



ENERGY E-TIPS

June 15, 2011

Lawnmowers

From small patio homes to homes sitting on several acres, many Arkansans use Lawnmowers to keep their lawns maintained. This edition of Energy E-Tips will give an overview of lawnmower machines, as well as safety considerations for their use.

Reel and Rotary lawn mowers are the two main types used. The vast majority of home lawn mowers are Rotary mowers. Rotary mowers work by cutting the grass blades in an impact, machete-type cut. In “Mowing your Lawn,” factsheet developed by Dr. Aaron Patton and Dr. John Boyd they offer several suggestions for mowing lawns, including:

- Mow often enough to avoid removing more than one-third of the grass blade height per cutting.
- Mow your lawn high.
- Keep the blades sharp enough to prevent a ragged appearance.
- Return clippings.
- Mow in a different pattern each time to reduce wear, compaction, scalping and grain.
- If you get behind in mowing, raise the mowing height so as not to remove more than one-third of the leaf, then gradually reduce the mowing height in subsequent weeks.



Energy Concerns

In response to concerns about lawnmower and small engine emissions, the United States Environmental Protection Agency (EPA) has released a Regulatory Announcement titled “EPA Finalizes Emission Standards for New Nonroad Spark-Ignition Engines, Equipment, and Vessels.”

The new requirements vary depending on the kind of engine or vehicle. In developing these requirements, EPA considered specific factors for each type. Among the factors considered were the environmental impacts, the number of hours each year that the engine is used, the need for high-performance operation, and the costs. The new requirements for lawnmowers include adopting hydrocarbons and nitrogen oxide exhaust emission standards of 10 g/kW-hr for Class I engines starting in the 2012 model year and 8 g/kW-hr for Class II engines starting in the 2011 model year. EPA expects manufacturers to meet these standards by improving fuel systems, engine combustion and in some cases adding catalysts. These standards are consistent with the requirements recently adopted by the California Air Resources Board (ARB). We are not adopting new exhaust emission standards for handheld emissions.

In addition to the new emission standards coming out in 2011 and 2012; EPA offers additional suggestions for emission control:

- **Avoid spilling gasoline** - Use small containers that you can easily hold and manipulate. Use a funnel and/or spout to avoid overfilling. Keep the gasoline container closed tightly when not in use. Keep out of direct sunlight in a cool, dry place.

- **Maintain your equipment** - Follow the manufacturer's guidelines for maintenance. Change oil and clean or replace air filters regularly. Use the proper fuel/oil mixture in two-stroke equipment. Get periodic tune-ups, maintain sharp mower blades, and keep the underside of the deck clean. Take time to winterize equipment each fall.
- **Consider cleaner options** - Ask your dealer about the new, cleaner gasoline equipment entering the marketplace. Propane and solar options are also available for some types of equipment. Electric equipment is cleaner than equipment powered by gasoline engines. Electrically-powered lawn and garden tools produce essentially no pollution from exhaust emissions or through fuel evaporation. However, generating the power to run electric equipment does produce pollution.
- **Use manual tools** - Tools that don't require electric or gasoline engines are especially handy for small yards or small jobs. Hand tools are available to meet a wide variety of lawn and garden needs, like lightweight, quiet, easy-to-use reel push mowers that generate no emissions.
- **Reduce mowing time** - Use low-maintenance turf grasses or grass/flower seed mixtures that grow slowly and require less mowing. Decrease lawn area. Plant additional trees and shrubs to reduce the energy costs of heating and cooling your house and to provide landscaping for wildlife.
- **Recycle old equipment** - Instead of selling or giving away your old lawn and garden power tools, take them to a recycling center where they can be converted into raw material for use in cleaner equipment and other products.

By combining these strategies, you can reduce your personal contribution to pollution. In addition, your yard equipment will last longer and you will save money.

Safety:

According to UA CES factsheet “Lawn Mower Safety”, four types of power lawn mower accidents cause the majority of injuries, and are:

- **Contact with rotating blade.** Injury often occurs when the victim cleans the discharge chute of grass clippings or performs other maintenance while the engine is running.
- **Propelled objects.** Rocks, glass and wire are hurled at initial speeds above 170 miles per hour. Objects may be thrown 50 feet or more, causing death and injuries ranging from blindness to severe bruising.
- **Overturning.** This occurs primarily when riding mowers are used on steep slopes or embankments. Victims may be pinned under the mower or come into contact with the blade.
- **Riding mowers running over the victim.** Accidents occur if the operator fails to look when backing a riding mower. Playing children are seriously injured. Or, an operator pulls a power mower backward over his or her foot.

Remember to read the owner's manual, and that lawnmowers are machines and should be treated with care and concern for yourself and those around you.

References:

- Mowing your Lawn: http://www.uaex.edu/Other_Areas/publications/PDF/FSA-6023.pdf
- EPA Regulatory Announcement on New Non-road Spark-Injection Engines, Equipment and Vessels: <http://www.epa.gov/oms/regs/nonroad/marinesi-equipld/420f08013.pdf>
- Your Yard and Clean Air: <http://www.epa.gov/oms/consumer/19-yard.pdf>
- Lawn Mower Safety: http://www.uaex.edu/Other_Areas/publications/PDF/FSA-1005.pdf

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