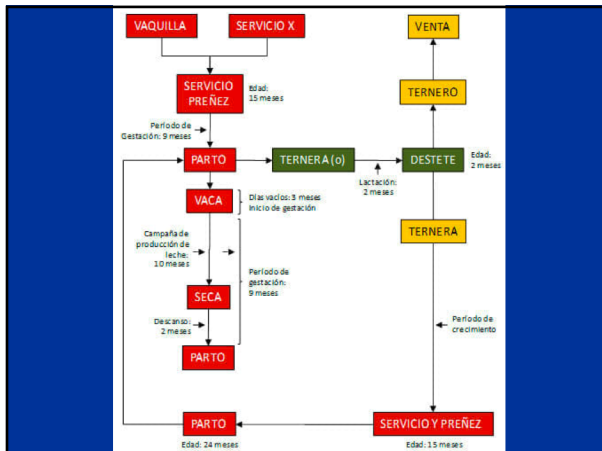


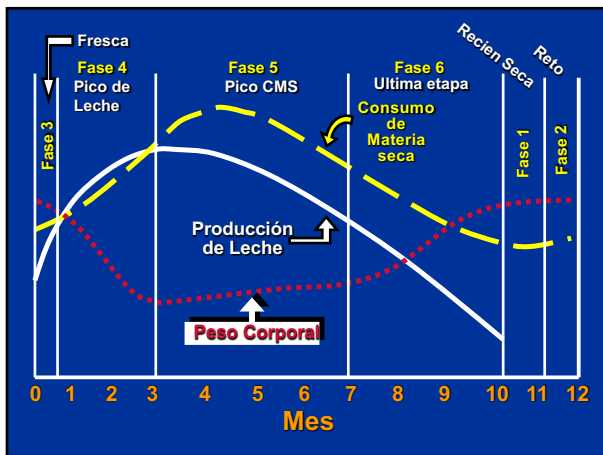
CICLO PRODUCTIVO GANADO BOVINO

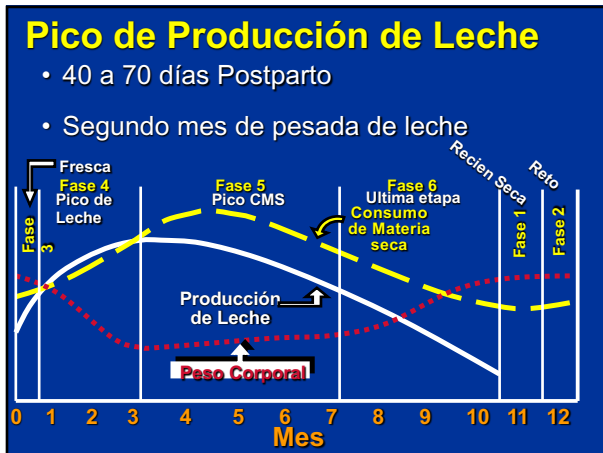


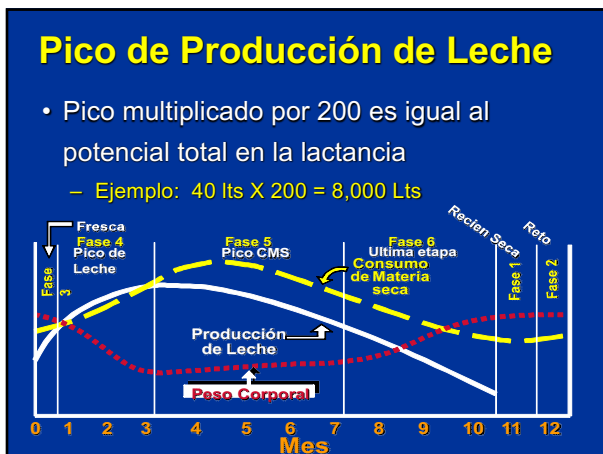


FASES DEL CICLO PRODUCTIVO

Fase 1	1ros 45 días secos	Recien secas
Fase 2	Ultimos 21 días secos	Reto
Fase 3	0 a 14 días	Frescas
Fase 4	14 a 80 días	Pico de Leche
Fase 5	80 a 200 días	Pico Consumo MS
Fase 6	200 a 330 days	Ultima Etapa

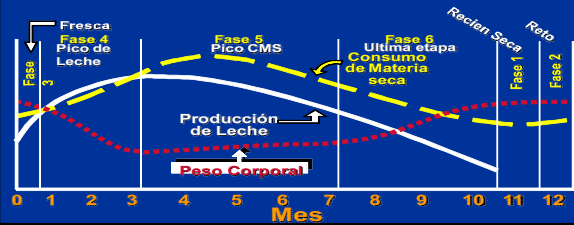




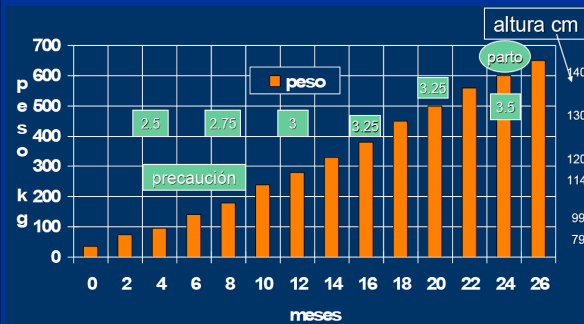


Pico de Producción de Leche

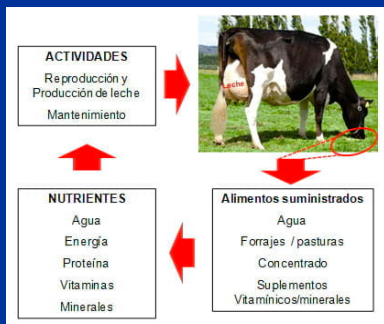
- Vaquillas (1ra Lactancia) deben picar al 75% de las vacas mas viejas (2da + Lactancias)
- Ejemplo $30 \text{ Lts} / 39 \text{ Lts} = 76.9\%$



Crecimiento y clasificación de condición corporal Vaquillas de Reemplazo



GUIAS ALIMENTICIAS BOVINOS LECHEROS



Guía Nutricional Vaquillas

	Edad (meses)			
	3 - 6	7 - 12	13 - 18	19 - 22
Peso promedio, kg	150	270	400	500
Consumo esperado, kg/d	3.2 - 4.0	5.4 - 7.3	7.7 - 9.5	10 - 11.8
Forraje excelente ¹ , kg	1.8 a 2.2	5.0 a 6.0	8.0 a 9.0	10 a 11
Concentrado, kg	1.4 a 1.8	0 a 1.0	0 a 1.0	0 a 1.0
Buen forraje ² , kg	1.4 a 1.8	4.5 a 5.0	6.4 a 7.3	9.0 a 10
Concentrados, kg	1.8 a 2.2	1.4 a 1.8	1.4 a 1.8	1.0 a 1.4
Mal forraje ³ , kg	0.9 a 1.4	3.2 a 4.0	5.4 a 6.4	7.3 a 8.2
Concentrados, kg	2.3 a 2.7	2.3 a 2.7	2.7 a 3.6	2.7 a 3.6
Rango en el Forraje, %	40 a 80	50 a 90	60 a 100	60 a 100
FND en la dieta ⁴ , %	34	42	48	48
Proteína en la dieta ⁴ , %	16	15	14	12

Guías Nutricionales Vacas

	SECAS	PREPARTO	FRESCAS	LECHERAS	
			0 A 21 D	22 A 80 D	80 A 200 D
CMS (KGS)	13.6	10.0	15.9	24.1	21.8
Cruce Protein(CP%)	12	Vacas 12-13 Vaquillas 14-15	19	18	16
Proteína Metabolizable (%)	8.0	8.0	13.8	11.8	10.2
*PDR % de PC (MS)	70 (8.4)	60 (10)	60 (11.4)	62 (11.2)	64 (10.2)
*PDR % de PC (MS)	30 (3.6)	40 (5)	40 (7.6)	18 (6.8)	16 (5.8)
*PS % de PC (MS)	35 (4.2)	30 (4.5)	30 (5.7)	31 (5.6)	32 (5.1)
TDM%	60	67	75	77	75
NEL (MCAI/KG)	1.39	1.39	1.72	1.76	1.72
Other Safety %	2	3	4	5.5	5
ADPS	30	24	21	19	21
MDPS	40	35	30	28	30
Adiciones	14	14	25	26	25
WPC%	30	34	35	38	36
*Relación de NRC a PDR (N/mj) = 3.5:1					
Macrominerales % MS Vitaminas (U / día)					
Calcio (Ca)	0.40	0.7 (7.0)	1.5	0.90	0.70
Fosforo (P)	0.25	0.30	0.40	0.38	0.36
Magnesio (Mg)	0.16	0.3 (3.0)	0.33	0.30	0.25
Tratado (K)	0.65	0.65	1.00	1.00	0.90
Sodio (Na)	0.10	0.05	0.33	0.30	0.20
Cloruro (Cl)	0.15	0.15 (1.5)	0.30	0.25	0.25
Acidificante	0.16	0.2 (2.0)	0.25	0.25	0.22
*Materias grasas sintéticas: minerales/ sales sintéticas (N)					
Vitamina A	100,000	100,000	100,000	100,000	100,000
Vitamina D	25,000	30,000	25,000	25,000	25,000
Vitamina E	1,000	2,000	2,000	800	600

* a. Minerales Traza: Hierro (150 ppm), cobalto (0.1 ppm), cobre (15 ppm), manganeso (60 ppm), zinc (60 ppm), iodo (0.6 ppm), y selenio (0.3 ppm). b. Relación de minerales en la Ración Total: zinc a cobre 4:1, hierro a cobre 40:1, potasio a magnesio 4:1, cobre a molibdeno 6:1, potasio a sodio 3:1, cloruro a sodio 10:1.

Ciclo Bovinos de Carne

Ciclo completo eficiente

Si bien hay otros planteos que permiten obtener carne de calidad a partir de bovinos de mayor edad, se recomienda llegar a faena con animales jóvenes de 18 a 24 meses de entre 420 y 450 kilos -peso de exportación-.

CRÍA	RECRÍA	ENGORDE
Comprende la gestación y lactancia del ternero, hasta que se retira de la madre.	El objetivo es que el animal gane músculo y estructura para asegurar un mayor crecimiento.	El encierro a corral permite lograr los últimos kilos y milímetros de espesor de grasa dorsal.

 6 meses	 9 a 15 meses	 2 a 3 meses
 180 kg	 270/330 kg	 420/450 kg



Alimentación Suplementaria para ganado en Pastoreo

Table 1. Approximately daily nutrient requirements** of productive beef cattle

Stock class and live weight LW (kg)	Feed intake			Protein required		Materials			
	Dry matter		*Green	%	g	P	Ca	Na	S
	% LW	kg	kg						
Weaners 150	2.7	4.0	11.5	11	445	12	14	4	4
Yearling 250	2.3	5.8	16.5	11	620	15	17	6	6
Steers 400	1.9	7.7	11.9	9	690	15	16	5	8
Wet cows 350	2.3	8.2	23.5	9	750	24	24	13	14
Dry cows 450	1.5	6.7	19.0	6	390	12	12	7	7
Bulls 600	2.0	12.0	31.5	8	926	20	20	12	11

* assuming 65% moisture content of feed. ** from NRC (1976)

Guías Nutricionales Engorda

	INICIO		CRECIMIENTO		FINALIZACIÓN	
PESO DEL ANIMAL	250 KGS		300 KGS		400 KGS	
MÍNIMO DE MATERIA SECA DE LA RACIÓN	75%					
MEP DE FORRAJE (MÍNIMO EL 4% DE LA DIETA EN BASE SECA)	18% (14 A 20)					1% (1 A 1.1%)
MAL ENERGÍA NETA DE GANANCIA	42 A 47		47 A 50		60 MCAL	
PROTEÍNA CRUDA %	13 A 14		12 A 12.5		15%	8.50%
PROTEÍNA DEGRADABLE	8.50%					
UREA	.05 KGS (0.5% DE MS)					(MÁXIMO EL 80% DE PDI)
GRASAS (MÍNIMO DE 1 GR. JUS. PM)	0.80%				0.50%	4% DE EE TOTAL
CÁLCIO	0.40%				0.35	
FÓSFORO	1.2% A 1.4%				0.40%	
YODIÓ						
DIETA EJEMPLO	KILOS EN BASE HUMEDA		KILOS EN BASE HUMEDA		KILOS EN BASE HUMEDA	
MAÍZ MOLIDO	3.6	3.1	5.4	2.7	5.5	9
TRENO DE PASTO	3.3		2.9			0.58
HILO DE MAÍZ			11.6			5.22
Heno de Alfalfa o panto		4.2		2.8		
Crack Maker Start EM --- 1.0		0.454	0.454			
Crack Maker 2% Start EM 2.0 ---	0.9			0.8	0.56	
Crack Maker grower						
Crack Maker Finalizador	7.8	7.754	8.8	16.3	8.3	0.404
TOTAL						0.567
FORRAJE % DE MS DE LA RACIÓN	40% A 50%					
	ALIMENTAR ESTA DIETA HASTA QUE EL ANIMAL ALCANCE EL 2.5% DE SU PESO CORPORAL DEL CONSUMO DE MS		ANTES DE FINALIZAR DIETA DE CRECIMIENTO HACER TRANSICIÓN DE 50 MCAL DE ENG. LLEVARLA EN UN LAPSO DE 15 DIAS HASTA 60 MCAL DE ENG. AGREGANDO GRANO			

Table 1. Biological Priority for Nutrients by Beef Cows

Priority	Function
1	Maintenance
2	Growth
3	Milk production
4	Reproduction

Table 2. The 365-Day Beef Cow Year by Periods

Period	1	2	3	4
Days	82	123	70	90
	post-calving	pregnant & lactating	mid-gestation	pre-calving

Table 3. NRC* Requirements For an 1,100-Pound Beef Cow Producing 15 pounds of Milk Per Day

	Nutritional Periods			
	1	2	3	4
TDN (lbs/day)	14.5	11.5	9.5	11.2
NEm (Mcal/day)	14.9	12.2	9.2	10.3
Protein (lbs/day)	2.3	1.9	1.4	1.6
Calcium (grams/day)	33	27	17	25
Phosphorus (grams/day)	25	22	17	20
Vitamin A (I.U./day)	39,000	36,000	25,000	
27,000				

Table 14. Mineral Requirements and Maximum Tolerable Levels in Beef Cattle^a

Mineral	Unit	Requirement ^b :		
		Gestating	Early Lactating	Maximum Tolerable Concentration
Calcium	%	See Table 19		
Chlorine	%	—		
Cobalt	ppm	0.10	0.10	1,000.00
Copper	ppm	10.00	10.00	100.00
Iodine	ppm	0.50	0.50	50,000
Iron	ppm	50.00	50.00	1,000.00
Magnesium	%	0.10	0.20	0.40
Manganese	ppm	20.00	40.00	1,000.00
Molybdenum	ppm	—	See Table 19	
Phosphorus	%	0.60	0.70	3.00
Potassium	ppm	0.10	0.10	2.00
Selenium	%	0.06-0.08	0.10	—
Sodium	%	0.15	0.15	0.40
Sulfur	%	30.00	30.00	500.00
Zinc	ppm			

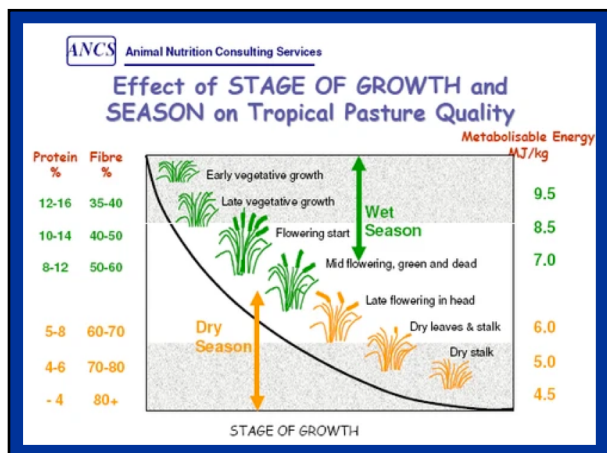
^a Taken from National Research Council publication Nutrient Requirements of Beef Cattle, Seventh Revised Edition, 1996.

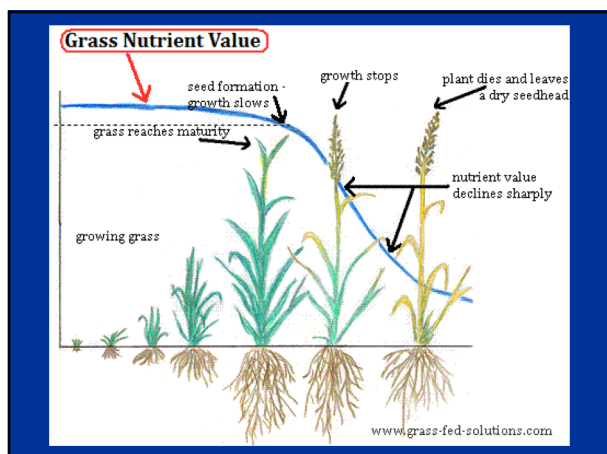
^b Requirements for most minerals are affected by a variety of dietary and animal factors. Thus, it may be better to evaluate rations based on a range of mineral requirements and for content of interfering substances than to meet a specific dietary value.

Table 15. Nutrient Requirements of Breeding Cattle

Wt ^a (lb)	Cal ^b (lb)	Daily TDN (lb)	Daily NEm (Mcal)	TDN (lb)	NEm (Mcal)	Energy in Diet (lb)	Total Protein (lb)	Calcium (lb)	Phos. (lb)	Vit. A ^c (IU)
Wt ^a (lb)	Cal ^b (lb)	Daily TDN (lb)	Daily NEm (Mcal)	TDN (lb)	NEm (Mcal)	Energy in Diet (lb)	Total Protein (lb)	Calcium (lb)	Phos. (lb)	Vit. A ^c (IU)
Pregnant yearling heifers—Last third of pregnancy										
700	0.9	15.3	4.0	7.95	35.4	0.32	NA ^d	1.3	8.4	0.27
750	1.4	15.8	4.6	7.95	40.3	0.40	0.34	1.4	9.0	0.33
800	1.9	16.8	5.6	7.95	47.0	0.48	0.43	1.5	9.8	0.33
850	0.9	16.8	6.2	8.56	54.8	0.51	NA	1.4	8.2	0.28
900	1.4	17.4	10.4	8.56	59.6	0.59	0.33	1.5	8.8	0.33
950	1.9	17.3	11.6	8.56	66.1	0.69	0.41	1.6	9.3	0.30
1000	0.9	18.3	9.9	9.15	54.3	0.51	NA	1.5	8.1	0.26
900	1.4	19.0	11.3	9.15	59.1	0.58	0.32	1.6	8.5	0.30
900	1.9	19.2	12.5	9.15	65.4	0.68	0.41	1.7	9.0	0.32
Dry pregnant mature cows—Middle third of pregnancy										
900	0.0	16.7	8.2	7.00	48.8	0.42	NA	1.2	7.0	0.18
1100	0.0	19.5	9.5	8.13	48.8	0.42	NA	1.4	7.0	0.19
1300	0.0	22.0	10.8	9.22	48.8	0.42	NA	1.5	6.9	0.20
Dry pregnant mature cows—Last third of pregnancy										
900	0.9	18.2	9.8	9.15	54.0	0.50	NA	1.3	8.0	0.27
1000	0.9	19.6	10.5	9.72	55.6	0.50	NA	1.6	7.9	0.26
1200	0.9	22.3	11.8	10.83	52.9	0.49	NA	1.7	7.8	0.26
1400	0.9	24.9	13.1	11.90	52.5	0.48	NA	1.9	7.6	0.26
Two-year-old heifers nursing calves—First 3-4 months postpartum—10 lb milk/day										
700	0.5	15.9	10.3	9.20	45.1	0.40	0.40	1.06	11.3	0.36
800	0.5	17.6	11.2	9.87	43.8	0.46	0.39	1.09	10.8	0.34
900	0.5	19.2	12.0	10.49	42.7	0.44	0.37	1.09	10.4	0.32
1000	0.5	20.8	12.9	10.89	41.9	0.42	0.36	1.10	10.0	0.31
Cows nursing calves—Average milking ability—First 3-4 months postpartum—10 lb milk/day										
900	0.0	18.8	10.8	10.49	37.3	0.33	NA	1.99	9.9	0.28
1100	0.0	21.6	12.1	11.54	36.0	0.34	NA	2.09	9.4	0.27
1300	0.0	24.3	13.4	12.67	35.1	0.32	NA	2.20	9.1	0.27
Cows nursing calves—Superior milking ability—First 3-4 months postpartum—20 lb milk/day										
900	0.0	18.7	13.1	13.81	69.8	0.74	NA	2.40	12.9	0.41
1100	0.0	22.3	14.5	14.89	65.2	0.67	NA	2.60	11.9	0.38
1300	0.0	25.3	15.9	16.07	62.6	0.64	NA	2.80	11.2	0.36

^a Average weight at a feeding period.
^b Approximately 1 lb = 0.2 pound of weight gain/day over the last third of pregnancy is accounted for by the products of conception, 0.9 to 2.3 lb of milk and 0.1 pound of protein are provided for the requirement for a calf with a birth weight of 80 pounds.
^c Dry matter consumption should vary depending on the energy concentration of the diet and environmental conditions. These intakes are based on the energy concentration shown in the table and assuming a thermoneutral environment without stress or usual conditions. If the energy concentration of the diet to be fed exceeds the tabular value, less feeding may be required.
^d Vitamin A requirements per pound of diet are 1,273 IU for pregnant heifers and cows and 1,773 for lactating cows and breeding heifers.
^e Not applicable.
^f Includes 0.34 Meq NEm/lb of milk produced.
^g Includes 0.03 pound protein/lb of milk produced.





Digestor de Estiercol Nasco

CRIBA ARRIBA	<20% (20% INICIO DE LACTANCIA)	EXCESO DE PARTÍCULAS LARGAS MALA CALIDAD DE FORRAJE CAMBIOS REPENTINOS EN LA RACIÓN PROTEÍNA DEGRADABLE E INADECUADA pH INADECUADO EXCESO DE GRASA EN LA RACIÓN ACIDOSO EN EL RUMEN MALA FORMACIÓN DE MECH NUDOS	ESTRILLA DE ALGODÓN Y GRANOS COMPLETOS O PARCIALES PROCESADO INADECUADO DEL GRANO EXCESO DE INCLUSIÓN DE GRANOS EN LA DIETA SELECCIÓN DE CONCENTRADO EN LA TIERA POR LAS VACAS MALA FORMACIÓN DE MECH NUDOS pH INADECUADO
CRIBA EN MEDIO	<20%		
CRIBA ABAJO	>50%	LOGRAR LA META = BUENA EFICIENCIA RUMINAL MALA CALIDAD DE ALIMENTO EN EL RUMEN EVALUAR PRODUCTOS DE BIENES EVALUAR EL COMPORTAMIENTO DE LA VACA	

Guidelines for using the box

Guidelines suggested two years ago have not changed greatly. Table 1 lists University of Illinois Extension recommendations for silage and TMR.

Table 1. Recommended percent of feed particles in various boxes in the Penn State unit.

Feed source	Top Box	Middle Box	Bottom Box
	-----% of total-----		
	-		
Haylage	10-20	40- 60	< 40
Corn silage (3/4 inch TLC & processed)	10-20	50-60	<30
Corn silage (1/4 inch TLC & unprocessed)	<5	>50	<50
TMR	5-15	40-50	<50
