

Keeping Firestone in Championship Condition

By PETER MILLER, Superintendent, Firestone Country Club

TRACTORS are probably one of the most important pieces of equipment used in a golf course maintenance operation. If you take a look at most golf courses, you will probably see more tractors than any other piece of equipment.

Today, tractors in use range anywhere from a 1940 model to the latest and best equipment on the market. The same tractors are used for a multitude of purposes. My object is to explain in this article just how valuable tractors are to a golf course maintenance operation, particularly the Firestone Country Club.

Going through a list of equipment attached to tractors, whether the pull-behind type or using the PTO and three-point hitch, it becomes obvious that a tractor is a very valuable piece of equipment.

It is probably the only motive force on the market that is capable of handling the number of attachments, different sizes, shapes and descriptions, and still provide an excellent service record. I am sure that most people on golf course operations are aware that when a piece of equipment is advertised to do many things, that in most cases, the equipment will do one or two things well. In most cases, it's better to buy individual pieces of equipment for the other operations.

A tractor is certainly an exception to that situation. I have mentioned numbers of attachments to tractors. We have approximately 42 different pieces of equipment that we use on essentially seven tractors. These tractors are medium size, horsepower-wise, and the majority of them diesel. As a matter of fact, five out of the seven are diesels.

We have approximately 800 acres of grounds to maintain at the Firestone Country Club. Included in these areas are some gardens, which we prepare with a tractor-powered roto-tiller; 80 acres of spectator parking lots where we use our flail mowers and rotary mowers to keep prepared for tournaments; also many miles of roadsides, where we use a tractor-mounted sickle bar.

The golf course itself, of course, is the major area for tractor and attachment use. The list here is quite long. We use tractor drawn aerifiers, slicers, turf quakers, verti cutters, blowers, and obviously for rough usage, mowers.

In all cases, there really is not a suitable replacement for a tractor. In other words, tractors must be used to provide the motive force for these operations.

We will run as many as 1,500 hours a year on these tractors, running them eight hours a day, five days a week, in most cases. This might not seem like a great number of hours to a construction company, but on a golf course, this is a good number of hours considering that the tractor is being used for many varied operations.

(continued on page 32)





Peter Miller, (top left), superintendent of Firestone Country Club, says that tractors are his most valuable piece of maintenance equipment. Shown in the above photographs are just a few of the dozens of different tractor-drawn machines Miller uses to keep Firestone's two courses in top-notch playing condition. Both ends of a tractor-mounted loader-backhoe are put to good use digging ditches and loading topdressing into a dump truck. Transplanting shrubs on Firestone's grounds is speeded with a tractor-mounted auger. Fertilizer, pesticides and herbicides are applied with a tractor-pulled spray applicator. And even working as a team, greensmen operate aerator and blower attachments. Extra parking areas for the 57th PGA Tournament are mowed with a 100-inch rotary pull-type cutter. Miller also maintains a nursery area with a tractor-pulled rotovator.

at hand, is readily available from the reliable manufacturer. (2) The availability of parts and service facilities. This is of prime importance when selecting equipment. If repair parts are not available when needed and a machine is inoperable for extended periods, it is of questionable value and certainly will contribute little to efficient operation. (3) Develop or estimate a reasonable or probable life and, based on current replacement costs, allow for the proper amount of depreciation per year. Then, request or provide a yearly sinking fund for the orderly replacement of the equipment when it becomes economically feasible or when a superior piece of equipment comes on the market.

To keep machinery operating costs at their lowest and to derive the full potential of the equipment's projected life span;

- ... buy quality equipment from a reputable manufacturer.
- ... buy the right machine for the right job.
- ... operate it properly, and start by reading the owner's manual.
- ... maintain it properly, by establishing a daily routine maintenance schedule supplemented by a periodic review with the factory ser-

vice representative. Where such training is available, send your people to the manufacturer's service training school.

... and keep proper records.

The results will be increased efficiency and important savings. □

FIRESTONE *(from page 26)*

Obviously, tractors that we are talking about are the turf type tractors with what they call an LCG (low center of gravity construction) with wider than normal tires. In fact, the tires on our present tractors were developed by the Firestone Tire & Rubber Co. in conjunction with research at the Firestone Country Club.

We have switched to diesel in the last couple of years because of economy of operation, and also because according to our maintenance records, we are incurring considerably less in maintenance costs.

When machines are used as many hours as ours, we find that down-time is an important consideration. Speaking of down-time, the tractor has proved again to be one of the most dependable machines that we have in our maintenance operation.

We have very few hours of down-time on our tractors in a golfing season. The problems that we might have with them are very minor, nothing that we cannot repair in a relatively short time. It has been a long time since we have had to send a tractor in for major repairs during the summer.

Of course, a part of this is, I am sure, a continuing maintenance program, and the fact that every winter we do go through the tractors thoroughly to prepare them for long summer use.

We try as best we can to change the oil and filters regularly, and grease them regularly, but other than that, they need little maintenance through the summer months.

For you Southern readers, the summer months for us would be May 1 to October 1, which is essentially our golf season.

One tractor that I have failed to mention is the tractor-loader-backhoe. This machine, although expen-

sive, has proved to be one of the more valuable pieces of equipment we have. It has probably paid for itself over and over again, as we do a very large amount of work on construction projects.

All I have to do is look out the window now to see that within the last few days, we have helped a contractor put in two 1,000-gallon gasoline tanks. I realize how valuable and how convenient it is to own a tractor-loader-backhoe. Without this, it would be costing the company a considerable amount of money, both for rental and for lost convenience on our part.

We also have topsoil storage facilities, and buy our topsoil from a local contractor. The loader is used to load this topsoil into our dump truck. When you consider that we use 500 tons of this material a year, it becomes very evident how valuable the loader is.

We have one tractor with lug type tires on it and a dirt blade on the front. We call this our blade tractor. It is one we use for rough grading, roto-tilling, back blading, and it is a larger h.p. tractor than the others. The remaining six tractors are the turf tractor type. As you can see, we have a fairly large operation, and a considerable amount of out-lying area.

We would like to believe, too, that we have a well set up maintenance operation, with enough equipment to do the job that we are called on to do.

Hosting the number of tournaments we do within a season, and keeping up with maintenance on two golf courses, which are kept in championship condition throughout the season, and are used by our 800 family members and many company-sponsored guests, our equipment inventory is reasonably large.

Our philosophy here is to get on the golf course, get the job done, and get off as soon as possible with a minimum amount of golfer interference. The golfer does not appreciate us around, and whenever the golfer is around, our efficiency drops considerably.

Really, what we are talking about is efficiency. Efficiency is money. This goes right back to the opening comment in the article that a tractor is probably the most im-



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portant piece of equipment on the golf course. Maybe the term important could have been changed to efficient. In either case, Firestone Country Club simply could not operate without tractors. □

**List of Tractor Attachments
Used at Firestone CC**

Quantity

- 2 Rotary Mowers
- 2 Flail Mowers
- 2 Leaf Sweepers
- 3 Trailers (2- and 4-wheel)
- 5 Aerifiers (3 types)
- 2 Slicers
- 2 Back Blades
- 1 Front Blade
- 2 Earth Excavators
- 1 Front End Loader
- 1 Backhoe
- 1 Roto-tiller
- 1 Plow
- 1 Turf Quaker
- 1 Seeder
- 2 Verti Cutters
- 1 York Rake
- 1 Sickle Bar
- 3 Blowers
- 1 Auger
- 1 Gin Pole
- 4 Mowers

**Soil Warming Technique
Uses Heat from Power Plant**

Waste heat from electrical power generating plants may someday be used to increase vegetative production by warming the soil. This idea is being explored by scientists at The Pennsylvania State University who report that such a system could increase production by 30 to 40 percent.

As conceived at Penn State, soil warming is achieved by circulating hot water through a buried pipe network located in soil irrigated with treated municipal wastewater. The circulating hot water is cooled and returned to the power plant for re-use.

Involved in the study are Dr. David R. DeWalle, associate professor of forest hydrology, Dr. Daniel D. Fritton, assistant professor of soil physics, and Dr. Louis T. Kardos, professor of soil physics — all with Penn State's College of Agriculture. The study was funded through the Institute for Research on Land and Water Resources at Penn State with a grant from the National Science Foundation.

For each unit of electrical energy generated, two units of waste heat

are driven off and wasted, the Penn State scientists said. Estimates are that by 1980 a volume of condenser cooling water equal to about one-fifth of the annual water runoff in the U.S. will be needed to remove this waste heat from steam electric power plants.

The Penn State study shows that soil warming competes with heat dissipation methods currently used, such as wet and dry cooling towers operated by power plants. When the soil warming system becomes real-

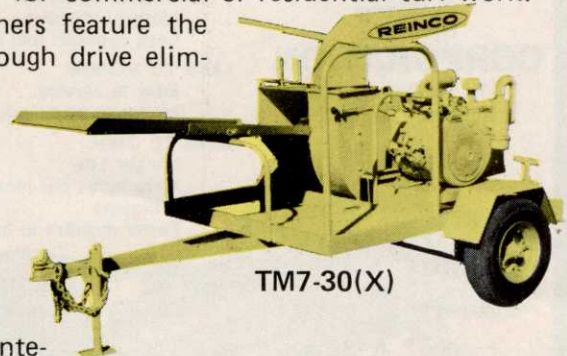
ity, increased crop production could become a by-product of waste heat disposal.

Such a soil warming system is economically feasible, the scientists said. The electrical power needs of a city of one million people could supply waste heat for some 4,500 acres of land. The cost would add 2.6 percent to the consumer electric bill compared with ocean cooling and 0.9 percent when compared with the popular wet-cooling towers.

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