REDUCING ERGOVALINE AND ERGOT ALKALOID CONCENTRATIONS THROUGH FERTILIZER, HERBICIDE AND CLIPPING MANAGEMENT

Wendi Marie Rogers

Dr. Craig A. Roberts, Dissertation Supervisor

ABSTRACT

Animals grazing tall fescue grass (*Lolium arundinaceum*) infected with *Neotyphodium coenophialum* consume the toxins ergovaline and other ergot alkaloids. This research included a series of experiments with two overall objectives: 1) to explore management practices that might reduce alkaloid concentration and 2) to estimate if change in management was economically feasible. Three experiments in this study resulted in reduced ergovaline concentration. The first experiment showed use of poultry litter rather than chemical NPK reduced ergovaline by at least 124 µg kg^{-1} DM. Another experiment showed the herbicide clethodim reduced ergovaline up to 72%. A third experiment, conducted with Clemson University and the University of Georgia, showed that monthly clipping of tall fescue reduced ergovaline in the Spring to the point of partial alkaloid suppression. Economic analysis estimated that clethodim-treated forage would produce the highest calving rates and stocker gains and was the most economically beneficial of all practices studied.