

FORAGE NUTRITIVE VALUE IN ALFALFA, BIRDSFOOT TREFOIL, CICER MILKVETCH, ORCHARDGRASS, PERENNIAL RYEGRASS, AND TALL FESCUE AT DIFFERING STAGES OF MATURITY THROUGH THE GROWING SEASON

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ABSTRACT

Nutritive value of grasses and legumes changes through the growing season. This study compared the interaction of growth stage and time of season on nutritive value of alfalfa (*Medicago sativa* L.(ALF)), birdsfoot trefoil (*Lotus corniculatus* L.(BFT)), cicer milkvetch (*Astragalus cicer* L.(CMV)), orchardgrass (*Dactylis glomerata* L.(OG)), perennial ryegrass (*Lolium perenne* L.(PRG)), and tall fescue (*Festuca arundinacea* Schreb (TF)). Multiple growth stages were present at any given sample date, forage samples were taken weekly and the target growth stages were jointing, early boot, late boot, heading and seed production for the grasses and prebud, bud, 10% bloom, 100% bloom and pod production for the legumes. In spring and early summer, as maturity progressed, TDN of legumes decreased by an average of 2.7 percentage points from 76, 78 and 77% for ALF, BFT and CMV, respectively. Mid-summer TDN of legumes decreased little with maturity and in late summer TDN didn't change, averaging 76%. Crude protein decreased with progressing maturity from 26 to 15% in ALF and BFT in spring, mid, and late summer, CMV decreased similarly but averaged 5 percentage points lower in the spring. Legume NDF increased (became less desirable) in spring and mid-summer by an average of 10 percentage points but was stable in late summer. In spring and early summer TDN of the grasses decreased as they matured by an average of 6 percentage points from 71, 74, and 67% for OG, PRG and TF, respectively, in mid to late summer all grass regrowth was vegetative and TDN remained stable around 67% for all grasses. Crude protein of the grasses decreased from 14 to 7% in the spring for all grasses, was stable around 14% mid-summer then increased from 11 to 17% in late summer for OG and PRG but remained stable for TF. In the spring NDF increased by an average of 10 percentage points, but then was stable throughout the summer. These results suggest that utilization at an early growth stage to obtain high nutritive value is more critical in spring and early summer, whereas in late summer nutritive value stays more constant with increasing maturity, even legumes.