

APPENDIX 5
"BEEF PRODUCTION"

A17

Table 1; Technical coefficients

(i) Mortality rates

calves, heifers, steers 10 %

adults 5 %

(ii) Culling rates

cows ' 10 %

bulls 10 %

(iii) Calving percentage 70 %

(iv) Weaning rate

for the first 4 years 55 %

with more experience 65 %

(v) Bull:cow ratio 1:25

(vi) Age at first mating of females 2,25 yrs.

(vii) Maximum growth rate 320 gr./day

(viii) Live slaughter weight 350 kg

'(ix) 7' Dressed slaughter weight 175 kg

Table 2; Production alternatives

(i) 1 Animal unit (AU) : 3 hectares of land

Maximum 500 AU's

Alternative A: Steers and excess heifers slaughtered at year 4

Weight gains approx. 240 gr./day

cows 255

calves (0-1yr) 140

heifers (1-2yrs) 63

steers (1-2yrs) 63

steers (2-3yrs) 57

steers (3-4yrs) 5

bulls 10

Total Animal Units 499

Total number of animals 639

(ii) 1 Animal Unit :

A
Alternative B:Steers and excess heifers slaughtered at year 3
Weight gains approx.320 gr./day
cows
calves (0-1yr)
heifers (1-2yrs)
steers (1-2yrs)
steers (2-3yrs)
bulls
Total Animal Units
Total number of animals
2 hectares of land
Maximum 750 Animal Units
Improved management conditions
284
156
70
70
63
12
499
655
Alternative C:Steers and excess heifers slaughtered at year 4
Weight gains approx.240 gr./day
cows
calves (0-1yr)
heifers (1-2yrs)
steers (1-2yrs)
steers (2-3yrs)
steers (3-4yrs)
bulls
Total Animal Units
Total Animals
Alternative B:Steers and excess heifers
Weight gains approx.320 gr.
cow;
calves (0-1yr)
5515055 (1-2yrs)
steers (1-2yrs)
steers (2-3yrs)
bulls
Total Animal Units
Total Animals
(n
360
234
100
100
95
90
14
759
993
slaughtered at year 3
18

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Table 3; Slaughters

	Alt.A	Alt.B	Alt.C	Alt.D
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Cull cows	26	28	36	41
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Cull bulls	1	1	1	1
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Surplus	18	21	41	47
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heifers

Finished	48	60	86	103
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steers

Total	93	110	164	193
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% Offtake	18.6	22	21.6	25.5
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(of AU)

Kg.Meat	18400	20900	30800	35900
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Table 4; Mortalities

	Alt.A	Alt.B	Alt.C	Alt.D
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Cows	13	14	18	20
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Bulls	1	1	1	1
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Calves	14	16	23	27
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(0-1 yr)

Heifers	6	7	10	10
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(1-2 yrs)

Steers	6	7	10	10
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(1-2 yrs)

Steers	6	6	10	11
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(2-3 yrs)

Steers	5	-	9	-
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(3-4 yrs)

Total	51	51	81	79
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 (Table 5; Rate of reduction in relation to population
 growth.
 PHASE I II III IV V
 Population 1000 2000 3000 4000 5000
 Kg.meat/ 20 20 20 20 20
 person/year
 Total kg. 20000 40000 60000 80000 100000
 required meat/
 year

Alt. A:
 Kg.meat 18400 18400 18400 18400 18400
 produced
 % of re- 92 46 30 23 18
 guirements
 VAlt. Bzrr
 Kg.meat 20900 20900 20900 20900 20900
 produced '
 % of re- 100 50 35 26 21
 guirements
 Alt. C:
 Kg.meat 30800 30800 30800 30800 30800
 produced
 % of re- 154 77 51 38 31
 guirements
 Alt. D:
 Kg.meat 33775 33775 33775 33775 33775
 produced
 % of re- 169 84 56 42 34
 reguirements

Table 6; Combined red meat Eroduction from beef and milk
Eroduction in relation to poEulation growth.

Beef production: Alternative B is chosen as production
level.

Milk production: Castrates fed up to year 3.Slaughter
weights 350 kg and 50% dressing.

Production follows required milk
production for population growth
phase I-V.

PHASE I II III IV V

Human population 1000 2000 3000 4000 5000

Requirements 20 20 20 20 20

(kg meat/person/ year)

Total 20000 40000 60000 80000 100000

MeAt from Beef ' 20900 20900 20900 20900 20900
Ranch (kg/year)

Meat from dairy - 1200 7400 7800 11600
unit (kg/year)

OTAL 20900 22100 28300 28700 32500

Kg. meat/person 20.9 11.0 9.4 7.2 6.5

% Of total 105 55 47 36 33

requirements

A 22

Table 7; Feed

Taking Alternative B. as production level the feed situation will be as follows:

(i) Pasture

Year round grazing for the main herd.

32 (40%) of the 3 year olds for slaughter in the period of February to June (rainy season).

(ii) Feedlot

Approximately 50 (60%) of the annual slaughters of 3 year old steers and heifers in the period June to January (dry season).

Weight gain: 320gr./day

Liveweight: 300-350 kg.

Dry matter intake: 8 kg DM /day

(DMI) kg DM /day

Minimal activity

DMI ME SFU DCP % Asgiven

kg/dax (Mcal/day) DM kg feed/day

Require- 8.0 15 5.5 400 - -

ments

Feed:

silage 4.0 0.2 2.4 120 26 15.d

stover 3.0 6.3 1.2 51 90 3.3

cotton- 1.0 2.4 0.8 300 90 1.1

seedcake

Total 8.0 17.9 4.4 479 - 19 8

% of 100 119 80 119 - -

requirements

(iii) Minerals

Mineral licks will be placed in the pasture and in the feedlot.

Table 8; Feed consumption

Feed consumption under Alternative B will be as follows:

(i) Pasture

Feed consumption varies with availability and quality.

(ii) Feedlot

Feed consumption in feedlot will be as follows:

No. of Days in Kg feed TOTAL CONSUMPTION

Animals Feedlot consumed/day KG DM KG FRESH

Silage: 50 210 15.5 42300 162750

Stover: 50 ' 210 3.3 1 32000 34600

Cotton- 50 210 1.1 10400 11600

seedcake

(iii) Minerals

Minerals will be fed to all animals in phe hepq year round.

The total consumption will be approximately 20000 kg yearly.

Table 9; Water requirements

Water requirements:

Cows, heifers, steers: 20-40 liters/day

Bulls 50 " "

Calves 20 " "

At suggested production level Alternative B:

Daily Yearly

Cows 11360 liters 4146400 liters

calves 3120 " 1138800 "

Heifers 2800 " 1022000 "

Steers 5020 " 1941800 "

Bulls 000 " 219000 "

Total 23200 liters 8468000 liters

Table 10; Land requirements.

(i) Pasture

Beef production will be limited to the 1500 ha.set aside for this activity.

(ii) Feedlot

No land requirement for chopped stover and cottonseed cake.

For silage the land requirement will be:

42300kg DM : 1st DM/ha : 2.8 ha. 1 30% spoilage :3.6 ha.

Table 11; Labour requirements

For the suggested production level of Alternative B:

(i)Unskilled labour

(ii)Skilled labour

(17 x 365)

(5 x 365p

6205 Man days/year

1825 Man days/yea;

Activitx

A.Rerd management

Check cull

cows and heifers

Flush breeding

cows and heifers

Screen and cull

bulls

Breeding period

Calving period

Dehorning

Castration

Weaning

B.Disease control

Trypanosomiasis

inoculation

Deworming

Foot and Mouth

Brucellosis

Branthrax

Rinderpest

Haemorrhagic

septicaemia

X

Table 12; Suggested xearlx ogeration schedule

Jun

Jul

m

S_ep.

OctN_0! 222

X(Weaners)

SZ

Table 13; Chart of organizational management

DAKAWA FARM MANAGER

ASSISTANT FARM MANAGER (BEEF)

CHIEF DAKM'a'A/HAZIMBU VETERINARY OFFICER

OFFICE SECTION VETERINARY ASS.

PRODUCTION ASS .

TECHNICAL SECTION

HERDSF-H'ZN, FEED LOT AND PASTURE WORKERS, NIGHT WATCHMEN

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