

Feeding Does to Meet Their Nutritional Needs

Randy Saner
Nebraska Extension
Educator
rsaner2@unl.edu
308-532-2683
LLM.unl.edu



N EXTENSION

Goat's View

- What would your goat like to eat if turned loose?
- Browse-roses, fruit trees, hedge
- Weeds of various sorts
- Grass-a variety of types
- Goats will eat 10-20 different kinds of plants in a day
- They like diversity



Goat's View

- Goat like diversity in their diet, and generally are healthiest and most productive with diversity in their diet.
- But goats can do well without diversity and for most situations, they do not have diversity.
- Makes nutrition more complex

N EXTENSION

3

Meat Goat Production Handbook Table 1

TABLE 1. DAILY NUTRIENT REQUIREMENTS FOR MEAT PRODUCING GOATS^{1,2}

NUTRIENT	YOUNG GOATS ³		DOES (110 lb)		BUCK (80-120 lb)		
	Weanling (30 lb)	Yearling (60 lb)	Pregnant		Lactating		
			Early	Late	Avg Milk	High Milk	
Dry matter, lb	2.0	3.0	4.5	4.5	4.5	5.0	5.0
TDN, %	68	65	55	60	60	65	60
Protein, %	14	12	10	11	11	14	11
Calcium, %	.6	.4	.4	.4	.4	.6	.4
Phosphorus, %	.3	.2	.2	.2	.2	.3	.2

¹ Nutrient Requirements of Goats in Temperate and Tropical Countries. 1981. National Research Council.

² Pinkerton, F. 1989. Feeding Programs for Angora Goats. Bulletin 605. Langston University.

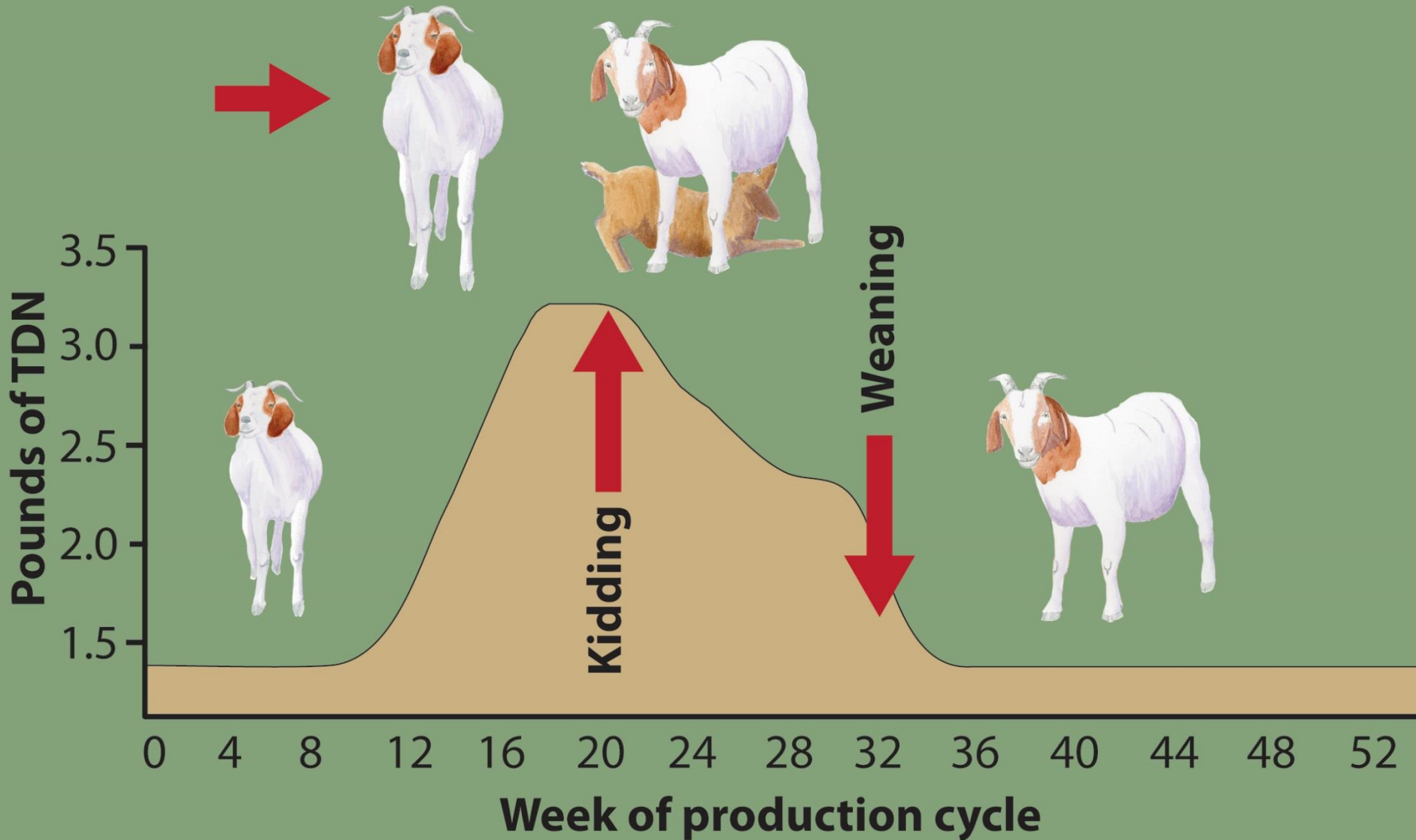
³ Expected weight gain >.44 lb / day.

Factors Effecting Nutrient Requirements of Goats

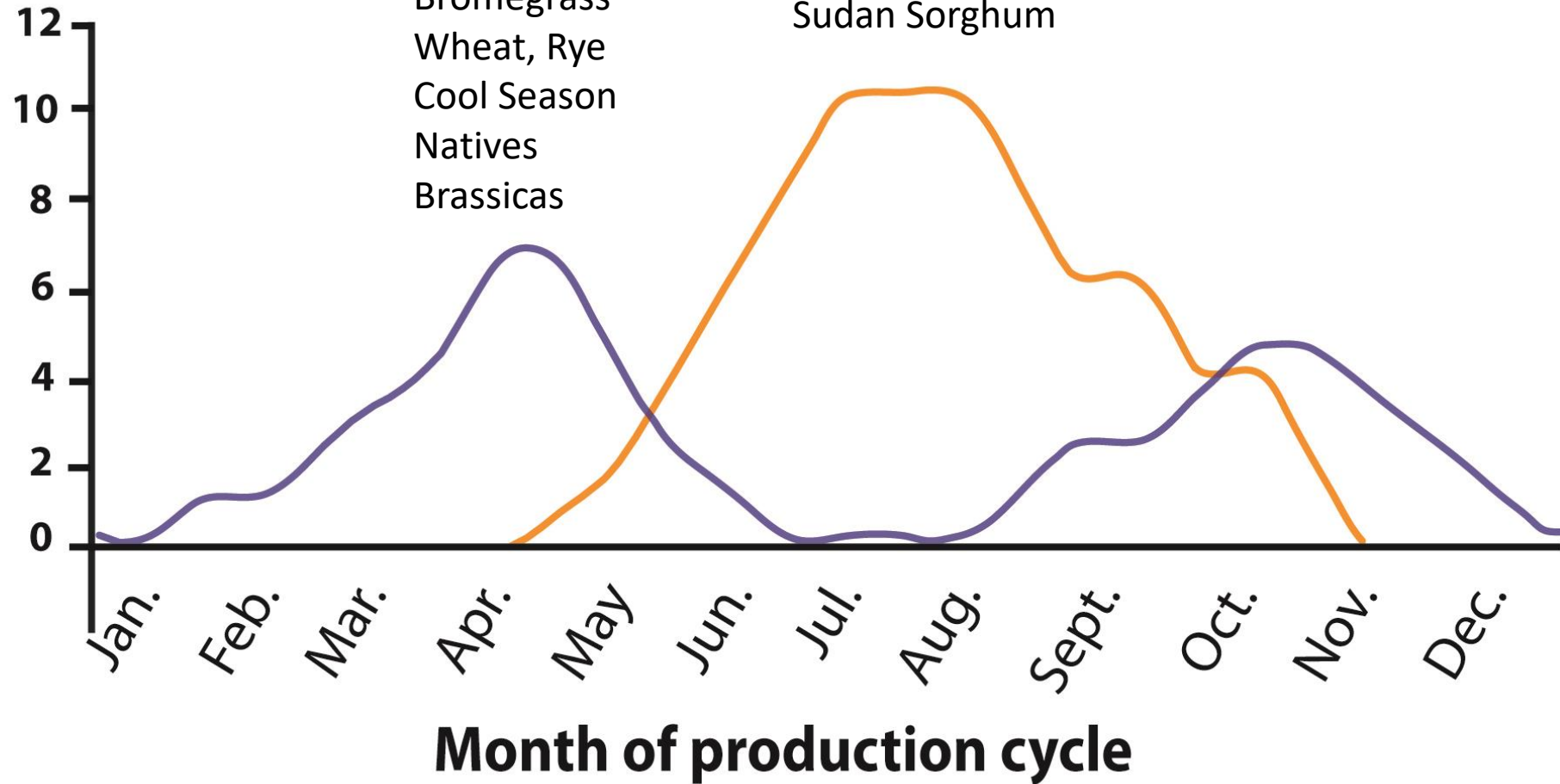


- Animal Productivity
 - Maintenance and activity level
 - Stage of Pregnancy, kidding rate
 - Stage of lactation/milk production
 - Growth or weight gain
- Animal Biotype
 - Meat, Dairy, Fiber
 - Full blood or crossbred

Doe Requirements by Production



Relative production



Native Bluestems
Switch Grass
Indian Grass
Sudan Sorghum
Smooth Bromegrass
Wheat, Rye
Cool Season
Natives
Brassicas

Cool and warm season forage production

These animals have different needs



N EXTENSION

Important Points

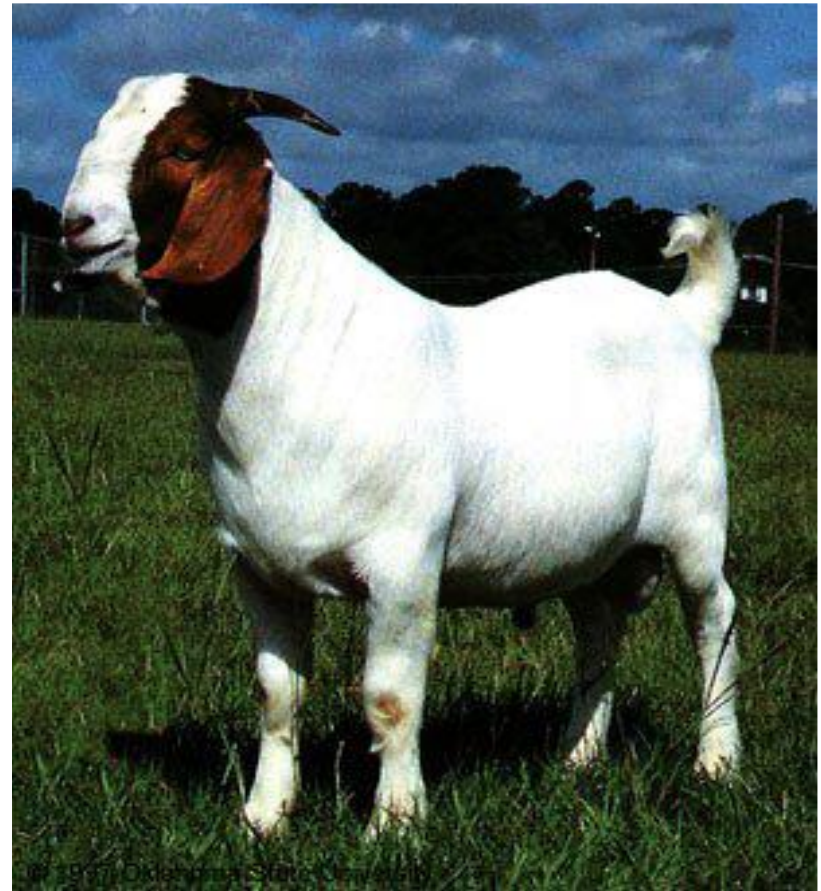
- The highest nutrient requirement time for the doe is late pregnancy.
- This is different than with the ewe and the cow.
- Watch feed intake carefully with pregnant does.
- Don't let does get too fat.



Other Factors Important in Assessing Animals Needs

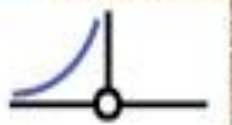
- Weight
- Maturity
- Sex
- Body Condition

- Goals
 - Market
 - Breeding
 - Showing
 - Pet

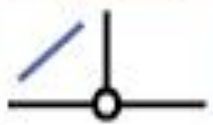


NRC Goats 1981 (2006 in press)
<http://newton.nap.edu/catalog/30.html#toc>

Body condition scoring



BCS 2 - Spinous process is felt as a ridge. A depression is felt between the spinous and transverse processes. Little muscle and fat can be felt. If bone ends are sharp and individual vertebrae felt, the BCS is 1.



BCS 3 - Spinous process does not feel like a ridge, but smooth with small ripples indicating the bones. Area between spinous and transverse processes is filled with muscle and fat cover and felt as a straight or slightly bowed out slope.



BCS 4 - Spinous process feels smooth but not buried in tissue. Individual bones are difficult to feel. Area between the spinous and transverse processes feels full and rounded. If bones are buried in tissue and not felt, the BCS is 5.

Body Condition Scoring

- We want the animal going into the winter having BCS of 3.5
- We want to maintain body condition score throughout the winter
- BCS over 4 makes goats prone to pregnancy toxemia
- When animals are lactating, they may lose BCS down to less than a 2
- Late lactation, they should regain BCS

Pregnancy Toxemia

- Cause-Animals too fat or too thin underfed last 6 weeks gestation
- Last 6 weeks of pregnancy, fetuses push against rumen reducing its size and amount of feed the doe can eat.
- Prevent-good, not excessive BCS
- Feed grain last 6 weeks of pregnancy
- Exercise is important

Feeding Meat Goats

- High nutrient requirements last 6 weeks of gestation for growing fetuses
- Fetuses are growing into rumen reducing intake
- Six weeks prior to kidding feed .5-1.0 lb. of grain/day. Hay quality is important!
- Increase grain by .5 lb. 2 weeks prior to kidding



Feeding Meat Goats

- Four weeks into lactation can start reducing grain
- Do not make sudden grain changes!
- A dry goat with sufficient good quality pasture should not require any grain

N EXTENSION

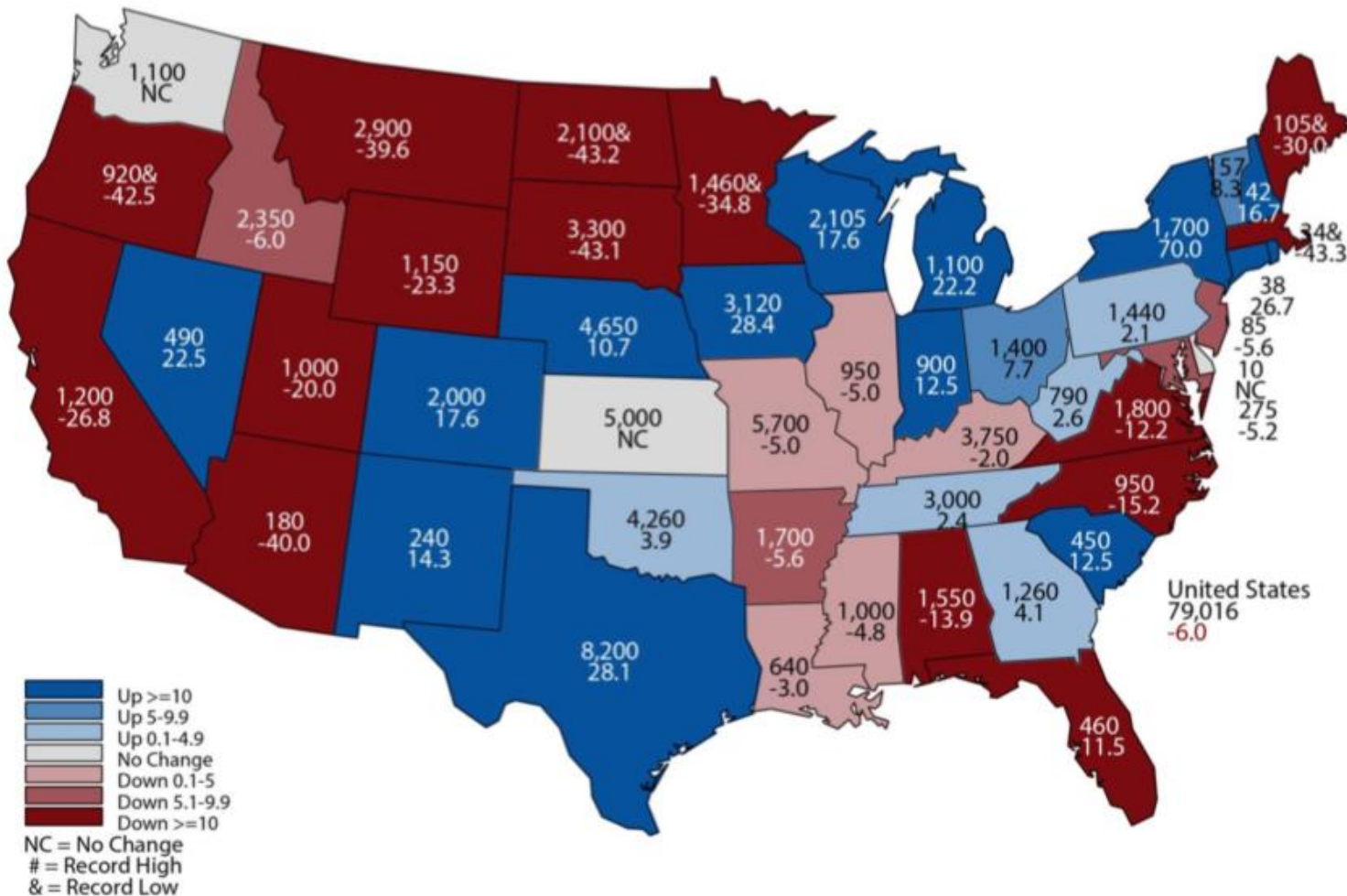
IMPORTANT POINTS

- Smaller does eat less, therefore require feeds higher in protein and energy on a percentage basis than larger does.



December 2021 Hay Stocks

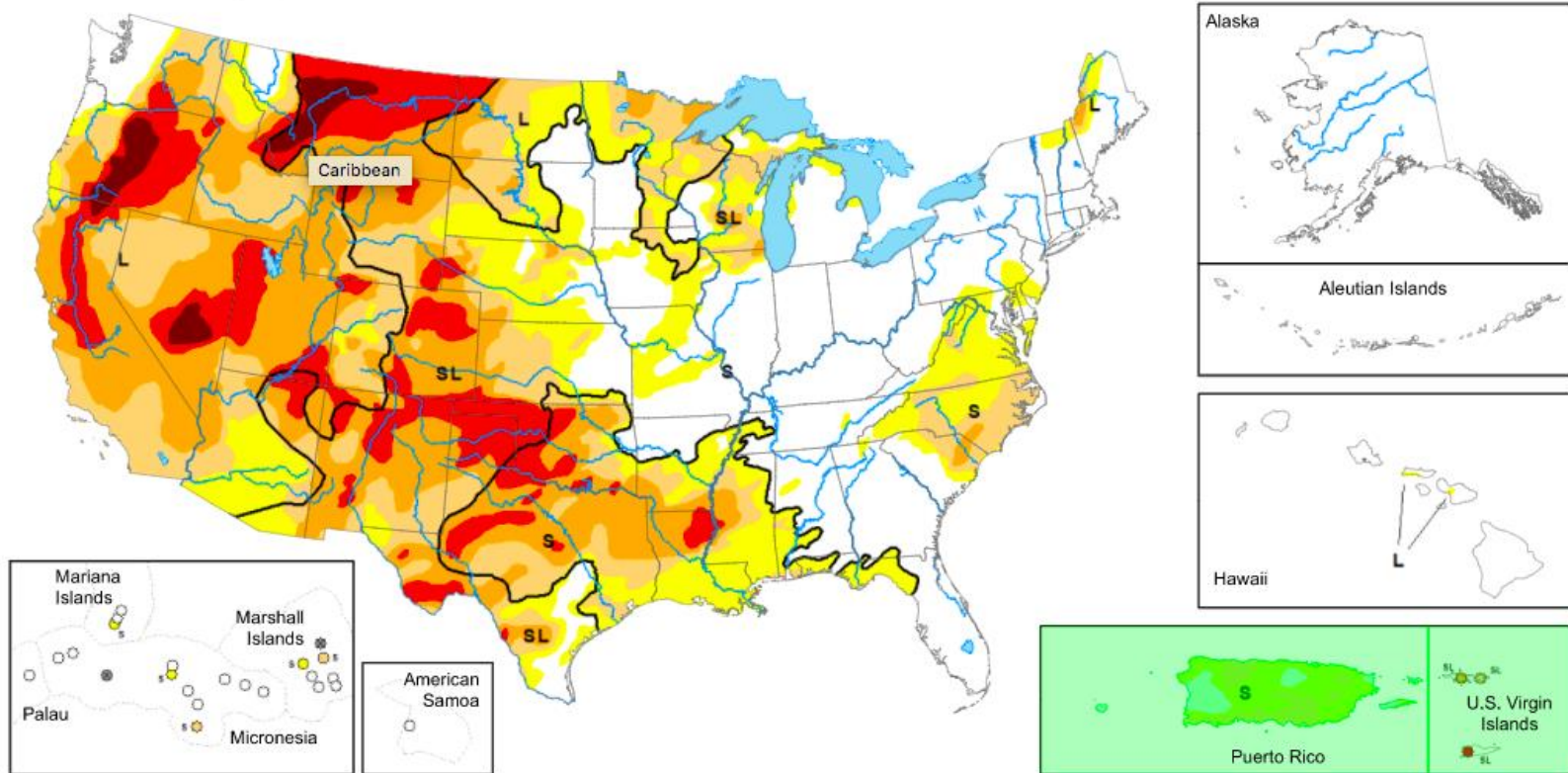
Thousand Tons and Percent Change from Previous Year



Drought Monitor

Map released: January 6, 2022

Data valid: January 4, 2022





December 2021 Hay Stocks

**December 1
Total**

(1,000 Tons)

United States

79,016

% Change from
Previous Season

↓ 6.0

**Top 5 States
December 1
Total**

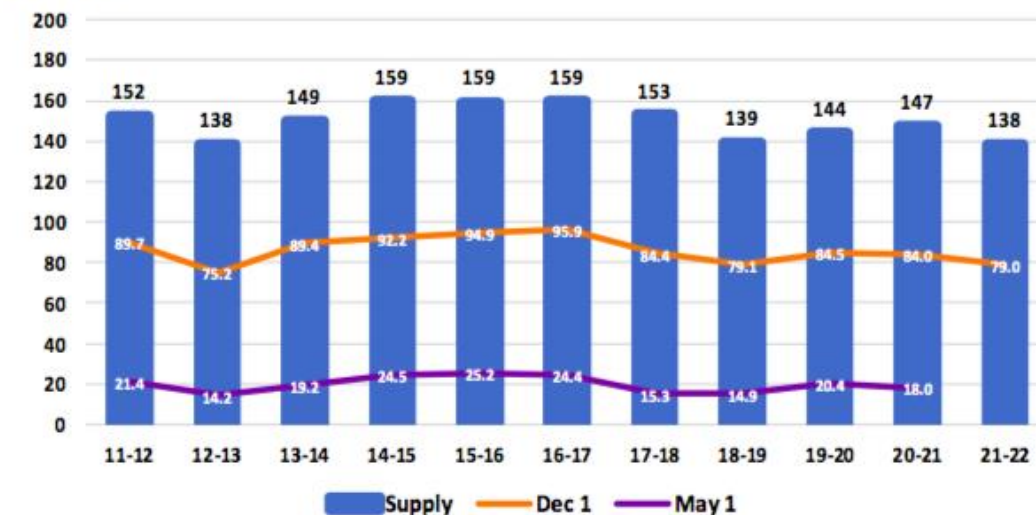
(1,000 Tons)

% Δ PY

Texas	8,200	↑	28.1
Missouri	5,700	↓	5.0
Kansas	5,000	NC	NC
Nebraska	4,650	↑	10.7
Oklahoma	4,260	↑	3.9

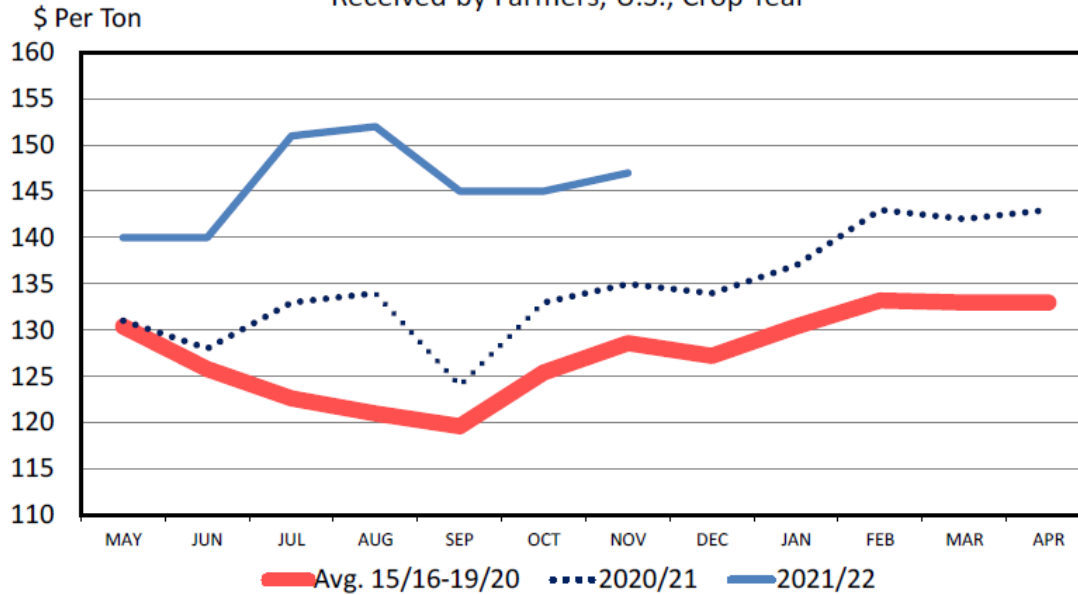
**December 2021 Hay Stocks
United States**

Million Tons



OTHER HAY – MONTHLY AVERAGE PRICE

Received by Farmers, U.S., Crop Year

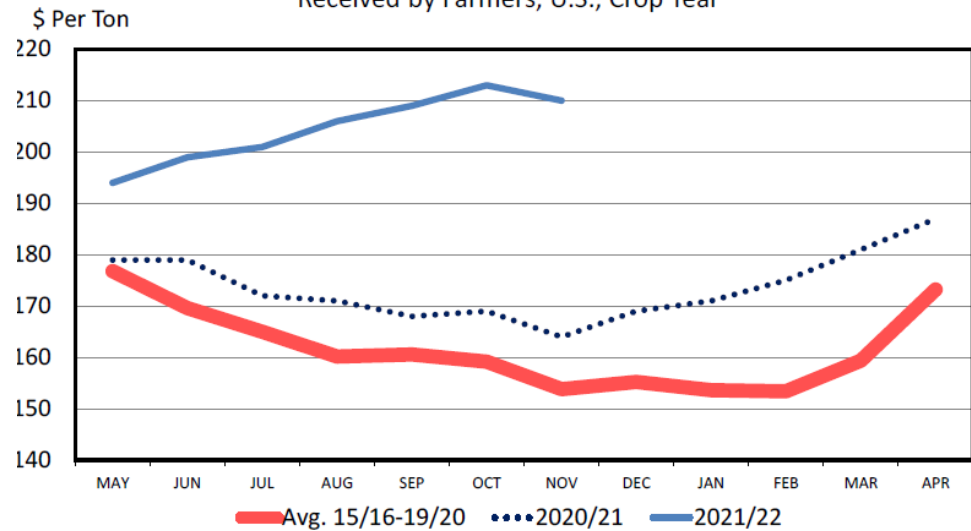


Data Source: USDA-NASS

Livestock Marketing Information Center

ALFALFA HAY – MONTHLY AVERAGE PRICE

Received by Farmers, U.S., Crop Year



Data Source: USDA-NASS

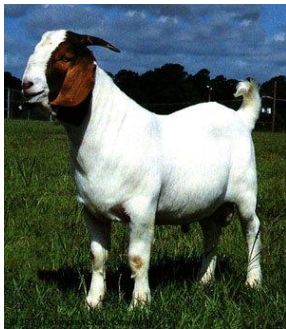
Livestock Marketing Information Center

G-P-12
12/30/21

Animal Requirements

- In ration balancing we use percentages, but..

Nutrients are required as lbs. or units



- Animals need to eat the proper amount of nutrients
- Monitor feed intake and nutrient content of feeds. Poor quality feeds can limit intake
- Don't be misled by percentages

Requirements: Mature Does Maintenance, 110 vs. 132 lbs

Body Weight (lb)	Feed Intake (lb/day)	Energy as TDN (lb/day)	Energy % TDN (%)	Protein (lb/day)	Protein (%)
110	2.18	1.17	53.5	0.15	6.9
132	2.51	1.32	52.6	0.172	6.8

Source: Nutrient Requirements of Small Ruminants (NRC 2007)

Requirements: mature does (132 lb) at different productivity levels

Productivity	Feed Intake (lb)	Energy as TDN (lb/day)	Energy As TDN (%)	Protein lb/day	Protein (%)
Maintenance	2.51	1.32	52.6	0.172	6.8
Late Pregnancy (twins)	3.34	2.2	66.4	0.433	13
Early Lactation (twins)	3.85	2.05	53.1	.475	12.3

Source: Nutrient Requirements of Small Ruminants (NRC 2007)

Nutrition of Newborn Kids

- Colostrum –first milk produced by doe
- Within first hour after birth, gut closure at 6 hr.
- Contains passive immunity
- Better nutrition means better colostrum



Requirements: 275 lb. vs. 110 lb Mature Buck at Maintenance and Pre-breeding

Activity	DM Feed Intake (lb/day)	Energy as TDN (lb/day)	Energy As TDN (%)	Protein (lb/day)	Protein (%)
275 lbs. Maintenance	4.99	2.64	52.9	0.321	6.4
275 lbs. Pre-breeding	5.5	2.90	52.8	0.339	6.2
110 lb. Maintenance	2.51	1.34	53.5	.163	6.5
110 lbs. Pre-breeding	2.77	1.47	53.2	.178	6.4

Oklahoma State Recommendations

Table 5-1. Approximate nutrient requirements of various classes.

<i>Goats</i>	<i>Crude Protein (%)</i>	<i>TDN (%)</i>
Bucks	8	60
Dry Doe	8	58
Late Gestation	12	66
Lactation avg Milk	9	60
Lactation high Milk	11	65
Weanling	14	70
Yearling	12	65

Nutrient Requirements of non-dairy does

Nutrient Requirements for mature non-dairy does, lbs./day

Concentration in diet

Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb
Maintenance	44	2.50	1.10	0.57	0.077	0.0026	0.0018
	66	2.26	1.50	0.79	0.103	0.0031	0.0022
	88	2.10	1.85	0.99	0.128	0.0037	0.0029
	110	1.99	2.18	1.17	0.150	0.0042	0.0033
	132	1.90	2.51	1.32	0.172	0.0046	0.0037
	154	1.83	2.82	1.50	0.194	0.0051	0.0042
	176	1.77	3.10	1.65	0.213	0.0055	0.0044
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb
Breeding	44	2.75	1.21	0.64	0.084	0.0029	0.0020
	66	2.48	1.65	0.88	0.112	0.0033	0.0024
	88	2.31	2.02	1.08	0.141	0.0040	0.0031
	110	2.19	2.40	1.28	0.165	0.0044	0.0035
	132	2.09	2.75	1.45	0.189	0.0048	0.0040
	154	2.01	3.10	1.65	0.211	0.0055	0.0044
	176	1.94	3.41	1.80	0.233	0.0059	0.0048
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb
Early gestation	44	3.32	1.45	0.77	0.145	0.0108	0.0053
	66	2.93	1.94	1.03	0.187	0.0114	0.0059
	88	2.68	2.35	1.25	0.224	0.0121	0.0064
	110	2.51	2.75	1.45	0.260	0.0125	0.0070
	132	2.38	3.15	1.67	0.282	0.0132	0.0075
	154	2.27	3.50	1.85	0.310	0.0136	0.0079
	176	2.19	3.85	2.05	0.341	0.0141	0.0084
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb
Late gestation Single kid	44	3.22	1.41	0.95	0.176	0.0075	0.0037
	66	2.82	1.87	1.23	0.227	0.0081	0.0044
	88	2.56	2.27	1.50	0.271	0.0086	0.0051
	110	2.97	3.28	1.74	0.334	0.0099	0.0064
	132	2.80	3.70	1.96	0.374	0.0106	0.0068
	154	2.67	4.11	2.18	0.414	0.0112	0.0075
	176	2.55	4.49	2.38	0.449	0.0117	0.0079

% TDN	% CP	% Ca	% P	Ca:P
52.0%	7.0%	0.24%	0.16%	1.50
52.9%	6.9%	0.21%	0.15%	1.40
53.6%	6.9%	0.20%	0.15%	1.31
53.5%	6.9%	0.19%	0.15%	1.27
52.6%	6.8%	0.18%	0.15%	1.24
53.1%	6.9%	0.18%	0.15%	1.21
53.2%	6.9%	0.18%	0.14%	1.25
% TDN	% CP	% Ca	% P	Ca:P
52.7%	6.9%	0.24%	0.16%	1.44
53.3%	6.8%	0.20%	0.15%	1.36
53.3%	7.0%	0.20%	0.15%	1.29
53.2%	6.9%	0.18%	0.15%	1.25
52.8%	6.9%	0.18%	0.14%	1.22
53.2%	6.8%	0.18%	0.14%	1.25
52.9%	6.8%	0.17%	0.14%	1.23
% TDN	% CP	% Ca	% P	Ca:P
53.0%	10.0%	0.74%	0.36%	2.04
53.4%	9.7%	0.59%	0.31%	1.93
53.3%	9.5%	0.51%	0.27%	1.90
52.8%	9.4%	0.46%	0.26%	1.78
53.1%	9.0%	0.42%	0.24%	1.76
52.8%	8.9%	0.39%	0.23%	1.72
53.1%	8.9%	0.37%	0.22%	1.68
% TDN	% CP	% Ca	% P	Ca:P
67.2%	12.5%	0.53%	0.27%	2.00
65.9%	12.1%	0.44%	0.24%	1.85
66.0%	11.9%	0.38%	0.22%	1.70
53.0%	10.2%	0.30%	0.19%	1.55
53.0%	10.1%	0.29%	0.18%	1.55
52.9%	10.1%	0.27%	0.18%	1.50
52.9%	10.0%	0.26%	0.18%	1.47

Source: Nutrient Requirements of Small Ruminants: sheep, goats, cervids, and new order camelids, National Research Council (2007)

Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb	% TDN	% CP	% Ca	% P	Ca:P
Late gestation Twins	44	3.10	1.36	1.08	0.216	0.0108	0.0051	79.0%	15.8%	0.79%	0.37%	2.13
	66	2.68	1.76	1.41	0.271	0.0112	0.0055	80.0%	15.4%	0.64%	0.31%	2.04
	88	2.90	2.55	1.69	0.337	0.0123	0.0066	66.4%	13.2%	0.48%	0.26%	1.87
	110	2.69	2.95	1.96	0.385	0.0130	0.0073	66.4%	13.1%	0.44%	0.25%	1.79
	132	2.54	3.34	2.22	0.433	0.0134	0.0077	66.4%	13.0%	0.40%	0.23%	1.74
	154	2.40	3.70	2.46	0.473	0.0139	0.0081	66.7%	12.8%	0.38%	0.22%	1.70
	176	2.90	5.10	2.71	0.559	0.0158	0.0101	53.0%	10.9%	0.31%	0.20%	1.57
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb	% TDN	% CP	% Ca	% P	Ca:P
Late gestation Triplets or more	66	2.86	1.89	1.50	0.304	0.0145	0.0068	79.1%	16.0%	0.77%	0.36%	2.13
	88	2.60	2.29	1.83	0.361	0.0150	0.0075	79.8%	15.8%	0.65%	0.33%	2.00
	110	2.39	2.62	2.09	0.409	0.0154	0.0079	79.8%	15.6%	0.59%	0.30%	1.94
	132	2.69	3.54	2.35	0.480	0.0167	0.0092	66.5%	13.5%	0.47%	0.26%	1.81
	154	2.56	3.94	2.62	0.528	0.0174	0.0097	66.5%	13.4%	0.44%	0.25%	1.80
	176	2.45	4.31	2.86	0.574	0.0178	0.0101	66.3%	13.3%	0.41%	0.23%	1.76
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb	% TDN	% CP	% Ca	% P	Ca:P
Early lactation Single kid	44	3.63	1.61	0.86	0.180	0.0101	0.0059	53.4%	11.2%	0.63%	0.37%	1.70
	66	3.18	2.09	1.12	0.231	0.0108	0.0064	53.7%	11.1%	0.52%	0.31%	1.69
	88	2.92	2.57	1.36	0.279	0.0114	0.0070	53.0%	10.9%	0.44%	0.27%	1.63
	110	2.72	2.99	1.58	0.321	0.0121	0.0077	52.9%	10.7%	0.40%	0.26%	1.57
	132	2.58	3.41	1.80	0.363	0.0128	0.0084	52.9%	10.6%	0.37%	0.25%	1.53
	154	2.47	3.81	2.02	0.400	0.0132	0.0088	53.2%	10.5%	0.35%	0.23%	1.50
	176	2.37	4.18	2.22	0.436	0.0136	0.0092	53.2%	10.4%	0.33%	0.22%	1.48
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb	% TDN	% CP	% Ca	% P	Ca:P
Early lactation Twins	44	3.32	1.45	0.97	0.229	0.0167	0.0090	66.7%	15.8%	1.15%	0.62%	1.85
	66	3.62	2.40	1.28	0.310	0.0180	0.0103	53.2%	12.9%	0.75%	0.43%	1.74
	88	3.30	2.90	1.54	0.370	0.0189	0.0110	53.0%	12.7%	0.65%	0.38%	1.72
	110	3.08	3.39	1.80	0.425	0.0196	0.0117	53.2%	12.5%	0.58%	0.34%	1.68
	132	2.71	3.85	2.05	0.475	0.0202	0.0123	53.1%	12.3%	0.53%	0.32%	1.64
	154	2.76	4.25	2.24	0.521	0.0207	0.0128	52.8%	12.3%	0.49%	0.30%	1.62
	176	2.64	4.64	2.46	0.568	0.0213	0.0134	53.1%	12.2%	0.46%	0.29%	1.59
Stage of Production	BW, lb	% BW	DMI, lb	TDN, lb	CP, lb	Ca, lb	P, lb	% TDN	% CP	% Ca	% P	Ca:P
Early lactation Triplets or more	66	3.04	2.00	1.34	0.339	0.0244	0.0132	67.0%	16.9%	1.22%	0.66%	1.85
	88	3.47	3.06	1.63	0.427	0.0260	0.0145	53.2%	14.0%	0.85%	0.47%	1.79
	110	3.23	3.54	1.89	0.491	0.0266	0.0152	53.4%	13.9%	0.75%	0.43%	1.75
	132	3.04	4.03	2.13	0.548	0.0273	0.0158	53.0%	13.6%	0.68%	0.39%	1.72
	154	2.90	4.47	2.35	0.603	0.0279	0.0165	52.7%	13.5%	0.63%	0.37%	1.69
	176	2.77	4.88	2.60	0.653	0.0284	0.0169	53.2%	13.4%	0.58%	0.35%	1.68

Energy & Protein Dairy Requirements

• Class	DMI	%TDN	%CP
• Maint	2.2	55	7 G prairie
• E Gest	3.0	55	9 G prairie
• L Gest	3.2	67	12 Ex Orch
• E Lact	4.4	65	15
• M Lact	3.6	62	14 G Orch
• L Lact	2.9	58	10

Additional Maintenance Energy Required for Cold Weather

- Temperature lb. Grain for 150 lb. goat
- 40°F 0
- 30 .25
- 20 .50
- 0 1.0
- -20 1.5
- -40 2.0

Important Points When Building Your Ration

- Percent protein and energy required on the diet are lower for larger animals
- Total pounds of protein and energy required are higher for larger goats
- Higher amounts of protein and energy are required for higher rates of gain (both on a percentage basis and as total pounds).



Lactating Meat Goat Doe Ration

- 1 lb. Corn Grain \$3.92/bushel
- 2.80 lbs. Alfalfa \$240/ton 17% CP 58%TDN
- .05 lb. Commercial Goat Mineral \$560/ton

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	3.85			3.30	2.15	0.48	0.0410	0.0170	\$0.42
Nutrients required				3.85	2.05	0.475	0.0202	0.0123	
Nutrients supplied				86%	105%	101%	203%	138%	
Difference				(0.14)	0.10	0.01	0.0208	0.0046	
							Ca:P	2.4	

132 lbs. doe early lactation with twins

Lactating Meat Goat Doe Ration

- 2 lbs. alfalfa hay \$240/ton 58% TDN 17% CP
- 2.4 lbs. brome hay \$168/ton 55% TDN 10% CP
- .10 lbs. commercial goat mineral \$560/ton

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	4.50			3.79	2.08	0.48	0.0479	0.0260	\$0.46
Nutrients required				3.85	2.05	0.475	0.0202	0.0123	
Nutrients supplied				99%	102%	103%	236%	211%	
Difference				(0.06)	0.04	0.01	0.0208	0.0136	
							Ca:P	1.8	

132 lbs. doe early lactation with twins

Lactating Meat Goat Doe Ration

- 1 lb. of Dried Distillers Grain \$198.60
- 3 lbs. of Brome Hay \$168

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	4.05			3.49	2.12	0.49	.0285	.5899	\$0.35
Nutrients required				3.85	2.05	0.475	0.0202	0.0123	
Nutrients supplied				91%	103%	103%	141%	100%	
Difference				(0.36)	0.07	0.01	0.0083	0.000	
							Ca:P	2.3	

132 lbs. doe early lactation with twins

Late Gestation Meat Doe Ration

- 1 lb. corn grain \$3.92 per bushel
- 2.8 lbs. Alfalfa Hay \$240 per ton 17% CP 58% TDN
- .10 lb. Commercial Mineral \$560 per ton

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	3.90			3.34	2.24	0.48	0.0487	0.0256	\$0.43
Nutrients required				3.34	2.22	0.433	0.0134	0.0077	
Nutrients supplied				100%	101%	111%	363%	332%	
Difference				(0.00)	0.02	0.05	0.0353	0.179	
							Ca:P	1.9	

132 lbs. doe carrying twins

Early Gestation Doe Diet

- 3 lbs. Brome Hay 10% CP 59% TDN \$168/ton
- .02 lb. commercial goat mineral \$560/ton

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	3.77			3.15	1.73	0.31	0.0154	0.0090	\$0.31
Nutrients required				3.15	1.67	0.282	0.0132	0.0075	
Nutrients supplied				100%	103%	112%	116%	120%	
Difference				.01	0.06	0.03	0.0022	0.0015	
							Ca:P	1.7	

132 lbs. doe carrying twins

Maintenance Ration Mature Buck

- 3.7 lb. Mid Bloom Alfalfa Hay 17% CP 57% TDN
- 0 lb. Meadow Hay 49% TDN 7.3% CP
- .15 lb. Goat Mineral

Maintenance - mature bucks, lbs/day

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	3.90			3.27	1.81	0.53	0.0668	0.0334	\$0.49
Nutrients required				3.41	1.80	0.220	0.0059	0.0048	
Nutrients supplied				96%	101%	242%	1125%	691%	
Difference				(0.14)	0.01	0.31	0.0609	0.0286	
							Ca:P	2.0	

Breeding Mature Bucks, lbs./day

- 2.7 Alfalfa Mid Bloom 10% CP, 56% TDN
- 2.10 lbs. Meadow Hay 3% CP, 49% TDN
- .11 lbs. Commercial Goat Mineral

	As Fed			DMI	TDN	CP	Ca	P	\$/day
Total nutrients supplied	4.50			3.75	1.98	0.25	0.0503	0.0232	\$0.39
Nutrients required				3.74	1.98	0.242	0.0064	0.0053	
Nutrients supplied				100%	100%	104%	854%	506%	
Difference				0.01	0.00	0.01	0.0481	0.0215	
							Ca:P	2.0	

Example Ration for Late Pregnancy Doe (132 lb.)

Alfalfa hay	0.5 lb/day As fed
Grass hay	0.6 lb/day
Corn	1.25 lb/day

MEAT GOAT RATION EVALUATOR



HOW TO USE THE MEAT GOAT RATION EVALUATOR SPREADSHEET

by Susan Schoenian

You can't balance rations without weighing feed and weighing goats.

1. Fill out the feed inventory with the feedstuffs you plan to feed your goats. Replace the feeds listed with your own feeds and values.
2. Go to the Nutrient Requirements worksheet [YELLOW TAB] and find the class of goat you want to evaluate a ration for.
The nutrient requirements in the tables are from the National Research Council's Nutrient Requirements of Small Ruminants, published in 2007.
3. Copy the goat's TDN, CP, Ca, and P requirements to the Windows clipboard. Nutrient requirements are in the BRIGHT YELLOW cells.
To copy, highlight the cells you want to copy with the mouse, then hold down the CTRL key and press the C key (or right click the mouse and click COPY).
4. Go to the Worksheet [RED TAB] and find the same class of goat.
6. Paste the TDN, CP, Ca, and P requirements that you copied to the clipboard to the same location (BRIGHT YELLOW cells) on the Worksheet.
To paste, highlight where you want to copy the information to with the mouse, hold down the CTRL key and press the V key (or right click the mouse and click PASTE).
7. Under the As Fed column (BLUE cells), enter the amount (pounds) of each feed that you plan to feed this class of goat.
8. The calculated values in the PINK cells show the differences between the nutrients supplied by your ration and the nutrients required by the goat.
A calcium to phosphorus ratio is also calculated. The ration should be at least 2:1 when feeding male goats.
9. You can adjust your ration by making changes to the As fed column. By trial and error, you can figure out which and how much of each feed to feed your goat(s).
If you're unable to balance a ration or create a realistic ration (e.g most goats can't eat 10 lbs. of hay per day), you'll need to add other feeds to your inventory.
10. The spreadsheet is password protected, so you cannot change the formulas. You only need to change values in the BLUE cells for the spreadsheet to work.
If you want to edit the protected portion of the spreadsheet, contact Susan Schoenian at sschoen@umd.edu to get the password.



This spreadsheet was developed by Susan Schoenian, Sheep & Goat Specialist for University of Maryland Extension. Please direct questions to Susan at sschoen@umd.edu. Additional spreadsheets are available on Susan's web site at

<https://www.sheepandgoat.com/spreadsheets>

Favorites

Add... C

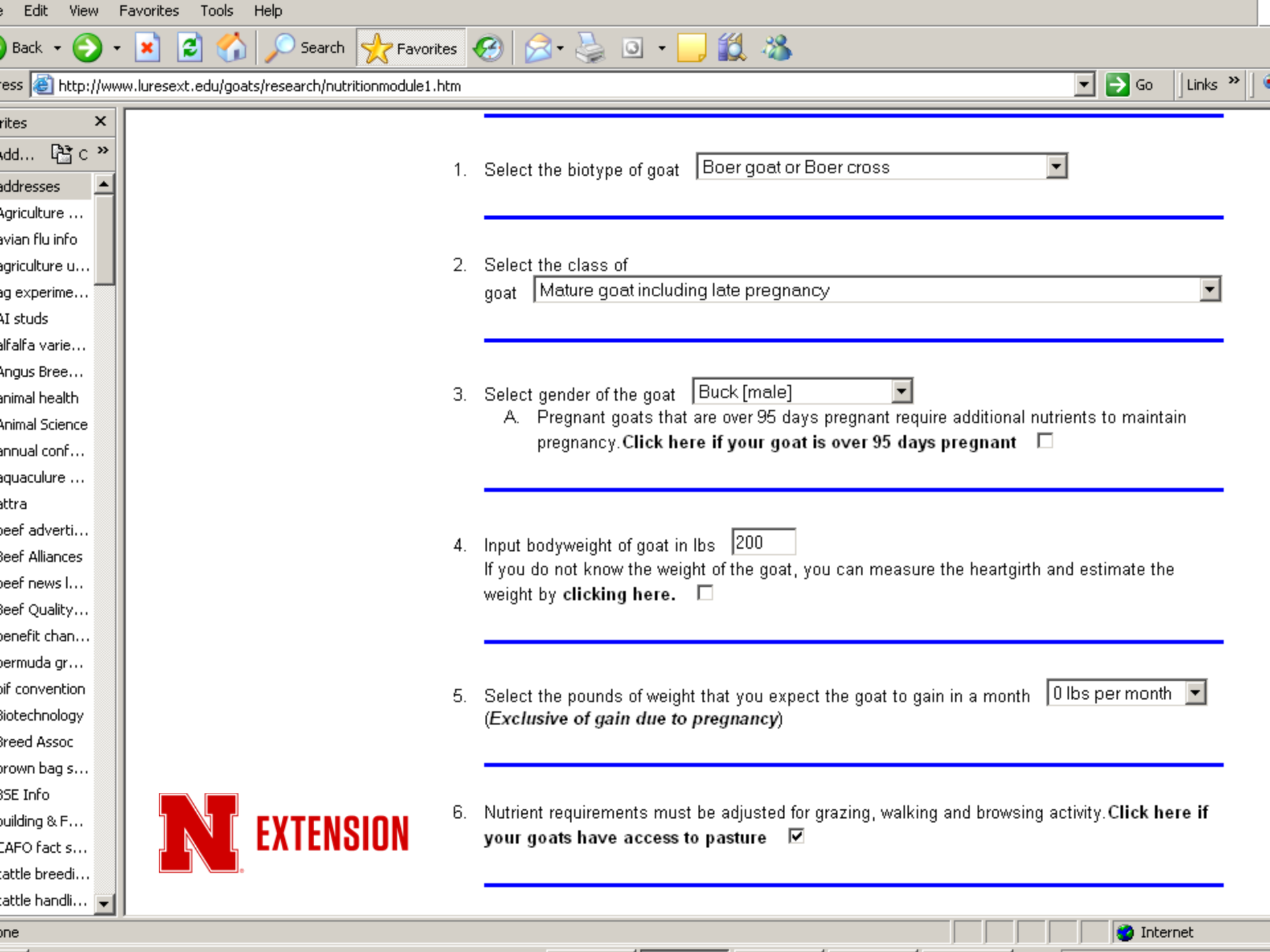
- addresses
- Agriculture ...
- avian flu info
- agriculture u...
- ag experime...
- AI studs
- alfalfa varie...
- Angus Bree...
- animal health
- Animal Science
- annual conf...
- aquaculture ...
- attra
- beef adverti...
- Beef Alliances
- beef news l...
- Beef Quality...
- benefit chan...
- bermuda gr...
- bif convention
- Biotechnology
- Breed Assoc
- brown bag s...
- BSE Info
- building & F...
- CAFO fact s...
- cattle breedi...
- cattle handli...

7. Enter estimated TDN level of the diet. 8. Enter estimated crude protein level (%) of the diet.

Trait	Requirements
TDN energy requirements	<input type="text" value="2.39 lbs"/>
crude protein requirements	<input type="text" value="0.26 lb"/>
calcium requirements	<input type="text" value="5.85 g"/>
phosphorus requirements	<input type="text" value="4.09 g"/>

Trait	Prediction
dry matter intake	<input type="text" value="3.55 lbs"/>





1. Select the biotype of goat

2. Select the class of goat

3. Select gender of the goat

A. Pregnant goats that are over 95 days pregnant require additional nutrients to maintain pregnancy. **Click here if your goat is over 95 days pregnant**

4. Input bodyweight of goat in lbs

If you do not know the weight of the goat, you can measure the heartgirth and estimate the weight by **clicking here.**

5. Select the pounds of weight that you expect the goat to gain in a month

(Exclusive of gain due to pregnancy)

6. Nutrient requirements must be adjusted for grazing, walking and browsing activity. **Click here if your goats have access to pasture**

- Addresses
- Agriculture ...
- avian flu info
- griculture u...
- ag experime...
- AI studs
- alfalfa varie...
- Angus Bree...
- animal health
- Animal Science
- annual conf...
- aquaculture ...
- attra
- beef adverti...
- Beef Alliances
- beef news l...
- Beef Quality...
- benefit chan...
- bermuda gr...
- oif convention
- Biotechnology
- breed Assoc
- rown bag s...
- RSE Info
- uilding & F...
- CAFO fact s...
- cattle breedi...
- cattle handli...



Favorites X

Add... C >>

addresses

Agriculture ...

avian flu info

agriculture u...

ag experime...

AI studs

alfalfa varie...

Angus Bree...

animal health

Animal Science

annual conf...

aquaculture ...

attra

beef adverti...

Beef Alliances

beef news l...

Beef Quality...

benefit chan...

bermuda gr...

bif convention

Biotechnology

Breed Assoc

brown bag s...

BSE Info

building & F...

CAFO fact s...

cattle breedi...

cattle handli...

TDN energy requirements	2.39 lbs
crude protein requirements	0.26 lb
calcium requirements	5.85 g
phosphorus requirements	4.09 g

Trait	Prediction
dry matter intake	3.55 lbs

You may now proceed to the Mixed Ration Balancer by clicking on the above "Select Feed Ingredients" button. Then click on the feedstuffs to be included in the diet. If feedstuffs other than those in the library will be used, then these should be entered into the library. In the second window, enter the percentages on a DM basis and cost for each feedstuff. The total of the DM percentage should be 100. Any changes to library composition values for particular feedstuffs should be made in the second window. It should be noted that only the last formulation is available. If you plan on formulating several diets, it would be a good idea to print each formulation.

[Extension Activities](#) |
 [Research Activities](#) |
 [Other Activities](#)
[Library Activities](#) |
 [Quiz](#) |
 [Search](#) |
 [About Us](#) |
 [Contact Us](#) |
 [Faculty & Staff](#)
[Research Extension Home](#) |
 [Top of Page](#)



- Bookmarks
- Addresses
- Agriculture ...
- avian flu info
- agriculture u...
- ag experime...
- AI studs
- alfalfa varie...
- Angus Bree...
- animal health
- Animal Science
- annual conf...
- aquaculture ...
- attra
- beef adverti...
- Beef Alliances
- beef news l...
- Beef Quality...
- benefit chan...
- bermuda gr...
- if convention
- Biotechnology
- Breed Assoc
- rown bag s...
- SE Info
- uilding & F...
- CAFO fact s...
- cattle breedi...
- cattle handli...

Minerals

- | | |
|---|--|
| <input type="checkbox"/> Ammonium chloride | <input type="checkbox"/> Sodium bicarbonate |
| <input type="checkbox"/> Ammonium sulfate | <input type="checkbox"/> Sodium sulfate, decahydrate, Na ₂ SO ₄ - H ₂ O |
| <input type="checkbox"/> Diammonium phosphate | <input type="checkbox"/> Sodium tripolyphosphate |
| <input type="checkbox"/> Dicalcium phosphate | <input type="checkbox"/> Trace mineralized salt 1 (9-10% Ca, 6% P, 35-40% NaCl, 1% Mg, 1% K, 1% S, 125 mg/kg Co, 150 mg/kg I, 5,000 mg/kg Fe, 10 mg/kg Se, 160,000 IU/lb A, 40,000 IU/lb D, 150 IU/lb E) |
| <input type="checkbox"/> Limestone, calcium carbonate | <input type="checkbox"/> Trace mineralized salt 2 (3.55% Fe, 3.77% Zn, 1.9% Mn, 1.2% S, 1.07% K, 0.79% Mg, 0.046% I, 0.009% Co, 0.0026% Se, 1,200,000 IU/lb A, 400,000 IU/lb D, 1,500 IU/lb E) |
| <input type="checkbox"/> Limestone, dolomitic | |
| <input type="checkbox"/> Magnesium oxide | <input checked="" type="checkbox"/> 12-12 mineral (12% Ca, 12% P, 15% NaCl, 2.5% Mg, .1% K, 260 mg/kg Cu, 40 mg/kg Se, 3,800 mg/kg Zn, 100 mg/kg I, 475 mg Fe, 32 mg/kg Co, 200,000 IU/lb A, 20,000 IU/lb D) |
| <input type="checkbox"/> Monoammonium phosphate | |
| <input type="checkbox"/> Mono-dicalcium phosphate | <input type="checkbox"/> 12-8 mineral (12% Ca, 8% P, 15% NaCl, 2.5% Mg, .1% K, 260 mg/kg Cu, 40 mg/kg Se, 3,800 mg/kg Zn, 100 mg/kg I, 475 mg Fe, 32 mg/kg Co, 200,000 IU/lb A, 20,000 IU/lb D) |
| <input type="checkbox"/> Potassium chloride | |
| <input type="checkbox"/> Salt | |

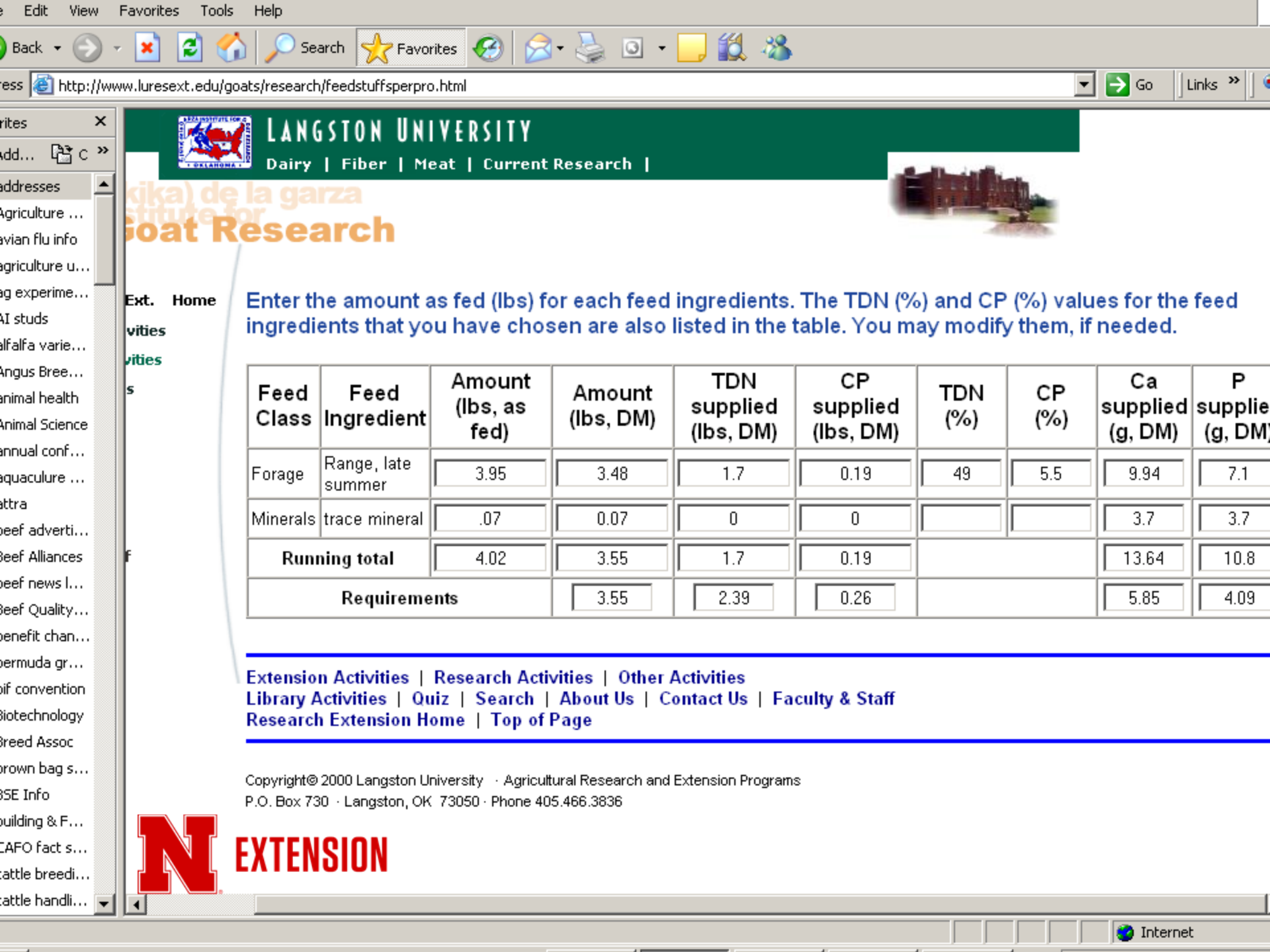


Vitamins

- Addresses
- Add...
- addresses
- Agriculture ...
- avian flu info
- agriculture u...
- ag experime...
- AI studs
- alfalfa varie...
- Angus Bree...
- animal health
- Animal Science
- annual conf...
- aquaculture ...
- attra
- beef adverti...
- Beef Alliances
- beef news l...
- Beef Quality...
- benefit chan...
- bermuda gr...
- bif convention
- Biotechnology
- Breed Assoc
- brown bag s...
- BSE Info
- building & F...
- CAFO fact s...
- cattle breedi...
- cattle handli...

- | | |
|---|---|
| <input type="checkbox"/> Alfalfa cubes | <input type="checkbox"/> Lespedeza hay |
| <input type="checkbox"/> Alfalfa, dehydrated | <input type="checkbox"/> Meadow hay |
| <input type="checkbox"/> Alfalfa hay, early bloom | <input type="checkbox"/> Oat hay |
| <input type="checkbox"/> Alfalfa hay, midbloom | <input type="checkbox"/> Oat silage |
| <input type="checkbox"/> Alfalfa hay, full bloom | <input type="checkbox"/> Oat straw |
| <input type="checkbox"/> Alfalfa hay, mature | <input type="checkbox"/> Oat hulls |
| <input type="checkbox"/> Alfalfa leaf meal | <input type="checkbox"/> Orchardgrass, fresh, early bloom |
| <input type="checkbox"/> Alfalfa stems | <input type="checkbox"/> Orchardgrass hay |
| <input type="checkbox"/> Alfalfa, fresh | <input type="checkbox"/> Pea vine, hay |
| <input type="checkbox"/> Alfalfa silage | <input type="checkbox"/> Pea vine, silage |
| <input type="checkbox"/> Alfalfa silage, wilted | <input type="checkbox"/> Pea, straw |
| <input type="checkbox"/> Apple pomace, dry | <input type="checkbox"/> Peanut hulls |
| <input type="checkbox"/> Apple pomace, wet | <input type="checkbox"/> Prairie hay |
| <input type="checkbox"/> Bahiagrass hay | <input type="checkbox"/> Range, early summer* |
| <input type="checkbox"/> Barley hay | <input checked="" type="checkbox"/> Range, late summer* |
| <input type="checkbox"/> Barley silage, mature | <input type="checkbox"/> Range, fall* |





LANGSTON UNIVERSITY

Dairy | Fiber | Meat | Current Research |

Goat Research



Ext. Home

Enter the amount as fed (lbs) for each feed ingredients. The TDN (%) and CP (%) values for the feed ingredients that you have chosen are also listed in the table. You may modify them, if needed.

Feed Class	Feed Ingredient	Amount (lbs, as fed)	Amount (lbs, DM)	TDN supplied (lbs, DM)	CP supplied (lbs, DM)	TDN (%)	CP (%)	Ca supplied (g, DM)	P supplied (g, DM)
Forage	Range, late summer	3.95	3.48	1.7	0.19	49	5.5	9.94	7.1
Minerals	trace mineral	.07	0.07	0	0			3.7	3.7
Running total		4.02	3.55	1.7	0.19			13.64	10.8
Requirements			3.55	2.39	0.26			5.85	4.09

[Extension Activities](#) |
 [Research Activities](#) |
 [Other Activities](#)
[Library Activities](#) |
 [Quiz](#) |
 [Search](#) |
 [About Us](#) |
 [Contact Us](#) |
 [Faculty & Staff](#)
[Research Extension Home](#) |
 [Top of Page](#)

Copyright© 2000 Langston University · Agricultural Research and Extension Programs
 P.O. Box 730 · Langston, OK 73050 · Phone 405.466.3836



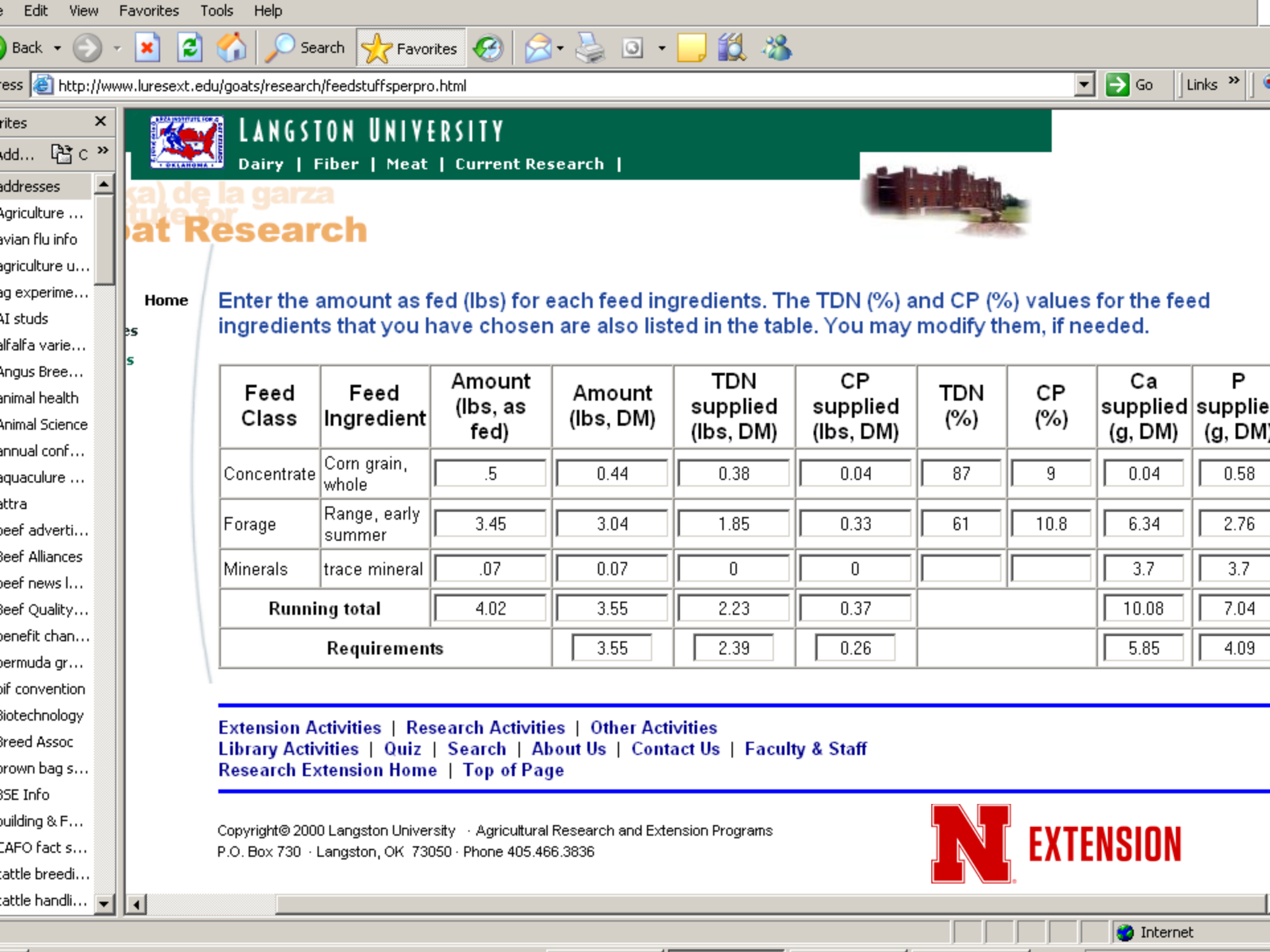
Favorites

Add... C >>

- addresses
- Agriculture ...
- avian flu info
- agriculture u...
- ag experime...
- AI studs
- alfalfa varie...
- Angus Bree...
- animal health
- Animal Science
- annual conf...
- aquaculture ...
- attra
- beef adverti...
- Beef Alliances
- beef news l...
- Beef Quality...
- benefit chan...
- bermuda gr...
- bif convention
- Biotechnology
- Breed Assoc
- brown bag s...
- BSE Info
- building & F...
- CAFO fact s...
- cattle breedi...
- cattle handli...

Research Activities**Other Activities****Library****Quiz****Search****About Us****Contact Us****Faculty & Staff****Nutrient Calculators****International Activities****Concentrates**

- | | |
|--|--|
| <input type="checkbox"/> Bakery product, dried | <input type="checkbox"/> Molasses, citrus |
| <input type="checkbox"/> Barley grain | <input type="checkbox"/> Molasses, wood, hemicellulose |
| <input type="checkbox"/> Barley grain, steam rolled | <input type="checkbox"/> Oat grain |
| <input type="checkbox"/> Beet pulp, wet | <input type="checkbox"/> Oat groats |
| <input type="checkbox"/> Beet pulp, dried | <input type="checkbox"/> Oat middlings |
| <input type="checkbox"/> Beet pulp, wet, with molasses | <input type="checkbox"/> Peanut meal, solvent |
| <input type="checkbox"/> Beet pulp, dried, with molasses | <input type="checkbox"/> Peanut skins |
| <input type="checkbox"/> Block, 30% (10 NPN)* | <input type="checkbox"/> Pearl millet, grain |
| <input type="checkbox"/> Blood meal | <input type="checkbox"/> Peas, cull |
| <input type="checkbox"/> Bone meal, steamed | <input type="checkbox"/> Potatoes, cull |
| <input type="checkbox"/> Brewers grains, wet | <input type="checkbox"/> Potato waste, wet |
| <input type="checkbox"/> Brewers grains, dried | <input type="checkbox"/> Potato waste, dried |
| <input type="checkbox"/> Calf starter* | <input type="checkbox"/> Potato waste, wet with lime |
| <input type="checkbox"/> Citrus pulp, dried | <input type="checkbox"/> Potato waste, filter cake |
| <input checked="" type="checkbox"/> Corn grain, whole | <input type="checkbox"/> Poultry byproduct meal |



LANGSTON UNIVERSITY

Dairy | Fiber | Meat | Current Research |



Nutrition of the goat Nutrition for Research

Home

Enter the amount as fed (lbs) for each feed ingredients. The TDN (%) and CP (%) values for the feed ingredients that you have chosen are also listed in the table. You may modify them, if needed.

Feed Class	Feed Ingredient	Amount (lbs, as fed)	Amount (lbs, DM)	TDN supplied (lbs, DM)	CP supplied (lbs, DM)	TDN (%)	CP (%)	Ca supplied (g, DM)	P supplied (g, DM)
Concentrate	Corn grain, whole	<input type="text" value=".5"/>	<input type="text" value="0.44"/>	<input type="text" value="0.38"/>	<input type="text" value="0.04"/>	<input type="text" value="87"/>	<input type="text" value="9"/>	<input type="text" value="0.04"/>	<input type="text" value="0.58"/>
Forage	Range, early summer	<input type="text" value="3.45"/>	<input type="text" value="3.04"/>	<input type="text" value="1.85"/>	<input type="text" value="0.33"/>	<input type="text" value="61"/>	<input type="text" value="10.8"/>	<input type="text" value="6.34"/>	<input type="text" value="2.76"/>
Minerals	trace mineral	<input type="text" value=".07"/>	<input type="text" value="0.07"/>	<input type="text" value="0"/>	<input type="text" value="0"/>			<input type="text" value="3.7"/>	<input type="text" value="3.7"/>
Running total		<input type="text" value="4.02"/>	<input type="text" value="3.55"/>	<input type="text" value="2.23"/>	<input type="text" value="0.37"/>			<input type="text" value="10.08"/>	<input type="text" value="7.04"/>
Requirements			<input type="text" value="3.55"/>	<input type="text" value="2.39"/>	<input type="text" value="0.26"/>			<input type="text" value="5.85"/>	<input type="text" value="4.09"/>

[Extension Activities](#) | [Research Activities](#) | [Other Activities](#)
[Library Activities](#) | [Quiz](#) | [Search](#) | [About Us](#) | [Contact Us](#) | [Faculty & Staff](#)
[Research Extension Home](#) | [Top of Page](#)

Copyright© 2000 Langston University · Agricultural Research and Extension Programs
P.O. Box 730 · Langston, OK 73050 · Phone 405.466.3836



Summary

- Identify nutritional needs of animal
- Remember that nutritional needs change throughout the production cycle
- Match animal requirements to nutrient value of feeds
- Use body condition score to fine tune nutrition program
- Always have minerals and fresh water available

Resources

- Body Condition Scoring
[http://www.luresext.edu/?q=Body Condition Scoring](http://www.luresext.edu/?q=Body+Condition+Scoring)
- Ration Calculator
<http://www.luresext.edu/?q=content/nutrient-requirement-calculator-and-ration-balancer>
- Goat Handbooks <https://meatgoats.ces.ncsu.edu/wp-content/uploads/2016/08/Dairy-Goat-Production-Handbook-Order-Form.pdf?fwd=no>