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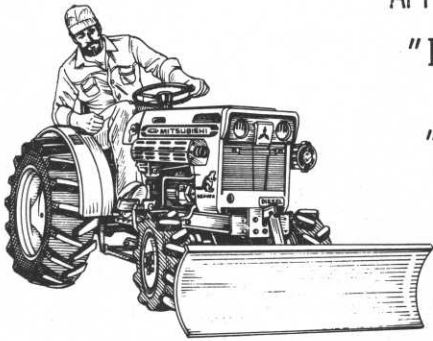
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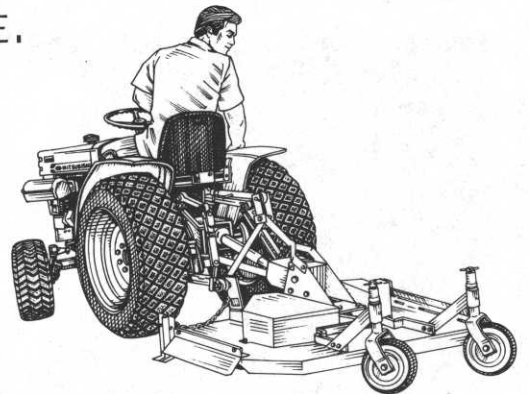
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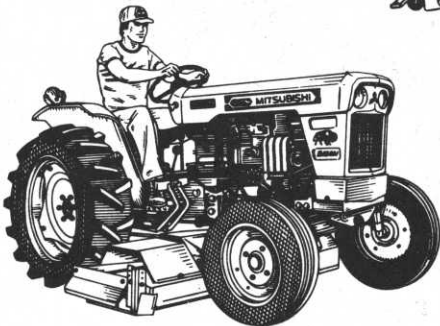
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**FROM THE  
PRESIDENT'S  
DESK**

**DENNIS  
HENDRICKSON**

Now that we are into the golf season, the damage done by our unusual winter has become the center of our concern. We all need to have patience while we wait for recovery. Communication with fellow superintendents and golfers is the key to getting through these times. None of us may have the answers to all the "whys" and "hows" but there is a definite benefit in talking over the possible causes and solutions.

All of us who attended the April meeting of the M.G.C.S.A. at the Mankato Country Club had a very educational day. Although the weather did not cooperate for much outside activity, the meeting and socializing which followed made it a very worthwhile day. Dr. Taylor's presentation on sands for top-dressing certainly stimulated thought and discussion. Thank you to "Boots" and everyone at the Mankato Country Club for an enjoyable day.

Next month's meeting will be at the St. Cloud Country Club with Host Superintendent Kerry Glader. Again, an interesting program is planned and, hopefully, the weather will cooperate so we can see the golf course as well.

The membership roster is presently being prepared. If you did not get your dues in on time, you may not be included in the first printing. There will be quarterly additions to the roster this year so it can be kept up to date. Also, remember it is up to the individual member to inform the office of any changes in address or employment. If you are not receiving your mail, check with the M.G.C.S.A. office.

If you have positive or negative feelings about our monthly format, be sure to let the members of the Board know. We want to fill the needs of the membership. See you all in St. Cloud on May 11.

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# ST.CLOUD C.C. HOSTS MAY MEETING

By KERRY GLADER, HOST SUPERINTENDENT

The St. Cloud C.C. was started in the early 1900's at the present Veterans Hospital location in St. Cloud. In 1919 the club purchased its present location next to the Mississippi River. The club's first greenskeeper, Chris Nelson, began work on the course which was next to his farm which includes our present back five holes as well as part of the Mississippi River flood plain. In 1946 Cliff Vohs, a life-member of the MGCSA, began work as head greenskeeper, holding his position for thirty years. In 1958 and 1959 three holes were reconstructed on an old dump site and the additional nine was constructed. In 1968 our new clubhouse was built with our practice green being built on pure sand over the old clubhouse site. Our swimming pool was bought from the Edina Country Club, cut in half and trucked up to St. Cloud.

We have hosted in the last ten years the 1971 and 72 State PGA Tournaments, the 1971 MGA Junior Championship, the 1973 MGA Amateur Championship and the largest State Pro-Am which was held September 11-14, 1980 and will be continued annually. We are currently instituting a sand topdressing program which was reaffirmed by the August 1980 visit by the USGA North Central Greens Section agronomist, Stanley Zontek, upon his assessment of our soil conditions. Since 1979 we have upgraded our equipment inventory, installed an automatic greens irrigation system with improved pumping capabilities, and are currently striving to upgrade our greens and tees. Overall, we maintain our 18-Hole course, the club house grounds, the swimming pool, six tennis courts and our golf cart fleet.

The St. Cloud Country Club is in the southwest portion of St. Cloud, just about one-half mile from I-94 at the St. Augusta exit. I would like to invite all members and non-members in our area to visit our course on May 11, 1981.

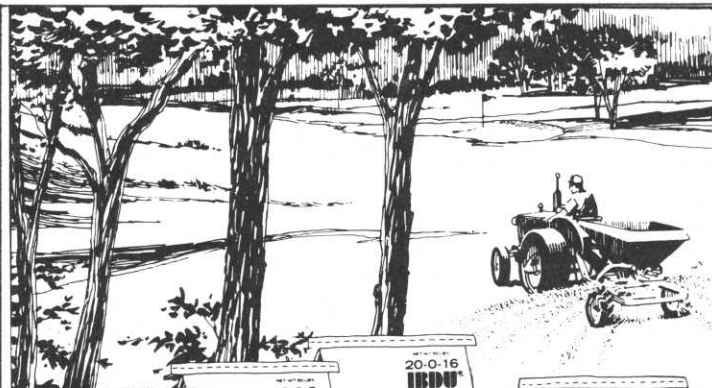
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# SAND FOR TOPDRESSING

By DON TAYLOR, Extension Specialist-  
Turf, University of Minnesota

The particle size of sands to be used in topdressing greens or in mixtures for rebuilding greens is an item of interest to many golf course superintendents. Accordingly, sand samples which have been used in the past or have been proposed for use were obtained and the particle size determined using a series of sieves. I thought it would be of interest to many of you to compare the sands in order to choose sands which meet your requirements.

Table 1 lists the source of the sands tested and Table 2 shows the results of the particle-size analyses. Some companies may call the fine sands listed mortar or masonry sand.

A brief look at literature from universities across the nation indicate disagreement on the specifics of a good sand to use, but almost everyone agrees that a high percentage of medium sand is desirable. Too much very coarse sand and gravel will lead to excessive equipment wear and poor putting quality following topdressing. Too much very fine sand and perhaps even fine sand can lead to problems with insufficient drainage and air-filled porosity.

Some of the micronutrient analyses are still being run and hopefully next month I'll have a table showing the pH and the micronutrients in these same sands.

In choosing the sand you use, some things you need to consider are: purpose of the sand program, frequency of application, rate of application, cost of sand, availability, amount of traffic and available time to topdress. Feel free to contact me about specific questions you have regarding these sands.

Table 1. Topdressing sands from Minnesota

#	Source
1	Fine sand from Northwestern Aggregates Inc., Burnsville
2	Fine sand from J. L. Shiely Co., St. Paul
3	Fine sand from Mueller & Sons Inc., Shakopee
4	Fine sand from Fischer Sand and Aggregate Co., Apple Valley (Pit #6)
5	Fine sand from Granite City Ready Mix, St. Cloud
6	Fine sand from Hardrives Inc., St. Cloud
7	Fine sand from Arsenal Sand and Gravel Co. Inc., Arden Hills
8	Granusil #40 from Unimin Corporation, Le Sueur
9	Silica sand from J. L. Shiely Co., Shakopee*
10	Silica sand from Twin City Silica, Lake Elmo

\*This sand will not be under production until around September 1981. The final product may differ from the sample tested here.

Table 2. Grain-size distribution of topdressing sands from Minnesota.

#	Very Coarse Sand & Gravel > 1.0 mm	Coarse Sand 0.5-1.0 mm	Medium Sand 0.25-0.5 mm	Fine Sand 0.1-0.25 mm	Very Fine Sand or Smaller < 0.1 mm
	% by weight				
1	21.1	30.8	35.8	10.4	2.0
2	21.4	26.0	36.4	15.1	1.1
3	15.0	23.9	35.7	23.7	1.7
4	8.8	21.0	44.0	22.1	4.2
5	5.4	35.1	50.9	7.8	0.8
6	2.3	19.3	53.3	22.6	2.5
7	1.4	21.3	59.2	15.7	2.4
8	0.0	1.8	94.2	3.9	0.1
9	1.5	12.8	49.3	35.5	1.0
10	0	0.5	26.2	67.5	5.8

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# IF THE FROG CROAKS . . . . .

By JIM ANDERSON, SUPERINTENDENT  
LOST SPUR COUNTRY CLUB

If you missed February's M.G.C.S.A. meeting, you missed an informative talk by Dennis Feltgen, KSTP meteorologist. Because of the need for a Superintendent to know the upcoming weather and Mr. Feltgen's talk, I immediately went back to my club and proposed to the board members that we park the triplexes outside and set up our own weather command center in our shop. We could put a Doppler radar system by the irrigation parts bin, a W.A.R.N. system on the work bench and a weather computer over the welder. To say the least, the board was not impressed with my needs to forecast weather and stressed budget, the famous catch-all for not wanting to buy certain pieces of equipment. With this rejection in mind, I decided to look toward other inexpensive and commonplace means of forecasting weather.

Through word of mouth and research I found the sky could be used as a weather informer. You've heard the saying, "Red sky in the morning, sailors take warning". This means that high pressure, dusty air has been pushed eastward of you, possibly letting in more humid air. Rain is especially probable within a couple of days after a red morning if you see high, wispy stratus clouds thickening the day after a pink-hued sunrise.

A gray sunset and pink sunrise put two rainy signals in sequence: "Evening gray and morning red, shower rain upon your head." A gray evening sky following a cloudy day offers strong evidence of inbound rain. The sky is loaded with humidity and droplets looking for a place to condense.

Another saying dealing with sailors and weather is "Red sky at night, sailors delight". This indicates fair, high pressure to the west. Dry dust particles suspended in the air give the air a pinkish glow. However, a vivid crimson in the sunset sky indicates high humidity to the west and suggests rain. Most weather systems in our area move in from west to east. Ice crystals in the high atmosphere west of you act like a prism, showing you the red spectrum from your point of view. One of the surest signs of dry air is a glimpse of the green spectrum just as the sun's rim dips below the horizon.

For those who are not into watching sunsets and sunrises, there is another weather indicator above you - clouds. High clouds are a sign of light humidity in the air and a high "dewpoint". A high cloud ceiling indicates that air has to rise a long way and cool considerably before reaching the dewpoint and condensing. A lowering cloud ceiling indicates rain. You'll see the ceiling drop, for instance, when a warm front advances over you.

Cold front clouds foretell a quick, violent storm. Your first warning is puffy cumulus clouds that grow thicker and more turbulent. Then, usually in the west, you'll see a mass of dark clouds, often capped by an "anvil" tip pointed your way. The wall of clouds boils, crackles with lightning and pushes a lower, flat-bottomed "line squall" cloud ahead of it. As you face such a system invading you from the west, the surface wind will often sweep out of the south. Clouds overhead may be moving a different direction than the surface winds. Then the wall of thunderclouds hits, usually moving 30 mph or faster. The wind veers toward the north and by that time you've probably got the pedal to the metal on the Cushman and heading for the shop. Cold front clouds aren't very subtle, but they vigorously scrub the heavens and bring you clear cooler air in their wake.

The first clouds showing up on the other edge of an advancing warm front are the cirrus, up above 18,000 ft. where ice crystals form. At night, cirrus-"mares' tails"- give the moon a soft, out-of-focus glow, then patches of lower clouds move in. You won't actually

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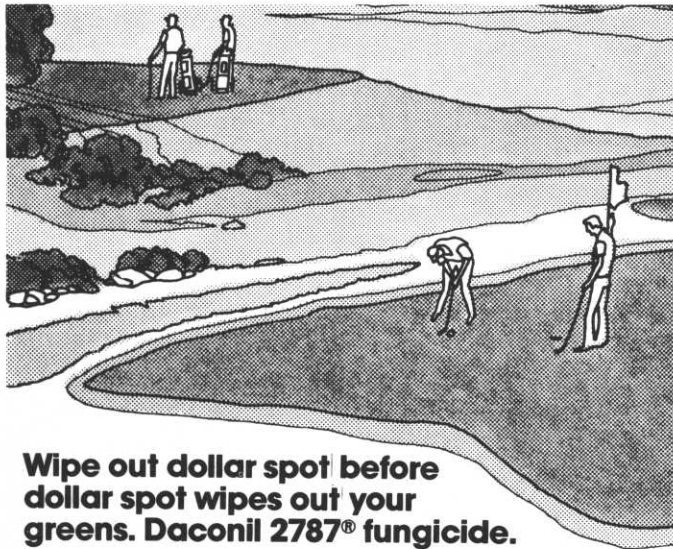
see a sloping wedge with a warm front because the slope is gradual, about 1 in 200. The leading edge of a warm front may be 200 miles past you before the ceiling lowers from 18,000 ft. down to 8,000 ft. These lower clouds are altocumulus. Surface turbulence and increasing humidity combine to make them white and fluffy at first, then gradually thicker and darker. Now you can step up the odds to about 30% for rain within 24 hours. The satellite photos on TV at this stage of a warm front's advance will usually show a heavy overcast not far behind the gathering altocumulus. These are stratus, a laden, dull overcast that seems to absorb the altocumulus. Gradually humidity increases and a slow drizzle begins as the dragging tail of the warm front starts to pass. All the signs of warm front activity can tell you 24 to 48 hours ahead that a long, slow, fertilizer soaking rain is likely.

If you're not really into looking at clouds, there are other methods of weather forecasting. One of these are barnyard animals. At the time of this writing I have been unable to convince my greens committee chairman the need of a herd of cattle, hogs, sheep, horses or goats. If you have a more liberal chairman, here are some animal characteristics to look for in predicting weather:

**CATTLE:** A sharp drop in atmospheric pressure makes cattle more excitable and aggressive. As a storm nears, a cow herd on pasture or fairways will bunch up and graze earnestly; calves will stick closer to their mothers. Range, or rough, cattle tend to graze downhill toward valleys, often with their backs to the wind. In a long warm-front drizzle, cattle continue grazing.

**HOGS:** Traditionally, hogs have been able to "see the wind". Pastured hogs trot anxiously along fence lines as a low intensifies. Some start looking for shelter, root around, don't replace divots or carry wisps of grass as an instinctive throwback to the nestbuilding of wild ancestors. Confined hogs may become noisier or more frustrated, fighting more often.

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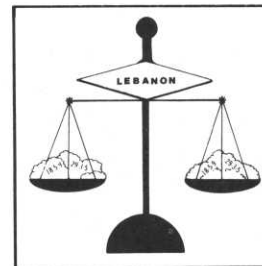


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SHEEP: When sheep scatter widely to graze, they sense high pressure and fair weather. If they herd together and become skittish, grazing on the move, watch for rain.

HORSES: Onset of a frontal system sets them running, kicking up their heels, mock fighting. If it's a gradual, long rain, they'll continue grazing. If it's a short, violent storm associated with a cold front, horses may move to shelter.

GOATS: Goats are generally more canny farm animals that'll look for shelter beneath a wind-break or in a building as a storm approaches. They're likely to bunch up and bleat more than normal.

If you have a greens chairman like mine or a long drive to the south St. Paul stockyards, there is one other way of weather forecasting. These are all around you and basically all you have to do is watch and listen for the wild animals.

FROGS: Frogs croak more when rain is on the way. Before barometers, Germanic country folk kept green tree frogs in jars and aquariums as living barometers. If the frog kept mostly out of the water, that indicated fair weather. If he retreated into the water and croaked, rain was due.

FISH: "When fish refuse both bait and fly  
There surely is a rainstorm nigh".

So goes the saying. Unfortunately, most fish apparently haven't heard the wise saying or they are confused because there is no sure weather signal that guarantees good fishing. An active shower, with rising barometric pressure after passage of a cold front, can also start walleye, bass and other game fish feeding on the insects washed into the water. Now if you stand out in the rain and catch nothing, remember that this information comes from experienced fishermen, not scientists.

BIRDS: Birds tend to flock together and roost or fly low to the ground before an advancing storm. Robins take shelter in trees and bushes. Humid, low-pressure air is less dense and harder to fly in. On fair, high-pressure days, birds fly higher. Crows which especially hate to fly in bad weather, perch when a storm approaches. Folk wisdom listens to crows "calling for rain". Sparrows are likely to assemble on electrical wires and chatter about an incoming storm. If it's a warm front with leaden skies, this will happen up to a

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day or more before rain arrives.

**INSECTS:** Crickets are nature's thermometer. Count the number of times a black field cricket chirps in 14 seconds. Then add 40 to that count. You will have a total within two or three degrees of your thermometer reading. If not, your thermometer or your counting is off, not the cricket. Remember, the cricket may be in a cool corner while your thermometer is up where it's warmer. When the temperature drops to the mid-50's, bees get mean, ants stay underground and flies gangup and struggle to pry open your screen door. Flies also get either more desperate or irritated before a storm. They get "sticky", biting ravenously. Ants reinforce their hills and cover their holes before a storm. A line of ants carrying eggs to higher ground is a sure sign of a gully-washing, sand-trap-eroding, toad-strangling storm. Night crawlers, of course, show up after a rain, but they're also more likely to emerge on nights before a rain. Last, but not least, we get to the wooly bear caterpillar. The wooly bear caterpillar is an inch or two long, including fuzz at both ends. There's some evidence that the wider his brown band in the middle, the milder the winter. If the black on both ends crowds the band down to less than a third of his body length by autumn, expect a chilly winter.

All of these weather forecasters are somewhat valid and truthful. Clouds may be more valid than sparrows but I wouldn't sit under an electrical line before a storm. There is no better way to predict weather than to watch professional Dennis Feltgen or some other meteorologist. On the other hand, if you hear the frog croak, bring your umbrella.



## NEW MEMBERS

The Mankato meeting approved a record number of new members pictured at left.

Front row, left to right, Rick Krause, Orv Berkness, Jim Crawford and Merlan Thorn.

Back row, Jeff Naumann, Glen Lentner, Ed Hulsing and Lyle Olson.

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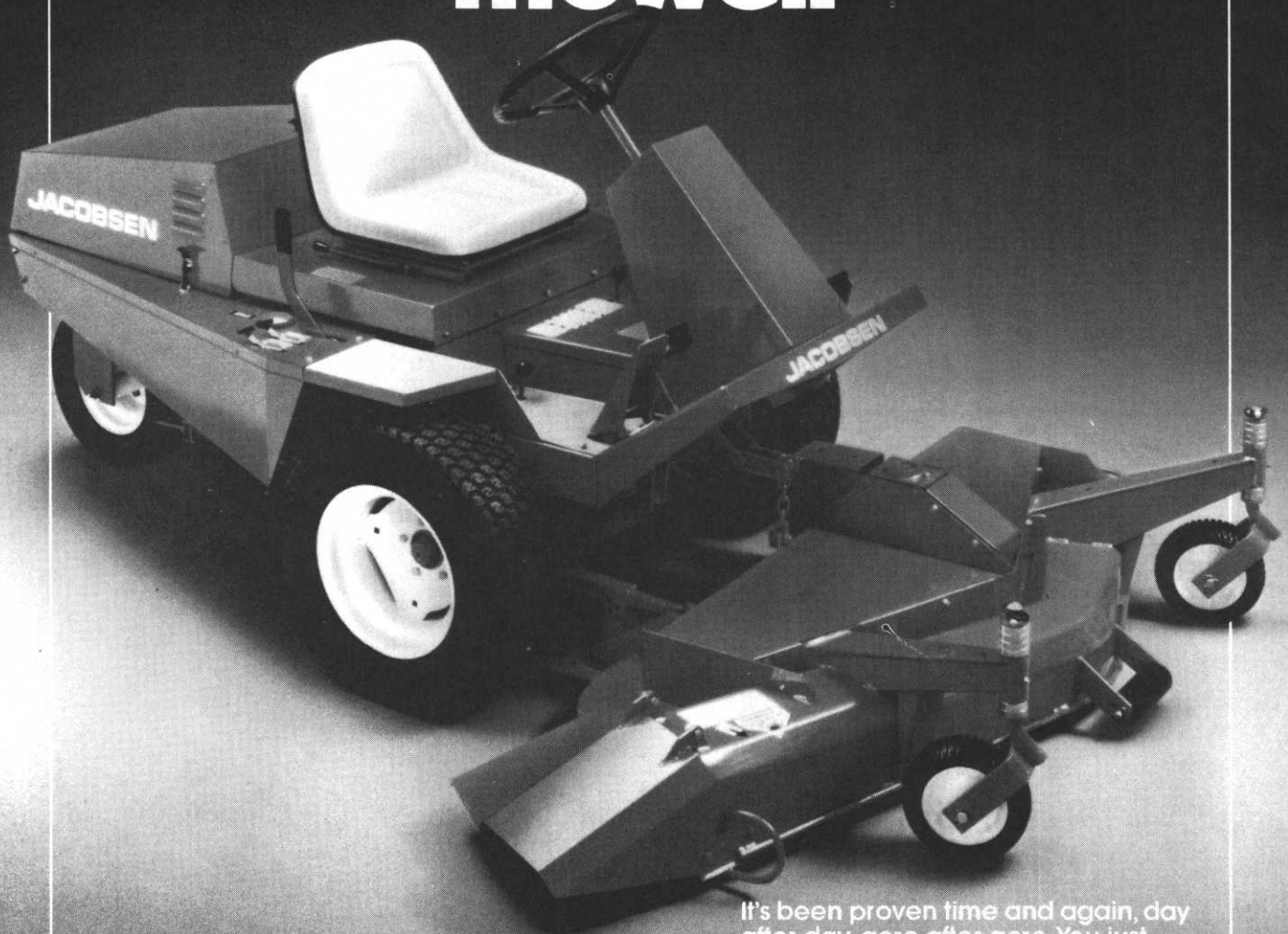
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## UPCOMING EVENTS

- JUNE 8 -Mora Country Club. Display by Robertston Turf Care Products.
- JULY 13 -Summer Picnic at Braemar, Edina.
- AUGUST -University of Minnesota G.C. Display by R.L. Gould and Co.
- SEPT. 14-MGCSA Annual Tournament, Willmar C.C. and Little Crow C.C.
- OCT. -Minneapolis Golf Club. Display by Kromer Company
- NOV. -Open
- DEC. -MGCSA Annual Educational Conference Sheraton Inn N.W.

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