North Dakota - Managing Kentucky Bluegrass Invasion in Native Prairies

by Xuejun Dong, Bob Patton and Paul Nyren; North Dakota State University-Central Grasslands Research Extension Center

Managing invasive plants in native prairies is a challenge. In a long-term grazing intensity study in central ND, three pastures with heavy grazing pressure (2.8 AUM/ac) and three ungrazed areas were selected. In each, specific leaf area (SLA) and its components (leaf density/thickness) were measured in the native species western wheatgrass and the introduced/invasive species Kentucky bluegrass. For the wheatgrass, grazing intensity did not affect the relationship between SLA and its two components. Under heavily grazed and ungrazed situations, SLA was strongly correlated with only leaf thickness not density. However, for the bluegrass, grazing affected SLA. It significantly correlated with leaf density in ungrazed areas, and correlated to density and thickness under heavy grazing, leading to higher SLA. Results suggest Kentucky blugrass in native prairies has increased photosynthetic capacity under frequent defoliation and high water supply. A difficulty in grazing management is that in wetter years, grazing pressure is usually increased to fully utilize available forage for maximum animal production. However, with high water and high grazing pressure, Kentucky bluegrass usually becomes more photosynthetically active, and grows more vigorously than some native species leading to over-dominance of Kentucky bluegrass, as seen here. It also demonstrates the difficulty of controlling invasive Kentucky bluegrass by animal grazing. An opportunity to reduce Kentucky bluegrass vigor may be in a relatively dry year, or during several consecutive dry years, when leaves are more prone to drought stress with relatively higher grazing pressure.