LOW INPUT LANDSCAPING

Lawn grasses are one of the hardiest plant systems known. So why not let them take care of themselves?

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The principles of LIL include heavily aerifying the lawn, topdressing it with ½-inch of municipal composte and vertiseeding it.

As landscapers, you've been told from every quarter that lawn grasses and flowers get hungry and must be fed on a regular basis. There are the weekly columns in which you are urged to be on the look out for the weed, bug, or microbe that's about to strangle or suck the life out of your grass or flowers. And, of course, there is a fertilizer, insecticide, herbicide or fungicide to beam at each of these pests or conditions.

Could garden experts all be wrong? Have they missed some startling breakthrough in "green thumbery"?

Probably not. It's just that so-called "proven-practices" don't stay proven. From time to time, current practices are challenged and new insights bring different solutions to old problems.

The theory of less

Lawns and flower beds worthy of bragging rights can be had with far less chemicals (fertilizers and pesticides used so extensively on home grounds) than are normally used.

Some practices that have been followed for a number of years simply are not acceptable for the long run. A kind of internal review is under way in the agriculture community, and buzzwords such as "sustainable agriculture," "integrated pest management" and "low input farming" are being thrown about.

A major thrust of this review is to maintain or improve farm profitability while reducing the use of chemical fertilizers and pesticides. It is anticipated that these programs will also help to improve the quality of surface and groundwater supplies.

Isn't it time to launch similar Low Input Landscaping (LIL) programs aimed at lawns, flowerbeds, shrubbery, and recreational areas? The principles of LIL can easily be applied to home lawns.

A primary reason that low input lawn and garden programs can be successful is tied to stress. Although it may seem an oversimplification, the key to successful lawn care is removal of stresses that normally zero in on lawn grasses.

Research and experience confirm that acid soil, soil compaction and shade are examples of common plant stresses. Though plants may survive these stresses, the introduction of an additional stress—such as a fungus, weed or an insect—may be more than the plant can handle.

Stresses become additive. In a low input plant management system, emphasis is placed on eliminating stresses by using methods that don't call for chemical treatment. For example, thatch and soil compaction can be eliminated by aerification and top dressing. If a tree's shade is responsible for a fungus, its bottom branches can be removed, it can be cut down or red fescue could be planted—instead of or before applying fungicides.

So what is LIL?

In essence, an LIL system provides an optimum environment for plants. Plants respond with vigorous growth. And, under these relatively stress-free conditions, pressures from disease organisms, insects and weeds are more easily thrown off.

Examples of stress-producing practices that should be avoided in LIL lawns include:

- Growing Kentucky bluegrass on fully exposed lawns that face south in the transition zone. Switch to tall fescue blends that have greater heat-moisture tolerance than bluegrass;
- Using excessive nitrogen, which contributes to thatch build-up, shrinks root systems, reduces plant food reserves and decreases vulnerability to some diseases;
- Using Kentucky bluegrass, low cutting heights and excessive nitrogen under shade conditions;
- Mowing Kentucky bluegrass and fescue lawns at less than 1½ inches, shortening the root system, reducing stand density, and encouraging encroachment by crabgrass and annual bluegrass. Avoid stress by raising the cutting height to two inches, or higher; and
- Allowing soil acidity to increase,

causing thatch build up and poor performance of Kentucky bluegrass.

Although lawn grasses are vulnerable to many different stresses, a lawn can be one of the most self sustaining plant systems known. Not only do lawns function as sites of vital gas exchange, but they practically eliminate soil erosion. And, with a root system that is active except in the dead of winter, they prevent significant loss of nutrients to the groundwater.

Leave the clippings

For a lawn to reach its full potential as a self-sustaining system however, grass clippings should remain on the lawn where they will decompose and release nutrients essential for sustained growth. (See this month's "Jobtalk.")

As clippings rot, they add to the vital humus content of the soil. This is recycling at its best. Unfortunately, it has become traditional to collect and remove grass clippings, place them in plastic containers, and send them off to the landfills. On any given summer day, thousands of plastic bags, stuffed with lawn clippings, show up at the landfills. This practice is not only a direct expense to the home owner in trash removal, but it is also an expense to society as it significantly reduces the life of landfills.

In the interest of prolonging landfill life, some states and municipalities now prevent the dumping of leaves in landfills. Can similar rulings aimed at lawn clippings be far away?

H_2O management

A second important step in LIL is water management. Water is a critical resource and will become more so with the demands of an expanding population. Failure to provide water for plants quickly causes a severe stress. In partitioning limited water supplies, it's clear that people will come first and plants must "make do" with what's left. Given the inevitable short supplies of water for landscape work, it's imperative that more performance be wrung out of every drop.

Drought-tolerant species and moisture conserving mulches must be used where possible. Drip and subsurface irrigation should be explored as techniques that can increase water use efficiency to more than double that of overhead sprinkler equipment.

The essentials of LIL are based on the fact that adapted plant material, well managed and given optimum conditions of soil, air and water, will by itself resist the normal stresses imposed by diseases, insects, weeds and foot traffic.

The goal of LIL is to achieve optimum growing conditions for plants while keeping to a minimum the application of pesticides and other chemicals. This goal can be reached by recycling lawn and garden wastes, using humus produced by composting municipal waste and making full use of improved mechanical equipment to improve the soil-air-water system. **LM**

Applying LIL techniques to the home lawn

Vertiseeding mixes the humus and soil, creating the optimum environment for germination.

A lawn in need of improvement may benefit from the following LIL program:

☐ Make a thorough survey of the existing site. Note the topography, the degree of shade, soil texture, level of soil compaction and the pressure of thatch and existing vegetation. Measure the soil pH to establish need for lime.

☐ Thoroughly aerify the lawn using one of the new coring machines designed to remove 5/8- to 3/4-inch diameter soil plugs to a depth of 2½ to 3 inches. Coring is the first step in improving the air supply for grass roots while at the same time getting on top of a thatch problem.

☐ Topdress the lawn with screened humus from a municipal waste processing plant. Practically all major cities and many small communities either operate or are in the process of constructing such plants. Humus (composted waste product) is being used on the Capitol grounds in Washington, on statehouse lawns and on the most prestigious golf courses and home landscapes.

Humus improves the physical condition of the soil while at the same time supplying essential plant nutrients. Humus, in addition to clippings which are allowed to remain on the lawn, will supply all of the plant nutrients needed for healthy, vigorous grass.

Broadcast humus to a depth of 1/8 to 1/2 inch (0.4 to about 1.5 cu. yds. per 1,000 sq. ft. of lawn). If the lawn is exceedingly rough, mix humus with equal parts of sand or topsoil prior to broadcasting.

☐ Vertiseed the lawn using one of the highly effective vertiseeding machines that have appeared on the market. Vertiseeding will mix humus with soil and provide seed-soil contact that is so essential for germination.

There is a wide range of grass species and cultivars to choose from. Base your selection on the environment in which the grass must grow.

☐ Maintain the lawn with annual spring or fall applications of humus applied at about 1/2 cu. yd. per 1,000 sq. ft.

☐ Set the mower to cut not less than a height of 2 inches and mow on a regular schedule, trying never to remove more than 1/3 of the existing top growth. A modification of the steps outlined for lawn renovation and maintenance can be used for the care of annual and perennial flower beds, foundation plantings, trees and shrubs.

Drip irrigation tubing, mulched with composted waste, is an effective way to irrigate annual and perennial flower beds. It also shows a commitment to resource conservation as well as to waste recycling, both of which are essential components of LIL.

—*W.M. Mitchell* ☐