



CMG GardenNotes #553

Dog Urine Damage on Lawns: Causes, Cures and Prevention

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Urban Legends About Urine Damage

Dog urine damage is a common problem for home lawns, and one that has generated numerous home remedies and commercial products claiming to be cures for the spots. This lawn problem is misunderstood when it comes to causes and cures. Dog spotting on turfgrass is caused by the deposition of a high concentration of nitrogen (N)-containing compounds and associated salts on a small area in the lawn. These deposits are often concentrated in a relatively small portion of the lawn, resulting in turf injury or death. Some common "urban legends" surrounding dog urine damage to lawns are:

- **Only female dogs cause spotting in lawns.**

FALSE. Dog spotting in lawns is most often caused by dogs that squat when they urinate, thus depositing a large volume of concentrated urine in a small area. Most "squatters" are female dogs, but some males do this as well, especially in their own yard. Many male dogs tend to "mark" vertical objects in the landscape (trees, posts, etc.), which presents problems for landscape plants.

- **Dog spots are more common with certain breeds of dogs.**

MOSTLY FALSE. Dog spotting is more likely to occur (or be more obvious) with larger dogs, since they produce larger amounts of urine. Dog spots can occur with smaller breeds, especially if the dog tends to urinate in a limited area of the lawn.

- **Dog spots occur because urine is alkaline (has a pH above 7.0).**

FALSE. Dog spots occur because a high concentration of N and salts has been deposited in a very small area of the lawn. In some cases, the added N causes dark green spots and rapid grass growth, without injuring the grass. In other cases, the result is a brown spot – often surrounded by a halo of dark green grass. The browning is caused by the concentrated nitrogen deposited in the center, which burns the leaf tissue, and may or may not cause tissue death. The lower concentration of salts on the periphery fertilizes the grass – resulting in a darker green ring.

- **Dog spots can be prevented by using food supplements that acidify a dog’s urine.**

FALSE. Dog spots do not occur because a dog’s urine is alkaline. Products advertised to “naturally” reduce urine alkalinity (including the amino acid, dl methionine, also known as methioform) may cause urinary system problems and can affect calcium deposition in growing bones of younger dogs. The addition of baking soda, potassium citrate and other salts are likewise not recommended as curatives for dog spots. A veterinarian should always be contacted before giving a dog a food supplement known to affect urine pH. There are medically sound reasons for altering urine pH, but the prevention of dog spots in lawns is not one of them. *There are no dietary supplements that have been scientifically proven to reduce either the incidence or severity of dog spotting in lawns.*

- **Dog spots can be “cured” by sprinkling the affected area with baking soda, gypsum, dishwashing detergent, etc. to neutralize the urine.**

FALSE. The only “product” that can neutralize the urine’s negative effects is water. Gypsum and baking soda (sodium bicarbonate) are salts and may compound the problem. Dishwashing detergents, which act as wetting agents or surfactants, may enhance water movement into and through the soil. While this theoretically could promote leaching and dilution of accumulated salts, some dishwashing detergents can burn grass plants.

Dealing with Dog Spots

What can be done with the dog(s)?

- Train the dog to use a non-turf area in the landscape, such as an area covered with mulch or gravel, or select a location where dog spotting will not become an aesthetic problem and damage can be tolerated. *This is the ONLY sure solution for the problem!*
- Always provide adequate water for your pet; increased water consumption will dilute urine, reducing the potential for turf injury.
- While the addition of salt, garlic, tomato juice and other “home remedies” to your pet’s food can increase water consumption (thus diluting their urine),

your veterinarian should always be consulted before doing so. The increased salt intake can cause problems for older dogs, as well as for those with heart or kidney conditions.

- Except for the addition of water to a dog's food, no additive or supplement should be fed to your pet without first consulting with your veterinarian. Certain additives may increase a dog's water intake, but can have detrimental and unintended consequences for its health.

If the affected spots are green and grass growth is stimulated (no browning is apparent):

1. Increase nitrogen fertilization frequency and/or the amount of fertilizer to help mask the urine-induced stimulation of growth and color; dark green spots will be especially visible on lawns that are not receiving adequate nitrogen fertilization.
2. Maintain adequate irrigation to prevent accumulation of salts in the soil; drought or lack of water can allow salts to accumulate and injure or kill turf.

If the affected spots are brown, (the turf may or may not be dead):

1. Increase irrigation amount and/or frequency to help dilute salts that have accumulated in the soil. This may help still-living turf recover, and will dilute salts in those areas where the turf has been killed (allowing for more effective re-seeding).
2. When turf has been killed, the dead sod and some soil (0.5-1 inch of soil) can be removed. Re-sod the area with new grass.
3. Individual dead/damaged spots can be re-seeded as follows:
 - In a **Kentucky bluegrass lawn:** Spot seed with Kentucky bluegrass (marginally effective) or perennial ryegrass (more effective). Tall fescue, K31 tall fescue, "dwarf" fescue, or annual (Italian) ryegrass should NOT be used for spot-seeding a bluegrass lawn.
 - In a **tall fescue lawn:** Spot seed with turf-type tall fescue (sometimes called "dwarf" fescue). Perennial ryegrass can also be used, but it has a finer texture and the newly seeded spots will look different from the rest of the lawn. Do NOT use K31 fescue or annual (Italian) ryegrass for spot-seeding a tall fescue lawn.
 - **Fine fescue lawns:** Seed with fine fescue seed. The use of perennial ryegrass or tall fescue is NOT recommended, as the spots will have a different color, texture, and growth rate.
 - **Zoysiagrass and bermudagrass lawns:** Patch using sod from a sod farm, or by transplanting sod from an inconspicuous area of same the lawn.

Consult your veterinarian before supplementing a pet's diet with any product or food additive claiming to reduce dog spots in lawns. Similarly, no "spray-on" product for lawns, claiming to prevent or "cure" dog spots, has been scientifically proven to be effective.

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- For additional information on lawn care, refer to csuturf.colostate.edu.
- Colorado Master Gardener *GardenNotes* are available online at www.cmg.colostate.edu.
- Colorado Master Gardener training is made possible, in part, by a grant from the *Colorado Garden Show, Inc.*
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Revised October 2014