High Quality Forage Mixtures Extend Grazing Season

Supplementation with preserved forages and other feedstuffs is the number one input cost in beef cattle operations. Extending the grazing season into the fall and early winter with annual forages is a means of significantly reducing those costs.

In an article recently published in *Agronomy Journal*, a two-year study evaluated nine combinations of annual forages seeded into pearl millet stubble that was either sprayed or allowed to regrow. The forages evaluated were comprised of cool-season grasses (triticale, winter wheat, and barley), brassicas (rape, turnip, radish, and a hybrid), and legumes (hairy vetch and Austrian winter pea) that were seeded as monocultures (grass only), five-species mixtures (grass plus brassicas), and seven-species mixtures (grass plus brassicas and legumes).

All forages evaluated yielded sufficient biomass for stockpiled grazing. Greater yields and nutritive values were measured when the pearl millet was sprayed prior to seeding. By allowing the pearl millet to regrow, the establishment of the cool-season forages was suppressed, which resulted in lower yields and nutritive values.

Although nutritive values were lower, mixtures with pearl millet regrowth still met the nutrient requirements of beef cattle. The greater yields and nutritive values associated with control of millet regrowth must be weighed against the cost of spraying.

Adapted from Villalobos, L, and J.E. Brummer. 2017. Yield and nutritive value of cool-season annual forages and mixtures seeded into pearl millet stubble. *Agron. J.* 109. View the full article online at http://dx.doi.org/doi:10.2134/agronj2016.06.0324

Rainfall after Urea Application Can Reduce Rice Yield

Ammonia volatilization from surface-applied urea is the nitrogen loss pathway of primary concern in direct-seeded, delayed-flood rice (*Oryza sativa* L.). Rainfall following urea application but before floodwater covers the soil may reduce ammonia loss, but its effect on rice recovery of urea-nitrogen is unknown. A recently published article in *Agronomy Journal* discusses the effects of post-urea application rainfall amount and urease inhibitor rate on nitrogen uptake and yield of rice.

Ammonia volatilization from urea declined as the amount of simulated rainfall after urea application increased. However, the yield of rice fertilized with urea and flooded 7 to 12 days later tended to decrease as simulated rainfall amount increased, indicating nitrogen was being lost via another pathway, probably denitrification. Use of a urease inhibitor [N-(n-butyl) thiophosphoric triamide] reduced ammonia volatilization across simulated rainfall amounts and prevented the yield loss observed with urea at the greatest simulated rainfall amounts.

This study indicates rainfall between urea application and flooding can be detrimental to fertilizer-N recovery and rice yield. The urease inhibitor appears to reduce nitrogen loss from ammonia volatilization and denitrification and should be considered a best management practice regardless of field moisture conditions when urea is applied.


Annual forage mixture for stockpiled fall grazing that was dominated by brassicas and small grains.

Moist and dry soil following pre flood urea application and simulated rainfall treatment in an experiment in Arkansas.