

Alfalfa Disease Survey & Fungicide Seed Treatment Trials in the Dakotas

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Alfalfa is a critical forage crop in North Dakota and South Dakota, supporting livestock production and contributing substantially to the agricultural economy of the Northern Great Plains. However, diseases affecting seedlings, roots, crowns, stems, and foliage can threaten stand establishment, forage yield, stand longevity, and overall profitability. Despite the importance of alfalfa in the Dakotas, no comprehensive regional survey has been conducted to determine which pathogens are present, where they occur, and which diseases may represent emerging threats. In addition, producers currently lack region-specific, field-based information on the effectiveness of fungicide and oomycide seed treatments for improving alfalfa establishment and productivity. This project aims to address these two gaps in knowledge through two objectives. First, a regional disease survey will be conducted across North Dakota and South Dakota to identify the foliar, stem, crown, and root pathogens affecting alfalfa. This will also allow for the creation of a culture collection for further testing. Symptomatic plants will be collected from commercial fields, and pathogens will be isolated and confirmed using molecular tools. Representative isolates, particularly those suspected to be emerging or previously unreported in the region, will be evaluated for pathogenicity under greenhouse conditions. Second, replicated field trials will be conducted to evaluate commercial fungicide and oomycide seed treatment. Treatments will be assessed for effects on seedling emergence, canopy development, biomass yield, dry matter production, and winter survival. Results from this project will provide the first coordinated baseline of alfalfa disease occurrence in the Dakotas and generate practical seed treatment recommendations to support Extension programming, breeding priorities, and improved disease management decisions for alfalfa growers.