

Nonlethal Deer Damage Abatement Techniques – Chemical Repellents

None of the nonlethal techniques for reducing/eliminating deer damage are free. One should consider the costs associated with implementing a technique and compare it to the expected money lost if no technique were implemented and deer were able to browse freely. If the cost to apply a damage prevention technique is less than the expected monetary loss if nothing is done, then the technique should be utilized. It is important to note, that some techniques (i.e. fencing) have high initial costs but their costs may be offset over time. Furthermore, some techniques (i.e. chemical repellents) require continued maintenance and retreatment.

How They Work

Chemical repellents work by emitting an alarming odor and/or bad taste that repels deer. They make treated plants less palatable and less desirable to deer. They have been used successfully to reduce damage to ornamental plants, vegetable gardens, orchards, and tree and landscape nurseries. Repellents do not alter the aesthetics of plantings like some fences do, and can be used where aesthetics cannot be compromised. They are effective when used in areas with low to moderate deer numbers. Repellents are most effective where untreated plants are available for to deer. Repellents should not be expected to eliminate all damage, but they can help to reduce deer feeding damage to plantings. Some repellents are applied directly to plants and some are placed near plants that need protection. Repellents should only be applied according to label directions, to prevent damage to tender plantings.

Taste-Based Repellents

Taste-based repellents impart a noxious taste that makes treated plants less palatable than untreated plants. A drawback of taste-based repellents is that deer must eat part of the plant before being repelled. This may be acceptable for some larger type shrubs (i.e. azaleas) where browsed areas are less noticeable. However, they may be unacceptable for individual flowering plants (i.e. bulbs) where browsing only once will kill the plant.

Most taste-based repellents are applied directly to each individual plant and discourage deer from feeding because of the offensive taste that they impart to the plant. One kind of taste-based repellent is systemic. It is placed in the ground with the plant roots, and is absorbed by the plant as it grows. The chemicals absorbed by the plant impart a noxious taste to the plant, which deters deer feeding. Certain taste-based repellents can be used on edible plants such as vegetable crops, fruits, berries, nuts and herbs, but they must be removed (washed off) prior to eating.

The following is a short list of repellents that are approved for use on edible plants:

- Hinder*
- Millers' Hot Sauce
- Deer Stopper
- Plant Pro-Tec
- Deer buster deer and & rabbit repellent

Only those repellents that are labeled for use on edible plants should be used for edible plants.

Odor-Based Repellents

Odor-based repellents capitalize on a deer's keen sense of smell. Their odor discourages deer from feeding on the treated plants by producing an offensive or alarming odor, which repels deer. Some odor-based repellents can be placed into dispensers that can be attached to or near plants. The Plant Pro-Tec Garlic Dispenser is one repellent dispenser that is clipped onto edible plants and doesn't need to be washed off because it isn't directly applied to the plant. Some odor-based repellents may use rotten eggs, animal parts, and soaps as active ingredients. Some incorporate chemicals that deer find offensive. Still, other odor-based repellents use real or synthetic predator urines to repel deer. Repellents that use predator urines rely on the principle that large predators mark their territory with their urine, and that deer are discouraged from entering areas frequented by these predators.

Odor-based repellents can be used to treat individual plants or for area treatments. One system of area treatment is called the rope fence system. This treatment is done by suspending a single-strand of cotton rope, at waist height, on fence posts or stakes anchored around the perimeter of the impacted area. The rope is treated with an odor-based repellent that discourages deer from entering the fenced area.

Homemade vs. Commercial Repellents

Commercial repellents can be more expensive than homemade ones, but most of them have the advantage of being tested and developed for effectiveness. Newer repellent technology has incorporated sticking agents that adhere the repellents to the plants, making them last longer before needing reapplication. Some commercial repellents are reported to have worked for up to five weeks, before needing reapplication.

Commercial repellents come in many different forms. Some come as solids that must be dusted on plants, some are solids or liquid concentrates that must be mixed with water to form a solution, and others come pre-mixed and ready for use. Liquid repellents can be easily applied using a spray bottle or pump sprayer.

Repellents can be purchased commercially or they can be homemade. Homemade repellents can be inexpensive, but may not be as effective as some commercial repellents. Some examples of homemade repellents include human hair clippings in a mesh bag, crushed garlic cloves in a cloth bag, and deodorant soap attached to the plant by a string. The following list contains homemade repellents that have been used with varying degrees of success to reduce deer damage.

Homemade Repellents

- Ammonia soaked rags tied to/near plants or suspended by stakes
- Human hair (2 handfuls) in mesh bag
- Worn clothes (with human odor) hung near plants
- Predator urine sprinkled on ground or cloths around plants
- Tankage (putrified meat scraps) sprayed on ground around plants

- Rotten eggs placed in vicinity of plants
- Egg/water mixture (4 to 6 raw eggs mixed with 1 gallon water) sprayed on non-edible plants
- Moth balls / Moth crystals scattered around non-edible plants on ground
- Hot pepper spray - 2 tbsp. hot pepper mixed with 1 tbsp. liquid dish soap, 1 tsp. garlic powder, to 1 gal. water
- Blood meal or Bone meal scattered around plants on ground
- Deodorant Soap (any fragrant deodorant soap); shavings scattered on ground around plants; bar of soap hung from plants by a string

Repellents can be purchased at many nurseries, home and garden stores, home improvement stores, and some hardware stores, and can even be purchased online at various websites, and through mail-order catalogues.

Repellents: Drawbacks

A few drawbacks of repellents are: they can be costly, they need to be reapplied after repeated exposure to the weather and, they can lose their effectiveness as deer can learn to tolerate them, especially when food is in short supply. Repellents can be ineffective at deterring antler rubbing by deer. During the fall, male deer rub their antlers on trees to remove velvet, to polish their antlers, and to mark their territory. Plant enclosures like wire cages or tree shelters can be used to deter antler rub damage. Repellents should be applied at the first sign of damage or if damage is expected, prior to any damage. Deer may eat plants that have been treated with repellents, if alternative foods are not available. Snow cover can prevent deer from finding food, which can encourage them feed on treated plants. Deer can become used to some repellents over time. Lastly, repellents degrade over time and need reapplication.

Not all repellents perform equally - some repellents are more effective than others at deterring deer damage. Using different repellents can prevent deer from becoming used to any one kind, and can be more effective than using just one kind. Due to their cost and varying effectiveness, repellents should only be considered as a method of reducing deer damage. Where larger areas need protection, other deterrents, exclusion or a combination of damage abatement measures should be considered. Weather, adjacent natural habitat and deer numbers influence the effectiveness of most repellents.

Repellents: Advantages

Repellents are most effective when they are used in conjunction with other deer damage management techniques, like fencing and population reduction. They can reduce deer damage to tolerable levels in areas where damage pressure is light to moderate. They can be a cost-effective treatment for reducing deer damage on small to medium-sized areas such as gardens, landscape plantings, small orchards and small to medium-sized tree and landscape nurseries. Repellents do not alter the appearance of landscape plantings and should be considered where exclusion methods would detract from the aesthetics of plantings. Commercial repellents are readily available at various retailers, and can even be ordered online. Advancements in repellent technology have resulted in repellents that last for up to five weeks before needing reapplication. Most

repellents are easily mixed and applied, and some come premixed and ready to use, in handy spray bottles. Repellents are most effective when they are used in conjunction with other deer damage management techniques, like fencing and population reduction.