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# Prairie Dog Management in South Dakota

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## About Prairie Dogs

Prairie dogs are highly social animals belonging to the squirrel family. There are five species of prairie dogs in North America, however, just the "black tailed" prairie dog is native to South Dakota. The black tailed prairie dog weighs approximately 1.5-3 lbs. and is 14 to 17 inches in length. They are tan in color and have a short tail with a black tip.

Prairie dogs are an important component of the grassland ecosystem. Their burrows provide habitat and homes for numerous plant and animal species, including burrowing owls, ferrets, snakes and rabbits. They feed on grasses and forbs, as well as seeds and some insects. They can consume large amounts of vegetation. This is a problem for livestock producers as they compete with livestock for forage. Dry conditions can aggravate this issue.

Prairie Dog impact on pasture in South Dakota.
Photo credit R. Beck

It is important when managing any pest to know their life cycle and habits. The black tailed prairie dog is active during the day. They do not hibernate in winter but do remain below ground during cold cloudy periods. Their "towns" consist of an elaborate system of burrows that can go up to 10 feet deep and 100 feet in length. Burrows can be numerous, in some cases numbers can be as high as 50 per acre. Prairie dogs build dirt mounds at the openings of their burrows. These are ½ to 1-foot-high and serve as lookout stations so the prairie dogs can watch for impending danger.

Dirt mound at burrow opening.

The black tailed prairie dog breeds in late January and February. Their gestation period is 4-5 weeks in length. The babies are born underground in March and remain there for 6 weeks. Populations of prairie dog towns jump exponentially in spring when pups are born.

## Management Options

There are a number of control measures available to landowners to help alleviate damage from serious prairie dog infestations. These include biological, mechanical, and chemical methods. Usually with

serious infestations, an integrated management approach that employs more than one control method is recommended.

## Biological

Biological controls that provide habitat for predators such as raptors, coyotes, snakes, badgers and ferrets can be part of a long-term control plan. One female black-footed ferret and her young can consume up to 200 prairie dogs per year. Well placed raptor perches can encourage birds to roost and prey on the prairie dogs. Diseases have also been known to reduce prairie dog populations. At times in the past, South Dakota has experienced large prairie dog die offs from plague in south west areas of the state. The plague is a human health concern as it is transmitted by fleas and can be transmitted to humans via flea bites.

## Cultural

Another management tactic is the use of cultural controls. Prairie dogs do not like tall grass. Range management techniques that keep grass stands healthy, can deter prairie dog settlement and colony expansion. Location and distribution of watering facilities, salt licks, and other factors that tend to concentrate livestock and result in overgrazing should be considered.

## Mechanical

Mechanical controls include hunting and trapping prairie dogs. Hunting is not recognized as an effective method to reduce prairie dog numbers in heavily infested areas, however, it can help reduce small populations. Intensive shooting during mating season has been thought to interrupt mating and reduce reproduction. Trapping can also provide some reduction in numbers, but is expensive and time consuming. Mechanical controls by themselves can work to keep small infestations from expanding but they are seldom effective on more serious infestations.

## Chemical

Cultural and mechanical controls can help to reduce prairie dog infestations. However, with serious prairie dog infestations, the use of chemical controls may need to be considered in addition to other tactics.

There are five pesticide products labeled in South Dakota to control prairie dogs. These include zinc phosphide, chlorophacinone (Rozol), diphacinone (Kaput-D), aluminum phosphide, and gas cartridges.

All of the above listed products, except the gas cartridges, are categorized as “restricted use pesticides”. Anyone planning to apply these products must have a current private or commercial pesticide applicator license for the state of South Dakota. All products labeled for prairie dog management are hazardous to humans and other animals. Precautions need to be taken when using these products.

### *Treated Grain Baits*

The first three products listed above are treated grain baits. Grain baits are most effective when green grass becomes dry and dormant, and prairie dogs are looking for other sources of food. The first product, zinc phosphide treated oats, is a slow acting toxicant that is labelled for use between July and the end of February in South Dakota. Zinc phosphide is stable in dry conditions but reacts slowly with water to create phosphine gas. When ingested by prairie dogs, it reacts with stomach fluids to release phosphine gas, which is lethal to the prairie dog.

Zinc phosphide treated oats will have a prominent garlicy odor which makes the prairie dogs hesitant to consume it. Therefore the label requires that active burrows be first pre-baited with untreated oats prior to application of the treated oats in the area. Pre-baiting helps the prairie dogs to accept the oats as food. Applicators should pre-bait every hole or burrow in the town. One heaping teaspoon of the grain should be sprinkled thinly in a six inch circle towards the edge of the mound, where the dirt meets the grass. Ideally this product should be applied early in the day in order to give the prairie dogs time to consume the product before sundown. Once pre-baiting is complete applicators need to leave the area and not return for 3-4 days. After this period, a check should be done to see if the untreated grain was eaten. If it was consumed, then the treated oats can be applied to burrows using the same technique as with the pre-bait. However, when applying the treated oats, applicators should be wearing protective equipment and rubber gloves as required according to the label. Applying this product to wet ground or when rain or heavy dew is expected is not recommended as moisture reduces the effectiveness of the product. Zinc phosphide treated oats are only labelled to be applied once per season in a given area. A second

application has not shown to be effective as prairie dogs become bait shy.

The two other treated grain products labelled for prairie dog management are chlorophacinone (Rozol) and diphacinone (Kaput-D). These products are both anti-coagulants, which when ingested results in death of prairie dogs. Grain treated with these products does not have the same strong odor as zinc phosphide treated grain and therefore pre-baiting areas is not required. These products can also be applied more than once per season. However because this product can maintain toxicity for a long period of time the label requires that the bait be placed at least 6 inches below ground in the prairie dog burrows. Areas treated with chlorophacinone or diphacinone need to be scouted after treatment as specified by the products label. Scouting should start four days after application and continue for up to two weeks or longer. Carcasses found above ground can result in secondary poisonings to other animals. Therefore, these carcasses need to be collected and buried at least 18 inches below ground to prevent animals from scavenging on them. Protective equipment, including waterproof gloves should be worn during application and when retrieving and burying carcasses. Chlorophacinone and diphacinone are labeled for use in South Dakota between October 1st and March 15th. However there are restrictions to using these two products in some areas of South Dakota. Applicators can find restricted areas listed at the EPA's Endangered Species webpage (https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins).

### *Fumigants*

The other two chemical products labeled in South Dakota for prairie dog management are aluminum phosphide, which is available as pellets or tablets, and gas cartridges. Both of these products are fumigants and when placed below ground, form gases that are toxic to all vertebrate in the burrows. Both products are more effective when soils are moist and aluminum phosphide works best when temperatures are above 60 degree F. Prior to use, areas being considered for treatment should be monitored to ensure that non target animals such as burrowing owls, black-footed ferrets or other wildlife are not inhabiting any of the burrows. With either product, burrow openings should be plugged on the burrow where the treatment was placed and the surrounding burrows. Scrunched newspapers, old seed bags, or a paper plate with dirt on top, can be placed over the opening to seal. Both aluminum phosphide and gas cartridges can be costly and labor intensive to use. They are recommended for use to clean up small infestations.

The aluminum phosphide pellets or tablets form phosphine gas when they come into contact with atmospheric moisture. Phosphine gas is highly toxic to all forms of animal life. Applicators are required to fill out a detailed fumigation management plan prior to application of this product. Fumigation management plans can be downloaded from the SD Department of Ag website on the Rodent Bait Manufacturing page at the following link http://sdda.sd.gov/ag-services/pesticide-program/rodent-bait-manufacturing/.

Applicators are required to wear dry gloves of cotton or other material during handling and application of product (please refer to the label). It is important that gloves remain dry during the application process. Aerate used gloves and other clothing that may be contaminated in a well-ventilated area prior to laundering.

The only pesticide labeled for prairie dog control classified as a general use pesticide are gas cartridges. The cartridges have a fuse. Once the fuse is lit, it is placed in the burrow where it releases gases such as carbon monoxide. Gas cartridges should not be used around buildings, near flammable or combustible material or when soil and vegetation is extremely dry.

Refer to table 1 for a list of products labeled in South Dakota to manage prairie dog numbers and their characteristics.

## Safety

All products used to treat prairie dogs are very toxic. Anyone handling these products should read and follow label directions.

## References

Huber, Sandy and Wilson, Jim. 2008 Prairie Dog Management in South Dakota. ExEx8163

Vantassel, Stephen. Prairie Dog Management. Montana Dept. of Agriculture

Andelt, W. F., Hopper, S. N., Managing Prairie Dogs, Colorado State Extension

Table 1. Shows chemical products labelled for use to manage Prairie Dogs in SD and their different characteristics.

| Chemical Product | Application Dates | Type | Designation | Secondary toxicity | Fumigation Management Plan |
|---|---|---|---|---|---|
| Zinc Phosphide | July- Feb 28 | Baited grain<br>Pre baiting required | *RUP | Rare | NA |
| Chlorophacinone (Rozol) | Oct – Mar 15 | Baited grain<br>No pre baiting | *RUP | Yes | NA |
| Diphacinone (Kaput-D) | Oct – Mar 15 | Baited grain<br>No pre baiting | *RUP | Yes | NA |
| Aluminum Phosphide | NA | fumigant | *RUP | Gas is toxic to all living animals | Required |
| Gas Cartridges | NA | Gas (CO2) | **GUP | | NA |

*RUP=Restricted Use Pesticide, **GUP=General Use Pesticide



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