

Glenn Nice

Bill Johnson

*Purdue Extension Weed
Science*

A Prickly Situation that Pricklypear

The Short Story.

There are several pricklypears in the United States. Most of them in the Southwest, but a few of them make it as far north as Indiana. Although considered a valuable plant throughout history and in some circles, today it can sometimes be a pest. Pricklypear is one of those plants that are difficult to control. The use of prescribed burnings can wear it down, done regularly for over three years. Mowing spreads it, and it doesn't respond to herbicides as well as we would like. Most recommendations for the control of pricklypear use the herbicide picloram (found in Tordon); however, many products that contain picloram are restricted use only and not available to most homeowners. The herbicide 2,4-D does not have much effect, but there is some report of triclopyr having an effect. Triclopyr is found in Crossbow and Garlon.



**Prickly pear growing
in a pasture on a sandy
soil.**

The Longer Story.

There are many pricklypears in the United States ranging from the introduced wooly jointed pricklypear, found in California, to the chihauhau pricklypear, found in New Mexico. They can all bite you if you grab them the wrong way. Most are members of the *Opuntia* genus, but the term pricklypear is sometimes given to plants from other genera also. If you are looking at a pricklypear in Indiana you are probably looking at *Opuntia humifusa* which is called the Eastern pricklypear or devil's tongue. The occurrence of hybridization between species has made identification a little difficult

at times. According to the USDA Plants Database, the only pricklypear in Indiana is the Eastern pricklypear (*O. humifusa*), but the brittle pricklypear (*O. fragilis*), twistspine pricklypear (*O. macrorhiza*) and plains pricklypear (*O. polyacantha*) are reported in states close to us.

These armed native perennials can be found in waste areas or pastures that have been over grazed or neglected. Pricklypears are succulent plants and suited for dry conditions. Succulent plants retain water in their tissues to endure long dry periods. Furthermore, these plants have a specific metabolism suited for dry environments. They are CAM (crassulacean acid metabolism) plants; taking CO₂ in at night and storing it as malic acid. There is less water loss through the stomata during the cool night conditions. When the sun comes up in the morning the stomata close to decrease transpiration thus conserving water and the malic acid is converted back into CO₂ for



Prickly pear segments are called 'cladodes.'

photosynthesis. As would be expected, these plants are found on dry sandy soils.

Pricklypear is pollinated primarily by bees, and the seeds are spread by mammals and birds. However, the stems are segmented into flattened 'cladodes' and each cladode can form roots and a new plant. These cladodes can also float in times of flood and take root when they reach dry land.

The small circular object on the surface of the pricklypear that bears the spines is called an areole. In the case of eastern pricklypear, they are generally 4 tenths to one inch apart. Some of the areoles will have spines and others will not. In some cases plants may not have spines at all. However, there are small, yellow-brown and barbed hairs called glochids in the areola. When touching pricklypear, the large spines are easily avoided, but the glochids seem to get everywhere, making the experience quite unpleasant. Walking through pricklypear wearing sandals could lead to a fairly uncomfortable evening. In the tender parts of your arm and legs they can leave a welt similar to that of stinging nettle. Close investigation often turns up one of these glochids at the center of the welt.

Flowers are yellow (1.5-3 inches wide) and sometimes have a red or pinkish center. The fruit looks like red or purple knobs on the margins of the cladodes. They are armed with glochids and are reported to be edible.

The pricklypears have been a valuable plant throughout the history of the Americas. They have been used as a food source, animal feed, and as an ornamental. The spines were used as needles for sowing. Native American and Mexican groups have used the juice to treat burns, diarrhea, asthma, rheumatism, and gonorrhea. There is some work exploring the medicinal properties in treating diabetes

Prickly pear flower.



Information listed here is based on research and outreach extension programming at Purdue University and elsewhere.

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and obesity. One of the more colorful uses comes from the red cochineal dye. The dye comes from the insect *Dactylopius coccus* that thrives on the pricklypears. This dye was extremely important to Aztec culture and became a valuable and guarded Spanish export. The bright red dye was used to make the “red coats” of the British army and in the first of the familiar Canadian Royal Mounted Police coats. It is suspected that the global spread of pricklypears may have come from attempts to set up dye producing industries in other countries; Australia has had one of the greatest battles with pricklypears.

Although a beautiful and valuable plant, pricklypear in the wrong place can be somewhat of a pest. Although native to North America, pricklypear is reported as being an invasive in other countries as well. Approximately 26 spices have been introduced to Australia and in its time, pricklypear infestations rendered 12 million hectares useless, being considered one of the largest ecological disasters due to an invasive plant. A great amount of money was thrown at the troublesome pricklypear, trying to control it with mechanical, chemical, and cultural methods. It was a biocontrol method that worked, a small parasitic insect, *Cactoblastis cactorum* that did the trick.

In North America it is not considered invasive because it belongs here, but it can be very difficult to control. Do not mow! Mowing generally spreads the cladodes, increasing your problem. Where you had one plant, after mowing alone, you will have many. Removal with a pick or shovel two to four inches below the soil surface then actively remove above ground portions has been used. Plants should be sacked or incinerated so as to not come in contact with the soil again. In one easygoing account an individual reported using a long rod with a dandelion fork on the end of it in one hand and trash collecting tongs in the other. A day out in the sun and a wheel barrel later, the pricklypear was gone. There was no follow-up report as to how well it worked. The response to fire appears to be species and size dependent. In a study done in Texas with tulip pricklypear (*O. phaeacantha*) they reported 75, 81, and 68% mortality on plants that had 1-10, 11-25, and over 25 cladodes after three years of prescribed spring burns. The authors attributed some of the mortality to interactions with insects, rodents, and disease.

The growth regulator 2,4-D is not effective to control pricklypear. Many of the recommendations involve the herbicide picloram (the active ingredient in Tordon). The use of picloram in the eastern United States is under scrutiny, due to ground water movement potential and persistence in the soil. Most of the products are Restricted Use and not available to most homeowners. In Indiana, there are 12 products labeled that contain picloram. However, most products do not allow broadcast applications on sandy soil, for fear of movement of the picloram. Taylor and Whitson reported a 75% control of plains pricklypear over three years when plants were treated with picloram with 8 fl oz/A if the plants were treated at bloom. Higher rates were required to achieve equal control when pricklypear was not blooming. In an Australian publication tryclopyr was also reported to have an effect on pricklypear. However, there appears to be a lack of research in the Midwest investigating this plant's control.

**For free herbicide
labels go to
www.cdms.net
or
www.greenbook.net**

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The multitude of options regarding pricklypear suggests that this is one of those difficult plants to control. Presently your weed science team, in cooperation with the County level Cooperative Extension Service team has a site of pricklypear that is being investigated. Once the results are in there may be an augmentation to this article with more information from that study.

Sources:

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- 3) Bunting, S.C., H.A. Wright, L.F. Neuenschwander. 1980. Long-term effects of fire on cactus in the southern mixed prairie of Texas. *Journal of Range Management*. Vol. 33:85-88.
- 4) Taylor, W.R. and T.D. Whitson. 1999. Plains pricklypear cactus control. University of Wyoming.

