



## GREENSMASTER 3

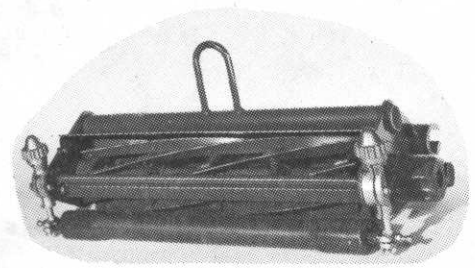
### 1 AS A GREENSMOWER, the features and benefits include:

Balanced, fully-floating cutting heads — isolated from the traction unit and grass baskets — give uniform cutting height from first green to the last (a Toro exclusive). Low pull point on all cutting units for straight, even tracking. 15-inch turning radius for greater maneuverability, faster handling. Low-noise fully-hydraulic drive is smooth and easy on the greens. Maximum operator visibility and ease of control. Exclusive interchangeable wheels, cutting units, baskets, reel drive motors save time, money invested in stocking parts. Customizing accessories for varying conditions — including a simply engineered and easy to install individual reel shut-off kit that controls the front two cutting units to give a variable track on the clean-up run. Optional reel roller scrapers minimize grass build-up for a beautiful appearance even on wet turf. Proven history of performance on fine greens all over the world lets you be confident of the real value of Greensmaster 3.

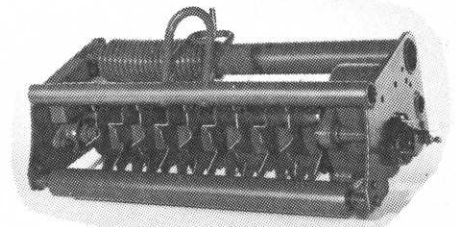
**TORO**

### 2 AS A SPIKER, the features and benefits include:

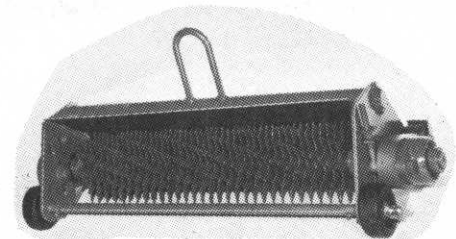
Special Toro profile-tooth spike blade that spikes cleanly without ruffling turf (greens are playable immediately after spiking — no rolling or cutting needed). Power driven reels with one-way slip clutch give added traction on sloping greens. Adjustable transfer spring transfers weight from traction unit to spiking reels. Delivers up to 650 lbs. of weight across 57 inch width for maximum 1¼ inch penetration. Wide spiking area gets more done in less time — you can spike as fast as you mow. And the spikes are less than 2 inches apart. A depth measuring tool is included with each set of spiker units to insure effectiveness of treatment under varying conditions.



**GREENSMOWER**



**SPIKER**



**THATCHER**

### 3 AS A THATCHER, the features and benefits include:

Reels cut in forward rotation for efficient vertical mowing. Spiral pattern of thatcher blades means less wear on drive motors, more efficient thatching and throwing of thatch into basket. Adjustable gauge wheels tailor cut to various turf conditions. Variable blade spacing (as close as ½ inch — depending on the need) permits adjustment to meet varying turf conditions. Gauge plates are provided for easy bench setting of penetration depth, 59" working width makes vertical mowing practical and efficient for the first time. High-strength blades are made of blue-tempered high carbon steel — and they're reversible for double the life.

## MINNESOTA TORO, INC.

850 South Florida Avenue • Minneapolis, Minnesota 55426  
Phone Glen Rasmussen at (612) 544-0111

Winter damage that is ordinarily associated with either ice or with free moisture on the surface of the soil is brought about by the inhibition of gas exchange in the soil and around the crowns of plants. The water and/or the ice seal the gases in the soil and the problem may be aggravated as the soil thaws and the ice melts inhibiting gas exchange. Under these conditions a buildup of toxic materials takes place resulting in direct kill of grass. It looks like this was a major factor in "winter kill" this spring with annual bluegrass as well as the direct low temperature kill of annual bluegrass in low or poorly drained places where the crowns became hydrated and frozen. On those locations on greens where samples smelled like sewer gas you may be fairly sure that a lot of the damage was associated with the gas exchange problem. Those areas on greens with substantial kill but a soil sample had no foul odor probably were killed by direct low temperature where the crown hydration-freezing situation prevailed.

Before proceeding further it would probably be useful to review some of the characteristics of annual bluegrass. First, annual bluegrass or *Poa annua* is not an annual. It's really a biennial. It flowers and seeds prolifically in the spring and fall. These seeds germinate in the spring and also in the fall. Seeds that germinate in the fall establish new plants that overwinter as new plants while the seeds that germinate in the spring establish plants that may overwinter the next year. In both cases, very young plants and the older more mature plants are susceptible to "winter damage".

One of the other characteristics of annual bluegrass is that if it is growing in free moisture the crowns become hydrated and in this condition become very susceptible to direct low temperature damage. The temperatures really don't have to be very low to kill the grass under those conditions. Also, as a comparison, annual bluegrass will not tolerate submersion nearly as well or as long as the bentgrasses.

To summarize then, it looks like our annual bluegrass was killed in two ways. First, in some situations, it was killed from direct, low temperature stress of hydrated crowns and in other situations from the inhibition of gas exchange and build-up of toxic chemicals and gases in the root zone and around the crown while the surface of the soil was wet during the spring thaw.

Why did it happen this year? It all started last year with a warm dry fall extending into late November. Just prior to freeze-up last fall it rained, moistening the surface soil. The rain was followed by subfreezing temperatures and wet snow accumulation so the grass went into the winter under very moist conditions. In fact, the soil did not freeze as deeply as usual because of mild temperatures. In January a check showed that in many places there was only two or three inches of frost under the snow. Then the thunderstorms in February accentuated the moist situation at the soil surface under the snow. Many superintendents found from one to several inches of ice on the greens at that time. Some removed the ice and others didn't but in any case the situation was set up for direct low temperature kill or for inhibition of gas exchange and poisoning of the plants.

What can we do about it? There are several alternatives. One of them might be to do nothing. If nothing is done the annual bluegrass will be back in June. By the end of July people will probably forget the problems they faced this spring. Another alternative might be to either convert the greens to bentgrass or to increase the bentgrass population on the greens. One procedure would be to simply spike the greens several times and overseed either with seed spread by means of a drop spreader or by hydroseeding. Another alternative would be to aerify a green, scarify the surface with a vertical mower (which would also break up the plugs) and then to overseed. Some people might find that they would have better success if they overseeded first and then used the aerifier and the scarifier. Another procedure might be to use the aerification-scarification-overseeding operation plus a top dressing. If top dressing is used you would have to be very careful that you didn't bury the seed too deeply.

It is important to note that aerification will be particularly important in situations where kill was caused by gas exchange problems. Aerification will allow the toxic materials to dissipate faster and for the soil situation to improve rapidly.

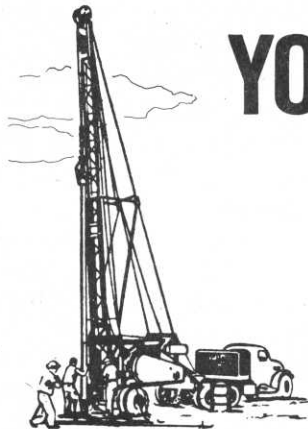
If you select Penncross as the bentgrass that you want to establish on your greens, an overseeding rate of 1/2 pound of seed per 1,000 square feet is suggested. If Seaside bentgrass or Emerald bentgrass is selected, you may want to use a pound or a pound and a half per 1,000 square feet. If the seed is to be applied dry, there is little problem when you apply it, either before or after the aerification, scarification or spiking. However, if you intend to apply the seed wet, that is through your sprayer, then it would be best applied after you've completed preparation operations. For those superintendents who have irrigation available at this time, it might be useful for them to consider soaking their seed overnight or until the seed is swelled. By doing this you may gain several days in the germination process. However, you must be very careful that once the seed starts to germinate that it has a continuous supply of moisture until it becomes fairly well established.

You may want to consider using a half a pound of actual nitrogen per 1,000 square feet in the form of a natural organic fertilizer or a non-burning type fertilizer after overseeding to insure an adequate nutrient supply for the new developing seedlings. Of course, you will want to keep people off these overseeded greens during rainy or wet periods.

It may be useful for you to let the membership of your club know what you're trying to do before taking on the task of converting greens to bentgrass at this time. It probably would be useful to let them know what to expect and that the greens will green up later in the spring.

I would like also to suggest that you take pictures or slides and keep records of what you do and how the treatments work out. It may even be useful then for some monthly meeting or to set aside some time at the annual meeting to exchange information, to show slides of before and after and to discuss the successes and failures of all your operations.

Good luck and best wishes for a good year. If I can help, don't hesitate to call. Thank you.



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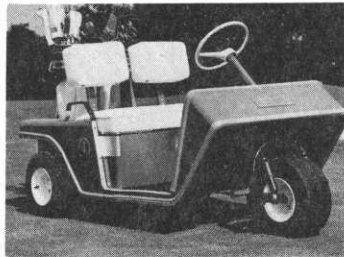
MEMBER: M.G.C.S.A. AND G.W.I.

# APRIL MEETING MORE LIKE JUNE

The spring of 1976 certainly has had more than its usual abundance of worries and problems for almost every member of the M.G.C.S.A. Fortunately, we always find ways to at least momentarily escape from the headaches of everyday life and enter into a fantasy world filled with nothing but beautiful green grass. The April 12 meeting of the M.G.C.S.A. has to be regarded as one of those "escapes" as all those attending were greeted by perfectly beautiful spring weather and a Mankato Golf Club course that was in mid-summer condition. The praise and thank-you's ran high for the host superintendent, Irv Fuller, Jr., as everyone of the approximately thirty members who played golf that day considered it a real treat to be able to play such a finely groomed course at such an early stage of spring. Even the caliber of play kept up with the atmosphere of the day as many fine shots were witnessed as one traveled around the course. All was not perfect, however. There was one case reported of a threesome, headed by Class A Superintendent George Jenrich of the Woodhill Country Club, who got lost in going from the green to the next tee even though a number of witnesses claimed there were more than enough directional signs located at that point. When queried about his adventuresome day, George sheepishly replied, "I guess I am just not used to finding my way around a golf course". As that was the only misfortune encountered that day, the Mankato outing can definitely be labeled as successful and we would again like to thank Irv Fuller, Jr. for all his hospitality and for his efforts in the depolarization of the M.G.C.S.A.

After that fine afternoon of golf, everyone retired to the beautiful Mankato clubhouse for relaxation and cocktails. We would like to thank Toro for supplying the "materials" used in this segment of the meeting. No formal business meeting was held and this gave everyone a little extra time to discuss on an informal basis some of the problems they had encountered this spring and even more importantly, some of the solutions which have been tried as a remedy to these problems. It was also noticed that the name tags which have been made for every member by President Sime are not being worn and this defeats the whole purpose for which they were designed. Let's all try and remember to wear ours at the next meeting. The day's activities were capped off by an excellent steak dinner, but then, what else would one expect when everything else that day had already been perfect in every way.

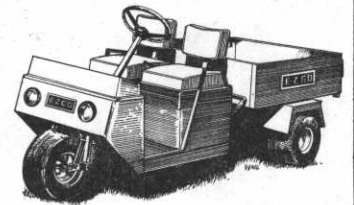
## E-Z-GO



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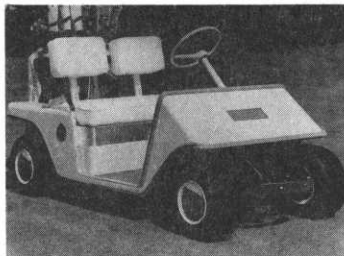
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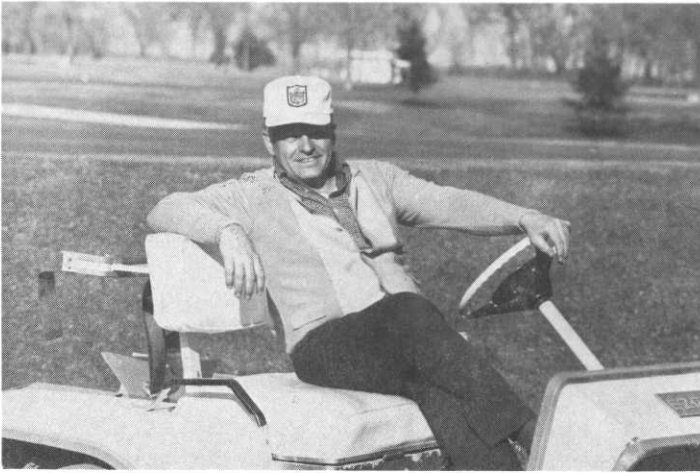
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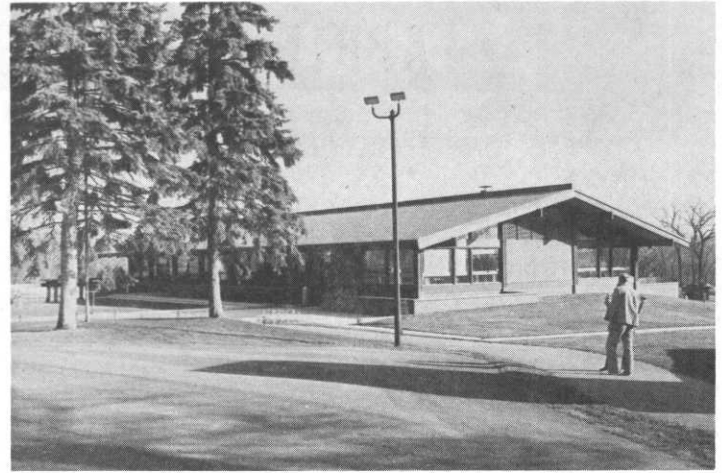
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**HAPPY.** Boots Fuller, host superintendent, is all smiles over the early, excellent condition of the Mankato Golf Club.



**OUTSTANDING.** The two-year old Mankato clubhouse provided excellent facilities for the cocktails and dinner.

## 1976 TURF CONFERENCE

Chairman Dick DeSplinter has announced McGuire's Inn, St. Paul, Minnesota as the site of the 1976 M.G.C.S.A. Turf Conference. The dates are set for December 1, 2 and 3. Note: Contact Dick at 612/537-1149 before the end of May with room requirements so that he can make arrangements for all rooms to be in the same area.

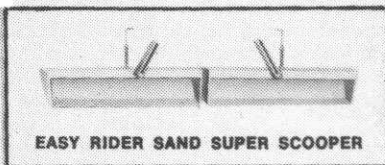


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