Errata

NUTRIENT REQUIREMENTS OF SMALL RUMINANTS

SHEEP, GOATS, CERVIDS, AND NEW WORLD CAMELIDS

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Please replace Table 15-4, pp. 272-280, and Table 15-6, pp. 288-292, with the following corrected tables.

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NUTRIENT REQUIREMENTS OF SHEEP TABLES

Energy and protein requirements of sheep were projected as described earlier in the Energy and Protein sections (Chapters 4 and 5). Energy requirements are influenced by age and stage of maturity in the CNCPS-S method, in addition to effects of BW and ADG (Cannas et al., 2004). Because the efficiency of energy utilization for gain in CNCPS-S varies with diet metabolizability, values are given for three dietary ME concentrations: 1.91, 2.39, and 2.87 Mcal/kg DM (i.e., 8, 10, and 12 MJ/kg DM, respectively). The visceral organ adjustment (VO) of the ME requirement for maintenance of CNCPS-S, which is based on ME intake, was included. VO was determined from and added to ME intake estimated without the adjustment. Listed DM intakes are needed to supply required energy from the indicated energy concentrations of the diets. Selections were made from the three example diets based on an expected range of intake on a percent of body weight. In some instances, selections of other diets may be more appropriate. The protein requirement for fiber growth was based on the method of SCA (1990), assuming a ratio of standard fleece weight (greasy fiber produced by a mature sheep per year) to mature BW at BCS of 3.0 (scale of 0 to 5) of 0.1, along with an adjustment for age when less than 2 years. The metabolic fecal protein requirement, which is a component of the maintenance need, was based on the estimate of DM intake required to supply needed energy for a given BW to achieved the specified level of production. Because the relationship between MP and CP requirements varies with the nature of the diet, the aforementioned conversion of CP to MP of NRC (2000) was applied for diets with rumen undegraded intake (UIP) concentrations of 20, 40, and 60 percent of total CP. The requirement for DIP is given as well. It is important to note that in some instances the DIP needed is greater than required amounts of CP. For example, an 80-kg ewe (at maintenance) consuming a diet with a ME concentration of 1.91 Mcal/kg would require 98 g of CP with diet having a UIP concentration of 20 percent of CP. Under these conditions, DIP intake is 78 g (i.e., 98 g × 80 percent DIP), but the estimated DIP requirement is 90. Hence, to satisfy the DIP requirement, intake of CP with this diet would be 112 g, with a corresponding greater dietary CP requirement on a concentration basis (i.e., 8.7 vs. 7.5 percent). Also, the DIP requirements often exceed the estimates of MP requirements and are partially supplied by recycled nitrogen. Because BCS is an input to determine the energy concentration in tissue being accreted or mobilized in mature sheep in the CNCPS-S method, for mature animals and yearlings a concentration of 5.7 Mcal/kg was assumed. Assumptions used to derive the recommended requirements presented in Tables 15-1 and 15-2 are given below.

Requirements for mature ewes were determined assuming an age of 3 years and a 100 percent stage of maturity. Requirements for early, mid-, and late lactation are given with assumptions of BW change. Because CNCPS-S assumes that efficiencies of energy utilization for maintenance and lactation are the same, requirements for ME and TDN do not differ among dietary ME concentrations with negative and 0 ADG (Table 15-1). Requirements for all classes in which weight gain is attached (other than recovery weight gain) are presented in Table 15-2. These classes include growing lambs and yearlings and yearling ewes at maintenance (plus growth), gestation, and lactation. Requirements are presented for "Farm" and "Range" yearlings for common production systems and practices, which include typical ages and stages of maturity in the various stages of production. An age of 3 years and stage of maturity of 100 percent were assumed for rams. Energy and protein requirements in the breeding period were increased by 10 percent of maintenance energy and protein needs for mature ewes, yearlings, and rams.

Pregnancy requirements are presented for early and late gestation, with input of day 105 and 133, respectively. Yearlings were assumed to be growing during gestation. Live weight gain values given for gestating animals are for both pregnancy and nonpregnancy tissues of yearlings. The maintenance requirement for nonpregnancy tissues should, how-

ever, be based on weight of nonpregnancy tissues alone or weight of the animal before days 80–90 of pregnancy.

For growing/finishing sheep, values are presented for two ages, 4 and 8 months, which affect the maintenance energy requirement. Stage of maturity, affecting the energy concentration in tissue being gained, is 30 and 60 percent for 4-month-old lambs and 40 and 80 percent for 8-month-old lambs. These combinations should provide values applicable to many production practices. For example, a 4-month-old wether with a BW 30 percent of that when mature at a BCS of 3 (5-point scale) is at an early stage of maturity and possibly of a late-maturing breed; hence, a considerable portion of tissue being gained would be lean. On the other extreme, a wether 8 months of age with a BW 80 percent of that when mature would be at a late stage of maturity and most likely of an early maturing breed accreting considerable fat. In addition to values for wether and ewe lambs, values are presented for ram lambs, which differ because of a greater energy requirement for maintenance.

Tables 15-1 and 15-2 include estimates of requirements of Ca and P and vitamins A and E. Requirements for the remaining essential minerals are included in Table 15-3. Details of the requirements of minerals and vitamins are discussed in Chapters 7 and 8, respectively.

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TABLE 15-1 Nutrient Requirements of Sheep (mature ewes and rams and yearlings maintenance and lactation)

Class/Age/Other	Body Weight[a] kg	Birth Weight or Milk Yield[b] kg	Body Weight Gain[c] g/d	Energy Concentration in Diet[d] Kcal/kg	Daily Dry Matter Intake[e] kg	Daily Dry Matter Intake[e] % BW	Energy Requirements[f] TDN kg/d	Energy Requirements[f] ME Mcal/d	Protein Requirements[g] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[h] Ca g/d	Macro Mineral Requirements[h] P g/d	Vitamin Requirements[i] A RE/d	Vitamin Requirements[i] E IU/d
Mature ewes																	
Maintenance, only																	
	40		0	1.91	0.77	1.93	0.41	1.48	59	56	54	40	53	1.8	1.3	1,256	212
	50		0	1.91	0.91	1.83	0.49	1.75	69	66	63	47	63	2.0	1.5	1,570	265
	60		0	1.91	1.05	1.75	0.56	2.01	79	76	72	53	72	2.2	1.8	1,884	318
	70		0	1.91	1.18	1.68	0.62	2.25	89	85	81	60	81	2.4	2.0	2,198	371
	80		0	1.91	1.30	1.63	0.69	2.49	98	94	90	66	90	2.6	2.2	2,512	424
	90		0	1.91	1.42	1.58	0.75	2.72	107	103	98	72	98	2.8	2.5	2,826	477
	100		0	1.91	1.54	1.54	0.82	2.94	116	111	106	78	106	3.0	2.7	3,140	530
	120		0	1.91	1.76	1.47	0.94	3.37	134	128	123	90	122	3.3	3.1	3,768	636
	140		0	1.91	1.98	1.41	1.05	3.79	151	145	138	102	136	3.7	3.5	4,396	742
Breeding																	
	40		20	1.91	0.85	2.13	0.45	1.63	69	66	63	46	59	2.1	1.5	1,256	212
	50		23	1.91	1.01	2.01	0.53	1.92	81	77	74	55	69	2.4	1.8	1,570	265
	60		26	1.91	1.15	1.92	0.61	2.21	93	89	85	62	80	2.6	2.1	1,884	318
	70		29	1.91	1.30	1.85	0.69	2.48	104	99	95	70	89	2.9	2.4	2,198	371
	80		32	1.91	1.43	1.79	0.76	2.74	115	110	105	77	99	3.1	2.7	2,512	424
	90		35	1.91	1.56	1.74	0.83	2.99	126	120	115	85	108	3.4	2.9	2,826	477
	100		38	1.91	1.69	1.69	0.90	3.24	137	130	125	92	117	3.6	3.2	3,140	530
	120		44	1.91	1.94	1.62	1.03	3.71	157	150	144	106	134	4.0	3.7	3,768	636
	140		50	1.91	2.18	1.56	1.15	4.16	177	169	162	119	150	4.5	4.2	4,396	742
Early gestation (Single lamb; BW = 3.9 to 7.5 kg)																	
	40	3.9	18	1.91	0.99	2.47	0.52	1.89	82	79	75	55	68	3.4	2.4	1,256	212
	50	4.4	21	1.91	1.16	2.32	0.61	2.21	96	91	87	64	80	3.8	2.8	1,570	265
	60	4.8	24	1.91	1.31	2.19	0.70	2.51	108	103	99	73	91	4.2	3.2	1,884	318
	70	5.2	27	1.91	1.46	2.09	0.78	2.80	120	114	110	81	101	4.5	3.5	2,198	371
	80	5.6	30	1.91	1.61	2.01	0.85	3.08	132	126	120	89	111	4.9	3.9	2,512	424
	90	6.0	33	1.91	1.75	1.95	0.93	3.35	143	137	131	96	121	5.2	4.2	2,826	477
	100	6.3	35	1.91	1.89	1.89	1.00	3.61	154	147	141	104	130	5.5	4.5	3,140	530
	120	7.0	41	1.91	2.15	1.79	1.14	4.11	176	168	161	118	148	6.1	5.1	3,768	636
	140	7.5	46	1.91	2.39	1.71	1.27	4.58	196	187	179	132	165	6.7	5.7	4,396	742
Early gestation (Twin lambs; BW = 3.4 to 6.6 kg)																	
	40	3.4	30	1.91	1.15	2.87	0.61	2.20	100	95	91	67	79	4.8	3.2	1,256	212
	50	3.8	35	1.91	1.31	2.62	0.70	2.51	112	107	103	76	90	5.4	3.7	1,570	265
	60	4.2	40	1.91	1.51	2.52	0.80	2.89	129	124	118	87	104	5.9	4.2	1,884	318
	70	4.6	45	1.91	1.69	2.41	0.89	3.22	144	137	131	97	116	6.5	4.6	2,198	371
	80	4.9	50	1.91	1.84	2.30	0.98	3.52	157	150	143	105	127	7.0	5.1	2,512	424
	90	5.2	55	1.91	2.00	2.22	1.06	3.82	170	162	155	114	138	7.4	5.5	2,826	477
	100	5.5	59	1.91	2.15	2.15	1.14	4.10	182	174	167	123	148	7.9	5.9	3,140	530
	120	6.1	68	1.91	2.44	2.03	1.29	4.66	207	198	189	139	168	8.7	6.6	3,768	636
	140	6.6	76	1.91	2.71	1.94	1.44	5.18	231	220	211	155	187	9.5	7.3	4,396	742

Early gestation (Three lambs; BW = 2.9 to 5.7 kg)

40	2.9	39	2.39	1.00	2.51	0.67	2.40	103	98	94	69	86	5.4	3.3	1,256	212
50	3.3	46	1.91	1.46	2.92	0.77	2.79	129	123	117	86	101	6.5	4.4	1,570	265
60	3.6	52	1.91	1.65	2.74	0.87	3.15	144	137	131	97	113	7.1	4.9	1,884	318
70	3.9	59	1.91	1.82	2.61	0.97	3.49	159	152	145	107	126	7.8	5.4	2,198	371
80	4.2	65	1.91	2.00	2.50	1.06	3.82	174	166	159	117	138	8.3	5.9	2,512	424
90	4.5	71	1.91	2.17	2.41	1.15	4.14	188	180	172	127	149	8.9	6.3	2,826	477
100	4.7	77	1.91	2.32	2.32	1.23	4.43	201	192	183	135	160	9.4	6.7	3,140	530
120	5.2	88	1.91	2.63	2.19	1.39	5.02	228	217	208	153	181	10.4	7.6	3,768	636
140	5.7	99	1.91	2.92	2.09	1.55	5.59	254	242	232	171	202	11.4	8.4	4,396	742

Late gestation (Single lamb; BW = 3.9 to 7.5 kg)

40	3.9	71	2.39	1.00	2.49	0.66	2.38	101	96	92	68	86	4.3	2.6	1,820	224
50	4.4	84	1.91	1.45	2.89	0.77	2.76	126	120	115	85	100	5.1	3.5	2,275	280
60	4.8	97	1.91	1.63	2.71	0.86	3.11	141	134	129	95	112	5.7	4.0	2,730	336
70	5.2	109	1.91	1.80	2.58	0.96	3.45	156	149	142	105	124	6.1	4.4	3,185	392
80	5.6	120	1.91	1.98	2.47	1.05	3.78	170	163	155	114	136	6.6	4.8	3,640	448
90	6.0	131	1.91	2.15	2.38	1.14	4.10	185	176	169	124	148	7.1	5.2	4,095	504
100	6.3	142	1.91	2.30	2.30	1.22	4.40	198	189	180	133	158	7.5	5.5	4,550	560
120	7.0	163	1.91	2.61	2.17	1.38	4.99	224	214	205	151	180	8.3	6.3	5,460	672
140	7.5	183	1.91	2.89	2.06	1.53	5.52	248	237	226	167	199	9.0	6.9	6,370	784

Late gestation (Twin lambs; BW = 3.4 to 6.6 kg)

40	3.4	119	2.87	1.06	2.66	0.85	3.05	128	123	117	86	110	6.3	3.4	1,820	224
50	3.8	141	2.39	1.47	2.93	0.97	3.50	155	148	141	104	126	7.3	4.3	2,275	280
60	4.2	161	2.39	1.65	2.75	1.09	3.94	173	165	158	116	142	8.1	4.8	2,730	336
70	4.6	181	2.39	1.83	2.61	1.21	4.37	192	183	175	129	158	8.8	5.3	3,185	392
80	4.9	200	2.39	1.99	2.48	1.32	4.75	208	198	189	139	171	9.4	5.8	3,640	448
90	5.2	218	1.91	2.68	2.97	1.42	5.12	241	230	220	162	185	10.7	7.2	4,095	504
100	5.5	236	1.91	2.87	2.87	1.52	5.48	258	246	236	173	198	11.3	7.7	4,550	560
120	6.1	271	1.91	3.24	2.70	1.72	6.19	291	278	266	196	223	12.5	8.6	5,460	672
140	6.6	304	1.91	3.57	2.55	1.89	6.83	321	307	293	216	246	13.6	9.5	6,370	784

Late gestation (Three or more lambs; BW = 2.9 to 5.7 kg)

40	2.9	155	2.87	1.22	3.04	0.97	3.49	150	144	137	101	126	7.7	4.1	1,820	224
50	3.3	183	2.87	1.41	2.81	1.12	4.03	173	165	158	116	145	8.7	4.7	2,275	280
60	3.6	210	2.87	1.57	2.61	1.25	4.50	192	183	175	129	162	9.5	5.2	2,730	336
70	3.9	235	2.39	2.07	2.96	1.37	4.95	222	212	203	149	178	10.8	6.4	3,185	392
80	4.2	260	2.39	2.26	2.82	1.50	5.40	241	230	220	162	195	11.6	6.9	3,640	448
90	4.5	284	2.39	2.44	2.71	1.62	5.83	261	249	238	175	210	12.3	7.4	4,095	504
100	4.7	307	2.39	2.59	2.59	1.72	6.20	276	263	252	185	223	13.0	7.9	4,550	560
120	5.2	352	2.39	2.92	2.43	1.93	6.97	310	296	283	209	251	14.4	8.8	5,460	672
140	5.7	396	1.91	4.04	2.89	2.14	7.73	371	355	339	250	279	16.7	11.2	6,370	784

Early lactation (Single lamb; milk yield = 0.71 to 1.32 kg/d)

40	0.71	−14	2.39	1.09	2.73	0.72	2.61	156	149	143	105	94	4.1	3.4	1,820	224
50	0.79	−16	2.39	1.26	2.51	0.83	3.00	177	169	161	119	108	4.6	3.9	2,275	280
60	0.87	−17	1.91	1.77	2.96	0.94	3.39	210	200	191	141	122	5.4	5.0	2,730	336
70	0.94	−19	1.91	1.96	2.80	1.04	3.75	229	219	209	154	135	5.9	5.5	3,185	392
80	1.00	−20	1.91	2.13	2.67	1.13	4.08	248	237	226	167	147	6.3	5.9	3,640	448

TABLE 15-1 continued

Class/Age/Other	Body Weight[a] kg	Birth Weight or Milk Yield[b] kg	Body Weight Gain[c] g/d	Energy Concentration in Diet[d] Kcal/kg	Daily Dry Matter Intake[e] kg	Daily Dry Matter Intake[e] % BW	Energy Requirements[f] TDN kg/d	Energy Requirements[f] ME Mcal/d	Protein Requirements[g] CP @20% UIP g/d	Protein Requirements[g] CP @40% UIP g/d	Protein Requirements[g] CP @60% UIP g/d	Protein Requirements[g] MP g/d	Protein Requirements[g] DIP g/d	Macro Mineral Requirements[h] Ca g/d	Macro Mineral Requirements[h] P g/d	Vitamin Requirements[i] A RE/d	Vitamin Requirements[i] E IU/d
	90	1.06	–21	1.91	2.30	2.56	1.22	4.41	266	254	243	179	159	6.7	6.4	4,095	504
	100	1.12	–22	1.91	2.47	2.47	1.31	4.73	284	272	260	191	170	7.1	6.8	4,550	560
	120	1.22	–24	1.91	2.78	2.32	1.47	5.32	317	303	290	213	192	7.8	7.6	5,460	672
	140	1.32	–26	1.91	3.08	2.20	1.63	5.89	349	333	319	235	212	8.5	8.4	6,370	784
Early lactation (Twin lambs; milk yield = 1.18 to 2.21 kg/d)						Parlor = 3											
	40	1.18	–24	2.39	1.40	3.51	0.93	3.35	224	213	204	150	121	6.0	5.0	2,140	224
	50	1.32	–26	2.39	1.61	3.22	1.07	3.85	254	242	231	170	139	6.7	5.7	2,675	280
	60	1.45	–29	2.39	1.80	3.01	1.20	4.31	281	268	257	189	155	7.3	6.3	3,210	336
	70	1.56	–31	2.39	1.98	2.83	1.31	4.73	306	292	279	205	171	7.9	6.9	3,745	392
	80	1.67	–33	2.39	2.15	2.69	1.43	5.15	330	315	302	222	186	8.5	7.4	4,280	448
	90	1.77	–35	2.39	2.32	2.57	1.54	5.54	353	337	322	237	200	9.0	8.0	4,815	504
	100	1.87	–37	2.39	2.48	2.48	1.64	5.92	376	359	343	253	213	9.5	8.5	5,350	560
	120	2.05	–41	1.91	3.47	2.89	1.84	6.63	441	421	403	296	239	11.3	10.7	6,420	672
	140	2.21	–44	1.91	3.82	2.73	2.03	7.30	483	461	441	324	263	12.3	11.7	7,490	784
Early lactation (Three or more lambs; milk yield = 1.53 to 2.87 kg/d)																	
	40	1.53	–31	2.87	1.36	3.41	1.08	3.91	265	253	242	178	141	7.1	5.7	2,140	224
	50	1.72	–34	2.39	1.88	3.76	1.24	4.49	311	297	284	209	162	8.3	7.0	2,675	280
	60	1.88	–38	2.39	2.09	3.48	1.38	4.99	343	327	313	230	180	9.1	7.8	3,210	336
	70	2.03	–41	2.39	2.29	3.27	1.52	5.48	373	356	341	251	197	9.8	8.5	3,745	392
	80	2.17	–43	1.91	3.11	3.89	1.65	5.94	423	404	387	285	214	11.3	10.3	4,280	448
	90	2.30	–46	1.91	3.34	3.71	1.77	6.38	452	431	413	304	230	12.0	11.0	4,815	504
	100	2.43	–49	1.91	3.56	3.56	1.89	6.80	480	458	438	323	245	12.7	11.7	5,350	560
	120	2.66	–53	1.91	3.98	3.32	2.11	7.61	533	508	486	358	274	13.9	13.0	6,420	672
	140	2.87	–57	1.91	4.37	3.12	2.32	8.36	581	555	531	391	301	15.1	14.1	7,490	784
Early lactation (Parlor production only; milk yield = 2.37 to 3.97 kg/d)																	
	50	2.37	–47	2.87	1.93	3.85	1.53	5.52	392	374	358	263	199	10.4	8.5	2,675	280
	60	2.60	–52	2.87	2.14	3.57	1.70	6.14	432	413	395	291	221	11.4	9.4	3,210	336
	70	2.81	–56	2.87	2.34	3.35	1.86	6.72	470	449	429	316	242	12.4	10.3	3,745	392
	80	3.00	–60	2.39	3.04	3.80	2.01	7.26	522	498	476	351	262	13.8	12.0	4,280	448
	90	3.18	–64	2.39	3.25	3.61	2.16	7.77	556	531	508	374	280	14.7	12.7	4,815	504
	100	3.35	–67	2.39	3.46	3.46	2.29	8.27	589	562	538	396	298	15.5	13.5	5,350	560
	120	3.67	–73	2.39	3.86	3.21	2.56	9.22	651	622	595	438	332	17.0	14.9	6,420	672
	140	3.97	–79	1.91	5.29	3.78	2.80	10.11	746	712	681	501	364	19.7	18.2	7,490	784
Mid-lactation (Single lamb; milk yield = 0.47 to 0.89 kg/d)																	
	40	0.47	0	1.91	1.20	3.01	0.64	2.30	134	128	123	90	83	3.5	3.1	2,140	224
	50	0.53	0	1.91	1.40	2.80	0.74	2.68	154	147	141	104	96	3.9	3.6	2,675	280
	60	0.58	0	1.91	1.58	2.63	0.84	3.02	172	164	157	116	109	4.3	4.0	3,210	336
	70	0.63	0	1.91	1.75	2.51	0.93	3.35	190	181	173	128	121	4.6	4.4	3,745	392
	80	0.67	0	1.91	1.91	2.39	1.02	3.66	206	196	188	138	132	5.0	4.8	4,280	448

90	0.71	0	1.91	2.07	2.30	1.10	3.96	221	211	202	149	143	5.3	5.2	4,815	504
100	0.75	0	1.91	2.22	2.22	1.18	4.25	237	226	216	159	153	5.6	5.6	5,350	560
120	0.82	0	1.91	2.51	2.10	1.33	4.81	266	254	243	179	173	6.2	6.3	6,420	672
140	0.89	0	1.91	2.79	2.00	1.48	5.34	294	281	269	198	193	6.8	6.9	7,490	784
Mid-lactation (Twin lambs; milk yield = 0.79 to 1.48 kg/d)																
40	0.79	0	1.91	1.50	3.74	0.79	2.86	186	177	170	125	103	4.9	4.3	2,140	224
50	0.88	0	1.91	1.72	3.44	0.91	3.29	210	201	192	141	119	5.4	4.9	2,675	280
60	0.97	0	1.91	1.94	3.23	1.03	3.70	235	224	214	158	133	6.0	5.5	3,210	336
70	1.05	0	1.91	2.14	3.05	1.13	4.09	257	245	235	173	147	6.5	6.1	3,745	392
80	1.12	0	1.91	2.33	2.91	1.23	4.45	278	265	254	187	160	6.9	6.6	4,280	448
90	1.19	0	1.91	2.51	2.79	1.33	4.80	298	285	272	200	173	7.4	7.1	4,815	504
100	1.25	0	1.91	2.68	2.68	1.42	5.13	317	303	289	213	185	7.8	7.5	5,350	560
120	1.37	0	1.91	3.02	2.51	1.60	5.77	354	338	323	238	208	8.6	8.4	6,420	672
140	1.48	0	1.91	3.33	2.38	1.77	6.37	389	371	355	261	230	9.3	9.2	7,490	784
Mid-lactation (Three or more lambs; milk yield = 1.03 to 1.92 kg/d)																
40	1.03	0	2.39	1.37	3.43	0.91	3.28	213	203	194	143	118	5.5	4.6	2,140	224
50	1.15	0	1.91	1.97	3.93	1.04	3.76	254	242	232	170	136	6.6	6.0	2,675	280
60	1.26	0	1.91	2.20	3.67	1.17	4.21	281	268	257	189	152	7.2	6.6	3,210	336
70	1.36	0	1.91	2.42	3.46	1.28	4.63	307	293	280	206	167	7.8	7.3	3,745	392
80	1.45	0	1.91	2.63	3.29	1.39	5.02	331	316	302	222	181	8.4	7.8	4,280	448
90	1.54	0	1.91	2.83	3.15	1.50	5.41	354	338	324	238	195	8.9	8.4	4,815	504
100	1.63	0	1.91	3.03	3.03	1.61	5.79	378	361	345	254	209	9.4	9.0	5,350	560
120	1.78	0	1.91	3.39	2.83	1.80	6.49	420	401	383	282	234	10.4	10.0	6,420	672
140	1.92	0	1.91	3.74	2.67	1.98	7.14	459	439	419	309	258	11.3	10.9	7,490	784
Mid-lactation (Parlor production only; milk yield = 1.59 to 2.66 kg/d)																
50	1.59	0	2.39	1.90	3.79	1.26	4.53	308	294	281	207	163	7.9	6.8	2,675	280
60	1.74	0	2.39	2.11	3.52	1.40	5.05	340	325	311	229	182	8.7	7.5	3,210	336
70	1.88	0	2.39	2.32	3.31	1.54	5.54	371	354	338	249	200	9.4	8.2	3,745	392
80	2.01	0	1.91	3.14	3.93	1.67	6.00	421	401	384	283	216	10.8	10.0	4,280	448
90	2.13	0	1.91	3.37	3.74	1.79	6.44	449	429	410	302	232	11.5	10.7	4,815	504
100	2.25	0	1.91	3.60	3.60	1.91	6.88	477	456	436	321	248	12.1	11.4	5,350	560
120	2.46	0	1.91	4.03	3.36	2.14	7.71	532	508	486	357	278	13.4	12.6	6,420	672
140	2.66	0	1.91	4.41	3.15	2.34	8.44	578	552	528	388	304	14.5	13.8	7,490	784
Late lactation (Single lamb; milk yield = 0.23 to 0.45 kg/d)																
40	0.23	10	1.91	1.09	2.72	0.58	2.08	105	100	96	70	75	2.7	2.3	2,140	224
50	0.25	11	1.91	1.26	2.52	0.67	2.40	119	114	109	80	87	3.0	2.7	2,675	280
60	0.28	12	1.91	1.43	2.38	0.76	2.73	135	129	123	91	99	3.3	3.1	3,210	336
70	0.31	14	1.91	1.61	2.29	0.85	3.07	151	144	138	102	111	3.6	3.5	3,745	392
80	0.33	15	1.91	1.76	2.20	0.93	3.36	165	157	150	111	121	3.9	3.8	4,280	448
90	0.35	16	1.91	1.91	2.12	1.01	3.65	178	170	163	120	132	4.2	4.1	4,815	504
100	0.37	17	1.91	2.05	2.05	1.09	3.93	191	182	175	128	142	4.4	4.4	5,350	560
120	0.41	18	1.91	2.33	1.94	1.23	4.45	216	206	197	145	160	4.9	5.0	6,420	672
140	0.45	20	1.91	2.60	1.86	1.38	4.97	242	231	221	162	179	5.4	5.6	7,490	784
Late lactation (Twin lambs; milk yield = 0.38 to 0.75 kg/d)																
40	0.38	25	1.91	1.38	3.45	0.73	2.64	142	136	130	96	95	3.7	3.2	2,140	224
50	0.43	28	1.91	1.60	3.20	0.85	3.06	163	156	149	110	110	4.2	3.7	2,675	280

TABLE 15-1 continued

Class/Age/Other	Body Weight[a] kg	Birth Weight or Milk Yield[b] kg	Body Weight Gain[c] g/d	Energy Concentration in Diet[d] Kcal/kg	Daily Dry Matter Intake[e] kg	Daily Dry Matter Intake[e] % BW	Energy Requirements[f] TDN kg/d	Energy Requirements[f] ME Mcal/d	Protein Requirements[g] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[h] Ca g/d	Macro Mineral Requirements[h] P g/d	Vitamin Requirements[i] A RE/d	Vitamin Requirements[i] E IU/d
	60	0.47	31	1.91	1.80	3.00	0.95	3.44	182	174	167	123	124	4.6	4.2	3,210	336
	70	0.51	34	1.91	2.00	2.85	1.06	3.82	201	192	184	135	138	5.0	4.6	3,745	392
	80	0.55	37	1.91	2.19	2.74	1.16	4.18	220	210	201	148	151	5.4	5.1	4,280	448
	90	0.59	39	1.91	2.37	2.63	1.25	4.52	237	226	217	159	163	5.8	5.5	4,815	504
	100	0.62	41	1.91	2.53	2.53	1.34	4.84	253	241	231	170	174	6.2	5.9	5,350	560
	120	0.69	46	1.91	2.87	2.39	1.52	5.49	286	273	261	192	198	6.9	6.6	6,420	672
	140	0.75	50	1.91	3.19	2.28	1.69	6.09	317	302	289	213	220	7.5	7.4	7,490	784
Late lactation (Three or more lambs; milk yield = 0.55 to 0.97 kg/d)																	
	50	0.55	40	1.91	1.83	3.67	0.97	3.51	193	185	177	130	126	5.0	4.4	2,675	280
	60	0.61	44	1.91	2.06	3.44	1.09	3.95	217	207	198	146	142	5.6	5.0	3,210	336
	70	0.67	48	1.91	2.29	3.27	1.21	4.38	239	229	219	161	158	6.1	5.5	3,745	392
	80	0.72	52	1.91	2.50	3.13	1.33	4.78	261	249	238	175	172	6.6	6.0	4,280	448
	90	0.76	55	1.91	2.69	2.99	1.43	5.14	279	266	255	187	185	7.0	6.5	4,815	504
	100	0.81	59	1.91	2.89	2.89	1.53	5.53	300	286	274	201	199	7.4	6.9	5,350	560
	120	0.90	65	1.91	3.26	2.72	1.73	6.24	337	322	308	227	225	8.3	7.8	6,420	672
	140	0.97	70	1.91	3.59	2.57	1.91	6.87	370	353	338	249	248	9.0	8.6	7,490	784
Late lactation (Parlor production only; milk yield = 0.85 to 1.35 kg/d)																	
	60	0.85	50	1.91	2.35	3.91	1.24	4.48	261	249	238	175	162	6.8	6.0	3,210	336
	70	0.92	54	1.91	2.58	3.69	1.37	4.93	285	272	260	192	178	7.3	6.6	3,745	392
	80	0.99	59	1.91	2.82	3.52	1.50	5.39	310	296	283	208	194	7.9	7.2	4,280	448
	90	1.06	62	1.91	3.04	3.37	1.61	5.80	333	318	304	224	209	8.5	7.7	4,815	504
	100	1.12	66	1.91	3.25	3.25	1.72	6.21	356	339	325	239	224	9.0	8.3	5,350	560
	120	1.24	73	1.91	3.66	3.05	1.94	6.99	399	381	364	268	252	10.0	9.3	6,420	672
	140	1.35	80	1.91	4.05	2.89	2.15	7.74	440	420	402	296	279	10.9	10.2	7,490	784
Yearling Farm Ewes																	
Maintenance, only																	
	40		0	1.91	0.8216	2.05	0.44	1.57	60	58	55	41	57	1.8	1.4	1,256	212
	50		0	1.91	0.9713	1.94	0.51	1.86	71	68	65	48	67	2.1	1.6	1,570	265
	60		0	1.91	1.1136	1.86	0.59	2.13	81	77	74	54	77	2.3	1.9	1,884	318
	70		0	1.91	1.2501	1.79	0.66	2.39	91	87	83	61	86	2.5	2.2	2,198	371
	80		0	1.91	1.3818	1.73	0.73	2.64	101	96	92	68	95	2.7	2.4	2,512	424
	90		0	1.91	1.5094	1.68	0.80	2.89	110	105	101	74	104	2.9	2.6	2,826	477
	100		0	1.91	1.6335	1.63	0.87	3.12	119	114	109	80	113	3.1	2.9	3,140	530
	120		0	1.91	1.8729	1.56	0.99	3.58	137	131	126	92	129	3.5	3.3	3,768	636

Values for maintenance plus growth, breeding, and pregnancy plus growth in yearling ewes are included in Table 15-2.

Early lactation (Single lamb; milk yield = 0.71 to 1.22 kg/d)

40	0.71	–14	1.91	1.41	3.53	0.75	2.70	167	159	152	112	97	4.5	4.0	2,140	224
50	0.79	–16	1.91	1.63	3.25	0.86	3.11	189	180	172	127	112	5.0	4.6	2,675	280
60	0.87	–17	1.91	1.84	3.06	0.97	3.51	211	202	193	142	127	5.5	5.1	3,210	336
70	0.94	–19	1.91	2.03	2.90	1.08	3.88	231	221	211	155	140	6.0	5.6	3,745	392
80	1.00	–20	1.91	2.21	2.76	1.17	4.23	250	239	228	168	152	6.4	6.1	4,280	448
90	1.06	–21	1.91	2.39	2.65	1.27	4.57	268	256	245	180	165	6.8	6.6	4,815	504
100	1.12	–22	1.91	2.56	2.56	1.36	4.90	287	274	262	193	177	7.2	7.0	5,350	560
120	1.22	–24	1.91	2.88	2.40	1.53	5.51	320	305	292	215	199	8.0	7.8	6,420	672

Early lactation (Twin lambs; milk yield = 1.18 to 2.05 kg/d)

40	1.18	–24	2.39	1.44	3.60	0.95	3.44	224	214	205	151	124	6.0	5.1	2,140	224
50	1.32	–26	2.39	1.65	3.31	1.10	3.96	255	243	232	171	143	6.7	5.8	2,675	280
60	1.45	–29	1.91	2.32	3.86	1.23	4.43	298	284	272	200	160	8.0	7.3	3,210	336
70	1.56	–31	1.91	2.55	3.64	1.35	4.87	324	310	296	218	175	8.6	7.9	3,745	392
80	1.67	–33	1.91	2.77	3.46	1.47	5.29	350	335	320	236	191	9.3	8.6	4,280	448
90	1.77	–35	1.91	2.98	3.31	1.58	5.70	375	358	342	252	205	9.8	9.2	4,815	504
100	1.87	–37	1.91	3.19	3.19	1.69	6.09	399	381	364	268	220	10.4	9.8	5,350	560
120	2.05	–41	1.91	3.57	2.98	1.89	6.83	444	424	405	298	246	11.5	10.9	6,420	672

Early lactation (Three or more lambs; milk yield = 1.53 to 2.66 kg/d)

40	1.53	–31	2.87	1.39	3.48	1.11	4.00	265	253	242	178	144	7.1	5.7	2,140	224
50	1.72	–34	2.39	1.92	3.84	1.27	4.59	312	298	285	210	166	8.3	7.1	2,675	280
60	1.88	–38	2.39	2.14	3.56	1.42	5.11	344	328	314	231	184	9.1	7.9	3,210	336
70	2.03	–41	2.39	2.35	3.35	1.56	5.61	374	357	342	252	202	9.9	8.6	3,745	392
80	2.17	–43	1.91	3.19	3.98	1.69	6.09	425	406	388	286	220	11.4	10.4	4,280	448
90	2.30	–46	1.91	3.42	3.80	1.81	6.54	454	433	414	305	236	12.1	11.1	4,815	504
100	2.43	–49	1.91	3.65	3.65	1.93	6.98	482	461	441	324	252	12.8	11.8	5,350	560
120	2.66	–53	1.91	4.08	3.40	2.16	7.80	535	511	489	360	281	14.0	13.1	6,420	672

Mid-lactation (Single lamb; milk yield = 0.47 to 0.82 kg/d)

40	0.47	0	1.91	1.25	3.12	0.66	2.38	135	129	124	91	86	3.5	3.2	2,140	224
50	0.53	0	1.91	1.45	2.90	0.77	2.77	156	148	142	105	100	4.0	3.7	2,675	280
60	0.58	0	1.91	1.64	2.73	0.87	3.13	174	166	159	117	113	4.4	4.1	3,210	336
70	0.63	0	1.91	1.82	2.60	0.96	3.48	192	183	175	129	125	4.7	4.6	3,745	392
80	0.67	0	1.91	1.99	2.48	1.05	3.80	208	198	190	139	137	5.1	5.0	4,280	448
90	0.71	0	1.91	2.15	2.39	1.14	4.11	223	213	204	150	148	5.4	5.4	4,815	504
100	0.75	0	1.91	2.31	2.31	1.22	4.42	239	228	218	161	159	5.7	5.7	5,350	560
120	0.82	0	1.91	2.61	2.18	1.38	4.99	268	256	245	180	180	6.3	6.4	6,420	672

Mid-lactation (Twin lambs; milk yield = 0.79 to 1.37 kg/d)

40	0.79	0	1.91	1.54	3.85	0.82	2.94	187	178	171	125	106	4.9	4.4	2,140	224
50	0.89	0	1.91	1.78	3.56	0.94	3.40	213	204	195	143	123	5.5	5.0	2,675	280
60	0.97	0	1.91	1.99	3.32	1.06	3.81	236	225	216	159	137	6.0	5.6	3,210	336
70	1.05	0	1.91	2.20	3.15	1.17	4.21	259	247	236	174	152	6.6	6.2	3,745	392
80	1.12	0	1.91	2.40	3.00	1.27	4.59	280	267	255	188	165	7.0	6.7	4,280	448
90	1.19	0	1.91	2.59	2.88	1.37	4.95	300	287	274	202	178	7.5	7.2	4,815	504
100	1.25	0	1.91	2.77	2.77	1.47	5.29	319	305	291	214	191	7.9	7.7	5,350	560
120	1.37	0	1.91	3.12	2.60	1.65	5.96	356	340	325	240	215	8.7	8.6	6,420	672

TABLE 15-1 continued

Class/Age/Other	Body Weight[a] kg	Birth Weight or Milk Yield[b] kg	Body Weight Gain[c] g/d	Energy Concentration in Diet[d] Kcal/kg	Daily Dry Matter Intake[e] kg	Daily Dry Matter Intake[e] % BW	Energy Requirements[f] TDN kg/d	Energy Requirements[f] ME Mcal/d	Protein Requirements[g] CP @20% UIP g/d	Protein Requirements[g] CP @40% UIP g/d	Protein Requirements[g] CP @60% UIP g/d	Protein Requirements[g] MP g/d	Protein Requirements[g] DIP g/d	Macro Mineral Requirements[h] Ca g/d	Macro Mineral Requirements[h] P g/d	Vitamin Requirements[i] A RE/d	Vitamin Requirements[i] E IU/d
Mid-lactation (Three or more lambs; milk yield = 1.03 to 1.78 kg/d)																	
	40	1.03	0	2.39	1.41	3.52	0.93	3.36	213	204	195	143	121	5.5	4.7	2,140	224
	50	1.15	0	2.39	1.61	3.23	1.07	3.86	241	230	220	162	139	6.1	5.3	2,675	280
	60	1.26	0	1.91	2.26	3.77	1.20	4.32	283	270	258	190	156	7.3	6.7	3,210	336
	70	1.36	0	1.91	2.49	3.55	1.32	4.76	309	295	282	207	171	7.9	7.4	3,745	392
	80	1.45	0	1.91	2.70	3.38	1.43	5.16	333	317	304	223	186	8.5	8.0	4,280	448
	90	1.54	0	1.91	2.91	3.23	1.54	5.56	356	340	325	240	201	9.0	8.5	4,815	504
	100	1.62	0	1.91	3.11	3.11	1.65	5.94	378	361	346	254	214	9.5	9.1	5,350	560
	120	1.78	0	1.91	3.49	2.91	1.85	6.67	422	403	385	284	241	10.5	10.1	6,420	672
Late lactation (Single lamb; milk yield = 0.23 to 0.41 kg/d)																	
	40	0.23	60	1.91	1.55	3.86	0.82	2.95	142	135	129	95	107	3.9	2.5	2,140	224
	50	0.25	61	1.91	1.83	3.65	0.97	3.49	165	158	151	111	126	4.4	2.9	2,675	280
	60	0.28	72	1.91	2.11	3.52	1.12	4.03	190	181	173	128	145	5.0	3.4	3,210	336
	70	0.31	84	1.91	2.40	3.42	1.27	4.58	215	205	197	145	165	5.6	3.8	3,745	392
	80	0.33	95	1.91	2.66	3.32	1.41	5.09	238	227	217	160	183	6.1	4.3	4,280	448
	90	0.35	106	1.91	2.92	3.24	1.55	5.58	260	248	238	175	201	6.6	4.7	4,815	504
	100	0.37	117	1.91	3.17	3.17	1.68	6.07	283	270	258	190	219	7.2	5.1	5,350	560
	120	0.41	138	1.91	3.67	3.06	1.94	7.01	326	311	297	219	253	8.2	5.9	6,420	672
Late lactation (Twin lambs; milk yield = 0.38 to 0.69 kg/d)																	
	40	0.38	65	2.39	1.47	3.68	0.97	3.51	167	159	152	112	127	4.4	2.8	2,140	224
	50	0.43	78	2.39	1.73	3.47	1.15	4.14	195	186	178	131	149	5.0	3.3	2,675	280
	60	0.47	91	2.39	1.98	3.31	1.32	4.74	221	211	201	148	171	5.7	3.8	3,210	336
	70	0.51	104	1.91	2.79	3.98	1.48	5.33	265	253	242	178	192	7.0	4.8	3,745	392
	80	0.55	117	1.91	3.09	3.86	1.64	5.91	293	279	267	197	213	7.6	5.4	4,280	448
	90	0.59	129	1.91	3.38	3.75	1.79	6.46	319	305	292	215	233	8.3	5.8	4,815	504
	100	0.62	141	1.91	3.65	3.65	1.94	6.98	344	328	314	231	252	8.9	6.3	5,350	560
	120	0.69	166	1.91	4.21	3.51	2.23	8.06	396	378	361	266	290	10.1	7.2	6,420	672
Late lactation (Three or more lambs; milk yield = 0.55 to 0.90 kg/d)																	
	50	0.55	90	2.39	1.92	3.84	1.27	4.59	223	213	203	150	166	5.8	3.9	2,675	280
	60	0.61	104	2.39	2.19	3.66	1.45	5.25	253	241	231	170	189	6.6	4.4	3,210	336
	70	0.67	118	2.39	2.46	3.52	1.63	5.89	282	270	258	190	212	7.2	4.9	3,745	392
	80	0.72	132	2.39	2.72	3.40	1.80	6.50	310	296	283	209	234	7.9	5.4	4,280	448
	90	0.76	145	2.39	2.96	3.29	1.96	7.07	336	321	307	226	255	8.5	5.8	4,815	504
	100	0.81	159	2.39	3.21	3.21	2.13	7.67	363	347	332	244	277	9.2	6.3	5,350	560
	120	0.90	185	1.91	4.60	3.84	2.44	8.80	446	426	407	300	317	11.5	8.3	6,420	672
Yearling Range Ewes Maintenance, only																	
	40		0	1.91	0.80	1.99	0.42	1.52	60	57	55	40	55	1.8	1.3	1,256	212
	50		0	1.91	0.94	1.89	0.50	1.80	70	67	64	47	65	2.0	1.6	1,570	265

60		0	1.91	1.08	1.80	0.57	2.07	80	77	73	54	74	2.3	1.8	1,884	318
70		0	1.91	1.21	1.73	0.64	2.32	90	86	82	60	84	2.5	2.1	2,198	371
80		0	1.91	1.34	1.68	0.71	2.56	99	95	91	67	92	2.7	2.3	2,512	424
90		0	1.91	1.46	1.63	0.78	2.80	109	104	99	73	101	2.9	2.5	2,826	477
100		0	1.91	1.59	1.59	0.84	3.03	118	113	108	79	109	3.0	2.8	3,140	530
120		0	1.91	1.82	1.51	0.96	3.48	136	130	124	91	125	3.4	3.2	3,768	636

Values for maintenance plus growth, breeding, and pregnancy plus growth in yearling ewes are included in Table 15-2.

Early lactation (Single lamb; milk yield = 0.71 to 1.22 kg/d)

40	0.71	–14	1.91	1.39	3.47	0.74	2.66	166	159	152	112	96	4.4	3.9	2,140	224
50	0.79	–16	1.91	1.60	3.20	0.85	3.06	188	180	172	127	110	5.0	4.5	2,675	280
60	0.87	–17	1.91	1.81	3.01	0.96	3.45	211	201	192	142	125	5.5	5.1	3,210	336
70	0.94	–19	1.91	1.99	2.85	1.06	3.81	231	220	211	155	137	5.9	5.6	3,745	392
80	1.00	–20	1.91	2.17	2.72	1.15	4.16	249	238	228	167	150	6.4	6.0	4,280	448
90	1.06	–21	1.91	2.35	2.61	1.24	4.49	268	255	244	180	162	6.8	6.5	4,815	504
100	1.12	–22	1.91	2.52	2.52	1.34	4.82	286	273	261	192	174	7.2	6.9	5,350	560
120	1.22	–24	1.91	2.83	2.36	1.50	5.42	319	304	291	214	195	7.9	7.7	6,420	672

Early lactation (Twin lambs; milk yield = 1.18 to 2.05 kg/d)

40	1.18	–24	2.39	1.42	3.56	0.94	3.40	224	214	205	151	123	6.0	5.0	2,140	224
50	1.32	–26	2.39	1.63	3.27	1.08	3.91	254	243	232	171	141	6.7	5.7	2,675	280
60	1.45	–29	1.91	2.29	3.81	1.21	4.37	297	284	271	200	158	7.9	7.2	3,210	336
70	1.56	–31	1.91	2.51	3.59	1.33	4.80	324	309	295	217	173	8.6	7.9	3,745	392
80	1.67	–33	1.91	2.73	3.42	1.45	5.22	350	334	319	235	188	9.2	8.5	4,280	448
90	1.77	–35	1.91	2.94	3.27	1.56	5.62	374	357	341	251	203	9.8	9.1	4,815	504
100	1.87	–37	1.91	3.14	3.14	1.67	6.01	398	380	364	268	217	10.3	9.7	5,350	560
120	2.05	–41	1.91	3.52	2.94	1.87	6.74	443	423	404	298	243	11.4	10.8	6,420	672

Early lactation (Three or more lambs; milk yield = 1.53 to 2.66 kg/d)

40	1.53	–31	2.87	1.38	3.45	1.10	3.96	265	253	242	178	143	7.1	5.7	2,140	224
50	1.72	–34	2.39	1.90	3.80	1.26	4.54	312	298	285	210	164	8.3	7.1	2,675	280
60	1.88	–38	2.39	2.11	3.52	1.40	5.05	344	328	314	231	182	9.1	7.8	3,210	336
70	2.03	–41	2.39	2.32	3.32	1.54	5.55	374	357	342	251	200	9.8	8.5	3,745	392
80	2.17	–43	1.91	3.15	3.94	1.67	6.02	425	405	388	285	217	11.3	10.4	4,280	448
90	2.30	–46	1.91	3.38	3.75	1.79	6.46	453	433	414	305	233	12.0	11.1	4,815	504
100	2.43	–49	1.91	3.61	3.61	1.91	6.89	482	460	440	324	249	12.7	11.8	5,350	560
120	2.66	–53	1.91	4.03	3.36	2.14	7.71	534	510	488	359	278	14.0	13.0	6,420	672

Mid-lactation (Single lamb; milk yield = 0.47 to 0.82 kg/d)

40	0.47	0	1.91	1.22	3.06	0.65	2.34	135	129	123	91	84	3.5	3.1	2,140	224
50	0.53	0	1.91	1.42	2.85	0.76	2.72	155	148	142	104	98	3.9	3.6	2,675	280
60	0.58	0	1.91	1.61	2.68	0.85	3.07	173	165	158	116	111	4.3	4.1	3,210	336
70	0.63	0	1.91	1.79	2.55	0.95	3.41	191	182	174	128	123	4.7	4.5	3,745	392
80	0.67	0	1.91	1.95	2.44	1.03	3.73	207	197	189	139	134	5.0	4.9	4,280	448
90	0.71	0	1.91	2.11	2.34	1.12	4.03	223	212	203	150	145	5.4	5.3	4,815	504
100	0.75	0	1.91	2.27	2.27	1.20	4.33	238	227	217	160	156	5.7	5.7	5,350	560
120	0.82	0	1.91	2.56	2.14	1.36	4.90	267	255	244	180	177	6.3	6.4	6,420	672

TABLE 15-1 continued

Class/Age/Other	Body Weight[a] kg	Birth Weight or Milk Yield[b] kg	Body Weight Gain[c] g/d	Energy Concentration in Diet[d] Kcal/kg	Daily Dry Matter Intake[e] kg	Daily Dry Matter Intake[e] % BW	Energy Requirements[f] TDN kg/d	Energy Requirements[f] ME Mcal/d	Protein Requirements[g] CP @20% UIP g/d	Protein Requirements[g] CP @40% UIP g/d	Protein Requirements[g] CP @60% UIP g/d	Protein Requirements[g] MP g/d	Protein Requirements[g] DIP g/d	Macro Mineral Requirements[h] Ca g/d	Macro Mineral Requirements[h] P g/d	Vitamin Requirements[i] A RE/d	Vitamin Requirements[i] E IU/d
Mid-lactation (Twin lambs; milk yield = 0.79 to 1.37 kg/d)																	
	40	0.79	0	1.91	1.52	3.79	0.80	2.90	186	178	170	125	105	4.9	4.4	2,140	224
	50	0.89	0	1.91	1.75	3.51	0.93	3.35	213	203	194	143	121	5.5	5.0	2,675	280
	60	0.97	0	1.91	1.96	3.27	1.04	3.76	236	225	215	158	135	6.0	5.6	3,210	336
	70	1.05	0	1.91	2.17	3.10	1.15	4.15	258	246	236	174	150	6.5	6.1	3,745	392
	80	1.12	0	1.91	2.36	2.95	1.25	4.52	279	266	255	187	163	7.0	6.6	4,280	448
	90	1.19	0	1.91	2.55	2.83	1.35	4.87	300	286	274	201	176	7.4	7.1	4,815	504
	100	1.25	0	1.91	2.72	2.72	1.44	5.21	318	304	291	214	188	7.9	7.6	5,350	560
	120	1.37	0	1.91	3.07	2.55	1.63	5.86	356	339	325	239	211	8.7	8.5	6,420	672
Mid-lactation (Three or more lambs; milk yield = 1.03 to 1.78 kg/d)																	
	40	1.03	0	2.39	1.39	3.47	0.92	3.32	213	203	195	143	120	5.5	4.6	2,140	224
	50	1.15	0	1.91	1.99	3.98	1.06	3.81	254	243	232	171	137	6.6	6.0	2,675	280
	60	1.26	0	1.91	2.23	3.72	1.18	4.26	282	269	258	190	154	7.3	6.7	3,210	336
	70	1.36	0	1.91	2.45	3.51	1.30	4.69	308	294	281	207	169	7.9	7.3	3,745	392
	80	1.45	0	1.91	2.66	3.33	1.41	5.09	332	317	303	223	184	8.4	7.9	4,280	448
	90	1.54	0	1.91	2.87	3.19	1.52	5.49	356	340	325	239	198	9.0	8.5	4,815	504
	100	1.62	0	1.91	3.06	3.06	1.62	5.86	378	361	345	254	211	9.5	9.0	5,350	560
	120	1.78	0	1.91	3.44	2.87	1.82	6.58	421	402	385	283	237	10.4	10.0	6,420	672
Late lactation (Single lamb; milk yield = 0.23 to 0.41 kg/d)																	
	40	0.23	50	1.91	1.52	3.81	0.81	2.91	141	135	129	95	105	3.7	2.4	2,140	224
	50	0.25	61	1.91	1.80	3.60	0.95	3.44	165	157	150	111	124	4.3	2.9	2,675	280
	60	0.28	72	1.91	2.08	3.46	1.10	3.97	189	181	173	127	143	4.9	3.3	3,210	336
	70	0.31	84	1.91	2.36	3.37	1.25	4.52	215	205	196	144	163	5.5	3.8	3,745	392
	80	0.33	95	1.91	2.62	3.28	1.39	5.01	237	227	217	159	181	6.1	4.2	4,280	448
	90	0.35	106	1.91	2.88	3.20	1.53	5.50	260	248	237	175	198	6.6	4.6	4,815	504
	100	0.37	117	1.91	3.13	3.13	1.66	5.98	282	269	257	189	216	7.1	5.0	5,350	560
	120	0.41	138	1.91	3.61	3.01	1.92	6.91	325	310	297	218	249	8.1	5.8	6,420	672
Late lactation (Twin lambs; milk yield = 0.38 to 0.69 kg/d)																	
	40	0.38	65	2.39	1.45	3.63	0.96	3.47	167	159	152	112	125	4.3	2.8	2,140	224
	50	0.43	78	2.39	1.71	3.42	1.13	4.09	194	186	177	131	148	5.0	3.3	2,675	280
	60	0.47	91	2.39	1.96	3.27	1.30	4.68	220	210	201	148	169	5.6	3.7	3,210	336
	70	0.51	104	1.91	2.75	3.93	1.46	5.26	265	253	242	178	190	6.9	4.8	3,745	392
	80	0.55	117	1.91	3.05	3.81	1.62	5.83	292	279	267	196	210	7.6	5.3	4,280	448
	90	0.59	129	1.91	3.34	3.71	1.77	6.38	319	304	291	214	230	8.2	5.8	4,815	504
	100	0.62	141	1.91	3.61	3.61	1.91	6.90	344	328	314	231	249	8.9	6.3	5,350	560
	120	0.69	166	1.91	4.16	3.47	2.21	7.96	395	377	361	265	287	10.1	7.2	6,420	672
Late lactation (Three or more lambs; milk yield = 0.55 to 0.90 kg/d)																	
	50	0.55	90	2.39	1.90	3.80	1.26	4.54	223	213	203	150	164	5.8	3.8	2,675	280
	60	0.61	104	2.39	2.17	3.62	1.44	5.19	253	241	231	170	187	6.5	4.4	3,210	336

	70	0.67	118	2.39	2.44	3.48	1.61	5.82	282	270	258	190	210	7.2	4.9	3,745	392
	80	0.72	132	2.39	2.69	3.36	1.78	6.43	310	296	283	209	232	7.9	5.3	4,280	448
	90	0.76	145	2.39	2.93	3.25	1.94	6.99	336	320	307	226	252	8.5	5.8	4,815	504
	100	0.81	159	1.91	3.97	3.97	2.10	7.59	390	372	356	262	274	10.1	7.2	5,350	560
	120	0.90	185	1.91	4.55	3.79	2.41	8.70	446	425	407	300	314	11.5	8.2	6,420	672
Rams																	
Maintenance																	
	100		0	1.91	1.77	1.77	0.94	3.38	128	122	117	86	122	3.3	3.1	3,140	530
	125		0	1.91	2.09	1.67	1.11	4.00	152	145	139	102	144	3.8	3.7	3,925	663
	150		0	1.91	2.40	1.60	1.27	4.58	175	168	160	118	165	4.3	4.3	4,710	795
	200		0	1.91	2.98	1.49	1.58	5.69	220	210	201	148	205	5.2	5.3	6,280	1,060
Prebreeding																	
	100		47	1.91	1.95	1.95	1.03	3.72	150	144	137	101	134	3.6	3.4	4,550	560
	125		56	1.91	2.30	1.84	1.22	4.40	179	171	163	120	159	4.2	4.1	5,688	700
	150		64	1.91	2.64	1.76	1.40	5.04	206	197	188	139	182	4.7	4.7	6,825	840
	200		79	1.91	3.27	1.64	1.74	6.26	259	247	236	174	226	5.7	5.9	9,100	1,120

[a]Body weight used in estimating requirements is the determined or estimated weight in kilograms (kg) average for the period during which these requirements will be applied.
[b]Birth weight (kg) of single and average of multiple lambs or liquid milk yield (kg/d).
[c]Average change in body weight over a 24-hour period.
[d]Three hypothetical diets with increasing energy concentrations (1.91, 2.34, and 2.87 Kcal/kg) were used in the calculations of intake and nutrient requirements. For each line entry, a diet was selected to represent the level of energy concentration that approximates that needed by the animal to achieve adequate intake to satisfy its energy requirement.
[e]The daily dry matter intake, expressed as kg or as percentage of body weight, of a diet having the indicated energy concentration (previous column) that is required to meet energy requirements. These energy concentrations should be viewed only as examples. In some cases, diets having greater or lesser concentrations of energy would be more appropriate.
[f]Energy requirements expressed as Total Digestible Nutrients (TDN) in kg/d and Metabolizable Energy (ME) as Kcal/d.
[g]Protein requirements expressed as crude protein (CP), metabolizable protein (MP), and degradable intake protein (DIP). The CP requirement differs with the proportion of undegradable intake protein (UIP) because of the required minimal DIP.
[h]Two macro minerals, calcium (Ca) and phosphorus (P), commonly considered in balancing diets are included. Often, the balance (ratio) of the two minerals also is of concern.
[i]Two fat-soluble vitamins, A and E, that often are deficient in animal diets are expressed as retinal equivalents (RE) and international units (IU) for vitamins A and E, respectively. Retinal equivalent (RE) = 1 μg of all-trans retinol, 5.0 μg of all-trans betacarotene, and 7.6 μg of other carotenoids.

TABLE 15-2 Nutrient Requirements of Sheep (Growing, Finishing Lambs, and Yearlings during Growth/Gestation)

Class/Age/Other	Body Weight[a] kg	Birth Weight or Milk Yield[b] kg	Body Weight Gain[c,d] g/d	Energy Concentration in Diet[e] Kcal/kg	Daily Dry Matter Intake[f] kg	Daily Dry Matter Intake[f] % BW	Energy Requirements[g] TDN kg/d	ME Mcal/d	NEm Mcal/d	NEg Mcal/d	Protein Requirements[h] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[i] Ca g/d	P g/d	Vitamin Requirements[j] A RE/d	E IU/d
Growing Lambs and Yearlings																			
	20		100	1.91	0.57	2.86	0.30	1.09	0.20	0.21	76	73	69	51	39	2.3	1.5	2,000	200
4 Months	20		150	1.91	0.78	3.91	0.41	1.50	0.21	0.32	104	99	95	70	54	3.1	2.2	2,000	200
Maturity = 0.3	20		200	2.39	0.59	2.97	0.39	1.42	0.21	0.42	116	111	106	78	51	3.7	2.5	2,000	200
(late maturing)	20		300	2.87	0.61	3.04	0.48	1.74	0.21	0.63	155	148	142	104	63	5.1	3.5	2,000	200
	30		200	1.91	1.05	3.51	0.56	2.02	0.29	0.42	137	131	125	92	73	4.1	2.9	3,000	300
	30		250	2.39	0.76	2.53	0.50	1.82	0.29	0.53	145	139	133	98	65	4.5	3.2	3,000	300
	30		300	2.39	0.88	2.93	0.58	2.10	0.29	0.63	169	162	155	114	76	5.3	3.8	3,000	300
	30		400	2.39	1.12	3.72	0.74	2.67	0.30	0.84	218	208	199	146	96	6.9	5.0	3,000	300
	40		250	1.91	1.32	3.31	0.70	2.53	0.37	0.53	171	163	156	115	91	5.0	3.7	4,000	400
	40		300	1.91	1.54	3.84	0.82	2.94	0.38	0.63	199	190	182	134	106	5.9	4.4	4,000	400
	40		400	2.39	1.16	2.91	0.77	2.78	0.38	0.84	223	213	204	150	100	7.0	5.1	4,000	400
	40		500	2.39	1.40	3.51	0.93	3.35	0.39	1.05	271	259	248	182	121	8.6	6.3	4,000	400
	50		250	1.91	1.38	2.76	0.73	2.64	0.44	0.53	177	169	161	119	95	5.1	3.8	5,000	500
	50		300	1.91	1.59	3.19	0.85	3.05	0.45	0.63	205	195	187	137	110	6.0	4.5	5,000	500
	50		400	2.39	1.21	2.42	0.80	2.89	0.45	0.84	228	218	208	153	104	7.0	5.1	5,000	500
	50		500	2.39	1.45	2.90	0.96	3.47	0.47	1.05	277	264	253	186	125	8.6	6.3	5,000	500
	50		600	2.39	1.69	3.38	1.12	4.04	0.48	1.26	325	310	297	219	146	10.2	7.6	5,000	500
	60		250	1.91	1.43	2.39	0.76	2.74	0.50	0.53	182	174	166	122	99	5.1	3.8	6,000	600
	60		300	1.91	1.65	2.75	0.87	3.15	0.52	0.63	210	201	192	141	114	6.0	4.5	6,000	600
	60		400	1.91	2.08	3.47	1.10	3.98	0.55	0.84	266	254	243	179	143	7.8	5.9	6,000	600
	60		500	2.39	1.49	2.49	0.99	3.57	0.53	1.05	282	269	257	190	129	8.7	6.4	6,000	600
	60		600	2.39	1.74	2.90	1.15	4.15	0.55	1.26	330	315	302	222	150	10.3	7.6	6,000	600
	70		150	1.91	1.04	1.49	0.55	2.00	0.53	0.32	131	125	120	88	72	3.4	2.4	7,000	700
	70		200	1.91	1.26	1.80	0.67	2.42	0.55	0.42	159	152	146	107	87	4.3	3.1	7,000	700
	70		300	1.91	1.70	2.43	0.90	3.25	0.58	0.63	216	206	197	145	117	6.1	4.6	7,000	700
	70		400	1.91	2.14	3.05	1.13	4.08	0.62	0.84	272	259	248	183	147	7.9	6.0	7,000	700
	70		500	1.91	2.57	3.68	1.36	4.92	0.65	1.05	328	313	300	220	177	9.6	7.4	7,000	700
	80		150	1.91	1.09	1.36	0.58	2.08	0.59	0.32	137	130	125	92	75	3.4	2.5	8,000	800
	80		200	1.91	1.31	1.64	0.69	2.50	0.61	0.42	165	157	150	111	90	4.3	3.2	8,000	800
	80		300	1.91	1.75	2.19	0.93	3.34	0.64	0.63	221	211	202	149	121	6.1	4.6	8,000	800
	80		400	1.91	2.19	2.74	1.16	4.19	0.68	0.84	277	265	253	186	151	7.9	6.0	8,000	800
	80		500	1.91	2.63	3.29	1.39	5.03	0.72	1.05	334	318	305	224	181	9.7	7.5	8,000	800
	20		100	2.39	0.63	3.16	0.42	1.51	0.21	0.46	70	66	64	47	55	2.1	1.5	2,000	200
4 Months	20		150	2.87	0.65	3.25	0.52	1.87	0.21	0.68	84	80	77	57	67	2.6	2.0	2,000	200
Maturity = 0.6	20		200	2.87	0.83	4.17	0.66	2.39	0.22	0.91	106	101	97	71	86	3.4	2.7	2,000	200
(early maturing)	20		300	2.87	1.20	6.00	0.95	3.44	0.24	1.37	149	142	136	100	124	4.9	4.0	2,000	200
	30		200	2.39	1.20	3.99	0.79	2.86	0.31	0.91	125	119	114	84	103	3.7	3.0	3,000	300
	30		250	2.87	1.06	3.54	0.84	3.04	0.31	1.14	133	127	122	89	110	4.2	3.4	3,000	300
	30		300	2.87	1.25	4.15	0.99	3.57	0.32	1.37	155	148	141	104	129	4.9	4.0	3,000	300
	30		400	2.87	1.62	5.38	1.28	4.63	0.35	1.83	198	189	181	133	167	6.4	5.4	3,000	300
	40		250	2.39	1.50	3.76	1.00	3.60	0.40	1.14	155	148	142	104	130	4.6	3.8	4,000	400

	40	300	2.87	1.29	3.22	1.02	3.69	0.40	1.37	160	153	146	108	133	5.0	4.1	4,000	400
	40	400	2.87	1.66	4.15	1.32	4.76	0.43	1.83	204	195	186	137	172	6.4	5.4	4,000	400
	40	500	2.87	2.03	5.08	1.62	5.83	0.46	2.28	247	236	226	166	210	7.9	6.7	4,000	400
	50	250	2.39	1.55	3.10	1.03	3.71	0.47	1.14	161	154	147	108	134	4.6	3.8	5,000	500
	50	300	2.39	1.81	3.63	1.20	4.34	0.49	1.37	186	178	170	125	156	5.4	4.6	5,000	500
	50	400	2.87	1.70	3.41	1.35	4.88	0.51	1.83	209	200	191	141	176	6.5	5.4	5,000	500
	50	500	2.87	2.08	4.16	1.65	5.96	0.54	2.28	253	242	231	170	215	8.0	6.8	5,000	500
	50	600	2.87	2.45	4.91	1.95	7.04	0.58	2.74	297	283	271	199	254	9.5	8.1	5,000	500
	60	250	2.39	1.60	2.66	1.06	3.82	0.54	1.14	167	159	152	112	138	4.7	3.9	6,000	600
	60	300	2.39	1.86	3.10	1.23	4.45	0.57	1.37	192	183	175	129	160	5.5	4.6	6,000	600
	60	400	2.39	2.39	3.98	1.58	5.71	0.61	1.83	242	231	221	163	206	7.1	6.1	6,000	600
	60	500	2.87	2.12	3.54	1.69	6.08	0.62	2.28	259	247	236	174	219	8.0	6.8	6,000	600
	60	600	2.87	2.50	4.17	1.99	7.17	0.66	2.74	302	289	276	203	258	9.5	8.1	6,000	600
	70	150	1.91	1.81	2.59	0.96	3.46	0.59	0.68	152	145	139	102	125	3.7	3.1	7,000	700
	70	200	1.91	2.28	3.26	1.21	4.37	0.63	0.91	186	177	170	125	157	4.7	4.1	7,000	700
	70	300	2.39	1.91	2.72	1.26	4.55	0.63	1.37	197	188	180	133	164	5.5	4.7	7,000	700
	70	400	2.39	2.44	3.48	1.62	5.82	0.69	1.83	248	237	226	167	210	7.1	6.1	7,000	700
	70	500	2.87	2.16	3.09	1.72	6.20	0.70	2.28	264	252	241	178	224	8.0	6.8	7,000	700
	80	150	1.91	1.86	2.33	0.99	3.56	0.65	0.68	157	150	144	106	128	3.8	3.2	8,000	800
	80	200	1.91	2.34	2.92	1.24	4.47	0.69	0.91	192	183	175	129	161	4.8	4.1	8,000	800
	80	300	2.39	1.95	2.44	1.29	4.66	0.70	1.37	203	194	185	136	168	5.6	4.7	8,000	800
	80	400	2.39	2.48	3.10	1.65	5.94	0.76	1.83	253	242	231	170	214	7.2	6.2	8,000	800
	80	500	2.39	3.02	3.77	2.00	7.21	0.82	2.28	304	290	278	204	260	8.8	7.7	8,000	800
	20	100	2.39	0.59	2.94	0.39	1.41	0.41	0.30	73	70	67	49	51	2.2	1.5	2,000	200
8 Months	20	150	2.39	0.76	3.80	0.50	1.81	0.42	0.45	97	93	89	65	65	3.0	2.1	2,000	200
Maturity = 0.4	20	200	2.87	0.70	3.48	0.55	1.99	0.43	0.59	112	107	102	75	72	3.5	2.6	2,000	200
(late maturing)	20	300	2.87	0.94	4.70	0.75	2.69	0.45	0.89	156	149	142	105	97	5.0	3.8	2,000	200
	30	200	2.39	1.03	3.43	0.68	2.46	0.59	0.59	129	123	117	86	89	3.8	2.9	3,000	300
	30	250	2.87	0.90	3.01	0.72	2.59	0.59	0.74	141	135	129	95	93	4.4	3.3	3,000	300
	30	300	2.87	1.03	3.42	0.82	2.94	0.61	0.89	163	156	149	110	106	5.1	3.9	3,000	300
	30	400	2.87	1.27	4.25	1.01	3.66	0.64	1.19	207	198	189	139	132	6.6	5.1	3,000	300
	40	250	2.39	1.30	3.25	0.86	3.10	0.75	0.74	160	153	146	108	112	4.7	3.6	4,000	400
	40	300	2.39	1.48	3.69	0.98	3.53	0.77	0.89	184	176	168	124	127	5.5	4.3	4,000	400
	40	400	2.87	1.36	3.40	1.08	3.90	0.79	1.19	215	205	196	144	140	6.7	5.2	4,000	400
	40	500	2.87	1.61	4.03	1.28	4.62	0.83	1.48	259	247	237	174	167	8.2	6.4	4,000	400
	50	250	2.39	1.39	2.78	0.92	3.32	0.89	0.74	168	160	153	113	120	4.8	3.7	5,000	500
	50	300	2.39	1.57	3.13	1.04	3.74	0.92	0.89	192	183	175	129	135	5.6	4.4	5,000	500
	50	400	2.39	1.92	3.85	1.28	4.60	0.97	1.19	240	230	220	162	166	7.2	5.7	5,000	500
	50	500	2.87	1.69	3.39	1.35	4.86	0.98	1.48	266	254	243	179	175	8.3	6.5	5,000	500
	50	600	2.87	1.95	3.90	1.55	5.59	1.03	1.78	311	297	284	209	202	9.8	7.7	5,000	500
	60	250	1.91	2.32	3.87	1.23	4.44	1.08	0.74	208	198	190	140	160	5.7	4.6	6,000	600
	60	300	2.39	1.65	2.76	1.10	3.95	1.05	0.89	199	190	182	134	143	5.7	4.5	6,000	600
	60	400	2.39	2.02	3.36	1.34	4.82	1.11	1.19	248	237	226	167	174	7.3	5.8	6,000	600
	60	500	2.39	2.38	3.97	1.58	5.69	1.17	1.48	297	283	271	199	205	8.9	7.2	6,000	600
	60	600	2.87	2.03	3.39	1.62	5.83	1.18	1.78	318	304	290	214	210	9.9	7.8	6,000	600
	70	150	1.91	1.78	2.54	0.94	3.40	1.12	0.45	155	148	142	104	122	3.9	3.1	7,000	700
	70	200	1.91	2.10	3.01	1.12	4.02	1.17	0.59	185	177	169	125	145	4.8	3.9	7,000	700
	70	300	1.91	2.76	3.94	1.46	5.28	1.27	0.89	246	235	225	165	190	6.7	5.5	7,000	700
	70	400	2.39	2.11	3.01	1.40	5.03	1.25	1.19	255	244	233	171	181	7.4	5.9	7,000	700

TABLE 15-2 continued

Class/Age/Other	Body Weight[a] kg	Weight or Milk Yield[b] kg	Body Weight Gain[c,d] g/d	Energy Concentration in Diet[e] Kcal/kg	Daily Dry Matter Intake[f] kg	Daily Dry Matter Intake[f] % BW	Energy Requirements[g] TDN kg/d	ME Mcal/d	NEm Mcal/d	NEg Mcal/d	Protein Requirements[h] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[i] Ca g/d	P g/d	Vitamin Requirements[j] A RE/d	E IU/d
	70		500	2.39	2.47	3.53	1.64	5.91	1.31	1.48	304	290	278	204	213	9.0	7.2	7,000	700
	80		150	1.91	1.87	2.34	0.99	3.58	1.24	0.45	163	155	148	109	129	4.0	3.2	8,000	800
	80		200	1.91	2.20	2.75	1.17	4.21	1.29	0.59	193	184	176	130	152	4.9	4.0	8,000	800
	80		300	1.91	2.87	3.58	1.52	5.48	1.40	0.89	254	242	232	171	198	6.8	5.6	8,000	800
	80		400	2.39	2.19	2.74	1.45	5.24	1.38	1.19	262	250	239	176	189	7.5	6.0	8,000	800
	80		500	2.39	2.56	3.20	1.70	6.13	1.45	1.48	312	297	284	209	221	9.1	7.3	8,000	800
	20		100	2.87	0.65	3.27	0.52	1.88	0.45	0.54	68	65	62	46	68	2.0	1.5	2,000	200
8 Months	20		150	2.87	0.88	4.39	0.70	2.52	0.49	0.82	89	85	82	60	91	2.7	2.2	2,000	200
Maturity = 0.8	20		200	2.87	1.10	5.51	0.88	3.16	0.52	1.09	111	106	101	74	114	3.5	2.9	2,000	200
(early maturing)	20		300	2.87	1.55	7.75	1.23	4.45	0.59	1.63	153	146	140	103	160	4.9	4.3	2,000	200
	30		200	2.87	1.19	3.97	0.95	3.42	0.70	1.09	119	114	109	80	123	3.5	3.0	3,000	300
	30		250	2.87	1.42	4.73	1.13	4.07	0.75	1.36	140	134	128	94	147	4.3	3.7	3,000	300
	30		300	2.87	1.65	5.49	1.31	4.73	0.80	1.63	162	155	148	109	170	5.0	4.4	3,000	300
	30		400	2.87	2.10	7.02	1.67	6.04	0.89	2.18	205	196	187	138	218	6.5	5.8	3,000	300
	40		250	2.87	1.51	3.77	1.20	4.32	0.93	1.36	149	142	136	100	156	4.4	3.8	4,000	400
	40		300	2.87	1.74	4.34	1.38	4.98	0.99	1.63	170	163	155	114	180	5.1	4.5	4,000	400
	40		400	2.87	2.20	5.50	1.75	6.31	1.11	2.18	214	204	195	144	228	6.6	5.9	4,000	400
	40		500	2.87	2.67	6.66	2.12	7.64	1.22	2.72	257	245	235	173	276	8.1	7.3	4,000	400
	50		250	2.87	1.59	3.17	1.26	4.55	1.10	1.36	156	149	143	105	164	4.4	3.8	5,000	500
	50		300	2.87	1.82	3.64	1.45	5.23	1.17	1.63	178	170	163	120	188	5.2	4.5	5,000	500
	50		400	2.87	2.29	4.58	1.82	6.57	1.31	2.18	222	212	203	149	237	6.7	6.0	5,000	500
	50		500	2.87	2.76	5.53	2.20	7.92	1.45	2.72	266	254	243	179	286	8.1	7.4	5,000	500
	50		600	2.87	3.23	6.47	2.57	9.27	1.59	3.27	310	296	283	208	334	9.6	8.8	5,000	500
	60		250	2.39	2.23	3.72	1.48	5.33	1.26	1.36	164	156	150	110	192	5.0	4.5	6,000	600
	60		300	2.87	1.90	3.17	1.51	5.45	1.34	1.63	186	177	170	125	197	5.2	4.6	6,000	600
	60		400	2.87	2.38	3.96	1.89	6.82	1.50	2.18	230	220	210	155	246	6.7	6.0	6,000	600
	60		500	2.87	2.86	4.76	2.27	8.19	1.66	2.72	274	262	250	184	295	8.2	7.5	6,000	600
	60		600	2.87	3.33	5.56	2.65	9.56	1.82	3.27	319	304	291	214	345	9.7	8.9	6,000	600
	70		150	1.91	2.60	3.71	1.38	4.96	1.24	0.82	182	174	167	123	179	4.3	3.9	7,000	700
	70		200	2.39	1.98	2.83	1.31	4.74	1.33	1.09	169	161	154	113	171	4.3	3.7	7,000	700
	70		300	2.39	2.66	3.80	1.76	6.35	1.51	1.63	222	212	202	149	229	5.9	5.3	7,000	700
	70		400	2.87	2.46	3.52	1.96	7.06	1.69	2.18	238	227	217	160	255	6.8	6.1	7,000	700
	70		500	2.87	2.95	4.21	2.34	8.45	1.86	2.72	283	270	258	190	305	8.3	7.5	7,000	700
	80		150	1.91	2.70	3.38	1.43	5.17	1.37	0.82	191	182	174	128	186	4.4	4.0	8,000	800
	80		200	2.39	2.07	2.58	1.37	4.94	1.47	1.09	176	168	161	119	178	4.3	3.8	8,000	800
	80		300	2.39	2.75	3.44	1.82	6.57	1.67	1.63	230	219	210	154	237	6.0	5.4	8,000	800
	80		400	2.87	2.54	3.18	2.02	7.29	1.86	2.18	246	235	224	165	263	6.9	6.2	8,000	800
	80		500	2.87	3.03	3.79	2.41	8.69	2.06	2.72	291	277	265	195	313	8.4	7.6	8,000	800
Growing Rams																			
	20		100	1.91	0.60	2.98	0.32	1.14	0.23	0.21	77	74	70	52	41	2.3	1.5	2,000	200
4 Months	20		150	2.39	0.49	2.47	0.33	1.18	0.23	0.32	93	88	85	62	43	2.9	1.9	2,000	200
Maturity = 0.3	20		200	2.39	0.61	3.07	0.41	1.47	0.24	0.42	117	111	107	78	53	3.7	2.5	2,000	200
(late maturing)	20		300	2.87	0.63	3.13	0.50	1.79	0.24	0.63	156	149	143	105	65	5.1	3.5	2,000	200

	30	200	1.91	1.09	3.63	0.58	2.08	0.33	0.42	139	133	127	93	75	4.1	3.0	3,000	300
	30	250	2.39	0.79	2.62	0.52	1.88	0.33	0.53	147	140	134	98	68	4.5	3.2	3,000	300
	30	300	2.39	0.91	3.02	0.60	2.17	0.34	0.63	171	163	156	115	78	5.3	3.8	3,000	300
	30	400	2.39	1.15	3.82	0.76	2.74	0.35	0.84	219	209	200	147	99	6.9	5.0	3,000	300
	40	250	1.91	1.37	3.42	0.73	2.62	0.43	0.53	173	165	158	116	94	5.1	3.7	4,000	400
	40	300	1.91	1.58	3.96	0.84	3.03	0.44	0.63	201	192	183	135	109	6.0	4.5	4,000	400
	40	400	2.39	1.20	3.00	0.80	2.87	0.43	0.84	225	215	205	151	103	7.0	5.1	4,000	400
	40	500	2.39	1.44	3.60	0.96	3.45	0.45	1.05	273	261	249	184	124	8.6	6.3	4,000	400
	50	250	1.91	1.43	2.87	0.76	2.74	0.50	0.53	179	171	163	120	99	5.1	3.8	5,000	500
	50	300	1.91	1.65	3.30	0.87	3.15	0.52	0.63	207	198	189	139	114	6.0	4.5	5,000	500
	50	400	2.39	1.25	2.50	0.83	2.99	0.51	0.84	230	220	210	155	108	7.0	5.1	5,000	500
	50	500	2.39	1.50	2.99	0.99	3.57	0.54	1.05	279	266	255	187	129	8.7	6.4	5,000	500
	50	600	2.39	1.74	3.48	1.15	4.16	0.56	1.26	327	312	299	220	150	10.3	7.6	5,000	500
	60	250	1.91	1.49	2.49	0.79	2.85	0.58	0.53	185	176	169	124	103	5.2	3.9	6,000	600
	60	300	1.91	1.71	2.85	0.91	3.27	0.60	0.63	213	203	194	143	118	6.1	4.6	6,000	600
	60	400	1.91	2.15	3.58	1.14	4.11	0.63	0.84	269	257	246	181	148	7.9	6.0	6,000	600
	60	500	2.39	1.55	2.58	1.02	3.70	0.61	1.05	284	271	260	191	133	8.7	6.4	6,000	600
	60	600	2.39	1.79	2.99	1.19	4.28	0.64	1.26	333	318	304	224	154	10.3	7.7	6,000	600
	70	150	1.91	1.11	1.59	0.59	2.12	0.61	0.32	134	128	122	90	76	3.4	2.5	7,000	700
	70	200	1.91	1.33	1.90	0.71	2.54	0.63	0.42	162	155	148	109	92	4.3	3.2	7,000	700
	70	300	1.91	1.77	2.53	0.94	3.39	0.67	0.63	219	209	200	147	122	6.1	4.6	7,000	700
	70	400	1.91	2.21	3.16	1.17	4.23	0.71	0.84	275	263	251	185	152	7.9	6.1	7,000	700
	70	500	1.91	2.65	3.79	1.41	5.07	0.75	1.05	331	316	303	223	183	9.7	7.5	7,000	700
	80	150	1.91	1.16	1.45	0.62	2.22	0.67	0.32	140	133	127	94	80	3.5	2.5	8,000	800
	80	200	1.91	1.38	1.73	0.73	2.65	0.70	0.42	168	160	153	113	95	4.4	3.3	8,000	800
	80	300	1.91	1.83	2.28	0.97	3.49	0.74	0.63	224	214	205	151	126	6.2	4.7	8,000	800
	80	400	1.91	2.27	2.84	1.20	4.34	0.78	0.84	281	268	256	189	157	8.0	6.1	8,000	800
	80	500	1.91	2.72	3.39	1.44	5.19	0.83	1.05	337	322	308	227	187	9.8	7.6	8,000	800
	20	100	2.39	0.65	3.27	0.43	1.56	0.24	0.46	71	67	65	47	56	2.1	1.5	2,000	200
4 Months	20	150	2.87	0.67	3.34	0.53	1.92	0.25	0.68	85	81	78	57	69	2.7	2.0	2,000	200
Maturity = 0.6	20	200	2.87	0.85	4.26	0.68	2.44	0.26	0.91	107	102	98	72	88	3.4	2.7	2,000	200
(early maturing)	20	300	2.87	1.22	6.10	0.97	3.50	0.28	1.37	150	143	137	101	126	4.9	4.0	2,000	200
	30	200	2.87	0.90	3.00	0.72	2.58	0.35	0.91	113	108	103	76	93	3.5	2.7	3,000	300
	30	250	2.87	1.09	3.62	0.86	3.12	0.36	1.14	135	128	123	90	112	4.2	3.4	3,000	300
	30	300	2.87	1.27	4.24	1.01	3.65	0.37	1.37	156	149	143	105	132	4.9	4.1	3,000	300
	30	400	2.87	1.64	5.48	1.31	4.71	0.40	1.83	200	191	182	134	170	6.4	5.4	3,000	300
	40	250	2.39	1.54	3.86	1.02	3.69	0.46	1.14	157	150	144	106	133	4.6	3.8	4,000	400
	40	300	2.87	1.32	3.30	1.05	3.79	0.46	1.37	162	155	148	109	137	5.0	4.1	4,000	400
	40	400	2.87	1.70	4.24	1.35	4.86	0.50	1.83	206	196	188	138	175	6.5	5.4	4,000	400
	40	500	2.87	2.07	5.18	1.65	5.94	0.53	2.28	249	238	228	168	214	8.0	6.8	4,000	400
	50	250	2.39	1.60	3.20	1.06	3.82	0.54	1.14	164	156	149	110	138	4.7	3.9	5,000	500
	50	300	2.39	1.86	3.72	1.23	4.45	0.57	1.37	189	180	172	127	160	5.5	4.6	5,000	500
	50	400	2.87	1.74	3.49	1.39	5.00	0.59	1.83	212	202	193	142	180	6.5	5.5	5,000	500
	50	500	2.87	2.12	4.25	1.69	6.09	0.63	2.28	255	244	233	172	219	8.0	6.8	5,000	500
	50	600	2.87	2.50	5.00	1.99	7.17	0.67	2.74	299	286	273	201	259	9.5	8.1	5,000	500
	60	250	2.39	1.65	2.75	1.09	3.94	0.62	1.14	170	162	155	114	142	4.7	3.9	6,000	600
	60	300	2.39	1.92	3.19	1.27	4.58	0.65	1.37	195	186	178	131	165	5.5	4.7	6,000	600
	60	400	2.87	1.79	2.99	1.42	5.14	0.67	1.83	218	208	199	146	185	6.6	5.5	6,000	600
	60	500	2.87	2.17	3.62	1.73	6.23	0.72	2.28	261	250	239	176	225	8.1	6.9	6,000	600

TABLE 15-2 continued

Class/Age/Other	Body Weight[a] kg	Weight or Milk Yield[b] kg	Body Weight Gain[c,d] g/d	Energy Concentration in Diet[e] Kcal/kg	Daily Dry Matter Intake[f] kg	Daily Dry Matter Intake[f] % BW	Energy Requirements[g] TDN kg/d	ME Mcal/d	NEm Mcal/d	NEg Mcal/d	Protein Requirements[h] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[i] Ca g/d	P g/d	Vitamin Requirements[j] A RE/d	E IU/d
	60		600	2.87	2.55	4.26	2.03	7.32	0.76	2.74	305	292	279	205	264	9.5	8.2	6,000	600
	70		150	1.91	1.88	2.69	1.00	3.60	0.68	0.68	155	148	142	104	130	3.8	3.2	7,000	700
	70		200	1.91	2.36	3.37	1.25	4.51	0.72	0.91	190	181	173	127	163	4.8	4.1	7,000	700
	70		300	2.39	1.97	2.81	1.30	4.70	0.73	1.37	201	192	183	135	170	5.6	4.7	7,000	700
	70		400	2.39	2.50	3.58	1.66	5.98	0.79	1.83	251	240	229	169	216	7.2	6.2	7,000	700
	70		500	2.87	2.22	3.17	1.77	6.37	0.81	2.28	267	255	244	180	230	8.1	6.9	7,000	700
	80		150	1.91	1.94	2.43	1.03	3.71	0.75	0.68	161	154	147	108	134	3.8	3.2	8,000	800
	80		200	1.91	2.42	3.03	1.28	4.63	0.80	0.91	196	187	179	132	167	4.8	4.2	8,000	800
	80		300	2.39	2.02	2.52	1.34	4.82	0.81	1.37	206	197	189	139	174	5.6	4.8	8,000	800
	80		400	2.39	2.56	3.20	1.70	6.11	0.87	1.83	257	246	235	173	220	7.3	6.3	8,000	800
	80		500	2.39	3.10	3.87	2.05	7.40	0.94	2.28	308	294	281	207	267	8.9	7.8	8,000	800
	20		100	2.39	0.63	3.14	0.42	1.50	0.47	0.30	75	71	68	50	54	2.2	1.5	2,000	200
	20		150	2.39	0.80	4.00	0.53	1.91	0.48	0.45	99	94	90	66	69	3.0	2.2	2,000	200
8 Months	20		200	2.87	0.73	3.65	0.58	2.09	0.49	0.59	113	108	104	76	75	3.6	2.6	2,000	200
Maturity = 0.4	20		300	2.87	0.98	4.88	0.78	2.80	0.52	0.89	158	150	144	106	101	5.1	3.8	2,000	200
(late maturing)	30		200	2.39	1.09	3.62	0.72	2.60	0.68	0.59	131	125	120	88	94	3.9	2.9	3,000	300
	30		250	2.87	0.95	3.17	0.76	2.72	0.68	0.74	143	137	131	96	98	4.4	3.3	3,000	300
	30		300	2.87	1.08	3.59	0.86	3.08	0.70	0.89	166	158	151	111	111	5.2	3.9	3,000	300
	30		400	2.87	1.33	4.42	1.06	3.81	0.74	1.19	210	200	192	141	137	6.7	5.2	3,000	300
	40		250	2.39	1.37	3.43	0.91	3.28	0.87	0.74	164	156	149	110	118	4.8	3.7	4,000	400
	40		300	2.39	1.55	3.88	1.03	3.71	0.89	0.89	188	179	172	126	134	5.6	4.4	4,000	400
	40		400	2.87	1.42	3.56	1.13	4.08	0.91	1.19	218	208	199	146	147	6.8	5.2	4,000	400
	40		500	2.87	1.68	4.20	1.34	4.81	0.96	1.48	262	250	239	176	174	8.3	6.5	4,000	400
	50		250	2.39	1.47	2.95	0.98	3.52	1.02	0.74	171	164	157	115	127	4.9	3.8	5,000	500
	50		300	2.39	1.66	3.31	1.10	3.96	1.05	0.89	196	187	179	132	143	5.7	4.5	5,000	500
	50		400	2.87	1.51	3.03	1.20	4.34	1.08	1.19	225	215	206	151	156	6.9	5.3	5,000	500
	50		500	2.87	1.77	3.55	1.41	5.09	1.13	1.48	270	258	247	181	183	8.4	6.6	5,000	500
	50		600	2.87	2.03	4.07	1.62	5.83	1.18	1.78	315	300	287	212	210	9.9	7.8	5,000	500
	60		250	2.39	1.57	2.62	1.04	3.76	1.17	0.74	179	171	164	120	135	5.0	3.9	6,000	600
	60		300	2.39	1.76	2.93	1.16	4.20	1.21	0.89	204	194	186	137	151	5.8	4.6	6,000	600
	60		400	2.39	2.13	3.54	1.41	5.08	1.28	1.19	253	241	231	170	183	7.4	5.9	6,000	600
	60		500	2.87	1.86	3.11	1.48	5.34	1.30	1.48	278	265	253	187	193	8.5	6.7	6,000	600
	60		600	2.87	2.13	3.55	1.69	6.10	1.36	1.78	323	308	294	217	220	10.0	7.9	6,000	600
	70		150	1.91	1.91	2.73	1.01	3.66	1.29	0.45	161	154	147	108	132	4.0	3.2	7,000	700
	70		200	1.91	2.25	3.21	1.19	4.29	1.34	0.59	192	183	175	129	155	5.0	4.1	7,000	700
	70		300	2.39	1.85	2.65	1.23	4.43	1.36	0.89	211	202	193	142	160	5.9	4.7	7,000	700
	70		400	2.39	2.23	3.18	1.48	5.32	1.43	1.19	261	249	238	175	192	7.5	6.0	7,000	700
	70		500	2.39	2.60	3.72	1.72	6.22	1.51	1.48	310	296	283	208	224	9.1	7.4	7,000	700
	80		150	1.91	2.02	2.53	1.07	3.87	1.42	0.45	169	161	154	114	139	4.1	3.3	8,000	800
	80		200	1.91	2.36	2.95	1.25	4.51	1.49	0.59	200	191	182	134	163	5.1	4.2	8,000	800
	80		300	1.91	3.04	3.80	1.61	5.81	1.61	0.89	261	249	239	176	209	7.0	5.8	8,000	800
	80		400	2.39	2.33	2.91	1.54	5.56	1.58	1.19	268	256	245	180	200	7.6	6.1	8,000	800
	80		500	2.39	2.71	3.38	1.79	6.47	1.67	1.48	318	303	290	214	233	9.2	7.5	8,000	800

	20	100	2.87	0.69	3.44	0.55	1.98	0.49	0.54	70	67	64	47	71	2.0	1.5	2,000	200
8 Months	20	150	2.87	0.91	4.57	0.73	2.62	0.51	0.82	91	87	83	61	95	2.8	2.2	2,000	200
Maturity = 0.8	20	200	2.87	1.14	5.70	0.91	3.27	0.53	1.09	113	108	103	76	118	3.5	2.9	2,000	200
(early maturing)	20	300	2.87	1.59	7.96	1.27	4.57	0.58	1.63	156	149	142	105	165	5.0	4.3	2,000	200
	30	200	2.87	1.24	4.14	0.99	3.57	0.72	1.09	122	116	111	82	129	3.6	3.0	3,000	300
	30	250	2.87	1.47	4.91	1.17	4.23	0.76	1.36	143	137	131	96	152	4.3	3.7	3,000	300
	30	300	2.87	1.70	5.68	1.36	4.89	0.79	1.63	165	158	151	111	176	5.1	4.4	3,000	300
	30	400	2.87	2.16	7.22	1.72	6.21	0.85	2.18	208	199	190	140	224	6.5	5.8	3,000	300
	40	250	2.87	1.57	3.93	1.25	4.51	0.94	1.36	152	145	139	102	163	4.4	3.8	4,000	400
	40	300	2.87	1.81	4.52	1.44	5.18	0.98	1.63	174	166	159	117	187	5.2	4.5	4,000	400
	40	400	2.87	2.28	5.69	1.81	6.53	1.06	2.18	218	208	199	146	235	6.6	5.9	4,000	400
	40	500	2.87	2.75	6.86	2.18	7.87	1.14	2.72	262	250	239	176	284	8.1	7.4	4,000	400
	50	250	2.87	1.66	3.33	1.32	4.78	1.11	1.36	161	153	147	108	172	4.5	3.9	5,000	500
	50	300	2.87	1.90	3.81	1.51	5.46	1.16	1.63	183	174	167	123	197	5.2	4.6	5,000	500
	50	400	2.87	2.38	4.76	1.89	6.83	1.25	2.18	227	217	207	153	246	6.7	6.0	5,000	500
	50	500	2.87	2.86	5.72	2.27	8.20	1.35	2.72	271	259	248	182	296	8.2	7.5	5,000	500
	50	600	2.87	3.34	6.67	2.65	9.57	1.45	3.27	315	301	288	212	345	9.7	8.9	5,000	500
	60	250	2.39	2.34	3.90	1.55	5.60	1.32	1.36	169	161	154	113	202	5.1	4.6	6,000	600
	60	300	2.87	2.00	3.33	1.59	5.72	1.33	1.63	191	182	175	128	206	5.3	4.7	6,000	600
	60	400	2.87	2.48	4.13	1.97	7.11	1.44	2.18	236	225	215	158	256	6.8	6.1	6,000	600
	60	500	2.87	2.97	4.94	2.36	8.50	1.55	2.72	280	268	256	188	307	8.3	7.6	6,000	600
	60	600	2.87	3.45	5.75	2.74	9.90	1.66	3.27	325	310	297	218	357	9.8	9.0	6,000	600
	70	150	1.91	2.75	3.92	1.46	5.25	1.43	0.82	190	181	173	128	189	4.4	4.0	7,000	700
	70	200	2.39	2.10	3.00	1.39	5.02	1.41	1.09	175	167	160	118	181	4.4	3.9	7,000	700
	70	300	2.39	2.79	3.98	1.85	6.67	1.55	1.63	228	218	209	154	240	6.1	5.5	7,000	700
	70	400	2.87	2.58	3.68	2.05	7.39	1.61	2.18	244	233	223	164	266	6.9	6.2	7,000	700
	70	500	2.87	3.07	4.38	2.44	8.80	1.74	2.72	289	276	264	194	317	8.4	7.7	7,000	700
	80	150	1.91	2.87	3.59	1.52	5.49	1.58	0.82	199	190	182	134	198	4.5	4.1	8,000	800
	80	200	2.39	2.20	2.75	1.46	5.26	1.56	1.09	183	175	167	123	189	4.5	3.9	8,000	800
	80	300	2.39	2.90	3.62	1.92	6.92	1.71	1.63	237	226	217	159	249	6.2	5.6	8,000	800
	80	400	2.87	2.67	3.33	2.12	7.65	1.78	2.18	253	241	231	170	276	7.0	6.3	8,000	800
	80	500	2.87	3.17	3.96	2.52	9.08	1.92	2.72	298	285	272	200	327	8.5	7.8	8,000	800
Yearling Farm Ewes																		
Maintenance plus growth																		
	40	40	2.39	1.18	2.94	0.78	2.81	1.43	0.23	97	93	89	65	101	3.1	1.7	2,140	224
Age = 1.0 yr	50	50	2.39	1.43	2.85	0.95	3.41	1.72	0.29	117	112	107	79	123	3.7	2.1	2,675	280
Maturity = 0.87	60	60	2.39	1.67	2.78	1.11	3.99	2.00	0.34	137	131	125	92	144	4.2	2.5	3,210	336
	70	70	2.39	1.91	2.73	1.27	4.56	2.27	0.40	156	149	143	105	165	4.8	2.9	3,745	392
	80	80	2.39	2.15	2.68	1.42	5.13	2.54	0.46	176	168	161	118	185	5.3	3.3	4,280	448
	90	90	2.39	2.38	2.64	1.58	5.68	2.80	0.51	195	186	178	131	205	5.9	3.7	4,815	504
	100	100	2.39	2.61	2.61	1.73	6.23	3.05	0.57	214	204	195	144	225	6.4	4.1	5,350	560
	120	120	2.39	3.06	2.55	2.03	7.31	3.56	0.68	252	240	230	169	263	7.4	4.8	6,420	672
Breeding																		
	40	60	2.39	1.28	3.20	0.85	3.06	1.59	0.23	110	105	100	74	110	3.6	2.1	2,140	224
Age = 0.6	50	74	2.39	1.55	3.10	1.03	3.70	1.91	0.29	132	126	121	89	133	4.3	2.5	2,675	280
Maturity = 0.7	60	88	2.39	1.81	3.02	1.20	4.33	2.22	0.34	154	147	141	104	156	4.9	3.0	3,210	336
	70	101	2.39	2.07	2.96	1.37	4.95	2.52	0.40	176	168	161	118	178	5.6	3.4	3,745	392
	80	115	2.39	2.32	2.91	1.54	5.56	2.81	0.46	198	189	181	133	200	6.2	3.9	4,280	448
	90	129	2.39	2.58	2.86	1.71	6.15	3.10	0.51	219	209	200	147	222	6.8	4.4	4,815	504

TABLE 15-2 continued

Class/Age/Other	Body Weight[a] kg	Weight or Milk Yield[b] kg	Body Weight Gain[c,d] g/d	Energy Concentration in Diet[e] Kcal/kg	Daily Dry Matter Intake[f] kg	Daily Dry Matter Intake[f] % BW	Energy Requirements[g] TDN kg/d	ME Mcal/d	NEm Mcal/d	NEg Mcal/d	Protein Requirements[h] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[i] Ca g/d	P g/d	Vitamin Requirements[j] A RE/d	E IU/d
	100		143	2.39	2.82	2.82	1.87	6.75	3.39	0.57	241	230	220	162	243	7.5	4.8	5,350	560
	120		170	2.39	3.31	2.76	2.19	7.91	3.94	0.68	283	270	258	190	285	8.7	5.7	6,420	672
Early gestation (Single lamb; BW = 3.5 to 6.3 kg)																			
	40	3.5	58	2.39	1.33	3.33	0.88	3.19	1.43	0.23	116	111	106	78	115	4.4	2.8	1,256	212
	50	3.9	71	2.39	1.60	3.20	1.06	3.83	1.72	0.29	138	132	126	93	138	5.1	3.3	1,570	265
	60	4.3	84	2.39	1.86	3.11	1.24	4.45	2.00	0.34	160	153	146	108	161	5.8	3.8	1,884	318
	70	4.7	97	2.39	2.12	3.03	1.41	5.07	2.27	0.40	182	174	166	122	183	6.5	4.3	2,198	371
	80	5.0	110	2.39	2.37	2.96	1.57	5.66	2.54	0.46	203	194	185	136	204	7.1	4.8	2,512	424
	90	5.4	123	2.39	2.62	2.91	1.74	6.26	2.80	0.51	224	214	205	151	226	7.8	5.3	2,826	477
	100	5.7	135	2.39	2.86	2.86	1.90	6.84	3.06	0.57	245	234	223	164	247	8.4	5.8	3,140	530
	120	6.3	161	2.39	3.34	2.78	2.21	7.99	3.57	0.68	286	273	261	192	288	9.6	6.8	3,768	636
Early gestation (Twin lambs; BW = 3.1 to 5.5 kg)																			
	40	3.1	70	2.87	1.15	2.88	0.91	3.30	1.37	0.23	120	114	109	81	119	5.5	3.2	1,256	212
	50	3.4	85	2.39	1.73	3.46	1.15	4.13	1.72	0.29	155	148	141	104	149	6.7	4.1	1,570	265
	60	3.8	100	2.39	2.01	3.35	1.33	4.80	2.00	0.34	179	171	163	120	173	7.6	4.8	1,884	318
	70	4.1	146	2.39	2.28	3.25	1.51	5.44	2.27	0.40	202	192	184	135	196	8.9	5.7	2,198	371
	80	4.4	110	2.39	2.54	3.17	1.68	6.06	2.54	0.46	224	214	205	151	219	9.0	5.7	2,512	424
	90	4.7	123	2.39	2.80	3.11	1.85	6.68	2.80	0.51	247	235	225	166	241	9.7	6.3	2,826	477
	100	5.0	135	2.39	3.05	3.05	2.02	7.30	3.06	0.57	269	257	246	181	263	10.5	6.8	3,140	530
	120	5.5	161	2.39	3.55	2.96	2.35	8.48	3.57	0.68	312	298	285	210	306	11.9	7.9	3,768	636
Early gestation (Three lambs; BW = 2.6 to 4.7 kg)																			
	40	2.6	79	2.87	1.21	3.02	0.96	3.47	1.37	0.23	128	123	117	86	125	6.4	3.6	1,256	212
	50	2.9	96	2.87	1.44	2.87	1.14	4.12	1.65	0.29	151	144	138	101	148	7.3	4.3	1,570	265
	60	3.2	112	2.39	2.10	3.50	1.39	5.01	2.00	0.34	190	181	174	128	181	8.8	5.4	1,884	318
	70	3.5	129	2.39	2.38	3.40	1.58	5.68	2.27	0.40	215	205	196	144	205	9.8	6.1	2,198	371
	80	3.8	145	2.39	2.65	3.32	1.76	6.34	2.54	0.46	239	228	218	160	229	10.7	6.7	2,512	424
	90	4.0	161	2.39	2.91	3.23	1.93	6.96	2.80	0.51	261	249	239	176	251	11.5	7.3	2,826	477
	100	4.3	177	2.39	3.18	3.18	2.11	7.60	3.06	0.57	285	272	260	192	274	12.5	8.0	3,140	530
	120	4.7	208	2.39	3.69	3.07	2.44	8.81	3.57	0.68	329	314	301	221	318	14.1	9.2	3,768	636
Late gestation (Single lamb; BW = 3.5 to 6.3 kg)																			
	40	3.5	111	2.87	1.20	3.01	0.96	3.45	1.37	0.23	128	122	117	86	124	5.8	3.4	1,820	224
	50	3.9	134	2.87	1.43	2.86	1.14	4.10	1.65	0.29	150	143	137	101	148	6.7	4.0	2,275	280
	60	4.3	157	2.39	2.09	3.48	1.38	4.99	2.00	0.34	189	181	173	127	180	8.1	5.1	2,730	336
	70	4.7	179	2.39	2.37	3.38	1.57	5.65	2.27	0.40	214	204	195	144	204	9.0	5.8	3,185	392
	80	5.0	200	2.39	2.63	3.29	1.74	6.29	2.54	0.46	237	226	216	159	227	9.8	6.4	3,640	448
	90	5.4	221	2.39	2.90	3.22	1.92	6.93	2.80	0.51	261	249	238	175	250	10.7	7.0	4,095	504
	100	5.7	242	2.39	3.16	3.16	2.09	7.55	3.06	0.57	283	270	259	190	272	11.6	7.6	4,550	560
	120	6.3	283	2.39	3.67	3.06	2.43	8.77	3.56	0.68	328	313	300	221	316	13.2	8.8	5,460	672

Late gestation (Twin lambs; BW = 3.1 to 5.5 kg)

40	3.1	159	2.87	1.42	3.55	1.13	4.07	1.37	0.23	159	151	145	107	147	8.5	4.8	1,820	224
50	3.4	191	2.87	1.66	3.32	1.32	4.76	1.65	0.29	183	175	168	123	172	9.7	5.6	2,275	280
60	3.8	221	2.87	1.91	3.19	1.52	5.49	1.91	0.34	210	201	192	141	198	11.0	6.4	2,730	336
70	4.1	251	2.87	2.15	3.07	1.71	6.16	2.17	0.40	235	224	214	158	222	12.1	7.1	3,185	392
80	4.4	280	2.87	2.38	2.97	1.89	6.81	2.42	0.46	259	247	236	174	246	13.1	7.9	3,640	448
90	4.7	308	2.87	2.60	2.89	2.07	7.46	2.67	0.51	283	270	258	190	269	14.2	8.6	4,095	504
100	5.0	336	2.87	2.83	2.83	2.25	8.11	2.91	0.57	307	293	280	206	292	15.3	9.3	4,550	560
120	5.5	391	2.39	4.12	3.44	2.73	9.85	3.56	0.68	385	367	352	259	355	18.3	11.7	5,460	672

Late gestation (Three lambs; BW = 2.6 to 4.7 kg)

40	2.6	195	2.87	1.55	3.87	1.23	4.44	1.37	0.23	177	169	162	119	160	10.3	5.7	1,820	224
50	2.9	233	2.87	1.81	3.63	1.44	5.20	1.65	0.29	205	196	188	138	188	11.7	6.7	2,275	280
60	3.2	270	2.87	2.07	3.46	1.65	5.95	1.91	0.34	233	223	213	157	215	13.2	7.6	2,730	336
70	3.5	305	2.87	2.33	3.33	1.85	6.69	2.17	0.40	261	249	238	175	241	14.6	8.5	3,185	392
80	3.8	340	2.87	2.58	3.23	2.06	7.41	2.42	0.46	289	276	264	194	267	16.0	9.4	3,640	448
90	4.0	374	2.87	2.81	3.12	2.24	8.06	2.67	0.51	313	298	285	210	291	17.1	10.2	4,095	504
100	4.3	407	2.87	3.06	3.06	2.43	8.78	2.91	0.57	340	324	310	228	316	18.5	11.1	4,550	560
120	4.7	472	2.87	3.50	2.92	2.79	10.05	3.39	0.68	387	370	354	260	362	20.7	12.6	5,460	672

Lactation; early, mid-, and late lactation for yearlings in farm flocks nursing 1, 2, or 3 lambs are in Table 15-1.

Yearling Range Ewes

Maintenance plus growth

Age = 2 yr	40	40	2.39	1.18	2.94	0.78	2.81	1.43	0.23	97	93	89	65	101	3.1	1.7	1,256	212
Maturity = 0.94	50	50	2.39	1.43	2.85	0.95	3.41	1.72	0.29	117	112	107	79	123	3.7	2.1	1,570	265
	60	60	2.39	1.67	2.78	1.11	3.99	2.00	0.34	137	131	125	92	144	4.2	2.5	1,884	318
	70	70	2.39	1.91	2.73	1.27	4.56	2.27	0.40	156	149	143	105	165	4.7	2.9	2,198	371
	80	80	2.39	2.15	2.68	1.42	5.13	2.54	0.46	176	168	161	118	185	5.3	3.3	2,512	424
	90	90	2.39	2.38	2.64	1.58	5.68	2.80	0.51	195	186	178	131	205	5.8	3.7	2,826	477
	100	100	2.39	2.61	2.61	1.73	6.23	3.05	0.57	214	204	195	144	225	6.3	4.1	3,140	530
	120	120	2.39	3.06	2.55	2.03	7.31	3.56	0.68	252	240	230	169	263	7.4	4.8	3,768	636

Breeding

	40	60	2.39	1.26	3.15	0.83	3.01	1.56	0.23	110	105	101	74	109	3.6	2.0	1,256	212
Age = 1.5	50	74	2.39	1.53	3.05	1.01	3.65	1.87	0.29	133	127	122	90	131	4.2	2.5	1,570	265
Maturity = 0.9	60	88	2.39	1.79	2.98	1.18	4.27	2.17	0.34	156	149	142	105	154	4.9	3.0	1,884	318
	70	101	2.39	2.04	2.92	1.35	4.88	2.47	0.40	178	170	162	119	176	5.5	3.4	2,198	371
	80	115	2.39	2.29	2.87	1.52	5.48	2.76	0.46	200	191	182	134	197	6.1	3.9	2,512	424
	90	129	2.39	2.54	2.82	1.68	6.07	3.05	0.51	221	211	202	149	219	6.8	4.3	2,826	477
	100	143	2.39	2.78	2.78	1.84	6.65	3.33	0.57	243	232	222	163	240	7.4	4.8	3,140	530
	120	170	2.39	3.26	2.72	2.16	7.80	3.88	0.68	285	272	261	192	281	8.6	5.6	3,768	636

Early gestation (Single lamb; BW = 3.5 to 6.3 kg)

40	3.5	58	2.39	1.32	3.29	0.87	3.15	1.41	0.23	117	112	107	79	113	4.4	2.7	1,256	212
50	3.9	71	2.39	1.58	3.16	1.05	3.78	1.69	0.29	139	133	127	94	136	5.1	3.3	1,570	265
60	4.3	84	2.39	1.84	3.07	1.22	4.40	1.96	0.34	161	154	147	108	159	5.7	3.8	1,884	318
70	4.7	97	2.39	2.09	2.99	1.39	5.00	2.23	0.40	183	175	167	123	180	6.4	4.3	2,198	371
80	5.0	110	2.39	2.34	2.93	1.55	5.59	2.50	0.46	204	195	186	137	202	7.0	4.8	2,512	424
90	5.4	123	2.39	2.59	2.87	1.71	6.18	2.75	0.51	226	215	206	152	223	7.7	5.3	2,826	477
100	5.7	135	2.39	2.83	2.83	1.87	6.76	3.01	0.57	246	235	225	166	244	8.3	5.8	3,140	530
120	6.3	161	2.39	3.30	2.75	2.19	7.89	3.50	0.68	288	274	263	193	284	9.5	6.7	3,768	636

TABLE 15-2 continued

Class/Age/Other	Body Weight[a] kg	Weight or Milk Yield[b] kg	Body Weight Gain[c,d] g/d	Energy Concentration in Diet[e] Kcal/kg	Daily Dry Matter Intake[f] kg	Daily Dry Matter Intake[f] % BW	Energy Requirements[g] TDN kg/d	ME Mcal/d	NEm Mcal/d	NEg Mcal/d	Protein Requirements[h] CP @20% UIP g/d	CP @40% UIP g/d	CP @60% UIP g/d	MP g/d	DIP g/d	Macro Mineral Requirements[i] Ca g/d	P g/d	Vitamin Requirements[j] A RE/d	E IU/d
Early gestation (Twin lambs; BW = 3.1 to 5.5 kg)																			
	40	3.1	70	2.87	1.14	2.84	0.90	3.26	1.35	0.23	120	115	110	81	117	5.5	3.2	1,256	212
	50	3.4	85	2.39	1.71	3.42	1.13	4.08	1.69	0.29	156	148	142	104	147	6.7	4.1	1,570	265
	60	3.8	100	2.39	1.99	3.31	1.32	4.75	1.96	0.34	180	172	164	121	171	7.6	4.7	1,884	318
	70	4.1	115	2.39	2.25	3.21	1.49	5.37	2.23	0.40	203	194	185	136	194	8.4	5.3	2,198	371
	80	4.4	130	2.39	2.51	3.14	1.66	5.99	2.50	0.46	226	215	206	152	216	9.1	5.9	2,512	424
	90	4.7	145	2.39	2.76	3.07	1.83	6.61	2.75	0.51	248	237	227	167	238	9.9	6.5	2,826	477
	100	5.0	159	2.39	3.02	3.02	2.00	7.21	3.01	0.57	271	258	247	182	260	10.7	7.1	3,140	530
	120	5.5	188	2.39	3.51	2.92	2.33	8.39	3.50	0.68	314	300	287	211	302	12.1	8.1	3,768	636
Early gestation (Three lambs; BW = 2.6 to 4.7 kg)																			
	40	2.6	79	2.87	1.19	2.99	0.95	3.43	1.35	0.23	129	123	118	87	124	6.4	3.6	1,256	212
	50	2.9	96	2.87	1.42	2.84	1.13	4.07	1.62	0.29	152	145	139	102	147	7.3	4.2	1,570	265
	60	3.2	112	2.39	2.07	3.46	1.37	4.96	1.96	0.34	191	182	174	128	179	8.7	5.4	1,884	318
	70	3.5	129	2.39	2.35	3.36	1.56	5.62	2.23	0.40	216	206	197	145	203	9.7	6.0	2,198	371
	80	3.8	145	2.39	2.62	3.28	1.74	6.27	2.50	0.46	240	229	219	161	226	10.6	6.7	2,512	424
	90	4.0	161	2.39	2.88	3.20	1.91	6.88	2.75	0.51	263	251	240	177	248	11.4	7.3	2,826	477
	100	4.3	177	2.39	3.15	3.15	2.08	7.52	3.01	0.57	287	274	262	193	271	12.3	7.9	3,140	530
	120	4.7	208	2.39	3.65	3.04	2.42	8.71	3.50	0.68	331	316	303	223	314	13.9	9.1	3,768	636
Late gestation (Single lamb; BW = 3.5 to 6.3 kg)																			
	40	3.5	111	2.87	1.19	2.97	0.94	3.41	1.34	0.23	128	122	116	86	123	5.8	3.3	1,820	224
	50	3.9	134	2.87	1.41	2.82	1.12	4.04	1.61	0.29	150	143	137	101	146	6.6	4.0	2,275	280
	60	4.3	157	2.39	2.06	3.44	1.37	4.93	1.96	0.34	189	180	173	127	178	8.0	5.1	2,730	336
	70	4.7	179	2.39	2.34	3.34	1.55	5.59	2.23	0.40	213	204	195	143	201	8.9	5.7	3,185	392
	80	5.0	200	2.39	2.60	3.25	1.72	6.21	2.49	0.46	236	226	216	159	224	9.7	6.3	3,640	448
	90	5.4	221	2.39	2.87	3.19	1.90	6.85	2.75	0.51	261	249	238	175	247	10.6	7.0	4,095	504
	100	5.7	242	2.39	3.12	3.12	2.07	7.46	3.00	0.57	283	270	259	190	269	11.4	7.6	4,550	560
	120	6.3	283	2.39	3.63	3.02	2.40	8.67	3.50	0.68	328	313	300	221	312	13.0	8.8	5,460	672
Late gestation (Twin lambs; BW = 3.1 to 5.5 kg)																			
	40	3.1	159	2.87	1.40	3.51	1.12	4.03	1.34	0.23	159	151	145	107	145	8.5	4.8	1,820	224
	50	3.4	191	2.87	1.64	3.29	1.31	4.71	1.61	0.29	183	175	167	123	170	9.6	5.5	2,275	280
	60	3.8	221	2.87	1.89	3.16	1.51	5.43	1.87	0.34	210	201	192	141	196	10.9	6.4	2,730	336
	70	4.1	251	2.87	2.12	3.03	1.69	6.09	2.13	0.40	235	224	214	158	219	11.9	7.1	3,185	392
	80	4.4	280	2.87	2.35	2.94	1.87	6.74	2.37	0.46	259	247	236	174	243	13.0	7.8	3,640	448
	90	4.7	308	2.87	2.57	2.86	2.05	7.38	2.62	0.51	283	270	258	190	266	14.1	8.6	4,095	504
	100	5.0	336	2.87	2.80	2.80	2.22	8.02	2.85	0.57	307	293	280	206	289	15.1	9.3	4,550	560
	120	5.5	391	2.39	4.08	3.40	2.70	9.75	3.50	0.68	385	367	31	259	352	18.1	11.6	5,460	672

Late gestation (Three lambs; BW = 2.6 to 4.7 kg)

40	2.6	195	2.87	1.53	3.83	1.22	4.40	1.34	0.23	177	169	162	119	159	10.2	5.7	1,820	224
50	2.9	233	2.87	1.80	3.59	1.43	5.15	1.61	0.29	205	196	187	138	186	11.6	6.6	2,275	280
60	3.2	270	2.87	2.05	3.42	1.63	5.89	1.87	0.34	233	223	213	157	212	13.0	7.6	2,730	336
70	3.5	305	2.87	2.31	3.30	1.84	6.62	2.13	0.40	261	249	238	175	239	14.4	8.5	3,185	392
80	3.8	340	2.87	2.56	3.20	2.04	7.34	2.37	0.46	289	275	263	194	265	15.8	9.4	3,640	448
90	4.0	374	2.87	2.78	3.09	2.21	7.98	2.62	0.51	313	298	285	210	288	17.0	10.1	4,095	504
100	4.3	407	2.87	3.03	3.03	2.41	8.69	2.85	0.57	340	324	310	228	313	18.3	11.0	4,550	560
120	4.7	472	2.87	3.47	2.89	2.76	9.94	3.32	0.68	387	370	354	260	359	20.5	12.5	5,460	672

Lactation; early, mid-, and late lactation for yearlings in range flocks nursing 1, 2, or 3 lambs are in Table 15-1.

[a]Body weight used in estimating requirements is the determined or estimated weight in kilograms (kg) average for the period during which these requirements will be applied.
[b]Birth weight (kg) of single and average of multiple lambs or liquid milk yield (kg/d).
[c]Average change in body weight over a 24-hour period.
[d]Body weight change in yearling ewes includes both weight gain associated with growth toward maturity and weight change related to breeding, pregnancy, and lactation.
[e]Three hypothetical diets with increasing energy concentrations (1.91, 2.34, and 2.87 Kcal/kg) were used in the calculations of intake and nutrient requirements. For each line entry, a diet was selected to represent the level of energy concentration that approximates that needed by the animal to achieve adequate intake to satisfy its energy requirement.
[f]The daily dry matter intake, expressed as kg or as percentage of body weight, of a diet having the indicated energy concentration (previous column) that is required to meet energy requirements. These energy concentrations should be viewed only as examples. In some cases, diets having greater or lesser concentrations of energy would be more appropriate.
[g]Energy requirements expressed as total digestible nutrients (TDN) in kg/d and metabolizable energy (ME), net energy for maintenance (NEm), and net energy for gain (NEg) as Kcal/d.
[h]Protein requirements expressed as crude protein (CP), metabolizable protein (MP), and degradable intake protein (DIP). The CP requirement differs with the proportion of undegradable intake protein (UIP) because of the required minimal DIP.
[i]Two macro minerals, calcium (Ca) and phosphorus (P), commonly considered in balancing diets are included. Often, the balance (ratio) of the two minerals also is of concern.
[j]Two fat-soluble vitamins, A and E, that often are deficient in animal diets are expressed as retinal equivalents (RE) and international units (IU) for vitamins A and E, respectively. Retinal equivalent (RE) = 1 µg of all-trans retinol, 5.0 µg of all-trans betacarotene, and 7.6 µg of other carotenoids.

TABLE 15-3 Mineral Requirements of Sheep[a]

Class/Stage/Other	Body Weight[b] kg	Body Weight Gain[c] g/d	Dry Matter Intake[d] kg/d	Na g/d	Cl g/d	K g/d	Mg g/d	S g/d	Co mg/d	Cu[e] mg/d	I mg/d	Fe mg/d	Mn mg/d	Se[f] mg/d	Se[g] mg/d	Zn[h] mg/d
Growing Lambs and Yearlings (Rams, ewes, castrates)																
	20	100	0.63	0.4	0.3	2.9	0.6	1.1	0.13	3.1	0.3	32	12	0.09	0.18	13
	20	150	0.74	0.4	0.3	3.3	0.7	1.3	0.15	4.0	0.4	46	15	0.13	0.27	17
	20	200	0.82	0.5	0.4	3.6	0.8	1.5	0.16	4.9	0.4	61	18	0.18	0.35	21
	20	300	1.09	0.6	0.5	4.6	1.1	2.0	0.22	6.6	0.5	90	24	0.26	0.52	29
	30	200	1.10	0.6	0.5	4.8	1.0	2.0	0.22	5.5	0.5	62	21	0.18	0.36	24
	30	250	1.05	0.7	0.5	4.8	1.1	1.9	0.21	6.4	0.5	77	24	0.22	0.44	28
	30	300	1.22	0.7	0.6	5.4	1.3	2.2	0.24	7.3	0.6	91	27	0.26	0.53	32
	30	400	1.55	0.8	0.7	6.5	1.5	2.8	0.31	9.1	0.8	120	33	0.35	0.69	40
	40	250	1.44	0.8	0.6	6.3	1.3	2.6	0.29	7.1	0.7	78	26	0.23	0.45	45
	40	300	1.54	0.8	0.7	6.7	1.4	2.8	0.31	8.0	0.8	92	29	0.27	0.53	51
	40	400	1.62	1.0	0.7	7.2	1.7	2.9	0.32	9.7	0.8	121	36	0.35	0.70	63
	40	500	1.96	1.1	0.8	8.3	1.9	3.5	0.39	11.5	1.0	150	42	0.43	0.87	75
	50	250	1.51	0.9	0.7	7.0	1.5	2.7	0.30	7.8	0.8	79	29	0.23	0.46	49
	50	300	1.73	1.0	0.7	7.7	1.6	3.1	0.35	8.6	0.9	94	32	0.27	0.54	55
	50	400	1.75	1.1	0.8	8.0	1.8	3.2	0.35	10.4	0.9	123	38	0.35	0.71	67
	50	500	2.03	1.2	0.9	9.0	2.1	3.7	0.41	12.2	1.0	152	45	0.44	0.88	79
	50	600	2.37	1.3	1.0	10.1	2.3	4.3	0.47	13.9	1.2	181	51	0.52	1.04	91
	60	250	1.83	1.0	0.8	8.3	1.7	3.3	0.37	8.4	0.9	81	32	0.23	0.47	53
	60	300	1.81	1.1	0.8	8.3	1.8	3.2	0.36	9.3	0.9	95	35	0.28	0.55	59
	60	400	2.18	1.2	0.9	9.6	2.0	3.9	0.44	11.1	1.1	124	41	0.36	0.72	71
	60	500	2.17	1.3	1.0	9.8	2.3	3.9	0.43	12.8	1.1	153	47	0.44	0.88	83
	60	600	2.44	1.4	1.1	10.8	2.5	4.4	0.49	14.6	1.2	182	54	0.53	1.05	95
	70	150	1.86	1.0	0.8	8.6	1.6	3.3	0.37	7.3	0.9	53	28	0.15	0.31	45
	70	200	1.96	1.1	0.8	9.0	1.7	3.5	0.39	8.2	1.0	68	31	0.20	0.39	51
	70	300	2.18	1.2	0.9	9.8	2.0	3.9	0.44	10.0	1.1	97	37	0.28	0.56	63
	70	400	2.33	1.3	1.0	10.5	2.2	4.2	0.47	11.7	1.2	126	44	0.36	0.73	75
	70	500	2.59	1.4	1.1	11.4	2.4	4.7	0.52	13.5	1.3	155	50	0.45	0.89	87
	80	150	1.94	1.1	0.9	9.3	1.8	3.5	0.39	8.0	1.0	55	31	0.16	0.32	48
	80	200	2.04	1.2	0.9	9.7	1.9	3.7	0.41	8.9	1.0	69	34	0.20	0.40	54
	80	300	2.39	1.3	1.0	10.9	2.1	4.3	0.48	10.6	1.2	98	40	0.28	0.57	66
	80	400	2.40	1.4	1.1	11.1	2.4	4.3	0.48	12.4	1.2	127	46	0.37	0.73	78
	80	500	2.87	1.6	1.2	12.7	2.6	5.2	0.57	14.2	1.4	156	53	0.45	0.90	90
Yearling Ewes (Farm and range flocks)																
Maintenance, only																
	40	0	0.81	0.5	0.4	4.0	0.7	1.3	0.08	2.7	0.4	6	11	0.02	0.03	20
	60	0	1.10	0.7	0.6	5.7	1.1	1.8	0.11	4.0	0.5	8	16	0.03	0.05	30
	80	0	1.36	0.9	0.7	7.3	1.4	2.2	0.14	5.3	0.7	11	21	0.03	0.07	41
	100	0	1.61	1.2	0.9	8.9	1.8	2.6	0.16	6.7	0.8	14	27	0.04	0.08	51
	120	0	1.85	1.4	1.1	10.4	2.1	3.0	0.18	8.0	0.9	17	32	0.05	0.10	61
Maintenance plus growth																
	40	40	1.18	0.5	0.4	5.2	0.8	2.1	0.12	3.4	0.6	17	13	0.05	0.10	27
	60	60	1.67	0.8	0.6	7.5	1.2	3.0	0.17	5.1	0.8	26	20	0.08	0.15	40
	80	80	2.15	1.0	0.8	9.7	1.6	3.9	0.21	6.7	1.1	34	26	0.10	0.20	53
	100	100	2.61	1.3	1.0	12.0	2.0	4.7	0.26	8.4	1.3	43	33	0.13	0.25	67
	120	120	3.06	1.6	1.2	14.1	2.4	5.5	0.31	10.1	1.5	52	40	0.15	0.30	80
Breeding																
	40	60	1.27	0.5	0.4	5.5	0.9	2.3	0.13	3.7	0.6	23	14	0.07	0.13	30
	60	88	1.80	0.8	0.6	7.9	1.3	3.2	0.18	5.6	0.9	34	22	0.10	0.20	44
	80	115	2.31	1.1	0.9	10.3	1.7	4.2	0.23	7.4	1.2	44	29	0.13	0.26	59
	100	143	2.80	1.4	1.1	12.6	2.1	5.0	0.28	9.2	1.4	55	36	0.16	0.32	74
	120	170	3.29	1.6	1.3	14.9	2.5	5.9	0.33	11.0	1.6	66	43	0.19	0.38	88
Early gestation (Single lamb)																
	40	40	1.33	0.6	0.5	5.7	1.0	2.4	0.13	6.3	0.7	35	23	0.06	0.13	35
	60	60	1.85	0.9	0.7	8.1	1.4	3.3	0.19	8.6	0.9	47	31	0.09	0.19	51
	80	80	2.35	1.2	0.9	10.5	1.9	4.2	0.24	10.9	1.2	59	40	0.12	0.24	66
	100	100	2.85	1.4	1.1	12.8	2.3	5.1	0.28	13.2	1.4	71	48	0.15	0.30	81
	120	120	3.32	1.7	1.3	15.1	2.7	6.0	0.33	15.4	1.7	83	56	0.18	0.35	96

TABLE 15-3 continued

Class/Stage/Other	Body Weight[b] kg	Body Weight Gain[c] g/d	Dry Matter Intake[d] kg/d	Na g/d	Cl g/d	K g/d	Mg g/d	S g/d	Co mg/d	Cu[e] mg/d	I mg/d	Fe mg/d	Mn mg/d	Se[f] mg/d	Se[g] mg/d	Zn[h] mg/d
Early gestation (Twin lambs)																
	40	40	1.14	0.7	0.5	5.3	1.1	2.1	0.11	8.5	0.6	48	30	0.08	0.15	42
	60	60	2.00	1.0	0.7	8.7	1.6	3.6	0.20	11.4	1.0	64	40	0.11	0.21	59
	80	80	2.52	1.2	1.0	11.1	2.1	4.5	0.25	14.1	1.3	78	50	0.14	0.27	75
	100	100	3.04	1.5	1.2	13.5	2.5	5.5	0.30	16.8	1.5	93	60	0.17	0.33	92
	120	120	3.53	1.8	1.4	15.9	3.0	6.4	0.35	19.3	1.8	107	69	0.20	0.39	108
Early gestation (Three lambs)																
	40	40	1.20	0.7	0.5	5.5	1.2	2.2	0.12	9.9	0.6	56	34	0.08	0.17	46
	60	60	2.09	1.0	0.8	9.0	1.7	3.8	0.21	13.1	1.0	74	45	0.12	0.23	64
	80	80	2.64	1.3	1.0	11.5	2.2	4.7	0.26	16.2	1.3	91	57	0.15	0.30	82
	100	100	3.16	1.6	1.3	14.0	2.7	5.7	0.32	19.2	1.6	107	67	0.18	0.36	99
	120	120	3.67	1.9	1.5	16.4	3.2	6.6	0.37	21.9	1.8	122	77	0.21	0.42	115
Late gestation (Single lamb)																
	40	40	1.20	0.6	0.4	5.3	1.1	2.2	0.12	6.3	0.6	35	23	0.06	0.13	35
	60	60	2.07	0.8	0.7	8.8	1.5	3.7	0.21	8.6	1.0	47	31	0.09	0.19	51
	80	80	2.61	1.1	0.9	11.2	2.0	4.7	0.26	10.9	1.3	59	40	0.12	0.24	66
	100	100	3.14	1.4	1.1	13.6	2.4	5.7	0.31	13.2	1.6	71	48	0.15	0.30	81
	120	120	3.65	1.7	1.3	16.0	2.9	6.6	0.36	15.4	1.8	83	56	0.18	0.35	96
Late gestation (Twin lambs)																
	40	40	1.41	0.6	0.5	6.0	1.3	2.5	0.14	8.5	0.7	48	30	0.08	0.15	42
	60	60	1.90	0.9	0.7	8.3	1.8	3.4	0.19	11.4	1.0	64	40	0.11	0.21	59
	80	80	2.36	1.2	0.9	10.6	2.3	4.3	0.24	14.1	1.2	78	50	0.14	0.27	75
	100	100	2.81	1.5	1.1	12.8	2.8	5.1	0.28	16.8	1.4	93	60	0.17	0.33	92
	120	120	4.10	1.7	1.3	17.4	3.2	7.4	0.41	19.3	2.1	107	69	0.20	0.39	108
Late gestation (Three lambs)																
	40	40	1.54	0.6	0.5	6.4	1.4	2.8	0.15	9.9	0.8	56	34	0.08	0.17	46
	60	60	2.06	0.9	0.7	8.9	1.9	3.7	0.21	13.1	1.0	74	45	0.12	0.23	64
	80	80	2.57	1.2	0.9	11.3	2.5	4.6	0.26	16.2	1.3	91	57	0.15	0.30	82
	100	100	3.04	1.5	1.2	13.5	3.0	5.5	0.30	19.2	1.5	107	67	0.18	0.36	99
	120	120	3.49	1.8	1.4	15.7	3.5	6.3	0.35	21.9	1.7	122	77	0.21	0.42	115
Early lactation (Single lamb)																
	40	−14	1.40	0.8	1.3	6.8	1.4	2.2	0.28	6.4	1.1	8	15	0.17	0.34	44
	60	−17	1.82	1.1	1.7	9.1	1.9	2.9	0.36	8.8	1.5	11	21	0.21	0.43	59
	80	−20	2.19	1.4	2.0	11.2	2.4	3.5	0.44	11.1	1.8	14	27	0.25	0.50	74
	100	−22	2.54	1.7	2.4	13.3	2.8	4.1	0.51	13.3	2.0	18	33	0.28	0.57	88
	120	−24	2.86	1.9	2.7	15.2	3.3	4.6	0.57	15.5	2.3	21	39	0.32	0.63	102
Early lactation (Twin lambs)																
	40	−24	1.43	1.0	1.9	7.6	1.8	2.3	0.29	8.2	1.1	9	18	0.27	0.55	60
	60	−29	2.30	1.3	2.4	11.4	2.4	3.7	0.46	11.1	1.8	13	25	0.34	0.68	79
	80	−33	2.75	1.6	2.9	13.9	3.0	4.4	0.55	13.7	2.2	17	31	0.40	0.79	96
	100	−37	3.16	2.0	3.3	16.2	3.5	5.1	0.63	16.3	2.5	20	38	0.45	0.89	113
	120	−41	3.55	2.3	3.7	18.4	4.1	5.7	0.71	18.8	2.8	23	44	0.49	0.99	129
Early lactation (Three or more lambs)																
	40	−31	1.39	1.1	2.3	8.0	2.2	2.2	0.28	9.7	1.1	11	20	0.35	0.70	72
	60	−38	2.13	1.5	3.0	11.5	2.8	3.4	0.43	12.8	1.7	14	27	0.43	0.86	93
	80	−43	3.17	1.9	3.5	15.8	3.5	5.1	0.63	15.7	2.5	18	35	0.50	1.01	113
	100	−49	3.63	2.2	4.0	18.4	4.1	5.8	0.73	18.5	2.9	22	41	0.57	1.13	132
	120	−53	4.06	2.5	4.5	20.8	4.6	6.5	0.81	21.2	3.2	25	48	0.63	1.25	150
Late lactation (Single lamb)																
	40	55	1.53	0.6	0.7	6.6	1.1	2.5	0.31	5.9	1.2	24	16	0.12	0.23	37
	60	72	2.09	0.9	1.0	9.2	1.5	3.3	0.42	8.3	1.7	32	23	0.15	0.30	52
	80	95	2.64	1.2	1.3	11.7	2.0	4.2	0.53	10.8	2.1	42	30	0.19	0.38	68
	100	117	3.15	1.5	1.5	14.1	2.4	5.0	0.63	13.3	2.5	51	37	0.23	0.45	83
	120	138	3.64	1.8	1.8	16.5	2.9	5.8	0.73	15.8	2.9	61	44	0.26	0.52	98
Late lactation (Twin lambs)																
	40	65	1.46	0.7	0.9	6.6	1.2	2.3	0.29	6.8	1.2	28	18	0.16	0.32	44
	60	91	1.97	1.0	1.3	9.1	1.7	3.2	0.39	9.6	1.6	39	25	0.21	0.42	62
	80	117	3.07	1.3	1.6	13.3	2.2	4.9	0.61	12.3	2.5	50	33	0.26	0.52	79
	100	141	3.63	1.6	1.9	16.0	2.7	5.8	0.73	15.0	2.9	61	40	0.30	0.61	96
	120	166	4.19	1.9	2.2	18.6	3.2	6.7	0.84	17.6	3.4	71	47	0.35	0.70	113

TABLE 15-3 continued

Class/Stage/Other	Body Weight[b] kg	Body Weight Gain[c] g/d	Dry Matter Intake[d] kg/d	Na g/d	Cl g/d	K g/d	Mg g/d	S g/d	Co mg/d	Cu[e] mg/d	I mg/d	Fe mg/d	Mn mg/d	Se[f] mg/d	Se[g] mg/d	Zn[h] mg/d
Late lactation (Three or more lambs)																
	60	104	2.18	1.1	1.4	10.0	1.9	3.5	0.44	10.5	1.7	44	27	0.25	0.51	69
	80	132	2.71	1.4	1.8	12.6	2.4	4.3	0.54	13.4	2.2	56	35	0.31	0.62	88
	100	159	3.59	1.7	2.1	16.2	3.0	5.7	0.72	16.2	2.9	67	43	0.36	0.73	106
	120	185	4.58	2.0	2.4	20.1	3.5	7.3	0.92	19.0	3.7	78	50	0.41	0.83	123
Mature ewes																
Maintenance, only																
	40	0	0.77	0.5	0.4	3.9	0.7	1.2	0.08	2.7	0.4	6	11	0.02	0.03	20
	60	0	1.05	0.7	0.6	5.6	1.1	1.7	0.10	4.0	0.5	8	16	0.03	0.05	30
	80	0	1.30	0.9	0.7	7.1	1.4	2.1	0.13	5.3	0.7	11	21	0.03	0.07	41
	100	0	1.54	1.2	0.9	8.7	1.8	2.5	0.15	6.7	0.8	14	27	0.04	0.08	51
	120	0	1.76	1.4	1.1	10.2	2.1	2.8	0.18	8.0	0.9	17	32	0.05	0.10	61
	140	0	1.98	1.7	1.3	11.6	2.5	3.2	0.20	9.3	1.0	20	37	0.06	0.12	71
Breeding																
	40	20	0.85	0.5	0.4	4.2	0.8	1.4	0.09	3.0	0.4	11	12	0.03	0.07	23
	60	26	1.15	0.7	0.6	5.9	1.1	1.8	0.12	4.5	0.6	16	18	0.05	0.09	35
	80	32	1.43	1.0	0.8	7.6	1.5	2.3	0.14	5.9	0.7	20	23	0.06	0.12	46
	100	38	1.69	1.2	1.0	9.2	1.9	2.7	0.17	7.3	0.8	25	29	0.07	0.15	57
	120	44	1.94	1.5	1.2	10.8	2.2	3.1	0.19	8.8	1.0	30	35	0.09	0.17	68
	140	50	2.18	1.7	1.3	12.3	2.6	3.5	0.22	10.2	1.1	34	40	0.10	0.20	79
Early gestation (Single lamb)																
	40	18	0.99	0.6	0.4	4.7	0.9	1.6	0.10	5.9	0.5	25	21	0.03	0.07	30
	60	24	1.31	0.8	0.6	6.5	1.3	2.1	0.13	8.0	0.7	32	29	0.05	0.09	42
	80	30	1.61	1.1	0.8	8.2	1.7	2.6	0.16	10.0	0.8	39	36	0.06	0.11	55
	100	35	1.89	1.3	1.0	9.9	2.1	3.0	0.19	11.9	0.9	46	44	0.07	0.14	66
	120	41	2.15	1.6	1.2	11.5	2.5	3.4	0.22	13.8	1.1	52	51	0.08	0.16	78
	140	46	2.39	1.8	1.4	13.1	2.9	3.8	0.24	15.6	1.2	57	57	0.09	0.18	90
Early gestation (Twin lambs)																
	40	30	1.15	0.6	0.5	5.2	1.1	1.8	0.11	8.3	0.6	40	29	0.04	0.09	37
	60	40	1.51	0.9	0.7	7.2	1.5	2.4	0.15	11.0	0.8	51	38	0.06	0.12	51
	80	50	1.84	1.2	0.9	9.0	1.9	2.9	0.18	13.5	0.9	60	48	0.07	0.15	65
	100	59	2.15	1.4	1.1	10.8	2.3	3.4	0.21	15.9	1.1	69	56	0.09	0.18	78
	120	68	2.44	1.7	1.3	12.5	2.8	3.9	0.24	18.1	1.2	78	64	0.10	0.20	91
	140	76	2.71	2.0	1.5	14.2	3.2	4.3	0.27	20.3	1.4	86	73	0.11	0.23	104
Early gestation (Three lambs)																
	40	39	1.00	0.7	0.5	4.9	1.2	1.6	0.10	9.9	0.5	49	34	0.05	0.11	42
	60	52	1.65	1.0	0.7	7.6	1.6	2.6	0.16	13.0	0.8	63	45	0.07	0.14	57
	80	65	2.00	1.2	1.0	9.6	2.1	3.2	0.20	15.8	1.0	74	55	0.09	0.17	72
	100	77	2.32	1.5	1.2	11.4	2.5	3.7	0.23	18.5	1.2	85	65	0.10	0.20	86
	120	88	2.63	1.8	1.4	13.2	2.9	4.2	0.26	21.0	1.3	95	74	0.12	0.23	100
	140	99	2.92	2.1	1.6	14.9	3.4	4.7	0.29	23.5	1.5	104	83	0.13	0.26	113
Late gestation (Single lamb)																
	40	71	1.00	0.5	0.4	4.7	1.0	1.6	0.10	5.9	0.5	25	21	0.03	0.07	30
	60	97	1.63	0.8	0.6	7.4	1.4	2.6	0.16	8.0	0.8	32	29	0.05	0.09	42
	80	120	1.98	1.0	0.8	9.2	1.8	3.2	0.20	10.0	1.0	39	36	0.06	0.11	55
	100	142	2.30	1.3	1.0	11.0	2.2	3.7	0.23	11.9	1.1	46	44	0.07	0.14	66
	120	163	2.61	1.5	1.2	12.8	2.6	4.2	0.26	13.8	1.3	52	51	0.08	0.16	78
	140	183	2.89	1.8	1.4	14.4	3.0	4.6	0.29	15.6	1.4	57	57	0.09	0.18	90
Late gestation (Twin lambs)																
	40	119	1.06	0.6	0.4	4.9	1.2	1.7	0.11	8.3	0.5	40	29	0.04	0.09	37
	60	161	1.65	0.8	0.6	7.5	1.7	2.6	0.17	11.0	0.8	51	38	0.06	0.12	51
	80	200	1.99	1.1	0.8	9.4	2.2	3.2	0.20	13.5	1.0	60	48	0.07	0.15	65
	100	236	2.87	1.3	1.0	12.8	2.6	4.6	0.29	15.9	1.4	69	56	0.09	0.18	78
	120	271	3.24	1.6	1.2	14.7	3.0	5.2	0.32	18.1	1.6	78	64	0.10	0.20	91
	140	304	3.57	1.9	1.4	16.6	3.5	5.7	0.36	20.3	1.8	86	73	0.11	0.23	104
Late gestation (Three or more lambs)																
	40	155	1.22	0.6	0.5	5.4	1.4	1.9	0.12	9.9	0.6	49	34	0.05	0.11	42
	60	210	1.57	0.9	0.7	7.3	1.9	2.5	0.16	13.0	0.8	63	45	0.07	0.14	57
	80	260	2.26	1.1	0.9	10.2	2.4	3.6	0.23	15.8	1.1	74	55	0.09	0.17	72
	100	307	2.59	1.4	1.1	12.1	2.8	4.1	0.26	18.5	1.3	85	65	0.10	0.20	86

TABLE 15-3 continued

Class/Stage/Other	Body Weight[b] kg	Body Weight Gain[c] g/d	Dry Matter Intake[d] kg/d	Na g/d	Cl g/d	K g/d	Mg g/d	S g/d	Co mg/d	Cu[e] mg/d	I mg/d	Fe mg/d	Mn mg/d	Se[f] mg/d	Se[g] mg/d	Zn[h] mg/d
	120	352	2.92	1.6	1.3	13.9	3.3	4.7	0.29	21.0	1.5	95	74	0.12	0.23	100
	140	396	4.04	1.9	1.5	18.0	3.8	6.5	0.40	23.5	2.0	104	83	0.13	0.26	113
Early lactation (Single lamb)																
	40	–14	1.09	0.8	1.3	5.9	1.4	1.7	0.22	6.4	0.9	8	15	0.17	0.34	44
	60	–17	1.77	1.1	1.7	9.0	1.9	2.8	0.35	8.8	1.4	11	21	0.21	0.43	59
	80	–20	2.13	1.4	2.0	11.1	2.4	3.4	0.43	11.1	1.7	14	27	0.25	0.50	74
	100	–22	2.47	1.7	2.4	13.1	2.8	4.0	0.49	13.3	2.0	18	33	0.28	0.57	88
	120	–24	2.78	1.9	2.7	15.0	3.3	4.4	0.56	15.5	2.2	21	39	0.32	0.63	102
	140	–26	3.08	2.2	3.0	16.8	3.7	4.9	0.62	17.7	2.5	24	45	0.34	0.69	115
Early lactation (Twin lambs)																
	40	–24	1.40	1.0	1.9	7.5	1.8	2.2	0.28	8.2	1.1	9	18	0.27	0.55	60
	60	–29	1.80	1.3	2.4	9.9	2.4	2.9	0.36	11.1	1.4	13	25	0.34	0.68	79
	80	–33	2.15	1.6	2.9	12.1	3.0	3.4	0.43	13.7	1.7	17	31	0.40	0.79	96
	100	–37	2.48	2.0	3.3	14.2	3.5	4.0	0.50	16.3	2.0	20	38	0.45	0.89	113
	120	–41	3.47	2.3	3.7	18.2	4.1	5.6	0.69	18.8	2.8	23	44	0.49	0.99	129
	140	–44	3.82	2.6	4.1	20.3	4.6	6.1	0.76	21.2	3.1	27	51	0.54	1.07	145
Early lactation (Three or more lambs)																
	40	–31	1.36	1.1	2.3	8.0	2.2	2.2	0.27	9.7	1.1	11	20	0.35	0.70	72
	60	–38	2.09	1.5	3.0	11.4	2.8	3.3	0.42	12.8	1.7	14	27	0.43	0.86	93
	80	–43	3.11	1.9	3.5	15.6	3.5	5.0	0.62	15.7	2.5	18	35	0.50	1.01	113
	100	–49	3.56	2.2	4.0	18.2	4.1	5.7	0.71	18.5	2.8	22	41	0.57	1.13	132
	120	–53	3.98	2.5	4.5	20.6	4.6	6.4	0.80	21.2	3.2	25	48	0.63	1.25	150
	140	–57	4.37	2.9	5.0	22.9	5.2	7.0	0.87	23.9	3.5	29	55	0.68	1.36	167
Early lactation (Parlor production only)																
	60	–52	2.14	1.8	3.9	12.7	3.5	3.4	0.43	15.7	1.7	17	32	0.59	1.18	117
	80	–60	3.04	2.2	4.6	16.7	4.3	4.9	0.61	19.0	2.4	21	40	0.68	1.37	141
	100	–67	3.46	2.6	5.2	19.3	5.0	5.5	0.69	22.2	2.8	25	47	0.77	1.54	163
	120	–73	3.86	3.0	5.8	21.8	5.6	6.2	0.77	25.3	3.1	29	54	0.85	1.69	184
	140	–79	5.29	3.3	6.4	27.2	6.2	8.5	1.06	28.2	4.2	32	61	0.92	1.84	204
Late lactation (Single lamb)																
	40	10	1.09	0.6	0.7	5.2	1.0	1.7	0.22	4.8	0.9	11	13	0.08	0.16	30
	60	12	1.43	0.9	0.9	7.1	1.4	2.3	0.29	6.9	1.1	15	19	0.10	0.20	43
	80	15	1.76	1.1	1.2	9.0	1.8	2.8	0.35	8.9	1.4	18	25	0.12	0.25	55
	100	17	2.05	1.4	1.4	10.8	2.2	3.3	0.41	10.9	1.6	22	30	0.14	0.29	67
	120	18	2.33	1.6	1.7	12.5	2.6	3.7	0.47	12.9	1.9	26	36	0.16	0.32	79
	140	20	2.60	1.9	1.9	14.2	3.0	4.2	0.52	14.9	2.1	29	42	0.18	0.36	91
Late lactation (Twin lambs)																
	40	25	1.38	0.7	0.9	6.3	1.1	2.2	0.28	5.8	1.1	16	15	0.13	0.25	38
	60	31	1.80	1.0	1.2	8.5	1.6	2.9	0.36	8.2	1.4	22	21	0.16	0.32	53
	80	37	2.19	1.2	1.5	10.6	2.1	3.5	0.44	10.4	1.8	27	28	0.19	0.38	67
	100	41	2.53	1.5	1.8	12.6	2.5	4.1	0.51	12.6	2.0	32	34	0.22	0.44	80
	120	46	2.87	1.8	2.0	14.5	2.9	4.6	0.57	14.8	2.3	36	40	0.25	0.50	93
	140	50	3.19	2.1	2.3	16.4	3.3	5.1	0.64	16.9	2.5	41	46	0.27	0.55	106
Late lactation (Three or more lambs)																
	60	44	2.06	1.0	1.4	9.5	1.8	3.3	0.41	9.1	1.7	27	23	0.20	0.41	60
	80	52	2.50	1.3	1.7	11.8	2.3	4.0	0.50	11.5	2.0	33	30	0.24	0.49	75
	100	59	2.89	1.6	2.0	14.0	2.7	4.6	0.58	13.9	2.3	38	36	0.28	0.56	90
	120	65	3.26	1.9	2.3	16.0	3.2	5.2	0.65	16.2	2.6	44	43	0.31	0.63	104
	140	70	3.59	2.2	2.6	18.0	3.6	5.8	0.72	18.4	2.9	49	49	0.34	0.69	118
Late lactation (Parlor production only)																
	60	50	2.35	1.1	1.7	10.7	2.0	3.8	0.47	10.3	1.9	30	25	0.26	0.53	69
	80	59	2.82	1.5	2.1	13.2	2.5	4.5	0.56	12.9	2.3	37	32	0.31	0.63	86
	100	66	3.25	1.8	2.4	15.5	3.0	5.2	0.65	15.4	2.6	43	39	0.36	0.72	102
	120	73	3.66	2.1	2.8	17.7	3.5	5.9	0.73	17.9	2.9	49	46	0.40	0.80	118
	140	80	4.05	2.3	3.1	19.9	4.0	6.5	0.81	20.3	3.2	55	52	0.44	0.88	133
Rams																
Maintenance																
	100	0	1.77	1.2	0.9	9.3	1.8	2.8	0.18	6.7	0.9	14	27	0.04	0.08	51
	125	0	2.09	1.5	1.2	11.3	2.2	3.3	0.21	8.3	1.0	18	33	0.05	0.10	63
	150	0	2.40	1.8	1.4	13.3	2.6	3.8	0.24	10.0	1.2	21	40	0.06	0.13	76
	200	0	2.98	2.4	1.9	17.0	3.5	4.8	0.30	13.3	1.5	28	53	0.08	0.17	101

TABLE 15-3 continued

Class/Stage/Other	Body Weight[b] kg	Body Weight Gain[c] g/d	Dry Matter Intake[d] kg/d	Na g/d	Cl g/d	K g/d	Mg g/d	S g/d	Co mg/d	Cu[e] mg/d	I mg/d	Fe mg/d	Mn mg/d	Se[f] mg/d	Se[g] mg/d	Zn[h] mg/d
Prebreeding																
	100	47	1.95	1.2	1.0	9.9	1.9	3.1	0.39	7.5	1.0	28	30	0.08	0.16	58
	125	56	2.30	1.6	1.2	12.0	2.3	3.7	0.46	9.3	1.2	34	37	0.10	0.20	72
	150	64	2.64	1.9	1.5	14.1	2.8	4.2	0.53	11.1	1.3	40	44	0.12	0.23	86
	200	79	3.27	2.5	1.9	18.1	3.7	5.2	0.65	14.7	1.6	51	58	0.15	0.30	114

[a]Calcium and phosphorus requirements for sheep are listed in Tables 15-1 and 15-2.
[b]Body weight used in estimating requirements is the determined or estimated weight in kilograms (kg) average for the period during which these requirements will be applied.
[c]Average change in body weight over a 24-hour period.
[d]Estimate of dry matter intake of a feed of appropriate energy density to meet energy requirements.
[e]Copper absorption coefficients used were 0.06 for maintenance and gestation, and 0.045 for lactation.
[f]Selenium absorption coefficient used was 0.60 applicable to concentrate diets.
[g]Selenium absorption coefficient used was 0.30 applicable to forage diets.
[h]Zinc absorption coefficient used was 0.15.