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Research Project: [Completing An Expert System That Will Provide Site-Specific Nutritive Values for Feeds](#)

Location: [U.S. Dairy Forage Research Center](#)

Title: Measuring Detergent Insoluble Protein and Fiber in Corn Silage Using Crucibles Or Filter Bags

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Abstract only

Technical Abstract: Objectives of this research were to compare the crucible (CR) and filter bag (FB) methods of measuring detergent insoluble protein and fiber in corn silage and to evaluate the differences in neutral detergent insoluble protein with or without the use of sodium sulfite and amylase. Thirty-three diverse corn silages (14.9 to 37.1% ADF and 26.8 to 57.4% NDF) were analyzed in duplicate. The CR method followed Official Methods with heating to boiling in 5 min and refluxing for 60 min, followed by three 5-min soakings in water, and two soakings in acetone. The FB method used an in-house procedure that involved heating for 15 min and extracting for 60 min in a closed Ankom Fiber Analyzer, followed by four 5-min washes using hot water (with closed chamber and heating), and two soakings in acetone. Three NDF modifications were used: original NDF (with sulfite and without amylase), neutral detergent residue (NDR₂ without sulfite and with amylase), and aNDF (with sulfite and amylase). Average blank-corrected results were: 26.6 or 26.1% ADF; 43.4 or 43.3% aNDF; 45.7 or 44.8% NDR; and 45.6 or 47.2% NDF for CR or FB, respectively. Mean fiber differed between CR and FB, except for aNDF. However, when FB was regressed against CR, only NDR yielded an intercept different from zero and slope different from one. CR gave lower fiber for ADF and NDR, but higher fiber for NDF compared to FB. With the exception of NDF, the standard errors of duplicate analyses were less for CR compared to FB: .25 vs .53% ADF; .47 vs .54%

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aNDF; .42 vs .47% NDR; and 1.08 vs .77% NDF, respectively. Acid detergent and neutral detergent with sulfite obtained lower insoluble crude protein (ICP): .40 or .38% ADICP; .86 or .97% aNDICP; 1.25 or 1.42% NDRICP; and .80 or .95% NDFICP for CR or FB, respectively. Except for ADICP, ICP differed between CR and FB. The in-house FB method obtained results similar to the CR method for aNDF. Small statistical differences in ADF and ICP between CR and FB may not be important in relation to variation in fiber analyses among laboratories.

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