

Springtime Sheep Grazing Helps Control Leafy Spurge

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Sheep graze near Odell Lake on the 's U.S. Sheep Experiment Station in the Centennial Mountains of southwestern Montana. Photo by Scott Bauer

(PhysOrg.com) -- Using sheep to control leafy spurge works best if it's done in the spring every year, according to an Agricultural Research Service (ARS) study.

After a few years of sheep grazing during spring, desirable forage grasses gain the upper hand as leafy spurge declines. Compared to applying herbicides and replanting pastures, prescribed grazing with sheep is inexpensive, according to researchers at the ARS Fort Keogh Livestock and Range Research Laboratory in Miles City, Mont., and cooperators.

Rangeland ecologist Matt Rinella at Fort Keogh, along with graduate student Ben Hileman from Montana State University, found that even a little grazing in the spring for a few years can trigger positive plant community changes in leafy spurge-infested areas. The researchers used clipping treatments that mimicked light sheep grazing. They did this so they could control all variables and isolate the effects of the seasonal timing of grazing.

A possible reason light spring grazing is so devastating to leafy spurge--and maybe to other non-grassy weeds--is that the defoliation stress triggers tannin production at the expense of plant growth. Tannins often repel grazers, so there is a selective advantage to this kind of response, but an extensive loss of foliage is too much of a detrimental offset. In the first year of being grazed, the spurge plants use carbohydrates stored in the roots, but these become depleted, and the carbohydrates devoted to tannins are not available for new growth.

Of course, the desirable grasses are eaten as well. But grasses, unlike broadleaf plants such as spurge, are less appetizing to sheep because grasses accumulate silica, and silica uptake and storage probably take less energy than tannin production.

This research was reported recently in the [Journal of Applied Ecology](#).

In combination with sheep grazing and other non-chemical strategies, beneficial insects form the centerpiece of ARS' leafy spurge control program nationally.

More information: www.journalofappliedecology.org/view/0/index.html

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