

CAN THE TURFGRASS INDUSTRY SURVIVE THE ENERGY CRISIS?

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I'd like to change the title a bit so that it asks the same question but in two very different ways; then give you my answers right at the outset.

Can the Turfgrass Industry Survive the Energy Crisis? To that my answer is unequivocal. Of course it can!

But if you add five words to that question and make it: Can the Turfgrass Industry As We Know It Today Survive The Energy Crisis? As we know it today. My answer is still yes but I must qualify it. The turfgrass industry as we know it today will survive but only if we do some things we are not doing now and do them with some degree of urgency.

This is mostly what I want to talk about: Those things we are not doing now that I believe we must do and why I feel that a degree of urgency is in order.

The changes we need to make require a strategy, a plan of action.

The title of the paper assigned to me assumes that I accept the fact that an energy crisis does exist. I do, although I am not going to express any opinion about whether or not the world is rapidly running out of oil, as some people contend. We have an energy crisis even if only for the fact that it costs so much more today than just a few years ago. We can expect costs to continue to rise, probably at a faster rate than inflation overall, for everything used in turf management derived from petroleum: Fuel for powered equipment and to pump water for irrigation and for fertilizers, herbicides and pesticides that are made from petroleum, petroleum based products, or natural gas.

The turfgrass industry as we know it today will not survive if one of two things or both should happen:

Number one: Energy will become so costly no one will be able to afford to spend the amount necessary to maintain turf. Currently it is estimated that fuel costs make up only 2 to 4 percent of the total operating budget for most turf facilities. What happens if that escalates to 10 - 15 percent?

Number two: Energy will become so scarce, for whatever reasons, that it will be rationed and turf maintenance will be given a very low priority.

Either, or both, of those two things could happen, totally, or enough to have an adverse effect on the turfgrass industry.

I submit that we must -- and I emphasize must -- take steps now to minimize the consequences of either of those two possibilities. Essentially, there are three things we must do:

Number one: We need to convince everyone -- in our community, our state, our region, our nation and the world -- that what we do -- protecting, caring for, improving and expanding the verdant landscape -- is important work.

We know it is important. We know the vital role that green spaces play in our lives. That message needs to be repeated everywhere until everyone understands it. We, as an industry, simply do not articulate our importance -- but we must!

Number two: We need to adopt management practices that will reduce energy use. And develop grasses that require less water, less fertilizer, and less mowing, and are more resistant to disease producing organisms, along with equipment that will cut or spray more acres per man, and cost less to operate.

Number three: We need to become more assertive in representing our industry before the legislative, regulatory and administrative branches of our governments, at all levels: municipal, state, and federal.

We need to let them know who we are, what we do and why we are concerned about turfgrass management.

We can contribute, and we should, to the body of knowledge that will form the basis for legislative decisions affecting energy. And we should play a far more significant role than we have in influencing government action.

We should help bring about sensible management of our energy and water resources to accomplish, among other things, avoidance of piecemeal panic restrictions when shortages occur.

It's my personal opinion that the U.S. could be doing a great deal more than it is to establish a trade arrangement with Mexico to gain some security from Mexico's newly discovered oil reserves.

Maintenance practices, as you know, can have a tremendous impact on energy use.

There are a number of practical steps that will help reduce energy consumption for turf maintenance. Among these:

- * Select the most efficient piece of equipment for each job. Generally, reel mowers are more efficient than rotary or flail mowers. The scissors action of the reel mower not only cuts better but requires less power, consequently consuming less fuel. With the same mowing speed, reel mowers will use up to 50 percent less fuel per acre of grass than a rotary.

Keep in mind that the number of blades in a reel not only affects the quality of cut, but also the fuel consumption. A five-bladed reel will use eight to twelve percent less power and fuel than a six-bladed reel.

- * Use diesel fuel, rather than gasoline. Diesel fuel generally costs less than gasoline and the diesel engine has proved itself to be from twenty to twenty five percent more efficient than the gasoline engine. This means fewer gallons to perform a given task.

- * Allocate more funds for higher capacity, labor-saving equipment. Attack the largest part of your operation budget -- labor. In most cases it represents some 65 to 70% of the budget.

- * Keep equipment clean and properly adjusted. It will require less power and therefore less fuel. Proper adjustment of belts, bearings, chains and shafts can reduce the friction within the machine and deliver more power for work output. Frequent lubrication of vital parts also will reduce friction.

- * The tire pressure of any machine should be maintained at proper levels to reduce the rolling resistance.

- * With reel mowers, the bedknife adjustment is critical.

The proper maintenance of the vital parts of any machine is important not only to conserve fuel but also to extend the functional life span of the machine. No part of the machine is as critical as the engine for achieving fuel economy. Just as with an automobile, a properly maintained, well-tuned engine can conserve fuel. Several steps that should be followed concerning the engine include adjusting the carburetor to provide maximum fuel-to-air ratio. Checking the ignition system to ensure clean points and plugs, and timing to provide maximum power. The engine air cleaner is crucial. A clogged air cleaner can change the air-to-fuel ratio and use excessive amounts of fuel. Proper adjustments and maintenance in the combustion chamber are important to extending engine life.

- * Mowing practices also may be a means of saving fuel.

Some examples:

- . . plan mowing patterns that require the least amount of transport between locations

- . . use the least amount of overlap consistent with the skills of the operators

. . where possible, eliminate mowing steep slopes.

* Equipment-manufacturers must design and make available equipment that will be less costly to operate -- and easier to maintain. We need to reduce the number of parts and make more parts interchangeable. We need to reduce weight.

Let me discuss a new fairway and large turf area mower we will feature next month at GCSAA. I believe it serves to illustrate the trends you can expect from major manufacturers in the future. Development started on this unit in early 1975. It resembles our current unit, but in actuality is all new. Some of the things of interest:

. . It is an all-hydraulic seven gang reel mower.

. . More than 80 percent of its components are interchangeable with other Toro machines.

. . All seven reels have the same parts number.

. . All seven hydraulic motors have the same parts number.

. . There are forty-four different hoses that have only seven different parts numbers.

. . It can mow up to nine acres per hour.

. . Reversible reel motors allow backlapping on the machine to reduce sharpening frequency and permit the operator to clear the reels without leaving the driver's seat.

. . The safety interlock system cannot be by-passed and it serves an important additional function as a trouble-shooting device. The interlock system is absolutely foolproof. The reels will not turn unless these three conditions exist: The operator is in the seat. The control lever is in the operate position. And the reel unit is resting on the ground.

. . each reel unit weighs 110 pounds less than our wheel-driven gang mower units.

I submit that all of these features are reflective of a very advanced state of the art for our industry.

Our new irrigation system is called MPC, which stands for modulating pressure control. It was developed initially as a low-cost method for converting golf courses with limited budgets to automatic irrigation. The system consists of a solid state electric controller and a series of "cyclers" which activate individual sprinklers by responding to changes in water pressure. No electrical wiring or control tubing is needed between the central controller and the sprinkler heads and there are no satellite controllers.

* We normally don't associate water with energy savings, but we should. We can't use water without expending energy and we do both very wastefully. We waste water and we waste the energy it takes to transport it: to put it where it is needed. Here are some things we can do to use water more efficiently and reduce energy consumption for irrigation:

. . Establish watering priorities. Highest priority to the most intensively managed areas; for example, on a golf course, the greens are the most valuable and are the most critical.

. . Follow sound irrigation practices. This is much easier to do, of course, with an automatic irrigation system. Irrigate when there is the best combination of little wind, low temperature, and high humidity.

. . Reduce, or avoid where possible, other causes of stress. Be alert to salt build-up.

. . Alter cultural practices where feasible. Test the soil annually to ensure adequate fertility, especially for phosphorous, which encourages root

system growth--deeper roots, thus expanding the areas from which the turfgrasses can draw nutrients and moisture. Raise the height of cut for all areas.

Mow less frequently. Increase the frequency of spiking or cultivate (core) -- if temperatures are not extreme -- to trap moisture and hold it longer in the vicinity of the root system.

. . Expand use of mulch. This is very important. Apply heavy layers of mulch -- any organic debris that is available -- around the base of trees, shrubs and flower beds, to hold in moisture.

. . Erect wind barriers, especially where there are large expanses of open space.

. . Consider use of surfactants.

. . Experiment with anti-transpirants. Although techniques for inhibiting transpiration have had mixed results, some reduction in moisture loss through transpiration might be accomplished with the use of chemicals, emulsions or films.

. . Aggressively seek additional sources of water. Among the several possibilities are wells and ponds, collections of marginal water and -- the most abundant and most often wasted supply -- treated sewage effluent.

At my company we are convinced that wastewater will become a major source of irrigation water in the future. We believe it will be used widely for all types of irrigation, especially for large turf areas and in agriculture.

I've just outlined and discussed briefly a great many dos and don'ts; mostly dos. Many of them are probably not new to you. For the most part all of us have been acting very much like the old farmer who was visited by a young county agent he had never met before.

The county agent was armed with pamphlets and literature and his mind was brimming, of course, with all the latest ideas on good farming practices. The old farmer looked at him, moved his chaw from one cheek to the other, then said, "Young feller -- before you start -- just remember I ain't farming half as good as I know how." And, in a way, turf management is a lot like farming, only more so.

We've got to start managing like we know how or the turfgrass industry -- may not survive -- the coming energy crunch.