ALABAMA A&M AND AUBURN UNIVERSITIES

ALABAMA COOPERATIVE Extension SYSTEM

ANR-812

Nutrient Requirements of Sheep and Goats

Feed, whether purchased or produced on the farm, makes up a large part of the expenses incurred in sheep and goat production. For profitable production, proper feeding and year-round management are essential. Without proper nutrition, it is impossible to produce a high-percentage crop, wean heavy animals, and develop satisfactory flock replacements.

All sheep and goat producers should have a basic understanding of animal nutrition and should be familiar with common nutrition terms. Producers must also know the nutritional requirements of the animal at different stages of life.

The ideal nutrition program supports optimum production, is efficient and economical, and minimizes related problems. In order to understand the fundamentals of small ruminant nutrition, we must first know the nutrients essential for growth, production, and reproduction. These essential nutrients are:

- Energy (fat and carbohydrates).
- Protein.
- Vitamins.
- Minerals.
- Water.

Energy

The most common limiting factor in small ruminant nutrition is energy. An energy shortage will result in decreased production, reproductive failure, increased mortality, and increased susceptibility to diseases and parasites.

The most plentiful feeds available are the best sources of energy. However, sheep and goats are often underfed. Poor-quality pastures and roughages or inadequate amounts of feed are the primary causes of energy deficiency. The major sources of energy for small ruminants are usually pastures and browses, hay, and grains.

Total digestible nutrients (TDN) is a broad term used to express the energy value of a feed or ration. As the amount of TDN increases in a ration, the rate of gain normally increases. Therefore, feed efficiency and overall performance are determined to a large extent by the level of TDN or energy in the ration. The percentage of TDN still remains the most widely used method of evaluating feed for energy.

Protein

In small ruminants, the amount of protein is more important than the quality of protein. When protein supplementation is the primary objective, the cost per pound of protein is the most important consideration.

Protein is used to repair old tissues and to build new tissues. Protein deficiency is more detrimental to the young animal, so an adequate amount of protein must be supplied if rapid growth and high production are to be obtained. On the other hand, excessive feeding is expensive.

Minerals

The essential minerals for sheep and goats are calcium, phosphorus, and salt. The primary sources of these minerals are the diet, various mineral supplements, and, in some areas, the water supply. Minerals are needed in only small amounts.

Calcium is a necessary constituent of the bones and teeth and is essential for regular heart action and muscular activity. A calcium deficiency results in poor growth and bone development in growing animals.

Phosphorus is an essential part of blood and of all cells in the body. It is involved in chemical reactions which release energy in the body. Bones and teeth contain relatively large amounts of phosphorus as well as calcium. Calcium and phosphorus are interrelated: while an adequate supply of each is required, they must also be present in the ration in the proper proportions.

Vitamins

Vitamins are compounds which are necessary for normal growth, health, and reproduction. Small ruminants require many vitamins, just as other animals do. However, their dietary vitamin requirements are relatively simple because of the nature of the feeds they ordinarily consume and the synthesis of vitamins in the rumen.

Water

The many functions of water in the animal body include:

- Helping to digest food.
- Regulating the body temperature.
- Lubricating.
- Transporting waste from the body.

To combine feed ingredients into the least costly but most efficient ration, producers must meet the nutritional requirements of each animal at its particular stage of life. The following tables provide estimates of the daily nutrient needs of sheep and goats.

Table 1. Nutrient Requirements Of Sheep: Daily Nutrient Requirements Per Animal.

Body Wt. (lb.)	Avg. Daily Gain (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (lb.)	TDN[b] (lb.)	Ca (lb.)	P (lb.)	Vitamin A (IU)	Vitamin E (IU)
Early-Weaned Lambs, Moderate Growth Potential[c]									
22	0.44	1.1	5.0	0.38	0.9	0.008	0.004	470	10
44	0.55	2.2	5.0	0.37	1.8	0.012	0.005	940	20
66	0.66	2.9	4.3	0.42	2.2	0.015	0.007	1410	20
88	0.76	3.3	3.8	0.44	2.6	0.017	0.008	1880	22
110	0.66	3.3	3.0	0.40	2.6	0.015	0.008	2350	22
Early-Weaned Lambs, Rapid Growth Potential[c]									
22	0.55	1.3	6.0	0.35	1.1	0.011	0.005	470	12
44	0.66	2.6	6.0	0.45	2.0	0.014	0.006	940	24
66	0.72	3.1	4.7	0.48	2.4	0.016	0.007	1410	21
88	0.88	3.3	3.8	0.51	2.5	0.019	0.009	1880	22
110	0.94	3.7	3.4	0.53	2.8	0.021	0.015	2350	25
132	0.77	3.7	2.8	0.53	2.8	0.018	0.010	2820	25
Lambs Finishing, 4 To 7 Months Old[c]									
66	0.65	2.9	4.3	0.42	2.1	0.014	0.007	1410	20
88	0.60	3.5	4.0	0.41	2.7	0.014	0.007	1880	24
110	0.45	3.5	3.2	0.35	2.7	0.012	0.007	2350	24
Replacement Ewe Lambs[d]									
66	0.50	2.6	4.0	0.41	1.7	0.014	0.006	1410	18
88	0.40	3.1	3.5	0.39	2.0	0.013	0.006	1880	21
110	0.26	3.3	3.0	0.30	1.9	0.011	0.005	2350	22
132	0.22	3.3	2.5	0.30	1.9	0.010	0.005	2820	22
154	0.22	3.3	2.1	0.29	1.9	0.010	0.006	3290	22
Replacement Ram Lambs[d]									
88	0.73	4.0	4.5	0.54	2.5	0.017	0.008	1880	24
132	0.70	5.3	4.0	0.58	3.4	0.018	0.009	2820	26
176	0.64	6.2	3.5	0.59	3.9	0.019	0.010	3760	28
220	0.55	6.6	3.0	0.58	4.2	0.018	0.010	4700	30
***Ewes*[e]**									
Maintenance									
110	0.02	2.2	2.0	0.21	1.2	0.004	0.004	2350	15
132	0.02	2.4	1.8	0.23	1.3	0.005	0.005	2820	16
154	0.02	2.6	1.7	0.25	1.5	0.005	0.005	3290	18
176	0.02	2.9	1.6	0.27	1.6	0.006	0.006	3760	20
198	0.02	3.1	1.5	0.29	1.7	0.006	0.006	4230	21

Table 1. Nutrient Requirements Of Sheep: Daily Nutrient Requirements Per Animal. (cont.)

Body Wt. (lb.)	Avg. Daily Gain (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (lb.)	TDN[b] (lb.)	Ca (lb.)	P (lb.)	Vitamin A (IU)	Vitamin E (IU)
***Ewes* (cont.)**									
Flushing: 2 Weeks Prebreeding And First 3 Weeks Of Breeding									
110	0.22	3.5	3.2	0.33	2.1	0.012	0.006	2350	24
132	0.22	3.7	2.8	0.34	2.2	0.012	0.006	2820	26
154	0.22	4.0	2.6	0.36	2.3	0.012	0.007	3290	27
176	0.22	4.2	2.4	0.38	2.5	0.013	0.007	3760	28
198	0.22	4.4	2.2	0.39	2.6	0.013	0.008	4230	30
Nonlactating, First 15 Weeks Of Gestation									
110	0.07	2.6	2.4	0.25	1.5	0.006	0.005	2350	18
132	0.07	2.9	2.2	0.27	1.6	0.007	0.005	2820	20
154	0.07	3.1	2.0	0.29	1.7	0.008	0.006	3290	21
176	0.07	3.3	1.9	0.31	1.8	0.008	0.007	3760	22
198	0.07	3.5	1.8	0.33	1.9	0.009	0.008	4230	24
Last 4 Weeks Of Gestation (130-150% Lambing Rate Expected)									
110	0.40	3.5	3.2	0.38	2.1	0.013	0.010	4250	24
132	0.40	3.7	2.8	0.40	2.2	0.013	0.011	5100	26
154	0.40	4.0	2.6	0.42	2.3	0.014	0.012	5960	27
176	0.40	4.2	2.4	0.44	2.4	0.014	0.013	6800	28
198	0.40	4.4	2.2	0.47	2.5	0.014	0.014	7650	30
Last 4 Weeks Of Gestation (180-225% Lambing Rate Expected)									
110	0.50	3.7	3.4	0.43	2.4	0.014	0.007	4250	26
132	0.50	4.0	3.0	0.45	2.6	0.015	0.008	5100	27
154	0.50	4.2	2.7	0.47	2.8	0.017	0.010	5950	28
176	0.50	4.4	2.5	0.49	2.9	0.018	0.013	6800	30
198	0.50	4.6	2.3	0.51	3.0	0.020	0.014	7650	32
First 6-8 Weeks Of Lactation, Suckling Singles									
110	-0.06	4.6	4.2	0.67	3.0	0.020	0.013	4250	32
132	-0.06	5.1	3.9	0.70	3.3	0.020	0.014	5100	34
154	-0.06	5.5	3.6	0.73	3.6	0.020	0.015	5950	38
176	-0.06	5.7	3.2	0.76	3.7	0.021	0.016	6800	39
198	-0.06	5.9	3.0	0.78	3.8	0.021	0.017	7650	40
First 6-8 Weeks Of Lactation, Suckling Twins									
110	-0.13	5.3	4.8	0.86	3.4	0.023	0.016	5000	36
132	-0.13	5.7	4.3	0.89	3.7	0.023	0.017	6000	39
154	-0.13	6.2	4.0	0.92	4.0	0.024	0.018	7000	42
176	-0.13	6.6	3.8	0.96	4.3	0.025	0.019	8000	45
198	-0.13	7.0	3.6	0.99	4.6	0.025	0.020	9000	48
Last 4-6 Weeks Of Lactation, Suckling Singles									
110	0.10	3.5	3.2	0.38	2.1	0.013	0.010	4250	24
132	0.10	3.7	2.8	0.40	2.2	0.013	0.011	5100	26
154	0.10	4.0	2.6	0.42	2.3	0.014	0.012	5960	27
176	0.10	4.2	2.4	0.44	2.4	0.014	0.013	6800	28
198	0.10	4.4	2.2	0.47	2.5	0.014	0.014	7650	30
Last 4-6 Weeks Of Lactation, Suckling Twins									
110	0.20	4.6	4.2	0.67	3.0	0.020	0.013	4250	32
132	0.20	5.1	3.8	0.70	3.3	0.020	0.014	5100	34
154	0.20	5.5	3.6	0.73	3.6	0.020	0.015	5950	38
176	0.20	5.7	3.2	0.76	3.7	0.021	0.016	6800	39
198	0.20	5.9	3.0	0.78	3.8	0.021	0.017	7650	40

Table 1. Nutrient Requirements Of Sheep: Daily Nutrient Requirements Per Animal. (cont.)

Body Wt. (lb.)	Avg. Daily Gain (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (lb.)	TDN[b] (lb.)	Ca (lb.)	P (lb.)	Vitamin A (IU)	Vitamin E (IU)
Ewe Lambs									
Nonlactating, First 15 Weeks Of Gestation									
88	0.35	3.1	3.5	0.34	1.8	0.012	0.007	1880	21
110	0.30	3.3	3.0	0.35	1.9	0.011	0.007	2350	22
132	0.30	3.5	2.7	0.35	2.0	0.012	0.007	2820	24
154	0.28	3.7	2.4	0.36	2.2	0.012	0.008	3290	26
Last 4 Weeks Of Gestation (100-120% Lambing Rate Expected)									
88	0.40	3.3	3.8	0.41	2.1	0.014	0.007	3400	22
110	0.35	3.5	3.2	0.42	2.2	0.014	0.007	4250	24
132	0.35	3.7	2.8	0.42	2.4	0.014	0.008	5100	26
154	0.33	4.0	2.6	0.43	2.5	0.015	0.009	5950	27
Last 4 Weeks Of Gestation (130-175% Lambing Rate Expected)									
88	0.50	3.3	3.8	0.44	2.2	0.016	0.008	3400	22
110	0.50	3.5	3.2	0.45	2.3	0.017	0.008	4250	24
132	0.50	3.7	2.8	0.46	2.5	0.018	0.009	5100	26
154	0.47	4.0	2.6	0.46	2.5	0.018	0.010	5960	27
First 6-8 Weeks Of Lactation, Suckling Singles (Wean By 8 Weeks)									
88	-0.11	3.7	4.2	0.56	2.5	0.013	0.009	3400	26
110	-0.11	4.6	4.2	0.62	3.1	0.014	0.010	4250	32
132	-0.11	5.1	3.8	0.65	3.4	0.015	0.011	5100	34
154	-0.11	5.5	3.6	0.68	3.6	0.016	0.012	5450	38
First 6-8 Weeks Of Lactation, Suckling Twins (Wean By 8 Weeks)									
88	-0.22	4.6	5.2	0.67	3.2	0.018	0.012	4000	32
110	-0.22	5.1	4.6	0.71	3.5	0.019	0.011	5000	34
132	-0.22	5.5	4.2	0.74	3.8	0.020	0.014	6000	38
154	-0.22	6.0	3.9	0.77	4.1	0.020	0.015	7000	40

Source: Sixth Revised Edition, National Research Council, 1985.

[a]To convert dry matter to an as-fed basis, divide dry matter values by the percentage of dry matter in the particular feed.

[b]One pound TDN (total digestible nutrients) = 0.91 Mcal DE (digestible energy)

[c]Maximum weight gains expected.

[d]Lambs intended for breeding, so maximum weight gains and finish are of secondary importance.

[e]Values are applicable for ewes in moderate condition. Fat ewes should be fed according to the next lower weight category and thin ewes at the next higher weight category. Once the desired or moderate weight condition is attained, use that weight category through all production stages.

Table 2. Nutrient Requirements Of Sheep: Nutrient Concentration Of The Rations (Expressed On 100-Percent Dry Matter Basis[a]).

Body Wt. (lb.)	Avg. Daily Gain (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (%)	TDN[b] (%)	Ca (%)	P (%)	Vitamin A (IU)	Vitamin E (IU)
Early-Weaned Lambs, Moderate Growth Potential									
22	0.44	1.1	5.0	34.5	81.8	73	36	427	9
44	0.55	2.2	5.0	16.8	81.8	55	23	427	9
66	0.66	2.9	4.3	14.5	75.8	52	24	486	7
88	0.76	3.3	3.8	13.3	78.8	52	24	570	7
110	0.66	3.3	3.0	12.1	78.8	45	24	712	7
Early-Weaned Lambs, Rapid Growth Potential									
22	0.55	1.3	6.0	27.0	84.6	85	38	361	9
44	0.66	2.6	6.0	17.3	76.9	54	23	361	9
66	0.72	3.1	4.7	15.5	77.4	52	23	455	7

Table 2. Nutrient Requirements Of Sheep: Nutrient Concentration Of The Rations (Expressed On 100-Percent Dry Matter Basis[a]). (cont.)

Body Wt. (lb.)	Avg. Daily Gain (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (%)	TDN[b] (%)	Ca (%)	P (%)	Vitamin A (IU)	Vitamin E (IU)
Early-Weaned Lambs, Rapid Growth Potential (cont.)									
88	0.88	3.3	3.8	15.4	75.8	58	27	570	7
110	0.94	3.7	3.4	14.3	75.7	57	30	635	7
132	0.77	3.7	2.8	14.3	75.7	49	27	762	7
Lambs Finishing, 4 To 7 Months Old									
66	0.65	2.9	4.3	14.5	72.4	48	24	486	7
88	0.60	3.5	4.0	11.7	77.1	40	20	537	7
110	0.45	3.5	3.2	10.0	77.1	34	20	671	7
Replacement Ewe Lambs									
66	0.50	2.6	4.0	15.8	65.4	54	23	542	7
88	0.40	3.1	3.5	12.6	64.5	42	19	606	7
110	0.26	3.3	3.0	9.1	57.6	33	15	712	7
132	0.22	3.3	2.5	9.1	57.6	30	15	854	7
154	0.22	3.3	2.1	8.8	57.6	30	18	997	7
Replacement Ram Lambs									
88	0.73	4.0	4.5	13.5	62.5	0.43	0.20	470	6
132	0.70	5.3	4.0	11.0	64.1	0.34	0.17	532	5
176	0.64	6.2	3.5	9.5	62.9	0.31	0.16	606	5
220	0.55	6.6	3.0	8.8	63.6	0.27	0.15	712	5
Ewes									
Maintenance									
110	0.02	2.2	2.0	9.5	54.5	0.18	0.18	1068	7
132	0.02	2.4	1.8	9.5	54.2	0.21	0.21	1175	7
154	0.02	2.6	1.7	9.6	57.7	0.19	0.19	1265	7
176	0.02	2.9	1.6	9.3	55.2	0.21	0.21	1296	7
198	0.02	3.1	1.5	9.3	54.8	0.21	0.21	1364	7
Flushing: 2 Weeks Prebreeding And First 3 Weeks Of Breeding									
110	0.22	3.5	3.2	9.4	60.0	0.34	0.17	671	7
132	0.22	3.7	2.8	9.2	59.5	0.32	0.16	762	7
154	0.22	4.0	2.6	9.0	57.5	0.30	0.18	822	7
176	0.22	4.2	2.4	9.1	59.5	0.31	0.17	895	7
198	0.22	4.4	2.2	8.9	59.1	0.30	0.18	961	7
Nonlactating, First 15 Weeks Of Gestation									
110	0.07	2.6	2.4	9.6	57.7	0.23	0.19	904	7
132	0.07	2.9	2.2	9.3	55.2	0.24	0.17	972	7
154	0.07	3.1	2.0	9.3	54.8	0.26	0.19	1061	7
176	0.07	3.3	1.9	9.4	54.5	0.24	0.21	1139	7
198	0.07	3.5	1.8	9.4	54.3	0.26	0.23	1208	7
Last 4 Weeks Of Gestation (130-150% Lambing Rate Expected)									
110	0.40	3.5	3.2	10.9	60.0	0.37	0.29	1214	7
132	0.40	3.7	2.8	10.8	59.5	0.35	0.30	1378	7
154	0.40	4.0	2.6	10.5	57.5	0.35	0.30	1490	7
176	0.40	4.2	2.4	10.5	57.1	0.33	0.31	1619	7
198	0.40	4.4	2.2	10.7	56.8	0.32	0.32	1738	7
Last 4 Weeks Of Gestation (180-225% Lambing Rate Expected)									
110	0.50	3.7	3.4	11.6	64.8	0.38	0.19	1148	7
132	0.50	4.0	3.0	11.2	65.0	0.38	0.20	1275	7
154	0.50	4.2	2.7	11.2	66.7	0.40	0.24	1416	7
176	0.50	4.4	2.5	11.1	65.9	0.41	0.30	1545	7
198	0.50	4.6	2.3	11.1	65.2	0.43	0.30	1663	7

Table 2. Nutrient Requirements Of Sheep: Nutrient Concentration Of The Rations (Expressed On 100-Percent Dry Matter Basis[a]). (cont.)

Body Wt. (lb.)	Avg. Daily Gain (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (%)	TDN[b] (%)	Ca (%)	P (%)	Vitamin A (IU)	Vitamin E (IU)
***Ewes* (cont.)**									
First 6-8 Weeks Of Lactation, Suckling Singles									
110	-0.06	4.6	4.2	14.6	65.2	0.43	0.28	923	7
132	-0.06	5.1	3.8	13.7	64.7	0.39	0.27	1000	7
154	-0.06	5.5	3.6	13.3	65.5	0.36	0.27	1082	7
176	-0.06	5.7	3.2	13.3	64.9	0.37	0.28	1193	7
198	-0.06	5.9	3.0	13.2	64.4	0.36	0.29	1296	7
First 6-8 Weeks Of Lactation, Suckling Twins									
110	-0.13	5.3	4.8	16.2	64.1	0.43	0.30	943	7
132	-0.13	5.7	4.3	15.6	64.9	0.40	0.30	1052	7
154	-0.13	6.2	4.0	14.8	64.5	0.39	0.29	1129	7
176	-0.13	6.6	3.8	14.5	65.1	0.38	0.29	1212	7
198	-0.13	7.0	3.6	14.1	65.7	0.36	0.29	1285	7
Last 4-6 Weeks Of Lactation, Suckling Singles									
110	0.10	3.5	3.2	10.9	60.0	0.37	0.29	1214	7
132	0.10	3.7	2.8	10.8	59.5	0.35	0.30	1378	7
154	0.10	4.0	2.6	10.5	57.5	0.35	0.30	1490	7
176	0.10	4.2	2.4	10.5	57.1	0.33	0.31	1619	7
198	0.10	4.4	2.2	10.7	56.8	0.32	0.32	1738	7
Last 4-6 Weeks Of Lactation, Suckling Twins									
110	0.20	4.6	4.2	14.6	65.2	0.43	0.28	924	7
132	0.20	5.1	3.8	13.7	64.7	0.39	0.27	1000	7
154	0.20	5.5	3.6	13.3	65.5	0.36	0.27	1082	7
176	0.20	5.7	3.2	13.3	64.9	0.37	0.28	1193	7
198	0.20	5.9	3.0	13.2	64.4	0.36	0.29	1296	7
Ewe Lambs									
Nonlactating, First 15 Weeks Of Gestation									
88	0.35	3.1	3.5	11.0	58.0	0.39	0.23	606	7
110	0.30	3.3	3.0	10.6	57.6	0.33	0.21	712	7
132	0.30	3.5	2.7	10.0	57.0	0.34	0.20	806	7
154	0.28	3.7	2.4	9.7	59.5	0.32	0.22	889	7
Last 4 Weeks Of Gestation (100-120% Lambing Rate Expected)									
88	0.40	3.3	3.8	12.4	63.6	0.42	0.21	1030	7
110	0.35	3.5	3.2	12.0	62.9	0.40	0.20	1214	7
132	0.35	3.7	2.8	11.3	64.9	0.38	0.22	1378	7
154	0.33	4.0	2.6	10.7	62.5	0.38	0.23	1487	7
Last 4 Weeks Of Gestation (130-175% Lambing Rate Expected)									
88	0.50	3.3	3.8	13.3	66.7	0.48	0.24	1030	7
110	0.50	3.5	3.2	12.9	65.7	0.49	0.23	1214	7
132	0.50	3.7	2.8	12.4	67.5	0.49	0.24	1378	7
154	0.47	4.0	2.6	11.5	62.5	0.45	0.25	1490	7
First 6-8 Weeks Of Lactation, Suckling Singles (Wean By 8 Weeks)									
88	-0.11	3.7	4.2	15.1	67.5	0.35	0.24	919	7
110	-0.11	4.6	4.2	13.5	67.4	0.30	0.22	924	7
132	-0.11	5.1	3.8	12.7	66.6	0.29	0.22	1000	7
154	-0.11	5.5	3.6	12.4	65.4	0.29	0.22	991	7
First 6-8 Weeks Of Lactation, Suckling Twins (Wean By 8 Weeks)									
88	-0.22	4.6	5.2	14.5	69.5	0.39	0.26	869	7
110	-0.22	5.1	4.6	13.9	68.6	0.37	0.20	980	7
132	-0.22	5.5	4.2	13.4	69.1	0.36	0.25	1091	7
154	-0.22	6.0	3.9	12.8	68.3	0.33	0.25	1166	7

Source: Sixth Revised Edition, National Research Council, 1985.

[a]Values in Table 2 are calculated from the daily requirements in Table 1 divided by DM intake.

Table 3. Nutrient Requirements Of Goats: Daily Nutrient Requirements Per Animal.

Body Wt. (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (lb.)	TDN[b] (lb.)	Ca (lb.)	P (lb.)	Vitamin A (IU)	Vitamin D (IU)
Maintenance								
22	0.63	2.80	0.05	0.35	0.002	0.002	400	84
45	1.08	2.40	0.08	0.59	0.002	0.002	700	144
67	1.46	2.20	0.11	0.80	0.004	0.003	900	195
90	1.81	2.03	0.14	0.99	0.004	0.003	1200	243
112	2.13	1.90	0.17	1.17	0.007	0.005	1400	285
134	2.44	1.82	0.19	1.34	0.007	0.005	1600	327
157	2.76	1.80	0.21	1.50	0.009	0.006	1800	369
179	3.05	1.70	0.23	1.66	0.009	0.006	2000	408
202	3.32	1.64	0.26	1.81	0.009	0.006	2200	444
224	3.58	1.60	0.28	1.96	0.011	0.008	2400	480
Additional Requirements For Late Pregnancy (All Goats)[c]								
	1.56		0.18	0.87	0.004	0.003	1400	213
Additional Requirements For Growth: Weight Gain At 0.11 Lb. Per Day (All Goats)[c]								
	0.40		0.03	0.22	0.002	0.002	300	54
Additional Requirements For Growth: Weight Gain At 0.22 Lb. Per Day (All Goats)[c]								
	0.79		0.06	0.44	0.002	0.002	500	108
Additional Requirements For Growth: Weight Gain At 0.33 Lb. Per Day (All Goats)[c]								
	1.19		0.09	0.66	0.004	0.003	800	162
Additional Requirements For Milk Production Per Pound At Different Fat Percentages (% Fat)								
3			0.13	0.73	0.004	0.003	3800	760
3			0.14	0.74	0.004	0.003	3800	760
4			0.15	0.75	0.004	0.003	3800	760
4			0.16	0.76	0.007	0.005	3800	760
5			0.17	0.77	0.007	0.005	3800	760
5			0.18	0.78	0.007	0.005	3800	760
Additional Requirements For Mohair Production By Angora At Different Production Levels (Lb.)								
4[d]			0.02	0.04				
9[d]			0.04	0.07				
13[d]			0.06	0.11				
18[d]			0.07	0.15				

Source: Number 15, National Research Council, 1981.

[a]To convert dry matter to an as-fed basis, divide dry matter values by the percentage of dry matter in the particular feed.

[b]One pound TDN (total digestible nutrients) = 0.91 Mcal DE (digestible energy)

[c]Requirements in addition to those for maintenance.

[d]Annual fleece yield (lb.).

Table 4. Nutrient Requirements of Goats: Nutrient Concentration Of The Rations (Expressed On 100-Percent Dry Matter Basis[a]).

Body Wt. (lb.)	Dry Matter (lb./head[a])	% Body Weight	Total Protein (%)	TDN[b] (%)	Ca (%)	P (%)	Vitamin A (IU)	Vitamin D (IU)
Maintenance								
22	0.63	2.80	7.93	55.55	0.351	0.245	660	133
45	1.08	2.40	7.40	54.62	0.204	0.143	660	133
67	1.46	2.20	7.53	54.9	0.302	0.211	660	133
90	1.81	2.03	7.73	54.69	0.244	0.171	660	133
112	2.13	1.90	7.98	54.93	0.310	0.217	660	133
134	2.44	1.82	7.77	54.92	0.270	0.189	660	133
157	2.76	1.80	7.61	54.35	0.319	0.223	660	133
179	3.05	1.70	7.54	54.43	0.289	0.187	660	133
202	3.32	1.64	7.83	54.52	0.265	0.186	660	133
224	3.58	1.60	7.82	54.5	0.307	0.215	670	134
Additional Requirements For Late Pregnancy (All Goats)[c]								
	1.56		0.12	0.55	0.003	0.002	900	136
Additional Requirements For Growth: Weight Gain At 0.11 Lb. Per Day (All Goats)[c]								
	0.40		0.08	0.55	0.006	0.004	750	136
Additional Requirements For Growth: Weight Gain At 0.22 Lb. Per Day (All Goats)[c]								
	0.79		0.08	0.55	0.003	0.002	630	136
Additional Requirements For Growth: Weight Gain At 0.33 Lb. Per Day (All Goats)[c]								
	1.19		0.08	0.55	0.004	0.003	670	136
Additional Requirements For Milk Production Per Pound At Different Fat Percentages (% Fat)								
3			0.13	0.73	0.004	0.003	3800	760
3			0.14	0.74	0.004	0.003	3800	760
4			0.15	0.75	0.004	0.003	3800	760
4			0.16	0.76	0.007	0.005	3800	760
5			0.17	0.77	0.007	0.005	3800	760
5			0.18	0.78	0.007	0.005	3800	760
Additional Requirements For Mohair Production By Angora At Different Production Levels (Lb.)								
4[d]			0.02	0.04				
9[d]			0.04	0.07				
13[d]			0.06	0.11				
18[d]			0.07	0.15				

Source: Number 15, National Research Council, 1981.

[a]Values in Table 4 are calculated from the daily requirements in Table 3 divided by DM intake.

[b]One pound TDN (total digestible nutrients) = 0.91 Mcal DE (digestible energy).

[c]Requirements in addition to those for maintenance.

[d]Annual fleece yield (lb.).

ALABAMA COOPERATIVE Extension SYSTEM

ANR-812

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For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

UPS, 2M28, **Revised Aug 1994,** ANR-812