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Planting on Your Septic Drain Field

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Perhaps the most entertaining answer to the question 'What should I plant over a septic system's leach field?' is 'Something fragrant.' Although the question arises often, there are few hard and fast answers as to what can be planted, because every drain field is unique. You can decide what will work best in each situation, however, by following a few simple guidelines.

Why Have Plants at All?

There are many reasons to plant on your leach field. Plants can help your septic drain system to function at its best by removing moisture and nutrients from the soil. Plant cover is also important to reduce soil erosion. At a minimum, the leach field should be planted with a dense cover of grass to provide these important benefits. In addition, many homeowners have limited space and want to make the best landscape use possible of their septic leach field. Often the only place for a flower garden on a wooded lot is in the sunny spot where the drain field runs. Or the field may be located in the front yard where the home owner would like to plant trees, shrubs, or flowers to set off the house and lawn.

Which Plants Are Best for My Drain Field?

In general, shallow-rooted herbaceous plants that are not excessively water-loving are best. A leach field is a series of relatively shallow (a minimum of 6 inches below the surface) underground perforated pipes set in gravel trenches that allow septic tank effluent to drain over a large area. As the effluent seeps into the ground, it is purified by the soil. Plant roots can help remove excess moisture and nutrients thereby making the purification of the remaining effluent more efficient. However, roots that clog or disrupt the pipes will seriously damage the drainage field. The challenge of leach field gardening is to find plants that will meet your landscape needs but not clog the drain pipes.

Planting Herbaceous Perennials and Annuals

Herbaceous, shallow-rooted plants such as flowering perennials and annuals, turfgrass, and many ground covers are unlikely to damage the lines. Don't be too enthusiastic in tilling the soil when setting them out, however. This is one situation where double digging is definitely out. When planting close to a line, you may also want to choose species that do not require frequent dividing. Also, always wear gardening gloves when planting, weeding or doing other gardening activities that involve contact with the soil over your drain field. This will protect you from direct contact with any harmful organisms that may be present in the soil.

Trees, Shrubs, and Your Drainage Field

Trees and shrubs are much riskier choices for the drainage field than herbaceous plants. The woody roots of these plants are more likely to clog and damage drain lines. Especially notorious for line clogging are water-loving trees such as willows and poplars (see table). Do not plant these near a leach field unless you are prepared mentally and financially for the possibility of needing to install a new field sometime in the future. If you insist on growing them near a field, at least plant them at the far end where the lines will be drier and less conducive to root growth.

Some smaller and less-aggressive woody species may be suitable for planting over the drain field. Some possibilities include fibrous rooted shrubs such as boxwood or holly, or small trees such as dogwoods. When planting shrubs in a leach field, place them between the lines when possible. Normally, drainage trenches are 3 feet wide with 6 feet between trenches.

Finally, you must decide what is more important to you - the leach lines or the plants. One gardener decided that the cost of a new system was inconsequential when compared to the enjoyment and shade she would get from an established grove of silver maples near her leach field. It is impossible to predict how long it will take for roots to disrupt a leach field because every situation is different. The field could need replacing in as few as 8 years, or as many as 40.

Techniques for Reducing Tree Root Intrusion

Select less aggressive species. By selecting trees with less aggressive roots, such as those listed in the table on the next page, you can greatly reduce the likelihood of your trees disrupting the drain field.

Plant trees as far away as possible from the drain field. If you want to be absolutely certain that tree roots will not intrude into your drain field, trees should be planted at least as far away as their estimated root spread at maturity. One way to estimate this is by the ultimate height of the mature tree. For example, a weeping cherry may be expected to grow about 25 feet tall, and should be planted a minimum of 25 feet away from the drain field. An oak might need to be planted

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Selecting Trees for Planting Near Your Septic Leach Field

Not Recommended for Planting Near Leach Fields		Better Choices for Planting Near Leach Fields	
Beeches	*Fagus* spp.	Cherries	*Prunus* spp.
Birches	*Betula* spp.	Crabapples	*Malus* spp.
Elms	*Ulmus* spp.	Dogwoods	*Cornus* spp
Poplars	*Populus* spp.	Hemlock	*Tsuga* spp.
Red Maple	*Acer rubrum*	Oaks (red, scarlet, white)	*Quercus* (*rubra, coccinea, alba*)
Silver Maple	*Acer saccharinum*	Pines	*Pinus* spp.
Willows	*Salix* spp.	Sourwood	*Oxydendrum arboreum*

60 or 70 feet away. On the other hand, if you are willing to risk some root intrusion, you may plant these non-aggressive species quite a bit closer to the drain field (although closer than 10 feet is not recommended). Although the root spread of these trees may eventually encompass part of the drain field, the roots are not likely to cause serious damage.

Prepare the soil for your trees before planting. Roots tend to grow along impermeable surfaces until they find a crack or other "path of least resistance" where they can penetrate. If you plant a tree in shallow topsoil over a compacted subsoil - a common situation in newer housing developments - the first "crack" or "path" in the soil that a tree root encounters may be your drainage field trench. Dig up as wide an area as possible for your new tree before planting to provide a good rooting environment. Prepare the soil especially well on the side of the plants that faces away from the drain field. This is where you want the most roots to grow. If you are planting between drain lines, be careful to avoid the lines and trenches. If the soil is very poor or compacted, consider amending it with organic matter (compost, leaves, peat moss, etc.). Never amend just the planting hole backfill - you should instead till organic material into the entire planting bed or at least into an area several times the size of the planting hole. Good soil preparation can help discourage roots from clogging your drain pipes because tree roots will be better able to take up adequate water and nutrients without invading the leach field.

Consider using root barriers. Another effective, although expensive, technique that may be worth trying is installing a root barrier between your drainage field and tree plantings. Geotextiles, impregnated with a long-lasting herbicide that moves only a short distance in the soil, have been used successfully to restrict root growth in street tree plantings. To effectively stop tree roots, the barrier should extend from the soil surface to a depth of at least 2 feet. Some roots may still grow under the barrier, but intrusion into the drain field should be greatly reduced. Install the barrier fabric at least 3 feet from the drain field so as not to disrupt the system. Allow at least 5 feet (the more the better) between the tree and the root barrier - more if it will be a very large tree. Finally, never encircle the tree with the barrier material; this could effectively containerize your tree and prevent it from thriving. Instead, run the material the entire length of the drain field to prevent roots from getting into the field by going around the barrier.

How Does the Effluent Affect Growing Conditions?

It is important to understand your soil conditions before deciding on any landscape planting. However, there are some additional considerations to be taken into account for the soil in your drain field. The composition of septic tank effluent varies somewhat based on what goes down the drain. Many household chemicals are highly alkaline and can raise the pH of the effluent, although anaerobic digestion by the bacteria in the tank tends to keep effluent pH closer to neutral. The pH of the effluent will affect the pH of the soil, so have soil samples from the drain field tested periodically so that you can adjust the soil pH as necessary if you have planted species that are not pH adaptable.

Salt levels are likely to be high no matter what the pH is, so plan to use plants that are somewhat salt tolerant in a leach field landscape. Some plants that are both salt and moisture tolerant include hollyhocks, bee balm, violets, arborvitae, red osier dogwood, inkberry holly, and blueberries (blueberries also require acid soil). If your field is well drained, there are a number of salt tolerant species that may prove suitable, including yarrow, columbine, chrysanthemum, delphinium, daylily, peony, clematis, and rose. Use of fertilizer may be reduced for plants growing over a leach field because some of these salts are forms of the plant nutrients nitrogen, phosphorus, and potassium.

Vegetable Gardens and Drainage Fields

Sometimes the ideal place to put a vegetable garden seems to be over the leach field, raising the question of bacterial and viral contamination from the effluent. Soils vary a great deal in their ability to filter viruses and bacteria. Clay soils work best, eliminating bacteria within a few inches of the drain trenches, but sandy soils may allow bacterial movement for several feet. A properly operating system will not contaminate the soil with disease-causing organisms, but it is very difficult to determine if a field is operating just as it should. If at all possible, use your septic drain field for ornamentals and plant your vegetables elsewhere. If you must plant vegetables, take the following precautions. Do not plant root crops over drain lines. Leafy vegetables could be contaminated by rain splashing soil onto the plant, so either mulch them to eliminate splashing or don't grow them. Fruiting crops are probably safe; train any vining ones such as cucumbers or tomatoes onto a support so that the fruit is off the ground. Thoroughly wash any produce from the garden before eating it. Do not construct raised beds over the field; they might inhibit evaporation of moisture.