

PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION \$1.50

JULY 20, 2000



Assessing Alfalfa Fields

Jeremy W. Singer, Ph.D., Field and Forage Crops

The duration of an alfalfa seeding depends upon many factors. Stand density and maintaining the rotational sequence are two main factors that come to mind. The focus of this article will be on tools to assist in stand assessment. Of course, it's easy to assess an alfalfa field from the edge of the field or from the cab of a comfortable farm truck. But as the old adage goes, looks can be deceiving. In order to obtain an objective assessment of an alfalfa stand, it is critical to walk the field and collect information along the way. Spring is when alfalfa fields should be checked for winter survival, but late summer and fall scouting will help you determine which fields are candidates for rotation the following season.

Previously, plant number per unit area was used to assess alfalfa stands. It was concluded more recently, however, that plant number is not as good an indicator of yield potential as stems per unit area because you can have a few old plants with many stems that can produce economically justifiable yields. It is suggested to pick three to four representative areas within a field (the more the better) and use a 2 square-foot quadrat to count the number of stems within the frame. PVC pipe (1/2 inch) is commonly used to construct the quadrat. The dimensions should be 17 inches by 17 inches. It is easier to collect this information when the stems are about 6 to 8 inches tall. Throw the quadrat, walk up to it, and count the total number of stems that fall within the quadrat frame and that are tall enough for the mower to harvest. Divide this number by two to obtain stems per square foot. A linear relationship exists between the number of stems per square foot and dry matter yield in tons per acre up to approximately 6 tons per acre. Ten stems per square foot equals about 1.20 tons dry matter per acre while 20 stems per square foot equals about 2.30 tons dry matter per acre. Thirty, forty, fifty, and sixty stems per square foot equal approximately 3.40, 4.30, 5.40, and 6.00 tons dry matter per acre. This exercise allows you to predict current yields. Assessing crown and root health will allow you to predict future yield potential.

Dig a few plants from the representative areas of the field where you sampled stem numbers to assess crown and root health. Make sure you include the top six inches of the root when digging. Evalu-

SEE ALFALFA ON PAGE 2

INSIDE

Assessing Alfalfa Fields 1

Calculating Feed Value 2

The Garden State Ag Re-Engineering Initiative Programs 3

Grant Opportunity Available for NE Producers 4

USDA Constituent Alert: Protecting Farms and Forestland 4

Weekly Weather Summary 5

ate the crown for symmetry, size, and stem number. A healthy crown should be symmetrical and have many shoots. Cut the root lengthwise in order to examine the crown and root tissue. A little discoloration should not pose any immediate threat to yield, moderate discoloration with some root rot is acceptable, but plants with greater than 50% discoloration have little chance for winter survival and are good candidates for rotation the following season.

An alfalfa stand with greater than 55 stems per square foot this year should yield similarly the following season. Stands with between 40 and 55 stems per square foot will yield somewhat lower, especially if greater than 30% of the plants that were dug showed signs of poor symmetry and visible discoloration and root rot. If the number of stems on average from all of the samples within a field falls below 39 per square foot, you should consider replacing the stand. If there are fewer than 39 stems per square foot and the stand is in good health, you may receive similar yields as the current year assuming no winterkill occurs.

As this article points out, determining whether to plow under your alfalfa stand requires some information gathering. That is, unless you maintain a strict, relatively short-term crop rotation where you experience little stand thinning. Nevertheless, the more information you collect the more informed you will be about your management practices and this will allow you to fine-tune any practice that does not provide optimal returns. □

Calculating Feed Value

Michael Westendorf, Ph.D., Animal Sciences

The value of a byproduct feed in providing a source of protein and energy can be compared to 44% soybean meal and shelled corn by using the protein and energy factors in the table below. Feed value constants, such as the ones used in these examples, have been used for many years and can be helpful for comparing feedstuffs.

To calculate the feed value of a byproduct or cereal grain:

1. Multiply the current price of shelled corn by the energy factor for the particular commodity of interest.

2. Multiply the current price for 44% soybean meal by the protein value for the particular commodity of interest.

3. Add the values in Steps 1 and 2.

4. *Example 1:* What is the nutritive value of wheat middlings if shelled corn costs \$2.25/bushel (\$80/ton) and 44% soybean meal costs \$175/ton?

1. Energy value	= (\$80/ton) (0.523)	= \$41.84
2. Protein value	= (\$175/ton) (0.274)	= \$47.95
3. Total value		= \$89.79

Thus, wheat middlings has a nutritive value of \$89.79/ton. If wheat middlings could be purchased for less than \$89.79/ton, it would be economical.

5. *Example 2:* What is the nutritive value of wet brewers grain (21% dry matter) if shelled corn costs \$2.00/bushel (\$71/ton) and 44% soybean meal costs \$160/ton?

1. Energy value	= (\$71/ton) (0.081)	= \$5.75
2. Protein value	= (\$160/ton) (0.099)	= \$15.84
3. Total value		= \$21.59

Thus, wet brewers grain has a nutritive value of \$21.59/ton. If wet brewers grain could be purchased for less than \$21.59/ton, it would be economical.

In addition, the cost per unit of protein or energy can be used to compare the nutritive value of different products. Remember that the cheapest feedstuff may not always be the most economical ingredient. The moisture content of wet byproducts should always be considered when calculating their nutritive value. Do not pay for high-moisture, wet byproducts compared to the dry form.

The low prices for corn and soybean meal in today's market makes other feedstuffs less economical. For example, it might be hard to find wet brewers grain as low as the price given in the example. These constants can be used for comparing and pricing ingredients to determine feed value.

SEE FACTORS ON PAGE 3

Protein and energy factors for calculating the nutritive value of various commodities in relation to the prices of 44% soybean meal and shell corn

	Protein Factor	Energy Factor
Barley	0.111	0.866
Blood meal	2.025	-1.235
Brewers grain, dry	0.433	0.357
Brewers grain, wet (21% DM)	0.099	0.081
Brewers grain, wet (40% DM)	0.188	0.155
Corn, shelled	0.000	1.000
Corn and cob meal (ear corn)	-0.007	0.985
Corn gluten meal, dry	1.408	-0.420
Corn gluten feed, dry	0.304	0.597
Whole cottonseed	0.323	0.850
Cottonseed meal (41% CP)	0.905	0.036
Cottonseed meal (36% CP)	0.867	0.015
Distillers dried grain with solubles, (92% DM)	0.394	0.686
Distillers wet grain with solubles, (60% DM)	0.257	0.447
Feather meal	1.600	-0.743
Fish meal, herring	1.875	-0.865
Fish meal, menhaden	1.651	-0.768
Hominy	0.057	0.977
Linseed Meal	0.773	0.122
Meat meal	1.227	-0.349
Meat and bone meal	1.426	-0.555
Molasses, cane, dry	0.075	0.791
Molasses, cane, wet	-0.037	0.747
Oats	0.120	0.779
Peanut skins	0.265	0.439
Whole soybeans	0.836	0.279
Sorghum/Milo	0.068	0.847
Soybean meal (44% CP)	1.000	0.000
Soybean meal (48% CP)	1.142	-0.142
Soyhulls	0.100	0.819
Thin stillage (slop) (6% DM)	0.026	0.045
Wheat	0.161	0.884
Wheat bran	0.235	0.585
Wheat middlings	0.274	0.523

(Adapted from D. M. Amaral-Phillips and R. W. Hemken, Using Byproducts to Feed Dairy Cattle, University of Kentucky, Coopera-

The Garden State Agricultural Re- Engineering Initiative Program

The Garden State Agricultural Re-Engineering Initiative is a voluntary educational program sponsored by Rutgers Cooperative Extension in cooperation with the New Jersey Farm Bureau and the New Jersey Department of Agriculture. Its aim is to meet the ever-increasing needs of the state's agricultural producers and their families for financial risk management education and, in so doing, increase the number of successful viable farms in New Jersey.

In order to survive in today's rapidly changing agribusiness environment, the program enable you to:

1. Conduct in-depth financial analysis of your farming operations
2. Take a deliberate and knowledgeable approach to risk management
3. Establish and maintain periodic contact with outside expertise

The following is what the program offers:

- Use of Finpack, the most comprehensive agricultural financial planning and analysis software available
- Crisis-intervention strategies for financially distressed farms
- Small-group workshops and/or one-on-one consultations
- Evaluations of agronomic management practices
- Unlimited access to computers
- Flexibility to meet your individual needs
- Complete confidentiality

For more information on the program, contact:

David Lee, Agricultural Agent
Rutgers Cooperative Extension of
Salem County

51 Cheney Rd., Suite 1
Woodstown, NJ 08098
Phone: 856-769-0090
Fax: 856-769-1439

Grant Opportunity Available for Northeast Producers

A regional grants program is offering funding to Northeast growers interested in testing innovative production and marketing strategies, and sharing what they learn with other producers.

Applications are now available for the Northeast Region USDA-Sustainable Agriculture Research and Education (SARE) Program's 2001 Farmer/Grower Grants competition. Applications are due December 4, 2000. Growers can obtain application forms from NOFA-NJ or from Rutgers Snyder Research Farm at 908-730-9419. Applications can also be obtained on the web at www.uvm.edu/~nesare/grants, or by e-mail at nesare@zoo.uvm.edu. "This program provides an excellent opportunity for producers who want to try something a little different," says Northeast SARE Program Manager Jim Gardiner. "It helps farmers evaluate new practices and approaches, and other producers benefit by learning from grant recipients' experiences."

The goal is to help farmers shift to production and marketing practices that are profitable, environmentally sound, and beneficial to the community. Proposals can address a broad range of agricultural and farm forestry production and marketing issues.

Grant funds can be used to rent equipment, buy materials, pay for project-related services like soil testing and technical advisors, and to compensate farmers for the time they spend on the project.

The Farmer Grant Program is not intended to provide startup funds for beginning farmers, nor to support capital improvements on individual farms.

The program is very competitive. Last year, there was sufficient funding for only half the applications received. The average grant was \$4,351, although the program has awarded grants as large as \$12,000 and as small as \$300.

To be eligible for Northeast SARE funding, an applicant must be a commercial producer.

Funding decisions will be made in Feb. 2001, and funds will be available in April for the 2001 crop production season.

This year will be the ninth year that Northeast SARE has offered producer grants. Since 1993, Northeast SARE has awarded over 350 producer grants. □

USDA Constituent Alert: Protecting Farms and Forestland

The U.S. Department of Agriculture's Policy Advisory Committee on Farmland Protection is hosting a listening forum on *Wednesday, August 9, 2000 from 9:00 a.m. to 12:00 p.m. at the Frelinghuysen Arboretum in Morristown, NJ*. The Committee is soliciting policy feedback and anecdotal information on what works and what doesn't from a community's perspective in working with federal tools designed to maintain land as farm and forestland. The input received from these forums will be synthesized into a report that USDA will issue on this subject later this year.

Public comment is being sought on the following questions:

1. What are the economic, environmental and social benefits of farms and forested lands for communities, especially those in rapidly growing regions;
2. What are the challenges that communities and individuals face in trying to maintain farms and forested lands, especially in rapidly growing areas;
3. What prospects exist to capitalize on market opportunities (e.g. direct marketing and agri-tourism) to encourage maintenance of farmland and forestland; and
4. What role could the federal government play to better support farmers and forest operators in taking advantage of these opportunities?

The forum is open and free to the public. However, those wishing to make extended comments should pre-register by contacting Ms. Mary Lou Flores at (202) 720-4525. Those who wish to submit written statements can do so by submitting 25 copies of their statements on or before August 7, 2000. Please send them to Ms. Stacie Kornegay, Natural Resources Conservation Service, P.O. Box 2890, Washington, DC 20013, Room 6013. The written form of the oral statements must not exceed 5 pages in 12-point pitch. Oral presentations should be no more than three minutes each in duration. For more information regarding the forum, contact Irene Lieberman at (732) 246-1171 x 124. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 93 at Atlantic City Marina on the 11th and 48 degrees at Charlotteburg on the 13th. Weekly rainfall averaged 1.69 inches north, 1.26 inches central, and 1.32 inches south. The heaviest 24 hour total was 2.40 inches at Belvidere on the 16th to the 17th. Estimated soil moisture, in percent of field capacity, this past week averaged 71 percent north, 65 percent central and 54 percent south. Four inch soil temperatures averaged 68 degrees north, 71 degrees central and 72 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/17/00											
WEATHER STATIONS	R A I N F A L L			T E M P E R A T U R E				G D D B A S E 5 0		M O N % F C	
	W E E K	T O T A L	D E P	M X	M N	A V G	D E P	T O T	D E P		
BELVIDERE BRIDGE	3.30	24.11	6.49	88	53	70.	-3	1293	79	100	
CANOE BROOK	1.75	16.13	-2.59	85	53	70.	-3	1423	207	93	
CHARLOTTEBURG	1.50	19.40	.50	86	48	67.	-3	1031	50	85	
FLEMINGTON	1.03	17.04	-1.00	89	55	71.	-3	1459	203	71	
LONG VALLEY	.88	18.74	-.57	88	54	68.	-3	1147	91	76	
FREEHOLD	1.02	12.68	-4.89	91	59	73.	-1	1573	216	72	
LONG BRANCH	1.93	16.92	-.59	91	60	71.	-3	1349	67	93	
NEW BRUNSWICK	.60	15.93	-1.45	91	55	72.	-3	1510	73	74	
PEMBERTON	.56	14.69	-2.67	92	54	72.	-3	1963	568	50	
TOMS RIVER	1.59	17.68	-.12	91	54	72.	-2	1487	195	93	
TRENTON	1.88	15.23	-1.25	91	58	72.	-4	1582	85	100	
CAPE MAY COURT HOUSE	.98	16.19	.68	90	60	72.	-3	1534	157	53	
DOWNSTOWN	1.91	18.00	1.84	91	57	73.	-3	1631	121	100	
GLASSBORO	1.71	18.36	1.14	91	60	74.	-2	1752	263	100	
HAMMONTON	.16	15.97	-1.11	92	58	72.	-4	1575	91	42	
POMONA	1.96	17.58	2.17	91	57	72.	-3	1513	138	93	
SEABROOK	.81	18.72	3.11	91	61	73.	-3	1731	212	63	
ATLANTIC CITY MARINA	1.73	16.40	1.65	93	64	73.	-1	1533	239	87	
SOUTH HARRISON	1.24	21.12	3.76	92	62	74	NA	1730	NA	NA	

Maximum thermometer at Pemberton has been replaced. Temperatures have been averaging much too high and therefore Growing degree days units are too high.

As of June 26th, South Harrison replaced Woodstown, but the values will be compared to the normals for Woodstown because no normals exist for South Harrison.

WES KLINE — GDD BASE 40 PINEY HOLLOW

Last Week 230 (Ending 7/10/00)

This Week 232 (Ending 7/17/00)

Rutgers Cooperative Extension - NJAES
U.S. DEPARTMENT OF AGRICULTURE
Rutgers - The State University of New Jersey

Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

PLANT & PEST ADVISORY

FIELD CROPS/LIVESTOCK EDITION

CONTRIBUTORS

Rutgers Cooperative Extension Specialists

George Hamilton, Ph.D., Pest Management

Joseph R. Heckman, Ph.D., Soil Fertility

Bradley A. Majek, Ph.D., Weed Science

Jeremy Singer, Ph.D., Field and Forage Crops

Michael L. Westendorf, Ph.D., Animal Science

RCE County Agricultural Agents and Program Associate

Burlington, William J. Bamka (609-265-5757)

Hunterdon, Robert C. Mickel (908-788-1338)

Mercer, Daniel Kluchinski (609-989-6830)

Monmouth, Bill Sciarappa, Ph.D., (732-431-7260)

Salem, David L. Lee (856-769-0090)

Sussex, Daniel Wunderlich (973-579-0985)

Warren, Everett A. Chamberlain (908-475-6503)

University of Delaware Cooperative Extension

Mark Van Gessel, Ph.D., Weed Science

North Jersey Resource Conservation & Development Council

Brian Aldrich (908-852-2576, ext.113)

Newsletter Production

Jack Rabin, Assistant Director, NJAES

Cindy Rovins, Editor and Designer

Rutgers Cooperative Extension (RCE) provides information and educational services to all people without regard to sex, race, color, national origin, disability, or age. RCE is an Equal Opportunity Employer.

Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

Use of Trade Names: No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

Reproduction of Articles: RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.