

Forage Sampling



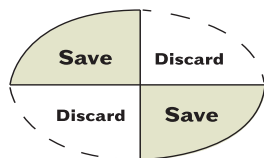
By Alex Austin, B.S.

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 N7 NIR Select 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**, the **TLC** (Thin Layer Chromatography) test should be chosen for TMR, haylage and corn silage samples. **ELISA** (Enzyme Linked Immunosorbent Assay) tests should be used for grains such as high moisture shell corn and snaplage. Crystal Creek® recommends selecting the **Four Toxin Package** for your mycotoxin testing



ARCADIA: 217 E. Main St. • Arcadia, WI 53401
 ST CLOUD: P.O. Box 580 • St Cloud, WI 54080
 STRATFORD: 720 S. Weber Ave. • Stratford, WI 53589
 DE PERE: PO Box 7088 • De Pere, WI 53530

www.dairylandlabs.com

Customer # _____ Payment Enclosed: \$ _____ (VISA & MC accepted)

Sampled By: _____ Address: _____
(Name)

Sampled For: _____ Address: _____
(Name)

E-Mail: _____ Phone/Fax: _____

NIR Calibrations are available on the following products:

Hay	Corn Grain	BMR Silage	TMR
Western Hay	Small Grains	Small Grain Silage	WDG
Haylage	Corn Silage	Corn Silage / Haylage Mix	DDG

Sample Description #1

NIR/Wet Chemistry Packages			
		Starch kd Yes	Starch kd No
NIR Complete -NDF Digestibility pkg w/24&30hr. VFA Screen, IVSD 7hr	\$27.00		
N3 - NIR CNCPS 6.5 (Includes NDFD30, 120, 240)	\$27.00		
UW Grain 2.0 - (HM Corn, Dry Corn, Snaplage)	\$46.00		
<i>Starch kd rates require 1 additional day in the lab</i>			
NIR NDF Digestibility - Milk 2006 for c.slg (RFV, RFD hay/hyl) (circle time point)	\$24.50	(Circle One) 24hr. 30hr.	
N7 - NIR Select - OARDC	\$19.00		
N1 - NIR Basic	\$16.00		
N5 - NIR CNCPS version 6.1 and prior	\$27.00		
add'l NIR time points (circle time point)	\$6.00 ea.	24hr. 30hr. 48hr. 120hr.	
N7H - Equine Choice DE	\$20.00		
N4 - NIR Distillers Grain - OARDC	\$19.50		
<i>The following Wet Chemistry and NIR packages can be combined with the above NIR packages. If the Wet Chemistry and NIR combination with an NIR Package) then a base fee of \$7.00 per sample will be added to</i>			
M2 - Ca, P, K, Mg, S	\$10.00		
M3 - DCAD-Ca, P, K, Mg, S, Cl, Na	\$14.50		
M4 - Complete Mineral - Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Mo	\$23.00		
M7 - Complete Mineral w/DCAD - Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Cl, Mo	\$26.00		
For mineral mixes add \$16.00/sample to listed price			
Molds & Mycotoxins			
*Mold and Yeast Count & Identification	\$39.00		
*Mold and Yeast Count	\$23.00		
*Mycotoxins	Method		
TLC for Forages & ELISA for Grains (method determined by lab)	TLC	ELISA	
Vomitoxin	\$50.00	\$38.00	
Aflatoxin	\$50.00	\$38.00	
Zearalenone	\$50.00	\$40.00	
T-2 Toxin	\$50.00	\$40.00	
Three Toxin Pkg.	\$105.00	\$112.00	
Four Toxin Pkg.	\$115.00	\$145.00	

needs. Do not freeze these samples as freezing can cause incorrect results.

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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.



DAIRYLAND Laboratories, Inc.

Sampled By: _____ (Name)		Sample Description	
Sampled For: _____ (Name)			
Wet Chemistry Analysis			
A- Crude Protein	\$14.00		
B- CP, ADF (ADF Energy calcs) (not on TMRs)	\$17.50		
C- CP, ADF, NDF (ADF Energy calcs, Not on TMRs) (RFV on hay/haylage)	\$23.50		
D- CP, NDF, Fat (ether extract) Ash (OARDC Energy calcs)	\$36.00		
*1)- D plus ADF, AD-ICP, Lignin (OARDC Energy calcs)	\$56.00		
*2)-D1 plus ND-ICP, Protein Sol., Starch, Sugar	\$83.00		
G- Swine ME energy includes M2 mineral	\$37.00		
H- CP, Fat (ether extract)	\$23.00		
J- Equine TDN and DE includes M2 mineral	\$37.00		
L-Invitro NDFD (must include NDF) (circle time point)	\$32.00 ea.	12hr. 24hr. 30hr. 48hr. 72hr. 120hr. 240hr.	
L1-Invitro NDFD 6.5 forages (includes 30hr. 120hr. 240hr.)	\$79.00		
L2-Invitro NDFD 6.5 commodities (includes 12hr. 72hr. 120hr.)	\$79.00		
CSPS-(Corn Silage Processing Score) must include NIR pkg or wet chemistry starch & NDF	\$20.00		
Invitro Starch Digestibility 7hr. (must include Starch)	\$35.00		
Fermentation Quality Analysis (VFA Profile)	\$33.00		
Particle Size (Forage or grain micron size)	\$20.00		
*Germination	\$18.00		
Moisture Only	\$14.00		
Nitrates	\$11.00		
Fecal Total Starch	\$23.00		
* Roasted Soybean Package (PDI)	\$43.00		
Mixer Test (For grains, complete feeds, and TMRs)	POR		
Fatty Acid Profile	\$52.00		
Ross RUP (16hrs)	\$53.00		
Ross RUP (16hrs) & UCP	\$85.00		
Minerals & Supplemental Analysis			
<i>The following minerals and supplemental analysis can be added to any Wet Chemistry package at the listed price. If request \$7.00/sample will be added to the list price.</i>			
M2- Ca, P, K, Mg, S	\$10.00		
M3 - DCAD-Ca, P, K, Mg, S, Cl, Na	\$14.50		
M4 - Complete Mineral - Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Mo	\$23.00		
M7 -Complete Mineral w/DCAD - Ca, P, K, Mg, S, Zn, Cu, Mn, Fe, Na, Cl, Mo	\$26.00		
Any individual Mineral (s) within M4 pkg. (Please Specify)	\$12.00		
For mineral mixes add \$16.00/sample to listed price		Enter Number Code	
1. ADF	\$9.00	11. pH	\$9.00
2. AD-ICP (must incl. ADF)	\$6.00	12. Protein Solubility(must incl. CP)	\$9.00
3. Ash	\$7.00	13. NDF	\$9.00
4. Chloride	\$11.00	14. ND-ICP (Must include NDF)	\$6.00
5. Crude Fiber	\$11.00	15. Salt (Chloride as % Na Cl)	\$11.00
6. Crude Protein	\$7.00	16. Starch	\$14.00
7. Fat (Ether Extract)	\$11.50	17. Sugar (WSC)	\$14.00
8. Fat (Acid Hydrolysis)	\$23.00	18. Prolamin (Grain & Corn only)	\$16.00
9. Mojonner Fat (Whey/dairy)	\$28.00	19. NPN or Urea (circle one)	\$20.00
10. Lignin (Must incl. ADF)	\$11.00		

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