SOUTH DAKOTA-Oatlage as a Highly Digestible Forage Source for Livestock

David Casper, Melanie Caffe, Jonathan Kleinjan, South Dakota State University

South Dakota livestock producers are becoming more interested in using oatlage as a forage source. Oatlage has been fed in many parts of the United States and animal performance has been very productive when harvested at the right time. Oatlage, when harvested at the proper maturity stage, is a very good highly digestible forage source. Recently, Dr. Caffe joined South Dakota State University as an oat breeder in the Plant Science Department. This created an opportunity to expand our integrated program of evaluating seed hybrids and varieties for developing forage recommendations for South Dakota livestock producers. Our objective was to evaluate 10 different oat varieties for forage yield and quality (nutrient composition and digestibility) when harvested at boot stage. Each variety was planted early spring (April) in three replicates, hand harvested (June), wilted, chopped through a chipper/shredder, inoculated with a silage inoculant, packed into mini-silos, weighed, and stored at ambient temperature for 90 days. After 90 days, mini-silos were weighed, opened, and sub-samples taken for nutrient composition and digestibility measurements by a commercial laboratory. The initial summary highlighting the mean, minimum, and maximum ranges in selected parameters collected from the 10 oat varieties is given in Table 1. One point to keep in mind is that oats have regrowth potential, but this study solely focused on the first harvested growth. Oatlage can produce significant tonnage of forage high in crude protein and fiber and highly digestible (NDFd and DMD) by selecting the appropriate variety (Table 1). By harvesting early, oatlage ensiles very well (i.e., high lactic acid) offering great livestock feeding potential and the opportunity to reduce purchased feed costs by feeding highly digestible forage sources.

Table 1. Evaluation of 10 oat varieties for forage production.

Measurement	Mean	Minimum	Maximum	SD
Wilted Forage Yield, t/ac	6.02	4.47	7.56	0.83
DM, t/ac	1.22	0.98	1.51	0.15
DM, t/ac at 35% DM	3.47	2.79	4.32	0.44
Crude Protein, %	20.2	14.5	23.8	1.86
NDF, %	46.6	41.8	52.7	2.55
NDFd 30 hr, % of NDF	64.6	57.9	69.7	2.55
DMD, %	73.5	67.3	76.4	1.80
DDM, t/ac	0.89	0.72	1.09	0.11
DNDF, t/ac	0.36	0.27	0.47	0.05
Lactic acid, %	10.08	6.32	12.38	1.07
Acetic acid, %	1.23	0.21	3.75	0.61