



## Home & Environment

# Native Plant Landscaping of Septic Systems

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Septic system components sometimes have unsightly aboveground pipes, risers, ventilation systems, or large mounds. Homeowners can improve the appearance of these functional features through site design and, in particular, plant material selection. Care must be taken to choose plants that grow well but also are not likely to interfere with septic system operation. Native plants can be a good choice when selecting vegetation to plant on and around septic system components because they are adapted to local climates and often thrive in areas where fertilization is not warranted; many native plants adapted to dry soils can handle short periods of excessive soil moisture and drought which often occur in Kentucky and near septic systems. These properties make native plants ideal for landscaping septic systems.

### Why not Turfgrass?

Herbaceous plants such as turfgrasses can be good choices for soil treatment areas for homeowners interested in turf. Turfgrasses are durable, resilient, and desirable because of their fibrous root systems, which hold soil in place. Once established, these grasses also provide a low-maintenance cover. (For more about establishing turfgrass,

see University of Kentucky Extension publication "Lawn Establishment in Kentucky" [AGR-50], available online at <http://www.ca.uky.edu/agc/pubs/agr/agr50/agr50.htm>.) However, many people who enjoy turfgrass because it has a uniform color may be disappointed at the striping that can occur over a soil treatment area in very wet or dry times of the year. (For more information about turfgrass color and septic systems, see University of Kentucky Extension publication "Turfgrass Color: An Indicator of Septic System Performance" [HENV-506], available online at <http://www.ca.uky.edu/enri/henv/wastewater.php>.) Many homeowners are tempted to water and apply fertilizer to the soil treatment area to remove the striping, improve aesthetics, and make the lawn a more uniform color. However applying fertilizer and watering the soil treatment areas is not recommended as these areas have excessive nutrients and water applied daily in the form of wastewater. Although turfgrass may be an option for covering a soil treatment area, there are likely better vegetation options that will not show seasonal variations in quality. (For more information about septic system maintenance, see University of Kentucky Extension publication

“Septic System Maintenance” [HENV-501], available online at <http://www.ca.uky.edu/agc/pubs/henv/henv501/henv501.pdf>.)

## Basic Septic System Components and Functions

The largest component of almost all septic systems is the soil treatment area. Typically, this is the area that receives septic tank effluent via a distribution network that is usually underground. Soil treatment areas that are underground (e.g. a series of trenches) should be covered with at least 12 inches of soil. In an ideal situation, the soil covering your septic system is topsoil resembling the surrounding area and not subsurface soil. Typically, topsoil is dark-brown to brown in color due to the higher organic matter content, whereas subsurface soil is often lighter brown or gray. Topsoil is a much better planting media than subsoil as it contains a greater amount of plant nutrients and beneficial microbe populations. If your septic system is being installed, work with your septic system contractor and insist on topsoil covering your septic system components rather than subsurface soil.

## Use Plants Suited to Dry Soils

In a properly functioning conventional septic system, septic tank effluent is distributed to a series of trenches where wastewater infiltrates the soil and moves down and laterally. In many systems, the soil treatment area will be crowned—that is, the soil will be mounded so that surface water from rain or snow will run off of the soil treatment area rather than collect on the field. Due to the crowned surface and because septic system components are often near the surface, the plant-available water near the surface of the soil treatment area is often lower than the surrounding lawn. As a result, the topsoil above

septic systems is usually drier than soils in the surrounding landscape most of the time. What this means for plant material selection is that the plants should be able to thrive or at least tolerate predominately dry soil conditions.

## Select Low-Maintenance Plants

To keep your septic system functioning properly, it is important to minimize traffic on or near the soil treatment area. Too much traffic will likely compact the soil, which reduces soil porosity and compromises the soil’s ability to treat and disperse septic tank effluent effectively. So, selecting low-maintenance plants that do not need regular tending and care for use over a septic system is important. You should avoid using annual plants that require you to dig into the soil each year. Annual planting can expose you to pathogens and compromises the soil’s ability to treat wastewater.

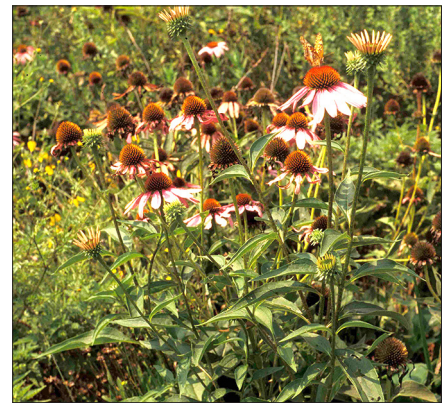
## Consider Native Plants

Native plants are an alternative to the conventional turfgrass found in most managed landscapes. Native plants originated in or were dispersed to an area through natural processes rather than being transported by human activity. The plants recommended below are native to Kentucky, although not necessarily all regions of the state.

The following tables group native plants by type: wildflowers, sedges, and grasses (Tables 1, 2 and 3). Native grasses usually tolerate dry conditions very well but may not tolerate regular mowing. Homeowners can combine native wildflowers and native grasses to form meadows over the soil treatment area. When using native plants, select species that are best suited to the growing conditions where they will be planted. Your local Extension agent, master gardener, or garden center can provide you with information to help you select the right plants based on your specific needs.



*Phlox subulata*, or moss pink, is a low growing perennial best used as a ground cover or in a rock garden. Masses of small flowers are produced in early spring, and the fine foliage adds textural interest to the garden year round. Photo courtesy of Sharon Bale, UK Department of Horticulture.



*Echinacea purpurea*, or purple coneflower, is an upright perennial plant that reaches a height of 2 to 4 feet. The large solitary heads of flowers, produced from early summer until frost, are attractive to butterflies and bees, and the ripe seeds are favored by many songbirds in autumn. Coneflowers often self-seed, and seedlings may naturalize open areas. Photo courtesy of Sharon Bale, UK Department of Horticulture.



*Coreopsis verticillata* “Moonbeam,” or Moonbeam treadleaf coreopsis, reaches a height in flower of 18 to 24 inches. The bright yellow, star-shaped flowers are produced in late spring to early summer. The fine-textured foliage makes a nice accent in the garden even when the plant is not in flower. Photo courtesy of Mary Witt, former Extension specialist in the UK Department of Horticulture.

**Table 1. Native wildflowers.**

Common Name	Scientific Name	Bloom Color	Bloom Season	Light Requirement
common yarrow	<i>Achillea millefolium</i>	red, white, pastels	June-September	sun
black snakeroot, cohosh	<i>Actaea (Cimicifuga) racemosa</i>	white	August-September	sun, part shade
wild garlic <sup>1</sup>	<i>Allium canadense</i>	white/pink	May-July	sun
nodding wild onion	<i>Allium cernuum</i>	white	June-September	sun
willow amsonia	<i>Amsonia tabernaemontana</i>	blue	May-June	sun
field pussytoes <sup>1</sup>	<i>Antennaria neglecta</i>	red	April-June	sun
wild columbine	<i>Aquilegia canadensis</i>	pink/yellow	early summer	part shade, shade
butterflyweed	<i>Asclepias tuberosa</i>	orange	June-September	sun, part shade
boltonia	<i>Boltonia asteroides</i>	white, pink	August-September	sun
sand coreopsis	<i>Coreopsis lanceolata</i>	yellow	May-August	sun, part shade
threadleaf coreopsis	<i>Coreopsis verticillata</i>	yellow	June-September	sun
white prairie clover	<i>Dalea candida</i>	white	June-October	sun
purple prairie clover	<i>Dalea purpurea</i>	purple	June-September	sun
purple coneflower	<i>Echinacea purpurea</i>	purple	July-August	sun, part shade
rattlesnake master	<i>Eryngium yuccifolium</i>	white	July-September	sun
bigleaf aster	<i>Eurybia macrophylla</i> <sup>3</sup>	white, purple	July-October	part shade
wild geranium	<i>Geranium maculatum</i>	pink	April-July	part shade
western sunflower	<i>Helianthus occidentalis</i>	yellow	July-October	sun
prairie sunflower	<i>Helianthus pauciflorus</i>	yellow	July-October	sun
false sunflower <sup>2</sup>	<i>Heliopsis helianthoides</i>	yellow	June-October	sun
rough blazing star	<i>Liatris aspera</i>	purple	August-September	sun
gayfeather	<i>Liatris spicata</i>	purple	June-July	sun, part shade
blazing star	<i>Liatris squarrulosa</i>	purple	July-August	sun, part shade
sundial lupine	<i>Lupinus perennis</i>	blue, purple	May-July	sun
wild bergamot	<i>Monarda fistulosa</i>	white, pink, purple	June-October	sun, part shade
foxglove beardtongue	<i>Penstemon digitalis</i>	white	May-July	part shade
summer phlox	<i>Phlox paniculata</i>	white, pink, blue	June-July	sun
moss pink	<i>Phlox subulata</i>	blue, white, pink	April	sun, part shade
black-eyed Susan	<i>Rudbeckia fulgida</i>	yellow	July-September	sun, part shade
black-eyed Susan	<i>Rudbeckia hirta</i>	yellow	June-October	sun, part shade
cutleaf coneflower	<i>Rudbeckia laciniata</i>	yellow	August-September	sun, part shade
brown-eyed Susan	<i>Rudbeckia triloba</i>	yellow	August-October	sun, part shade
old field goldenrod	<i>Solidago nemoralis</i>	yellow	August-November	sun, part shade
showy goldenrod	<i>Solidago speciosa</i>	yellow	August-November	sun, part shade
smooth blue aster	<i>Symphotrichum laeve</i> <sup>3</sup>	blue, purple	August-October	sun
birdfoot violet <sup>1</sup>	<i>Viola pedata</i>	blue, violet	April-August	part shade

<sup>1</sup> May be difficult to find commercially.<sup>2</sup> Very aggressive and spreading.<sup>3</sup> Often assigned to the genus Aster.

**Table 2. Native sedges.**

Common Name	Scientific Name	Height (feet)	Bloom Season	Light Requirement
shortbeak sedge	<i>Carex brevior</i>	1	early-mid summer	sun
troublesome sedge	<i>Carex molesta</i>	3	late spring	sun
Pennsylvania sedge <sup>1</sup>	<i>Carex pennsylvanica</i>	1	spring-summer	part shade
Texas sedge	<i>Carex texensis</i>	1	April-June	sun, part shade

<sup>1</sup>May be difficult to find commercially.

**Table 3. Native grasses.**

Common Name	Scientific Name	Height (feet)	Bloom Season	Light Requirement
splitbeard bluestem	<i>Andropogon tenarius</i>	1.5-4	August-November	part shade
sideoats grama	<i>Bouteloua curtipendula</i>	2-3	June-November	sun, part shade
Indian wood oats	<i>Chasmanthium latifolium</i>	2-4	June-September	part shade, shade
Canada wild rye	<i>Elymus canadensis</i>	2-4	March-June	part shade, shade
June grass	<i>Koeleria macrantha</i>	1-2	April-June	sun
Threeflower melicgrass <sup>1</sup>	<i>Melica nitens</i>	3-5	March-May	part shade
switchgrass	<i>Panicum virgatum</i>	3-6	August-November	sun, part shade
western wheatgrass	<i>Pascopyrum smithii</i>	2-3	May-June	part shade
little bluestem	<i>Schizachyrium scoparium</i>	3	September	sun, part shade
prairie dropseed	<i>Sporobolus heterolepis</i>	2	June-August	sun

<sup>1</sup>May be difficult to find commercially.

## Hiding Aboveground Components

Many septic systems have pipes known as access risers that are at least a few inches above the surface. Using covers such as fake rocks and bird feeders are common ways to disguise these system components. However, be sure all such covers can be removed to allow for maintenance.

A more natural approach is to use plants to conceal surface septic system components. Shrubs or tall grasses and wildflowers can conceal access ports associated with risers above septic tanks and pump tanks.

The top of the septic tank is often near the soil surface, which means the shallow soil will have a limited water-holding capacity for plants. So, just as with plants above soil treatment areas, select drought-tolerant species to place around the septic tank. Shrubs can be used around the septic tank, but do not place them where their roots can interfere with the soil treatment area trenches and drain pipes. For most shrub species, 10 feet outside of the septic system soil treatment area (and curtain or perimeter drain if present) will be sufficient. Be sure to leave access for regular pumping of the septic tank to prolong proper function of the

system. Solids need to be pumped from the tank and you do not want to have shrubs interfering with this essential maintenance activity.

All of the plants listed in this publication can be grown on or near septic systems, but that does not mean they will be suitable for all locations. For example, false sunflower (*Heliopsis helianthoides*) reaches a height of 3 to 6 feet and spreads readily in the landscape. It will be too big and sprawling for some situations and may be a nuisance to work around if system repairs are required. Climate, soils, and personal tastes will vary from one system to another. For advice about your native plant choices, contact your local Extension agent or local master gardener.

## Essential Tips for New and Existing Systems

Following are some tips to remember when landscaping around septic systems.

### For New Systems

- **Identify potential septic system locations before you design or build a house.** The earlier in the process that you express your landscape preferences to the septic system designer, architect, engineer, and/landscape architect, the more options you will have. Location is important from functional, health, and aesthetic points of view. If it is a new system, a lot of thought should go into the site design. Planting and screening can only do so much if a poor site location decision was made in the first place. If the building site does not have an acceptable site for the septic system, it will not be an acceptable site for the home unless it is on municipal sewer service.
- **Know your setback limitations from wells, property boundaries, streams, lakes, and ponds.** See Table 4.

**Table 4. Minimum setback distances for on-sight sewage disposal systems (septic systems), 902 KAR 10:085: Kentucky on-site sewage disposal systems.**

<b>Structure or Topographic Feature</b>	<b>Minimum Distance from Pretreatment Unit Constructed Wetland Cell, or Holding Tank (feet)</b>	<b>Minimum Distance from Side wall of Lateral Trench, Bed or Lagoon (feet)</b>
Property lines	5	5 (50 for lagoons)
Building foundations	10	10
Basements	20	20
Basement (Downslope from system)	20	30 (5-15% Slope)
		40 (15-25% Slope)
		50 (25% and Higher)
Wells	50	70
Wells (Properly plugged/abandoned)	20	20
Cisterns	50	70
Cisterns (Upslope from system with bottom at higher elevation than system)	10	10
Natural Lakes or Impoundments (Shoreline)	25	50
Streams	25	25
Springs (Upslope from system)	25	50
(Upslope with curtain interceptor drain)	10	20
(Downslope from system)	50	70
Drainage Ditches, Cutbanks (Downslope)	10	25
Curtain or vertical drain (Upslope and Sides)	10	10
(Downslope)	25	
Sinkhole Throat (Open)	70	70
Buried Water Lines or Utility Lines	10	10
Utility Easements	10	10
Driveways, parking lots, or paved areas	10	5
Geothermal Vertical	50	70
Geothermal Horizontal	10	10 (upslope and sides)
(Downslope)		25
Inground swimming pools	10	20
Mine Openings and Air Shafts	50	70
Livestock pens, feed lots, corrals, etc.	10	10

- **Never disturb the soil in any potential septic system location before system construction begins.**

The soil must remain in its natural state until the system is installed. This includes minimizing soil compaction, so keep traffic off the area. The area might be cordoned off to prevent accidental encroachment.

- **When designing the landscape around your building site, consider thinking of the septic system as a single element of the lot.** For more help and guidance with

landscape designs, see University of Kentucky Extension publication “Landscape Designs with Plants: Creating Outdoor Rooms” (HO-62), available online at <http://www.ca.uky.edu/agc/pubs/ho/ho62/ho62.pdf>.

### **For Existing Systems**

- **Never use plants that prefer wet soils (such as willows) near septic systems.** The root systems of these plants can interfere with system functioning. Root barriers (for example, geotextile fabric impregnated with a long-lasting herbicide)

placed around the outside of the soil treatment area have the potential to prevent roots from invading trench drain pipes; however, installation is more expensive and often unnecessary with proper plant selection.

- **Never plant trees or shrubs (woody species) over soil treatment areas.** They should be planted far enough from the soil treatment area that their roots will not reach it—from the edge of the treatment area, approximately 20 to 50 feet for trees and 10 feet for shrubs.

- **Never use annual plants over the soil treatment area.** Annuals require planting (excavation and disturbance of the soil) each year. This activity can expose you to pathogens and also damage the integrity of the soil treatment area thereby reducing life expectancy of the system.
- **Minimize watering and fertilizing over the soil treatment area.** Soil treatment areas receive approximately 50 to 90 gallons per day for every person in the household. The act of flushing the toilet, draining water from a tub or sink, or washing a load of laundry adds water and nutrients to the soil treatment area. Adding more via watering and fertilizing can reduce the soil's ability to treat wastewater.
- **Minimize traffic over the septic system.** The weight of a vehicle can damage system components and compact the soil in the soil treatment area thus reducing the soil's ability to disperse and treat the wastewater.
- **Never place plants meant to be eaten (fruits or vegetable plants) over septic systems.** Vegetables and fruits grown over septic system components and soil treatment areas are at a greater risk of being in contact with pathogens. In addition, the activities required to manage the garden would put you at risk of infection.
- **Wear gloves when handling the soil over a septic system to minimize direct contact with it and wash your hands after handling.** This will reduce the risk of infection to you.

## Resources

For information about non-native plants that may be suitable for landscaping septic systems, see the University of Kentucky Extension publications:

- Perennials for Sunny Locations (HO-76) at <http://www.ca.uky.edu/agc/pubs/ho/ho76/HO76.PDF>
- Perennials for Shady Locations (HO-77) at <http://www.ca.uky.edu/agc/pubs/ho/ho77/HO77.PDF>

Visit the Home & Environment website for science-based information about your home and environment: <http://www.ca.uky.edu/enri/henv/>.

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