WET
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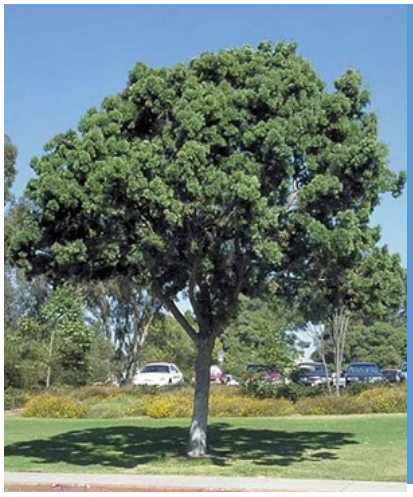
From the Agent

There is more to plants' cooling effect than simple shading. Plants release large amounts of water from pores in their leaves, and the evaporative cooling that results from this release creates a zone of cool air around the plant. You can take advantage of this effect by using plants for shade and wind control, rather than structures such as fences or arbors. In this month's WET, we will continue the topic of landscaping and focus on how to maintain your landscapes with less energy and less work. As always, you can also find more updated information on water and energy from the WET Facebook page (www.facebook.com/marionwet). I hope you find the information helpful. Thanks for reading WET.

Yilin Zhuang

Landscape maintenance can consume a great deal of energy, and this energy consumption (at the fertilizer processing plant, the electric power plant, by the lawn mower, etc.) affects your environment.



In This Issue

How to Maintain Your Landscapes with Less Energy and Less Work

Our landscapes can complement our homes and provide cooling, shading and comforting surroundings. However, in the process of creating an attractive home landscape, homeowners often overuse fertilizers, pesticides, and water. These practices result in accelerated plant growth and thus more frequent pruning, mowing, and general cleanup. They also generally require more energy derived from fossil fuels in their general production and delivery. A healthy, attractive landscape is possible to achieve without excessive plant growth and with minimal pest control. To cultivate a good quality landscape, you will need to follow some basic maintenance guidelines.

Choose a diversity of plants for your lawn and landscape that perform well at lower water and fertilization levels.

Start from the Ground Up—Healthy Soils

Start with a healthy soil, which is the key to healthy plants. Take a soil sample to your county's UF/IFAS Extension office for testing. Be sure to check for and correct soil compaction problems, which can cause poor plant growth.

Use Less—Fertilizer, Water, and Pesticides

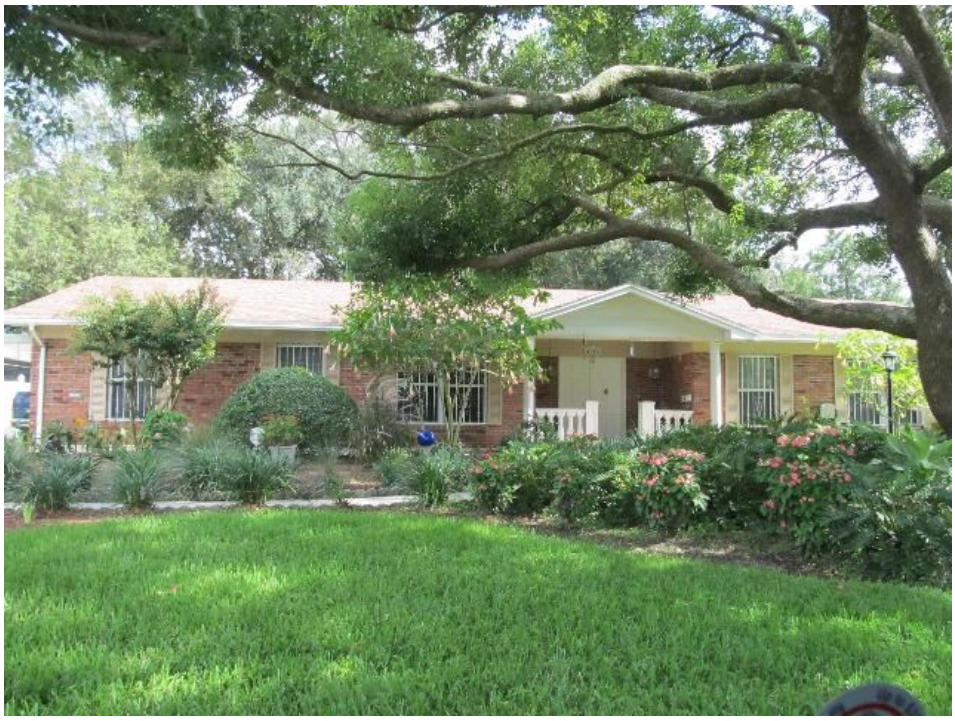
Moderate applications of fertilizer may improve the appearance and condition of plants under some circumstances, making them more disease and insect resistant. This is especially true for turf grass. However, fertilizers may not be necessary for established plants, especially most trees. Excessive fertilization requires more effort, contributes to groundwater contamination, and wastes valuable energy. Most synthetic nitrogen fertilizers contain ammonia, created by heating natural gas and combining it with atmospheric nitrogen and hydrogen. Nitrogen production uses quite a bit of energy—about 29,000 Btu of energy per lb. of nutrient. To put this in perspective, one gallon of gasoline has a Btu content of approximately 124,000. Natural, organic fertilizers may require higher energy costs for transportation but are not derived from fossil fuels, as are synthetic fertilizers.

Careful planning, installation, and management can make our landscapes and our lives more energy efficient. For

example, each 2 lb./1000 sq. ft. reduction in synthetic nitrogen fertilizer saves about 58,000 Btu a year on each 1000 sq. ft. of land, just in terms of the energy used to produce the nitrogen in the fertilizer. For every acre of land, that's a savings of over 2.5 million Btu of energy each year, equivalent to the energy in about 20 gallons of gasoline. Reduce fertilizer use by choosing a low-maintenance turf grass or using plants that require less nitrogen, or by moving to the lower end of the range of recommended nitrogen rates.

A plant's growth rate is also affected by the amount of water it receives. Excessive use of water, coupled with high fertilization rates, results in a rapid flush of growth and contributes to insect and disease problems. Energy is also used whenever irrigating with potable water. In addition, with Florida's limited potable water and mandatory water restrictions, wise irrigation practices are essential. Choose plants carefully, matching them to the specific site conditions and avoiding high-maintenance plants that require frequent watering. Whenever possible, choose and maintain plants that will require little to no supplemental irrigation or fertilization after establishment, and consider leaving or restoring areas of vegetation to their natural state. Use drought-tolerant plants in dry sites. Use micro-

Groups of trees have a greater cooling effect than the same number of individual trees scattered around the landscape.



Source: http://edis.ifas.ufl.edu/ae515

irrigation to get plants established, and once established, only irrigate during drought conditions. Train your lawn to need less water by mowing it only to the highest recommended length for its type and irrigating only when 50% of it shows signs of wilt (see http://edis.ifas.ufl.edu/EP054 for details).

Save by Recycling

By carefully planning your landscape maintenance practices, you can conserve energy. Lessen the amount of yard waste produced by minimizing fertilization and watering, which produce excess growth. Prune shrubs only when needed, and practice selective pruning rather than shearing. Non-selective pruning encourages unnecessary flushing of all the terminals instead of just selected ones. That leads to more tender growth, which in turn leads to more water demands and the greater likelihood of insect attack and disease incidence. When you do have excess plant material, recycle the nutrients it contains back into the yard by using it in compost or mulch.

Grass clippings are a valuable energy resource that many homeowners are throwing away. When mowing the lawn, simply let your grass clippings remain on the grass, allowing them to decompose. Your lawn will recycle the clippings naturally, saving you time, money, and energy. When you leave clippings on the lawn, you will reduce these negative effects and recycle important nutrients for free. Each bag of grass clippings you throw away contains as much as 1/4 of a pound of organic nitrogen. By using this free nitrogen, you can decrease your fertilizer needs, saving the energy required to produce these products and keeping some dollars in your pocket.

However, keep in mind that “too much of anything is no good.” Excessive accumulation of clippings remaining on the surface for long periods can contribute to fungal turf problems. In this case, bag the clippings and compost with other gardening trimmings. Some people are concerned that returning clippings to the lawn may result in thatch accumulation. However, because clippings decompose rapidly, they do not contribute to thatch. In all cases, grass clippings should be disposed of appropriately and never dumped down the storm drain. Energy can also be conserved by recycling yard wastes. Disposing of leaves, excessive grass, and other garden refuse

The Department of Energy estimates that the proper placement of as few as three trees can save the average household between $100 and $250 annually in energy costs.

is often a problem for gardeners, particularly in an urban area. These garden and landscape by-products can be turned into useful compost with little effort. Returning these organic materials to the land perpetuates the natural biological cycle, improving the health of your soil and therefore of your plants. Ecologically, this is a sensible means of reusing organic wastes. Creating and using compost on-site not only reduces the energy needed for transporting the material to a landfill, but also reduces the energy used in producing and transporting synthetic fertilizers and pesticides.

Select Efficient Equipment

Another source of energy consumption in the landscape is the use of gasoline-powered lawn mowers, leaf blowers, string trimmers, and other motorized yard maintenance equipment. This equipment not only uses energy, but also contributes to air pollution and global warming by emitting carbon monoxide, hydrocarbons, and oxides of nitrogen.

If you use a gasoline-powered mower, save energy by maintaining it and keeping the engine tuned for maximum efficiency, and be especially careful to avoid spills. Reduce your turf grass areas or use manual tools and a push reel mower to minimize or eliminate fossil-fuel energy used in cutting your grass. Also, remember that applying more fertilizer will mean faster grass growth and a need to mow more frequently. It will also require more water, with its resulting energy cost.

Alternative mowers, including reel mowers and solar powered mowers, are gaining in popularity. Electric mowers are arguably the more energy efficient, quieter, and less polluting choice than gasoline-powered mowers, but they still generally involve nonrenewable energy production. Reel mowers not only save the most energy, but also eliminate noise and air pollution. They are most appropriate for small yards and are more difficult to push when the grass is very high. Regardless of what type of mower you use, remember to cut no more than 1/3 of the grass blade at each mowing, keep your blades sharp, and raise your mower to the highest recommended cutting height for your grass type in order to improve the lawn's drought tolerance.

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