Winter Injury and Survival of Intensively Managed Modern Alfalfa Varieties

JoAnn Lamb, USDA-ARS, Craig Sheaffer, University of Minnesota, and Marisol Berti, North Dakota State University

The current NAAIC Winter Survival Test protocol is designed to be conducted in space planted field trials where little to no other data from experimental germplasms being tested can be collected. In recent years the number of available modern commercial alfalfa varieties per fall dormancy class (FD) has shifted from the majority being in the FD3 to FD4 classes to the majority now being in the FD4 to FD5 classes. Our objectives were to determine if a new protocol testing winter survival using sward plots could be developed and if the current winter survival check varieties from the NAAIC Winter Survival Standard Test are still appropriate when testing the new modern alfalfa varieties. We used the NAAIC Winter Survival standard test protocol to establish the row plots and seeded 3 x 13 ft sward plots at a seeding rate of 12 lbs per acre at two MN location in 2011 and one ND and one MN location 2012. The experimental design at each location was a randomized complete block with treatments in a split plot arrangement with four replicates. Whole plots treatments were the row and sward plots and subplots were the six NAAIC Winter Survival check varieties and 14 commercially available varieties ranging in fall dormancy from FD2 to FD6. Data collected include plant population estimates from both row and sward plots in both the fall of the establishment year and the spring of the first production year, forage yield of the sward plots from the establishment year and first production year, and winter injury scores from the row plots in the spring of the first production year following the NAAIC Winter Survival Standard Test protocols. Yield and correlation data will be compared to test whether current Winter survival checks are appropriate and determine if a new sward winter injury method can determine winter injury among modern alfalfa varieties.