

TABLAS DE REQUERIMIENTOS NUTRITIVOS DEL BOVINO (NAP 2000)

The National Academy Press. 2000. www.nap.edu/books/0309069343/html/
www.produccion-animal.com.ar

Volver a: [Tablas composición alimentos](#)

Wt @ Small marbling		533 kg					
Weight range		200-450 kg					
ADG range		0.50-2.50 kg					
Breed Code		1 Angus					
Body Weight, kg		200	250	300	350	400	450
Maintenance Requirements							
NE _m	Mcal/d	4.1	4.84	5.55	6.23	6.89	7.52
MP	g/d	202	239	274	307	340	371
Ca	g/d	6	8	9	11	12	14
P	g/d	5	6	7	8	10	11
Growth Requirements (ADG)							
		<i>NE_g required for gain, Mcal/d</i>					
0.5	kg/d	1.27	1.50	1.72	1.93	2.14	2.33
1.0	kg/d	2.72	3.21	3.68	4.13	4.57	4.99
1.5	kg/d	4.24	5.01	5.74	6.45	7.13	7.79
2.0	kg/d	5.81	6.87	7.88	8.84	9.77	10.68
2.5	kg/d	7.42	8.78	10.06	11.29	12.48	13.64
		<i>MP required for gain, g/d</i>					
0.5	kg/d	154	155	158	157	145	133
1.0	kg/d	299	300	303	296	272	246
1.5	kg/d	441	440	442	432	391	352
2.0	kg/d	580	577	577	561	505	451
2.5	kg/d	718	712	710	687	616	547
		<i>Calcium required for gain, g/d</i>					
0.5	kg/d	14	13	12	11	10	9
1.0	kg/d	27	25	23	21	19	17
1.5	kg/d	39	36	33	30	27	25
2.0	kg/d	52	47	43	39	35	32
2.5	kg/d	64	59	53	48	43	38
		<i>Phosphorus required for gain, g/d</i>					
0.5	kg/d	6	5	5	4	4	4
1.0	kg/d	11	10	9	8	8	7
1.5	kg/d	16	15	13	12	11	10
2.0	kg/d	21	19	18	16	14	13
2.5	kg/d	26	24	22	19	17	15

TABLE 9-2 Diet Evaluation for Growing and Finishing Cattle

Wt @ Small Marbling Breed Code		533 kg 1 Angus						
Ration	eNDF % DM	TDN % DM	NE _m Mcal/kg	NE _g Mcal/kg	CP % DM	DIP % CP	Weight Class	NE Adjuster
A	57	50	1.00	0.45	7.4	58	325	100%
B	43	60	1.35	0.77	10.0	78	350	100%
C	30	70	1.67	1.06	12.6	72.4	375	100%
D	5	80	1.99	1.33	14.4	45.5	400	100%
E	3	90	2.29	1.59	16.6	44.2	425	100%
Body Weight, kg	DMI Adjuster	DMI kg/d	ADG kg/d	DIP	UIP	MP	Ca	P
				----- balances, g/d -----		-- requirements, % of DM --		
300—A	100%	7.9	0.32	1	0	0	0.22%	0.13%
—B	100%	8.4	0.89	0	0	0	0.35%	0.15%
—C	100%	8.2	1.36	2	0	0	0.45%	0.24%
—D	100%	7.7	1.69	1	2	1	0.60%	0.29%
—E	100%	7.1	1.90	1	2	1	0.71%	0.34%
325—A	100%	8.4	0.32	1	14	11	0.21%	0.13%
—B	100%	8.9	0.89	0	38	30	0.33%	0.15%
—C	100%	8.7	1.36	2	57	46	0.45%	0.22%
—D	100%	8.2	1.69	1	73	58	0.55%	0.27%
—E	100%	7.6	1.90	1	82	66	0.65%	0.31%
350—A	100%	8.9	0.32	1	27	22	0.20%	0.13%
—B	100%	9.4	0.89	0	75	60	0.31%	0.17%
—C	100%	9.2	1.36	2	114	91	0.42%	0.21%
—D	100%	8.7	1.69	1	143	114	0.51%	0.25%
—E	100%	8.0	1.90	1	160	128	0.60%	0.29%
375—A	100%	9.4	0.32	1	40	32	0.20%	0.13%
—B	100%	9.9	0.89	0	111	89	0.30%	0.16%
—C	100%	9.7	1.36	2	169	135	0.39%	0.20%
—D	100%	9.1	1.69	1	212	169	0.45%	0.24%
—E	100%	8.4	1.90	1	238	190	0.56%	0.28%
400—A	100%	9.8	0.32	1	53	43	0.19%	0.12%
—B	100%	10.4	0.89	0	147	118	0.25%	0.16%
—C	100%	10.2	1.36	2	223	178	0.37%	0.19%
—D	100%	9.6	1.69	2	279	223	0.44%	0.23%
—E	100%	8.8	1.90	1	314	251	0.52%	0.26%
425—A	100%	10.3	0.32	1	66	53	0.19%	0.12%
—B	100%	10.9	0.89	0	182	146	0.27%	0.15%
—C	100%	10.6	1.36	2	276	221	0.35%	0.19%
—D	100%	10.0	1.69	2	346	277	0.42%	0.22%
—E	100%	9.3	1.90	1	388	311	0.45%	0.25%

TABLE 9-3 Nutrient Requirements for Growing Bulls

Wt @ Maturity Weight Range ADG Range Breed Code		890 kg 300–500 kg 0.50–2.50 kg 1 Angus					
Body Weight, kg		300	400	500	600	700	800
Maintenance Requirements							
NE _m	Mcal/day	6.38	7.92	9.36	10.73	12.05	13.32
MP	g/d	274	340	402	461	517	572
Ca	g/d	9	12	15	19	22	25
P	g/d	7	10	12	14	17	19
Growth Requirements							
ADG		----- NE _g Required for Gain, Mcal/d -----					
0.5	kg/d	1.72	2.13	2.52	2.89	3.25	3.59
1.0	kg/d	3.68	4.56	5.39	6.18	6.94	7.67
1.5	kg/d	5.74	7.12	8.42	9.65	10.83	11.97
2.0	kg/d	7.87	9.76	11.54	13.23	14.85	16.41
2.5	kg/d	10.05	12.47	14.74	16.90	18.97	20.97
		----- MP Required for Gain, g/d -----					
0.5	kg/d	158	145	122	100	78	58
1.0	kg/d	303	272	222	175	130	96
1.5	kg/d	442	392	314	241	170	102
2.0	kg/d	577	506	400	299	202	109
2.5	kg/d	710	617	481	352	228	109
		----- Calcium Required for Gain, g/d -----					
0.5	kg/d	12	10	9	7	6	4
1.0	kg/d	23	19	16	12	9	6
1.5	kg/d	33	27	22	17	12	7
2.0	kg/d	43	35	28	21	14	8
2.5	kg/d	53	43	34	25	16	8
		----- Phosphorus Required for Gain, g/d -----					
0.5	kg/d	5	4	3	3	2	2
1.0	kg/d	9	8	6	5	4	2
1.5	kg/d	13	11	9	7	5	3
2.0	kg/d	18	14	11	8	6	3
2.5	kg/d	22	17	14	10	6	3

TABLE 9-4 Diet Evaluation for Growing Bulls

Wt @ Maturity Breed Code		890 kg 1 Angus						
Ration	eNDF % DM	TDN % DM	NE _m Mcal/kg	NE _l Mcal/kg	CP % DM	DIP % CP	Weight Class	NE Adjuster
A	43	50	1.00	0.45	8.2	80	325	100%
B	37	65	1.51	0.92	10.9	78	350	100%
C	30	70	1.67	1.06	12.0	76	375	100%
D	20	75	1.83	1.20	13.4	73	400	100%
E	5	80	1.99	1.33	13.8	51	425	100%
Body Weight, kg	DMI Adjuster	DMI kg/d	ADC kg/d	DIP	UIP balances, g/d	MP	Ca -- requirements, % of DM --	P
300—A	100%	7.9	0.22	5	103	83	0.18%	0.12%
—B	100%	8.3	1.02	4	8	6	0.39%	0.20%
—C	100%	8.2	1.23	2	-3	-2	0.45%	0.23%
—D	100%	8.0	1.41	3	10	8	0.51%	0.25%
—E	100%	7.7	1.56	5	-2	-2	0.56%	0.27%
325—A	100%	8.4	0.22	5	119	95	0.18%	0.12%
—B	100%	8.8	1.02	5	51	41	0.36%	0.19%
—C	100%	8.7	1.23	2	49	39	0.42%	0.21%
—D	100%	8.5	1.41	3	70	56	0.47%	0.24%
—E	100%	8.2	1.56	6	63	51	0.52%	0.26%
350—A	100%	8.9	0.22	5	134	107	0.18%	0.12%
—B	100%	9.4	1.02	5	94	75	0.34%	0.18%
—C	100%	9.2	1.23	2	100	80	0.39%	0.20%
—D	100%	9.0	1.41	3	129	103	0.44%	0.22%
—E	100%	8.7	1.56	6	128	102	0.48%	0.24%
375—A	100%	9.4	0.22	6	149	119	0.18%	0.12%
—B	100%	9.8	1.02	5	136	109	0.32%	0.17%
—C	100%	9.7	1.23	2	150	125	0.37%	0.19%
—D	100%	9.4	1.41	3	187	149	0.41%	0.21%
—E	100%	9.1	1.56	6	191	153	0.45%	0.23%
400—A	100%	9.8	0.22	6	161	131	0.17%	0.12%
—B	100%	10.3	1.02	5	177	142	0.31%	0.17%
—C	100%	10.2	1.23	2	199	159	0.35%	0.19%
—D	100%	9.9	1.41	3	244	195	0.39%	0.20%
—E	100%	9.6	1.56	7	253	202	0.42%	0.22%
425—A	100%	10.3	0.22	6	169	143	0.17%	0.12%
—B	100%	10.8	1.02	6	218	174	0.29%	0.16%
—C	100%	10.6	1.23	2	247	198	0.33%	0.18%
—D	100%	10.4	1.41	3	300	240	0.36%	0.19%
—E	100%	10.0	1.56	7	314	251	0.40%	0.21%

TABLE 9-5 Nutrient Requirements of Pregnant Replacement Heifers

Mature Weight Calf Birth Weight Age @ Breeding Breed Code		533 kg 40 kg 15 months 1 Angus								
		Months since conception								
		1	2	3	4	5	6	7	8	9
NE _m required, Mcal/d										
Maintenance		5.98	6.14	6.30	6.46	6.61	6.77	6.92	7.07	7.23
Growth		2.29	2.36	2.42	2.48	2.54	2.59	2.65	2.71	2.77
Pregnancy		0.03	0.07	0.16	0.32	0.64	1.18	2.08	3.44	5.37
Total		8.31	8.57	8.87	9.26	9.79	10.55	11.65	13.23	15.37
MP required, g/d										
Maintenance		295	303	311	319	326	334	342	349	357
Growth		118	119	119	119	119	117	115	113	110
Pregnancy		2	4	7	18	27	50	88	151	251
Total		415	425	437	457	472	501	545	613	718
Minerals										
Calcium required, g/d										
Maintenance		10	11	11	11	12	12	12	13	13
Growth		9	9	9	8	8	8	8	8	8
Pregnancy		0	0	0	0	0	0	12	12	12
Total		19	19	20	20	20	20	33	33	33
Phosphorus required, g/d										
Maintenance		8	8	8	9	9	9	10	10	10
Growth		4	4	3	3	3	3	3	3	3
Pregnancy		0	0	0	0	0	0	7	7	7
Total		12	12	12	12	12	13	20	20	20
ADC, kg/d										
Growth		0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Pregnancy		0.03	0.05	0.08	0.12	0.19	0.28	0.40	0.57	0.77
Total		0.42	0.44	0.47	0.51	0.58	0.67	0.79	0.96	1.16
Body weight, kg										
Shrunk body		332	343	355	367	379	391	403	415	426
Gravid uterus mass		1	3	4	7	12	19	29	44	64
Total		333	346	360	375	391	410	432	459	491

TABLE 9-6 Diet Evaluation for Pregnant Replacement Heifers

Mature Weight		533 kg									
Calf Birth Weight		40 kg									
Age @ Breeding		15 months									
Breed Code		1 Angus									
Ration	TDN	NE _m	NE _l	CP	DIP	DMI					
	% DM	Meal/kg	Meal/kg	% DM	% DM	Factor					
A	50	1.00	0.45	5.2	50	100%					
B	60	1.35	0.77	9.8	50	100%					
C	70	1.67	1.06	11.4	50	100%					
		Months Since Conception									
		1	2	3	4	5	6	7	8	9	
A	NE _m Req. Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	DM, kg	8.5	8.8	9.0	9.2	9.4	9.7	9.9	10.1	10.3	
	NE allowed ADG	0.35	0.34	0.33	0.31	0.28	0.22	0.12	0.00	0.00	
	DIP Balance, g/d	5	5	5	6	6	6	6	6	6	6
	UIP Balance, g/d	75	79	83	87	90	92	90	66	-53	
	MP Balance, g/d	60	63	67	69	72	74	72	52	-42	
	Ca % DM	0.22%	0.21%	0.21%	0.20%	0.19%	0.18%	0.25%	0.25%	0.25%	0.25%
B	P % DM	0.17%	0.17%	0.16%	0.16%	0.15%	0.14%	0.19%	0.16%	0.16%	0.16%
	DM, kg	9.0	9.3	9.5	9.7	10.0	10.2	10.4	10.7	10.9	
	NE allowed ADG	0.96	0.96	0.95	0.92	0.88	0.82	0.71	0.54	0.30	
	DIP Balance, g/d	4	4	4	4	4	4	4	4	4	4
	UIP Balance, g/d	5	14	22	30	35	49	54	46	18	
	MP Balance, g/d	4	11	18	24	31	40	43	37	14	
	Ca % DM	0.36%	0.35%	0.33%	0.32%	0.31%	0.29%	0.35%	0.34%	0.29%	0.29%
C	P % DM	0.27%	0.27%	0.26%	0.26%	0.25%	0.23%	0.27%	0.24%	0.20%	0.20%
	DM, kg	8.8	9.1	9.3	9.5	9.8	10.0	10.2	10.4	10.7	
	NE allowed ADG	1.47	1.46	1.45	1.42	1.38	1.31	1.19	1.02	0.77	
	DIP Balance, g/d	2	2	2	2	2	2	2	2	2	2
	UIP Balance, g/d	-66	-54	-43	-32	-19	-1	10	8	-18	
	MP Balance, g/d	-53	-43	-34	-26	-15	-1	8	6	-14	
	Ca % DM	0.45%	0.47%	0.45%	0.43%	0.41%	0.39%	0.45%	0.43%	0.35%	0.35%
P % DM	0.37%	0.36%	0.35%	0.35%	0.33%	0.31%	0.35%	0.32%	0.28%	0.28%	

NOTE: Requirements are for NE allowed ADG and target weight. NE allowed ADG is ADG independent of conceptus gain.

Table 9-7 Nutrient Requirements of Beef Cows

Mature Weight		533 kg											
Calf Birth Weight		40 kg											
Age @ Calving		60 months											
Age @ Weaning		30 weeks											
Peak Milk		8 kg											
Breed Code		1 Angus											
Milk Fat		4.0 %											
Milk Protein		3.4 %											
Calving Interval		12 months											
Time Peak		8.5 weeks											
Milk SNF		8.3 %											
		Month since Calving											
		1	2	3	4	5	6	7	8	9	10	11	12
NE _m Req. Factor		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
NE _m required, Meal/d													
Maintenance		10.25	10.25	10.25	10.25	10.25	10.25	8.54	8.54	8.54	8.54	8.54	8.54
Growth		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lactation		4.78	5.74	5.17	4.13	3.10	2.23	0.00	0.00	0.00	0.00	0.00	0.00
Pregnancy		0.00	0.00	0.01	0.03	0.07	0.16	0.32	0.64	1.15	2.05	3.44	5.37
Total		15.03	15.99	15.43	14.41	13.42	12.64	8.87	9.18	9.72	10.62	11.98	13.91
MP required, g/d													
Maintenance		422	422	422	422	422	422	422	422	422	422	422	422
Growth		0	0	0	0	0	0	0	0	0	0	0	0
Lactation		349	415	376	301	226	163	0	0	0	0	0	0
Pregnancy		0	0	1	2	4	7	14	27	50	88	151	251
Total		770	840	799	724	651	591	436	449	471	510	573	672
Calcium required, g/d													
Maintenance		16	16	16	16	16	16	16	16	16	16	16	16
Growth		0	0	0	0	0	0	0	0	0	0	0	0
Lactation		16	20	18	14	11	8	0	0	0	0	0	0
Pregnancy		0	0	0	0	0	0	0	0	0	12	12	12
Total		33	36	34	31	27	24	16	16	16	29	29	29
Phosphorus required, g/d													
Maintenance		13	13	13	13	13	13	13	13	13	13	13	13
Growth		0	0	0	0	0	0	0	0	0	0	0	0
Lactation		9	11	10	8	6	4	0	0	0	0	0	0
Pregnancy		0	0	0	0	0	0	0	0	0	5	5	5
Total		22	24	23	21	19	17	13	13	13	18	18	18
ADG, kg/d													
Growth		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pregnancy		0.00	0.00	0.02	0.03	0.05	0.08	0.12	0.19	0.28	0.40	0.57	0.77
Total		0.00	0.00	0.02	0.03	0.05	0.08	0.12	0.19	0.28	0.40	0.57	0.77
Milk kg/d		6.7	8.0	7.2	5.8	4.3	3.1	0.0	0.0	0.0	0.0	0.0	0.0
Body weight, kg													
Shrunk Body		533	533	533	533	533	533	533	533	533	533	533	533
Conceptus		0	0	1	1	3	4	7	12	19	29	44	64
Total		533	533	534	534	536	537	540	545	552	562	577	597

TABLE 9-8 Diet Evaluation for Beef Cows

Mature Weight	533 kg	Milk Fat	4.0 %
Calf Birth Weight	40 kg	Milk Protein	3.4 %
Age @ Calving	60 months	Calving Interval	12 months
Age @ Weaning	30 weeks	Time Peak	8.5 weeks
Peak Milk	8 kg	Milk SNF	8.3 %
Breed Code	1 Angus		

Ration	TDN	ME	NE _m	CP	DIP	DMI
	% DM	Mcal/kg	Mcal/kg	% DM	% CP	Factor
A	50	1.84	1.00	7.9	82.5	100%
B	60	2.21	1.35	7.5	100.0	100%
C	70	2.58	1.67	9.1	100.0	100%

	Months since Calving											
	1	2	3	4	5	6	7	8	9	10	11	12
NE _m Req. Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
A												
Milk kg/d	6.7	8.0	7.2	5.8	4.3	3.1	0.0	0.0	0.0	0.0	0.0	0.0
DM, kg	11.14	11.40	12.12	11.83	11.54	11.30	10.68	10.68	10.68	10.68	10.68	10.68
Energy Balance, Mcal/d	-3.90	-4.59	-3.31	-2.58	-1.88	-1.34	1.81	1.50	0.95	0.06	-1.30	-3.24
DIP Balance, g/d	7	7	7	7	7	7	6	6	6	6	6	6
UIP Balance, g/d	-201	-270	-169	-96	-24	34	175	170	142	93	14	-110
MP Balance, g/d	-161	-216	-136	-77	-19	27	149	136	113	75	11	-85
Ca % DM	0.65%	0.70%	0.62%	0.57%	0.52%	0.47%	0.34%	0.34%	0.34%	0.39%	0.39%	0.39%
P % DM	0.20%	0.21%	0.19%	0.15%	0.16%	0.15%	0.12%	0.12%	0.12%	0.17%	0.17%	0.17%
Reserves Flux/mo, Mcal	-145	-174	-126	-98	-71	-51	55	46	29	2	-50	-123
B												
DM, kg	11.96	12.23	12.72	12.43	12.14	11.90	11.28	11.28	11.28	11.28	11.28	11.28
Energy Balance, Mcal	1.07	0.47	1.69	2.32	2.92	3.38	6.32	6.00	5.46	4.56	3.20	1.27
DIP Balance, g/d	5	5	5	5	5	5	5	5	5	5	5	5
UIP Balance, g/d	15	-47	44	114	182	233	221	221	221	221	209	85
MP Balance, g/d	14	-35	35	91	146	189	304	291	269	230	167	65
Ca % DM	0.27%	0.30%	0.27%	0.25%	0.22%	0.20%	0.15%	0.15%	0.15%	0.25%	0.25%	0.25%
P % DM	0.19%	0.20%	0.18%	0.17%	0.16%	0.14%	0.11%	0.11%	0.11%	0.16%	0.16%	0.16%
Reserves Flux/mo, Mcal	32	14	51	71	89	103	192	183	166	139	97	39
C												
DM, kg	13.16	13.42	13.79	13.50	13.21	12.97	12.35	12.35	12.35	12.35	12.35	12.35
Energy Balance, Mcal/d	6.99	6.45	7.65	8.15	8.69	9.07	11.50	11.49	10.95	10.05	8.69	6.76
DIP Balance, g/d	3	3	3	3	3	3	2	2	2	2	2	2
UIP Balance, g/d	295	233	314	308	301	296	282	282	282	282	282	282
MP Balance, g/d	236	157	256	308	360	401	509	496	473	435	371	272
Ca % DM	0.25%	0.27%	0.25%	0.23%	0.20%	0.19%	0.13%	0.13%	0.13%	0.23%	0.23%	0.23%
P % DM	0.17%	0.18%	0.17%	0.15%	0.14%	0.13%	0.10%	0.10%	0.10%	0.14%	0.14%	0.14%
Reserves Flux/mo, Mcal	212	197	233	249	264	276	359	349	333	306	264	205

Volver a: [Tablas composición alimentos](#)