirty smoke pouring out of chimneys everywhere and people were dying at age 40. I mean it's a - We are so healthy and life is so clean compared to what it used to be. And a lot of that healthiness is due to modern technology.

STOSSEL: This is why some of your critics say, "He's in bed with industry."

DR. AMES: No, I made it a policy not to consult. I don't get any money from industry, I don't testify at law trials, law cases.

STOSSEL: But you always take industry's side.

DR. AMES: Well, in this case, I think that science is right, that they're being blamed for a lot of things that they didn't do.

STOSSEL: (voice-over) Ames is fighting a lonely and unpopular battle. Although many scientists agree with him, most of them keep fairly quiet about it. His opponents - environmentalists and consumer advocates - get much more media attention and it's doubtful that Ames will ever convince them. Speaking for the Sierra Club, Carl Pope.

CARL POPE, Sierra Club: There are lots of natural carcinogens, as Dr. Ames says, but there's no reason to loas the system up with lots of new ones. Once you know the stuff causes cancer, you ought to be careful with it. You shouldn't use it where you don't need to and you ought to warn people.

DR. AMES: That's counterproductive because then it tells - gives people the wrong message and they'll be sitting worrying all the time. You're not going to rid the world of carcinogens because there are just way too many everywhere.

(Clip of demonstrations against PCB's, dioxin)

WALTERS: John, I must say I found this report amazing. I mean, if the American Cancer Society and the AMA, for example, agree pretty much with Dr. Ames, why is this such news?

STOSSEL: Yeah, I was astounded to find how much agreement there was. I think we in the press - many of us - have been irresponsible about these things. We consumer reporters especially often report on a scientist's accusation that this substance causes cancer and make a big scare story out of it without really checking to see how good the research was.

WALTERS: Well, does this mean that we don't have to worry about anything? I mean, you know, those of us who are eating organic food and don't want to eat a sprayed apple or something, we don't worry about anything?

STOSSEL: No, I don't think Ames is saying that. He's just saying we should make rational decisions about this. Certainly radon, working with asbestos is dangerous, but before we decide where we're going to spend our money we should look at these things, not emotionally but based on what the science really is.

WALTERS: Well it's news to me and I'm sure it is to a lot of people. Glad to hear it.

DOWNS: Sensible. Thank you John.

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the soil; especially deep to and from watering places and over mountain passes. The early explorers of the plains and mountains were thus able to follow "buffalo paths" nearly everywhere they wanted to go. The speed and agility of these heavy creatures, with big bulls weighing a ton, was astounding. They also swam well, and crossed large rivers without hesitation.

Bison were remarkably harmless, considering their size and strength. Hunters on foot and on horseback entered the herds with little precaution, and despite considerable pawing and snorting by the bulls, were seldom molested. This behavior, so different from that of most wild cattle, is explained by their gregarious intincts, leading them to brunch together against danger, and also by the lack of large predators on the American Plains. Nothing to compare with the lions of the African plains was found in America. Hence, individual defensive action was lacking in the American bison, and his passivity and herd instinct made him an easy prey for men with guns.

The Woodland Caribou, American counterpart of the North European and Asiatic reindeer, occurred over much of Michigan in early days, although it was probably never numerous. The last caribou was recorded on Isle Royale around 1900. Caribou are midway in size between elk and white tailed deer. Both sexes possess palmate antlers. They are wandering animals, keeping on the move in search of food, although the woodland caribou does not carry on the great migrations characteristic of the Old World reindeer and the American caribou of the Barren Grounds. Unlike other members of the deer family, the caribou is not confined to yards in winter, for its big, widly-spread feet enable it to travel over the snow instead of plowing through it. Woodland caribou were never important game animals in Michigan, even to the Indians before the coming of the non-native American.

Puma Once Found Here

Perhaps the most interesting of our vanished mammals in Michigan was the puma, also known as the cougar, panther, painter and mountain lion, and by other local appelations.

The puma is one of the handsomest of the cats, and also possessed the greatest north and south range of any land animal, once being found from Alaska to the tip of the South American continent in Patagonia. Naturally, one would expect to find great variety of size and color in a creature which ranged from the Atlantic to the Pacific and from Alaska to Patagonia. Yet this is not the case, and few species show such uniformity. Adult puma have no spots or stripes, and the upper parts are of a uniform hue, which may vary from a pale foxy red to a slaty blue. This color variation, as previously stated has nothing to do with sex, age, season, or locality. The throat, belly, and inside of the legs are white. As to size, apparently pumas never exceeded eight feet from tip of nose to tip of tail, with the average about seven feet, and a weight of about 200 pounds. Pumas are lithe, beautiful beasts, seldom seen by man except when

CONTINUED PAGE 21

GREATEST SHOW "ON TURF"

Wilkie Turf Equipment Division, Inc. of Pontiac, Michigan has announced the details for their very popular "Greatest Show on Turf", the largest turf equipment exposition in Michigan. This year's event will be held August 25, 1988 from 11:00 a.m. until 5:00 p.m. in the rooftop park at the Phoenix Center in downtown Pontiac.

This will be your opportunity to see the most complete line of turf maintenance equipment available from any turf distributor. In addition to plenty of food, drink and good times, you will be able to meet first hand with factory representatives from the TORO Company, Olathe Manufacturing Co., National Mower Co., Turfco Manufacturing Co. and Maibo, Inc.

Wilkie Turf will additionally have representatives from their Parts and Service Departments to talk with you and answer any questions you may have. For further information, contact Kurt A. Kraly, Commercial Products Manager - Wilkie Turf at (313) 373-8800.

P.S. We have it on good authority that there will be a few surprises at the show, including some new, never before shown equipment!

THE VALUE OF A SMILE

It costs nothing, but creates much.

It enriches those who receive, without impoverishing those who give.

It happens in a flash and the memory of it sometimes lasts forever.

None are so rich they can get along without it, and none are so poor but are richer for its benefits.

It creates happiness in the home, fosters good will in a business, and is the countersign of friends.

It is rest to the weary, daylight to the discouraged, sunshine to the sad, and Nature's best antidote for trouble.

Yet it cannot be bought, begged, borrowed or stolen, for it is something that is no earthly good to anybody till it is given away!

Found in the Carolinas Newsletter

1988 MSU TURFGRASS FIELD DAY

BY Dr. Bruce Branham

Please reserve Thursday, September 1, for the Michigan State University and Michigan Turfgrass Foundation field day, trade show and equipment auction. Registration for the field tour will begin at 8:30a.m. at the Hancock Turfgrass Research Center at the south east corner of Farm Lane and Mt. Hope Roads. At 9:15 a.m. Dr. Eldor Paul, chairperson of the Crop and Soil Sciences Department, will welcome the group, and at 9:30 a.m. the field tour will begin.

This year we will conduct two separate, concurrent field tours, one focused on golf course management and a second on lawn care and maintenance. Each tour will have seven presentations and there will be time after the tour is over to crossover and hear presentations from the other tour. We believe this format will be more efficient and allow you to concentrate on the areas in which your interest lie.

Following the field tour, we will move across to the trade show. The trade show will begin at 11:00 a.m. and last until 2 p.m. Please take time to visit each vendor as their participation sponsors thr field day activities including the catered lunch. Lunch will be served at noon and will feature a roast pig barbecue. Price of the luncheon is five dollars and represents the only cost associated with the event. Tickets can be purchased at the time of registration.

The auction starts at 2 p.m. featuring excellent values on new and used equipment. The auction has become an event that is a lot of fun; please plan to participate. The 1988 MSU/MTF Field Day should be the best ever. Tell a friend or colleague about the field day and plan to attend.

TURF INSECT RESEARCH REPORT

DAVE SMITLEY
Department of Entomology
Michigan State University

In the last several years a new biocontrol product has been developed for control of grubs in turfgrass. The biocontrol organism is a nematode pathogen of soil insects. This nematode, **Steinernema feltiae**, only attacks insects, and is not harmful to plants. At Michigan State, along with researchers at other universities, we are attempting to evaluate the potential if the nematode as a practical product for the turf industry. In spring and fall research trials, nematodes from Biosis, Inc. provided a level of control similar to diazinon and other insecticides tested. However, the best insecticide or nematode treatment in those tests provided only 50% control of grubs. The nematodes seem to be a promising product. More testing is planned for the 1988 growing season.

The U.S. Environmental Protection Agency is proposing not to intitiate a special review of the pesticide **2,4-D** at this time after determining that existing epidemiologic and animal oncogenicity data are inadequate to assess the carcinogenic potential of **2,4-D**.

In addition to **2,4-D** (2,4-dichlorophenoxyacetic acid) the agency is also proposing not to conduct a special review of the **2,4-D** structural analogs of **2,4-DB** (2-[2,4-dichlorophenoxy] butryic acid) and **2,4-DP** (2-[2,4-cichlorophenoxy] propionic acid).

EPA's action is based on a consensus of opinion from EPA scientists, national experts on epidemiology and the Scientific Advisory Panel established by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Taking into consideration all the evidence now available, EPA believes that continued use while waiting for other data will not pose a significant hazard to the environment or public health.

DACONIL FOUND "NOT GUILTY"

On May 9, 1988 after a lengthy court battle, Daconil Fungicide was found "not guilty" of any complications in the death of Navy Lt. George Prior.

Lt. Prior died in September, 1982, 14 days after playing golf on the Army/Navy Country Club after the golf course had been sprayed with Daconil.

His widow tried to prove his exposure to Daconil was the cause of his death.

VANISHED, CONT.

pursued and treed by packs of dogs. Their natural prey seems to have deer, but with the development of agriculture and stock raising the big cats learned to take cattle and horses. Such activities soon brought them into conflict with man's interests, and led to their destruction except in mountainous areas where hunting is costly and difficult.

Almost Incredible Feats

The strength and agility of the puma are legendary, and some of the feats attributed to them seem almost incredible. However, we must remember what our own domestic pussy cats can do, and then multiply that by twenty, since a puma is in all physical respects a cat, but twenty times as big and powerful. This is not quite true of a lion or tiger, which are modified cats, pumas are capable of an amazing burst of speed, but soon tire. Dogs are left behind as though standing still, but dogs will eventually tire out the puma and tree it. Like cats, pumas leap tremendous distances, 30-foot leaps having been frequently reported on level ground.

One of the most curious features of the puma's life history is his attitude toward man. Here is a big, powerful, courageous predator, able to attack man with success similar to the lion, tiger or leopard. Yet incidents of attack by puma's on humans are incredibly rare, either in North, South or Central America.

The young are born in late winter or early spring, and usually number from one to four. The kittens are spotted, but the spots are lost as they grow up. They are weaned at three or four months, but may continue to travel with the mother until they learn to hunt for themselves, which may be when they are bewteen one and two years of age. Pumas have lived to be twenty years old in captivity and are believed to reach a similar age in the wilds unless killed by man or by accident.

Probably the puma reached his greatest abundance in the hilly wooded country bewteen the Mississippi River and the Allegheny mountains, which teemed with deer and wild turkeys, and offered plenty of rocks and thickets for denning. Another area of abundance was between the Coast Ranges and the Pacific from northern California to southern Alaska. At present the puma is most abundant in the Sierras, Cascades, and Rocky Mountains where deer are still fairly numerous and where hunting is restricted by inaccessibility and the difficult terrain.

From Michigan Wildlife Sketches by G.W. Bradt and Charles E. Schafer

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"SALVATION" JONES - **On Keeping The Flock Happy**

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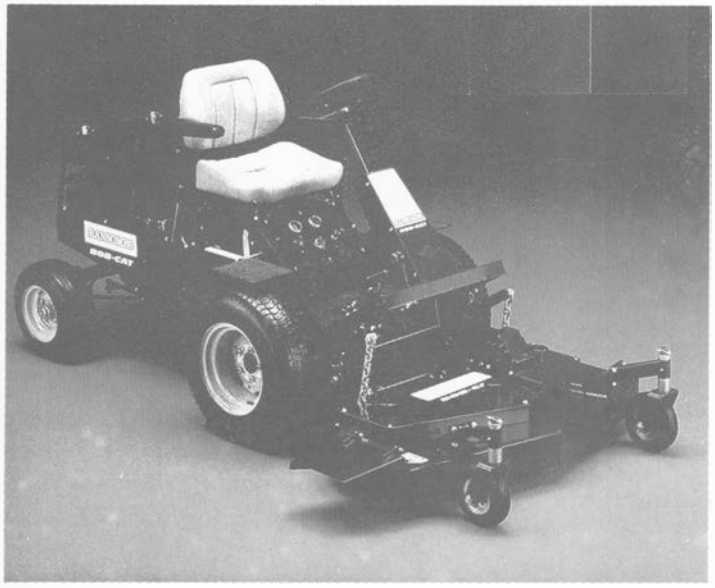

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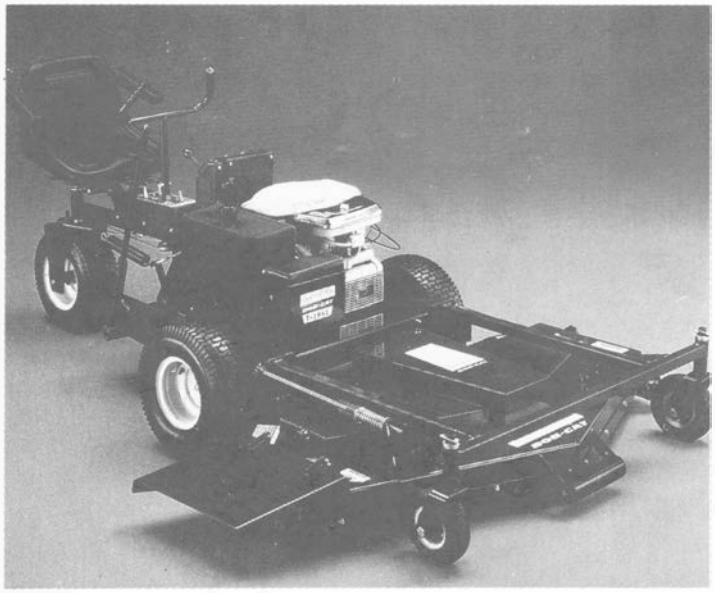

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PECK HONORED

On friday, June 17, 1988 - Harold Peck, long time superintendent, was honored for his many years of service to Battle Creek Country Club.

Though Harold has been Grounds Superintendent at the Battle Creek Country Club for 41 years, he remembers with clarity the first day in his new home at the club, October 23, 1922. His father, Andy Peck, Greens Superintendent, was planting elm trees at No. i tee and at the practice tee. The family had moved into a home just north of the old club house.

Says Harold, "My boyhood was spent playing with my brothers on the golf course and in the woods in back of the course. Summers we'd go swimming and fishing nearly every day but we'd also help with the garden, take care of our chickens and help Dad milk the cows."

As the five Peck boys grew older, they all helped their father on the course, taking particular delight in driving the club's 1928 Model A Ford pick-up truck, which Andy used on the grounds.

When Harold was fourteen, he went to work doing odd jobs for two club members - Dr. Sleight and Dr. Mustard. He remembers being paid twenty-five cents an hour.

Harold graduated from Lakeview High School in 1941 and immediately went to work at Clark Equipment Company. During World War II, he worked part-time for his father at the golf course "because help was hard to find."

In 1946, Harold was hired as assistant to his father and in November, 1947, when Andy Peck passed away, Harold was named Golf Course Superintendent.

Harold recalls that in the early days the fairways and tees were mowed only once a week, and the greens were mowed four times a week. He recounts with pride rebuilding every tee on the course, building new sand traps an d increasing the fertilization, weed and disease control, plus installing a modern, automated watering system which his son, Marty, helped engineer. Among "the toughest jobs" Harold has supervised on the course were filling and reconstructing of numbers 6, 13, 9, 10 and 14 fairways, along with construction of a pond and rebuilding the creek.

CONTINUED NEXT PAGE

A GOOD decision is usually arrived at after considering all the alternatives. How does one go about imagining all possible alternatives?

Afew years ago a professor at Stanford devised a check list of nine questions which can be applied to any problem. Used as a self-quiz, the questions spur imagination.
They are:

1. Is there a new way to do it?
2. Can you borrow or adapt?
3. Can you give it a new twist?
4. Do you merely need more of the same?
5. Less of the same?
6. Is there a substitute?
7. Can the parts be rearranged?
8. What if we do just the opposite?
9. Can ideas be combined?

PECK, CONT.

"Through the years," Harold recalls, "I have cut down about 800 elm trees, most of which my dadhad planted, but I have planted over 2,000 new trees."

Harold Peck and his father, Andy, have played an integral and important role in the development of the B.C.C.C., going back to 1919 when the course was moved from the Leila Arboretum to its present location. Andy helped construct the "new" golf course, and Harold has carried on the family tradition of course maintnenance and construction.

Of this long association by father and son, Harold says, "The transition that has taken place from the old course to the present, over 69 years, has resulted in a beautiful golf course that we all can be proud of."

He continues, "My position has been very enjoyable as I've been able to do things 'I've taken pride in, plus keep up the home that we raised our family in."

Harold and his wife, Jayne, who were married in 1944, have two grown children, Andrea and Marty. In retirement, Harold wants to continue work on his garden, fish and hunt, and spend time visiting his daughter in New York and his son in Wisconsin.

We the members of the Battle Creek Country Club wish you and Jayne a happy and healthy retirement!

Good Luck Harold from your many friends of the Michigan and Border Cities GCSA.

GCSAA NEWS

The United States Golf Association, the O.J. Noer Foundation and Michigan State University have come together to create the Turfgrass Information Center (TIC). The Center has been successful in building and maintaining the most extensive collection of turfgrass and golf turf-related information in the country. It is the ultimate intent of the project to be able to deliver to any interested party, anywhere, that information at a nominal cost. The impact of this project on not only turfgrass research but also on the ability of Golf Course Superintendents to enhance their own environments is of major import.

To build the database, current research, technical and professional journals, monographs, conference proceedings and newsletters relating to turf are indexed, abstracted and entered into the collection. We need, however, to ensure that all such sources of information are available to the "File" and for that, we are asking your help. It is vital that copies of materials such as those listed above, including your newsletter if you publish one, be forwarded to the Turfgrass Information Center. Please plan to include the Center on your regular mailings and forward all materials to:

Mr. Peter Cookingham
Turfgrass Information Center
W-212 Library
Michigan State University
East Lansing, Michigan 48824-1048
(517) 353-7209

or, if you have been advised to do so by TGIC, to the Serials Acquisition Unit of the MSU Libraries.

Thank you for your assistance in this matter.

John Segui, CGCS, president of the Golf Course Superintendents Association of America, (GCSAA), presented a $15,000 check to William C. Battle, president of the United States Golf Association (USGA), during the week of the U.S. Open - Brookline, Mass. The funds will support research to develop improved turfgrasses.

GCSAA and USGA are participating jointly in a 10-year research program designed to reduce water use and maintenance costs for America's golf courses.

"The goal of using 50 percent less water is a top priority in our industry," said Segui. "It is vital to our interest in preserving our natural resources that this type of research be properly funded to develop the necessary technology."

Segui noted that approximately 25 colleges and universities throughout the United States have received funds from the USGA/GCSAA Turfgrass Research Committee since the joint research program was initiated in 1982.

Overall, GCSAA's Scholarship and Research Fund has awarded more than $750,000 for turfgrass research and scholarships since 1956.

For further information contact Bob Still, GCSAA media relations manager, 1-800-472-7878.

WHY DO SUPERINTENDENTS BELONG TO GCSAA?

They are proud of their profession and want to improve it.

They recognize that a strong organization can better represent the combined interest of the profession through its unified voice.

They are convinced that professional growth can best be achieved through the uniting of similar minded colleagues.

They realize that their active participation in the Association can shape the future of their profession.

They have discovered that the Association's activities, programs and publications can keep abreast of the latest technological information.

They believe that a strong Association can strengthen their regional and local turf organizations and programs.

They understand that their personal participation can assist other Superintendents and the turfgrass industry.

They know that the resources of a vast organization can only act to increase their professional stature, knowledge and abilities.

They appreciate the opportunities they will have to attend national and regional educational assemblies, developed to meet their specific needs.

They know that thier fellow Association members are a valuable asset whenever information is exchanged.

They realize that they can no longer work alone in a vacuum, but must share the insight, experiences and technical information of as many other professionals as possible.

doing well.

The permanent cool season grasses, such as Tall Fescues - Kentucky Bluegrass, Perennial Ryegrass and Creeping Bentgrasses all seem to be doing well as long as they are culturally managed properly. They can withstand long periods of drought. But, at some point in time, they too will die.

Heavy cart traffic may have to be controlled a little better in some of the dormant areas to prevent the complete destruction of the above ground portion of the plant.

In some cases, you may want to put up the "NO SMOKING" signs. You may even consider using colorants to perk up the appearance of your dormant grass. These could last up to two months. The use of turf colorants is quite common in several areas of the U.S. and if you can't find a good one locally, you could call some of your friends in the desert southwest.

THINGS IN THE FUTURE

Better water conservation - we cannot take this resource for granted. Drought resistant grasses - a joint venture of the USGA and GCSAA - some work has been done - more must be done.

IRRIGATION

Proper irrigation - water deeply and infrequently. Match application rates to soil infiltration rates (use repeat cycles to prevent runoff). Repair faulty irrigation equipment.

WETTING AGENTS

Fertilization - do not apply nitrogen during late Spring, early Summer - use light, frequent applications (summer application leads to higher water use). Apply potassium if deficiencies are suspected - but, be careful about fertilizing during the actual drought because you may increase the salt index to the point of causing desication.

MOWING

Raise mowers - usually the higher the height of cut on turf, the deeper the root system. Keep mowers sharp - there will be less damage to the wound.

AERIFICATION

A good aerification program early in the season will allow better penetration of water into the soil.

Each turfgrass manager has his or her own set of problems and at the same time, his or her own set of opportunites. We should consider this summer a "learning experience" that will enhance our careers. I hope you all took a lot of pictures and reams of notes. It will be fun to make comparisons this winter.

Good Luck

HAHN SPRAY-PRO 44, IT WORKS. AND WORKS... AND WORKS...

Greens or fairways... the Spray-Pro 44 with its big high flotation tires to protect your turf, converts in minutes to a Sprayer, Spreader, Aerifier or Utility Bed. Designed for easy on, easy off switching and year 'round service.

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the aerifier . . .
Hydraulically controlled from operator's position. Cultivates a full 42 inch width. Cleanly penetrates to 3 inches, depending on soil conditions. Optional Slicing Blades to open the soil with a minimum of turf disturbance.

the sprayer . . .
160 gal. poly tank, 3-section boom for 18-1/2 ft. coverage. Spray with 1, 2, or all 3 booms. Fingertip control of all spray system functions.

the spreader . . .
Precise rate settings for a uniform pattern. Top dress sand in 12 to 20 ft. swath, apply seed, fertilizer and lime 20 to 40 ft. Up to 500 lbs. per minute.

the utility truck bed . . .
Reinforced steel, 1500 lbs. capacity. Converts to dump bed with addition of Hydraulic Package.

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