

Introduction to Hay Testing

Cooperative Extension Service
College of Agriculture and
Home Economics



Guide A-327

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Occasionally, questions arise concerning the value of testing alfalfa hay and using RFV (Relative Feed Value) as a basis for labeling and marketing. Feed, seed, and fertilizer manufacturers and distributors have wrestled with this problem in the past, and each sector has developed a method of communication between buyer and seller, called the “guaranteed analysis.” The analysis gives the buyer an idea of what to expect from the product. Guidelines have been established for label contents, sampling and analysis procedures, and, in some cases, penalties for non-compliance.

Currently, the hay industry is unregulated, probably because, until recently, no formal analytical procedures have been established. However, during the last 10 to 15 years, forage analysis has become a valuable tool for hay marketing mainly because of increased awareness and technology in the beef and dairy cattle industries. Recognizing the need to standardize hay sampling and analysis and to assist those marketing hay based on the forage analysis, sampling procedures and laboratory certification guidelines have been developed. The following information regarding the National Forage Testing Association and their guidelines can be obtained from the web site www.foragetesting.org.

In 1984, the American Forage and Grassland Council (AFGC), the National Hay Association (NHA), and forage testing laboratories combined to form the National Forage Testing Association (NFTA) to improve the accuracy of forage testing and build grower confidence. The NFTA is governed by a board of 12 directors: six from various laboratories and 3 each from the AFGC and the

NHA. Workshops offering participants information on the latest research and developments in forage testing have been held in conjunction with the annual Association of Official Analytical Chemists (AOAC) international midwest meetings.

Since participation in the NFTA certification program is voluntary, not all hay testing laboratories are involved. Also, not all those participating receive certification. The program is updated each year to include new methods of grading laboratory performance. Presently, laboratories are evaluated and graded six times every year. Reference samples, including four alfalfa samples (one of which contains approximately 20% grass) and one sample each of corn silage and grass, are sent to each laboratory, which analyzes them using standard, accepted techniques. Currently accepted techniques of forage analysis include traditional wet chemistry and Near Infrared Reflectance Spectroscopy (NIRS). NIRS is a newer technique that uses light reflectance. Although the initial investment for equipment is high, NIRS is quicker and cheaper in the long run than wet chemistry and gives equivalent results. Some laboratories will use only one technique, while others use both. The same sample is used in both techniques and grading is the same.

Grading is done on the final cumulative bias total accuracy for all analyses (% dry matter, crude protein, acid detergent fiber, and neutral detergent fiber). When the results from each laboratory are received, they are compared to each other to determine if all laboratories came up with the same analysis within specific limits (bias

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Table 1. Selected hay testing laboratories certified by the National Forage Testing Association¹, as of February 2001.

State	Lab Name/Contact	Address	Phone	Certified Method
Arizona	Chandler Analytical Laboratories Clark Misbet	P.O. Box 3280 Chandler, AZ 85224-3280	(602)963-2495	chemistry
Colorado	Front Range Forage Testing Lab Kevin Romero	P.O. Box 495 Windsor, CO 80550	(970)686-6475	NIRS
	Warren Analytical Lab Dr. Michael Aarsonson	P.O. Box G Greeley, CO 80632	(970)356-6344	chemistry
	Weld Laboratories, Inc. Brian Wells	1527 First Avenue Greeley, CO 80631	(970)353-8118	chemistry
Iowa	A&L Heartland Laboratories Lesa Nuzback	111 Linn St. Atlantic, IA 50022	(712)243-6933	chemistry
	Iowa Testing Labs, Inc. Mark Steinberg	P.O. Box 188 Eagle Grove, IA 50533	(515)448-4741	NIRS/chemistry
	Kent Feeds, Inc. Rich Craddick	1600 Oregon St. Muscatine, IA 52761	(319)264-4394	NIRS/chemistry
Kansas	Alfalfa Analytical Lab Shannon McCormick	P.O. Box 963 Lakin, KS 67860	(316)355-6792	NIRS
	SDK Laboratories, Inc. Dennis H. Hogan	P.O.Box 886 Hutchinson, KS 67504	(316)665-5661	NIRS/chemistry
	Servi-Tech Laboratories Steve Harrold	1816 E. Wyatt Earp Blvd. Dodge City, KS 67801	(316)227-7123	chemistry
Mexico	Agro Lab Mexico, S.A. de C.V. Martin Traxler	705 Martens, PMB 12-105 Laredo, TX 78041	52-17-19-1247	chemistry
New York	Dairy One Forage Lab Paul Sirois	730 Warren Rd. Ithaca, NY 14850	(607)257-1272	chemistry
Oklahoma	OSU Analytical Lab Michael Kress	048 Agricultural Hall Stillwater, OK 74078	(405)744-7771	chemistry
Texas	Martindale Feed Mill Greg Shaw	P.O. Box 245 Valley View, TX 76274	(940)726-5216	NIRS
Utah	Brigham Young University Bruce L. Webb	255 WIDB, BYU Provo, UT 84602	(801)378-2147	chemistry
	Utah State Feed Analysis Lab Janice Kotuby-Amacher	USU Ag Science Logan, UT 84322-4830	(435)797-2217	chemistry

¹World Wide Web adress: <http://www.foragetesting.org/>

from the average). Those laboratories within the specified limits are certified. All labs must receive a grade of C or better to be designated as certified.

Nationally certified laboratories located in selected states are listed in table 1. Included are the contact person, address, phone number, and the type of analysis certified (NIRS and/or wet chemistry). Be assured that if the lab is NIRS certified, their analysis using that technique has been proven to give comparable results to traditional wet chemistry.

For information on other laboratories, check the NFTA web site or ask for proof of certification. If they are not participating in NFTA, encourage them to become a part of this national program. For more information about the National Forage Testing Association, visit the NFTA web site or contact their secretary, Dee Fogarty, at:

National Forage Testing Association
PO Box 451115
Omaha, NE 68145-6115

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