



## agriculture & rural development

Department:  
agriculture  
& rural development  
**PROVINCE OF KWAZULU-NATAL**

### **Beef Production: The Basics**

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#### **Herd Structures for Different Systems**

Cattle numbers, live mass and AU (animal units) for weaner, tolly and ox beef production systems containing 100 breeding cows each are reflected in Tables 21, 22 & 23 respectively. The QPro-based programme BEEFFLO was used to generate this data. Table 23 represents the calculated monthly and annual feed requirements for the respective production systems. The following is noteworthy:

1. A standard mean cow live mass of 450 kg, with an 80% calving rate was used throughout.
2. It was assumed that heifers are bred at the same time as the cow herd.
3. Weaning mass was taken as 198 kg, which is relatively high (44% of mature cow live mass) compared to most commercial herds, where the 205 day weaning mass averages 42% of mature cow live mass in South African performance tested herds.
4. With the BEEFFLO program, mortality is not taken into account in the beef stockflow table, but is subtracted from the animals sold.
5. Breeding seasons were adapted to reflect that in sourveld areas most herds are bred earlier (with the breeding season starting in November) and use a weaner beef production system, whereas in sweetveld areas, ox systems are usually advised and the breeding season starts later. The tolly system was taken as intermediate to the other systems.
6. For the tolly and ox systems, the age at which the progeny were sold was adjusted so that sales take place during November of each year.
7. An examination of the data reflected in Table 23 indicates that a weaner system has a higher mid-summer dry matter feedneed compared to ox- or tolly systems, and a lower feedneed during the first two months after weaning. It is noteworthy that, for the specific systems shown, July and especially August and September, are months with a relatively higher feedneed for which provision must be made, and should rains arrive late, feed shortages can be experienced. Late rains can even result in feed shortages during October and November.

**Table 23.** BEEF STOCKFLOW AND FEEDNEED for: Weaner production system, 80% conception rate, Bulls in 1 Nov.

COW MEAN MASS	450	REPLACEMENT%	20
COWS IN HERD	100	NO. MATURE COWS	80
BULLS IN HERD	4	NO. 1ST CALVERS	20
COW CALVING: %	80	AGE@WEANING:mths	8
Mth & % drop	8 60	MASS@WEANING: kg	198
Mth & % drop	9 30	AGE-1STCALF: mths	35
Mth & % drop	10 10	HFR SALE AGE:mths	8
1ST CALVERS: %	90	L_MASS@SALE:kg	188.1
Mth & % drop	8 75	STR SALE AGE:mths	8
Mth & % drop	9 20	L_MASS@SALE:kg	207.9
Mth & % drop	10 5	MORTALITY % PA	2



STEERS	No	0	0	0	0	0	0	0	0	0	0	0	0	0
9 TO 8 Mths	LMass	0	0	0	0	0	0	0	0	0	0	0	0	0
	AU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STEERS	No	0	0	0	0	0	0	0	0	0	0	0	0	0
0 TO 0 Mths	LMass	0	0	0	0	0	0	0	0	0	0	0	0	0
	AU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STEERS	No	0	0	0	0	0	0	0	0	0	0	0	0	0
0 TO 0 Mths	LMass	0	0	0	0	0	0	0	0	0	0	0	0	0
	AU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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**SALES, PURCHASES:** SUM AU      133 146 153 156 157 193 198 203 205 209 131 132

BULLS BOUGHT	@ R	No	2											
BULLS SOLD	@ R	No						2						
CULL COWS	@ R	No									18			
IN-CALF HFRS	@ R	No						4						
WEANER HFRS	@ R	No									26			
WEANER STRS	@ R	No									49			

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**Table 24.** BEEF STOCKFLOW AND FEEDNEED for: Tolly production system, 80% conception rate, Bulls in 1 Dec.

COW MEAN MASS	450	REPLACEMENT%	20
COWS IN HERD	100	NO. MATURE COWS	80
BULLS IN HERD	4	NO. 1ST CALVERS	20
COW CALVING: %	80	AGE@WEANING:mths	8
Mth & % drop	9 60	MASS@WEANING: kg	198
Mth & % drop	10 30	AGE-1STCALF: mths	35
Mth & % drop	11 10	HFR SALE AGE:mths	15
1ST CALVERS: %	90	L_MASS@SALE:kg	340
Mth & % drop	9 75	STR SALE AGE:mths	15
Mth & % drop	10 20	L_MASS@SALE:kg	340
Mth & % drop	11 5	MORTALITY % PA	2
BIRTH MASS KG	32	FODDER INTAKE %	80

  

	7	8	9	10	11	12	1	2	3	4	5	6
SUB-CLASS	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
BULLS	No	4	4	4	4	4	4	4	4	4	4	4
	LMass	585	585	585	585	585	585	585	585	585	585	585
	AU	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
DRY COWS	No	80	80	32	8	0	0	0	0	0	0	80
	LMass	450	450	450	450	0	0	0	0	0	0	450
	AU	78.2	78.2	31.3	7.8	0.0	0.0	0.0	0.0	0.0	0.0	78.2
LACTATING COWS	No	0	0	48	72	80	80	80	80	80	80	0
	LMass	0	0	450	450	450	450	450	450	450	450	0
	AU	0.0	0.0	56.3	84.4	93.8	93.8	93.8	93.8	93.8	93.8	0.0
1ST CALF COWS	No	0	0	15	19	20	20	20	20	20	20	0
	LMass	0	0	405	425	447	450	450	450	450	450	0
	AU	0.0	0.0	16.3	21.4	23.3	23.4	23.4	23.4	23.4	23.4	0.0



<b>SALES,</b>		SUM	179	184	200	210	216	157	193	198	203	205	209	175
<b>PURCHASES:</b>		AU												
BULLS BOUGHT	@ R No			2										
BULLS SOLD	@ R No										2			
CULL COWS	@ R No													18
IN-CALF HFRS	@ R No											4		
WEANER STRS	@ R No							25						
HEIFERS	@ R No							49						

**Table 25.** BEEF STOCKFLOW AND FEEDNEED for: Ox production system, 80% conception rate, Bulls in 1 Jan.

COW MEAN MASS	450	REPLACEMENT%	20
COWS IN HERD	100	NO. MATURE COWS	80
BULLS IN HERD	4	NO. 1ST CALVERS	20
COW CALVING: %	80	AGE@WEANING:mths	8
Mth & % drop	10 60	MASS@WEANING: kg	198
Mth & % drop	11 30	AGE-1STCALF: mths	35
Mth & % drop	12 10	HFR SALE AGE:mths	26
1ST CALVERS: %	90	L_MASS@SALE:kg	420
Mth & % drop	10 75	STR SALE AGE:mths	26
Mth & % drop	11 20	L_MASS@SALE:kg	420
Mth & % drop	12 5	MORTALITY % PA	2
BIRTH MASS KG	32	FODDER INTAKE %	80

		7	8	9	10	11	12	1	2	3	4	5	6
	SUB-CLASS	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
BULLS	No		4	4	4	4	4	4	4	4	4	4	4
	LMass		585	585	585	585	585	585	585	585	585	585	585
	AU		4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
DRY COWS	No		80	32	8	0	0	0	0	0	0	0	80
	LMass		450	450	450	0	0	0	0	0	0	0	450
	AU		78.2	31.3	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.2
LACTATING COWS	No		0	48	72	80	80	80	80	80	80	80	0
	LMass		0	450	450	450	450	450	450	450	450	450	0
	AU		0.0	56.3	84.4	93.8	93.8	93.8	93.8	93.8	93.8	93.8	0.0
1ST CALF COWS	No		0	15	19	20	20	20	20	20	20	20	0
	LMass		0	405	425	447	450	450	450	450	450	450	0
	AU		0.0	16.3	21.4	23.3	23.4	23.4	23.4	23.4	23.4	23.4	0.0
TOTAL CALVES	No		0	63	91	100	100	100	100	100	100	100	0
0 TO 8 Mths	LMass		0	76	76	78	98	118	138	158	178	198	0
	AU		0.0	0.0	0.0	0.0	0.0	35.8	40.2	44.6	48.7	52.8	0.0
REPLACEMENT HEIFERS	No		24	24	24	24	24	24	24	24	24	24	24
9 TO 20 Mths	LMass		222	230	238	246	254	262	270	278	286	294	206
	AU		13.8	14.2	14.5	14.9	15.3	15.6	16.0	16.3	16.7	17.0	13.0
REPLACEMENT HEIFERS	No		24	24	24	24	24	24	24	24	20	20	24
21 TO 32 Mths	LMass		317	325	333	341	349	357	365	373	381	389	301
	AU		18.0	18.4	18.7	19.1	19.4	19.7	20.0	20.4	17.3	17.5	17.4
REPLACEMENT HEIFERS	No		20	5	1	0	0	0	0	0	0	0	20
33 TO 35 Mths	LMass		413	421	429	0	0	0	0	0	0	0	397
	AU		18.3	4.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.8
HEIFERS	No		26	26	26	26	26	26	26	26	26	26	26
9 TO 8 Mths	LMass		237	250	263	276	289	302	316	329	342	355	211
	AU		15.7	16.4	17.0	17.6	18.2	18.9	19.5	20.1	20.7	21.3	14.4
HEIFERS	No		26	26	26	0	0	0	0	0	0	0	26
0 TO 0 Mths	LMass		394	407	420	0	0	0	0	0	0	0	368
	AU		23.0	23.6	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
HEIFERS	No		0	0	0	0	0	0	0	0	0	0	0
0 TO 0 Mths	LMass		0	0	0	0	0	0	0	0	0	0	0
	AU		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STEERS	No		50	50	50	50	50	50	50	50	50	50	50
9 TO 8 Mths	LMass		237	250	263	276	289	302	316	329	342	355	211



	AU	30.2	31.5	32.7	33.9	35.1	36.3	37.4	38.6	39.7	40.9	27.7	29.0
STEERS	No	50	50	50	0	0	0	0	0	0	0	50	50
0 TO 0 Mths	LMass	394	407	420	0	0	0	0	0	0	0	368	381
	AU	44.2	45.3	46.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.0	43.1
STEERS	No	0	0	0	0	0	0	0	0	0	0	0	0
0 TO 0 Mths	LMass	0	0	0	0	0	0	0	0	0	0	0	0
	AU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

<b>SALES, PURCHASES:</b>	SUM AU	237	242	246	262	273	207	210	248	255	262	265	271
BULLS BOUGHT	@ R No	2											
BULLS SOLD	@ R No								2				
CULL COWS	@ R No	18											
IN-CALF HFRS	@ R No									4			
WEANER STRS	@ R No						25						
HEIFERS	@ R No					49							

**Table 26.** Calculated monthly feed requirements of different beef production systems (tons per month)

**Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Year**

**Weaner system**

ANIMAL UNITS	133.1	145.8	152.5	155.8	156.7	193.1	198.3	203.3	204.7	209.3	131.1	132.1	168
D M INTAKE	36.0	42.1	44.7	47.3	50.0	52.8	54.3	54.0	53.9	52.6	35.5	34.8	558
FODDER REQD + WASTE	45.1	52.6	55.9	59.2	62.5	66.0	67.9	67.5	67.4	65.7	44.4	43.5	698

**Tolly system**

ANIMAL UNITS	179.2	183.6	199.5	209.5	216.0	156.7	193.1	198.3	203.3	204.7	209.3	174.8	194
D M INTAKE	50.8	52.1	58.1	63.1	65.4	50.3	52.8	53.3	55.0	53.6	52.9	48.2	656
FODDER REQD + WASTE	63.5	65.1	72.6	78.9	81.8	62.9	66.0	66.6	68.8	67.0	66.1	60.3	820

**Ox system**

ANIMAL UNITS	246.2	262.4	272.7	207.3	210.0	248.2	255.2	261.9	265.0	271.4	237.0	241.6	248
D M INTAKE	69.4	76.4	78.9	62.5	65.2	68.9	71.0	69.6	71.6	70.2	66.9	66.2	837
FODDER REQD + WASTE	86.7	95.5	98.7	78.2	81.5	86.2	88.8	87.1	89.5	87.8	83.6	82.8	1046