



Puncturevine

Puncturevine (*Tribulus terrestris*) is a annual weed sometimes called “goat head.” It is a summer annual that grows in disturbed areas and vacant lots and can be found throughout Arizona at elevations below 6,500 feet. Puncturevine is a low-growing, mat-forming plant with small leaflets that resemble small mesquite leaves. It has one-half inch wide yellow flowers and trailing stems that may reach one to six feet long in the summer. Hard spiny burs about one-half inch wide develop after the spiny fruits ripen. The spiny burs contain seeds. When the burs stick into shoes, tires, animals and other moving objects, they are dispersed into new areas where new populations can establish. Viable seeds can also lie dormant in soil for up to 20 years.



Puncturevine; photo source: UofA Yavapai County Native and Naturalized Plant Database

Traditionally, landscape maintenance professionals and homeowners have used various herbicides to control puncturevine in commercial and residential landscapes. Pre-emergent herbicides containing oryzalin or trifluralin applied in spring (April 1) will kill seedlings as they germinate during summer. Selective herbicides can be used in situations where puncturevine has invaded lawn areas. When correctly applied, a selective herbicide, such as 2,4-D, will kill puncturevine (and other broadleaf weeds) but not harm the grass. There are many selective and pre-emergent herbicide products available. Some of these are not labeled for use on puncturevine, so always read the product label before buying.

Some non-chemical puncturevine control methods are also gaining popularity. These methods are especially welcome in areas such as schools, hospitals, and other public areas where herbicide use may not be acceptable. One such method is the use of propane weed burners. Propane burners can be especially effective in reducing the numbers of viable puncturevine seed left on the soil surface. I would also recommend discussing this method with your local fire department before purchasing a propane burner.

Small populations of puncturevine can be controlled by hand pulling or hoeing before or during flowering. Pulling works best in moist soil. Hoeing works well because each plant has a single tap root which can be severed. Once the burs begin to develop, you will definitely need heavy gloves for hand pulling. Learning how to identify young puncturevine seedlings is easy and essential to successful hand control. In some situations, you may also reduce the puncturevine population through prevention. Prevention strategies include checking incoming seed sources such as tires,

shoes, contaminated hay, and animals. For long-term control, you must either use pre-emergent herbicides or plant competing perennial vegetation that will eventually occupy the site. Native, sod-forming, warm season grasses are excellent choices for this purpose (e.g. buffalograss, blue grama, black grama, or tobosa).

Biocontrol (using one organism to manage another) has been very successful in reducing large puncturevine populations. There are two biocontrol organisms available for purchase. These are a seed-feeding weevil (*Microlarinus lareynii*) and a stem and crown mining weevil (*Microlarinus lypriformis*). These two insect species were collected from wild populations of puncturevine in India, France, and Italy. The insects were also evaluated to determine if they could have negative effects on non-target plant species (plants other than puncturevine).

Both biocontrol weevils have been successfully released in Arizona, Nevada, and California. However, they may not be present in your specific area because of isolation and/or small populations of puncturevines. In addition, they may not overwinter in cold areas. Biocontrol insects will only persist in areas where the populations of the host plant are great enough to sustain them from year to year. Remember, biocontrol agents do not usually eliminate their food sources entirely. If they did this, they would not survive as a species over long periods of time.

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