ARS and New Mexico scientists take a long look at livestock and locoweed

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Keeping livestock away from poisonous locoweed during seasons when it's a forage favorite is one way ranchers can protect their animals and their profits, according to a 20-year collaboration by Agricultural Research Service (ARS) scientists and their university partners.

The ARS researchers teamed up with New Mexico State University (NMSU) scientists to study locoweed poisoning in U.S. livestock and devise ways to minimize or prevent losses. When livestock graze on locoweed, the plant's toxic alkaloids can sicken and sometimes kill the animals, which can cost U.S. producers millions of dollars every year.

The ARS-NMSU collaboration started in 1990 at the request of New Mexico livestock ranchers. Participating ARS scientists at the agency's Poisonous Plant Research Laboratory in Logan, Utah, included Kip Panter, Daniel Cook, Jim Pfister, Mike Ralphs, Dale Gardner, Bryan Stegelmeier, Kevin Welch, and Lynn James, now retired. Their NMSU partners included David Graham, Rebecca Creamer, Shanna Lodge-Ivey, Andres Cibils, Manuel Encinias, Kirk McDaniel, David Thompson and Kevin Gardner.

The research involved identifying fungal species that produce locoweed toxins, assessing toxin level variations, finding biomarkers that could help pinpoint toxicity levels in animals that had consumed locoweed, assessing the effect of locoweed toxins on animal reproduction and livestock grazing preferences, and evaluating herbicide and biological control of the weed.

The ARS-NMSU team assembled a set of grazing management guidelines based on the seasonal availability of locoweed and more benign forage options, such as warm-season grasses. The researchers recommended restricting livestock access to locoweed in spring and fall, when it is relatively more palatable than dormant warm-season grasses. During these critical periods, ranchers could preserve locoweed-free pastures for livestock grazing or else create them with appropriate herbicide treatments. Livestock could resume grazing in locoweed-infested pastures in summer, when green grass is abundant.

The scientists also suggested that supplemental nutrients could be used to tempt livestock away from locoweeds when other forage is low in nutrient quality. In some cases, using conditioned food aversion techniques to train cattle and horses to spurn locoweed might be appropriate.

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