Rangeland fertilization shows promise

By **KATHY COATNEY**

A CALIFORNIA researcher has shown potentially viable return on investment from fertilizing rangeland, something long considered unprofitable.

Josh Davy, University of California Cooperative Extension livestock adviser for Tehama County, has been researching rangeland fertilization at Elk Flat Ranch, owned by Larry Galper in Red Bluff, Calif.

Davy found that 1 pound of nitrogen produced about 40 pounds of forage.

"That meant that roughly 50 pounds of N got about a ton of feed. So depending on how it got priced out, it was cheaper than hay," Davy says.

Galper has used fertilization on his rangeland before. "In this country, these are real poverty soils, and fertilizer makes a huge change. It's really a positive thing that goes on out here when you fertilize."

Galper says despite the difficulties in delivering fertility to the range, he thinks it's worth it.

Hay and Forage

Davy also found cattle consumed more after fertilization. In essence, the fertilizer acts as an attractant.

The additional consumption also helped knock back the noxious weed Medusahead, Davy adds. In years with heavy rain, though, the reduction was less.

"There was so much soil moisture that it was able to recover," Davy says. "But we still had the added gains, and we noticed the same thing with consumption, so the utilization was still high. It just didn't work as good at controlling Medusahead."

Not universal

Other areas have shown detrimental impacts from fertilizing. "There's some Montana research out there where they fertilized wheatgrass and actually had the wheatgrass become too competitive, and exhaust soil moisture, and die from being fertilized," Davy notes.

He theorizes that because he's fertilizing mostly annual grasses that aren't as deeply rooted, they won't exhaust the soil moisture like the wheatgrass did. Also, he is working at a time of year that has low ET, or evapotranspiration.

Galper has applied fertilizer two ways. "I've applied by ground, and I've applied it aerial. And aerial, by far, for me, is the most economical and efficient," he says.

Luckily for Galper, there is a landing strip within four air miles of his ranch. Otherwise he would have to use the city airport and because of the distance, it would be unaffordable.

Davy found that fertilization even during a drought year provided benefits. "If I could pick, I'd do it during a drought year because that's when you need the extra feed the most," he explains.

Davy's research shows the maximum carryover of N is about three years, though that depends on the amount of rainfall.

"If you put it out and you didn't have a good rain year, you'd have a lot more carryover because the grass didn't use it all," he says. However, good rain years may be another story; there could be much less carryover because the grass used more.

There was also a difference when higher rates were applied. With 80 pounds of N, for instance, Davy had a lot of carryover.

"Our goal with the research was [to see] if you can do this and make it a push, production-wise," Davy says. Then it pays for itself, and the range improvement is free.

Coatney writes from Corning, Calif.

PROVING GROUND: Researcher Josh Davy says this grazing exclosure shows rangeland fertilization had a positive impact on increasing forage production and reducing noxious weeds.