

A septic tank is a watertight container typically made of concrete, fiberglass, or polyethylene, and it is buried underground. It holds wastewater long enough to allow solids to settle out, forming a sludge layer, while oil and grease float to the surface forming a scum layer.

It also allows partial decomposition of the solid materials. Compartments and a tee-shaped outlet in the septic tank help prevent the sludge and scum from leaving the tank and traveling into the drainfield. Screens placed in the outlet tee also keep solids from entering the soil.

Maintenance

Inspect and pump regularly. Annual or biannual inspection of the septic tank is advisable to determine the thickness of the sludge and scum layers. A probe may be put into the tank from one of its access ports to make this determination. Always use caution when inspecting a system without professional assistance; septic tank gases can be lethal.

Slow accumulations of sludge and scum are normal. You should remove these materials through periodic pumping (at least once every three to five years) and appropriate disposal. This will protect the soil treatment area from materials that will damage its effectiveness.

A private contractor who specializes in septic system cleaning and pumping can be found in your telephone directory. This service will cost you some money, but it is less expensive than digging up a fouled drainfield.

Avoid overloading the system. Conserve water and repair leaky fixtures. Garbage disposals will cause rapid accumulation of sludge in a septic tank, and their use should be minimized or eliminated to keep the septic system functioning properly. Remember, except toilet paper, nothing should go into the septic tank that hasn't gone through your body first.

Additives that are marketed as septic tank cleaners, rejuvenators, or primers are not needed. Most of these additives won't harm your system, but they don't help them either. Some of these additives are strong chemicals that can harm a septic system.

Avoid damage to the drainfield. Keep a healthy grass cover over the system to prevent exposure of the soil and possible erosion around the drainfield. Do not drive over the system because it can compact the soil and possibly break drain lines. Try to position trees so that their roots will not enter the septic tank or drainfield and plug them.

Properly sited, designed, constructed, and maintained septic systems can provide an efficient and economical wastewater treatment alternative to public sewer systems. While septic systems are designed and installed by licensed professionals to meet the needs of individual sites, homeowners are responsible for the system's operation and maintenance. There is more information on household septic systems at the Arizona Cooperative Extension Onsite Wastewater Education Program website (<http://cals.arizona.edu/waterquality/onsite>) and at the Extension publications web page (<http://cals.arizona.edu/pubs>).

Critter Corner

Cottontail Rabbits

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Cottontail rabbits can be viewed in one of two ways: as friendly, observable backyard wildlife or as destructive garden and landscape pests. Rabbits will often eat succulent plants or gnaw on the bark of young trees. If rabbit damage reaches an intolerable level, population control may become necessary. There are several strategies that can be employed to minimize damage caused by cottontail rabbits. There is one rule to remember when evaluating any wildlife damage management strategy: damage prevention is long-term – population control is short-term.

Three species of cottontail occur in Arizona: the mountain cottontail, eastern cottontail, and desert cottontail. The smallest of these (22-30 ounces) is the relatively short-eared mountain cottontail, which is largely restricted to elevations above 7,500 feet from the Mogollon Rim



Jim Peaco, NPS

northward. The generally larger eastern cottontail (28-52 ounces) is found in the mountains of southeastern and central Arizona where it occupies many of the same habitats as the Coues white-tailed deer. The most abundant and important rabbit by far, however, is the desert cottontail (26.5-44 ounces), which is found in every county in the state up to elevations exceeding 7,000 feet.

Typically, cottontails live only 12 to 15 months in the wild and it is rare for them to live longer than two full years. They often raise two to three litters per year and can have as many as five or six rabbits in each litter. A female cottontail can be bred within hours of giving birth to her litter. In the drier areas of Arizona, litters often consist of only two or three young. The young leave the nest in two to three weeks. An average cottontail doe can produce up to 18 young per year. However, this reproductive potential is rarely reached due to predation and environmental factors. In rural and remote areas, rabbits are an important food source for coyotes, bobcats, foxes, badgers, mountain lions, eagles, and hawks.

Cottontail rabbits generally spend their entire lives in an area of 10 acres or less, so if there is suitable habitat within this distance, you are likely to encounter rabbits. During cold weather, they use natural cavities and burrows of other animals for their dens. Otherwise, rabbits seek cover and protection in brush piles, brushy hedgerows, debris filled gullies, and landscaped backyards with suitable cover. While moist areas act as an attractant due to succulent vegetation, cottontails do not seem to require free water for drinking. The removal or modification of any of these features will change the area's suitability for rabbit habitat.

With any garden "pest," damage must be correctly identified before control efforts can be effective. Cottontails are often observed feeding and frolicking which makes damage identification simpler. In general, rabbits eat vegetables and flowers in spring and summer and cause damage to the lower portions of woody plants in fall and winter. Cottontails seem to prefer plants in the rose family: apples, raspberries, blackberries, etc. Vegetables and annual flowers are favorites. Conversely, corn, squash, tomatoes, potatoes and some peppers are rarely bothered.

Rabbit damage always appears near ground level. Plants will have cleanly clipped stems on tender shoots and small, chiseled, gnaw marks on woody plants. Gnaw marks may be confused with woodrat damage, but woodrats are entirely nocturnal and often cause plant damage well above ground. If the damage is 20 inches or higher above ground, then it was probably not caused by a cottontail. Look for tracks and/or droppings as further evidence that it is truly rabbit damage.

The best way to prevent rabbit damage is to simply exclude them. This can be most effectively done with a two foot-tall chicken wire fence with the bottom tight to the ground or buried one or two inches deep. Chicken wire should have holes one inch or smaller. To protect young trees, use cylinders of ¼" wire hardware cloth (heavy duty galvanized wire screen) wrapped around the tree trunk. It should be spaced one or two inches away from the trunk, buried two inches deep, and be tall enough to extend beyond a cottontail's reach (20+ inches).

Repellents are also available. These substances either render the plant parts distasteful or create a bad smell to rabbits. Commercially available products may not be locally available, but can be mail ordered and restrictions may apply. Hot pepper products can be used as taste repellents, but new growth will not be protected. Repellents will not always protect plants from damage. It really depends on what alternative foods are available. If food is limited, even the least desirable plants may be damaged.

Some plants are less palatable to rabbits than other plants. For a list of rabbit resistant plants, visit or call your local University of Arizona Cooperative Extension Office and request the publication: Deer and Rabbit Resistant Plants or download it online from <http://cals.arizona.edu/pubs>.

Habitat modification and exclusion are the most effective strategies against rabbit damage. Repellents are a useful tool where other strategies are not practical. Live trapping and relocation are not recommended. If a release area is suitable habitat for cottontails, then a resident population will already be present. Remember that cottontail rabbits are a small game species in Arizona and using lethal means to control them is illegal without a permit. Consult the Arizona Game and Fish Department in your area for more information. In addition, local firearms regulations may also preclude their use. Remember: damage prevention is long-term – population control is short-term.



Desert cottontail rabbit.

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For more information:

Arizona Game and Fish Web Site: Cottontail Rabbit
http://www.azgfd.gov/h_f/game_cottontail_rabbit.shtml

Pests in Gardens and Landscapes: Rabbits. UC IPM Web Site:
<http://axp.ipm.ucdavis.edu/PMG/PESTNOTES/pn7447.html>

Prevention and Control of Rabbit Damage. University of Nebraska – Lincoln Extension.
<http://www.ianrpubs.unl.edu/epublic/pages/publicationD.jsp?publicationId=79>