

Forage Sampling



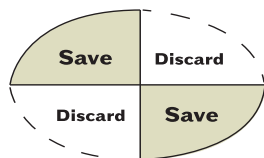
By Alex Austin, B.S.

It is important to sample forages before adding them to a livestock diet. Sampling allows producers to have a balanced ration for their livestock and test for mycotoxins. It also gives farmers a snapshot into their agronomy, harvesting and storage practices. The

results of a forage sample will only be as good as the technique and effort that went in to obtaining it.

Forage samples should be divided into different lots based on the variety, maturity or field location(s). When sampling a lot, limit lot size to 200 tons or less. If a lot is greater than 200 tons, take two samples. The sample should then be quarter sampled. To quarter sample, put each sample into a bucket, mix the feed samples in the bucket thoroughly and lay the mixed sample out in a pile. Flatten the pile and then divide into quarters. Take two quarters of the pile, mix it together and place it in a sample bag to send to the lab. Final sample size should be one pint to one quart.

How To Quarter Sample



Different Forage And Storage Types Require Different Sampling Methods

Bales And Bagged Haylage: Core Sampler

- Use a core sampler to take samples from dry hay bales, baleage and silage bags.
- Avoid using a handful of hay grabbed from the bale. This will be a poor representation of the lot. Small squares should have about 20 cores taken per lot² and large bales should have 12 cores¹. Place samples into a forage sample bag.
- Taking cores from bagged haylage and silage is fairly easy. Take 8-10 cores from different spots of the lot. Tape over the hole when done². Place samples into a forage sample bag.

Silos, Bunkers And TMR: Scoops Or Handfuls

- Collect scoops or handfuls of forage from silos, bunkers, TMR mixers and bags. Your hand should be in an up facing position, much like a scoop. Do not shake the sample when sampling, as it will cause the fines to fall out of the sample. Scoop with your hand or scoop and place the sample in a bucket.
- When sampling from bags, take 5-6 handfuls/scoops of feed. After taking the first set of samples, remove feed for the next feeding and take another 5-6 handfuls/scoops. Mix all samples together in a bucket and quarter the sample.
- When sampling from a silo allow silage to ferment for 3 weeks and don't take a sample from the top 3 feet. Run the silo unloader and collect 14 random handfuls/scoops¹. Put these samples into a bucket and quarter sample.
- When sampling from a bunker do not pull handfuls out from the face of the pile. This is dangerous. Use a facer or loader bucket to remove silage and place into a pile. Take 10 handfuls, place the samples into a bucket and quarter.
- When sampling from a TMR there can be a lot of variance. When feeding out, take samples from the beginning, middle and end of the bunk. Taking samples from various parts of the feed bunk is best to get an accurate analysis. Mix samples together in the bucket and quarter.

After the samples are taken and prepared, the next step is to remove as much air as possible before sealing the bag. Silages can continue to ferment after a sample is taken. If possible it is best to vacuum seal these samples. If a sample will not be mailed right away it is okay to freeze sample unless you are testing for molds and mycotoxins. Do not freeze sample for molds and mycotoxin tests.

¹ <https://www.dairylandlabs.com/feed-and-forage/submit-a-sample/sampling-tips/conventional-analyses>

² <https://u.osu.edu/beef/2014/12/10/forage-and-feed-sampling/>

A Fill out your **contact information**, “CC Crystal Creek®” on the email line to ensure your nutritionist receives a copy of your sample results.

B Give a clear **description** for each sample submitted.

C The **CNCPS 6.5+ (N3) NIR** is the most common test recommended with the Crystal Creek® nutrition program. Near Infrared Spectroscopy (NIR) is a rapid and cost effective analysis that gives information on numerous nutrients in a short amount of time compared to Wet Chemistry tests which take longer. Wet Chemistry is the term used to describe direct analysis of feedstuff nutrients. Wet chemistry analysis provides the most accurate values available for individual samples because this procedure utilizes chemicals to isolate individual nutrients.

D When testing for **Molds and Mycotoxins**, it is best to contact your nutritionist before submitting a sample. Crystal Creek® will most often recommend selecting **Mycotoxin Basic** for your mycotoxin testing needs. Do not freeze these samples as freezing can cause incorrect results.



DAIRYLAND
Laboratories, Inc.
www.dairylandlabs.com

ARCADIA | 217 E. Main St. | Arcadia, WI 54612 | 608-323-2123
ST CLOUD | P.O. Box 580 | St. Cloud, MN 56302-9900 | 320-240-1737
STRATFORD | PO Box 418 | 212922 Legion St. | Stratford, WI 54484
DEPERE: | 1111 Lawrence Dr. | DePere, WI 54115 | 920-336-4521
BATTLE CREEK: | 4900 W. Dickman | Battle Creek, MI 49037 | 269-753-0048
JEROME: | 150 Bridon Way | Jerome, ID 83338 | 208-324-7511

Customer# _____ Payment Enclosed \$ _____ (VISA/MC Accepted) #/Exp. _____
 Sampled By _____ Name _____ Address _____ Complete Address _____
 Sampled For _____ Name _____ Address _____ Complete Address _____
 Email: _____ Fax: _____

NIR Calibrations are available on the following products:	Sample Description #1	Sample Description #2	Sample Description #3
Hay Small Grains Corn Silage/Haylage Mix Canola Meal Soy Hulls Western Hay Corn Silage TMR Corn Gluten Feed Wheat Midds Haylage BMR Silage Distiller Grains Meat & Bone Meal Blood Meal Corn Grain Small Grain Silage Soybean Meal Beet Pulp Brewers Grain	○		

NIR/Chemistry Packages			
Complete-NASEM (N9) Select Pkg + 4 NDFD time points, IVSD, VFA, UCP	\$31.00		
CNCPS 6.5+ (N3) Select Pkg + 4 NDFD time points, IVSD, VFA, UCP	\$31.00		
Select (N8) Basic Pkg + NDFD30, RFO (hay/haylage/small grain slg), Milk 06/13 energy values	\$28.00	(Circle One) 24 hr. 30 hr. 48 hr.	(Circle One) 24 hr. 30 hr. 48 hr.
Basic (N7) Proximates + RFV (hay/haylage/small grain slg), OARDC/NRC01 energy values	\$21.00		
Equine Choice DE (N7H)	\$29.00		
Corn Silage Processing Score (Q1) Starch by NIR	\$29.00		
UW Grain 2.0 (HM Corn, Dry Corn, Snaplage)	\$56.00		

The following Chemistry minerals and NIR packages can be combined with the above NIR packages. If the Chemistry and NIR packages listed below are requested individually (not in combination with an NIR Package) then a base fee of \$7.00 per sample will be added to the listed price.

Basic Minerals (M2) Ca, P, K, Mg, S	\$13.00		
DCAD Minerals (M3) Ca, P, K, Mg, S, Cl, Na	\$16.00		
Complete Minerals (M4) Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Al, B	\$26.00		
Complete Mineral w/DCAD (M7) Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Al, B, Cl	\$30.00		

For mineral mixes add \$16.00/sample to listed price.

Molds & Mycotoxins			
Mold and Yeast Count & Identification	\$45.00		
Mold and Yeast Count	\$30.00		
Mycotoxins HPLC/MS/MS	2-5 Days in Lab		
Aflatoxin B1, B2, G1, G2	\$55.00		
Vomitoxin/DON	\$55.00		
Zearalenone	\$55.00		
T-2/HT2	\$55.00		
Fumonisin B1, B2, B3	\$55.00		
Ochratoxin A	\$55.00		
Mycotoxin Basic (13 Toxins) Includes Aflatoxin B1, B2, G1, G2, Vomitoxin(DON), Zearalenone, T2/HT2, Fumonisin-B1, B2, B3, Ochratoxin A, Roquefortine C	\$170.00		
Mycotoxin Select (17 Toxins) includes Mycotoxin Basic Plus 3 & 15 Acetyl DON, Citrinin, Fusaric Acid	\$225.00		
Mycotoxin Complete (22 Toxins) includes Mycotoxin Select plus Fusarenon X, Nivalenol, Neosolaniol, DAS, Patulin	\$300.00		

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Forage Sampling

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E Fermentation Quality Analysis / VFA Profile test will give you information on what can be improved and how it will feed out. Many factors contribute to the value of the ensiled feed including processing, moisture, and packing. This test would be recommended for silage after 21 days of storage, when it has reached a stable condition.

F Add On Wet Chemistry Mineral Package Tests

If precise mineral levels are needed, it is recommended to use the wet chemistry add-on packages. The M2 test looks at Ca, P, Mg, K, and S. All these minerals are tested for in the NIR tests except when testing TMR samples, but wet chemistry mineral tests are more accurate. M3 and M7 should be chosen when using DCAD diets.

G Individual Wet Chemistry Tests

Most of these individual tests are part of an NIR packages and some are a part of wet chemistry tests.



Sampled By _____ Name _____
 Sampled For _____ Name _____

Chemistry Analysis		Sample Description #1	Sample Description #2	Sample Description #3
A - Crude Protein	\$18.50			
B - CP, ADF (ADF Energy calcs) (not on TMRs)	\$21.50			
C - CP, ADF, NDF (ADF Energy calcs. Not on TMRs) (RFV on hay/traylage)	\$29.00			
D - CP, NDF, Fat (ether extract), Ash (OARDC Energy calcs)	\$43.00			
D1 - D plus ADF, AD-ICP, Lignin (OARDC Energy calcs)	\$68.00			
D2 - D1 plus ND-ICP, Protein Solubility, Starch, Sugar (4-6 days in lab)	\$103.00			
G - Swine Basic Pkg (Includes CP, ADF, NDF, Fat, Ash, ME energy calcs)	\$48.00			
G1 - Swine Select (includes Swine Basic Pkg + Starch)	\$64.00			
H - CP, Fat (ether extract)	\$29.00			
J - Equine Pkg (Includes CP, ADF, NDF, Fat, Basic Minerals, TDN & DE)	\$51.00			
K - Whey Package (includes Crude Protein, Ash, Lactose, DCAD minerals & Karl Fischer Moisture)	\$55.00			
L - NDFD (must include NDF) circle desired time pts (7-10 Days In Lab)	\$41.00 ea.	12, 24, 30, 48, /2, 120, or 240 hr	12, 24, 30, 48, /2, 120, or 240 hr	12, 24, 30, 48, /2, 120, or 240 hr
L1 - NDFD 6.5 forages (includes 30, 120, 240 hr) (7-10 Days In Lab)	\$95.00			
L2 - NDFD 6.5 commodities (includes 12, 72, 120 hr) (7-10 Days In Lab)	\$95.00			
Q2 - Corn Silage Processing Score (Includes Chemistry Starch)	\$29.00			
Invitro Starch Digestibility 7 hr. (must include starch) (4-6 days in lab)	\$43.00			
Fermentation Quality Analysis (VFA Profile)	\$40.00			
Particle Size (Forage or grain micron size)	\$25.00			
Germination (7-10 Days In Lab)	\$26.00			
Moisture Only	\$15.00			
Roasted Soybean Package (PDI) (4-6 days in lab)	\$51.00			
Mixer Test (For grain & complete feeds & TMRs)	POR			
Fatty Acid Profile	\$69.00			
Ross RUP (16hrs) + UCP (10-15 Days In Lab)	\$105.00			
U1 - Lysine, Methionine, Cysteine +9 (5-7 Days in Lab)	\$105.00			
U2 - Amino Acid Complete w/Tryptophan (5-7 Days In Lab)	\$160.00			

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Minerals & Supplemental Analysis

The following minerals and supplemental analysis can be added to any Chemistry package at the listed price. If requested individually, then a base fee of \$7.00/sample will be added to the list price.

Basic Minerals (M2) Ca, P, K, Mg, S	\$13.00			
DCAD Minerals (M3) Ca, P, K, Mg, S, Cl, Na	\$16.00			
Complete Minerals (M4) Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Al, B	\$26.00			
Complete Mineral w/DCAD (M7) Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Al, B, Cl	\$30.00			
Any individual Mineral(s). Within M4 pkg. Please Specify _____	\$15.00 ea			
Molybdenum	\$20.00			

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For mineral mixes add \$16.00/sample to listed price.

1. ADF	\$11.00	12. Protein Solubility (Must include CP)	\$13.00	1.	12.	1.	12.	1.	12.
2. AD-ICP (Must include ADF)	\$6.00	13. NDF	\$11.00	2.	13.	2.	13.	2.	13.
3. Ash	\$9.00	14. ND-ICP (Must include NDF)	\$6.00	3.	14.	3.	14.	3.	14.
4. Chloride	\$14.00	15. Salt (Chloride as % Na Cl)	\$14.00	4.	15.	4.	15.	4.	15.
5. Crude Fiber	\$16.00	16. Starch	\$16.00	5.	16.	5.	16.	5.	16.
6. Crude Protein	\$11.00	17. Sugar (WSC)	\$16.00	6.	17.	6.	17.	6.	17.
7. Fat (Ether Extract)	\$14.00	18. Lactose	\$16.00	7.	18.	7.	18.	7.	18.
8. Fat (Acid Hydrolysis)	\$28.00	19. Prolamin (Grain & Corn)	\$23.00	8.	19.	8.	19.	8.	19.
9. Mojonnier Fat (Whey/dairy products)	\$35.00	20. NPN or Urea (circle one)	\$30.00	9.	20.	9.	20.	9.	20.
10. Lignin (Must include ADF)	\$16.00	21. Nitrates	\$11.00	10.	21.	10.	21.	10.	21.
11. pH	\$9.00			11.		11.		11.	

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Chemistry analysis require 2-3 days after the sample arrives in the laboratory. • Prices subject to change without notice. Sample prep fee for non-typical samples \$15.00