



The new officers and directors for the National Arborist Association, Inc. are: (from left) H.A. Morrison, arborist, Wilmette, Ill., Walter E. Money, Guardian Tree Experts, Inc., Rockville, Md., W. Roland Shannon, president, Shannon Tree Co., Milford, Pa., Kenneth Kirk, Shield Shade Tree Specialists, Clayton, Mo., John A. Shullenbarger, Gustin Gardens Trees Service, Inc., Caithersburg, Md., Larry Holkenborg, Holkenborg Nursery, Inc., Sandusky, O., Robert Felix, new executive sec., Wantagh, N.Y., Gerald Farrens, Farrens Tree Co., Eureka, Calif., Boyd Haney, B. Haney and Sons, Inc., Franklin Park, Ill. and Paul S. Walgren, Walgren Tree Experts, Inc., West Hartford, Conn.

## Energy Conservation Tips Available From Toro Co.

While the energy shortage may be causing higher prices and upsetting turfgrass maintenance programs, it also represents an opportunity for improving management procedures and operational techniques.

A new energy conservation "tip sheet" by Toro Co. offers suggestions for evaluating and adjusting managerial and operational procedures under five headings: budget, facilities, equipment, turfgrass and people.

It points out that fuel costs represent only two to three percent of operating budgets for turfgrass maintenance but that labor costs average between 65 and 70 percent. Consequently, it suggests, doubling

or even tripling of fuel costs can be offset by more efficient management of the labor factor.

Capital expenditures for higher capacity, more efficient mowing and irrigation equipment are suggested as one step for reducing both labor and fuel costs.

Also suggested is a retraining program in mowing techniques and equipment operation and adjustment.

Watson views the energy shortage as a positive force for improving efficiency in all aspects of turfgrass maintenance. "It introduces a new element of challenge that necessitates both the learning of new skills and procedures and a more disciplined utilization of skill levels and proven techniques," he said.

Lessons learned from meeting the

challenges caused by the energy problem, he said, will make a long-lasting beneficial contribution to the quality of life in America.

Copies of Energy Conservation Tips are available by writing: Dept. EC, The Toro Company, 8111 Lyndale Avenue South, Minneapolis, Minn. 55420.

## Recent Herbicide Study Detect Minute Runoff

According to researchers R. L. Rogers, G. H. Willis, T. G. Hargroder and J. L. Kilmer of the Louisiana Agricultural Experiment Station, Baton Rouge, only minute quantities of linuron (Lorox) and diuron (Karmex) were found in a recent study of runoff waters.

The study was conducted on a series of test plots—24 feet by 200 feet and graded to a slope of 0.15 percent—all at one location in the lower Mississippi River alluvial flood plain. The soil type in the test plots varied from a commerce silt loam to a mhoon silty clay loam. Linuron 2.0 lb ai/A, and diuron 0.75 ai/A, were applied broadcast as pre-emergence surface treatments, and the linuron and diuron plots were planted to soybeans and cotton, respectively.

Results of the study, the authors reported, indicate that there is usually little surface drainage water from fields in this area in late spring and early summer.

Generally, the researchers noted, there was a progressive decrease with time in the amount of herbicides detected in runoff water. Exceptions to this occurred when heavy rainfalls followed light rainfalls. And approximately three months after application, the researchers concluded, the quantity of herbicides in surface drainage water had decreased below the point of detectability.

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