Antioxidants and Alkaloids in Tall Fescue as Affected by Endophyte, Moisture Stress, and Seaweed Extract Treatments. (C06-fike161548-Poster)

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Abstract:

Consumption of fescue treated with seaweed extracts have been shown to alter immunity and meat quality of ruminants. Literature regarding seaweed extract's effects on alkaloid concentrations in fescue is not consistent. Thus, we performed a greenhouse study to test the effects of endophyte, drought stress, and seaweed extract application on antioxidant and alkaloid concentrations in fescue. Genetically identical E+ and E- fescue was established in 15-cm pots and grown for 75 d before moisture stress (removal of water) and seaweed extract (3 kg/ha) administration. At 18 d post treatment, plants were harvested at ground level, separated into leaf and sheath + pseudostem fractions and frozen. Concentrations of ergovaline and ergovalinine in freeze dried fescue were determined by HPLC. Alkaloid concentrations were greater ($P < 0.0001$) in sheath + pseudostem but not affected ($P > 0.85$) by moisture stress in this study. Application of seaweed extract tended ($P = 0.1023$) to reduce ergovaline concentrations, and this effect was greater in sheath + pseudostem (tissue by extract interaction; $P = 0.0873$). Comparisons of treatment effects on antioxidants also will be presented.

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