WATER QUALITY IMPACTS OF CRASH GRAZING

A HILL COUNTRY WETLAND

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Due to the steep and complex terrain which is unique to hill country, wetlands can form in the bottoms of valleys. These areas receive water from both surface and subsurface flow and commonly remain wet all year. Grazing wet areas can result in treading damage and urine and dung deposition which increases the risk of sediment and nutrient loss. Grazing pressure can increase during dry periods, when these wet areas are the only sources of green feed available to stock. If these areas are fenced from stock, farmers can crash graze (high stocking rates over a short period of time) to remove excess vegetation and provide extra feed for animals. To study the impact of crash grazing on P, N and sediment loss from a seepage wetland, two crash grazing events were conducted with sheep for a period of 4 hours each, in February and June 2014.

Crash grazing had no discernible effect on nitrate, ammonium or dissolved reactive P concentrations, with concentrations mostly below the limit of detection. In contrast, total N, P and sediment concentrations leaving the wetland increased in response to animal grazing. During the 4 hour grazing event, mean suspended sediment concentrations leaving the wetland were 4 and 36 times higher than those entering the wetland for the summer and winter grazing, respectively. Mean total N concentrations leaving the wetland during the grazing event were 2 and 5 times higher in summer and winter, respectively. A similar trend was observed for Total P, however total P concentrations entering the wetland were generally below the limit of detection, making differences more difficult to quantify. Although higher total N, P and sediment concentrations were measured in winter, concentrations rapidly decreased to background concentrations within 2 hours of the sheep being removed from the wetland. This suggests that water quality impacts in winter, are short lived. In contrast, total N, P and sediment concentrations remained elevated for at least 2 hours following stock removal in summer. Total N and P concentrations were closely related to sediment concentrations, with stronger relationships measured with total N (r^2 = 0.94 and 0.68) compared to total P (r^2 = 0.88 and 0.48), for summer and winter respectively.

Editor's Note: A manuscript has not yet been submitted for this presentation.