

## Spraying herbicide on invasive weeds doesn't always pay

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- **Might actually increase the problem**
- **Could be a waste of time and money**

It may not always pay for ranchers to use herbicides to kill exotic invasive weeds such as leafy spurge, according to a 16-year study released Tuesday by the Agricultural Research Service and colleagues.

Rangeland ecologist Matt Rinella at the ARS Fort Keogh Livestock and Range Research Laboratory in Miles City, Mont., and colleagues conducted the study. Data they collected 16 years after a one-time aerial spraying of herbicide showed that the invasive leafy spurge may have ultimately increased due to spraying.

Conversely, several desirable native forbs were still suffering the effects of spraying 16 years after spraying.

Although the herbicide would have dissipated within a few years, it seemed to cause a long-term plant community shift, the researchers say.

Any increase in grass production from the herbicide spraying only lasted a year or two.

The study was done on the N-Bar Ranch in Montana. Each plot was either grazed and sprayed, grazed but not sprayed, not grazed but sprayed or not grazed or sprayed. Cattle grazing helped maintain native plant numbers when herbicide was used.

Cattle grazing can help native forbs (herbaceous flowering plants) thrive because cattle prefer grasses over forbs, and cattle trample soil, loosening soil for seeds that the animals inadvertently plant when seeds are caught in their hooves or fur. That said, when herbicide wasn't used, most native forbs did as well with or without cattle grazing, the ARS says.

Herbicide caused the native plants Missouri goldenrod and yarrow to become rarer over the 16-year study period. Barring herbicides, these two species proved capable of co-existing indefinitely with the exotics, the researchers say.

Four native perennials became rarer in sprayed plots, but only when grazing was excluded: velvety goldenrod, white prairie aster, vetch, and prairie sagewort. Herbicide spraying caused no long-term harm to four other native perennials. Rockjasmine and other plants belonging to the Androsace spp. group were not affected by the herbicide even initially.

The study suggests that applying herbicides over large areas of land containing herbicide-sensitive native plants is sometimes ill-advised, says the ARS.

The research was published in the journal *Ecological Applications*.

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