Identifying Factors to Optimize Establishment of Alfalfa Interseeded in Corn

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Alfalfa is the most important perennial forage in Northern states, but its acreage has declined largely because of low yields especially in the establishment year and greater reliance on silage corn by livestock farms. Because both crops are often grown in rotation, alfalfa could be interseeded to provide groundcover during corn silage production and to quickly bring alfalfa into full forage production the following year. Stand loss of alfalfa seedlings has been the key barrier hindering adoption of this system, but recent Wisconsin results suggest applications of growth altering and protective agrichemicals and other management practices can be used to ensure reliable alfalfa establishment in corn. The goal of our funded USDA-National Institute of Food and Agriculture project will be to identify management practices and environmental conditions that will ensure reliable establishment of interseeded alfalfa across northern regions of the USA. Mixed-model and nonparametric analyses of data from research station and on-farm experiments conducted during 2018 and 2019 in Pennsylvania, Michigan, Wisconsin and Idaho will identify management factors (alfalfa variety, corn population, plant growth retardant, fungicide, insecticide, wheel traffic, manure, etc.) and environmental conditions (temperature, precipitation, soil type, soil fertility, etc.) that most impact establishment of interseeded alfalfa. Results will enable the development of management recommendations, improved economic analyses, and outreach materials and activities that will be utilized by producers, crop advisors, and other stakeholders to implement interseeded alfalfa-corn production systems on farms. Once alfalfa establishment by interseeding is optimized, the extensive economic and environmental benefits of the system would provide powerful incentives for increasing alfalfa acreage across much of the Northern USA.