



Determine the Nutritional Quality of Your Pasture

Using Near-infrared spectroscopy (NIRS) technologies

This process uses fecal analysis from free-range cattle to help producers save money and equip them with informed decisions regarding livestock nutritional management and supplemental feeding programs.

After adding a ranch to the NUTBAL Online system, **contact the GANLAB** and we will send sample kits out to begin a monitoring program immediately. All of the necessary information is available on our website in the Tutorial section. It provides video instruction on how to enter samples correctly and how to interpret reports and determine least-cost feed solutions. Windows Media Player is required to view the material, and can be downloaded free from the link on our site. We suggest reviewing the supporting documentation also available while waiting for

your sample kits to arrive.



Grazingland Animal Nutrition Lab
 Texas AgriLife Research
 Blackland Research and Extension Center
 720 East Blackland Rd.
 Temple, TX 76502-9662
 Phone: 254-774-6134
 Fax: 254-774-6150
 Email: ganlab@brc.tamus.edu
<http://cnrit.tamu.edu/ganlab>



Take the guesswork out of the nutritional management of your herd.

Visit our website to Get Started:

http://cnrit.tamu.edu/nutbal_online

- Connect to the Internet and open any web browser
- Type in the address: http://cnrit.tamu.edu/nutbal_online
- Click **'New Account'**
- Fill out the requested information
- Click the **'Submit Request'** button
- Login with the username and password when prompted
- View the tutorial or follow the page prompts
- Fill out the requested information
- Save information were prompted

Conservation Stewardship Program – Animal Enhancement Activity –ANM17- *Monitoring Nutritional Status of Livestock using the NIRS/ NUTBAL PRO System*

Enhancement Description:

Use the NUTBAL PRO software to determine if the current diet is sufficient to meet livestock nutritional needs. This requires the collection and laboratory NIRS analysis of fecal samples to determine the nutritional value of grazed forages.

Land Use Applicability: This enhancement is applicable to pastureland and rangeland.

Benefits: NUTBAL PRO is decision-support software that assimilates information regarding animal attributes, environmental conditions, forage conditions, feeding program, and metabolic modifiers. Nutbal Pro reports provide information to:

- balance animal nutritional needs with contributions from grazing forage,
- select the most cost efficient feed alternative, amount to be fed, and cost per day,
- evaluates feeds' values with regards to the animal's nutrient deficiency or desired gain,
- monitor the quality of grazing forages throughout the year, and
- better understand animal nutritional needs as they change throughout the year.

For specific information on monitoring criteria as well as required documentation please contact your local NRCS office or agent administrating your CSP Contract.

Attached are portions of our rancher information packet that will address many of the questions that producers may have. You will also notice a couple of them are written from the "consultant's" perspective rather than directly for the producer.

Pricing on the two products the GAN lab offers:

Option 1: NIRS Results and NUTBAL Report \$35.00 per sample this option includes NIRS fecal analysis (crude protein and energy of forage consumed) and an online NIRS/NUTBAL PRO system report for multiple profiles. Users can choose between online system access or have the results and report sent directly to them via email, fax or regular mail.

Option 2: NIRS Results and NUTBAL Advisory \$70.00 per sample This option includes NIRS fecal analysis (crude protein and energy of forage consumed) as well as an advisory written by one of our staff providing recommendations to meet desired production goals. This option is NOT required for CSP contracts, but can provide additional help for interpreting NIRS/NUTBAL results and evaluating options for meeting production goals. Delivery of the advisories will be via email, fax, or regular mail. For samples with more than **three profiles**, a fee of **\$ 10.00 will be assessed for each additional profile**. Please allow for extra time for completion of option 2 as each advisory is written on an individual basis.

Which option should the CSP participating producer choose?

Either of the above options will satisfy the requirements for the CSP program. The answer to this question depends on how knowledgeable the producer is regarding animal nutrition, as well as how comfortable the producer is making management decisions from this information. Insight and feedback from the producer's local NRCS representative is also quite beneficial.

Please call or email with any questions.

Thank you and regards,

Stephen Prince

Stephen Prince

Lab Director

Grazingland Animal Nutrition Lab

Blackland Research & Extension Center

720 E. Blackland Road

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ganlab@brc.tamus.edu

<http://cnrit.tamu.edu/ganlab>

Conservation Stewardship Program – Animal Enhancement Activity –ANM17- *Monitoring Nutritional Status of Livestock using the NIRS/ NUTBAL PRO System*

Helpful hints and frequently asked questions:

Can I collect and freeze fecal samples before I ship them?

Yes, freezing of the fecal samples do not negatively affect the NIRS analysis and will help insure that shipped samples arrive in good condition.

Can I collect samples over time and then wait and send in all six samples at the same time?

No, in order to have the best information possible to support your decision making, we highly recommended that you send in samples over the course of the entire year. Doing so will provide you with near real time nutritional information and will help mitigate nutritional deficiencies and/or extra expenses incurred due to unnecessary supplementation.

How much manure is needed to complete the analysis?

As part of our sample processing procedure, all samples are dried to a consistent moisture content level and then ground in a sample mill. The processed sample basically looks like green flour. It is for this reason that we recommend sending in no more than a pint sized sample of manure in a quart sized zip-lock style bag. Please do not use the slider style bags, as these tend to leak during transit.

How long does it take to get my NIRS results and NUTBAL reports?

Normally this process takes 3 to 5 days from the time the lab receives the sample until results and NUTBAL Reports are ready to be sent. If an advisory is requested this will take additional time as the advisories are written on an individual basis.

In addition, the lab typically experiences an extremely high number of samples in the last few months prior to the yearend contract deadline. To insure the quickest turnaround time, we advise that samples be submitted over the course of the year or growing season to avoid the yearend deadline rush.

Is the GANLAB a private commercial Laboratory?

No, the GANLAB is a unit within Texas AgriLife Research, a division of the Texas A&M University System. Our focus is to offer diagnostic analysis and decision support software that is used as a nutritional monitoring program for grazing livestock. In addition to our own research, we facilitate the research of other entities with our NIRS capabilities. We operate under the Center for Natural Resource Information and Technology (CNRIT), a center within Texas AgriLife Research that is devoted to providing technology solutions in the realm of natural resource management. We provide CNRIT the capability to assess and manage animal nutritional well-being and to develop project specific NIR applications. Though research is our primary focus, we also offer nutritional analysis to the public through our commercial services. Since we are a university entity, our rates for services are solely for cost recovery, and not for profit.

I, or my NRCS representative, would like to run my own NUTBAL reports. Is this possible?

Yes, if you or your NRCS representative would like to run your own NUTBAL reports you can use the online system and/or download the "standalone" version of the software from our website.

What is the best way to find additional information about the GANLAB and offered services not cover in this correspondence?

Our website has the most up to date information about the GANLab along with downloads and training information. Please visit <http://cnrit.tamu.edu/ganlab>.

Collecting Fecal Samples

Fecal profiling of livestock using near infrared spectroscopy (NIRS) allows prediction of dietary crude protein (%CP) and digestible organic matter (%DOM) on a dry matter basis. The methods described below for profiling, shipping, and handling fecal samples have been tested throughout the U.S. Keeping the samples cool and insect free preserves the integrity of the sample for up to seven days.

When to collect fecal sample:

Animals should be in the pasture at least 48 hours prior to collecting fecal sample. Livestock are usually easier to find in the early morning and late evening in hot weather. If you are rotating cattle through pastures, keep in mind that the manure you are collecting has the highest correlation to what the animal was grazing 36 hours prior to defecation.

Supplies:

- Plastic bags that seal completely to contain sample, e.g. quart size Ziplock. **Please DO NOT use plastic bags that fold over or have a sliding tab.**
- Plastic gloves or extra plastic bags to protect hands
- Disposable spoon(s)
- Permanent marker to label bags, e.g. Sharpie
- Mailing labels and tape
- Optional – masking/butcher tape to label bags if marker tends to smear

We provide:

- Cardboard mailing box
- Styrofoam cooler
- Gel pack (ice substitute)
- Sample form and instruction sheet (originals, available online also.)

Filling out the Paper Sample Form:

The "Client" is the person or entity that pays for the sample. Please provide clients address, phone, fax (optional), and e-mail. Please indicate if the invoice is to be mailed, emailed, or faxed. The "Client Representative" is the person who the GAN lab may contact with questions AND who will receive the lab results. If additional persons are to receive a copy of results, please provide instruction in the Comments section. Complete the client representative section with name, phone, fax, address, and email address. Please indicate how you would like the sample results sent; mail, fax, or e-mail. Record the date collected, your sample ID, vegetation, and animal kind (cattle, sheep, goats, etc). Also indicate which analysis you want.

If you want NUTBAL reports or advisories for the sample, please complete the Animal Attributes, Feeds, and Forage sections of the form. An accurate NUTBAL report depends on accurate information such as breed (i.e. 1/4 Brahman and 3/4 Angus), age, pregnancy, lactation, weight, condition score, and pasture conditions.

If you are currently feeding a supplement or feed, please complete the feed stuff section of the form. Attach a copy of the feed tag, if possible. Please indicate the last date herd was fed or if supplement is free choice. NUTBAL can also determine the most cost efficient feed stuff for the animal described (feed cost per pound of gain). Please provide feed information on additional feed stuffs if this is desired. TDN value of feed is very important.

Filling out Online Sample Form:

For our customers who choose to use the GAN Lab's online system, you do not need the paper copy of the form. Visit the website http://cnrit.tamu.edu/nutbal_online . Login and fill out the sample form (for instructions on customer account, submitting samples, etc., see the *Automated NIRS/NUTBAL Online System* handout included in the rancher information packet online or mailed to you). Once you have filled out the online sample sheet, the "auto system" will give you a GAN Lab number. Include this number with your sample.

Before collecting the sample:

1. Freeze gel pack overnight. **Suggestion:** freeze in Styrofoam cooler.
2. Attach address labels to cardboard mailing box.
3. Gather supplies.

Collecting the Sample:

1. Protect your hands from disease etc., with plastic gloves or extra bags.
2. Locate 5 to 10 fresh dung piles or about 10% of herd (do not include nursing animals). It is preferable that you see the actual defecation event to ensure that the sample is fresh and free of pests. Otherwise, collect dung that is still moist and shows no evidence of insects or bird scratching.
3. Using a disposable spoon, skim away the top layer of manure. Collect a heaping tablespoon or a large pinch from each dung pile. A small freezer bag need not be more than 3/4 full. Avoid picking up soil, rocks or excess plant material.
4. Place the bag of fecal matter in a second bag.
5. Dispose of dirty gloves, bags, or spoons used to collect sample in an environmentally safe manner.
6. On the outside bag, record your sample ID, date, and name with a permanent marker. If submitting sample information online using the Automated NIRS/NUTBAL Online System, write the Lab number generated when you logged in the sample. Example: 3941.
7. Place the sample in the Styrofoam cooler with frozen gel pack. Prior to packing, allow fecal sample to cool to air temperature to extend the life of the frozen gel pack while in shipment.
8. If you are not shipping the sample that day, the sample may be frozen indefinitely or stored overnight in refrigerator. Freeze sample in the Styrofoam cooler so that it will fit. Freezing does not affect the analysis.
9. Complete the paper sample form (unless you are submitting sample information online). Insert form in a sealable bag separate from the sample and enclose in the cardboard mailer. Samples from MEXICO must include a Certificate of Origin. If submitting sample information online using the Automated NIRS/NUTBAL Online System, login to http://cnrit.tamu.edu/nutbal_online to register, view tutorials, and enter sample information. The website will issue your sample's GAN Lab number.
10. Tape the Styrofoam cooler around the lid, not across the top of the lid, in order to extend life of frozen gel pack.
11. Place Styrofoam cooler in cardboard box.
12. Label box and mail the sample in a timely manner.

Packing and Mailing the Sample:

1. Place from bottom to top in the Styrofoam cooler the fecal sample, the frozen gel pack and paper to reduce cold leakage.
2. Place lid on cooler and tape around the lid securely with packing tape. Scotch tape does not work.
3. Place the Styrofoam cooler and sample form in cardboard box and tape box securely closed. Make sure mailing box is labeled with sender and receiver addresses.
4. If not pre-labeled, label the box with this text, "Diagnostic Specimen" packed in compliance with IATA Packing Instruction 650.

Send mailer by two-day priority mail via US Post Office, FedEx or UPS to:

**Grazingland Animal Nutrition Lab
Blackland Research and Extension Center
720 East Blackland Road
Temple, TX 76502-9622**

5. For more information, you may contact the Grazingland Animal Nutrition Lab (GAN Lab).
phone: (254) 774-6134 e-mail: ganlab@brc.tamus.edu
fax: (254) 774-6150 web sites: <http://cnrit.tamu.edu>
http://cnrit.tamu.edu/nutbal_online

Completing the GAN Lab Sample Form

(to be used with NUTBAL ProVersion 1.0 software)

Answers to commonly asked questions concerning the sample form. **One fecal sample per sample sheet, please.****General:**

- Client Section:** This information is used to set up or identify the account to be billed. NRCS personnel may use this section for other purposes as long as the NRCS contract number is filled out in the Lab Use Only section.
- Ranch Name:** Complete this entire section with every sample you send in. The ranch name is used to file and store sample results. Be consistent. If you refer to the ranch as Blue Valley Demo Farm for the first few samples, please do not change and label the sheet BVDF instead. This makes retrieving data for you difficult and time consuming.
- Client Rep:** The lab sends results to the person specified in this section. Check one of the options through which the lab can send results. Always include your phone number, city and state. If the address, phone, fax or client rep has changed, please indicate.
- Sample ID:** Use an ID that is meaningful to you or the rancher. Make sure that the ID on the sample sheet matches the label on the bag of fecal sample.
- Date Collected:** Is the day the fecal sample was collected.

Animal Attributes:

Several columns are provided for multiple profiles or subgroups represented by the fecal sample. This information is needed to produce a NUTBAL advisory report.

- Profile Name:** Use something meaningful to the rancher to correspond to their way of referring to a group of animals. NUTBAL Pro will ask for this name.
- Breedtype:** If the sample was collected from a herd made up of Angus cows and cows that are ½ Gelbvieh and ½ Red Angus, this would constitute two profiles so you would fill out two columns of information.
- Age:** A herd of 3-year-old cows and 6-year-old cows would also be two profiles ~ two columns of information.
- Number of Head:** Include only non-nursing animals. Example, for a herd of 20 cows and 10 of them have calves, the number of animals would be 20, not 30, not "half of them", etc.
- Lactation:** Can be translated into age of the offspring nursing the females.
- BCS of dam at parturition:** Body condition score of dam at birth. This affects 'milking potential' of the cow.
- Offspring age (mo)/weight at weaning:** This information can be used to determine peak milk yield of dam.
- Current body weight:** The weight of the animal described in this information, not the offspring.
- Current body condition score:** The BCS of the animal described in this information, not the offspring.
- Desired avg. daily gain/loss:** The desired average daily gain/loss of the animal described, not the offspring.

Feeds and Metabolic Modifiers Fed:

This section can be used to describe feeds, ionophores, hormones, antibiotics, probiotics, etc. that alter an animal's metabolism. If the item is not currently used but you want to evaluate the possible affect on performance, please indicate that the item is not yet applied. Include a copy of the feed tag or literature on metabolic modifier.

Forage/Environmental Conditions:

- Vegetation Type:** If possible, list the primary species in order of dominance. Common names are accepted. Please be more specific than just warm season or cool season. If you do not know, at least define the land by rangeland, woodland, pastureland, cropland, specifying the name of the pasture or crop species.
- Coat condition:** Usually "Dry" except in cases of deep snow, long stretches of wet weather (hurricanes), etc.

Client			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Preferred Contact Method:	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input type="checkbox"/> Fax

Ranch			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Latitude:	Longitude:		

Technical Advisor	
Name:	
Phone:	
Email:	

Pasture	
Name:	
Size (acres):	
Latitude:	
Longitude:	

Sample number provided by website:	
------------------------------------	--

Date Collected:	
-----------------	--

If the sample was entered online you do not need to fill out the fields below.

Animal Attributes		Example	Profile 1	Profile 2	Profile 3	Comments
Profile Name		Bulls May 2010				
Gender		Male				
Breed Name		Angus				
Number of Head		50				
Average Birth Date (MM/DD/YYYY)		5/15/2010				
Internal Parasite Load (L M H)		Low				
External Parasite Load (L M H)		Low				
% Dairy Breed		0				
% Dual Purpose Breed		0				
% British/Continental Breed		100				
% Tropical Breed		0				
Peak Milk Yield (lbs)		8				
Lactation Duration (days)		270				
Peak Milk Day		45				
Gestation Period (days)		283				
Offspring Birth Weight (lbs)		70				
Spayed/Castrated (Y/N)		No				
Frame Score (1-10)		5				
Body Condition Score (1-9)		5				
Weight (lbs)		1231				
Days Lactating		0				
Days Pregnant		0				
Desired Average Daily Gain (lbs)		0				
Implant Name		None				
Feeds Used			Feed 1	Feed 2	Feed 3	
Feed Name		Cottonseed Cake				
% Crude Protein		41				
% Total Digestible Nutrients		75				
Cost per Ton (\$)		125				
Amount Fed (lbs)		50				
% Wasted		10				
Feed Mitigation			Feed 1	Feed 2	Feed 3	
(optional) Minimum Amount Fed (lbs)		40				
(optional) Maximum Amount Fed (lbs)		70				
Pasture						
% of forage allowed to be depleted		60				
Predominant Forage Type		Native Grasses				
Activity		Adequate Watered				
Terrain		< 15 Degree Slope				
Pasture Growth Rate		Moderate				
Ionophore Used		None				
% Unrestricted Grazing		100				

Lab Use Only	
GAN Lab#	
Date Received	
NIR File Name	
Contract/Invoice#	Check#
Notes:	

Farmer Brown
Ganlab Ranch
720 E. Blackland Road
Temple, TX 76502
Phone: (254)774-6134
Fax: (254)774-6150

NUTBAL Report

Sample: 28256	Profile Name: <i>Cows</i>
Date Collected: 2014-04-01	Animal Kind: <i>Cattle</i>
Report Date: 2014-04-24	Animal Breed: <i>Angus</i>
Pasture Name: <i>Pasture 1</i>	Gender: <i>Female</i>
Vegetation <i>Native Range Intermediate</i>	
Type: <i>Grass</i>	

Current Animal Condition

Standard Ref. Wt.: <i>1165 lbs</i>	Average Age: <i>60 Months</i>
Weight: <i>1166 lbs</i>	Duration Pregnant: <i>30 days</i>
Body Condition: <i>5.0</i>	Duration Lactating: <i>120 days</i>

Performance

Weight Change Goal: <i>0.3 lbs/day</i>	Weight in 30 Days: <i>1222 lbs</i>
Predicted Weight Change: <i>1.9 lbs/day</i>	Body Condition in 30 Days: <i>5.5</i>
Performance Limited by: <i>Energy</i>	

Daily Nutritional Status

	<u>Crude Protein</u>	<u>NEm</u>	<u>NEg</u>
Intake:	<i>4.67 lbs</i>	<i>24.64 Mcal</i>	<i>4.99 Mcal</i>
Requirement:	<i>2.36 lbs</i>	<i>16.47 Mcal</i>	<i>0.0 Mcal</i>
-----	-----	-----	-----
Balance:	<i>2.31 lbs</i>	<i>8.17 Mcal</i>	<i>4.99 Mcal</i>

Daily Dry Matter Intake

	<u>Intake</u>	<u>Percent of Std. Ref.</u> <u>Wt.</u>	<u>AUE</u>
Concentrates:	0.95 lbs	0.08%	0.04
Roughage:	0.0 lbs	0.0%	0.0
Forage:	35.19 lbs	3.02%	1.35
Calf DM/d:	6.08 lbs	-	0.23
-----	-----	-----	-----
Total:	42.22 lbs	3.1%	1.62

Diet Quality

	<u>Overall</u>	<u>Forage</u>
CP Consumption:	12.93%	12.71%
DOM Consumption:	62.84%	62.32%
DOM / CP Ratio:	4.86%	4.9%

Daily Milk Production

Potential: 14.46 lbs

Actual: 14.46 lbs

Daily Fecal Output

Total: 12.32 lbs

Phosporus: 0.07 lbs

Nitrogen: 0.15 lbs

Nutritional Mediation Report

Sample: 28256
Pasture: Pasture 1
Date Collected: 2014-04-01

Profile Name: Cows
Animal Kind: Cattle
Animal Breed: Angus

Report Date: 2014-04-24
Period Duration: 30 days

Gender: Female
Profile Size: 50 head

Sensitivity Analysis

As Fed Basis

Feed	Current Cost per ton	Required Cost/ton to be selected
20% Cubes, All Plant CP	\$100.00	\$0.00

Diet Nutrients Per Day Per Animal

100% Dry Matter Basis

	Crude Protein	NEm	NEg
Intake	4.67 lbs	24.64 Mcals	4.99 Mcals
Requirement	2.36 lbs	16.47 Mcals	0.0 Mcals
-----	-----	-----	-----
Balance	2.31 lbs	8.17 Mcals	4.99 Mcals

NUTBAL Report

Sample: 28256	Profile Name: <i>Hereford Cows '10</i>
Date Collected: 2014-04-01	Animal Kind: <i>Cattle</i>
Report Date: 2014-04-24	Animal Breed: <i>Hereford -Med Frame</i>
Pasture Name: <i>Pasture 1</i>	Gender: <i>Female</i>
Vegetation <i>Native Range Intermediate</i>	
Type: <i>Grass</i>	

Current Animal Condition

Standard Ref. Wt.: 1013 lbs
Weight: 1013 lbs
Body Condition: 5.0

Average Age: 48 Months
Duration Pregnant: 0 days
Duration Lactating: 60 days

Performance

Weight Change Goal: *0.2 lbs/day*
Predicted Weight Change: *1.85 lbs/day*
Performance Limited by: *Energy*

Weight in 30 Days: *1069 lbs*
Body Condition in 30 Days: *5.6*

Daily Nutritional Status

	<u>Crude Protein</u>	<u>NEm</u>	<u>NEg</u>
Intake:	<i>3.92 lbs</i>	<i>20.68 Mcal</i>	<i>4.9 Mcal</i>
Requirement:	<i>2.12 lbs</i>	<i>12.66 Mcal</i>	<i>0.0 Mcal</i>
-----	-----	-----	-----
Balance:	<i>1.81 lbs</i>	<i>8.02 Mcal</i>	<i>4.9 Mcal</i>

Daily Dry Matter Intake

	<u>Intake</u>	<u>Percent of Std. Ref.</u>	<u>AUE</u>
		<u>Wt.</u>	
Concentrates:	<i>0.95 lbs</i>	<i>0.09%</i>	<i>0.04</i>
Roughage:	<i>0.0 lbs</i>	<i>0.0%</i>	<i>0.0</i>
Forage:	<i>29.32 lbs</i>	<i>2.89%</i>	<i>1.13</i>
Calf DM/d:	<i>1.72 lbs</i>	<i>-</i>	<i>0.07</i>
-----	-----	-----	-----
Total:	<i>31.99 lbs</i>	<i>2.99%</i>	<i>1.23</i>

Diet Quality

	<u>Overall</u>	<u>Forage</u>
CP Consumption:	<i>12.97%</i>	<i>12.71%</i>
DOM Consumption:	<i>62.9%</i>	<i>62.32%</i>
DOM / CP Ratio:	<i>4.85%</i>	<i>4.9%</i>

Daily Milk Production

Potential: *12.21 lbs*
Actual: *12.21 lbs*

Daily Fecal Output

Total: 10.3 lbs
Phosphorus: 0.04 lbs
Nitrogen: 0.13 lbs

Nutritional Mediation Report

Sample: 28256	Profile Name: <i>Hereford Cows '10</i>
Pasture: <i>Pasture 1</i>	Animal Kind: <i>Cattle</i>
Date Collected: 2014-04-01	Animal Breed: <i>Hereford -Med Frame</i>
Report Date: 2014-04-24	Gender: <i>Female</i>
Period Duration: 30 days	Profile Size: 20 head

Sensitivity Analysis

As Fed Basis

Feed	Current Cost per ton	Required Cost/ton to be selected
20% Cubes, All Plant CP	\$100.00	\$0.00

Diet Nutrients Per Day Per Animal

100% Dry Matter Basis

	Crude Protein	NEm	NEg
Intake	3.92 lbs	20.68 Mcals	4.9 Mcals
Requirement	2.12 lbs	12.66 Mcals	0.0 Mcals
-----	-----	-----	-----
Balance	1.81 lbs	8.02 Mcals	4.9 Mcals

NIRS Report

Sample: 28256
Pasture Name: Pasture 1

Crude Protein: 12.71%
Digestible Organic 62.32%

Date Collected: 2014-04-01

Report Date: 2014-04-24

Matter:

Fecal Nitrogen: 1.23%

Fecal Phosphorus: 0.54%

Understanding the NIRS Report

The GAN Lab uses near infrared spectroscopy (NIRS) to evaluate the forage component of the diet and predict the quality of the grass and hay the animals were consuming for the past 36 to 48 hours. Therefore, the analyses do not reflect supplements that may have been fed.

Crude protein (CP) analysis measures grams of crude protein per gram of dry matter in the manure.

Digestible organic matter (DOM) measures grams of digestible organic matter per gram of dry matter in the manure.

The DOM/CP ratio is an indicator of rumen efficiency. The acceptable range for this ratio is 4 to 7 with 4 being optimal. A ratio of 4 or less usually coincides with very lush, cool season or early spring pastures and very runny feces. Most warm season and native range grazing has a ratio of 5 to 6. Late summer or drought stressed forage, some stockpiled grasses, and very mature, dry grass often has a ratio greater than 7. This sample's ratio of 4.9 is inside the ratio for positive rumen efficiency.

Fecal nitrogen (FN) is a direct measurement of the amount of nitrogen in the manure and is not necessarily correlated to dietary nitrogen. FN can be used to roughly quantify the amount of nitrogen going back onto the pasture were the animals were grazing.

Fecal phosphorus (FP) analysis measures the percent of phosphorus (P) in the manure itself. FP can be used to roughly gauge whether dietary P is adequate. An FP value greater than 0.3 generally indicates that dietary phosphorus intake is adequate. A value between 0.3 and 0.2 is borderline and may need attention. A value less than 0.1 indicates a potential deficiency. This sample's value of 0.54 indicates that phosphorus intake is currently adequate for the dietary requirements.

Understanding the NUTBAL Report

Performance

This section shows the weight change goal, predicted daily weight gain, weight after 30 days, body condition after 30 days, and the most severely deficient nutrition.

Weight change goal will show the daily weight needed to maintain BCS if a goal was not entered.

Nutritional Status

The requirement describes how many pounds of crude protein and mega calories of

Net Energy for Maintenance (NEM) is needed by these animals given their breed type, physiological status, environmental conditions, etc. Net Energy for gain (NEg) is the amount of energy consumed above NEM that can be applied toward gain. The Balance row indicates whether or not nutritional intake is sufficient for that animal's nutritional requirements.

Daily Dry Matter Intake

This section breaks down total intake by concentrates (currently feeding or what you are considering to feed), roughage (see note), and forage (the pasture). Note: If you are currently feeding hay, silage, etc., this is read in the NIR analysis, thus reflected in the lab results ~ pasture+hay fed=lab results. NUTBAL allows you to hypothetically feed a hay, etc.; to see how your cattle may perform~the roughage row would reflect that situation. These numbers are reported in dry matter basis instead of "as fed" or "wet weight".

Diet Quality

This section takes an overall (pasture+feed) look at Crude Protein (CP) and Digestible Organic Matter (DOM) as well as just the forage. DOM is a measure of energy. DOM multiplied by 1.05 approximates Total Digestible Nutrients (TDN). The DOM/CP ratio is an indicator of rumen efficiency. The acceptable range for this ratio is 4 to 7 with 4 being optimal. A ratio of 4 or less usually coincides with very lush, cool season or early spring pastures and very runny feces. Most warm season and native range grazing has a ratio of 5 to 6. Late summer or drought stressed forage, some stockpiled grasses, and very mature, dry grass often has a ratio greater than 7.

Daily Milk Production

Potential milk production is the average amount producible by these animals based on protein and energy balance conditions during this 30 day period. Any discrepancy between potential and actual indicates a possible nutritional issue that may need to be addressed.

Daily Fecal Output

This describes the amount of feces that is deposited on the ground per day, including the proportion of phosphorus and nitrogen. Note that cattle recycle nutrients, they do not manufacture nutrients.

Disclaimer

This report describes the nutritional status, performance, dry matter intake and diet quality for the animals described on your sample sheet with or without supplementation. The nutritional information provided in this report is accurate for approximately 14 to 30 days so long as pasture and forage conditions stay similar to what they were at the time the sample was collected.

This report is generated by the NUTBAL model and is accurate to the best of our ability based off of the information used to parameterize the animals and environment

within the NUTBAL model. The predicted performance may not be observed if the entered information is not accurate. Unless otherwise specified, the projected performance is based on the assumption that forage availability is adequate and intake is not restricted due to lack of available forage. If forage availability is not adequate, the predicted performance will not be observed. The NUTBAL model is a decision support system. As with all decision support systems, sound judgment, previous knowledge, and experience should all be considered.

**Blackland Research and Extension Center
Grazingland Animal Nutrition Lab**

720 E. Blackland Road
Temple, TX 76502-9622
Ph: (254)774-6134
Fax: (254)774-6150

Email: ganlab@brc.tamus.edu
Lab Website: <http://cnrit.tamu.edu/ganlab>
NUTBAL Online: http://cnrit.tamu.edu/nutbal_online

SYSTEMATIC WAY TO LEARN BODY CONDITION SCORING OF BEEF COWS

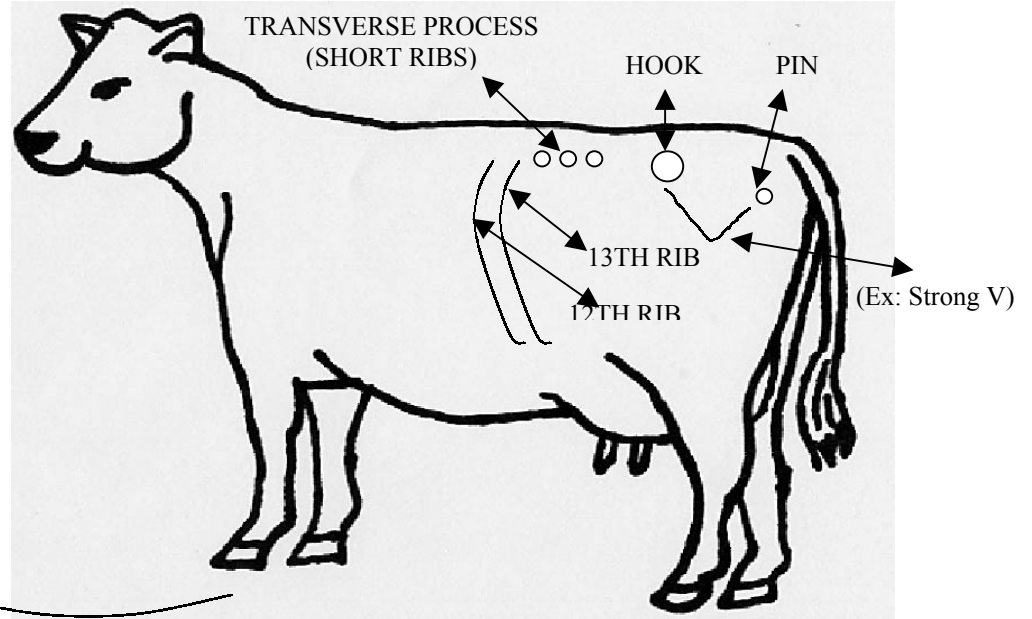
(Cows need to be at a normal stance)

STEP 1
 LOOK AT THE LAST TWO RIBS (12TH & 13TH RIB)
 IF YOU SEE THE 12TH & 13TH RIB, IT IS BELOW 5.
 IF YOU DO NOT SEE THE 12TH & 13TH IT IS 5 OR ABOVE.

STEP 2
 IF YOU SEE THE TRANSVERSE PROCESS (SHORT RIB),
 IT IS 3 OR LESS.

STEP 3
 IF YOU SEE A VERY STRONG V, IT IS A 1 OR 2.

STEP 4
 LOOK BETWEEN THE HOOK AND PINS:



IF A 6, HAS A SHALLOW U ←————→

IF A 5, HAS A STRONG U (SHALLOW UMBRELLA) ←————→

IF A 4, HAS V SHAPE
 (IF 12TH & 13TH RIB IS SHOWING, THE FORRIBS ARE NOT
 NOTICABLE AND THE TRANSVERSE PROCESS, OR THE
 SHORT RIBS ARE NOT NOTICABLE.) ←————→

IF A 3, HAS A STRONG V
 (WHERE THE TRANSVERSE PROCESSES ARE SLIGHTLY
 NOTICABLE) ←————→

IF A 2, HAS A VERY STRONG V ←————→

**STEP 5-DETERMINE TAILHEAD FATNESS BYGETTING
 REAR VIEW & LOOKING DOWN THE BACK:**

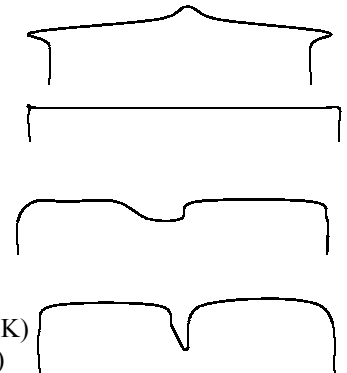
IF A 5
 (TEPEE EFFECT FROM REAR)

IF A 6
 (FLAT ACROSS THE BACK)

IF A 7
 (INDENTURE ACROSS THE BACK)

IF A 8
 (DEEP INDENTURE ACROSS THE BACK)
 (PATCHES OF FAT ACROSS THE SIDE)

IF A 9 (EXTRA FAT, TROUBLE WALKING)



Score System	Condition Score								
1 - 9 (Beef)	1	2	3	4	5	6	7	8	9
1 - 5 (Dairy)	1	1.5	2	2.5	3	3.5	4	4.5	5

Grazingland Animal Nutrition Lab

Client		
Name:		
Address:		
City:	State:	Zip:
Phone:	Fax:	
Email:		
Preferred Contact Method: <input type="checkbox"/> Email <input type="checkbox"/> Mail <input type="checkbox"/> Fax		

Ranch		
Name:		
Address:		
City:	State:	Zip:
Phone:	Fax:	
Email:		
Latitude:	Longitude:	

Technical Advisor	
Name:	
Phone:	
Email:	
Pasture	
Name:	
Size (acres):	
Latitude:	
Longitude:	

Sample number provided by website:	
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Date Collected:	
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If the sample was entered online you do not need to fill out the fields below.

		Animal Attributes	Example	Profile 1	Profile 2	Profile 3	Comments								
Basic Profile	Profile Name		Bulls May 2010				<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Select Service</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;"> <input type="checkbox"/> Standard Service: \$35.00 Includes the NIRS report & animal performance reports </td> </tr> <tr> <td colspan="2" style="text-align: center;">OR</td> </tr> <tr> <td colspan="2" style="text-align: center;"> <input type="checkbox"/> Advisory: \$70.00 Includes Standard Service AND Sample Recommendations Add \$10 for each profile past 3 </td> </tr> </tbody> </table>	Select Service		<input type="checkbox"/> Standard Service: \$35.00 Includes the NIRS report & animal performance reports		OR		<input type="checkbox"/> Advisory: \$70.00 Includes Standard Service AND Sample Recommendations Add \$10 for each profile past 3	
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	<input type="checkbox"/> Standard Service: \$35.00 Includes the NIRS report & animal performance reports														
	OR														
	<input type="checkbox"/> Advisory: \$70.00 Includes Standard Service AND Sample Recommendations Add \$10 for each profile past 3														
	Gender		Male												
	Breed Name		Angus												
Number of Head		50													
Average Birth Date (MM/DD/YYYY)		5/15/2010													
Internal Parasite Load (L M H)		Low													
External Parasite Load (L M H)		Low													
Optional Description	% Dairy Breed		0												
	% Dual Purpose Breed		0												
	% British/Continental Breed		100												
	% Tropical Breed		0												
	Peak Milk Yield (lbs)		8												
	Lactation Duration (days)		270												
	Peak Milk Day		45												
	Gestation Period (days)		283												
	Offspring Birth Weight (lbs)		70												
	Current Condition	Spayed/Castrated (Y/N)		No											
Frame Score (1-10)			5												
Body Condition Score (1-9)			5												
Weight (lbs)			1231												
Days Lactating			0												
Days Pregnant			0												
Desired Average Daily Gain (lbs)			0												
Implant Name			None												
Feeds Used			Feed 1	Feed 2	Feed 3										
Feed Name			Cottonseed Cake												
% Crude Protein		41													
% Total Digestible Nutrients		75													
Cost per Ton (\$)		125													
Amount Fed (lbs)		50													
% Wasted		10													
Feed Mitigation			Feed 1	Feed 2	Feed 3										
(optional) Minimum Amount Fed (lbs)		40													
(optional) Maximum Amount Fed (lbs)		70													
Pasture															
% of forage allowed to be depleted		60													
Predominant Forage Type		Native Grasses													
Activity		Adequate Watered													
Terrain		< 15 Degree Slope													
Pasture Growth Rate		Moderate													
Ionophore Used		None													
% Unrestricted Grazing		100													

Lab Use Only	
GAN Lab#	
Date Received	
NIR File Name	
Contract/Invoice#	Check#
Notes:	

Client			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Preferred Contact Method:	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input type="checkbox"/> Fax

Ranch			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Latitude:	Longitude:		

Technical Advisor	
Name:	
Phone:	
Email:	

Pasture	
Name:	
Size (acres):	
Latitude:	
Longitude:	

Sample number provided by website:	
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Animal Attributes		Example	Profile 1	Profile 2	Profile 3	Comments
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Gender		Male				
Breed Name		Angus				
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Lab Use Only						
GAN Lab#						
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Basic Profile

Optional Description

Current Condition

Client			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Preferred Contact Method:	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input type="checkbox"/> Fax

Ranch			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Latitude:	Longitude:		

Technical Advisor	
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Ranch			
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Latitude:	Longitude:		

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Client			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Preferred Contact Method:	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input type="checkbox"/> Fax

Ranch			
Name:			
Address:			
City:	State:	Zip:	
Phone:	Fax:		
Email:			
Latitude:	Longitude:		

Technical Advisor	
Name:	
Phone:	
Email:	

Pasture	
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