

Plains Prickly Pear Cactus Control

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Plains Prickly Pear Cactus

Prickly pear is a native plant commonly found on dry, sandy soils, and it can be troublesome on overgrazed pastures and rangelands. This plant has no forage value for livestock unless the spines are burned from the pads so animals can eat them. Many wildlife species, such as pronghorn, deer, rodents, and box turtles, eat the roots and pads. Although the plant is not poisonous, the spines may cause injury.

Historically, the plant has been used to make human food; people made jellies from the fruit, and the spines were sometimes burned off so the pad could be peeled and eaten. Native Americans also used the spines to lance boils, and the mucilaginous juice from the pads was applied over paint on hides to make the paint more permanent.¹

Plains prickly pear cactus (*Opuntia polyacantha* Haw.) is a perennial plant that forms low, spreading clumps, measuring 3 feet or more in height. This cactus reproduces from stems or seeds. The flat, jointed stems have 4/5- to 1 1/5-inch spines, and each plant contains approximately nine stems. Plains prickly pear cactus produces large flowers with several united petals, measuring between 1 1/2 and 2 inches long, and their stamens are



contained in several rows. Flowers vary in color from lemon yellow to orange, and it is rare to find plains prickly pear cactus with red, copper, or pink flowers. The pear-shaped fruit can be either juicy or dry, and it is often spiny. The numerous white flat seeds measure between 2/10 to 3/10 inches long. Roots are fibrous and thick and often develop from disturbed pads. Many species of *Opuntia* are found in the West.²

Problems Caused by Cactus

Plains prickly pear cactus is pervasive throughout the western states and can especially become a problem in pastures that have been overgrazed or where other disturbances have made conditions favorable for invasion and/or the spread of cactus. By preventing land from being grazed and making it difficult for livestock, horses, other animals, and humans to travel, widespread and severe infestations can render pastures and range areas virtually useless.

Because livestock will not graze grasses growing around, or through, cactus for fear of getting spines in their muzzles or tongues, a 6- to 8-inch buffer strip of grass around each cactus plant is created. The ungrazed portion of land may actually comprise twice the area of that covered by the cactus plants.

If a pasture producing 1,000 pounds of forage per acre per year develops a 20 percent cactus infestation, 30 to 40 percent of the forage becomes useless. Losing 35 percent of the forage means that a producer can lose 350 pounds of dry matter per acre per year. This corresponds to approximately one-half of an animal unit month (AUM) of forage for a 1,000 pound cow. Because rangeland currently leases for approximately \$15 per AUM, that equals a loss of \$7.50 per acre per year. A 20 percent cactus infestation on 1,000 acres on that same range equals a \$7,500 loss.

Controlling Plains Prickly Pear Cactus

Research shows that plains prickly pear cactus can be controlled using a reduced herbicide rate. The recommended herbicide for prickly pear control is picloram (Tordon 22K), which is manufactured by Dow AgroSciences. The label for Tordon 22K advises users to apply 16 ounces (1 pint) of active ingredient per acre when applications are made during non-bloom growth stages. However, when applications are made at the bloom stage, 8 ounces (1/2 pint) of Tordon 22K may be used to reduce plains prickly pear stands effectively.

The full bloom stage is a critical time for plains prickly pear susceptibility to picloram. If picloram is applied during this growth stage, effective control can be attained with an application of 8 fluid ounces per acre; whereas, applications made at other times or growth stages require a rate of 16 fluid ounces per acre. Plains prickly pear plants' susceptibility to picloram decreases dramatically both before and after full bloom. Experimental plots with even as much as one-third of the plants in bloom, in which herbicide is applied at a rate of 16 fluid ounces, are not controlled as completely as plots at full bloom that receive the herbicide at the reduced rate.

When the herbicide is applied at the lower rate, it takes longer to achieve the same degree of control. Because cactus has a slow metabolism and grows in dry areas, the full effect of a single treatment is not seen for four to five years. Picloram remains active in the soil and plant for several years, and the cactus plant continues to weaken until death occurs or the effect diminishes to the point where the plant is able to regain its health.

When experimental plots of plains prickly pear are sprayed at full bloom with 16 fluid ounces of picloram

in a single application, 91 percent control is accomplished in three years, and 100 percent control is achieved in five years. Reducing the application rate to 8 ounces and spraying a single application at full bloom produces 75 percent control in three years and 100 percent control in five years.

Recommendations

Based on the results of experiments conducted in Weston and Niobrara Counties, it is recommended that picloram be applied to plains prickly pear cactus in Wyoming during the full bloom stage at a rate of 8 ounces per acre. If it is not possible to apply picloram at full bloom, it is suggested that the 16 ounce per acre rate be applied.

The reduced rate of 8 ounces per acre of Tordon 22K should only be used if plains prickly pear cactus is the sole weed species being controlled. In many cases other important rangeland weeds, such as fringed sagebrush or broom snakeweed, are present. When controlling these weeds as well as plains prickly pear, a rate of 16 ounces of Tordon 22K per acre should be applied.

Economics of Control

The cost of Tordon 22K in 1999 is approximately \$80 per gallon. This translates into a cost of \$5 per acre for an application of 8 ounces. Aerial application rates vary from \$3.50 to \$5 per acre. So, total treatment cost is approximately \$10 per acre for 8-ounce applications.

As discussed above, a 20 percent cactus infestation can create a \$7.50 per acre loss in forage dry matter on a typical pasture. Consequently, the cost of application would be paid for in additional forage within the first year or two, even if full control is not achieved until the third year.

¹ James Stubbendieck, Geir Y. Friisoe, and Margaret R. Block, *Weeds of Nebraska and the Great Plains* (Nebraska Department of Agriculture, 1994), 226-227.

² Tom Whitson, ed., *Weeds of the West* (Western Society of Weed Science, January, 1991), 242-243.

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