Barb Goatgrass – Impact and Control

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Barb Goatgrass - Spring

Although first identified in California in the early 1900s, the large spread of barb goatgrass (Aegilops triuncialis L.) is relatively recent in the Sacramento Valley foothills. Its first introduction is associated with the importation of Mexican cattle to Eldorado and Sacramento Counties. Populations of goatgrass continue to grow as the weed moves further north.

Impact of Barb Goatgrass on Rangelands

Barb goatgrass grows in dense stands much the same as medusahead; however, its deeper and more rapidly growing roots make it even more competitive on annual rangeland. The slowly decomposing thatch creates a mulch that crowds out all other desirable forage and native perennial species, creating a monoculture that quickly infests an entire ranch. The plant is generally unpalatable, especially when it matures. Its long awns protrude from the seed head and can cause serious mechanical injury to livestock. Not only is forage quality greatly reduced from goatgrass infestations, but also the pounds of production in infested rangelands have been stated to decrease by 50 to over 75 percent. In addition, since livestock tend to avoid the plant, selected consumption of more desirable plants heightens the ability of goatgrass spread.

Identification and Life Cycle

Barb goatgrass is an 8-16 inch tall winter annual that, like medusahead, matures later than most common annuals such as soft chess, wild oats and rip gut brome. The immature plant closely resembles medusahead, but produces a very different seed head that resembles a wheat kernel. Three long and barbed awns protrude from each glume. It also differs in that the entire spikelet drops from the stem and remains intact on the soil surface until fall rains stimulate germination. This is different from medusahead, which still displays a seedless head in the fall residual dry matter (see photo below). Another distinguishing feature is goatgrass' ability to proliferate in multiple types of soils including serpentine soils where many annual grasses have not prospered.

The plant produces both large and small seeds that differ in germination time due to both maternal and sibling factors. Research shows the large seeds germinate more rapidly and actually hinder smaller seed germination while they're still together

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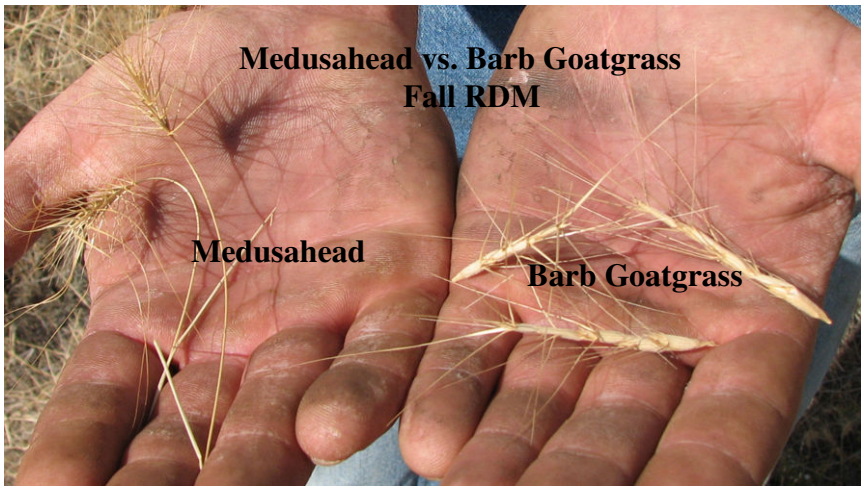
in the spikelet (sibling). It is also demonstrated that a chemical from the spikelets retards the smaller seeds germination (maternal). These factors can cause smaller seeds to remain dormant for up to five years, but dormancy has been generally accepted as two years. This is important because it means that gaining control of the seed bank will take several years due to the smaller seeds delayed germination.



Control

Various methods of control have been tested with differing amounts of success. In all cases where treatment incurs excess removal of litter, reseeding of desirable clover or grass species should be done to prevent another infestation of non-desirable species. For assistance in barb goatgrass control contact Josh Davy at the Tehama County Cooperative Extension office (530) 527-3101.

Burning

Data from research at the UC Hopland Research and Extension Center shown burning at the proper time for two consecutive years proved proficient in controlling goatgrass infestations. Complete control was not found in a single burn due to a build up of the seed bank. Proper burning time was found to be late spring when there was enough fire fuel load, but before seeds were viable and the spikelets were still in the inflorescence. Multiple burns were also found to increase populations of native species.

Chemical

There is no selective herbicide for goatgrass control so herbicides that control goatgrass will generally kill surrounding grasses, forbs and legumes. Spraying selected patches is very effective in the winter or spring, but may take two years of application to ensure the seed bank is depleted.

Mowing and/or Grazing

Mowing alone has shown limited benefit in complete control due to low growing or bent over plants being missed. Although livestock typically avoid goatgrass, intensive grazing at seed head emergence removes animal selectivity and can prevent goatgrass seed formation. Current UC research is looking at the effectiveness of properly timed grazing of goatgrass at differing stocking rates.

Information Drawn From:

DiTomaso J. M., K. L. Heise, G. B. Kyser, A. M. Merenlender and R. J. Keiffer. 2001. Carefully timed burning can control barb goatgrass. California Agriculture 55(6) pp. 47-53.

Peters A., D. E. Johnston and M. R. George. 1996. Barb Goatgrass: A threat to California rangelands. Rangelands 18(1) pp.8-10.

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