AN ANALYSIS OF CALVING SEASON STRATEGIES

by

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B. S., Kansas State University, 1983

A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Agricultural Economics

KANSAS STATE UNIVERSITY Manhattan, Kansas

1986

Approved by:

Major Professor

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### ACKN OWLEDGEMENTS

I would like to express my sincere appreciation to Dr. Don D. Preter for the professional knowledge and guidance he gave me during the preparation of this thesis and for serving as my major professor during my graduate program.

In addition, I would like to express my appreciation for the effort of Dr. Larry R. Gorah for his knowledge and constructive suggestions while serving as a committee member. Gratitude for their professional expertise is also due. Secry L. Kuhl, Keich 0. Zoelmar and Track J. Brazie.

A special thanks goes to Dr. Orlen Grunewald for his guidance throughout my course work and for serving on my graduate committee.

Finally, I wish to thank my wife, Donnita, for her encouraging love and dedicated assistance during the past year.

### CHAPTER I

# INTRODUCTION

The beef industry is the single largest segment of the Kanses agricultural economy, comprising 51.9 percent of the total value of production in 1984. Since 1930, cattle have averaged over 40 percent of the total value of agricultural production while wheat, the second largest, has averaged just over 27 percent.<sup>1</sup>

The beef cowherd is an integral component of this industry with Kanasa annual cow numbers ranging between 1.5 to 2 million head, the last twenty years, according to USDA cattle inventory data. Beef cows are well adapted to the Kanasa plains because they can effectively utilize the large supply of forage and range that is available. Total range area in Kanasa is estimated to be 18,975,000 acres. Of this total, 16,272,000 is native grass species, including tall and shortgrass rangelands while the other 2,703,000 acress is made up of introduced forage species.<sup>2</sup>%arily four million acress of this range area is located in a 12 county

<sup>1</sup>Robert L. Vossen, Kansas Department of Agriculture, USDA, ERS, Topeka, Kansas, 4 December 1985.

<sup>2</sup>U.S. Department of Agriculture, Soil Conservation Service, "Soil and Water Resources Conservation Act", Washington D.C. (1979).

helt in eastern Kansas, bounded on the north by Riley and Pottwatomic counties and on the south by Govley and Chastaugun counties. This area, known as the Flint Hills, alone can provide forage for up to 500,000 heef cows. Another potentially large forage source is the crop aftermath that results from the 30.6 million acres of cropland in Kansas. Although often of low quality this forage can effectively provide adequate nutrition to hreeding herds during certain atages of production.

Cowherd profitability has always been cyclical in nature. During the early 1970s when interest rates, fuel costs and other factors of production started to rise many ranchers were kept afloat because of the increased value of their land due to high inflation. Today, while interest rates and other costs of production are still relatively high, inflation has cooled considerably and the beef industry is currently caught in a severe cost/price squeeze. Now, more than ever, cattlenen must cut costs and determine the most profitable methods of production. An important factor that should he addressed is time of calving. The calving season has impact throughout the year, from changing the smount of feed required to maintain the heef cow to influencing the prices producers receive for their calves. In addition, hecause of the difficulties and costs involved in significantly changing the time when a heef cow calves, the calving sesson decision not only impacts the profitability of the cattle operation in the shortrun hut in the longrun as well.

The most significant inpact of calving season on production costs occurs as a result of the differing amounts and qualities of feed that a heef cow needs depending upon her specific stage

of production.<sup>3</sup> Figure 1 shows the average monthly total digestible nutrient (TDB) requirements of an 1100 lb beef cov, calving both during the fall and spring and the pounds of TDB provided by native bluestem range. Matching those stages of production where the beef cove meeds are highest with those times when range quality is at its highest, for example, by calving in egring, a producer could lower his yearly feed bill.

A study is needed that can provide data about the effects of clying season on supplemental feed requirements. Producers and ag specialists face numerous uncertainties when considering the merits of a particular calving season and objective information about the differing amounts of supplemental feed is necessary to aid them in the decision making process.

Due to the bigh degree of seasonality in cattle prices, calving season can also impact profitability by influencing when cattle are ready for sale. Many Kansas cattlemen calve their berds in spring, in order to lower their winter feed bill.

<sup>3</sup>The following discussion of the feed requirements of beef cattle was derived from "Cow Herd Nutrition", a KSU extension bulletin by Larry Corah. Generally, the 365-day cow year is split into four distinct periods, each with a unique set of nutritional requirements necessary to meet the particular needs of the cow. Period 1 is the 90 days following calving when the cow is lactating at her highest level while trying to maintain maximum calf growth. In addition, during this period the cow must undergo uterine involution, start recycling and rebreed. This is clearly the most important nutritional period. Period 2 occurs during the following 120 days when the beef cow is in the early stages of pregnancy while still lactating and maintaining a calf. The third period lasts for 90 days and is called midgestation, during this time the cow must primarily maintain her developing fetus. It should be noted that this period is where the beef cows nutritional needs are at their lowest level of the year and is a time where low quality forages work extremely well in beef cow rations. Period 4 is the second most important period in the beef cow year. During this 60 day period 70% to 80% of the total fetal growth occurs and the cow must also prepare for lactation.

Figure 2 shows that if a cattleman wishes to wean and sell his calves at seven months of age he will sell in the fall, on average encountering the lowest seasonal prices of the year. Olearly, there is reason to analyze calving season and itr effects on calf prices and cowherd profitability. To be useful, the analysis of calf prices should focus not only on seasonal indices, but also on the price changes between incrementally larger calf weights. This would better reflect the price relationships faced by producers who consider retaining ownership of their calves after venning.

It is generally estimated that fifteen to thirty percent of Kansas cowherds calve in the fall with the balance calving primarily in the spring months of February through May. The question of whether to calve in the spring, the fall or a combination of the two has often been asked, but has never been adequately answered. Many of the advantages or disadvantages of one calving season as compared to another or a combination of the two are often subjective and uniquely related to the individual cattle operation. Factors such as the timing of labor use, for example, depend on what other enterprises are employed. While it is an advantage to breed cattle on grass where the natural flushing effect of lush spring grass improves conception rates, it also makes artificial insemination (AI) more difficult and time consuming since the cattle are scattered across summer pastures. On the other hand, while it is easier to use AI in fall calving herds when cattle are closer at hand for feeding, the winter cold decreases conception rates.

Figure 1.



Figure 2.

ERCENT

4-5 CWT FEEDER STEER SEASONAL INDEX M.F. #1. KANSAS CITY (1979-84)



In summary, producer decisions on calving season are all too often affected by factors that are subjective in nature and not based on costs of production and revenue generated. Today, with many cow-calf operators financially squeezed, it is more important than ever to conduct an analysis of calving season based solely on costs incurred and income received. This type of analysis could provide producers and ag advisors useful, objective information when selecting a calving season for a particular operation. The analysis should concentrate on 1) feed costs, since they are the single largest cost component and 2) calf prices, because they are the major source of revenue. This does not imply that other factors are not important, but that other factors should not be considered until first, the individual knows the implications that calving season has on costs and returns, and second the individual knows what resources are available and what enterprise combinations will be employed on their particular operation.

The results of this study, while not answering the question of which calving season is best for an individual operation, should provide important data on the relative costs and price relationships that are involved. These relative costs and price relationships can be used by cattlemen and ag advisors to determine what some of the more subjective reasons for a particular calving season actually cost. Producers should combine the results of this study with other factors, such as resources available and competing season for their particular cattle making the decision of calving season for their particular cattle operation.

#### CHAPTER II

# LITERATURE REVIEW

Evaluation of cost-price relationships between calving seasons is an area where little research has been concentrated. Agricultural research of calving season has, in the past, primarily focussed on production. Today, with many cattlemen feeling the pinch of a severe cost-price squeese, it is important to analyze how input and cattle prices affect the profitability of differing calving periods.

An extensive computer search was conducted through Parrell Library at Kansas State University to obtain sources for a review of literature. The file searched was Cain and the essent term, calving season, was coded into the computer to sid in the process. In addition, the following indices were also examined for data references pertaining to calving season: The <u>Brader's</u> <u>Guide to Periodical Literature. Biological and Arricultural Index</u> and the <u>Bibliography of Arricultura</u>. Several articles and research papers were found, but few concentrated on cost and or price relationships.

Marketing is a key element in a cov-calf operation. Selling calves when prices are seasonally high and buying supplemental feedstuffs when feed prices are low can often spell the

difference between profits and losses. A system of analyzing costs of production and calf prices at each phase of calf production (wenning, backgrounding, graving, etc.) was used by Pretreer (1984).<sup>1</sup> The system examined spring calving cowherd profits by subtracting accumulated cowherd costs from calf calf weight. Data on profitability was calculated for sech production stage up to and including the finishing stage. This approach will be utilized as a method of organizing the applicable production options faced by each calving period and comparing the different calving meason management stretegien:

Smith (1982), developed a systematic method for selecting profitable combinations of forages, land and cattle types,<sup>2</sup> The research did not evaluate calving season, but did study the seasonal price charges that occurred as a feeder calf was grazed. This concept will be used to analyze the profitability of the production options from vesning to retained ownership that are applicable to each individual calving period. The decision of when to sell a calf depends not only on the costs currently invested, but also on the expectations of future price direction. A study is needed that looks at seasonal price charges and how they affect different calving seasons. The result can then be used to aid producers and ag specialists when 1) choosing a

<sup>1</sup>Don D. Pretzer, "Beef Programs for Profit" (Dillon, Colorado:Great Plains and Western Outlook, July 24-26, 1984).

<sup>2</sup>D. Smith, "An Analysis of Beef-forage Grazing Systems"(MS. thesis, Kansas State University, 1982).

particular calving season and 2) when making the sell at weaning or retain ownership to sell later decision.

Comparisons of the cost-price relationships involved in calving season call for an analysis hased on sound production data. It is in this area that most research regarding calving season has taken place. Production data that examines how feed and forage resources are utilized by heef cowherds is important to this analysis, since consumption and production data must he calculated and held constant among calving seasons to better study cost-price effects. A method of determining the amount of range supplementation necessary for a heef cow based on her particular stage of production and the nutritional value of the rance was used at Kanaga State University by Corah and Smith (1978).3 This method subtracted the nutrient requirements of the heef cow from the nutritional value of the range. Nutritional deficits were then made up hy the least cost feed supplement available. The approach allows rations to be derived regardless of the cows stage of production or time of calving and will be the method used in this thesis.

Some production data uncovered in the literature review dealt with comparisons of fail vs. spring calving, and can be used as parameters in the development of cowherd hudgets. For example, Kartchner et al., found that forage consumption of fail calving cov-calf pairs averaged 262 over that of spring pairs. This information is useful when calculating the additional feed

<sup>3</sup>Larry Corsh and Ed Smith, "Feed Supplements for Maximum Use of Native Kange" (Manhattan Kansas: Cooperative Extension Service, L-517 [1978]).

supplementation necessary for spring and fall calving cowherds. In addition, research by Welsen et al. (1982) and Chestnutt (1982) emphasized the importance of sound nutritional programs for both spring and fall calving herds.

The literature cited in the bibliography indicates the relatively large amount of information pertaining to hoth, beef cattle production and the effects of calving season on heef cattle production, and legitimizes the coefficients used in this thesis. This production data however, while important, is not directly relevant to the objectives of this thesis and will not be discursed further in this review.

# CHAPTER III

### METHODOLOGY

The objective of this there's is to evaluate the impacts of calving season on cowherd profitability. The analysis will concentrate on; 1) cow unit feed costs, since they are the single largest cost component, 2) calf prices, because they are the major rosurce of revenue and 3) retained ownership strategies, which are an accepted method of increasing cowherd profits or decreasing cowherd lowes.

Traditionally, farmers and as specialists have used the budgeting technique as a method of selecting the most profitable plan from among a number of alternatives and of testing the profitability of any proposed change in a plan. Budgeting involves testing plans on paper before implementing it to be sure it will improve profit. There are several types of budgeting, each of which is adapted to a particular size and type of planning problem. Whole farm planning and budgeting and each flow budgeting involve plans for the entire farm or ranch business.

related, as they are used to analyze only a part of the overall business or a small change in the whole farm plan.<sup>1</sup>

This thesis, for evaluating the effects of calving senson on annual beef cowherd cost-returns, relies on the enterprise budgeting technique as the primary analytical tool. An enterprise budget is a listing of all estimated income and expenses associated with a specific enterprise to provide an estimate of ics profitability.<sup>2</sup> Enterprise budgets can be developed for each actual or potential enterprise. Each is developed on the basis of a small common unit such as one acree for crops or one bead for livestock. This permits estimate comparison of the profit for alternative and competing enterprise.

An enterprise budget for beef cowherds will be developed utilizing the lotus 123 electronic spreadsheet software program on a Zenith Z-150 microcomputer. Eight different cowherd calving season management options (enterprises) will be analyzed. Six of the options are based on year round native range. The eight options are shown on the beef cowherd cost-return budget, Table 1. The management options are classified into four sixty day calving periods, two each in the spring, February-March and April-May, and two in the the fill, September-October and November-December. The two fall calving periods are further analyzed by dividing them into waning at seven months of age or nine months.

<sup>2</sup>Ibid.

<sup>&</sup>lt;sup>1</sup>Ronald D. Kay, Farm Management: Planning, Control, and Implementation, (New York: McGraw-Hill, 1981) pp.60-61.

TRBLE 1 .- Sample beef coverend cost-return budget

		advestiged.	2000220000				distabilities.		
### COSTS ###		SPR	INS	FF	LL	EF	EL	FRLL	FESDLE
	BORN :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
1. TOTAL WARIABLE COSTS	NERNED:	MOV 1	NOV 1	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
A. Total Feed Costs R	WEE IN DAYS:	245	184	273	274	212	227	273	274
1. Cow Unit Feed Costs									
a. Native Range		\$188, 58	\$108,68	\$121.68	\$121.68	\$121.68	\$121.68	\$83.28	\$83, 28
b. Fescue Pasture(rent	& fert./AC)	\$9, 92	\$8.98	10,00	12, 69	\$2,98	\$6.88	\$71.67	\$71.67
c. Alfalfa Hay		\$59.87	\$37.69	\$75.39	\$57.48	\$75,39	\$57,48	\$13.75	\$16.66
d. SBM 443		\$8,99	\$8.98	\$8.88	\$8.85	\$8,88	\$8.85	\$2, 98	58,99
e. Mineral & Salt		\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32
f. Grain		\$8,98	\$8, 88	\$8, 98	\$8.98	\$8,98	\$9,98	\$8.60	\$0.00
g. Grass Hay		\$9,72	\$9,72	\$18.96	\$18.96	\$18.96	\$18.96	\$7.21	\$7.98
Total Cow Unit Feed C	losts	\$1B1.72	\$155.53	\$211.27	\$282.21	\$211.27	\$282, 21	\$179.16	\$182.76
2. Sull & Replace. Feed C	losts/C-C unit	\$52.58	\$52.58	\$52.58	\$52.58	\$52.58	\$52.58	\$52.58	\$52.58
Total Feed Costs		\$234.38	\$212.11	\$263.86	\$254.79	\$263.86	\$254,79	\$231,74	\$235.34
6. Labor		\$25.28	\$25.28	\$33.68	\$33.60	\$33.68	\$33.68	\$33.68	\$33.68
C. Other Variable Costs (He	Id Constant)	\$55,85	\$55,85	\$55,85	\$55,85	\$55, 85	\$55,85	\$55,85	\$55.85
D. Interest (= Half of VC a	int, rate)	\$22,86	\$21.25	\$25,61	\$24.96	\$25.61	\$24, 95	\$23.29	\$23.55
TOTAL VARIABLE DISTS		\$338, 21	\$314.41	\$378, 92	\$369.28	\$378.92	\$369.20	\$344,48	\$348.34
11. THINK FINED CONTS UMeld	Constant)	\$167.82	\$167.82	\$167.02	\$167.02	\$167.82	\$167.62	\$167.62	\$167.82
TTT THTP: COSTS (TWO+TEC)		\$585,23	\$681.66	\$545.94	\$536.22	\$545, 94	\$536.72	\$511.50	\$515.36
						a part la part			
ARE RETURNS ARE	ADRN 1	FFB-MAR	ACR-MRY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
	WERNED:	NOV 1	NOV 1	JUL 1	SEP 1	MRY 1	JUL 15	JL 1	SEP 1
0. Steer Kean Lieteht		558	683	578	546	464	461	578	546
9 Unifer Uses Lateshit		501	788	545	515	638	653	545	515
C. Calif Like Dendured/Cox		482	752	585	477	485	420	585	477
11 DelCCC									
6 Steen Drive/Det at Usanin		\$55.31	\$58,18	\$55, 93	\$64.99	\$71.11	\$55.21	\$66.83	\$64.99
8 Maifee Daige/Out at Mana		457 88	456 50	455, 58	\$57.17	\$59.71	\$55.68	\$55.58	\$57.17
C Cull Cox Price/Oct		\$35.73	\$35.73	\$41.78	\$38.51	\$44.54	\$79.65	\$41.78	\$38, 51
111 OCIENTE		100110	100110						
0 Steen Revenue (6)		\$164.12	\$123.64	\$171.76	8159 68	\$145.48	\$142.21	\$171.74	\$159,68
B Line for Reserves (#)		#00 80	664 47	498 74	400 77	\$77.92	475.56	698 74	688 22
p.netter nevenue (#)		468.69	+01.13	ACD 04	467 54	477.55	405 42	40 839	667 54
C. CETT DOW REVEnue (\$7		300-06	100.00	PDD, 24	100-01	#r 3x 56	P0.0. 1L	100.27	
TOTAL REVENUE		\$313.81	\$248.68	\$331.42	\$311.55	\$386.67	\$284.29	\$331, 42	\$311.55
			*********	*********	035225044			(MARKED IN	
111 HOL 1115 188		1026 401	14CE 771	1447 501	1457 551	/#70 PE1		(617 05)	(# 3C 70)
I. REVERUE WHATHERE DUGIS		(304,40)	1963, 737	1947-302	1937-047	(40/8 60)	14081 031	14100 001	10002 015
11. REVENUE-TUTHL CUST		(\$191.42)	(1232, /6)	(9214.32)	(9229.6/)	(\$213.00)	(#231, 33)	(\$104.80)	19063-017
	and a freedom	457 69	#70.07	451 76	454 82	475.91	#72 08	454 80	450.45
THE OLD DELEVEN PRICE IVA	Fiable LOSts)	#03.0C	9/2.83	+01.39	100.00	*13-21	#112.00	+47 58	+01.67
IV.CRLF BREREVEN PRICE (165	al Dosts)	\$92.25	\$115.44	\$94.59	\$33.66	\$116.35	\$112,02	16/.38	\$24.63
V. INVESTMENT:		\$4,247	\$4,236	\$4,639	\$4,634	\$4,639	\$4,634	\$4,357	\$4,359
ORDER THENRY .									
VI. SET (IN TI.) / INVESTMENTS	(m. 17. )	-2,291	-7, 275	-2.585	-2.821	-3.275	-3,615	-1.975	-2.525
VII. GRISS(Tet. Rev.)/INVEST	WENT (In.V.)	9.684	6,991	9,171	8,751	8,585	8,175	9,771	9, 315
the second second second second		21.007	01022		24.140		24.2.1.2		,

Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the cow, share
of bill, value of buildings and equipment, and value of grass.

TABLE	1	Contin	nued, Samo	le bi	ef cosherd	cost-	return	hudget	

*********				********	rencement					
\$4 FACTORS THAT W	ARY BY DALL	INE SERSON ##	SPR	1MG	F	EL.	F	LL.	FALL	FESCLE
	UN1T	PRICE	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
101111111111111111111111111111111111111	*****	Recunts are	units per	head per	year)					
I. CON UNIT FEED I	COSTS									
A.Native Range	AC .	\$12.88	8.5	8.5	9.5	9.5	9.5	9.5	6.5	6.5
B.Fescue Pasture	e AC	\$23,64	8.8	8.8	8.8	8.8	8.8	8.8	1.5	1.5
C.Alfalfa Hay	TONS	\$71.08	8.64	0.53	1.06	0.81	1.96	0.51	8.19	8.23
D. SBM 44%	TONS	\$398,88	8.98	8.93	8.98	8.83	8,98	8.83	8, 98	8,88
E.Mineral & Sait	OWT	\$5.83	0.57	8.57	0.57	8.57	8.57	8-57	8.57	8.57
F.Brain	80	\$2.55	8,88	0.00	0.00	8,99	8,98	8.98	8,98	8.88
6. Grass Hay	TONS	\$52.88	8.19	8.19	8.21	8.21	8.21	8.21	8.14	8.15
H. Fescue Fert.	AC .	\$24.14	19.99	\$8,98	\$8,98	\$9,99	58,98	18.N	\$36.21	\$36.21
1I. LABOR		\$4.28	6.0	6.8	8.8	8.8	8.8	8.8	8.0	8.0
111. REVENUE FRCT	39S	BORM 1	FED-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NON-DEC	SEP-OCT	NOV-DEC
		WERNED:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A.Steer Price/Or	t at Weanir		\$66.31	\$68.18	166.83	\$64.99	\$71.11	\$66.21	\$66.83	\$64.99
8. Steer Weisht			558	483	578	546	454	461	578	546
C.Heifer Price/D	et at Weard	inc	\$57.88	\$56, 52	155.58	\$57.17	\$59.31	\$55.68	\$55, 58	\$57.17
D. Heifer Weight			521	388	545	515	438	453	545	515
E. Days of Ape at	Sale		245	184	273	274	212	227	273	274
F. Call Cow Price	rDet.		\$36.73	\$36.73	\$41.78	\$38.51	\$44.54	\$39.65	\$41.78	\$38.51
			2023202288		*******	******				
NO FRETORS HELD C	INSTANT BY	CRLV1NG SERSON			VI. BREEL	ING HERD	OPER HERE	ENTRIESO	CONSTR	(1) ++
1. OTHER VARIABLE	COSTS				R.X Calf	Crop				983
A. Utilities, Fuel	6 011		\$17.37		8.1 Stee	rs weaned	for Sale			439
B.Vet. & Drugs			\$6.92		C.S Helf	ers weard	d for Sal			387
C. Rarketing & Bre	reding		\$7.90		U.S Helt	ers wears	d for Her	a webrace	1.9115	133
D. Repairs, Tools	Supplies		\$14.94		E. S Bull	per Con				45
E. Ruto Expense			\$1.89		F. Rverag	e Low Val	ue .			9004
F.#15C.			\$3.85		b. Hver ag	6 BATT AS	1.46			\$1,300
5. leplants			\$1.88		HLCOW L1	re				
11. BUILDINGS & EI	DIPRENT		-74		I.Sull L	ire lister (*				4100
H. 17VESTBERC			\$315		J. Salvag	e value/u				2100
B.Life			10		K. Salvag	R211			9386	
C.% Tax & Insurar	nce for Bld	g/Eqp, Livstk	1.03		L.Call C	ow Weight				1100
111. INTEREST RATE			++ The va	lues in s	action VI	BREEDIN	6 HERD, 4	re		
A.Operating Rate (%)				generally regarded as industry averages						are held
B. Fixed Funds Rate (\$)			12.25%		constant	througho	ut the an	alysis. B	with Kane	tow values
IV. NATIVE RANSE VALUE/ADRE					Universi	ty Farm H	anagement	Suide (M	F-256)	as overe
V. FESCLE PRSTURE	VALUE/ACE	F	\$591							

\* Price for Fescue Pasture = Value/Acre x 4# Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Fare Management Associations

NOTE: Some foreulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cow: assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer meaning wt. x 45% x steer price

(3) Helfer Revenue = helfer meaning st. x 385 x helfer price

(4) Doll Dow Revenue = culi cow wt. x 15# x culi cow price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf 1bs produced

(6) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

and then evaluating them with winter fescue pasture, to study how differences in range resources affect profitability.

The budgeting process is a simplified representation of reality and will only address the major variables. In this thesis, cow unit feed costs and calf revenue are the major variables to be analyzed. All other variables will be held constant or held in constant proportion among all calving seasons, with only prices changing from year to year.<sup>3</sup> This allows the analysis to better reflect the differences in calving seasons due only to cow unit feed costs and calf revenue. A smaple beef cowherd cost-return budget is located in Table 1, which provides an overall view of the budget variables and how they are utilized in this analysis. A more detailed explanation of the variables and how they are used can be found in Appendices 1-5.

Early spring calving is generally recognized to be the typical calving period in Kansas and thus was used as the control group in this study. The beef cowherd cost-return budget, by evaluating eight different calving season management strategies, allows comparisons between several management options.

1) Spring vs. Fall Calving

- 2) Early vs. Late Spring calving
- 3) Early vs. Late Fall calving
- 4) Weaning Fall calves at 7 nos. of age or 9 nos.
- 5) Fall calving: all native range vs. supplemental fescue

 $^{3}$ It is important to note that the cost and price relationships present in any given year may or may not be tryical of the norm. It is for this reason that the analysis will be conducted for each of the ten years 1975 through 1984.(we appendix 1) Goaclusiens can then be drawn from price relationships averaged year.

The nutritional requirements and performance of asimulated 1100 pound black haldy cow and her exotic sired calf will be used in all hudgets to prevent genetic differences in cattle from skewing the results. Calves were assumed horn in the middle of each calving season, for example, on March 1, May 1, Octoher 1 and December 1.

## BEEF COWHERD COST-RETURN BUDGET

The heef cowherd cost-return hudget is made up of three sections; costs, returns and analysis. Costs are divided into two parts, fixed and variable. Total fixed costs are calculated for each year and held constant among all calving season management options. A summary of the methods used to derive fixed costs are included in Appendix 2, Fixed Costs for the Beef Cowherd.

### Costs

The primary exphasis in the cost section of the budget is to evaluate differences hetween calving seasons due to the additional feed necessary to supplement the range. For this reason the variable cost section is split into three divisions, total feed costs, labor and other variable costs. Gow unit feed costs were the major feed cost component and derived hy applying selected feed prices to the amounts used in the rations of each calving system. A complete description of the feed prices used can be found in Appendix 3, Inputs for Beef Cowherd Cost-return Budgets.

The rations for each calving season management strategy were calculated with the assistance of Dr.'s Larry Corsh and Prank Brazle, extension livestock specialists famous State Doiversity, and held constant throughout the analysis. The process consisted

of subtracting the amount of nutrients provided by the range from the amount of nutrients required by the cow based upon her specific stage of production. Any ration deficiencies were met hy the least cost combination of supplemental feedstuffs. A summary of the quantities of supplemental feed/month in each cowherd ration is in Table 2. Possible ration components included native range, fescue pasture, alfalfs and grass hay and soyhean meal. Extra grass hay in the hudget represents forage needed to replace range due to snow cover. A detailed explanation of the procedures used and the assumptions made can he found in Appendix 4, Beef Cowherd Rations.

Bull and replacement heifer feed costs, the second feed cost component, is calculated each year and held constant among all calving season management options. By including these costs and holding them constant the analysis could hetter reflect the differences in calving season due only to cow unit feed costs and still retain the realism of a complete cost-return hudget. Appendix 4 contains the rations used in the calculation of this hudget input.

The cost of labor is another variable cost, it is made up of a wage rate (see appendix 3) and hours of labor required by the particular calving season. Lahor hours/calving season is an area where there is very little reliable data. Conversations with animal scientists and agricultural economists from Missouri and Kansas revealed that estimates of lahor hours/calving season ranged from 7 - 9 hours for fall calving and 5.5 - 8 hours for

INDED .	LBeel (	Cownerd I	acton Some	ar y Essenance			
part A		Tes	r Round Na	tive Ran	ge		
		SPRING	CALVING	FALL C	ALVING	FALL F	ESCUE *
Honths	Calving	(FB-MR)	(AP-MY)	(SP-OC)	(NV-DC)	(SP-OC)	(NV-DC)
Native	Range AC	8.0	8.0	9.5	9.5	6.5	6.5
Fescue	AC	0.0	0.0	0.0	0.0	1.5	1.5
part B		ALF	ALFA NEEDS	: LBS/HO	NTH (dry	matter ba	sis)
	JAN	244.7	200.4	296.5	274.6	** 99.7	139.5
	FEB	291.0	181.0	267.8	248.0	** 112.0	140.0
	MAR	381.5	202.7	213.7	213.7	108.5	108,5
	APR	333.7	160.6	166.3	166,3	0.0	0.0
	MAY	0.0	0.0	0.0	0.0	0.0	0.0
	JUN	0.0	0.0	0.0	0.0	0.0	0.0
	JUL	0.0	0.0	0.0	0.0	0.0	0.0
	AUG	0.0	0.0	0.0	0.0	0.0	0.0
	SEP	0.0	0.0	0.0	0.0	0.0	0.0
	OCT	0.0	0.0	217.0	0.0	0.0	0.0
	NOV	0.0	0.0	268.9	118.9	0.0	0.0
	DEC	115.1	115.1	290.1	290.1	0.0	0.0
	TOTAL	1366.1	859.8	1720.2	1311.5	320.2	388.0
	AS FED	1517.8	955.4	1911.4	1457.2	352.2	426.8
107	WASTAGE	1686.5	1061.5	2123.8	1619.2	387.4	469.5

#### part C Pounds of grass hay needed in winter

Grass hay needed to replace range due to snow is based on the average number of days with 1" of snow cover or more on the ground. A thirty year average was provided by Dean Bark, Climatologist Ag Exp. Station

	Nativ	e Ran	ge (Manhs	ittan)		3	escue (S	E. KS.)
	snow 1"or	days more	SPRING	FALL	snow 1"or	days more	(SP-OC)	(NV-DC)
December		5	76.0	85.5		2	50.0	50.0
January		6	81,6	91.8		4	73.2	83.6
February		6	79.8	90.0		4	70.0	81.6
March		5	71.5	81.0		2	36.0	36.0
TOTAL		22	308.9	348.3		12	229.2	251.2
AS FED			339.8	383.1			252.1	276.3
10% WASTAGE			373.8	421.4			277.3	304,0

\* In the fall fescue pasture option, cows are on fescue from October 1 to April 30, and then on native range from May 1 to September 30. Fall fescue was fertilized each year at the rate of 60-30-30 (1bs MFR).

\*\* In the mative range late fall calving option (Nov-Dec), 31 lbs of soybean meal was fed in the month of January and 28 lbs in February.

spring.<sup>4</sup> From those ranges, 6 hours for spring calving and 8 hours for fall calving were selected. --

Other variable costs, are factors seen as being minutely affected by calving season and thus are held constant to allow the budget to hetter reflect differences in profitability due only to cow unit feed costs and calf revenue. These factors were largely derived from Kansas Farm Hangement Association records.<sup>5</sup> A listing of the individual variables are located on the second page of Table 1 and detailed explanation of each is provided in Associa 3.

The operating interest rates used were provided by the Mamhatam Freduction Gredit Association and were reflective of the average annual interest rates charged for short term correcting loss.<sup>6</sup>

### Returns

The second major section of the hudget deals with returns. The gross returns to any cov-call operation are dependent on two variables, the pounds of heef produced and the price received for the pounds produced. Cattle prices used represent average prices at sale time of Kanass City choice medium framed feeder calves

<sup>4</sup>Based on conversations with Don Pretzer, Mike Sands and Larry Corsh, Kansas State University and Victor Jacohs, University of Missouri, Columbia, 1985.

JKansas Cooperative Extension Service, Department of Economics, <u>Kansas Farm Management Handbook</u>, Kansas State University, Manhattan.

<sup>6</sup>A fired funds interest rate was also included in the hudget to represent the average annual interest rate charged on long term loams, primarily land. This was hased on rates provided by the Manhattan Federal Land Bank.Both rates are detailed in Appendix 3. and utility yield grade 2-3 covs. Weaning calf weights were based on conversations with Kansas State University Animal Scientists and will he held constant for each year of the study. A more detailed explanation of the prices and calf weights used in the heef cowherd cost-return portion of this thesis are summarized in Appendix 5, Cow and Weaning Calf Revenue Factors. Analyzia

The final section of the heef cowherd cost-reture hudget is labelled analysis and is made up of key cowherd profitability messures. These messures include calculations of revenue minus variable costs, revenue minus total costs, investment, asset turnover and calculations of hreakvern prices.

Revenue minus total costs, is a measure that represent the returns a producer receives after paying for all of his factors of production. It reflects the total return to his management and investment, and is an indicator of long run profitability.

Revenue minus variable costs, is a proxy measure of the returns a producer receives after paying all of his "out-ofpocket" costs. This measure does not include fixed costs, which are generally seen as such for the producer presently operating. Negative values here indicate severe shortrun profitability problems.

Calf breakeven prices, are calculated to give an indication of the weighted average prices for both stears and heifers that a producer would need in order to exactly pay all of his variable or total costs.

Investment is a measure of the total capital necessary per cow unit to operate a cow-calf farm or ranch.

There are two calculations of asset turnover used in the beef cowherd cost-return budget. Net turnover measures revenue minus total cost-set apercent of investment. This can be viewed as a proxy for the opportunity costs of farming as compared to investing a like amount of money at the market rate of interest. Gross turnover is total revenue as a percent of investment. This ratio can also be viewed inversely as the dollars of investment mecessary to generate a dollar of gross revenue.

As stated earlier the goal, of this thesis, is to evaluate the impacts of calving season on covberd profitability. For the typical feeder calf producer, overall covberd profitability is a function of many variables. This thesis concentrates primarily on two variables; cow feed costs and beef cattle prices. All other factors of production will be held constant. The intent is not to claim that one calving season is always better than another but to determine why in this instance one was relatively more profitable. The goal is to evaluate the relationships of key variables and how they affect covberd profits. From this evaluation, conclusions can be made about these variable relationships which can be used by ag specialists and producers in analyses of individual operations.

Beef cowherd cost-return budgets will etillise representative prices for each year from 1975 through 1984. From this body of data, tables consisting of key budget wriables representing all of the calving season management options for each of the ten years of this study will be presented. These can be found in Appendix 6. Among the budget wriables to be analyzed are: cow unit feed costs, beef cattle prices, total revenue and each of the

variables in the analysis section of the beef cowberd cost-return budget.

Because the relative levels of prices change from year to year, absolute values can often lose their significance. For example, a 57 difference between 52 and 51 og uite large, while a 57 difference between 5102 and 5109 is relatively less significant. An additional measure is needed to better analyze the relationships of budget variables between differing calving seasons. Early spring (Feb-Mar) vill be used as the basis of comparison. Budget variables of each calving period allows the relationships between variables to be valuated on a percentage basis, unaffected by year to year changes in the relative price level.

### Statistical Measures

To analyze relationships among variables it is important to know the average value that would be expected in any given year and also the degree of variability around that average value. Reliable conclusions cannot be drawn unless one can be reasonably certain that variable relationships will fall within a relatively small range around the expected value. In this thesis, two statistical measures will be utilized when smalpring budget variables. The sample arithmetic mean,  $\overline{a} \in \frac{1}{L_H} \frac{1}{2} h_H$ , is used to estimate the average of budget variables over the ten year paried of the sudy, <sup>7</sup> While the sample standard deviation,

<sup>7</sup> X, n and i are statistical terms which are defined bere.X = sample observation, n = size of sample, and i represents the ith member of the sample.

 $\sum \frac{n}{\chi^2/(n-1)}$ , is used to measure the variation among the yearly values of hudget variables. A normal distribution of budget values around the mean,  $\overline{X}$ , will be assumed. Certain statistical conclusions about the distribution of budget variables around the average can then he stated.

In any normal curve, over two thirds of the measurements lie in the interval, +/- one standard deviation (STDEV) around the average, while some 95% are in the interval. +/- two SIDEV's. Only 26% of the total frequency lies beyond +/- three SIDEV.8

Thus, in this thesis values are calculated for a +/- one STDEV around the average to give an indication of the range in which hudget variables would fall two thirds of the time.

# RETAINED OWNERSHIP ANALYSIS

Retained ownership of calves after weaning is often seen as a strategy that can increase cowherd profits. Depending on weaning time, this strategy can involve programs ranging from drylot backgrounding to full or intensive grazing of native range. Retained ownership lengthens the time period in which a particular calf crop can be marketed and thus increases the chances of a producer receiving calf prices necessary to earn a sufficient return over costs.

Backgrounding and grazing retained ownership options will be analyzed for each calving period.9 The complete programs for each calving season are outlined in Table 3. -----

<sup>8</sup>George E. Snedecor and William Cochran, <u>Statistical Methods</u>, (Anes: Iowa State University Press, 1980) p. 39.

<sup>9</sup>Retained ownership of steers was the only production option analyzed. This would be the equivalent to selling your heifers at weaning and replacing them with steers.

For purposes of comparison, each calving season management program is evaluated at a point when the calf weighed 750 lhs, which is a typical weight for feeder cattle to enter the feedlot. This allowed each strategy to be compared on the basis of corr and prices incurred in growing a calf to the same production phase. Returns minus variable costs (ret-vc) for each retained ownership option are added to the ret-vc for each appropriate calving seeson option to illustrate the changes in profits due to lengthening the ownership period. A more detailed explanation of the retained ownership hydiget can he formal in Appendix 7.

TABLE 3 .-- Calving season management programs with retained ownership Retained In/Out Calving Date Weaned/ Ownership Sesson Age at Weaning Programs Dates , , , , 1)Feh/Mar Nov 1/ 8 mos. A)BKG\* @ 2.25 ADG\* Nov 1/May 1 B) BKG # 1.25 ADG Nov 1/May 1 (1)Full Graze May 1/Oct 1 (2)Int. Graze May 1/Jul 15 2)Apr-May Nov 1/ 6 mos. A)BKG @ 2.25 ADG Nov 1/May 1 B) BKG @ 1.25 ADG Nov 1/May 1 (1)Full Graze May 1/Oct 1 (2)Int. Graze May 1/Jul 15 3)Sep-Oct May 1/ 7 mos. A)Full Graze May 1/Oct 1 B)Int. Graze May 1/Jul 15 (1) BKG @ 2.25 ADG Jul 15/Sep 23 4)Sep-Oct Jul 1/ 9 mos. A) BKG # 2.25 ADG Jul 1/Sep 15 5)Nov-Dec Jul 15/ 7.5 mos. A) BKC 8 2.25 ADG Jul 15/Nov 13 6)Nov-Dec Sep 1/ 9 mos. A) BKG @ 2.25 ADG Sep 1/Dec 1 \*BKG = Drylot Backeroudine ADG = Average Daily Gains (1hs)

### CHAPTER IV

### RESULTS

This chapter is a summary of the major points and primary conclusions drawn from this analysis. The first section examines the relative profitability of the various calving season management strategies, then certain key budget variables were evaluated to measure their impacts on cowherd profitability. Next, some of the individual management strategies were compared and finally, retained ownership was brought into the smalysis to measure its effect.

## PROFITABILITY

Just as profix are the key to survival for any agricultural operation, revenue minus variable and total costs were the determining factors in judging one calving season management option over another in this study.<sup>1</sup> Table 4 shows that, given a resource base of year round native range, early spring calving (Pabrang-Harch) was the most profitable calving period. Early spring was the only period to average positive returns over variable costs (ret-vc), for the ten years of this analysi.

Returns minus total costs were not covered in depth since fixed costs were held constant among all calving seasons for each year of the analysis.

TABLE 4Calving	g season cowl	nerd profits		
			Standard	Deviations
	Age at	Average	Around	the Mean
Calving Season	Weaning	Ret-VC	+1 STDEV	-1 STDEV
1)Feb-Mar	8 mos.	\$6.80	\$77.21	(\$63.62)
2)Sep-Oct	9 mos.	(\$6.15)	\$64.81	(\$77.10)
3)Nov-Dec	9 mos.	(\$9.56)	\$66.18	(\$85.29)
4)Apr-May	6 mos.	(\$32.64)	\$27.27	(\$92.54)
5)Sep-Oct	7 mos.	(\$34.66)	\$39.52	(\$108.85)
6)Nov-Dec	7.5 mos.	(\$37.13)	\$31.49	(\$105.75)

Other results pertaining to cowherd profitability were that 1) the profitability of beef cowherd ownership has been extremely low over the last ten years, with only one management option averaging positive returns over variable costs and no management option even coming close to covering its total costs. 2) The variability of returns to cowherd ownership have been extremely great for all calving season management strategies, as evidenced by the wide range of returns minus variable costs (+/-) one standard deviation around the mean. And 3) the differences in average profitability between calving seasons add up over time. For example, there is only two months seperating early from late spring calving and the average difference in ret-vc was \$39.43 per head. The difference for 50 cows would be \$1,972 per year; the difference for 200 cows would be \$7,887 per year: and for 200 cows over the ten years of this analysis the difference would have been \$78,870.

### MAJOR VARIABLES

# Cow unit feed costs:

Beef cow rations were based on the feed necessary to sustain a cow calving during each of the calving periods in this analysis and were held constant from year to year. Feed costs were derived by multiplying the applicable yearly feed prices by the fixed beef cow rations. As a result, the differences in costs among calving seasons were very consistent, with standard deviations of less than one percent. Over the ten years of this analysis, late spring calving had the lowest cow unit feed costs, averaging 10.5% less than the early spring period. Fall calving feed costs on the other hand were higher than early spring, averaging 15.6% and 11.5% more for the Sep-Oct and Nov-Dec periods respectively than the early spring period. These percentages are important because they can be used by ag specialists and producers in transforming the additional feed requirements of one calving season over another into additional dollars/cwt. required in selling prices. For example, with the Feb-Mar cow unit feed costs averaging \$158 over the ten years of this analysis, the 15.6% higher feed costs of the Sep-Oct period represent an average \$24.65 of additional revenue needed to cover the additional feed costs. Assuming that both calves are sold weighing 550 lbs, the Sep-Oct born calf would require a \$4.48 higher price/cwt. than the early spring born calf.(\$158 x 15.6% = \$24.65/ 5.5 cwt = \$4.48 more/cwt)

Overall cowberd profits are a combination of both costs and revenue, because of that, this study developed a messure (CFC/TE) that combines cow unit feed costs (CFC), the major cowberd cost component, with total revenue (TE), the product of beef prices and the pounds of beef sold. Theoretically, the lover the percent cow feed costs are of total revenue, the greater profits would be. This messure found that hypothesis to be true, but more importantly, allowed guidelines to be formed that equated what

that ratio must be in order to meet particular levels of profitability. Returns minus variable and total costs, breakeven prices necessary to cover variable and total costs, and cow unit feed costs divided by total revenue were placed in a table and sorted in descending order by ret-ve. These variables were bigbly correlated and the guidelines formed from this sorting process are listed balow.

CI	C,	TR	RET	-7	3	RET-TC
407	å	Less	\$135	á	Up	Covered
50%	-	40%	\$40 -	\$	134	\$0 - (\$140)
51%	6	More	Can´t	C	over	Can't Cover

From this data it can be seen that long run cowherd profitability will be difficult to achieve for any calving season management strategy unless cov unit feed costs are forty percent or less of total cov unit revense. This measure is significant because it can be used by producers and ag specialists when analyzing individual cov-calf operations. It is a useful measure of overall cowherd economic efficiency with the forty percent level representing a marinum allowable target for individual cowherd profitability.

### Cattle Prices:

Overall cattle prices are a major determinant of cowherd profits. Steer, beifer and cull cow prices were evaluated separately, but none proved to have any significant effects on an individual basis. It appeared that fluctuations between the prices of steers, beifers and cull cows in any given year occurred randomly and that bigher than average ateor prices for example, would cometimes be offset by average or lower than

average prices for beifers and/or cull covs. Because of these problems, an aggregated measure of beef prices was utilized when analyzing the relationships between calving seasons rather than separate prices for steers, beifers and cull covs. The measure used was the average price per pound of calf produced, or AP/PP.

When evaluating the relationships between calf prices of different calving seasons it is not only important to look at what the historical price relationships have been, but to also measure the price relationships that would have heen necessary for them to have all had equal returns over their costs. The Feb-Mar calving period was again used as the hasis of comparison. First, the AP/PP was calculated for each calving season strategy, then the average calf prices needed for each of the other calving management options to equal the ret-wc for the Feb-Mar period were calculated (PN).3 The AP/PP's and PN's for each calving season were then divided by the AP/PP for the Feb-Mar calving period in order to put these measures on a percentage basis. The resulting price relationships for the Apr-May, Sep-Oct and Nov-Dec calving seasons (when weaning @ 9 months of age) are shown on figures 3-5. Conclusions that can be drawn from these graphs are:

Figure 3) 3-4 Cwt vs. 4-5 Cwt calves sold on November 1. The 352 lbs of calf produced in the Apr-May time period bas

<sup>2</sup>AP/PP = TR - cull cov revenue / lbs of calf produced. Cull cov revenue was omitted so the measure could focus solely on calf prices and their effects on cowberd profitability.

3The equation used to calculate PN for Apr-May calving is given as an example:PN = ret=vc for Feb-Mar - ret=vc for Apr-May/ the lbs of calf produced in Apr-May + the AP/PP for Apr-May.

AVG PRICES NEEDED TO EQUAL FEB-MAR Figure 3.



ревсемт


РЕВСЕИТ

3.1





РЕВСЕИТ

historically received a 2.262 higher price than the 482 lbs of Feb-Warborn calf when both were sold on November 1, but in order to breakaven with the heavier Feb-Mar calf it would have meeded an average pression of 25,522.

Figure 4) 4-5 Gvt calves sold on July 1 vs. November 1. The 505 lbs of calf born in the Sep-Oct period and sold on July 1 has historically needed a 7.331 price premium over the 482 lbs of Feb-Mar calf sold November 1, but has actually averaged only a 1.462 price premium. It should be moted though, that the Sep-Oct born calf did receive the price premium mecessary four out of the tem years of the analysis.

Figure 5) 4-5 Cwt calves sold September 1 vs. November 1. The 477 lbs of calf born in the Nov-Dec period and sold on September 1 has historically needed an 11.63% price premium over the 482 lbs of Feb-War calf sold November 1, but has actually averaged only a 3.58% premium.

#### Investment and Asset Turnover:

Investment is a measure of the capital mecessary to own and operate a beef cowherd, and because of the acres meeded per cow, is strongly influenced by land prices. Investment for spring calving averaged 34227 while fall calving herds average 8395 more at 84622, this was largely due to the additional 1.5 acres meeded for fall calving berds on metwe rame.

Gross asset turnover is the ratio of total revenue over investment, and averaged between 7.33 and 9.13 for all calving operations. Inverted, this measure can be used to indicate the total assets necessary to gross a dollar of total revenue. This measure averaged from \$13.70:1 to \$10.99:1, which suggests

that a large amount of capital is necessary to operate a cow-calf program.

Net asset turnover is the measure of returns over total cost divided by total revenue and can be a proxy value for the opportunity cost of ranching. Over the ten years of this analysis, all of the calving season strategies averaged negative returns to investment, -1.641 to -2.561.

### CALVING SEASON STRATEGY COMPARISONS

### Fall Calving and Weaning at 7 months vs. 9 months:

Calves born in the early fall period, reach seven months of age in Kay, when seasonal prices are generally quite high. Calves born in the late fall period reach seven months of age in July, which is a time when grass quality begins to decline and the resulting late summer calf gains are quite low. For these reasons weaning fall born calves at seven months of age is sometimes seen as an alternative to vessing at size months of age when the calf is heavier. The question of whether to wean the fall born calf at seven months of age or nize was seen as an option of the producer when the calf was seven months of age. Thus, in the shortrom, all cores were seen as smit.

Early Fall: In the September-October calving period, wearing at mime months of age was the more profitable strategy each of the ten years of this analysis with average returns over variable costs 628.51 higher per head than wearing at seven months of age. Although the 406 lbs of calf produced on May 1 averaged an SI higher price than the 505 lbs of calf two months later, it was

far short of the 19% price premium it would have needed for hoth calves to have broken even with their variable costs.<sup>4</sup>

Late Fall: In the November-December calving period, vessing at size months of age was again the more profitable strategy for each of the ten years of the analysis, with average ret-vc \$27.57 bigher per head than seven month wesning. This was primarily because the price for the 420 lbs of calf sold on July 15 was on average, equal to the 477 lbs of calf sold on September 1, resulting in lower overall returns.

# Fall Calving, Early vs. Late:5

Little difference is profitability was found between early and late fall calving strategies, with calves born in the Sep-Oct period averaging only \$3.41 more returns over variable costs than the Nor-Dec calves. This relative closeness was largely due to the fact that none variables tended to offset each other. The early fall horn calf, being older, was better equipped to hoth withstand the winter cold and utilize the grass is spring, as a result, the Sep-Oct calving strategy produced 28 more laber for cou unit. This advantage is gain was nearly offset though, by an average selling price 21 lover (July 1 price lover than Sep 1) and as average convent

<sup>4</sup>The average price necessary to breakeven with variable costs were \$49.73 and \$61.33 for the 9 and 7 month old calves respectively. (49.77/61.33 = .8108: so \$49.73 is 18.912 < \$61.33)

5In the analysis of early and late fall calving programs, weaning at nime months was assumed since it was shown to be the more profitable strategy in an earlier section.

## Spring Calving, Early vs. Late:

The calving season strategy comparison indicated early spring was by far the more profitable with average returns minus variable costs \$39.43 higher than the Apr-May calving period. Although the cov unit feed costs averaged 10.52 less in the late spring, the two month older calves born in the Peh-Mar period produced nearly 130 more pounds of beef. The lighter late spring calves would have required a price premium of 25.522 over the heavier early spring calves, but on average received only a 2.261 higher price.

#### Early Spring vs. Early Fall:

The Feb-Mar and Sep-Oct calving periods were shown to be the two most profitable calving seasons in this analysis, as measured by ret-ve. Early spring calving achieved the highest profits or least losses six years out of the ten in this study while early fall calving did the other four. Early spring was deemed the more profitable, heing the only strategy to average positive returns over variable costs, \$12.94 more per head than early fall. A closer look at some variable relationships show that the Sep-Oct period, although producing more pounds, 505 to 482, also encountered 15.64% higher cow unit feed costs. The analysis of breakwes (over variable costs) prices revealed that the Sep-Oct horn calf sold on July 1 would meed a 7.33% higher average price that the lighter Feh-Mar calf sold on November 1. This price premum however, averaged only 1.46% throughout the length of this analysis.

#### Fall Calving, Year Round Native Range vs. Supplemental Fescue:

In this study it was found that hy utilizing supplemental

fencue parture, cov unit feed costs could be lowered and returns over variable costs increased over the same calving period when using year round mative range. In the case of Sep-Oct calving, cov unit feed costs were decreased \$20.26 and ret-vc were increased \$21.60 per period, which resulted in an average positive return over variable costs of \$15.45 throughout the analysis, as opposed to the negative \$6.15 it earsed on year round mative range.

### RETAINED OWNERSHIP ANALYSIS

The final section of this research dealt with retained ownership. Applicable options from drylot hackgrounding to grazing were analyzed for each calving period with each option being evaluated at a point when the calf weighed 750 lbs.

TABLE 5 .-- Ret-VC with retained ownership at 750 lbs Dete Management Option Cow/Calf Ret.Ownership 8750 Total 1)Feb-Mar 2.25 ADG \$6.80 \$20.88 \$27.68 Jan 28 1.25 ADG \$6.80 (\$21.72) (\$14.92) Apr 10 (\$32.64) \$69.01 2)Apr-May 2.25 ADG \$36.37 Apr 3 1.25 ADG/full graze (\$32.64) (\$3.94) (\$36.58) Jul 3 1.25 ADG/int. graze (\$32,64) \$15.47 (\$17.16) Jul 3 3)Sep-Oct/9 mo. 2.25 ADG (\$6.15) \$3.98 (\$2.17) Sep 15 4)Sep-Oct/7 mo. Int.graze/2.25 ADG (\$34.66) \$9.46 (\$25.21) Sep 23 Full graze until 655# (\$34.66) \$4.46 (\$30.21) Oct 1 5) Nov-Dec/9 mo. 2.25 ADG (\$9.56) \$4.64 (\$4.92) Dec 1 6)Nov-Dec/7.5 mo. 2.25 ADG (\$37,13) \$18.72 (\$18.41) Nov 13 

Table 5 points out the fact that retained ownership can improve the overall profitability of most calving season

Management strategies. For every calving season in the study, there was at least one production option that earned positive returns over variable costs and improved the total returns of the cov-calf operation. It should be noted however, that for retained ownership to be successful, the calves must be managed to gain as fast as possible. Backgrounding at 1.35 lbs/day and full season grasing strategies often had low or megative returns over variable costs.

Comparisons of the various strategies suggested that, although there was increased profitability with nearly every retained ownership option, only the spring calving seasons were improved enough to significantly cover their variable costs. In the Feb-Mar calving period, retained ownership carned an average of \$20.88 per year, increasing the total returns over variable costs for the complete cattle operation to \$27.68. The Apr-May calf performed even better, averaging \$69.01 per year and increasing the total returns over variable costs from (\$32.64) to \$36.37. \$8.69 more than the Feb-Mar period. The superior performance of the late spring horn calf can largely he attributed to two factors. First, heine a lighter calf going on feed in the fall, it took less feed for it to gain at the same rate as the larger early spring calf, resulting in lower feed costs. Secondly, when fed to 750 lbs, the late spring calf is sold in April when feeder calf prices are seasonally quite high, on the other hand, the Feb-Mar horn calf reached 750 lbs during January when prices are lower on a seasonal hasis.

Further analysis of the spring calving seasons indicated that hy feeding hoth calves until April 25, a time when many

backgrounding programs are typically completed, the early spring calves were then more profitable. The Peb-Mar born calf averaged slightly higher overall returns minus variables costs than the Apr-May calves, \$55.27 to \$51.67, even though the late spring calves earned \$35.84 more in the backgrounding phage.

#### CHAPTER V

#### DISCUSSION AND SUMMARY

The purpose of this thesis was to evaluate the impacts of calving essens on cowherd profitability. The budgeting technique was the primery analytical tool with eight different calving scano analogement options being analyzed. The simulated performance and matritional requirements of a hlath baidy cow and her exotic sired calf were combined with the appropriate yearly input and calf prices to construct hudgets for each of the years, 1975 through 1984. All factors of production that were not directly affected by calving season were held constant or in constant proportion throughout the analysis. This framework allowed the study to focus on cow unit feed costs and calf prices as the major variables and to illustrate the effects different culving seasons would have on the same cow-calf pair.

The results of this analysis, while not answering the question of which calving season is best for a particular operation, were intended to help in the decision making process. By evaluating certain key variables, significant relationships were sought that could aid producers and as specialists in both, making the calving season decision and analyzing individual coucalf operations. It was hoped, that by knowing the feed cost and

calf price relationships that occur, producers and ag specialists would be hetter equipped to make informed decisions on which calving season is hest for a particular farm or ranch.

The completed budgets supported analyses from industry sources revealing low average returns coupled with high year to year variability of cowherd profitability. These results, combined with the high capital investment necessary and low rate of returns to cowherd ownership, imply that there are both financial and risk barriers to entry in the cow-calf business. The findings suggest that only those producers who are well established and willing to accept low returns to their investment can survive. Highly leveraged operators will face severe financial difficulties at current interest rates. For example, if we assume 145 interest and average gross returns to investment of 51. this incluse a maximus allowship leverage ratio of 575.

Given the same resource base, year round native rames, sarly spring calving was the most profitable strategy in this smallysis. The Fab-Mar calving period was the only calving season to average positive returns over its variable costs. We calving season covered its total costs of production. This was due largely to two factors, large calf size and low cow feed costs. The results indicated that spring calving cowherds, by better matching cow needs with range satrificant value, had lower feed costs than fall calving herds. Early spring calving averaged 11-162 lower feed costs than the fall periods, while feed costs for the late spring period averaged 21-262 lower. The larger Feb-Mar calves were able to use these lower feed cost on earp positive returns

to variable costs, while the 130 lbs lighter Apr-May calves lost

In fall calving cowherds, it was found that calf size again played a big role, with the more profitable management strategies being those weaning the larger nine month old calves as opposed to the lighter seven month old calves. In addition, fall calving cowherd returns were found to be improved with the implementation of a supplemental fescue pasture option. In the case of Sep-Oct calving, fescue pasture lowered cow feed costs an average of \$20.26 and increased average returns over variable costs \$21.60, from (\$6.15) to \$15.45 . This finding does not imply that fall calving operations on fescue pasture are the beat overall, but does point out how changes in forage resources can make significant differences in cowherd profitability. Budgets for spring calving cowherds on fescue pasture were not included in this analysis, but it is believed that spring calving cattle would have had similar if somewhat smaller increases in returns to their variable costs. It should be noted that in this analysis, it was assumed that land in fescue had few alternative uses and thus the opportunity costs were low. In actual practice, the per acre returns to land in fescue must out weigh the per acre returns of the most profitable alternative use before it is economically feasible to utilize fescue pasture. The research in this thesis concerning forage resources is limited, but the results do indicate that alternative resources can make significant impacts on cowherd profitability. Further research is necessary in the area of alternative cowherd forages and their effects on cow unit feed costs.

Because cowherd profits are affected by both costs and revenue, the ratio of cow unit feed costs over total revenue was evaluated in this thesis. The analysis indicated that long run profitability for any calving season strategy would be difficult unless cow unit feed costs were forty percent or less of total cow unit revenue. This measure could be utilized by producers and ag specialists as an excellent indicator of cowherd economic efficiency, but further testing with actual farm records is meeded before it is used extensively.

Cattle prices were found to be the critical factor in determining overall cowherd profitability, with positive returns for any calving season being dependent upon above average prices. Because fluctuations in the premium structure between steer, heifer and cow prices made analyses of individual prices difficult, the average price per pound of calf produced was used as the chief measure of cattle prices. Although cattle prices are strongly influenced by seasonal trends and premiums between weight classifications, in this study it was found that these price differentials had less influence on profitability than factors such as cow feed costs and calf weights. Because of this, it is the opinion of this author that producers should concentrate not on matching calving season strategies with seasonal highs in prices, but on organizing a complete marketing plan for the cattle they produce. This plan should begin with a comprehensive analysis of all the market alternatives, from forward contracts to options on cattle futures contracts. that are available to their operation. From there the marketing plan can evaluate these alternatives on a regular basis allowing

producers the opportunity to price their cattle throughout the vear instead of when their calving season dictates.

Retained ownership strategies were the final section of this study. Comparisons of the various strategies suggested that, although retained ownership can often improve overall profitability, only the spring calving seasons were improved enough to significantly cover their overall variable costs. This resulted from the spring horn calves heing able to take advantage of the seasonally higher prices which occur after a typical over wintering program. The fall calving seasons on the other hand, while often earning positive returns over variable costs to retained ownership, still did not earn enough to make up for the losses of the cow-calf phase. This is a significant finding, hecause it tends to refute the argument of many fall calving producers that the older fall born calf. will make up for their increased feed costs and return more than the spring calf when hoth are sold in the fall. The results of this study indicated that even after retaining ownership until the calf weighed 750 lhs, no fall calving strategy was able to cover their average overall variable costs. While the Feh-Mar horn calf was able to average a \$6.80 return over its variable costs during the cowcalf phase.

Another notable finding from the research of retained ownership was that, to he successful calves must be managed to gain as fast as possible. Backgrounding at 1.25 lbs/day and full season graving options often resulted in low to negative returns over variable costs.

In addition, the results indicated that there was a definite place in the cattle industry for backgrounding operations. The Apr-May born calves in particular proved to be a profitable cattle enterprise on their own, with average returns over variable costs of \$69.01 per head. Plus they were able to cover their total costs of production six years out of the ten in this analysis.1 Because of the higher returns and the lower capital needs associated with backgrounding, this author believes backgrounding operations may represent one of the few ways that young and highly leveraged operators can survive in the cattle industry. As the cattle feeding industry becomes more concentrated, cattlemen who can 1) dos good job of assembling, buying and selling, lot sized groups of cattle. And 2) effectively handle the greater health risks of these younger. more fragile animals will provide a vital service to the industry and in turn be one of the more profitable segments of the beef cattle industry.

The above findings warrant continued research in the area of retained ownership and backgrounding or growing out of calves and yearlings. The key areas of analysis should focus on the price relationships involved throughout the growing phase and moti just when the calf is bought or sold. In addition, the feeding or buy/sell margins should be evaluated for trends and particular levels identified that are necessary for profitability.

<sup>&</sup>lt;sup>1</sup>Preading the younger caives was profitable because it took less feed for them to gain at the same rate as larger caives, and thus were more efficient. It is important to remember that the ApprMay Dorn call sattered the backgrounding lot at dis months of largements and the sattered and the sattered and the sattered largements or health. In practice, backgrounders and potential backgrounders should keep that in mind when bying their cattle.

## APPENDIX 1 BEEF COWHERD COST-RETURN BUDGETS

The actual yearly beef cowherd cost-return budgets used in this thesis are as follows:

\*\*\* CALVING SEASON STRATEBIES \*\*\* BEEF COWHERD COST-RETURN BUDGET 1'

					*****	******		
### COSTS ###	SPR	NG	FA	4.L	FA	1	FRLL	FESCUE
BORN	: FEB-MAR	APR-MAY	SEP-OCT	NOV-DED	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
I. TOTAL VARIABLE COSTS WEAKE	D: NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	AL 15	JUL 1	SEP 1
A. Total Feed Costs AGE IN DAY	'S: 245	184	273	274	212	227	273	274
1. Dow Unit Feed Costs								
a. Native Range	\$108.58	\$188.88	\$121.68	\$121.68	\$121.68	\$121.68	\$83,28	\$83.20
<ol> <li>Fescue Pasture(rent &amp; fert./A</li> </ol>	(C) \$6.68	\$8.88	\$8.98	\$2,88	\$2, 98	\$9.98	\$71.67	\$71.67
c. Rifelfa Hey	\$59.87	\$37.69	\$75.39	\$57.48	\$75.39	\$57.48	\$13.75	\$16.66
d. SBN 443	\$2.80	\$8, 99	\$9.98	\$8.65	\$9,93	\$8,85	\$2.99	\$9.98
e. Mineral & Salt	13.32	\$3.32	\$3.32	\$3, 32	\$3. 32	\$3.32	\$3.32	\$3.32
f. Grain	\$2.82	\$8.92	\$9.98	\$6.66	\$2.00	\$8.88	\$2,88	\$2,98
g. Grass Hay	\$9.72	\$9.72	\$18.96	\$18.95	\$18.96	\$18.95	\$7.21	\$7.98
Total Dow Unit Feet Costs	\$181.72	\$159.53	\$211.27	\$282,21	\$211.27	\$282.21	\$179.16	\$162.75
2. Sull & Replace. Feed Costs/C-C	unit \$52.58	\$52.58	\$52, 58	\$52,58	\$52.58	\$52.58	\$52,58	\$52, 58
Total Feed Costs	\$234.38	\$212.11	\$263, 86	\$254.79	\$263,85	\$254,79	\$231.74	\$235, 34
8. Labor	\$25,28	\$25.28	\$33, 68	\$33.68	\$33.68	\$33.68	\$33,68	\$33.68
C. Other Variable Dosts (Held Consta	int) \$55.85	\$55,85	\$55.85	\$55,85	\$55.85	\$55.85	\$55,85	\$55.85
5. Interest (= Half of VC x int. rat	e) \$22.86	\$21.25	\$25.61	\$24.95	\$25.61	\$24.96	\$23,29	\$23.55
TOTA_ VARIABLE COSTS	\$338, 21	\$314,41	\$378.92	\$369.28	\$378.92	\$359,28	\$344, 48	\$348.34
11. TOTAL FIXED COSTS (Head Constant)	\$167.02	\$167.82	\$167.82	\$167.62	\$167.02	\$167.02	\$167.82	\$167.82
111, TOTA, COSTS (TVC+TEC)	\$525,23	\$481.44	\$545.94	\$536.22	\$545.94	\$535.22	\$511.50	\$515.36
					*******	an other days	*******	
and RETURNS #44 BORN	: "EB-MAR	APR-MRY	SEP-OCT	NOV-DED	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
KERNE	D: NOV 1	KOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A Steer year weight	558	483	578	546	464	481	578	546
E. Heifer agan Weicht	521	388	545	515	438	453	545	515
C. Calf .os Procupec/Dow	482	352	585	477	486	428	585	477
11. 991028								
RiSteer Phile/Oxt at Weating	\$66.31	\$68.18	\$66.83	\$64.99	\$71.11	\$66.21	\$66.83	\$64.99
B. He. fer Price/Cet at Weaning	\$57.99	\$56.52	\$55.58	\$57.17	\$59.31	\$55.68	\$55.50	\$57.17
C. C. 1 Cox Price/Det	\$36.73	\$35.73	\$41.78	\$38.51	\$44.64	\$39.65	\$41.78	\$38.51
111. SEVENUE								
G.Steen Revenue (\$)	\$164,12	\$123,64	\$171.74	\$159.68	\$148,48	\$143.31	\$171.74	\$159.68
R. Heifer Revenue (8)	\$83.83	\$64.43	\$98.74	\$88.33	\$77.93	\$75.56	\$98.74	\$88,33
C. Cull Con Payerup (\$)	\$59.58	\$59,58	\$58, 94	\$63, 54	\$73.66	\$65.42	\$68.94	163.54
TOTAL REVENUE	\$313,81	\$248.68	\$331.42	\$311.55	\$300.07	\$284.29	\$331.42	\$311.55
	********				*******	*****		********
E44 ANRLYSIS ###								
1. REVENUE-VARIABLE COSTS	(\$24, 48)	(\$65.73)	(\$47.58)	(\$57.65	(\$78.85)	(\$84,91)	(\$13.05)	(\$36.79)
11. REVENUE-TOTAL COST	(\$191.42)	(\$232,76)	(\$214.52)	(\$224.67	(\$245.88)	(\$251,93)	(\$168.98)	(\$283.51)
111.CRLF BREAKEVEN PRICE (Variable Co	osts) \$57.68	\$72.83	\$61.34	\$64.82	\$75.21	\$72.28	\$54.52	\$59,65
IV.DRLF BREAKEVEX PRICE (Total Costs)	192,26	\$119.44	\$94.39	\$99.00	\$116.35	\$112.82	\$87.58	\$94.63
v. INVESTMENT)	\$4,257	\$4,235	\$4,639	\$1,634	\$4,639	\$4,634	\$4,357	\$4,359
0001* T-000010 .								
JT. VET ( N. T. VINVERTMENT) C.V.)	-2,29%	-3.27	-2.68	× -2.82	-3,279	-3, 417	4 -1.97	-2.52
WIT BORGITAL DEL L/INUFSTERTC N.I	1.1 9.684	6.09	9,17	\$ 8,75	6.58	8,171	9,77	9,311

Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the com, share of bill, value of buildings and equipment, and value of grass.

ALLENTICIAL TOPICS	CARDIN BUL CO.			The French			AND SUBSC	Contraction of the local division of the loc	eN I	FROM
## charless inki	VART BT UNL	VING SERSON BE	500-M00	00P-M/W	000-077	ALL NEXLBER	CD-077	MOULDER.	CED-OPT	NUMPER
	111111111 1	Falue	PED-ARK	near ann	J2P-001	101-010	367-061	HUT BUD		
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A Gall and Tax "250	000010	410.44								
A harrive tenge	14	100 00	0.3	0. 0	2.3	5.3	5.0	5.5	1.5	1.5
S.FEICUE Fastur	-24 ML	\$23.64	0.0	6.6	0.0	0.0	6.0	0.0	1.5	1.5
Linitaita hay	1055	\$/1.00	0.84	8,03	1.40	6.01	1.00	0.81	0.17	0.23
6.58T 14%	10/15	\$ 500.00	0,00	0.00	0.00	8.63	0.00	6.65	0.00	0.00
1. Tineral 5 Sal	t Dei	\$3.83	6.5/	8.5/	8.57	8.0/	0.07	8.57	0.0/	0.07
ribrain	BU	\$2,00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00
3. Brass hay	TUNE	\$25.66	8.19	8.19	0.21	6.51	0,21	0.21	8,14	8,13
h.Fescue Fert.	RC	\$24.14	\$6.95	\$2.88	\$6.00	\$6.96	\$8.88	\$8.86	\$35.21	\$35.21
II. LABOR		\$4,28	6.0	6.0	B. 0	E. 8	8.8	8.8	3.8	8.8
111. REVENUE FRO	TORS	BORM :	FE8-MAR	APR-MRY	SEP-OCT	MUV-DEC	SEP-OCI	NOV-DEC	SEP-OCT	NUV-DEC
		WEANED:	NOV 1	MDV 1	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
R. Steen Price/C	at at weans	10	466.31	\$68, 1B	\$66.83	\$64.99	\$71.11	\$66.21	\$66.83	\$64.99
3. Steer weight			558	483	57B	546	464	481	57B	546
C. maifer Price/	Owt at Wear	170	\$57,98	\$56, 52	\$55,58	\$57.17	\$59.31	\$55.68	\$55,58	\$57.17
3. Heifer Height			521	388	545	515	438	453	545	515
E. Dave of Ace a		245	184	273	274	212	227	273	274	
5. Dull Cow Price	e/Cet.		\$36.73	\$35.73	\$41.78	\$38.51	\$44.64	\$39.65	\$41.78	\$38.51
				******		******			CONTRACTOR	
10 FACTORS HELD	CONSTRUCT BY	CALVING SEASON	82		V1. BREED	DING HERD	(PER HERS	ENTRIES	(CONSTA	40 (T)
I. OTHER WARIABL	E COSTS				A. × Cali	f Crop				991
A. Stilities, Fue	1 4 011		\$17.37		B.X Stee	ers Neaned	for Sale			451
B. Wet. & Bruce			\$5,92		C.X Heit	fers Weam	nd for Sal	le		381
C. Marketing & B	reeding		\$7.98		D.X Heid	fers Weam	ed for Her	d Replace	topent	15:
D. Repairs, Tools	& Supplies		\$14.94		E. × Bull	per Cow				43
E. Ruto Expense			\$1.39		F. Averas	De Con Val	lue			\$558
F. Misc.			\$5,83		6. Averat	e Bull Va	lue			\$1,500
S. Inclants			\$1.99		H.Cow L:	fe				8
11. RUILDINGS &	EQUIPMENT				I.Bull B	Life				3
A. Investment			\$316		J. Salvar	ce Value/G	Com			\$400
R.: 1fe			18		K.Salvar	e Value/	3u11			\$508
C.X Tax & Insur	1.87		L. Cull C	Cow Neight				1199		
111. TUTEBORT 05	9779				ee The va	alues in s	vection V	. BREEDIN	IG HERD.	2/10
C Convertiene Rat		(1)	14 581		neneral	ly renards	ad as inde	stry ave	anes and	are held
P Frived Surde R	ate	(%)	12, 251		constant	t through	ut the at	alveis, 1	bull and	row values
					are est	mates who	ch are co	maistent	with Kan	sas State
IV. NATIVE RANGE	VALUE/ACRE		\$385		Universi	ity Farm M	Canagement	Guide (	(F-266)	
V. FERCIE POSTI	IRF VALUE/RC	4F	\$591							

+ Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Xansas Farm Management Associations

NCTE: Some formulas used in the Beef Cowherd Cost-return Buoget

(i) Calf Lbs Produced/Cow: assuming a 90% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue = heifer weaking wt. x 30% x heifer price

(4) Dull Com Revenue = cull com wt. x 15% x cull com price

(5) Calf Broaleron Price (variable costs) = varible costs - cull com revenue / calf lbs produced

(5) Calf Breakever Price (total costs) = total costs - cull com revenue / calf lbs produced

48

( FACTORS USED TO DALCULATE BUDGETS ))) 19

#### \*\*\* CALVING SEASON STRATEGIES \*\*\* BEEF COWERD COST-RETURN BUDGET 1983

						STOPINSA	Collegence.	
### CDSTS ###	SP.	RINB	F	ALL.	F	ALL	FALL	FESCUE
BORN :	FEB-MAR	APR-XRY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DED
I. TOTAL VARIABLE COSTS WEAWED:	NOV 1	NOV 1	AL 1	SEP 1	MRY 1	JUL 15		SEP 1
A. Total Feed Costs ABE IN DAYS:	245	184	273	274	212	227	273	274
1. Cow Unit Feed Costs								
a. Vative Range	\$188, 38	\$198.88	\$121.58	\$121.68	\$121.60	\$121.68	\$83, 28	\$83,28
<ol> <li>Fescue Pasture(rent &amp; fert./90)</li> </ol>	\$8, 22	\$9,98	\$8.99	58.99	10.00	19.09	\$75.38	\$75. 38
c. Sifaifa Hay	\$46,25	\$23,12	\$58,25	\$46.41	\$58,26	\$14.41	\$18,63	\$12,58
d. S8X 44%	\$2.98	\$2,98	\$8.98	\$7.98	10.00	\$7.98	10.00	60.00
e. Mineral & Sait	\$3, 31	\$3, 31	\$3,31	\$3, 31	\$3. 31	\$3.31	\$3.31	\$3.31
f. Grain	\$2,98	\$2, 28	\$8.98	\$2.28	\$8.98	\$8.00	40.00	49.00
c. 3nass Hav	\$8, 28	\$8,28	\$9.21	69.24	69.24	49 24	46 30	46 67
Total Cow Unit Feed Costs	\$166.57	\$149,43	\$192.41	\$185.65	\$192.41	\$185.65	\$178,68	\$181.43
2. Buil & Replace, Feed Costs/C-C unit	\$46.96	\$15.94	\$66.94	445.94	446.94	446.94	446 94	646 94
Total Feed Costs	4217 51	4196 77	4070 75	4020 50	4070 25	#979 60	4000 54	4008 27
B. Labor	407 10	427 40	#70 50	#26.85	+76 56	436.32	437 87	430.37
C. Other Variable Costs (Held Constant)	451 72	451 72	451 70	451 70	451 70	\$30, 30	\$30.30	\$30, 30
B Internet (a Unif of UP a jak water	400.50	410.40	437.16	400.63	402.10	410.07	100.17	PUL 30
St the of the set of the time. Taken	90.00	913,40	9C3-13	902-0/	¥C3+13	962.67	NC2.17	162.37
TOTAL VARIABLE COSTS	\$312,93	1294, 57	\$358, 38	\$343.14	4358.33	\$343, 14	\$335.59	\$338.62
11. TOTAL FINED COSTS (Heid Constant)	\$178.15	\$173.15	\$178.15	\$178,15	\$178.15	\$178, 15	\$179, 15	\$178,15
III. TOTAL COSTS (TWC+TFC)	\$183.08	\$454.72	\$528.53	\$513,29	\$528, 53	\$513.29	\$585,74	\$588,77
			*******					
### RETURNS ### BORN :	FEB-MAR	ADS-MOX	SEP-OCT	NOV-GEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
WERNED:	NOV 1	30V 1	RL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
G.Steer Wean Weight	558	483	578	546	464	481	578	545
Bullesfer Wean Weight	521	388	545	515	438	453	545	515
C. Calf Lbs Produced/Cow	482	352	585	477	486	428	585	477
11. PRICES								
A.Steer Price/Cwt at Weaning	\$62,25	\$54, 98	\$65.71	\$58,78	\$76, 18	965, 71	\$65, 71	\$55,78
B. Heifer Price/Cwt at Weaming	\$51.89	\$52,23	\$57.21	158.34	\$62,75	\$57.83	\$57.21	\$59, 34
C. Dall Dow Price/Dwt	\$35,21	\$35,21	\$42,28	\$38, 53	\$47, 18	\$61.72	\$62.28	\$79.57
111. REVENUE								
A. Steer Revenue (\$)	\$154.89	\$117,84	\$178,91	\$144,23	\$158, 98	\$152.23	\$179.91	\$144.23
B. Heifer Revenue (\$)	\$81.18	\$59,54	\$93.54	\$77.75	482 45	\$77.58	492 54	\$77 70
C. Call Cow Revenue (\$)	\$58.10	\$58,10	\$69,76	\$63, 57	\$71.25	\$68, 18	\$69, 75	\$63.57
TOTAL REVENUE	\$293, 29	\$235.48	\$334.21	\$285, 58	\$312.68	\$287.91	\$334.21	1285.58
***************************************	******		********				*******	
\$\$\$ ANALYSIS \$\$\$								
1. REVENUE-WARLABLE COSTS	(\$19.64)	(\$59.89)	(\$15.17)	(\$57.57)	(\$37.78)	(\$55, 23)	(\$1,33)	(\$53.95)
11. REVENUE-TOTAL COST	(\$189.79)	(\$229.24)	(\$186.32)	(\$227.72)	(\$207, 93)	(\$225, 38)	(\$171.53)	(\$223, 28)
					******	*******		
III.CHLF BHORMEVEN FRICE (Variable Costs)	\$52.88	\$67.11	\$55. 53	\$58.55	\$68.77	\$65,42	\$52.68	\$57.61
IV. CALF SMERNEVEN PRICE (Total Costs)	\$88.18	\$115.40	\$89.28	\$94, 19	\$118.69	\$125, 98	\$86.27	\$93,25
V. INVESTMENT+	\$4,454	\$6,455	\$4,850	\$4,875	\$4,888	\$4,875	\$4,574	\$4,575
ACCEST TURNERS								
UT NET 0 = 11 MANGETWENT ( = 11 )	9 10-							
UT CONCETTAN Day, LATRICOMPANY (	-2. 89%	-2.98%	-1.34%	-2.69%	-2.28%	-c. 64x	-1.64X	-2. 77×
The unsubstrue merer/sivebinen(ten, v.)	8,73%	7.435	0.83%	7.83%	8. 38X	/.88×	9. 62x	8, 351

> Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the cow, share of build, value of buildings and equipment, and value of grass.

te contrac tuat	USEN BY S	OF UTER STORTS BE	205	1155	F	¥.1.	FF	EL.	FALL	FESCUE
te recipes iner	TTUT!	29105	SER-MAR	RCR-MOY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	mm	))==(Anounts are	units per	head per 1	rear)					
L COW UNIT FEEL	COSTS									
R. Vative Sance	AC	\$12,88	8.5	8.5	9.5	9.5	9.5	9.5	6.5	6.5
8. Fescue Pastur	CA Far	\$24.88	3.8	0.3	0.0	8.8	8.8	0.0	1.5	1.5
C.Alfalfa Hay	TONS	\$54.86	8.84	8.53	1.06	8,81	1.06	0.81	8.19	8.23
D. SBM 44%	TONS	\$248.08	8.28	8.08	8.08	0.03	8.88	0.03	0.00	6.00
E. Mineral 4 Sal	t Cat	\$5.81	8.57	8.57	8.57	8.57	8.57	2.57	0.57	8.57
F.Grain	80	\$2.77	0.00	8.08	8,98	8.98	6.99	0.08	0.00	6.58
3. Grass Hay	TONS	\$43,86	8.19	8.19	0.21	8,21	8,21	0.21	8,14	8, 15
H.Fescue Fert.	AC.	\$25, 37	50.08	\$8.08	\$8.98	\$8.08	\$8.00	\$8,08	\$38.86	\$38.26
II. LABOR		\$4.57	6.0	6.0	8.8	8. 2	8.0	8.0	8.0	8.0
111. REVENUE FA	TORS	30RN :	FEB-MAR	ADE-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		VEANED:	MEV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A.Steer Price/	Det at He	aning	\$62,26	\$64.98	\$65.71	\$58.70	\$76.10	\$65.71	\$65.71	\$58, 78
3. Steer Weight			550	483	578	546	464	481	578	546
C. Heafer Price	/Cwt at W	eaning	\$51.89	\$52.23	\$57.21	\$58.34	\$62,75	\$57.83	\$57.21	\$50.34
D. Heifer Weicht			521	358	545	515	438	453	545	515
E.Days of Age -	at Sale		245	184	273	274	212	227	273	274
F. Cull Cow Pris	ce/Cwt.		\$35.21	\$35.21	\$42.28	\$38, 53	\$43.18	\$41.32	\$42.28	\$38, 53
					UT DOCT	11102 11200	/058 UED	CVTDICC	ICONCTO	1 44
HE FREIDAS HELD	CUNSTRAT	ST CHEVING SENSOR	58		VI. DIEL	Creating the first of the first	VPEA INC.N.	o O Minister	100ADTA	981
1. UTHER VARIAB	LE DUSIS		417.01		ALA CAL	i urup	from Sale			45
Rubblittes, ru	ei a 011		47.05		C 4 Mar	Ers weenes Fron Unand	of for Sal			381
C. Maniarian P.	ne i house		46.79		D. S Hes	fors lieand	d for Her	d Renlace	ment	151
Constructing an	a & Cusel		417.40		E 4 Bul	Der Con				41
S. Date Evenes	s a public	14.9	\$2 72		F. Overa	ne Cow Val	110			\$558
E Nico Expense			47.26		S. Overa	te Auli Us	lue			\$1,508
C. Terelanter			61 00		H Cost C	fa				A
TT BUT DINCO F	CONTRACTO	7	71110		T. Sull	ife				3
11. BOILDINGS I	EGOTAHER		#222		1 Calue	en Value/	-			\$600
A Livestment			10		K Salva	ne Value//	ant)			\$528
C.\$ Tax & insu	1.0	4	L.Cull	Cow Weight				1100		
	0756				ee The v	alues in a	unction V	. AREEDIN	IS HERD.	are
0 Conceting Re	n:		14, 17		neneral	ly negards	et as inde	stry ave	ages and	are held
R. Operating Rate (\$) B. Fixed Funds Rate (\$)			12.52	4	constant throughout the analysis. Bull and				cow values	
TV. NATIVE RANS	e wilue/A	CRE	\$411		univers	ity Farm 3	fanagesen!	t Guide (	F-266)	Ses Jidle
U CODAT DAGT	110 110 110 110	10000	46.92							

# Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Seturns/Acre are considered typical by Vansas Farm Management Associations

NOTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cost assuming a 92% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Sevenue = heifer seaming wt. x 38% x heifer price

(4) Cull Cow Revenue = cull cow wt. x 15% x cull cow price

(5) Calf Breakevan Price (variable costs) = varible costs - cull cow revenue / calf lbs produced

(6) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

\*\*\* CALVING SEASON STRATEGIES \*\*\* BEEF COWHERD COST-RETURN BUDGET 1982

	**********	*********	agenerate b	2217.08962				stop of
see COSTS eee	SPRI	NG	FA	LL.	FR	LL DES	PHLL I	HOU DOD
B05% :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCI	NUV-UEC	SEPHOLI	NUV-DEL
1. TOTAL VARIABLE COSTS WEAVED:	NOV 1	1 VEW	JUL 1	SEP 1	7HT 1	JUL 15	JUL 1	SEP 1
A. Total Feed Costs AGE IN DAYS:	245	184	2/3	2/4	212	661	2/3	6/4
1. Cow Unit Feed Costs					4101 78	4101 68	467 28	407 28
a. Native Range	\$188.98	\$108.58	\$121.68	\$121.68	\$121.60	\$121.00	103.00	#73 GB
<ol> <li>Fescue Pasturé(rent &amp; fert./AC)</li> </ol>	\$3.08	\$2.00	\$9.00	54, 36	50.00	20,00	\$10.20	\$10.30
c. Alfalfa Hay	\$58, 71	\$31.92	963, 60	940.00	903.03	PHO. 00	20.00	40.00
d. SBM 44x	\$3, 88	58.96	\$6.99	\$7.55	50.00	\$7.35	90,00	\$0.00
e. Mineral & Sait	\$3.31	\$3.31	\$3. 31	\$3. 31	83, 35	\$2.31	93. 31	43, 31
f. Grain	\$3.98	\$8.93	\$9.00	\$2.85	\$6.00	50.00	50.00	\$0.00
g. Grass Hay	\$9.82	\$9.82	\$12.17	\$18.17	\$18.17	\$18.17	\$6.63	\$7.35
Total Cow Unit Feed Costs	\$171.83	\$153, 84	\$195.92	\$191.13	\$198,92	\$191.13	\$183, 82	\$105.33
2. Bull & Replace. Feed Costs/C-C unit	\$49.48	\$49.48	\$49.48	\$49.48	\$49.48	\$49.48	\$49.48	\$49.48
Total Feed Costs	\$221.31	\$282,52	\$248.48	\$248,61	\$248, 48	\$248.61	\$233, 38	\$235.41
8. Labor	\$22.62	\$22.62	\$38, 16	\$33.16	\$38.16	\$38, 16	\$38.15	\$38.10
C. Other Variable Costs (Held Constant)	\$49.34	\$49.34	\$49.34	\$49.34	\$49, 34	\$49.34	\$49.34	\$49.34
D. Interest (= Half of VC x int. rate)	\$23.38	\$22.27	\$26.61	125, 98	\$25.61	\$25.98	125.38	\$23.64
TOTAL VARIABLE COSTS	\$317.07	\$296, 75	\$354.51	\$345.38	\$354.51	\$346.88	\$338.18	\$341.54
II. TOTAL FIXED COSTS (Held Constant)	\$184.31	\$184.31	\$184.31	\$184.31	\$184.31	\$184.31	\$184, 31	\$184.31
III. TOTAL COSTS (TVC+TFC)	\$501.38	\$481.26	\$538.82	\$538.39	\$538.82	\$538.39	\$522.49	\$525, 85
		********				HOL OCC	000.007	NOL-OCC
+#+ VETURNS ### BORN :	FEB-MAR	ADB-WAY	SEP-OCT	NOV-DEC	SED-OCI	NOV-DEC	SEPHOLI	NUV-DEL
WERMED :	NOV 1	NOV 1	JUL 1	SEP 1	199Y 1	JUL 15	JUL 1	SEP 1
A.Stear Wean Weight	529	483	578	546	464	481	5/8	246
8.Heifer Wean Weight	521	388	545	515	438	453	545	515
C.Calf Lbs Produced/Cow	482	352	585	477	485	428	280	4//
II. PRICES								
9.Steen Price/Owt at Weaning	\$64, 25	\$65.13	\$66.36	\$69.94	\$78.95	\$68.35	\$66.35	\$69.94
8.Heifer Price/Owt at Weaning	\$56.48	\$55.83	\$56.93	161.98	\$59.28	\$58.21	\$56.93	\$61.98
C. Dall Com Price/Det	\$35.82	\$35,82	\$43.87	\$41.13	\$44.95	\$42.88	\$43.87	\$41,13
III. REVENUÉ								
A. Steer Revenue (\$)	\$158.52	\$119.93	\$172.68	\$171.84	\$148.14	\$147.94	\$172.60	\$171.84
8.Heifer Revenue (\$)	\$88.28	\$62.73	\$93.88	\$95.76	\$77.79	\$79.11	\$93.88	\$95.76
C. Dall Cow Revenue (\$)	\$68.75	\$68.75	\$71.87	\$67.86	\$74.17	\$78.62	\$71.07	\$67,86
TOTAL REVENUE	\$387.55	\$243.41	\$336, 75	\$335.47	\$328, 18	\$297.67	\$336.75	\$335.47
	APROVIDED TO	*********	*********	*********				
### RNR_YSIS ###								
1. REVENLE-VARIABLE COSTS	(\$9.51)	(\$53.34)	(\$17.76)	(\$18.62)	(\$54.41)	(\$48.41)	(\$1.43)	(\$6.98)
11. REVEAUE-TOTAL COST	(\$193.82)	(\$237,65)	(\$282, 87)	(\$194.92)	(\$238.72)	(92.52. 72)	(\$180.74)	(\$198.38)
111.CRLF BREAKEVEN PRICE (Variable Costs)	\$53, 18	\$66. 98	\$56. 39	\$58.27	\$69.87	\$65.54	\$52.86	\$57.32
IV.CRLF BREAKEVEN PRICE (Total Costs)	\$91,43	\$119.29	\$92.55	\$96.87	\$114.47	\$189.39	\$89.33	\$95.92
V. INVESTMENT+	\$4,738	\$4,728	\$5,182	\$5,178	\$5,182	\$5,178	\$4,875	\$4,877
STOFT TURNINER :								
VI. NET (I.p. TL.) / IWERTHENT (I.p. V.)	-1,825	-2,75	-1.82	-1.699	-2.53	-2.425	-1.689	-1.78
UT 20002/Tat Day 1/ INVESTIGATION V. 1	8, 761	7.421	8,57	8,561	7.87	7,833	9,115	9, 89
These understores increase international value very	0.108	11-12						

> Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the com, share of bull, value of buildings and equipment,and value of grass.

AL PARTON THAT	undu du on	UTHO POTOTAL AN	000	1kp	Fål 1		EDII		EG I FERTIE	
SE PHOTORS THE	UVIT ST LHL	20112	CCD-M07	009-WOV	SED-OLL	NOV-DEC.	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
	111111111	en Geounts ann	units per t	head oper y	par)					
1. CON UNIT FEEL	COSTS									
Q. Native Range	SC.	\$12,88	8.5	B.5	9.5	9.5	9.5	9.5	6.5	5.5
B. Fescue Pastus	at AC	\$27,28	0.0	2,0	8,8	8.8	8.8	8.8	1.5	1.5
C. Alfalfa Hav	TONS	\$68,13	0. B4	8,53	1.06	0.B1	1.06	0.81	8,19	8.23
D. SEM 44%	TONS	\$259.00	8.88	0.28	8.88	0,03	8, 99	0.83	0, 98	8.00
E. Zineral & Sal	t CWT	\$5.38	8.57	8.57	0.57	9.57	8.57	8.57	0.57	0.57
F. Grain	BU	\$2.67	8, 88	0.99	0.00	0.38	0,00	8, 88	8.88	8.88
S. Grass Hay	TONS	\$48.25	0.19	0.19	0.21	8.21	0.21	8.21	8.14	8.15
H.Fescue Fert.	AC	\$25.37	\$8.88	\$2. 88	58.88	68, 88	\$2.33	\$8.98	\$38.96	\$38, 85
II. LABOR		\$3.77	6.0	6.0	B.0	B. Ø	8.8	8.8	B. 0	8.8
III. REVENUE FAI	TDRS	BORN 1	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		WEANED:	NOV 1	NOV 1	JUL 1	SEP 1	MRY 1	JUL 15	30, 1	SEP 1
A.Steer Price/	Wt at Weani	na	\$64.85	\$65.13	\$65.35	\$69.94	\$78.95	168.35	\$66.36	\$69.94
8. Steen Weight			558	483	578	546	464	481	57B	546
C. Heifer Price.	Out at Weam	ang	\$56.48	\$55, 83	\$56,93	\$61.98	\$59.28	\$58.21	\$56, 93	\$61.98
D. Neifer Weicht			521	388	545	515	438	453	545	515
E.Days of Age	at Sale		245	184	273	274	212	227	273	274
- Cull Cow Prin	ce/Cwt.		\$35.82	\$36,82	\$43.87	\$41.13	\$44.95	\$42,88	\$43.87	\$41.13
45 C007092 UC 0	CONSTONT BY	COLUMN SCOOTS	42	***********	VI. RREET	DING HERD	(PER HER)	ENTRIES	(CONSTR	40 CTN
T OTLES UNSIDE	E COSTO	Cherring Conden			0.5 Call	f Croo				98
A thatighter Su	1 8 011		415.78		R. 1 Ster	ore Veanes	for Sale			45
B Unt & Decor			\$4.71		C.S reit	fers Heans	d for Sal	le		38
C Yantarana & I	Departing		\$6, 99		D.S Heit	fers Vean	ed for Her	nd Replace	ment	15
B. Renatives, Tool	s & Sundline		\$11.81		E.S Ball	I per Com				4
E- Outo Expense			\$2,21		F. Averal	pe Cow Val	ue			\$558
E Mise			\$5, 84		6. Averat	pe Bull Va	lue			\$1,529
S. Jenlarits			\$1, 98		R. Cow L:	ife				8
IT. BUILDINGS &	EQUIPMENT				L.Ball i	Life				3
A. Investment			\$358		J.Salva	ge Value/I	COM			\$488
B.Life			18		K. Salva	ce Value/I	Bull			\$589
C.\$ Tax & Insurance for Bldg/Eqp, Livstk			1.85		L.C.11 (	Cow Weight				1100
111. INTEREST R			ee The vi	alues in s	section V	. BREEDI	G HERD,	are		
R.Operating Rate (%)			16.23%		general!	ly regards	ed as ind	stry aver	ages and	are held
B. Fixed Funds Rate (1)			13.71\$		constant throughout the analysis. Bull and com					cow value
IV. MATIVE RAME	\$448		are osticates which are consistent with Kansas Sta University Farm Monagement Guide (MF-266)					sas state		

\* Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Fare Management Associations

NOTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cows assuming a 90% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 455 x steer price

(3) Heifer Revenue = heifer weaking wt. x 30% x heifer price

(4) Call Dow Revenue = call cow wt. x 15% x call cow price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf lbs produced

(5) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

\*\*\* CALVING SEASON STRATEBIES \*\*\* SEEF COMMERD COST-RETURN BUDGET 1981

	***********	*********	*********						********
### COSTS ###		SPRI	ENG	FS	LL.	FA	LL.	FALL	FESCLE
	BORN :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-IEC	SEP-OCT	NOV-DEC
I. TOTAL VARIABLE COSTS	WEANED:	NEV 1	NOV 1	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
A. Total Feed Costs AG	E IN DAYS:	245	184	273	274	212	227	273	274
1. Cow Unit Feed Costs								-	
a. Native Range		\$185.48	\$185,48	\$117.80	\$117.88	\$117.88	\$117.80	\$88.68	\$88.68
b. Fescue Pasture(rent &	fert./SCI	\$8.88	58,88	\$8.88	\$8.88	\$8.88	58, 88	\$76, 16	\$76.16
c. Alfalfa Hay		\$49.38	\$31.08	\$62.18	\$47.41	\$62.18	\$47.41	\$11.34	\$13.74
d. SBM 44%		\$9.68	\$8.88	58.52	\$8,85	\$8, 88	\$8.85	\$2.98	\$8, 88
e. Mineral & Salt		\$3.15	\$3, 15	\$3.15	\$3, 15	\$3,15	\$3.15	\$3.15	\$3.15
f. Grain		\$8.88	\$8, 88	\$8.98	\$8.88	\$8.68	\$8, 88	\$8.98	\$8,88
g. Grass Hay		\$18.34	\$10.34	\$11.65	\$11.65	\$11.65	\$11.65	\$7.67	\$8, 41
Total Cow Unit Feed Co	sts	\$168.27	\$149.97	\$194.79	\$188.85	\$194.79	\$188,86	\$178,92	\$182.05
2, Sull & Replace. Feed Co	sts/C-C unit	\$51.22	\$51.22	\$51.22	\$51.22	\$51,22	\$51.22	\$51.22	\$51.22
Total Feed Costs		\$219.48	\$291.18	\$246.88	\$248.88	\$246.88	\$248.88	\$230.13	\$233.27
8. Labor		\$22.44	\$22,44	\$29.92	\$29.92	\$29.92	129,92	\$29.92	\$29, 92
C. Other Variable Costs (Hel	d Constant)	\$42.99	\$42.99	\$42,99	\$42,99	\$42.99	\$42.99	\$42.99	\$42.99
<ol> <li>Interest (= Half of VE x</li> </ol>	int. rate)	\$22,65	\$21.21	\$25, 37	\$24.98	\$25.37	\$24.98	\$24,11	\$24.35
TOTO: VORTOR F COSTS		\$307.58	\$287.82	\$344,28	\$337.88	\$344.28	\$337.88	\$327.15	\$338.53
11 TOTAL CTUCK COSTS (Hald C	(testant)	\$178, 57	\$178,57	\$178.57	\$178.57	\$178.57	\$178.57	\$178.57	\$178.57
TIL TOTAL COSTS (TVC+FEC)		\$486, 15	\$466.39	\$522,85	\$516.45	\$522.85	\$516.45	\$585.72	\$589.18
		*********			******		*********		
	808N :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
the second	WERNED:	MOV 1	MOV 1	JLL 1	SEP 1	29Y 1	J.L. 15	JUL 1	SEP 1
0 Steam Mean Meacht		552	403	578	546	464	481	578	546
B Lini Fee Man Marcht		521	388	545	515	438	453	545	515
C Calif Libr. Produced (Con		482	352	585	477	485	428	585	477
11 021000									
6. Staar Price/Dut at Meaning		\$64,15	\$66.55	\$67.91	\$69,22	\$74,68	\$69.84	\$67.91	\$69.22
9 Unifer Drine/Fut at Unanis		455, 88	\$55, 10	\$59,44	\$58,97	\$62,88	158.88	\$59,44	\$60, 37
C Cutt Cox Price/Out	а	\$39, 25	139.25	\$45, 88	\$44,28	\$44,88	\$45,28	\$45,88	\$44.28
111 DEUENIE									
A Charge Structure (6)		¢158 77	\$128.69	\$176.63	\$179.97	\$155,76	\$149,44	\$176,63	\$178, 87
2 Lister Deserve (4)		637.74	\$62.81	\$97, 18	\$92.81	\$82,62	\$78,93	\$97.18	\$92,81
C Dill Con Revenue (\$)		\$54.75	\$64.76	\$75,78	\$73,85	\$74,85	\$74,58	\$75,70	\$73.86
									_
TOTAL REVENUE		\$318.87	\$248.26	\$349.52	\$335, 94	\$312,44	\$382, 95	\$349.52	\$335.94
CONTRACTOR OF A				There exercises					
*** ANR_YSIS ***		-2.22		-		1478 041	1474 045	422 37	eE 41
1. SEVENCE-VERISHLE CUSIS		93, 58	1939-361	93.24	(91, 397	1931-097	(\$39,39/	TCL. 31	30,91
II.REVENUE-TOTAL COST		(\$1/5.2/)	(\$218, 13)	(\$1/3.33)	(\$188.51)	(9218.41)	(9213-51)	(\$150.287	(\$175.16
111.CALF BREAKEVEN PRICE (Var	table Costs)	\$58.38	\$63.31	\$53.15	\$55.47	\$66.57	\$62.65	\$49.76	\$53.93
IV.CALF BRERKEVEN PRICE (Tota	( Costs)	\$87.43	\$113.99	\$88.48	\$92.87	\$118.57	\$105.13	185.89	\$91.33
V. INVESTMENT:		\$5,176	\$5, 167	\$5,671	\$5,668	\$5,671	\$5,668	\$5,288	\$5, 289
ASSET TURMOVER :									
VI. NET (Ln. II.)/INVESTMENT(L	.n. V. )	-1.45%	-2.28	-1.29	-1.419	-1.947	-5.662	-1,875	-1.48
VII. GROSS(Tot. Rev.)/INVEST	ENT (Ln. V.)	7.94%	6,75	4 7.93	7,725	7.289	7.129	8.647	8.38

Investment is the maximum at one time assuming 1/2 the commating costs (less interest), value of the com, share
of ball, value of buildings and equipment, and value of grass.

AL COLUMN TO A	May By PALI	IN PERCON AL	cros	INC	50	4.1	FC	E 1	FOLI	FENCIE
A& SHOLDER UNK	UNIT OF CHUN	1140 000004 ##	CCD_Mfg	002-107	000-00T	NOWNER	SED-OPT	NOU-DEC	SED-OCT	NOV-DEC
	11111111111	PALLS	make new h	and new y	and and		00- 007	Har bay		
1. 200 JUNT COD	00070	- caloonss are i	nies her s	reas per 7						
1 Nakius Base	100313	\$12.48	8.5	8.5	9.5	9.5	9.5	9.5	5.5	6.5
A Receive Hange	20	827.10	a.a.	0.0		8.0	8.8	8.8	1.5	1.5
C 016-16- Ver	TIMP	450 50	0.0	a 51	1.96	8.41	1.05	8, 81	8,19	9.23
D CON LLC	TONE	#710.00	0.04	4 89	0.00	9. 22	0.00	0.23	0, 93	9, 98
T Manual & Cal	+ C/T	45 52	3.57	8.57	0.57	0.57	8.57	8.57	8,57	0.57
Traineres a bea	011	42 70	8 99	2 30	0.00	6.64	0.00	0.00	0, 99	6, 99
2 Georg Var	TONE	455.71	8.19	A. 19	8,21	0.21	0.21	8,21	8,14	9.15
U Correct Cont	00	427 61	68 88	62 22	69.62	59, 98	22, 02	58,98	\$35, 42	\$35, 42
TT 10502	NG	67 74	6.0	6.0	8.0	8.0	8.0	8.8	8.0	8.0
TTE DELEMIE FOR	7002	0001	000-000	CO9-HOV	950-007	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
III. ACYCNUC PH	1000	HEANED:	NOV 1	NOV 1	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
0 Store Deice/	hut at Usania		164.15	166.55	\$67.91	\$69,22	\$74.58	\$69.84	\$67.91	\$69.22
A Steen Velaht			558	483	578	\$46	464	481	578	546
C Maifor Daica	Out at Umai	ina	455.48	455, 18	\$59.44	168.97	\$62,88	\$58,88	\$59,44	\$68, 97
D. Heiner Price/Cas as wearing D. Heinfam Weicht			521	388	545	515	438	453	545	515
E Tave of One at Sale			245	184	273	274	212	227	273	274
E. Coll Com Prin	re/Det.		\$39,25	\$39.25	\$45.88	\$44.28	\$44.88	\$45.20	\$45.88	\$44.28
UNTRAMARKARY AVEC										
SE FACTORS HELD	CONSTRNT BY	CALVING SEASON	3.0		VI. SREET	DING HERD	(PER HERI	ENTRIES:	(CONSTA	44 (T)
L. DTHER WARIAG	LE COSTS				A.X Cali	f Crop				98
9. Jtilities. Fu	el # 011		\$13.87		8.X Ster	ers Veane	d for Sale			45
8.Vet. & Druts			\$4,39		C.X Hest	fers kean	ed for Sal	e		38
2. Tarketing &	Breeding		\$5,79		0.≯ Heit	fers Vean	ed for Her	rd Replace	ement	15
O. Repairs, Tool	s & Supplies		\$13.11		E.\$ 8ul	l per Com				4
E. Auto Expense			\$1,96		F.Rvera	ge Cow Va	ue .			\$558
F.Misc.			\$2.87		6.Avera	ge Bull V	alue			\$1,588
G. Implants			\$1.20		H.Cow L	ife				8
II. BUILDINGS &	EQUIPMENT.				I.8u11	ife				3
A. Investment			\$364		J. Salva	ge Value/	Сом			\$428
B.L.sfe			10		K.Salva	e Value/	Bull			\$588
C.S Tax & Insurance for Bldg/Eqp, Livstk					L.Cull I	Cow Weigh	t			1108
III. INTEREST R	ATES				44 The v	alues in	section V	I. BREEDI	NG HERD,	are
A.Operating Rate (%)					generally regarded as industry averages and a				are held	
3. Fixed Funds Rate (\$) 12					constant throughout the analysis. Bull and cow val-					cow value sas State
IV. VATIVE RANS	e value/acre		\$498		Univers	ity Farm	Tanaşeren	t Guide (	WF-255)	
V. FESCUE PAST	URE VALUE/AD	RE	\$679							

(( FACTORS USED TO CALCULATE BUDGETS )))

1981

\* Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Fare Nanagement Associations

NOTE: Some formulas used in the Seef Cowherd Cost-return Budget

(1) Calf the Produced/Cow: assuming a 98% calf croo = (45% x steer lbs) + (45% x herfer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue = heifer weaning st. x 30% x heifer price

(4) Call Com Revenue = cull com mt. x 155 x cull com price

'5) Calf Snealever Price (variable costs) = variable costs - cull cow revenue / calf lbs produced

(5) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

### CALVING SEM	RSON STRATEBIES +	
BEEF COWHERD I	COST-RETURN BUDGE	T 1988

THE GOULD THE	SPRING		FRLL		FALL		THLL F	ESULE
8099 1	FED-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
I. TOTAL VARIABLE COSTS WEAVED:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
R. Total Feed Costs AGE IN DAYS:	245	184	273	274	212	227	273	274
1. Cow Unit Feed Costs								
a. Native Range	\$189.55	\$189.65	\$122.55	\$122.55	\$122.55	\$122.55	\$83.85	\$83.85
b. Fescue Pasture(rent & fert./AC)	\$8.98	\$9.99	\$9.99	\$9.99	\$8.00	\$8,00	\$68.39	\$68.39
c. Alfalfa Hav	\$42.91	\$27.31	\$54.83	\$41.19	\$54.83	\$41.19	\$9.85	\$11.94
d. SBN 443	58, 88	\$8,88	\$8, 88	\$7.88	\$8.88	\$7.88	\$8, 88	\$9. 38
c. Mineral & Salt	\$2.91	\$2.91	\$2,91	\$2.91	\$2,91	\$2.91	\$2.91	\$2.91
f. Grain	\$8,88	\$8.88	\$8.98	\$9.00	59, 98	<b>\$8. 88</b>	59,00	\$9. 00
p. Grass Hay	\$8,34	\$8.34	\$9.48	\$9,48	\$9.48	\$9.48	\$5.19	\$6.78
Total Cow Unit Feed Costs	\$163.81	\$147.91	\$188.90	\$183.14	\$188.98	\$183,14	\$171,19	\$173.87
2. Bull & Replace. Feed Costs/C-C unit	\$46,98	\$46.98	\$46.98	\$46.98	\$46.98	\$46.98	\$46.98	\$46.98
Total Feed Costs	\$210.79	\$194.89	\$235.87	1238.11	\$235.87	\$238, 11	\$218,17	\$228.85
8. Labor	\$22.28	\$22.28	\$29.68	\$29.68	\$29.68	129.68	\$29.68	\$29.68
C. Other Variable Costs (Held Constant)	\$48.58	\$48.58	\$48.58	\$48.58	\$48.58	\$48.58	\$48.58	\$48.58
<ol> <li>Interest (= Half of VC × int. rate)</li> </ol>	\$19.77	\$18.62	\$22.12	\$21.71	\$22,12	\$21.71	\$28.84	\$21.84
TITTOL MORTORI E COSTS	\$293, 26	\$275, 21	1328, 29	\$321.92	\$328.89	\$321.92	\$389.11	\$311.98
11. TITE FINED DESTS (Held Constant)	\$168,45	\$168,45	\$168.45	\$168.45	\$168.45	\$168.45	\$168.45	\$168.45
III.TOTAL COSTS (TVC+TFC)	\$461.71	\$444.66	\$496.54	\$498.37	\$496.54	\$498.37	\$477.56	\$488.43
***************************************			********	********	********	LOUI DCO	000.007	101 070
1## RETURNS ### 80RN :	FEB-MAR	APR-MRY	SEP-OCT	NOV-DEC	SEP-OCI	NUV-DEC	SEP-OUT	NUV-DEL
WERNED :	NOV 1	NOV 1	JUL 1	SEP 1	(NOT 1	JUL 15	100	SEP 1
A. Steen Wean Weight	558	483	578	546	464	461	3/8	246
8.Heifer Wean Weight	\$21	380	540	515	4.58	403	240	513
C. Calf Los Produced/Cow	482	352	260	4//	485	908	30.3	411
II. PRICES							477 17	402.10
A.Steer Price/Cwt at Weaning	\$78.63	\$81.53	\$75.47	\$62.46	982.73	\$/1.12	9/0.9/	102.10
8.Heifer Price/Det at Weaning	\$67.28	\$78.66	\$67.16	3/8,85	\$67.03	108,12	\$67.10	440.00
C.Cull Cow Price/Det	\$45.73	\$40.75	\$44, 35	940.05	\$99.87	\$45.27	\$44.35	\$40.02
III. REVENUE		41.17 05	4105 00	1000 05	#172 78	#1CE 07	4105 08	4282 65
A Steer Revenue (\$)	\$134.61	\$14/.0J	\$100.01	#100 00	405 74	400.50	4100 81	4188 29
8. Hesfer Revenue (\$)	\$105.16	988.00	\$185.81	100.03	#70.34	#32+ JO	474 22	100.13
C. Dall Cow Revenue (\$)	\$/5.45	\$/3.43	\$14.65	106-01	\$16,13	971.40	PIN DE	Priet Ur
TOTAL REVENUE	\$375.22	\$383,86	\$382.92	\$391.61	\$333.87	\$338, 98	1382.92	\$391.61
	ACCOUNTED BY	2012010232	********					
HE HALTSIS THE	444.00	437.68	454 47	460 60	45 78	49 95	\$73.81	479.63
1. SEVENUE-VHKIHSLE GUSTS	901.20 (ADC 403	(e110 70)	(4117 62)	(490 75)	(\$162.67)	(4159.47)	(\$94.63)	(\$88,82
11. HEVENGE-101AL CUST	(366,98)	(\$148.737	19113.007	(#30+73)	19106-017	10133.417	(1)41007	
III. CALF SREAKEVEN PRICE (Variable Costs)	\$45.19	\$56.98	\$58,24	158.53	\$62.91	\$59.61	\$46.48	\$48,45
IV.CALF BREAKEVEN PRICE (Total Costs)	\$88, 14	\$124.78	\$83.57	\$85.81	\$184.41	\$99.68	\$79.81	\$83.73
V, INVESTMENT.	\$4,938	\$4,322	\$5,395	15, 393	\$5,396	\$5, 393	64, 993	\$4,994
ASSET TURNOVER :								
VI. NET (Ln. II.)/INVESTMENT(Ln. V.)	3, 395	-1.015	-8.425	-8,141	-1.339	-1.27\$	-8.87\$	8.84
					7.674	7.604	0.04	0.40

Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the com, share of bull, value of buildings and equipment, and value of grass.

DESCRIPTION NOT	LODIN TH		PT19005055	INC.		41		k1	501	FERCIE
as regions the	VHAT BT	UNLYING SENSIN OF	CC0.MOD	COP-MOV	950-011	NOV-DEC	SED-OCT	NOV-DEC	SEP-OCT	NOV-DEC
	1222222	()))pp(Geounts are (	mits per 1	head open y	war)	101 200				
1. COM UNIT FEED	COSTS									
A. Native Range	AC.	\$12, 98	8.5	8.5	9.5	9.5	9.5	9.5	6.5	6.5
B. Fescue Pastur	e* AC	\$25.55	8.8	8.8	8.8	8.0	8.8	8.8	1.5	1.5
C. Alfalfa Hay	TONS	\$52,88	8.B4	8,53	1.05	8.81	1.06	a. B1	8, 19	0.23
0. SBN 44%	TENS	\$240.00	8.88	0.00	8.88	0.03	0,00	8.83	0.00	8.98
E, Mineral & Sal	t CWT	\$5.11	8.57	8.57	8.57	0.57	8.57	0.57	8.57	8.57
F.Grain	BU	\$2, 91	8.88	8.88	8. 88	8. 28	0.00	8.88	0, 98	6.99
G. Grass Hay	TONS	\$44.63	8.19	8.19	8.21	0.21	8.21	8.21	8.14	8.15
H.Fescue Fert.	AC	\$19.83	\$8.88	\$8, 98	\$8.08	\$9.68	\$8,88	\$8.88	\$28.55	\$28,55
II. LABOR		\$3.78	6.8	6.8	B. Ø	8.9	8.8	8.0	8.8	B. 0
111. REVENUE FAC	TORS	BORN :	FEB-MAR	APR-MAY	SEP-OCT	NON-DEC	SEP-OCT	NON-DEC	SEP-OCT	NOV-DEC
		WEANED:	NOV 1	NOV 1	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
A.Steer Price/0	Cut at W	eaning	\$78.63	\$81.53	\$76.47	\$82.48	\$82.75	\$77,12	\$76.47	\$82.48
B. Steer Weicht			550	403	578	546	464	481	578	546
C. Heifer Prices	/Cwt at	Weaning	\$67.28	\$78.66	\$67.16	\$78.09	\$67.23	\$68.12	\$67.16	\$78.89
0. Heifer Weight			521	380	545	515	438	453	545	515
E. Days of Age a	at Sale		245	184	273	274	212	227	273	274
F. Dall Cow Pris	ce/Cvt.		\$45.73	\$45.73	\$14.98	\$48.89	\$44.89	\$43.27	\$44.98	\$48.89
	CONCE ON	T AN COLUMN CORON			WI BOCCI	THE HERD	COER NER	A ENTRIES	CONSTR	NT) ++
t muco unotabi	C CIETO	I DI GRETING JONION			0.4 Cal	F Drop				987
A Utilities En	al £ 011		\$12,58		B. Ster	Ins Heaner	for Sale			450
R Ust & Drong			\$4.56		C. # Hei	fers Wear	ed for Sa	le		385
C. Marketine & I	Repeding		\$5,79		0.x Heit	fers Wear	ed for He	rd Replace	ement	15
D. Senaurs, Tool	s & Sunt	lies	\$18,82		E.\$ 8ul	per Con				4:
E, Rato Expense			\$2.41		F. Rvera	e Con Va	lue			\$558
F.Nisc.			\$3.34		S. Rvera	e Bull W	alue			\$1,500
9. Implants			\$1.22		H.Cow L	ife				8
IL BUILDINGS &	EBUIEME	NT			I.Bull	Life				3
A. Investment			1357		J.Salva	ce Value/	Cow			\$469
B.Life			18		K.Salva	ge Value/	Bull			\$598
C.% Tax & Insu	1.95		L.Cull	Cow Weigh	t			1100		
111. INTEREST R	ATES				ee The v	alues in	saction V	I. SREEDI	NG HERD,	are
A.Operating Ra	te	(1)	14.46\$		general	ly regard	ed as ind	ustry ave	rașes and	i are held
<b>B.Fixed Funds</b>	Rate	(1)	11.545		constan	t through	out the a	nalysis,	Bull and	cow values
IV. NATIVE RAMS	E VALUE	ACRE	\$463		Univers	ity Farm	Management	t Guide (	F-266)	ime State
U CERTIE COST	100 1011	E /000E	4554							

+ Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Fare Management Associations

NOTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cows assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue = heifer weaning wt. x 30% x heifer price

(4) Call Cox Revenue = call com wt. x 15% x cull com price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf lbs produced

(5) Calf Breakeven Price (total costs) = total costs - cull com revenue / calf lbs produced

\*\*\* CALVING SEASON STRATESIES \*\*\* BEEF COWERD COST-RETURN BUDGET 1979

		CO11	1000000000			60		CN I	CEOPIE
484 ULDIS 444	DODM .	SECTION ADD	009_HOV	SED-OCT	NOV-DEC	SED-OFT	NOV-DEC	SEP-OCT	NOV-DEC
T TOTAL UNBIAN & CORTS	UEGMER+	NOU 1	NOV 1	31 1	SED 1	MOY 1	JH 15	JUL 1	SEP 1
0. Total Feed Costs 9	E IN DAYS:	245	184	273	274	212	227	273	274
1. Com Unit Feed Costs									
a. Native Sampe		\$198, 58	\$198, 88	\$121.58	\$121,68	\$121.68	\$121.68	\$83,29	\$83,29
h. Fescue Pasture(rent )	fert, /AC)	\$8, 88	\$8, 68	\$8.88	\$8,88	\$8.88	\$8.98	\$59.79	\$59.79
c. Alfalfa Hav		\$36.31	\$22, 85	\$45,73	\$34.85	\$45.73	\$34.86	\$8.34	\$18, 11
d. S8N 444		\$8.88	\$8, 88	58.88	\$5.79	\$8.88	\$6.79	\$8,98	\$8.99
e. Mineral & Salt		\$2,53	\$2,53	\$2,53	\$2, 53	\$2,53	\$2,53	\$2,53	\$2,53
f. Grain		\$9.98	\$8, 88	\$8,88	58, 98	\$2, 93	\$8.88	\$9, 98	\$8, 98
p. Grass Hay		\$7.43	\$7.43	\$8,38	\$8.38	\$8.38	\$8, 38	\$5.51	\$5. 84
Total Cow Unst Feed Co	osts	\$155.07	\$141.61	\$178.23	\$174.15	\$178,23	\$174.15	\$159.37	\$161.66
2. Bull & Replace, Feed Co	sts/C-C unit	\$42.56	\$42.56	\$42.55	\$42.56	\$42.56	\$42.55	\$42,55	\$42,56
Total Feed Costs		\$197.63	\$184,17	\$228.79	\$216.71	\$228,79	\$216.71	\$201.93	\$284.23
8. Labor		\$21.00	\$21.88	\$28.88	128.00	\$28.99	128.00	\$28.88	\$28.88
C. Other Variable Costs (He)	d Constant)	\$35.97	\$35.97	\$35.97	\$35.97	\$35.97	\$35.97	\$35.97	\$35.97
D. Interest (= Half of VC x	int. rate)	\$15.63	\$14.81	\$17.48	\$17.23	\$17.48	\$17.23	\$16.33	\$16.47
TOTO: UDRIGH F COSTS		\$278, 23	\$255.95	\$382,24	\$297.91	\$382,24	\$297.91	\$282.23	\$284,65
11. TITOL FIRED COSTS (Held )	Constant)	\$147.39	\$147.39	\$147.39	\$147.39	\$147.39	\$147.39	\$147.39	\$147.39
III.TOTAL COSTS (TVC+TFC)		\$417.62	\$483.34	\$449.63	\$445.38	\$449.63	\$445,38	\$429.62	\$432.05
				and the second				ACD ANT	
saa RETURNS ARA	80.9% :	FEB-MAR	APR-XAY	SEP-OCT	330-VOK	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
	WEAVED:	NOV 1	NDV 1	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP 1
A. Steer Wean Weight		558	483	578	546	464	481	3/6	346
8.Heifer Wean Weight		521	388	545	515	438	453	545	515
C. Calf Lbs Produced/Cow		482	352	362	477	465	428	240	4//
II. PRICES									
A.Steer Price/Cwt at Weaning		\$86.41	\$92.11	18/./6	\$94.04	\$169.23	\$98,72	10/. /6	\$39.39
B. Heifer Price/Cwt at Weanin	15	\$75.88	\$88.78	\$88.18	\$79,19	\$92, 38	\$63,52	\$58.18	\$/9.19
C. Cull Cow Price/Cwt		\$47.12	\$47,12	\$53,18	\$49.74	\$38.75	\$38,12	\$03.18	\$45.74
III. REVENCE								+000 45	+070 48
A. Steer Revenue (\$)		\$213.85	\$167.84	\$228, 26	\$2,52,28	\$228.07	\$213.68	\$228.20	\$2.52, 28
B.Heifer Revenue (\$)		\$117.35	\$92.89	\$131.09	\$122.35	\$121.39	\$113, 58	\$131.09	\$122, 35
C. CuII Cow Revenue (\$)		\$77.75	\$17.75	187.62	182.07	\$36.30	\$52.78	\$87.62	\$62.0/
TOTAL REVENUE		1488. 95	\$336.88	\$446.97	\$435.78	\$445.41	\$429.88	\$446.97	\$436.78
	************			110220422	192111/08/	**********			CONTRACKS.
### ANR_YS15 ###									
I. REVENLE-VARIABLE COSTS		\$138, 73	\$38.93	\$144.73	\$138,79	\$144.17	\$111.97	\$164,74	\$152,84
II, REVENUE-TOTAL COST		(\$8,66)	(\$65,46)	(12,66)	(\$8.68)	(\$3.22)	(\$33.42)	\$17.36	\$4.60
III.CALF BREAKEVEN PRICE IVan	iable Costs)	\$39, 94	\$58, 58	\$42.47	\$45.21	\$58.58	\$51.21	\$38, 51	\$42,43
IV.CALF BREAKEVEN PRICE (Tota	al Coste)	\$78,52	\$92.40	\$71.64	\$76.08	185.89	186.27	\$67.68	\$73,30
V. INVESTMENT+		\$4, 437	\$4,431	\$4,852	\$4, 558	\$4,852	\$4,858	\$4,445	\$4,447
ASSET TURMOVER :									-
VI. NET (Ln. II.) / INVESTMENT (	.n. V. )	1.584	8.285	1.58%	1.38	1.49%	8.834	2.891	1.88
VII. GROSS(Tot. Rev.)/INVEST	(ENT(Ln.V.)	18.324	9.315	18.77\$	18.561	18.765	10.015	11.75\$	11,52

Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the cow, share of bull, value of buildings and equipment, and value of grass.

((( FACTORS USED TO CALCULATE BUDGETS ))) 1979

as FORTORS THAT VI	ORY BY DALY	ING SPASCE AN	SPR	ING	E	ALL.	F	ALL.	FALL	FESCLE
and residual train to	INTT	PRICE	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		=(Aeounts are	units per	head ter y	ear)					
L. CON INTERED (	COSTS									
Q. Native Ranne	ac.	\$12,88	8.5	8.5	9.5	9.5	9.5	9.5	6,5	6.5
R.Fearue Pasturet	1 90	\$22,24	8.0	8.8	0.0	0.0	0.8	0.0	1.5	1.5
C. Ol Fal Fa Hay	TINS	\$67.05	0.84	8.53	1.06	8, 81	1.06	9,81	8, 19	8,23
D. SRM &AX	TONS	1232, 88	8.98	8, 88	8,93	8,83	8.98	8.83	8.88	8.98
E. Mineral & Salt	CHT	\$4, 43	8.57	0.57	8.57	8.57	8.57	8.57	0.57	8.57
E. Grain	REI	\$2.28	8.98	8.88	8.98	8.88	8.98	8.88	8.00	8.08
S. Grate Hay	TDNS	\$39,75	8,19	8,19	8,21	0.21	8.21	0.21	8.14	8.15
H.Fescue Fert.	AC.	\$17,62	10.00	\$9.68	\$8.08	\$8.68	10, 00	10.00	\$26.43	\$26.43
IL LABOR		\$3,58	6.0	6.8	8.8	8.8	8.8	8.8	B. 8	8.8
TTL. REVENUE FACT	IRS	BORN I	FED-MAR	APR-MRY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		NERNED:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
9.Steer Price/De	t at Weans	10	\$85.41	\$92.11	\$87.76	\$94.54	\$189.23	\$98.72	\$87.76	\$94.54
8. Steer Meinht			550	483	578	546	464	481	578	546
C. Heifer Price/O	ut at Mean	int int	\$75,98	\$88.78	\$88.18	\$79,19	\$92.38	\$83.52	\$89,18	\$79.19
D. Hei fer Wei aht			521	388	545	515	438	453	545	515
E. Days of Ase at	Sale		245	184	273	274	212	227	273	274
F.Dall Cow Price	/Cwt.		\$47.12	\$47.12	\$53, 18	\$49.74	\$58,76	150.12	\$53.18	\$49.74
	ONCTONT DV	COLUMN CENERAL	**	*********	UT BOCCI	TMR HERD	(OF9 HE91	ENTRIES	(CONSTR.	(T) 44
T DTUER MARTINE E	COPTP	CHEFTING SENSOR			0 4 Cal	F Cenn	to an inati	, currences		92
A UNITED VARIABLE	1 5-1		40 40		0 v 01m	we lisses	for Cale			45
Bileb & Deces	e 111		65 20		C & linit	Fore Unand	of free Sal			70
C tasketing I De	nation		\$5.28		D. 1 Heit	fere liean	nd for Her	rd Replace	toper	15
D Remainer Tools	t Sunning		\$11.05		E.S Bull	per Coe				4
E. Deto Fanense	e ouppries		\$1.53		E. Averag	Doe Val	ue			\$558
E Nico			42.31		R. Overal	e Ault Va	lup			\$1,598
R Innlants			\$1,93		H-Cox L	fe				8
TT. BUTI DINGS & F	DITONENT				L.Sull (	ife				3
A. Treetaent			\$387		J.Salvar	to Value/G	2006			\$400
R.l ife			18		K. Salvar	e Value/	Bull			\$588
C.S Tax & Insura	nce for Blo	ig∕Eqp, Livstk	1.0%		L.Cull (	low Weight				1100
III. INTEREST RAT	ES				++ The vi	lues in s	section V	. BREEDIN	IS HERD, I	are
A.Operating Rate		- (\$)	12.28		general	ly regarde	ed as inde	stry aver	rages and	are held
B.Fixed Funds Rate (\$)			9.BB\$		constant throughout the analysis. Bull and co			cow value		
IV. NATIVE RANGE WALLE/ACRE			\$412		Univers:	ty Farm 1	ton are of tanagement	t Guide (	#110 Kalle (F-255)	ses state
V. FESCUE PRSTUR	E VALUE/AC	RE	\$556							

\* Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Farm Management Associations

NDTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cow: assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue + heifer weaning wt. x 38% x heifer price

(4) Cull Cow Revenue = cell cow wt. x 15% x cull com price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf lbs produced

(5) Calf Breakeven Price (total costs) = total costs - culi cow revenue / calf lbs produced

\*\*\* CALVING SERSON STRATEBIES \*\*\* BEEF COMHERO COST-RETURN BUDGET 1978

								6411	TIPO I
tee COSTS eee		SPKI	N5	19	LL.	PH	ulas aco	FHLL I	HOU TOO
	BORN :	FEB-MAR	APR-MAY	SEP-OCT	NUV-UEC	SEP-UCI	NUV-LEL	SEP-ULI	NUV-DEL
I. TOTAL VARIABLE COSTS	WERNED:	NOV 1	NUV 1	300 1	SEP 1	PHY 1	JUL 15	JUL 1	30P 1
R. Total Feed Costs RBE	IN DRYS:	240	184	2/3	214	212	66.7	cra	614
1. Cow Unit Feed Costs									
a. Mative Range		\$94.35	\$94.35	\$185, 45	\$185,45	\$185.45	\$180.40	\$/2.15	\$72.13
b. Fescue Pasture(rent & f	ert,/AC)	\$9.00	55.55	\$8, 68	58.08	26.66	30,00	100.13	\$30. 13
c. Alfalfa Hay		\$38.27	\$26.89	\$48.19	\$36.74	\$48.19	\$35.74	\$8.79	\$19.90
d. SBM 444		18.28	18.98	\$9.09	\$6.20	18,28	\$6.28	\$8,98	18, 88
e. Mineral & Salt		\$2.39	\$2.39	\$2,39	\$2.39	\$2, 39	\$2,39	12, 39	\$2.39
f. Brain		\$9.38	\$9,98	18.08	\$8. 88	19.09	\$8, 88	18. 88	58.00
g. Brass Hay		\$7.65	\$7.65	\$8.63	\$8.63	\$8, 63	\$8.63	\$5.68	\$6.22
Total Cow Unit Feed Cost	5	\$142.66	\$128.48	\$164,66	\$159,48	\$164.66	\$159.48	\$145, 44	\$147.85
2. Bull & Replace, Feed Cost	s/C-C enit	\$41.82	\$41.82	\$41.82	\$41.92	\$41.82	\$41.92	\$41.82	\$41.82
Total Feed Costs		\$183.68	\$169, 58	\$285.68	\$228, 42	1245, 68	\$288.42	\$186.46	\$188.87
8. Labor		\$17.46	\$17.46	\$23, 28	\$23, 28	\$23.28	\$23, 28	\$23.28	\$23.28
C. Other Variable Costs (Held	Constant)	\$29.57	\$29.57	\$29.57	\$29.57	\$29.57	\$29.57	\$29,57	\$29.57
D. Interest (= Half of VC x in	t. rate)	\$13.36	\$12.54	\$14,97	\$14.66	\$14.97	\$14.66	\$13.86	\$14.00
TRTOL UDPTOR F COSTS		\$244.27	\$229, 87	\$273.58	\$267.94	\$273.58	\$267.94	\$253, 17	\$255.71
TT TOTOL STYES COSTS (Ma) d Cor	etant)	\$134.19	\$1.74.19	\$134.19	\$1.34, 19	\$134, 19	\$134,19	\$134.19	\$134.19
111. TOTAL COSTS (TVC+TFC)		\$378.25	\$363.25	\$407.69	\$482, 13	\$487.59	\$482.13	\$387.36	\$389, 98
AND OTHER ADDRESS OF THE OWNER	600N .	FFR-MOR	COP-WOV	170-072	NOV-OFC	SED-OCT	NOV-DEC	SEP-OCT	NOV-DEC
PPP NCICKING THE	LCMCD.	MPU 1	MOU 1	70 1	000 1	MOV 1	38 15	.01 1	SEP 1
A AL HANNE HALLAND	ACTA ICUT	550	607	570	ELC.	464	401	578	546
H Steen wean weight		350	460	5/6	510	478	452	ELE	515
8. Heifer Weam Weight		321	356	343	477	400	400	505	677
C.CALT LDS Produced/Low		900	246	Jed		400	40.0	240	
II. PRICES					+10.00	453.44	478.40	473 38	458.20
A.Steer Price/Cwt at Weaning		\$67,73	\$/1.33	962.38	968.39	953, 90	300, 40	902.30	\$00.37 #E0.47
B. Heifer Price/Out at Weaning		\$58.58	\$62,84	\$35.43	\$33.43	\$32, 95	105, 45	103.43	102.45
C. Dill Cow Price/Dws		\$48.24	\$40.24	\$23, 50	\$33,13	923.13	\$28-31	\$37.83	\$37.13
III. REVENUE									
A.Steer Revenue (\$)		\$167.63	\$129, 35	\$162, 84	\$168, 83	\$132,55	\$148, 10	\$162.84	\$168,83
B. Heifer Revenue (\$)		\$91.59	\$71.64	\$87.36	\$91.82	\$69.59	\$79.47	\$87.35	\$91.82
C. Dall Cow Revenue (\$)		\$66.48	\$66, 48	164.43	\$64.55	\$64.66	\$64.28	\$64.43	\$64.56
TOTAL REVENUE		\$325.62	\$267.39	\$313.83	\$324, 42	\$255.38	\$291.77	\$313.83	\$324, 42
					*******	*******		*******	22277.000
sas ANALYSIS ses									
I, REVENUE-WARLABLE COSTS		\$81.55	\$38.32	\$48.34	\$55.48	(\$5, 78)	\$23.83	\$68, 67	\$68.71
II. REVENUE-TOTAL COST		(\$52, 64)	(\$95.87)	(\$93.85)	(\$77.71)	(\$148.89)	(\$118.35)	(\$73.52)	(\$65.48
III.CALF BREAKEVEN PRICE (Varia	ble Costs)	\$35.87	\$46.17	\$41.37	\$42,68	\$51,45	\$48.47	\$37.35	\$48, 83
1V.CALF BREAKEVEN PRICE (Total	Costs)	\$54.71	\$84.25	\$67.92	\$78.78	\$84.51	\$88.40	163.98	\$58.14
V, INVESTMENT+		\$3, 399	\$3,892	\$4,256	14,253	14,256	14,253	13,938	\$3,939
ASSET TURNOVER :									
VI. MET (Ln. II. )/INVESTMENT(Ln.	V. }	Ø. 38X	-8.73	-8.625	-8.241	-1. 725	-1.01%	-8.155	8.85
VII. GROSS(Tot. Rev.)/INVESTMEN	(T(Ln. V.)	10.85%	8.611	8, 965	9.22	7.861	8,455	9.69%	9.95

Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the cow, share of bull, value of bullings and equipment, and value of grass.

((( FACTORS USED TO CALCULATE BUDGETS ))) 1978

AA FORTONS THOT	VORY BY COLU	VING SERSON DO	SPE	INS	FF	LL	FF	LL.	FALL	FESCUE
	INIT	PRICE	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		== (Asounts are	units per	head per v	(ear)					
1. COM UNIT FEEL	COSTS									
A.Mative Rance	AC.	\$11.18	8.5	B.5	9.5	9.5	9.5	9.5	6.5	6.5
R. Fescue Pastur	OR ter	128, 28	8.8	8.8	8.8	8.8	8.8	8.8	1.5	1.5
C. Sifalfa Hav	TENS	\$45, 38	8.84	8.53	I. 86	8.81	1.86	0.B1	8, 19	0,23
D. S9H 645	TONS	\$218,98	8.88	9,99	8.08	8.83	0.00	0, 83	8.88	8.98
E. Mineral & Sa	t CHT	\$4.29	9.57	8.57	8.57	8.57	8.57	8.57	0.57	0.57
F. Grain	RU	\$1.99	8.88	8. 38	8.98	8, 88	8. 88	8. 88	8, 98	8.89
S. Brass Hay	TONS	\$48.94	8.19	8,19	8.21	8.21	15.8	0.21	8.14	8, 15
H. Fescue Fert.	90	\$17.62	\$9,92	\$9.00	50,00	\$8,88	\$9.00	\$8.98	\$26,43	\$26.43
11. 19908		12, 91	6.8	6,8	B. 8	8.0	8.0	B. 0	8.0	B.@
111. REVENIE ED	CTORS	BORN 1	FEB-MAR	APR-MAY	SEP+0CT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		WERNED:	NOV 1	NOV I	JUL 1	SEP 1	MRY 1	JUL 15	JUL 1	SEP I
O Phone Delegal	Not at Unama		467.73	\$71.33	\$52.38	\$68.39	\$63,48	\$68, 42	\$62.38	\$68.35
0 Chose Unicht	and an inclusio		558	483	578	545	454	481	578	\$46
C Neifme Deson	104 at lines		\$59.68	\$62.86	\$53, 43	\$59, 43	\$52,96	\$58,48	\$53.43	\$59.43
D day feet May also	Cars as means	4.9	\$21	388	545	515	438	453	545	515
5. nutrer weigh	ab Cala		245	104	273	274	212	227	273	274
E. Datt Con Pri-	E.Days of Age at Sale			\$48,24	\$39,85	\$39.13	\$39.19	\$38.91	\$39.85	\$39.13
and and and a support	******			*******				*****		*****
## FACTORS HELD	CONSTRUT BY	DALVING SEASON	44		V1. BREED	INS HERD	(PER HERD	ENTRIES	(CONSTR	NT) ++
1. OTHER WARING	LE COSTS				A.% Call	Crop				98
A. Utilities, Fu	el & Oil		\$7.36		B.X Ster	ors Weaned	i for Sale	2		45
B.Vet. & Drugs			\$4,11		C.× Heil	fers Weand	ed for Sal	le		38
C. Marketing &	Breeding		\$5.47		0.% Heit	fers Weans	ed for Her	nd Reolace	parent	15
D. Repairs, Tool	s & Supplies		\$7.76		E.X Bull	L per Cow				
E. Auto Expense			\$1.52		F. Avera	ge Con Val	lue			\$556
F.Misc.			\$2.35		6. Sverag	e Bull Vi	lue			\$1,588
S. Ieplants			\$1.98		H. Dow L:	fe				8
II. BUILDINGS &	EQUIPMENT				1.Bull 4	ife				3
A. Investment			\$259		J. Salva	e Value/	COM .			\$400
B.Life			18		K. Salva	e Value/I	Bull			\$582
C.\$ Tax & Insu	rance for B1	dg/Eqp, Livstk	1.0	5	L.CuII (	Cow Weight	1			1100
111. INTEREST &	ATES				ee The v	lues in :	section V	. SREEDIN	NS HERD,	are
9.Operating Ra	te	- (5)	11.58	x	general	ly regard	ed as ind	astry ave	rages and	are held
B. Fixed Funds Rate (%)			9.13	1	constant	t through	out the a	nalysis. I	Bull and	cow value
			4754	-	are est	ieates wh	ich are o Tananemen	Buide U	with Han (F-266)	sas State
IV. SHILVE YORK	INC THESE/HERE	-00	\$500		Unster a		and Cold			
V. PEOLUE PHOI	UNC TRUE/HU	CTL.	3,146							

\* Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Farm Management Associations

NOTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cow: assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 454 x steer price

(3) "eifer Revenue = heifer weaning wt. x 38% x heifer price

(4) Call Cow Revenue = cull cow wi. x 15% x cull cow price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf 1bs produced

(6) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs oroduced

ere CALVINS	SERSON STRATE	BIES ***	
BEEF COWIEI	RD COST-RETURN	BUDGET	19

***************************************	10.1 0.0 1 0.0 1 0.0 1							EN I	CONF.
ere cusis ere	0.000	SPX	1765 HEH	PH OTT	LL NOV ACC.	070.007	WHI-REP.	PED-OCT	MON-TEP
	80101 1	PED-7948	34-3-1947	309-001	NUV*UCL	SEPTUCI	TO IF	70.1	ern i
I. IUTAL VARIABLE CUSIS	NERNED:	NUV 1	NUV 1	JUL 1	SEP 1	PHJ 1	JUL 13	306 1	300 1
R. Iotal Feed Losts +	RE IN DHISI	240	104	213	214	216	201	613	614
1. Low Unit Feed Losts		400.05	+03.05	*101 05	*101 65	e101 65	4101 65	460 55	22 938
a. Native Hange		\$98, 30	\$98, 95	\$161.65	\$101.65	\$101.63	\$101.0J	454 60	484 60
b. Fescue Pasturement	& TEPT./HL)	10.00	50,00	58.00	90.00	10.00	443.00	104,00	410.75
c. Rifalfa Hay		\$43.49	\$28.63	\$37.28	\$45.67	\$37.28	P43.07	\$10.93	\$10.00
d, 58M 44%		50.00	50.00	30.00	\$7.08	58.00	\$7.00	10.00	30,00
e. Aineral & Salt		12.20	\$2.25	\$2.23	\$2.20	\$2,23	96.20	\$2.23	*C. CJ
f. Brain		10.00	58.08	90.00	30.00	50.00	98.00	10.00	30,00
g. Brass Ray		\$9.53	\$9.53	\$18, /5	\$18.75	\$18.75	\$18,73	\$7.00	\$1.13
Total Cow Unit Feed C	osts	\$148.22	\$131.35	\$171.92	\$165.39	\$171.92	\$160.39	\$143.99	\$146,88
2. Bull & Replace. Feed C	osts/C-C unit	\$45.77	\$45.77	\$45.77	\$43.77	\$43.77	\$40.77	140.77	\$43.77
Total Feed Costs		\$193.99	\$177.13	\$217.69	\$211.16	\$217.69	\$211,16	\$189.75	\$192.65
B. Labor		\$15.60	\$15.68	150.98	\$28.88	128.88	\$28.88	\$28.88	128.88
C. Other Variable Costs (He	1d Constant)	\$28.89	\$25.09	\$28.99	\$28.89	\$28.89	\$28.89	128.89	\$25,89
<ol> <li>Interest (= Half of VC &gt;</li> </ol>	int. rate)	\$13.75	\$12.79	\$15.44	\$15.86	\$15.44	\$13.86	\$13.82	\$13,99
TOTAL VARIABLE COSTS		\$251, 44	\$233.61	\$282.82	1275.11	\$282, 92	\$275.11	\$252.47	\$255.53
II. TOTAL FIXED COSTS (Held	Constant)	\$129.52	\$129, 52	\$129.52	\$129.52	\$129.52	\$129.52	\$129,52	\$129.52
III. TOTAL COSTS (TVC+TFC)		\$388.96	\$363,13	\$411.54	\$484, 63	\$411.54	\$484.63	\$381, 99	\$385.85
AND ACTIONS AND	40.14	0044.023	000-909	000-001	NOU-000	000-007	WHI-NCC	CEDLOCT	MON-DEP
818 12.10000 +++	UCINED.	NOU 1	NOU 1	TH 1	DED 1	MOV 1	DI 15	TIL 1	SED 1
A Diverse House Household	HCMICVI	5-0	107 1	510.1	5.6	164	100 10	\$70	840
H. Steer wean weight		308	100	310	340	404	101	210	515
s. Heiter wean weight		321	306	343	313	100	400	595	477
L. LAIT LDS Produced/Low		*0C	336	161	411	460	46.0	363	414
II. PRICES		*** **	417.07	*** **	*** **	#45 07	*** **	#41 94	*** 15
H.Steer Price/Lwt at weaning	45	991.30	343.07	176.17	**** 10	+76 47	470.00	470.17	477.60
B Heiter Price/Cwt at Weans	ng	\$33.49	\$34.90	136.13	137.32	135.0/	135.00	100.10	13/.30
C DIT DOW PPICE/DW		\$09.23	\$24.29	9CD- 33	900.34	100.33	\$CD-13	100.33	PCD- 34
III. REVENUE				4147 47		408.00	403.30	4107 37	*100 60
R. STEEP Sevenue (\$)		\$102.00	\$78.11	\$187.27	9180.30	\$33.33	\$73.38	\$18/.C/	100.00
d. Heafer Hevervae (\$)		\$30.47	\$39.85	\$39.87	\$37.97	\$48,43	149,77	939.07	13/, 9/
C. DELL DON HEVENDE (\$)		\$46.69	\$40.85	\$44.33	343.45	\$40.75	143.61	\$44.33	143.40
TOTAL REVENUE		\$198.41	\$158.84	\$218.87	\$289.93	\$191.21	\$186,36	\$218.87	\$289.93
884 TW/F VCTC 844		*********	*********		303847663				
1 SPUENC UDITAL COPTO		(#57.97)	1078 EC1	(#71 181	/#CE 101	/408 011	(490 75)	(441 68)	(445 63)
1. SEVENUE TYPININGLE LOSIS		(4150 55)	1070. JDI	(#330.03)	(#104 7B)	(#220 22)	(#010.07)	(#171 10)	/#178 101
11. HEVENUE=101ML CUS1		(\$152.55)	(\$203.03)	(\$266.01/	(\$134, 70)	19220.337	19210.277	(#1/1.12/	(#173.16)
III.CALF BREAKEVEN PRICE (VA	riable Costs)	\$43.85	\$54.92	\$46.99	\$48.52	1\$7,95	\$55.17	\$41.15	\$44.42
IV. CALF BREAKEVEN PRICE (Tot	al Costs)	\$78,73	\$91.68	\$72.62	\$75.65	\$89.85	\$85.99	\$66.78	\$71.54
V. INVESTMENT*		\$3,714	\$3,785	\$4, 253	\$4, 258	\$4,853	\$4,858	\$3,732	\$3,733
SSSET TURNOVER :									
VI. NET (I.B. II. ) / INVESTMENT	1.0.9.1	-3, 13\$	-3, 750	-3, 324	-3, 178	-3, 885	-3,764	-2.81%	-2, 921
VII. GROSS(Tot. Rev.)/INVEST	MENT (Ln. V. )	7,125	6. 85:	6.835	6.825	6,355	6.23	7.425	7.40

+ Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the com, share of bull, value of buildings and mulperent, and value of grass.

((( FACTORS USED )	3 DALCULATE	BUDGETS ()))	197
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** FACTORS THAT	WARY BY C	ALVING SEASON NO	SPR	116	Fi	ALL.	FI	ALL .	FREL	FESCUE
	UNIT	PRICE	FEB-MAR	APR-MRY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
100000000000000000000000000000000000000	00000	)==(Amounts are	units per :	head per y	rear)					
L. CON UNIT FEED	COSTS									
R.Native Range	AC	\$18,78	B. 5	B.5	9.5	9.5	9.5	9.5	6.5	6.5
8.Fescue Pastur	e+ AC	\$18,48	8.8	8.8	0.B	B. 8	8.8	8.8	1.5	1.5
C.Alfalfa Hay	TONS	\$53.94	8.84	8.53	1.86	8.81	1.06	0.91	8,19	8.23
D. SBN 444	TONS	\$248,88	B. 20	8,98	8.88	0.23	8.68	0.03	8.68	6.58
E. Mineral & Sal	t CWT	\$3,94	8.57	B. 57	8.57	8.57	8.57	8.57	8.57	8.57
F.Grain	BU	\$1.74	8.38	8, 98	8.00	0.08	8,98	8, 28	8.98	8.98
8. Brass Hay	TONS	\$51.81	B.19	B. 19	8,21	B.21	8.21	8.21	8.14	8,15
H.Fescue Fert.	AC	\$17.97	\$8.88	\$8. B8	\$8.99	\$8,98	\$8.98	\$8.28	\$26.96	\$26.96
II. LABOR		\$2.68	6.8	6,0	B. 8	8.8	B. 8	8.0	8.0	8.8
III. REVENUE FAC	TERS	BORN :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NDW-DEC
		WEANED:	NOV 1	NOV 1	JUL 1	SEP 1	M90' 1	JUL 15	JUL 1	SEP 1
A.Steer Price/0	wt at Wea	100	\$41.36	\$43.97	\$41.24	\$44.15	\$45,97	\$43.14	\$41,24	\$44.16
B. Steer Weight			558	483	578	546	464	481	578	546
C. Heifer Price/	Out at We	aning	\$35.49	\$34.96	\$36.13	\$37.52	\$36,87	\$35.62	\$36.13	\$37,52
D. Heifer Weicht	D. Heifer Weight		521	388	545	515	438	453	545	515
E.Days of Age at Sale			245	184	273	274	212	227	273	274
F. Cull Cow Pric	e/Cwt.		\$24.29	\$24.29	\$26.99	\$26.34	\$28.35	\$26,19	\$25.99	\$25, 34
	********			*********					1001070	Concession of the local division of the loca
** FRETURS HELD	CUNSIANT :	BY CREVING SERSON	**		VI. BREEL	LINE HERD	OPER HERE	ENTRIES!	(CONSTRE	17 **
0 (Hiliting En	1 # 8-1		47 29		B 4 Char	us Up and	for Sale			49
D Vet & Dours			47.97		C. K Heil	are Meane	d for Sal			70
C. farbation & F	repting		\$4.17		D.X Heid	ors Means	d for Her	d Replace	inent	15
B. Renaurs, Tools	A Sunnli	P5	19.29		E. # Bull	per Cox		-		4
E. Auto Expense	e orppir		\$1.83		E. Ryprac	E CON Val	ue			\$558
E. Nice			\$1.79		S. Over at	e Bull Va	lue			\$1,588
6. Inclants			\$1.98		H. Con Lt	fe				8
IT. BUILDINGS &	EGUIPMENT				L.Bull I	ife				3
6. Investment			\$229		J. Salvas	e Value/0	CON			\$408
B.Life			18		K.Salvat	e Value/	9411			\$598
C.\$ Tax & Insur	ance for	Bldg/Eqp, Livstk	1.95		L.Cull (	ow Weight				1100
III. INTEREST RE	TES				44 The va	lues in a	ection VI	. BREEDIN	IS HERD, A	re
A.Doerating Rat	e	(1)	11.59x		generall	y regards	ed as indu	stry aver	ages and	are held
B.Fixed Funds S	late	(\$)	9.134		constant	through	ut the ar	alysis. B	bull and o	tow value
IV. NATIVE RANGE	VALUE/AC	Æ	\$335		are esti Universi	inates whi ity Farm P	ich are co lanagement	sistent Suide (M	with Kans F-266)	las state
V. FESCLE PASTL	RE VALUE/	CRE	\$462							

+ Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Farm Management Associations

NOTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cows assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue = heifer weaning wt. x 30% x heifer price

(4) Cull Com Revenue = cull com mt. x 15% x cull com price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf lbs produced

(6) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

+++ CRLVI	NG SEASON	STRATEBIE	S +++	
SEEF CON	HERD COST	-RETURN BL	DGET	1976

ALL COOLD AND		9091	NG CH	FO	11.	FA	LL	FALL	FESCLE
	BORV .	FER-HOP	OOR-MOY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
TOTO UNRIGHE COSTS	WEOMER .	N7V 1	NOV 1	JL 1	SEP 1	BRY 1	JUL 15	JU, 1	SEP 1
0. Total Feed Costs P	GE IN DAYS:	245	184	273	274	212	227	273	274
1. Cow Unit Feed Costs									
a. Native Rance		\$92,65	\$92,65	\$183, 55	\$183,55	\$183.55	\$183,55	\$78.85	\$78.85
h. Fescue Pasture(rent	↓ fert./AC)	18.98	\$8, 88	\$9, 89	\$3, 29	58.00	\$8,98	\$58.52	\$58, 52
c. Alfalfa Hay		\$48.69	\$25.61	\$51.24	\$39.86	\$51.24	\$39,86	\$9.35	\$11.32
d. 598 441		\$9,98	19,09	\$8,68	\$5.82	18.00	\$5.82	\$8,88	10.08
e. Mineral & Salt		\$2.14	\$2.14	\$2.14	\$2, 14	\$2.16	\$2, 14	\$2,14	\$2,16
f. Grain		\$8.98	\$3.99	65.58	\$3, 88	\$8,98	\$8.00	\$8.98	18.08
p. Brass Hav		18,20	\$8,28	\$9.24	\$9,24	\$9.24	\$9.24	\$6,28	\$6.67
Total Com Unit Feed C	osts	\$143.67	\$128,68	\$166.17	\$159.01	\$166.17	\$159.01	\$146.93	\$149.49
2. Aull & Reolace, Feed C	losts/C-C unit	\$42.27	\$42.27	\$42.27	\$42.27	\$42.27	\$42,27	\$42.27	\$42.27
Total Feed Costs		\$185.94	\$178.87	\$288.43	\$201,28	\$208.43	\$201.28	\$189.28	\$191,75
8. Labor		\$16.56	\$16.55	\$22. 28	122.08	\$22.98	\$22.08	\$22, \$8	\$22.98
C. Other Variable Costs (He	ld Constant)	\$27.16	\$27, 16	\$27.16	\$27.16	\$27.16	\$27,16	\$27.15	\$27.16
0. Interest (= Half of VC >	int. rate)	\$13.44	\$12.55	\$15.07	\$14,55	\$15.07	\$14.66	\$13.95	\$14,18
TOTAL WARIABLE COSTS		\$243.18	\$227.14	\$272.75	\$265.17	1272.75	\$255.17	1252, 39	\$255.18
IL. TOTAL FIXED COSTS (Held	Constant)	\$127.11	\$127,11	\$127.11	\$127.11	\$127.11	\$127.11	\$127.11	\$127.11
(11. TOTAL COSTS (TVC+TFC)		\$378,21	\$354.25	\$399.85	\$392.28	\$399.86	1392,28	\$379.58	\$352.21
tas perinter and	RORV :	FTR-NR2	APR-MRY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
the mercente and	LEQUED.	NW 1	NOV 1		SEP 1	MRY 1	JUL 15	RI, 1	SEP 1
0 Stage Have Mainht	Harris and a	558	483	578	546	464	481	578	546
a List fee Liss Lisisht		521	350	545	515	438	453	545	515
C Calif I be Produced/Cox		482	352	585	477	485	428	585	477
II. OPIPES									
O Steer Price/Det at Weaning	10	\$37, 89	\$39, 33	\$48,46	\$39, 95	\$47.57	\$48.54	\$48,46	\$39.95
8 May fee Deire/Cut at Maan	-9	438.99	\$33,68	134, 98	\$34, 55	\$38,84	\$34,48	\$34.98	\$34,56
C. Call Con Price/Out		\$21,38	\$21.38	\$28,81	\$23,84	\$31.69	\$25.87	\$28.01	\$23.84
TIT. REVENUE									
Q. Steer Revenue (\$)		\$93, 78	\$71.32	\$185,24	\$98, 18	\$99, 33	\$87.97	\$185.24	\$98.18
8. Heifer Revenue (\$)		\$48,44	\$34.88	\$57.85	\$53, 48	\$51.04	\$46.86	\$57.06	\$53, 48
C. Cull Cow Revenue (\$)		\$35.15	\$35,15	\$46.22	\$39.34	\$52.29	\$44.34	\$45,22	\$39.34
TOTAL REVENUE		\$177, 35	\$141.35	\$288.51	\$198.91	1282, 55	\$179.16	\$288.51	\$198.91
tes own yous and	100302000000000000000000000000000000000								
L REVENIE-VARIABLE COSTS		(\$65,74)	(\$85,78)	(\$64,23)	(\$74.25)	(\$78.18)	(\$85.01)	(\$43.88)	(\$64.19
II. REVENUE-TOTAL COST		(\$152,85)	(\$212.89)	(\$191,34)	(\$201, 37)	(\$197.21)	(\$213, 12)	(\$178,98)	(\$191.38
111. DALF AREAKEVEN PRICE (V.	ariable Costs)	\$43.15	\$54,49	\$44.83	\$47.38	\$54.31	\$52.54	\$48,88	\$45.19
IV. CALF BREAKEVEN PRICE (To	tal Costs)	\$69.52	\$98.55	\$69.98	\$73.92	\$85,63	\$82.78	\$65.95	\$71.81
V. INVESTMENT+		\$3, 475	\$3,468	13,788	\$3,785	\$3,788	63, 785	\$3,499	13,500
ASSET TURMOVER :									
VI. NET (Ln. II. )/INVESTMENT	(Ln. V. )	-3.65%	-4.23	-3.315	-3,58#	-3.461	-3.89#	-3. 085	-3, 58
VII, GROSS(Tot. Rev.)/18VES	THENT (Ln. V.)	7.88%	5.98	7.25	6.79	7,099	6, 483	7,859	7.34

Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the com, share
of buil, value of buildings and equipment, and value of grass.

((( FACTORS USED TO CALCULATE BUDGETS ))) 1976

HE FOCTORS THAT	WARY BY D	SLVING SEASON DO	SDI	INS	56	a.L	F	R.L.	FREL	FESCLE
	INIT	PRICE	FEB-NOR	APR-MAY	SEP-OCT	NON-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
111111111111111111111111111111111111111		)=(Asounts are	units per	head per	mar)					
1. CON UNIT FEED	COSTS		and the part	and the second						
R. Native Ranse	AC	\$10,98	8.5	8.5	9.5	9.5	9.5	9.5	6.5	6.5
8. Fescue Pastur	et AC	\$17, 16	8.8	8.8	8.8	8.8	8.8	8.8	1.5	1.5
C. Al fal fa Hav	TONS	\$48.25	8,84	8,53	1.05	Q. B1	1.86	8. B1	8,19	8.23
O. SEM 44%	TONS	\$170.00	8,98	8,98	8, 88	8,83	8, 88	8, 83	8, 98	8, 98
E.Mineral & Sal	t CWT	\$3.75	8.57	0.57	8.57	8.57	8.57	8.57	8.57	8.57
F. Grain	BU	\$1.86	8, 88	0.00	8, 98	0,00	8, 88	8, 88	8. 88	0.00
6. Grass Hay	TONS	\$43.85	0.19	8.19	0.21	0.21	8.21	8.21	8.14	8.15
H.Fescue Fert.	AC	\$21.85	\$9.98	\$8.88	10.08	\$9.98	\$2.98	\$9.98	\$32.78	\$32, 78
II. LABOR		\$2.75	6.8	6.9	B. Ø	8.0	8.0	8.0	8.9	8.0
III. REVENUE FAC	TORS	BORN :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		WERNED:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A. Steer Price/C	wt at Wea	nine	\$37.89	\$39.33	\$18.16	\$39,96	\$47.57	\$48.64	\$18.45	\$39.96
B. Steer Weight			550	483	578	546	464	481	578	546
C. Heifer Price/	Cat at We	aning	\$38,99	\$39.60	\$34.98	\$34.56	\$39.84	\$34.48	\$34, 98	\$34.56
O. Heifer Weight		-	521	380	545	515	438	453	545	515
E.Days of Age at Sale		245	184	273	274	212	227	273	274	
F.Cull Cow Pric	e/Cet.		\$21.38	\$21.38	\$29.01	\$23.84	\$31.69	\$25.87	\$29.81	\$23.84
A DOCTOR UP D	CONCTONE.	DV DN ULNE OFACTA					Inca ucor	CHITRICES	(DOMETON	T1 44
1 OTVER HORIOR	COPTR	DI CHEVING GEHOUN	**		O Y Cald	Cese	IPER HEAL	ENINIEGO	(Long The	
A Utilities See	1 # 0.1		66 07		D V Ches	or University	for Cale			45
E Unt & Deune	1 4 011		44 01		C X Heif	terr liason	of from Sal			28
C. Muchetine & R	nation		47.51		O. K. Haif	ines Maand	d for line	vi Renlace	topp	19
A. Renairs. Tools	4 Sunnli		\$7.83		E. 1 Bull	ner Cox	a 101 1141	o mediace		4
E Outo Example	4 ouppit	e9	41 92		E Guerra	a Con Uni				6058
F. Hise			41.92		S. Over at	a Bull Va	lue			41.598
6. Innlants			\$1.98		H.Con Li	fe				A
IL. BULLDINGS &	FOULPMENT				L. Sell L	ife				3
0. Investment			\$298		I. Salvan	e Value/f	Come .			\$4.90
8.Life			18		K. Salvas	e Value/S	a11			1588
C.% Tax & Insurance for Bldg/Eqp, Livstk			1.85		L. Dall C	low Weight				1188
III. INTEREST RA	TES			********	++ The va	lues in s	action VI	. BREEDIN	6 HERD, a	
A.Operating Rate		(%)	11.783		general1	y reparde	d as indu	stry aver	ages and	are held
8.Fixed Funds Rate (%)					constant	througho	et the an	alysis. B	ull and c	ow values
IV. MATIVE RANGE	VALUE/AC	1E	\$318		universi	mates whi ty Farm M	ch are co anagement	Buide (M	with Kans F-255)	as State
V. FESCUE PASTU	RE VALUE/	KCRE	\$429							

\* Price for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Farm Management Associations

NOTE: Some formulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cow: assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue = heifer wearing wt. x 38% x heifer price

(4) Cull Cow Revenue = cull cow wt. x 15% x cull cow price

(5) Calf Breakeven Price (variable costs) = varible costs - cull cow revenue / calf lbs produced

(6) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

+++ DALVING	SEASON	STRATE	51ES +++	
BEEF CONHER	D COST-	RETURN	SUDGET	197

ana costs ana		SPR	ING	FF	RL.	F	ALL.	FALL	FESCLE
	ALEN .	FFR-NOR	NDR-RCD	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
T. TOTAL VORIGH & COSTS	WEGNED:	NW 1	NOV 1	.01.1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A. Total Feed Costs	AGE IN DAYS:	245	184	273	274	212	227	273	274
1. Cow Unit Feed Costs									
a. Native Range		\$89.25	\$89.25	\$39.75	\$99.75	\$99.75	\$99,75	\$68, 25	\$68.25
b. Fescue Pasture(rent	& fert./AC)	58.98	\$9.98	\$8.98	\$8.98	58,98	\$9. 30	\$54,85	\$54,85
c. Alfalfa Hay		\$60.74	125.64	\$51.38	\$39.11	\$51.30	\$39.11	\$9.35	\$11.34
d. SEM 44X		18, 88	\$8, 88	\$9.89	\$5, 72	\$9.98	15,72	59, 88	50, 38
e. Mineral & Salt		\$2,83	12, 13	\$2.83	12.83	12.83	\$2, 83	\$2.83	12.13
f. Grain		\$8, 88	18.98	\$8.98	\$9. 28	59.98	\$8,98	59, 89	\$9.99
g. Grass Hay		\$8.67	\$8.67	\$9.77	\$9.77	\$9.77	\$9.77	\$6.43	\$7.85
Total Cow Unit Feed I	Costs	\$148.69	\$125, 59	\$162,85	\$156.39	\$162.85	\$156.39	\$148.11	\$142,71
2. Bull & Replace. Feed (	Costs/C-C unit	\$43.43	\$43.43	\$43.43	\$43.43	\$43.43	\$43.43	\$43, 43	\$43.43
Total Feed Costs		\$184,12	\$169.82	\$286.29	\$199.82	\$296, 29	\$199.82	\$163, 55	\$186, 15
8. Labor		\$15.18	\$15.18	\$28.24	\$28.24	\$28.24	\$28.24	\$28.24	\$28.24
C. Other Variable Costs (H)	elc Constant)	\$25,67	\$25.87	\$25,87	\$25.87	\$25, 87	\$25,87	\$25.87	\$25.87
D. Interest (* Half of VC :	x int. rate)	\$13.17	\$12.29	\$14.77	\$14.39	\$14,77	\$14.39	\$13, 44	\$13, 59
TOTAL VARIABLE COSTS		\$238.34	\$222.35	\$267.16	\$258, 32	\$267.16	\$268.32	\$243. 89	\$245.84
11. TOTAL FILED COSTS Gleld	Constant)	\$125,50	\$126.80	\$125, 88	\$126.80	\$125.88	\$125, 80	\$125.80	\$125.88
111. TOTAL COSTS (TVC+TFC)		\$365, 14	\$349.16	\$393,96	\$387.11	\$393, 96	\$387.11	\$369.89	\$372.64
the SETURNS dee	BORN :	FEB-MAR	RPR-MAY	SEP-OCT	NOV-SED	SEP-OCT	NOV-DEC	SEP-OCT	NON-DED
	WEANED:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A Steer Wean Weight		558	483	578	546	464	481	578	546
8. Heifer Wean Weight		521	388	545	515	438	453	545	515
C. Calf Lbs Produced/Cow		482	352	585	477	406	428	585	477
11. PRICES									
A.Steer Price/Ext at Weaning	nç	\$37.34	\$35.67	\$35.17	\$34,89	\$33.25	\$32.58	\$35.17	\$34.89
8. Heifer Price/Cwt at Weam:	ing	\$28, 99	\$24.65	\$29.25	\$28.93	\$25.68	\$26.64	\$29,25	\$28.93
C. Dull Cow Price/Dwt		\$21.44	\$21.44	\$23.88	\$22.17	\$23, 83	\$21.69	\$23.88	\$22.17
111, REVENUE									
A. Steer Revenue (\$)		\$92, 42	\$64.69	\$91.48	\$85.72	\$69.43	\$78, 52	\$91.48	\$85.72
8. Heifer Revenue (\$)		\$45.31	\$28,18	\$47.82	\$44, 78	\$33.64	\$36.28	\$47.82	\$44.78
C.Cull Cow Revenue (\$)		\$35.38	\$35, 38	\$38.88	\$36.58	\$38.98	\$35.79	\$38, 88	\$36, 58
TOTAL REVENUE		\$173.18	\$128, 16	\$177.38	\$167.88	\$141.95	\$142,51	\$177.38	\$167.00
AND ANY YOLD AND	**************	a promotion in							
1 20/00/01/01/00/02/07 C007C		(#CE 94)	/#04.000	(800 70)	(#97 72)	14106 101	(#117 01)	(465 71)	(#72.04)
L ACYERUS WHITHOLE COSIS		(100, 24/	1934.200	(4017 87)	(4000 11)	(4050.00)	(4014 601	(#103 51)	10005 (1)
IL REVENUE-TUTHL LUST		(9132, 84)	19001.081	(\$216.3/)	(\$608,11)	(162,021,021	(9249.08/	(0126-01)	(900.04)
111. CALF SREAKEVEN PRICE IV.	ariable Costs)	\$42.11	\$53.87	\$45.33	\$46.85	\$55.46	\$53, 42	\$48.57	\$43,83
IV. CALF BREAKEVEN PRICE (Tot	tal Costs)	\$68,42	\$89.85	\$78,42	\$73.42	\$87.78	\$83, 59	\$65.66	\$78.39
V. INVESTMENT+		\$3,228	\$3,228	\$3,512	\$3,589	\$3,512	\$3,589	\$3, 381	\$3,382
ASSET TURMOVER 1									
VI. XET (Ln. 11.)/INVESTMENT	(Ln. V.)	-3.91#	-4.817	-4.29%	-4.397	-5.325	-5.89%	-3, 635	-4.231
V11. GROSS(Tot. Rev.)/INVES	THENT (L.n. V.)	7.41%	6. 833	6, 933	6.647	5, 897	5.94×	7.37%	7.055

+ Investment is the maximum at one time assuming 1/2 the operating costs (less interest), value of the cos, share of bull, value of buildings and equipment, and value of grass.

44 FORTHER THAT WARY BY CALVING SEASON #4			SPRING		FALL		FALL		FALL FESCUE	
	INIT	PRICE	FEB-MAR	RPR-MAY	SEP-OCT	NOV-DED	SEP-OCT	NOV-DED	SEP-OCT	NOV-DEC
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	)))=(Asounts are	units per	head per y	(near)					
1. COW UNIT FEE	D COSTS									
A.Native Range	AC	\$18.58	8.5	8.5	9.5	9.5	9.5	9.5	6.5	6.5
8.Fescue Pastu	ret AC	\$17.00	8.8	0.0	8.8	8.8	8.8	8.8	1.5	1.5
C. Alfalfa May	TONS	\$48.31	8.84	8.53	1.06	8.81	1.96	8.81	8,19	8.23
D. SBM 445	TONS	\$194.88	0.00	8.98	8.98	0.03	8,28	8.03	8,98	6.69
E. Mineral & Sa	at CNT	\$3.56	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57
F.Grain	BU	\$2.27	0.00	8, 88	8.98	8,98	9.99	8.88	8.88	6.69
S. Grass Hay	TONS	\$45.38	8.19	8.19	0.21	8.21	8.21	0.21	8.14	0.15
H.Fescue Fert.	AC	\$19.83	18.00	\$8.08	\$8.98	\$8.88	\$2.99	\$9.00	\$28.55	\$28.55
II. LABOR		\$2.53	6.8	6.8	8.8	8.0	8.8	8.8	8.8	8.8
111. REVENUE FACTORS		BORN :	FEB-MAR	SPR-HAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
		WEANED:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
A.Steer Price/Cwt at Weaning			\$37.34	\$35.67	\$35.17	\$34,89	\$33.25	\$32.58	\$35.17	\$34.89
8. Steer Veight			558	483	578	546	464	481	578	\$46
C. Heifar Price/Cwt at Weaning			\$28.99	\$24.65	\$29.25	\$28.93	\$25,68	\$25.64	\$29.25	\$28.93
D.Heifer Weight E.Days of Age at Sale F.Dall Cow Price/Dwt.			521 245	380 184	545 273	515 274	438 212	453 227	545 273	515 274
			* FACTOR HLD CONTINUE FOR CALVINE SEASON I OMERA VARIABLE CONTS AUXILITES, Famil & 011 AUXILITES, Famil & 011 AUXILITES, Famil & 011 AUXILITES, Family & Famediag D. Anvieting & Breeding D. Anvieting & Breeding D. Anvieting & Borneting S. Anton Communication B. September & Anton Communication A. Life B. Life			\$6, 87 \$3,11 \$4,76 \$7,88 \$1,44 \$1,61 \$1,88 \$286 1,80		vr. 862018 Hells (FCR HEID EVTRILES) (CDNF) A.S. Saif Con A.S. Saif Con A.S. Saif Con S.S. Saif Con S.S. Saif Ler Subschaft S.S. Saif Ler Charles F.Amrage Div Value K.Con Life I.Sait Lif		
111. INTEREST P	ATES				++ The vi	lues in s	section V	. 8REED1	6 HERD, a	are held
R. Uperating sate			11,700	generally regarded as industry averages and are he				are nelo		
8.Fixed Funds	xate	(x)	9.239		are est:	icates who	ich are ci	maistent	with Kans	as State
IV. NATIVE RANGE VALUE/ACRE			\$281		University Farm Management Buide (MF-255)					
V. FERDIE DOSTURE VOLUE/OCRE			\$425							

\* Prica for Fescue Pasture = Value/Acre x 4% Return/Acre

A range of 3-5% Returns/Acre are considered typical by Kansas Fare Management Associations

NOTE: Some foreulas used in the Beef Cowherd Cost-return Budget

(1) Calf Lbs Produced/Cow: assuming a 98% calf crop = (45% x steer lbs) + (45% x heifer lbs)

(2) Steer Revenue = steer weaning wt. x 45% x steer price

(3) Heifer Revenue = heifer weaning wt. x 30% x heifer price

(4) Cull Com Revenue = cull com mt. x 15% x cull com price

(5) Calf Breakeven Prica (variable costs) = varibla costs - cull cow revenue / calf lbs produced

(5) Calf Breakeven Price (total costs) = total costs - cull cow revenue / calf lbs produced

66

( FACTORS USED TO CALCULATE BUDGETS ))) 19
### APPENDIX 2 FIXED COSTS FOR THE BEEF COWHERD

For a farm operator, fixed costs are those that you will incur even if you do not raise any calves. These costs generally include: depreciation, rent (or a land charge), interest, taxes and insurance.

In the beef cowherd cost-return budget used in this thesis, the rest or land charge for parture was extered as a cost of feed and not as a fixed cost. The rest/acre of native bluestes range as reported by the Kanasa Crop-Livestock Reporting Service was used as the rest charge for native range. It was assumed that this charge represented the approximate return to farmland ownership which has historically ranged from 3-51.<sup>1</sup> In the case of feecuse pacture, reliable data on per acter rest were not available so the average return/acre was used as a proxy value. Multiplying the average return/acre for feecus pasture was calculated.<sup>2</sup>

Depreciation, interest, taxes and insurance are all largely dependent upon the amount of capital invested. Capital requirements for livestock, livestock equipment and facilities can vary

<sup>1</sup>A 3-5% return to farmland is consistent with Kansas Farm Management Association estimates. Kansas Farm Management Assn., Dept. of Agricultural Economics and Cooperative Extension Service, Kansas State University, Manhattan, KS.

<sup>2</sup>It is assumed in this thesis that average quality crop ground was necessary to grav a sufficient stand of feacue as required by the fall feacue calving option specified in the beef cowherd cost-return budget. Southeast Kanass cropland values were selected hecause it is in the southeast corner of Kanass where feacue pasture is the most prevalent. greatly from one producer to another. Values representing the estimated investment in breeding stock are listed in Table 6. The 1984 estimated new capital investments for huildings and equipment hased on a 100 cow-herd, were adapted from KSV Farm Management Guide MY-266.3 (see tahle 7) These fixed costs for hoth huildings/equipment and hreeding livestock were held constant among all calving season management options in order to hetter illustrate the differences due to cow feed costs and calf revenue.

Fixed costs were calculated as follows:

- Depreciation/Bldgs. & Equip.: total value/cow unit divided hy 10 year average life
- Interest/Bldgs. & Equip.: total value/cow unit divided hw 2 then multiplied by the fixed funds interest rate
- Taxes & Insurance/Bldgs. & Equip.: total value/cow unit multiplied by 11<sup>4</sup>
- Interest/Breeding Stock: value of the cow and share of hull value multiplied by the fixed funds interest rate
- Taxes and Insurance/Breeding Stock: value of the cow and share of bull value multiplied by 1%
- Depreciation/Breeding Stock: value of the cow and share of hull value minus their salvage values divided hy their useful life

<sup>3</sup> The total investment in huildings and equipment/cow unit in 1984 was indexed back in the to derive cow unit investments for each of the other nine years of the analysis. It was assumed that the value for huildings and equipment corresponded closely with the value of all for buildings and equipment ware calculated by adjusting the 1984 value by the percentage change in the value of all land in farms for fast Central Kansas. For example, the 1983 value of huildings and equipment vas derived by dividing the value of all land in farms for 1984 by the value all lands in forms for seal lange to sea whitpiled by the value all 923. The resulting ratio was multiplied by the value for 1983.

<sup>4</sup>It is assumed that taxes and insurance average approximately 1% of farm asset values. This estimate is consistent with KSU Farm Management Guides, Department of Economics, Kansas State University, Manhattan, KS.

TABLE 6Capital investments/cow unit for breeding	s stock
con unit	
share	
Cow and Replacement share \$550 X 100X =	\$550
Bull \$1000 X 4Z =	\$ 40
TOTAL INVESTMENT/COW UNIT	\$590
TABLE 7 Capital investments/cow unit for buildin	es/equinment
(100 cow-herd) 1984	Porcelantarea
Facilities	
Working Corral and Equipment	\$4,000
Holding and Feeding Corral	1,200
Feed Bunks (portable) 50'	1,000
Hay Feeders 50'	500
Shelter 1 pen/20 cows 8' X 10'	2,000
Waterers (2)	600
Total Facilities	\$9,300
Feed Storage (Hay Program)	
Hay Storage 1.6T/hd. @ \$20/T	\$3,200
Bale Handling Equipment	500
Protein Bulk Bin (3T)	500
Bance Cube Delivery Success	300
Total Pood Storneo	\$4 800
iotal reed blorage	++,000
Machinery and Trucks	
1/2 of Pickup Truck	\$4.000
1/2 of 2 1/2T Truck	5,000
1/3 of Small Tractor	5,000
Manure Loader	1,500
Manure Spreader	1,500
Scraper	500
Total Machinery and Truck	\$17,500
Total Investment/100 cow herd	\$31,600
	6214
TOTAL INVESTMENT/COW UNIT	\$316

APPENDIX 3 INPUTS FOR BEEF COWHERD COST-RETURN BUDGETS

TABLE 8.--Ristorical prices used in the beef cowherd cost-return budgets

					INCOLUMN.
		1984	1983	1982	
1.	Native Range	\$12.80	\$12.80	\$12.80	\$/Acre
2	Alfalfa Haw	\$71.00	\$54.86	\$60.13	\$/Ton
2.	Soubsen Wosl	\$300.00	\$240.00	\$250.00	\$/Ton
2.	Viscoul f Sala	¢5 92	\$5.81	\$5.80	S/Cut.
	Alderal & Salt	62 55	62 77	\$2.67	\$/8
2.	Grain	***	012.01	040 25	6/7-2
6.	Grass Hay	\$52.00	043.00	040.2J	\$/100
<i>'</i> .	rescue fertilizer	\$24.14	423.37	\$2	¢/Here
8.	Labor Wage	\$4.20	94.37	93.11	\$/HOUL
9.	Utilities, Fuel, Oil	\$17.37	\$17.21	515.38	o/lear
10.	Vet. & Drugs	\$6.92	\$7.25	54./1	e/iear
11.	Marketing & Breeding	\$7.90	\$6.39	\$6.99	\$/iear
12.	Repairs, Tools, Supplies	\$14.94	\$13.49	\$11.01	\$/iear
13.	Auto Expense	\$1.89	\$2.72	\$2.21	\$/Year
14.	Misc.	\$5.83	\$3.26	\$8.04	\$/Tear
15.	Implants	\$1.00	\$1.00	\$1.00	\$/Year
16.	Investment/Bldgs & Equip.	\$316.00	\$323.00	\$350.00	\$/Acre
17.	Operating Interest Rate	14.50%	14.15%	16.23%	Percent
18.	Fixed Funds Interest Rate	12.25%	12.50%	13.71%	Percent
19.	Native Range Value	\$385.00	\$411.00	\$440.00	\$/Acre
20.	Fescue Pasture Value	\$591.00	\$622.00	\$682.00	\$/Acre
		1081	1980	1 9 7 9	
	Water Bar	612 40	\$12.00	\$12 90	\$/4070
1.	Native sange	012.40	\$12.90 \$50.99	042.00	\$/Ten
2.	Alfalfa Hay	\$38.30	930.88	00.00	\$/101
3.	Soybean Meal	\$300.00	\$240.00	\$230.00	\$/100
4.	Mineral & Salt	\$5.52	95.11	04.43	e/ewe.
5.	Grain	\$2.30	\$2.91	\$2.20	S/BU.
6.	Grass Hay	\$55.31	\$44.63	\$39.75	S/TOn
7.	Fescue Fertilizer	\$23.61	\$19.03	\$17.62	\$/Acre
8.	Labor Wage	\$3.74	\$3.70	\$3.50	\$/Hour
9.	Utilities, Fuel, Oil	\$13.87	\$12.58	\$9.49	\$/Year
10.	Vet. & Drugs	\$4.39	\$4.56	\$5.28	\$/Year
11.	Marketing & Breeding	\$5.79	\$5.79	\$5.30	\$/Year
12.	Repairs, Tools, Supplies	\$13.11	\$10.82	\$11.06	\$/Tear
13.	Auto Expense	\$1.96	\$2.41	\$1.53	\$/Year
14.	Hisc.	\$2.87	\$3.34	\$2.31	\$/Tear
15.	Implants	\$1.00	\$1.00	\$1.00	\$/Tear
16.	Investment/Bldgs & Equip.	\$364.00	\$357.00	\$307.00	\$/Acre
17.	Operating Interest Rate	15.91%	14.46%	12.28%	Percent
18.	Fixed Funds Interest Rate	12.67%	11.54%	9.88%	Percent
19.	Native Range Value	\$490.00	\$463.00	\$412.00	\$/Acre
20.	Fescue Pasture Value	\$679.00	\$664.00	\$556.00	\$/Acre

TABLE 8.--Continued.Historical prices used in the beef cowherd cost-return budgets

			********	********	
		1978	1977	1976	1975
1.	Native Range	\$11.10	\$10.70	\$10.90	\$10.50
2.	Alfalfa Hay	\$45.38	\$53.94	\$48.25	\$48.31
3.	Soybean Meal	\$210.00	\$240.00	\$170.00	\$194.00
4.	Mineral & Salt	\$4.20	\$3.94	\$3.75	\$3.56
5.	Grain	\$1.99	\$1.74	\$1.86	\$2.27
6.	Grass Hay	\$40.94	\$51.01	\$43.86	\$46.38
7.	Fescue Fertilizer	\$17.62	\$17.97	\$21.85	\$19.03
8.	Labor Wage	\$2.91	\$2.60	\$2.76	\$2.53
9.	Utilities, Fuel, Oil	\$7.36	\$7.28	\$6.97	\$6.07
10.	Vet. & Drugs	\$4.11	\$3.93	\$4.01	\$3.11
11.	Marketing & Breeding	\$5.47	\$4.17	\$3.51	\$4.76
12.	Repairs, Tools, Supplies	\$7.76	\$8.09	\$7.83	\$7.88
13.	Auto Expense	\$1.52	\$1.83	\$1.92	\$1.44
14.	Misc.	\$2.35	\$1.79	\$1.92	\$1.61
15.	Implants	\$1.00	\$1.00	\$1.00	\$1.00
16.	Investment/Bldgs & Equip.	\$259.00	\$229.00	\$208.00	\$206.00
17.	Operating Interest Rate	11.58%	11.58%	11.70%	11.70%
18.	Fixed Funds Interest Rate	9.13%	9.13%	9.25%	9.25%
19.	Native Range Value	\$354.00	\$335.00	\$310.00	\$281.00
20.	Fescue Pasture Value	\$500.00	\$462.00	\$429.00	\$425.00
		the set of the set of the set of the			the day loss 100 per day loss 100 million

Historical Price Sources:

- Native Range "Bluestem Pasture Rents", Kansas Crop-Livestock Reporting Service (KC-LRS), Kansas State Board of Agriculture Division of Statistics, USDA.
- Alfalfa Hay Average Kansas price for the first eight marketing months of the previous year's hay marketing year, May-December. (KC-LRS)!
- Soybean Meal Average January Soybean Meal Price in Kansas, (KC-LRS)
- 4) Mineral and Salt The 1984 price of a 1/2 salt and 1/2 trace mineral mix was obtained from the Manhattan Goop. This price was then indexed back to derive prices for the other mine years of the study.

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<sup>1</sup>The previous years prices were used because it was assumed, for example, that the 1983 hay crop would be fed during the winter of 1984.

<sup>2</sup>There is little bistorical data available pertaining to trace mineral prices. For purposes of this thesis, a close relationship between stock salt and trace mineral prices was assumed.

5) Grain - Kansas average annual milo price. (KC-LRS)

- 6) Grass Hay Average Kansas price of "other hay" for the first eight marketing months of the previous year's hay marketing year, May-December. (KC-LKS)
- 7) Fescue Fertilizer The 1984 price of a 60-30-30 (N.F.K.) application of fertilizer was based on conversations with Gary L. Kilgore, Extension Specialist, Crops and Solia, Southeast Fansas. This price was then indexed back to derive the fertilizer price for each of the ten years of this analysis.<sup>3</sup>
- Labor Price Hourly wages of livestock workers, as quoted for the month of January. (KC-LRS)
- 9) Utilities, Fuel and Oil Based on the average costs incurred by farms with beef cowherds, enrolled in Kanass Farm Nanagement Associations for each year of the sanalysis.
- 10) Vet. and Drugs Same as 9.
- 11) Marketing and Breeding Same as 9.
- Repairs, Tools and Supplies Same as 9.

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Mineral mix prices were derived by multiplying the 1984 mineral mix price by an index of the price changes in yearly stock salt prices as reported by the Kansss Grop-Livestock Reporting Service. For example:

- Manhattan Coop 1984 salt price = \$5.00 and 1984 mineral mix price = \$6.65 (per cwt. for each)
- (2) \$5.00 + \$6.65 = \$11.65/2 = \$5.83 (1984 mineral mix price/cwt.)
- (3) 1984 stock salt price = \$3.00/cwt and 1983 price = \$2.99/cwt
- (4) \$2.99/3.00 = .9967 X \$5.83 = 1983 mineral mix price of \$5.81/cwt

<sup>3</sup>Fertilier was assumed to be applied in the fall of the previous year, thus 1885 prices vere added to the 1984 beef cowherd cost-return budget. Per pound prices of fertilizer vere .32, .26 & 1.2 dollars for N P add K respectively. Thus for a 60-30-30 fall application in 1984 the total cost summed to 825.50. Prices vere indered back based on the inder of prices paid by farmers for fertilizer, U.S. Source, "Agricultural Prices," 1975-1984, Grog Reporting Board, 885G, 1950.

- 13) Auto Expense Same as 9.
- 14) Misc. Same as 9.
- 15) Implants Prices for implants make up a very small part of the total costs of a cowherd operation and have varied little over the past ten years. For these reasons they were held constant throughout this analyzis at the price of one dollar as obtained from the Manhattan Goop.
- 16) Investment/Bldgs. and Equip. Based on the values found in KSU Farm Management Guide MT-266. A more detailed explanation can be found in Appendix 2.
- 17) Operating Interest Rate Based on the average interest rates on short term operating loans as charged by the Manhattan Production Gredit Association and adjusted up hy 3/42.
- 18) Fixed Funds Interest Rate Based on the average interest rates on intermediate to long term loans as charged by the Manhattan Federal Land Sank and adjusted up 3/44.
- Native Range Value Kansas farmland values, pasture in East Central Kansas. (KC-LRS)

 Fescue Pasture Value - Kansas farmland values, dryland crop ground in Southeast Kansas. (KC-LRS)

<sup>4</sup>Interest rate charges by both PCA's and FLB's were adjusted up to account for the additional costs of borrowing from thes. These costs primarily reflect the cost of shares that horrowers must purchase. Based on conversations with Don Pretzer, Extension Agricultural Beonomist, Kanass State University, an adjustment factor of 3/4% was selected.

## APPENDIX 4 BEEF COWHERD RATIONS

Beef cov feed costs are the largest single expense faced by the cov-calf operator. Because of that, any management decisions affecting cov unit feed costs variant careful consideration by the producer. The most significant inpacts of calving session on feed costs occur as the result of two factors, the differing amounts and qualities of feed that a beef cow needs hased upon her specific stage of production and the differing qualities of rame variable depending on the time of war.

Generally, the beef cov year is split into four distinct periods, each with a unique set of nutritional requirements necessary to meet the particular needs of the cov. Period 1 is the 90 days following calving when the cov is lactating at her highest level while trying to maintain maximum calf growth. In addition, during this period the cov must undergo uterine involution, start recycling and rehreed. Period 2 occurs during the following 120 days when the heef cov is in the early stages of pregnency while still lactating and maintaining a calf. The third period lases for 90 days and is called migestation, during this stage the cov must primarily maintain its developing fetus. Period 4 is the second most important period in the beef cov year. During thi 60 day period, 70% to 80% of the total fetal growth occurs and the cov must slao prepare for lactation. (see table 9)

Typically the cheapest and most common feed source for the Kansas beef cow is native range. While being a vital source of nutrition for the beef cowherd, native range is also a very seasonal source. Crude protein levels can very from a high of 16% in May to a low of 3% in January. (see table 10)

It is because of the above mentioned seasonalities in both cov nutritional needs and grass quality that calving season management decisions can play such an important part in the overall profitability of a beef covberd operation. The goal of this thesis is not to evaluate the feed requirements of different calving seasons, but to evaluate bow these differences affect overail cov herd profitability. For that reason, beef cov rations will be calculated and them held constant throughout the analysis with only feed prices changing from year to year. This will allow the differences between calving seasons to be measured on a dollar basis and not a quantity basis.

Beef cov rations were calculated with the assistance of Dr.'s Larry Corah, and Frank Branle, Extension Livestock Specialists, Kansas State University. The rations were calculated based on the assumption that both the spring and fail calving options would be on mative range year round. Keeping caltle on mative range year round, while typical for many spring calving herds in Eastern Eansas, is seldon practiced with fall calving herds. This assumption allowed the analysis of spring vs. fall calving to be evaluated using the same resource base. Permitting a more accurate analysis of the differences in profitability due to time of calving and not due to differing feed sources.

The ration building process consisted of subtracting the amount of nutrients provided by the range from the amount of nutrients required by the cow based upon her specific stage of production. Tables were organized on a lotum 123 electronic

TABLE 9 Nutrient require	ments of sn	1100 lb.	Beef Cow	(15 lhs.	milk)
************************					
	-	P	roduction	Period	
		1	2	3	4
Total Dig. Nutrient (TDN)	lbs/day	13	11	9	10
Crude Protein	lbs/day	2.3	1.9	1.4	1.6
Calcium	grans/day	33	27	17	25
Phosphorus	grans/day	25	22	17	20
Vitamin A	I.U./day	39000	32000	25000	26000
	to be to be see When an he he he		and the local data in the local data in the		

TABLE 10 .-- Nutritional values of grazed forages

	*************				
	Bluestem Ran	nge		Fescue	
		-	AVERAGE		
	ESOPHAGEAL		RANGE INTAKE	SHORT CLIP	
	PROTEIN	TDN	% BODY WT.	PROTEIN	TDN
JAN	37	42%	1.50%	9.007	53%
FEB	3%	42%	1.50%	9.30%	47%
MAR	5%	40%	1.50%	12.40%	467
APR	6%	41%	1.60%	24.40%	63%
MAY	16%	52%	2.60%	12.20%	56%
JUN	117	51%	2.70%	9.50%	52%
JUL	91	50%	2.20%	6.70%	50%
AUG	7%	49%	2.20%	6.20%	48%
SEP	67	47%	1,907	16.90%	53%
OCT	67	46%	1.80%	14.30%	56%
NOV	5%	45%	1.70%	13.60%	53%
DEC	5%	441	1.60%	12.30%	52%

Table 9 Source: Larry Corsh, Extension State Leader, AS&I, Kansas State University, Manhattan.

- Table 10 Source: "Feed Supplements for Maximum Use of Native Range",Larry Corah and Ed Smith, Cooperative Extension Service, Manhatan, Kanasa. 1978 L-517
  - "Tall Fescue Production and Utilization", Gary Kilgore, Frank Brazle and Marvin Fausett, Cooperative Extension Service, Manhattan, Kansas. 1980 C-622

spreadsheet that contained the monthly nutritional levels of native range (fescue pasture where applicable) on a dry matter basis. Values representing the monthly nutritional requirements of beef cows with differing calving dates wereinputted and subtracted from the range values. The spreadsheet table then calculated the pounds of alfalfs necessary to supplement the range and balance the beef cow ration.<sup>1</sup> (see tables 11-3)

Upon completion of the ration balancing tables, they were each evaluated by extension animal scientists and any changes necessary were made in Table 14, the Monthly Beef Cowherd Ration Summary.<sup>2</sup> The feed amounts specified in the summary table were then used in the beef cowherd cost-return budget.

A common problem to all cov-calf operations in Kansas is the feeding difficulties associated with smoofall. In this thesis, the problem of smoofall limiting the intake of range was handled by adding an allotted amount of grass hay to the total ration. Grass hay needed to replace range (feacure where applicable) due to snow cover was based on the average number of days with one inch of snow or more on the ground. A thirty year average of the number of snow days in Kansas was provided by Dean Bark,

<sup>1</sup>Alfalfs was used as the first ration supplementabecuve it is a relatively cheaper source of supplementables, and more closely fit the deficiencies of the cov. If alfalfs could not meet all of the heef cov meeds, thus supplementables was added to the beef cov ratios. Grude protein and TDN levels for alfalfs and SDN were derived from the 6th revised edition of the TNC and SDN were derived from the 6th revised edition of the TNC invols are 14% 51% CF and TDN for alfalfs and 49.9% and 84% for SDN.

<sup>2</sup>The only changes made occur in the fall calving on fescue option, where, based on field experience, less supplemental alfalfa was used. Rations for spring and fall calving on native range were simply summarized from their respective ration balancing tables.

TABLE 11 .-- Balanced rations for spring calving on native range

	*****		*************		
SPRING CALVING	(FEB-HAR)		SPRING CALVING	(APR-MAY)	
JANUARY-Range	Intake lbs	16.50	JANUARY-Range I	ntake lbs	16.50
	PROTEIN	TDN		PROTEIN	TDN
RANGE	0.50	6.93	RANGE	0.50	6.93
STAGE 4 NEEDS	1.60	10.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	1.11	3.07	DEFICIENCY	0.91	2.07
LBS ALFALFA RE	0		LBS ALFALFA REO		
- THE LARGER C	F 7.89	5.90	- THE LARGER OF	6.46	3,98
ALFALFA NUT.	1.11	4.10	ALFALFA NUT.	0.90	3.36
NUT. W/ ALFALF	A 1.60	11.03	NUT. W/ ALFALFA	1.40	10.29
TOT DRY MAT LE	S		TOT DRY MAT LES		
- THE LARGER O	F 24.39	22.40	= THE LARGER OF	22,96	20.48
HAY RED TO			HAY RED TO		
REPLACE RANGE			REPLACE RANGE		
- THE LARGER C	F 8.53	13.59	= THE LARGER OF	8.53	13.59
SPRING CALVING	(FEB-MAR)		SPRING CALVING	(APR-MAY)	
FEBRUARY-Range	Intake 1b	16.50	FEBRUARY-Range	Intake lb	16.50
	PROTEIN	TON		PROTEIN	TDN
RANGE	0.50	6.77	RANGE	0.50	6.77
STACE 4/1 NEED	\$ 1.95	11.50	STAGE 3 NEEDS	1.40	9.00
DEFTCIENCY	1.46	4.74	DEFICIENCY	0.91	2.24
LBS ALPATEA RE	n		LRS ALFALFA REO		
= THE LARGER O	8 10.39	9.11	= THE LARGER OF	6.46	4.30
AL PAT PA NUT	1 46	5.40	AT PAT PA NUT	0.90	3.36
NUT W/ AT PAT P	1 1 95	12 17	NUT W/ ATPATEA	1 40	10 13
TOT DRY MAT IR	s	*****	TOT DRY WAT IRS	1140	+0.+5
- THE LARCER O	P 26 80	25 61	- THE LADCER OF	22 96	20 80
HAY PEO TO	2 20.07	10.01	HAY PRO TO	22.70	10:00
PEDIACE DANCE			DEDIACE DANCE		
= THE LARGER O	F 8 53	13 26	= THE LARCED OF	8 53	13.26
In materia o	. 0.55	13120	- THE MARCER OF	0100	13110
SPRING CALVING	(FEB-MAR)		SPRING CALVING	(APR-HAY)	
MARCH-Range In	take lbs	16.50	MARCH-Range Inte	ake lbs	16.50
	PROTEIN	TDN	1	PROTEIN	TDN
RANGE	0.83	6.60	RANGE	0.83	6.60
STAGE I NEEDS	2.30	13.00	STAGE 4 NEEDS	1.60	10.00
DEFICIENCY	1.48	6.40	DEFICIENCY	0.78	3.40
LBS ALFALFA RE	Q		LBS ALFALFA REQ		
= THE LARGER O	F 10.54	12.31	= THE LARGER OF	5.54	6.54
ALFALFA NUT.	1.72	6.40	ALFALFA NUT.	0.92	3.40
NUT. W/ ALFALF	A 2.55	13.00	NUT. W/ ALFALFA	1.74	10.00
TOT DRY MAT LB	S		TOT DRY MAT LBS		
THE LARGER O	F 27.04	28.81	= THE LARGER OF	22.04	23.04
HAY REQ TO			HAY REQ TO		
REPLACE RANGE			REPLACE RANGE		
THE LARGER O	F 14.22	12.94	= THE LARGER OF	14.22	12.94

-Ration supplements are alfalfa and SBM (if needed) -All values in pounds (dry matter basis)

TABLE 11Conti	nued.Balas	nced rations	for spring calving	g on nati	ve range
SPRING CALVING (	FEB-MAR)		SPRING CALVING (.	APR-MAY)	
APRIL-Range Inta	ke lbs	17.60	APRIL-Range Intal	ke lbs	17.60
P	ROTEIN	TDN	P	ROTEIN	TDN
RANGE	1.06	7.22	RANGE	1.06	7.22
STAGE 1 NEEDS	2.30	13.00	STAGE 4 NEEDS	1.60	10.00
DEFICIENCY	1.24	5.78	DEFICIENCY	0.54	2.78
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	8.89	11.12	- THE LARGER OF	3.89	5.35
ALFALFA NUT.	1.56	5.78	ALFALFA NUT.	0.75	2.78
NUT. W/ ALFALFA	2.61	13.00	NUT. W/ ALFALFA	1.81	10.00
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	26.49	28.72	= THE LARGER OF	21.49	22.95
SPRING CALVING (	FEB-MAR)		SPRING CALVING (	APR-MAY)	
MAY-Range Intake	lbs	28.60	MAY-Range Intake	lbs	28.60
P	ROTEIN	TDN	PI	ROTEIN	TDN
RANGE	4.58	14.87	RANGE	4.58	14.87
STAGE 1 NEEDS	2.30	13.00	STAGE 1 NEEDS	2.30	13.00
DEFICIENCY	-2.28	-1.87	DEFICIENCY	-2.28	-1.87
LBS ALFALFA REC			LBS ALFALFA REO		
- THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	4.58	14.87	NUT, W/ ALFALFA	4.58	14.87
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	28.60	28.60	= THE LARGER OF	28.60	28.60
SPRING CALVING (1	FEB-MAR)		SPRING CALVING (A	PR-MAY)	
JUNE-Range Intake	e 1ba	29.70	JUNE-Range Intake	1bs	29.70
P	ROTEIN	TDN	PR	OTEIN	TON
RANGE	3.27	15.15	RANGE	3.27	15.15
STAGE 2 NEEDS	1.90	11.00	STACE 1 NEEDS	2 30	13 00
DEFICIENCY	-1.37	-4.15	DEFICIENCY	-0.97	-2.15
LBS ALFALFA REO			LBS ALFALFA RED		_***
= THE LARGER OF	0.00	0.00	- THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	3.27	15.15	NUT. W/ ALFALFA	3.27	15.15
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	29.70	29.70	= THE LARGER OF	29.70	29.70
The same the same and an else that the size the time the first star and		The star was not been been been as a star of a star	and the line line line line line line line lin		

TABLE 11.--Continued.Balanced rations for spring calving on native range SFRING CALVING (FEB-HAR) SFRING CALVING (AFF-MAY)

JULY-Range Intak	e 1bs	24.20	JULY-Range Intak	n 1bs	24.20
P	ROTEIN	TDN	P	ROTEIN	TDN
RANGE	2.18	12.10	RANGE	2.18	12.10
STAGE 2 NEEDS	1.90	11.00	STAGE 1 NEEDS	2.30	13.00
DEFICIENCY	-0.28	-1.10	DEFI CIENCY	0.12	0.90
LBS ALFALFA REQ			LBS ALFALFA REO		
- THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	2.18	12.10	NUT. W/ ALFALFA	2.18	12.10
TOT DRY MAT LBS			TOT DRY MAT LBS		
- THE LARGER OF	24.20	24.20	= THE LARGER OF	24.20	24.20

SPRING CALVING (FEB-MAR)

SPRING CALVING (FEB-MAR)

SPRING CALVING (AFR-MAY)

AUGUST-Range I	ntake lbs	24.20	AUGUST-Range Int.	ake 1bs	24.20
	PROTEIN	TDN	P	ROTEIN	TDN
RANGE	1.69	11.86	RANGE	1.69	11.86
STAGE 2 NEEDS	1.90	11.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	0.21	-0.86	DEFICIENCY	0.21	-0.86
LBS ALFALFA RE	Q		LBS ALFALFA REQ		
= THE LARGER O	F 0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALF.	A 1.69	11.86	NUT. W/ ALFALFA	1.69	11.86
TOT DRY MAT LB	s		TOT DRY MAT LBS		
= THE LARGER O	F 24.20	24.20	= THE LARGER OF	24.20	24.20

SPRING CALVING (AFR-MAY)

SEP-Range Intal	ke lbs	21.00	SEP-Range Intake	1bs	21.00
	PROTEIN	TDN	P	ROTEIN	TDN
RANGE	1.26	9.87	RANGE	1.26	9.87
STAGE 2 NEEDS	1.90	11.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	0.64	1.13	DEFICIENCY	0.64	1.13
LBS ALFALFA REC	2		LBS ALFALFA REQ		
= THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	1.26	9.87	NUT. W/ ALFALFA	1.26	9.87
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	21.00	21.00	= THE LARGER OF	21.00	21.00
of the local division of the second sec					

TABLE 11Continued.Bala	nced ration	s for spring calving	on nativ	e range
SPRING CALVING (FEB-MAR)	************	SPRING CALVING (AN	R-MAY)	
OCTOBER-Range Intake lbs	19.80	OCTOBER-Range Inte	ke 1bs	19.80
PROTEIN	TDN	PRO	TEIN	TDN
RANGE 1.19	9.11	RANGE	1.19	9.11
STAGE 3 NEEDS 1.40	9.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY 0.21	-0.11	DEFICIENCY	0.71	1.89
LBS ALFALFA REQ		LBS ALFALFA REQ		
= THE LARGER OF 0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT. 0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA 1.19	9.11	NUT. W/ ALFALFA	1.19	9.11
TOT DRY MAT LBS		TOT DRY MAT LBS		
= THE LARGER OF 19.80	19.80	= THE LARGER OF	19.80	19.80
SPRING CALVING (FEB-MAR)		SPRING CALVING (AF	R-HAY)	
NOVEMBER-Range Intake 1b	18.70	NOVEMBER-Range Int	ake lb	18.70
PROTEIN	TDN	PRO	TEIN	TDN
RANGE 0.94	8.42	RANGE	0.94	8.42
STAGE 3 NEEDS 1.40	9.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY 0.47	0.59	DEFICIENCY	0.97	2.59
LBS ALFALFA REQ		LBS ALFALFA REQ		

STAGE 3 NEEDS	1.40	9.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	0.47	0.59	DEFICIENCY	0.97	2.59
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	0.94	8.42	NUT. W/ ALFALFA	0.94	8.42
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	18.70	18.70	= THE LARGER OF	18.70	18.70

SPRING CALVING	(FEB-MAR)		SPRING CALVING (	APR-MAY)	
DECEMBER-Range	Intake 1b	17.60	DECEMBER-Range 1	intake 1b	17.60
	PROTEIN	TDN	I	ROTEIN	TDN
RANGE	0.88	7.74	RANGE	0.88	7.74
STAGE 3 NEEDS	1.40	9.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	0.52	1.26	DEFICIENCY	0.52	1.26
LBS ALFALFA REC	2		LBS ALFALFA REQ		
= THE LARGER OF	3.71	2.42	= THE LARGER OF	3.71	2.42
ALFALFA NUT.	0.52	1.93	ALFALFA NUT.	0.52	1.93
NUT. W/ ALFALFA	1.40	9.68	NUT. W/ ALFALFA	1.40	9.68
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	21.31	20.02	= THE LARGER OF	21.31	20.02
HAY REQ TO			HAY REQ TO		
REPLACE RANGE			REPLACE RANGE		
= THE LARGER OF	15.17	15.18	= THE LARGER OF	15.17	15.18

TABLE 12 .--- Balanced rations for fall calving on native range

PALL CALUTER (CT	D ACE)		TALL CALVING (NO	-DEC)		
JANUARY-Range In	take lbs	18.70	JANUARY-Range In	take lbs	18.70	
P	ROTEIN	TDN	P	ROTEIN	TDN	
RANGE	0.56	7.85	RANGE	0.56	7.85	
STACE 2 NEEDS	1 90	11 00	STACE 1 NEEDS	2.30	13.00	
DEPT OF PHOY	1 24	2 15	1 1b CRM	0.50	0.84	
TRE ATRATEA BRO	1.34	3.15	DEFLOTENCY	1.24	4.31	
- THE LABORD OF	0 54	6 05	TRE ATTATTA REG	1114	4191	
ATRA DA NUT	1 24	6.03	- THE LARCER OF	8 86	8 28	
ALFALFA NOL.	1.04	10.02	AT PAT PA NUP	1 24	4 61	
NUL. W/ ALFALIA	1.90	12.05	NUT W/ AT VAT VA	2 30	13 30	
THE LABORD OF	29 26	24 75	TOT DRY WAT INS	1100	13130	
- THE LARGER OF	20.20	24.75	TAX PRO TO			
BERLACE BANCE			PUDIACE DANCE			
REFLACE RANGE	0 67	15 40	- THE LARCER OF	0 67	15 60	
- THE LARGER OF	9.07	13.40	- THE LANGER OF	9.07	10140	
FALL CALVING (SE	P-OCT)		FALL CALVING (NOT	FALL CALVING (NOW-DEC)		
FEBRUARY-Range In	ntake lb	18.70	FEBRUARY-Range In	take 1b	18.70	
P	ROTEIN	TDN	PF	OTEIN	TDN	
RANGE	0.56	7.67	RANGE	0.56	7.67	
STAGE 2 NEEDS	1,90	11.00	STAGE 1 NEEDS	2.30	13.00	
DEFICIENCY	1.34	3.33	1 1b. SBM	0.50	0.84	
LBS ALFALFA REO			DEFICIENCY	1.24	4.49	
- THE LARGER OF	9.56	6.41	LBS ALFALFA REO			
ALVALVA NUT.	1.34	4.97	= THE LARGER OF	8,86	8,64	
NUT. W/ ALFALFA	1.90	12.64	ALFALFA NUT.	1.24	4.61	
TOT DRY MAT LES			NUT. W/ ALFALFA	2.30	13.11	
- THE LARGER OF	28.26	25.11	TOT DRY MAT LBS			
BAY REO TO			HAY RED TO			
REPLACE RANGE			REPLACE RANGE			
- THE LARGER OF	9.67	15.03	= THE LARGER OF	9.67	15.03	
PALL CALVING ( 92	R-00T)		FALL CALVING (NON	-DEC)		
MARCH-Renne Total	te lhe	18 70	MARCH-Renge Intak	a lbe	18.70	
Anton-Mange Incar	te ibe	10.70	ranco-sange sucas		10170	
PI	ROTEIN	TDN	PR	OTEIN	TDN	
RANGE	0.94	7.48	RANGE	0.94	7.48	
STAGE 2 NEEDS	1.90	11.00	STAGE 2 NEEDS	1.90	11.00	
DEFICIENCY	0.97	3.52	DEFICIENCY	0.97	3.52	
LBS ALFALFA REQ			LES ALFALFA REQ			
- THE LARGER OF	6.89	6.77	= THE LARGER OF	6.89	6.77	
ALFALFA NUT.	0.97	3.58	ALFALFA NUT.	0.97	3.58	
NUT. W/ ALFALFA	1.90	11.06	NUT. W/ ALFALFA	1.90	11.06	
TOT DRY MAT LBS			TOT DRY MAT LES			
= THE LARGER OF	25.59	25.47	= THE LARGER OF	25.59	25.47	
HAY REQ TO			HAY REQ TO			
REPLACE RANGE			REPLACE RANGE			
THE LARGER OF	16.12	14.67	= THE LARGER OF	16.12	14.67	

-Ration supplements are alfalfs and SBM (if needed)

-Fall caving range intake increased .2% each month except for the months of May, June, July & August. (Source: Larry Corah) -All values in pounds (dry matter basis)

TABLE 12Conti	nued.Bala	nced ratio	ns for fall calving	on nativ	e range
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
APRIL-Range Inta	ke lbs	19.80	APRIL-Range Inta	ke 1bs	19.80
P	ROTEIN	TDN	P	ROTEIN	TDN
RANGE	1.19	8,12	RANGE	1.19	8.12
STAGE 2 NEEDS	1.90	11.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	0.71	2.88	DEFICIENCY	0.71	2.88
LES ALFALFA REO			LBS ALFALFA REO		
= THE LARGER OF	5.09	5.54	- THE LARGER OF	5.09	5.54
ALFALFA NUT.	0.78	2.88	ALFALFA NUT.	0.78	2.88
NUT. W/ ALFALFA	1.96	11.00	NUT. W/ ALFALFA	1.96	11.00
TOT DRY MAT LES			TOT DRY MAT LES		
= THE LARGER OF	24.89	25.34	= THE LARGER OF	24,89	25.34
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
MAY-Range Intake	lbs	28.60	MAY-Range Intake	lbs	28.60
101	OTEIN	TIM	TO .	NTRTO	TDN
RANCE	4 58	14 87	PANCE	6 58	16 87
CTACE 3 NEEDO	1 60	0.00	PTACE 2 NEEDO	1.90	11 00
DEFT CIENCY	-3.18	-5.97	DEFICIENCY	-2.68	-3.97
LBS AT FALFA PRO	-3.10	-5.07	TRE ATEATEA PEO	-2.00	-3:07
- THE LARCER OF	0.00	0.00	- THE LARCER OF	0 00	0.00
ALFALFA NUT	0.00	0.00	AT PAT PA NUT	0.00	0.00
NUT W/ ATRATES	4 59	14 97	NUT SI ATRATRA	4 50	14 97
TOT DEV WAT I DO	4.50	14.07	TOT DOY MAT INC	4.30	14.07
- THE LARGER OF	28.60	28.60	= THE LARGER OF	28.60	28.60
FALL CALVING (SEE	-oct)		FALL CALVING (NO	-DEC)	
JUNE-Range Intake	lbs	29.70	JUNE-Range Intake	lbs	29.70
195	OTETN	TDN	pr	OTETN	TDM
RANCE	3 27	15 15	PANCE	3 27	15 15
STACE 3 NEEDS	1.40	9.00	STACE 2 NEEDS	1 90	11.00
DEFICIENCY	-1 87	-6.15	DEFICIENCY	-1 37	-6.15
TRG ATVATVA PRO	**07	0.15	TRP ATPATEA DEG	-1.3/	-4.1)
= THE LARCER OF	0.00	0.00	- THE LARCER OF	0 00	0 00
ALFALFA NUT.	0.00	0.00	AT PAT PA NUT	0.00	0.00
NUT W/ AT PAT PA	3 27	15 15	NUT D/ ATTATTA	3 27	15 15
TOT DEV WAT IDS	3.2/	12+12	NUL. W/ ALFALFA	3.27	12.12
THE LARCER OF	20 70	29 70	- THE LARCER OF	20.70	20 70
- THE PREADER OF	A7./U	£7./U	- THE LANGER OF	29.10	29.10

TABLE 12Contin	ued.Bala	nced rations	for fall calving	on native	range
FALL CALVING (SEE	-OCT)		FALL CALVING (NO	V-DEC)	
JULY-Range Intake	lbs	24.20	JULY-Range Intak	e lbs	24.20
PE	OTEIN	TDN	PI	ROTEIN	TDN
RANGE	2.18	12.10	RANGE	2.18	12.10
STAGE 3 NEEDS	1.40	9.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	-0.78	-3.10	DEFICIENCY	-0.78	-3.10
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	2.18	12.10	NUT. W/ ALFALFA	2.18	12.10
TOT DRY MAT LBS			TOT DRY MAT LBS		
THE LARGER OF	24.20	24.20	= THE LARGER OF	24.20	24.20
FALL CALVING (SEF	-OCT)		FALL CALVING (NO	V-DEC)	
AUGUST-Range Inta	ke lbs	24.20	AUGUST-Range Int.	ske lbs	24.20
PB	OTEIN	TDN	PI	ROTEIN	TDN
RANGE	1.69	11.86	RANGE	1.69	11.86
STAGE 4 NEEDS	1.60	10.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	-0.09	-1.86	DEFI CIENCY	-0.29	-2.86
LES ALFALFA REO			LBS ALFALFA REO		
- THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	1.69	11.86	NUT. W/ ALFALFA	1.69	11.86
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	24.20	24.20	= THE LARGER OF	24.20	24.20
FALL CALVING (SEP	-0CT)		FALL CALVING (NOV	-DEC)	
SEP-Range Intake	lbs	23.10	SEP-Range Intake	lbs	23.10
				0000.000	
PR	1 20	10.00	PAROT	LOIDIN	100
CRACE & MERICO	1.39	10.80	AAAGE A NEEDA	1.39	10.86
DESIGNE 4 NEEDS	1.60	10.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	0.21	-0.00	DEFICIENCY	0.01	-1.80
LDO ALFALFA NEQ	0.00	0.00	LDS ALFALFA REQ		0.00
- INE LARGER OF	0.00	0.00	- INE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	10.00	ALFALFA NUT.	1.00	10.00
NUL. W/ ALFALFA	1.39	10.00	NUL. W/ ALFALFA	1.39	10.80
- TUP LARCER OF	22 10	22 10	THE LABORD OF	22.10	22 10
- Int Land Sta OF	23.10	23.10	- IND LARGER OF	23.10	10.10

TABLE 12Conti	nued.Bala	nced ratio	ns for fall calving o	on native	range
FALL CALVING (SE	P-OCT)		FALL CALVING (NOT	J-DEC)	
OCTOBER-Range In	take lbs	22.00	OCTOBER-Range Int	take lbs	22.00
P	ROTEIN	TDN	PE	ROTEIN	TD
RANGE	1,32	10.12	RANGE	1.32	10.12
STAGE 1 NEEDS	2.30	13.00	STAGE 4 NEEDS	1.60	10.00
DEFICIENCY	0.98	2.88	DEFICIENCY	0.28	-0.12
LES ALFALFA REO			LBS ALFALFA REO		
- THE LARGER OF	7.00	5.54	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.98	3.64	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	2.30	13.76	NUT. W/ ALFALFA	1.32	10.12
TOT DRY MAT LES			TOT DRY MAT LES		
= THE LARGER OF	29.00	27.54	= THE LARGER OF	22.00	22.00
FALL CALVING (SE	P-OCT)		FALL CALVING (NON	/-DEC)	

NOVEMBER-Range	Intake 1b	20.90	NOVEMBER-Range	Intake 1b	20.90
	PROTEIN	TDN		PROTEIN	TDN
RANGE	1.05	9.41	RANGE	1.05	9.41
STAGE 1 NEEDS	2.30	13.00	STAGE 4 NEEDS	1.60	10.00
DEFICIENCY	1.26	3.60	DEFICIENCY	0.56	0.60
LBS ALFALFA REC	2		LBS ALFALFA REQ		
- THE LARGER OF	8,96	6.91	= THE LARGER OF	3.96	1.14
ALFALFA NUT.	1.26	4.66	ALFALFA NUT.	0.56	2.06
NUT. W/ ALFALFS	2.30	14.07	NUT. W/ ALFALFA	1.60	11.47
TOT DRY MAT LES	5		TOT DRY MAT LBS		
- THE LARGER OF	29.86	27.81	- THE LARGER OF	24.86	22.04

FALL CALVING (SEP-OCT)			FALL CALVING (NOV-DEC)			
DECEMBER-Range	Intake 1b	19.80	DECEMBER-Range In	ntake lb	19.80	
	PROTEIN	TDN	P	ROTEIN	TDN	
RANCE	0.99	8.71	RANGE	0.99	8.71	
STAGE 1 NEEDS	2.30	13.00	STAGE 1 NEEDS	2.30	13.00	
DEFICIENCY	1.31	4.29	DEFICIENCY	1.31	4.29	
LBS ALFALFA REQ			LBS ALFALFA REQ			
- THE LARGER OF	9.36	8.25	= THE LARGER OF	9.36	8.25	
ALFALFA NUT.	1.31	4.87	ALFALFA NUT.	1.31	4.87	
NUT. W/ ALFALFA	2.30	13.58	NUT. W/ ALFALFA	2.30	13.58	
TOT DRY MAT LES			TOT DRY MAT LBS			
- THE LARGER OF	29.16	28.05	= THE LARGER OF	29.16	28.05	
HAY REQ TO			HAY REQ TO			
REPLACE RANGE			REPLACE RANGE			
- THE LARGER OF	17.07	17.08	- THE LARGER OF	17.07	17.08	

TABLE 13 .--- Balanced rations for fall calving on fescue & range

I DINAMONTANANANA	<b>BRENAGNEN</b>		essnesses essesses	HAS BEEFE	*******
FALL CALVING (SE	FALL CALVING (NO	V-DEC)			
JANDARY-Range In	take lbs	17.60	JANUARY-Range In	take lbs	17.60
P	ROTEIN	TDN	P	ROTEIN	TDN
FESCDE	1.58	9.33	FESCUE	1.58	9.33
STAGE 2 NEEDS	1.90	11.00	STAGE 1 NEEDS	2.30	13.00
DEFICIENCY	0.32	1.67	DEFICIENCY	0.72	3.67
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	2.26	3.22	= THE LARGER OF	5.11	7.06
ALFALFA NUT.	0.45	1.67	ALFALFA NUT.	0.99	3.67
NUT. W/ ALFALFA	2.03	11.00	NUT, W/ ALFALFA	2.57	13.00
TOT DRY MAT LBS			TOT DRY MAT LBS		
- THE LARGER OF	19.86	20.82	= THE LARGER OF	22.71	24.66
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
FEBRUARY-Range In	ntake lb	17.60	FEBRDARY-Range In	ntske lb	17.60
P	ROTEIN	TDN	PI	ROTEIN	TDN
FESCUE	1.64	8.28	FESCUE	1.64	8.28
STAGE 2 NEEDS	1.90	11.00	STAGE 1 NEEDS	2.30	13.00
DEFICIENCY	0.26	2.72	DEFICIENCY	0.66	4.72
LBS ALFALFA REQ			LBS ALFALFA REQ		
- THE LARGER OF	1.88	5.24	- THE LARGER OF	4.74	9.08
ALFALFA NUT.	0.73	2.72	ALFALFA NUT.	1.27	4.72
NUT. W/ ALFALFA	2.37	11.00	NUT. W/ ALFALFA	2,91	13.00
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	19.48	22.84	= THE LARGER OF	22.34	26.68
FALL CALVING (SE	P-OCT)		FALL CALVING (NOT	-DEC)	
MARCH-Range Intal	ke 1bs	18.70	MARCH-Range Intak	ce lbs	18.70
PI	ROTEIN	TDN	PE	ROTEIN	TDN
FESCUE	2.32	8.69	FESCUE	2.32	8.69
STAGE 2 NEEDS	1.90	11.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	-0.42	2.31	DEFICIENCY	-0.42	2.31
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	0.00	4.44	- THE LARGER OF	0.00	4.44
ALFALFA NUT.	0.62	2.31	ALFALFA NUT.	0.62	2.31
NUT. W/ ALFALFA	2.94	11.00	NUT. W/ ALFALFA	2.94	11.00
TOT DRY MAT LBS			TOT DRY MAT LBS		
- THE LARGER OF	18.70	23.14	= THE LARGER OF	18.70	23.14

-Ration supplements are alfalfa and SBM (if needed)

-Fall calving range intake increased .1% for Jan & Feb, and .2% for all other months except May,June,July & August.(Source: Corah) -All values in pounds (dry matter basis)

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TABLE 13Conti	nued.Bala	nced rations	for fall calving	on fescue	å range
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
APRIL-Range Inta	ke lbs	19.80	APRIL-Range Inta	ke lbs	19.80
P	ROTEIN	TDN	P	ROTEIN	TDN
FESCUE	4.83	12.55	FESCUE	4.83	12.55
STACE 2 NEEDS	1.90	11.00	STACE 2 NEEDS	1.90	11.00
DEFICIENCY	-2.93	-1.55	DEFICIENCY	-2 93	-1 55
THE ATEATEA DES	2.00		TRO ATRATEA PRO	2.00	
- THE LARCER OF	0.00	0.00	- THE LARCER OF	0 00	0 00
AT PAT PA NIPP	0.00	0.00	AT PAT PA NUP	0.00	0.00
MIT W/ AI PAT PA	6 93	12 55	NDT W/ ATRATEA	6.00	12.55
TOT DRY MAR ITC	4.05	14.55	TOT DBY MAT 180	4.05	12.55
- THE LARCER OF	10 90	10 80	- THE LARCER OF	10 90	10 80
- THE LARGER OF	19.00	19.00	- INE LANGER OF	19.00	19.00
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
MAY-Range Intake	lbs	28.60	MAY-Range Intake	lbs	28,60
Р	ROTEIN	TDN	P	ROTEIN	TDN
RANGE	4.58	14.87	RANGE	4.58	14.87
STAGE 3 NEEDS	1.40	9.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	-3.18	-5.87	DEFICIENCY	-2.68	-3.87
LBS ALFALFA REO			LBS ALFALFA REO		
. THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	4.58	14.87	NUT W/ ALFALFA	4.58	14.87
TOT DRY MAT IRS	4150	14101	TOT DRY MAT ING	4150	14107
= THE LARGER OF	28.60	28,60	- THE LARGER OF	28.60	28.60
PALL CALUTING (OF	B_0077)		PALL CALVING (NO	T DEC)	
FALL GALVING (SE	F-001)		SWEL CHEALMO (MO)	-020)	
JUNE-Range Intak	e lbs	29.70	JUNE-Range Intake	e lbs	29.70
P	ROTEIN	TDN	PI	ROTEIN	TDN
RANGE	3.27	15.15	RANGE	3.27	15.15
STAGE 3 NEEDS	1.40	9.00	STAGE 2 NEEDS	1.90	11.00
DEFICIENCY	-1.87	-6.15	DEFICIENCY	-1.37	-4.15
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	3.27	15.15	NUT. W/ ALFALFA	3.27	15.15
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	29.70	29.70	= THE LARGER OF	29.70	29.70

TABLE 13.--Continued.Belanced rations for fall calving on fescue & range FALL CALVING (SEP-OCT) FALL CALVING (NOV-DEC)

JULY-Range Intak	e lbs	24.20	JULY-Range Intak	e lbs	24.20
P	ROTEIN	TDN	P	ROTEIN	TDN
RANGE	2,18	12.10	RANGE	2.18	12.10
STAGE 3 NEEDS	1.40	9.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	-0.78	-3.10	DEFICIENCY	-0.78	-3.10
LBS ALFALFA REQ			LBS ALFALFA REQ		
= THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	2.18	12.10	NUT. W/ ALFALFA	2.18	12.10
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	24.20	24.20	= THE LARGER OF	24.20	24.20

FALL CALVING (SEP-OCT)

FALL CALVING (SEP-OCT)

#### FALL CALVING (NOV-DEC)

AUGUST-Range	Intake lbs	24.20	AUGUST-Range Int	ake lbs	24.20
	PROTEIN	TDN	P	ROTEIN	TDN
RANGE	1.69	11.86	RANGE	1.69	11.86
STAGE 4 NEEDS	1.60	10.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	-0.09	-1.86	DEFICIENCY	-0.29	-2.86
LBS ALFALFA RI	EQ		LBS ALFALFA REQ		
= THE LARGER (	0.00 F	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALH	A 1.69	11.86	NUT. W/ ALFALFA	1.69	11.86
TOT DRY MAT LE	s		TOT DRY MAT LBS		
= THE LARGER O	OF 24.20	24.20	= THE LARGER OF	24.20	24.20

## FALL CALVING (NOV-DEC)

SEP-Range Intak	e lbs	23.10	SEP-Range Intake	lbs	23.10
	PROTEIN	TDN	P	ROTEIN	TDN
RANGE	1.39	10.86	RANGE	1.39	10.86
STAGE 4 NEEDS	1.60	10.00	STAGE 3 NEEDS	1.40	9.00
DEFICIENCY	0.21	-0.86	DEFICIENCY	0.01	-1.86
LBS ALFALFA REC			LBS ALFALFA REQ		
- THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	1.39	10.86	NUT. W/ ALFALFA	1.39	10.86
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	23.10	23.10	= THE LARGER OF	23.10	23.10
	TT has be for the law has he doe	the last the first has been set up and	dan bar har bar har har har har 100 Mil 199 har har har har har har nam har sam sam		

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TABLE 13Conti	nued.Bala	nced rations	for fall calving	on fescue	& range
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
OCTOBER-Range In	take lbs	22.00	OCTOBER-Range In	take lbs	22.00
P	ROTEIN	TDN	P	ROTEIN	TDN
FESCUE	3.15	12.25	FRSCIIE	3.15	12.25
STAGE 1 NEEDS	2.30	13.00	STAGE & NEEDS	1.60	10.00
DEFICIENCY	-0.85	0.75	DEFICIENCY	-1.55	-2.25
LBS ALFALFA REO			LBS ALFALFA REO		
= THE LARGER OF	0.00	0.00	= THE LARGER OF	0.00	0.00
ALFALFA NUT.	0.00	0.00	ALFALFA NUT.	0.00	0.00
NUT. W/ ALFALFA	3.15	12.25	NUT. W/ ALFALFA	3.15	12.25
TOT DRY MAT LBS			TOT DRY MAT LBS		
- THE LARGER OF	22.00	22.00	= THE LARGER OF	22.00	22.00
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
NOVEMBER-Range I	ntake lb	20.90	NOVEMBER-Range I	ntake lb	20.90
	RITTO	TTM		POTETN	TIM
FROMP	2 94	11.05	PROCEE	2 94	11 05
STACE 1 NEEDS	2.84	12.00	STACE & NEEDS	1 60	10.00
DEPT CTERCY	-0.54	1 05	DEBI CI FRCY	-1.24	-1.05
TRO ATRATRA BRO	-0.54	1.95	TRO ATRATRA BRO	-1.24	-1.00
- THE LARCER OF	0.00	0.00	- THE LARCER OF	0.00	0 00
AT PAT PA NUT	0.00	0.00	AT PAT PA NIP	0.00	0.00
NUT U/ ATPATEA	2.84	11 05	NUT U/ AT DAT DA	2.84	11 05
TOT DEV MAT ISC	4.04	11.05	TOT DEV MAT IES	2.04	11.05
- THE LARGER OF	20.90	20.90	- THE LARGER OF	20.90	20.90
FALL CALVING (SE	P-OCT)		FALL CALVING (NO	V-DEC)	
DECEMBER-Range I	ntake lb	19.80	DECEMBER-Range I	ntake lb	19.80
P	ROTEIN	TDN	P	ROTEIN	TDN
FESCUE	2.44	10.21	FESCUE	2.44	10.21
STAGE 1 NEEDS	2.30	13.00	STAGE 1 NEEDS	2.30	13.00
DEFICIENCY	-0.14	2.79	DEFICIENCY	-0.14	2.79
LBS ALFALFA RED			LES ALFALFA REO		
- THE LARGER OF	0.00	5.36	- THE LARGER OF	0.00	5.36
ALFALFA NUT.	0.75	2.79	ALFALFA NUT.	0.75	2.79
NUT. W/ ALFALFA	3.19	13.00	NUT. W/ ALFALFA	3.19	13.00
TOT DRY MAT LBS			TOT DRY MAT LBS		
= THE LARGER OF	19.80	25.16	= THE LARGER OF	19.80	25.16

TABLE 14.--Monthly cowherd ration summary

				*****			
		Yea	ar Round N	ative Ran	ge		
		SPRING	CALVING	FALL G	ALVING	FALL FR	SCUE *
Months	Calving	(FB-MR)	(AP-MY)	(SP-OC)	(NV-DC)	(SP-OC)	(NV-DC)
Native	Range AC	8.0	8.0	9.5	9.5	6.5	6.5
Fescue	AC	0.0	0.0	0.0	0.0	1.5	1.5
		ALE	ALFA NEED	S: LBS/DA	Y/MONTH (	iry matter	hasis)
	JAN	7.9	6.5	9.6	8.9	** 3.2	4.5
	FEB	10.4	6.5	9.6	8.9	** 4.0	5.0
	MAR	12.3	6.5	6.9	6.9	3.5	3.5
	APR	11.1	5.4	5.5	5.5	0.0	0.0
	HAY	0.0	0.0	0.0	0.0	0.0	0.0
	JUN	0.0	0.0	0.0	0.0	0.0	0.0
	JUL	0.0	0.0	0.0	0.0	0.0	0.0
	AUG	0.0	0.0	0.0	0.0	0.0	0.0
	SEP	0.0	0.0	0.0	0.0	0.0	0.0
	OCT	0.0	0.0	7.0	0.0	0.0	0.0
	NOV	0.0	0.0	9.0	4.0	0.0	0.0
	DEC	3.7	3.7	9.4	9.4	0.0	0.0

ALFALFA NEEDS: LBS/MONTH (dry matter hasis)

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV	244.7 291.0 381.5 333.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	200.4 181.0 202.7 160.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	296.5 267.8 213.7 166.3 0.0 0.0 0.0 0.0 0.0 0.0 217.0 268.9	274.6 248.0 213.7 166.3 0.0 0.0 0.0 0.0 0.0 0.0 118.9	99.7 112.0 108.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	139.5 140.0 108.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0
DEC	115.1	115.1	268.9	290.1	0.0	0.0
TOTAL LBS. AS FED 10% WASTAGE	1366.1 1517.8 1686.5	859.8 955.4 1061.5	1720.2 1911.4 2123.8	1311.5 1457.2 1619.2	320.2 352.2 387.4	388.0 426.8 469.5

\* In the fall fescue pasture option, cows are on fescue from October 1 to April 30, and then on native range from May 1 to September 30. Fall fescue was fertilized each year at the rate of 60-30-30 (the NFK).

\*\* In the native range late fall calving option (Nov-Dec), 1 lb of soyhean meal was fed per day in the months of January and Fehruary, this sums to 31 and 28 lhs per month respectively. Climatologist, Kansas Agricultural Experiment Station. (Figure 6) The average annual snow days for both Manhattan and Southeast Kansas were them arhitrarily spread over the months of December through March. The pounds of grass hay necessary to replace range was determined by taking the pounds of total digestible surfielts (TDN) and crude protein provided by the range for each month and then calculating the pounds of grass hay meeded to equal each of those surfient levels. The larger of the two amounts was then entered into the total cov ration.<sup>3</sup> Table 15 shows the pounds of grass hay/month meeded for spring and fall calving on faceue.

TABLE 15.	Poun	ds of	grass	hay need	ed in the wit	nter	
						**********	
		- Nat	ive Ran	nge		- FESCUE -	
		()	anhatt	in)	(So)	theast Ka	nsas)
	snow	davs			snow days		
	1" or	more	SPRING	FALL	1" or more	SEP-OCT	NOV-DEC
December	5		76.0	85.5	2	50.0	50.0
January	6		81.6	91.8	4	73.2	83.6
February	6		79.8	90.0	4	70.0	81.6
Harch	5		71.5	81.0	2	36.0	36.0
Totals	22		308.9	348.3	12	229.2	251.2
As fed			339.8	383.1		252.1	276.3
10% waste			373.8	421.4		277.3	304.0

Bull and replacement heifer feed costs make up the second component of total cow unit feed costs. These costs are not

 $^3A_0$  example is now provided. Range intake for a spring calving cos in the moth of January in 16.5 the, and provides .5 and 6.53 lbs of crude protein and TDN respectively. (table 11) Dividing .5 by 5.85 and 6.59 by 517 results in 8.6 and 13.6 lbs of grass hay necessary to replace the crude protein and TDN in native range. The 13.6 lbs, the larger of the two is then multiplied by 6 days and 81.6 pounds of grass hay is then added to the total ration for the month of January.

Figure 6. Number of days with 1" or more of snow on the ground (1940-1970)



directly affected by calving seasons and can vary from producer to producer dependingupon how he manages his bulls and replacement heifers. Yet these costs are an important part of total beef cov unif feed costs and because of this, were calculated and held constant among all calving season management options with only feed prices changing from year to year. This allowed the study to better evaluate feed costs between cows of differing calving seasons and not reflect differences in bull and heifer management.

Replacement heifers were assumed wanned at 7 months of age weighing 422 pounds and bred to calve at 24 months of age weighing 500. The average weight then was 686 pounds, and it was this weight of heifer that the rations were calculated for. The difference between the 24 and 7 months results in a period of 17 months of replacement heifer ownership that must correspond to a 12 month cov unit budget. In order to adapt replacement heifer ownership time to the 12 month ow year, a conversion factor of 1.42 (1/1/12) was used. The management program used for heifers called for them to be on range from May through September and drylotted from October through April. Thus the five months speat on grams was converted to 7.1 months (5 x 1.42), or 213 days, and the 7 months of drylot results in 9.9 months (37 days).

The nutritional requirements of a 666 1b replacement heifer were obtained from 1984 NRC beef cattle nutritional requirements and were 9.35 1bs of TDM and 1.35 1bs of crude protein per day, based on a daily dry matter (DM) intake of 16.5 pounds.

Replacement heifer rations used were<sup>4</sup>:

Native range: 7.1 months x .875 head/acre = 6.2 acres

Drylot rations consisted of 6,9 & 1.5 pounds of alfalfa, grass hav and milo per day respectively.

Alfalfa : 6 lhe x 297 days = 1782 lbs (DM basis) Grass hay : 9 lbs x 297 days = 2673 lbs (DM basis) Milo : 1.5 lbs x 297 days = 445.5 lbs (DM basis)

Total pounds were then adjusted to an as fed basis plus five percent feed waste and converted to tons and bushels.

Total replacement heifer feed costs were<sup>5</sup>:

Native range: 6.2 acres x yearly pasture rent = range cost Alfalfa : 1.03 tons x alfalfa price/ton = alfalfa cost Grass hay : 1.54 tons x grass hay price/ton = hay cost Nilo : 9.45 bu x milo price/bushel = <u>milo cost</u> Total Cost

Total cost x .15 heifer replacement/cow unit = cow unit share of total replacement heifer feed costs

Bulls were assumed to weigh an average of 1600 pounds. According to 1984 NEC requirements their nutritional needs based on 40 pounds of DN intake were 2.2 and 16.6 pounds of crude protein and TDN respectively. Bull management, rations and total feed costs were calculated the same as that for replacement heifers. 40 pounds of grass hay were found to provide all required nutrients of the bull while in drylot.

Bull rations used were:

Native range: 5 months x 1.56 head/acre = 7.8 acres Grass hay :40 lbs x 210 days = 8400 lbs (DM)

<sup>4</sup>Bull and heifer rations were based on conversations with Larry Corah, Extension State Leader, Animal Science and Industry, Kansas State University.

<sup>5</sup>Yearly prices were obtained from Appendix 3.

Total bull feed costs were:

Native range : 7.8 x yearly pasture rent = range cost Grass bay : 4.85 tons x hay price/T = <u>hay cost</u> Total cost

Total cost x .04 bull share/cow unit = cow unit share of total bull feed costs

Cow unit shares of both bull and replacement heifer feed costs were then summed to derive total bull and replacement heifer feed costs as used in the beefcow cost-return budget.

## APPENDIX 5 COW & WEANING CALF REVENUE FACTORS

Gross revenue for any cow-calf operation is dependent on two factors, the pounds of heef produced and the price received for those pounds.

To be accurate, an analysis of calving reason must hold constant factors of production that are not directly affected by calving season. In order to eliminate genetic differences in cattle from affecting the results, the simulated performances of an 1100 lh Mereford x Angus cov and her exotic sired calf were used for every calving season management option in this study. These simulations were based on coversations with Kansas State University Extension Animal Scienties.<sup>1</sup>

At hirth, bulls and heifers were assumed to weigh 70 and 65 pounds respectively. The formula used to calculate weaning weights was:

weaning weight = hirth weight + (days of age x estimated average daily gains).

Estimated average daily gains were hased primarily on the environmental conditions and grass quality encountered hy each calving season.

Estimated average daily gains were:

	Spr	ing		Fall		
	steers	heifers		steers	heifers	
Feh-Mar	1.96	1.86	Sept-Oct	1.86	1.76	
Apr-May	1.81	1.71	Nov-Dec	1.81	1.712	

<sup>1</sup>Larry Corah, Extension State Leader, Animal Science and Industry and Keith Zoelner, Extension Specialist, AS & I,Kansas State University.

<sup>2</sup>After July these average daily gains decline to 1.39 and 1.32 pounds per day respectively. This is due to the lower grass quality that occurs during the late summer months.

Days of age for each calving season management option were derived after the wearing date was selected. November 1 was chosen for hoth spring calving options because it was sense that all spring calves are weared in the fall regardless of date of hirth. In the case of the two fall calving options, May 1 and July 15 were selected because both calves would then be approximately seven months of age. In addition, May 1 allows the option of selling the calves to go or grass and July 15 is generally regarded as a time when grass qualify begins to deteriste at a rapid rate, with lower gains heing the result. July 1 and September 1 were selected because at that time each calf would be nime months of age and proper management dictates that calves be wanted to allow the cow to prepare for perturition and lactation.

After determining the formula coefficients, the wearing weights for each calving season option were calculated.<sup>3</sup>

Calving Season	Date Weaned	Days of Age	<u>Weaning</u> Steers	<u>Weights</u> <u>Heifers</u>
Feb-Mar	Nov. 1	245	550	521
Apr-May	Nov. 1	184	403	380
Sep-Oct	May 1	212	46 4	438
Sep-Oct	July 1	273	578	545
Nov-Dec	July 15	227	481	453
Nov-Dec	Sep. 1	274	546	515

These average daily gains were selected based on KSU Range Research Station data that suggest August-September ADG's are 77% of the ADG's from Nay-July.

<sup>3</sup>It should be noted that the venning weights selected were not the actual weights used to calculate gross revenue. A 907 calf crop consisting of half steers and half belfers and the retention of 151 of your calf crop for herd replacement was 305 of the belfer weight and 153 of the call cow weight were used in the calculation of gross revenue.

It should he noted that the weaning weight formulas used in this thesis result in the following adjusted 205 day weaning weights.

	Spr	ing		Fall		
	steers	heifers		steers	heifers	
Feh-Mar	472	446	Sept-Oct	451	426	
Apr-May	441	416	Nov-Dec	441	416	

The weaping weights, once selected were held constant throughout the analysis with only calf prices changing from year to year. This was to 1) reflect the fact that with proper management yearly weaning weights should be constant if not increasing, and 2) allow a hetter analysis of year to year changes in calf prices.

Calf prices used were monthly average prices situated around the calf sale date. For example, the November 1 sale date price, was a four week (1 month) average sale price consisting of the last two weeks of Octoher and the first two weeks of November. These averages represented the prices of Kansas City choice medium framed steers and heifers.

The last component of gross revenue is that resulting from cull cow sales. Cull cows were assumed to weigh 1100 lbs for each calving season alternative, and to be sold at the time of weaning. Price calculations were the same as that for feeder calves.

TABLE 16 0	attle	prices u	sed in	beef cow	berd cos	t-return	budgets
STEER PRICES	5						ĸ.c.
Calving							Feeder
Season * Ca	lf Wt.	1984	1983	1982	1981	1980	Calves
FEB-MAR/8	550	\$66.31	\$62.26	\$64.05	\$64.15	\$78.63	5-6 CWT
APR-HAY/6	403	\$68.18	\$64.98	\$66.13	\$66.55	\$81.53	4-5 CWT
SEP-OCT/9	578	\$66.03	\$65.71	\$66.36	\$67.91	\$76.47	5-6 CWT
NOV-DEC/9	546	\$64.99	\$58.70	\$69.94	\$69.22	\$82.48	5-6 CWT
SEP-OCT/7	464	\$71.11	\$76.10	\$70.95	\$74.60	\$82.75	4-5 CWT
NOV-DEC/7.5	481	\$66.21	\$65.71	\$68.35	\$69.04	\$77.12	4-5 CWT
		1979	1978	1977	1976	1975	
FEB-MAR/8	550	\$86.41	\$67.73	\$41.56	\$37.89	\$37.34	5-6 CWT
APR-HAY/6	403	\$92.11	\$71.33	\$43.07	\$39.33	\$35.67	4-5 CWT
SEP-OCT/9	578	\$87.76	\$62.30	\$41.24	\$40.46	\$35.17	5-6 CWT
NOV-DEC/9	546	\$94.54	\$68.39	\$44.16	\$39.96	\$34.89	5-6 CWT
SEP-OCT/7	464 5	109.23	\$63.48	\$45.97	\$47.57	\$33.25	4-5 CWT
NOV-DEC/7.5	481	\$98.72	\$68.42	\$43.14	\$40.64	\$32.58	4-5 CWT

HEIFER PRICES

Calving Season	Calf Wt	. 1984	1983	1982	1981	1980	Feeder Calves
FEB-MAR/8	521	\$57.00	\$51.89	\$56.48	\$55.88	\$67.28	5-6 CWT
APR-MAY/6	380	\$56.52	\$52.23	\$55.03	\$55.10	\$70.66	3-4 CWT
SEP-OCT/9	545	\$55.50	\$57.21	\$56.93	\$59.44	\$67.16	5-6 CWT
NOV-DEC/9	515	\$57.17	\$50.34	\$61.98	\$60.07	\$70.09	5-6 CWT
SEP-OCT/7	438	\$59.31	\$62.75	\$59.20	\$62.88	\$67.23	4-5 CWT
NOV-DEC/7.	5 453	\$55.60	\$57.03	\$58.21	\$58.08	\$68.12	4-5 CWT
		1979	1978	1977	1976	1975	
FEB-MAR/8	521	\$75.08	\$58.60	\$35.49	\$30.99	\$28.99	5-6 CWT
APR-MAY/6	380	\$80.78	\$62.84	\$34.96	\$30.60	\$24.65	3-4 CWT
SEP-0CT/9	545	\$80.18	\$53.43	\$36.13	\$34.90	\$29.25	5-6 CWT
NOV-DEC/9	515	\$79.19	\$59.43	\$37.52	\$34.56	\$28.93	5-6 CWT
SEP-0CT/7	438	\$92.38	\$52.96	\$36.87	\$38.84	\$25.60	4-5 CWT
NOV-DEC/7.	5 453	\$83.52	\$58.48	\$36.62	\$34.48	\$26.64	4-5 CWT

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TABLE 16	Contin	ued. Catt	le prices	used in	peer co	Austa
	cost-r	eturn bu	dgets			
********		*********	********			
CULL COW	PRICES					
0.1.1.	0.1.					
Calving	pare		1000	1000	1081	1090
Season	Date	1984	1983	1982	1901	1980
Spring	Nov 1	\$36.73	\$35.21	\$36.82	\$39.25	\$45.73
SER-OCT	1.1 1	\$41 78	\$42.28	\$43.07	\$45.88	\$44.98
SEF-DEC	Son 1	628 51	\$38 53	\$41 13	\$44.78	\$48.89
NOV-DEC	sep 1	430.31	642 10	644 OF	644 99	\$44.00
SEP-OCT	May 1	\$44.04	943.10	044.75	944+00	044.03
NOV-DEC	Jul 15	\$39.65	\$41.32	\$42.80	\$45.20	\$43.21
					1076	1075
		1979	19/8	19//	19/0	19/3
Spring	Nov 1	\$47.12	\$40.24	\$24.29	\$21.30	\$21.44
SEP-OCT	Jul 1	\$53.10	\$39.05	\$26.99	\$28.01	\$23.08
NON-DEC	Sep 1	\$49.74	\$39.13	\$26.34	\$23.84	\$22.17
SEB-OCT	Nov 1	\$58.76	\$39.19	\$28.35	\$31.69	\$23.03
NOR-DEC	141 15	\$50 12	\$38 91	\$26 19	\$26.87	\$21.69
NOV-DEC	501 15	\$J0.11	030171	*20123	+=0+01	

\* It should be noted that weaning dates for the FEB-MAR and APR-MAT calving periods were November 1. The weaning dates for SEP-OCT at 7 and 9 month weaning were May 1 and July 1 respectively and for the NOV-DEC calving seasons, the weaning dates for 7.5 and 9 months were July 15 and September 1.

# APPENDIX 6 BEEF COWHERD BUDGET VARIABLE ANALYSES

The tables of budget variables formed from the beef cowherd cost-return budgets used in this thesis are as follows:

TABLE 17 .-- Returns minus variable costs (Ret-VC) of various calving seasons

	SPR	ING	FA	LL	FA	LL	FALL F	ESCUE
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL I	SEP 1	MAY 1	JUL 15	JUL 1	SEP I
1975	(\$65.24)	(\$94.20)	(\$89.78)	(\$93.32)	(\$126.10)	(\$117.81)	(\$65.71)	(\$78.84)
1976	(\$65.74)	(\$85.78)	(\$64.23)	(\$74.26)	(\$70.10)	(\$86.01)	(\$43.88)	(\$64.19)
1977	(\$53.03)	(\$75.56)	(\$71.15)	(\$65.18)	(\$90.81)	(\$88.75)	(\$41,60)	(\$45,60)
1978	\$81.55	\$38.32	\$40.34	\$56.48	(\$6.70)	\$23.83	\$60.67	\$68.71
1979	\$138.73	\$80.93	\$144.73	\$138.79	\$144.17	\$111.97	\$164.74	\$152.04
1980	\$81.96	\$27.65	\$54.83	\$69.69	\$5.78	\$8.98	\$73.81	\$79.63
1981	\$3.30	(\$39.56)	\$5.24	(\$1.94)	(\$31.84)	(\$34.94)	\$22.37	\$5.41
1982	(\$9.51)	(\$53.34)	(\$17.76)	(\$10,62)	(\$54.41)	(\$48.41)	(\$1,43)	(\$6.08)
1983	(\$19.64)	(\$59.09)	(\$16.17)	(\$57.57)	(\$37.78)	(\$55.23)	(\$1.38)	(\$53.05)
1984	(\$24.40)	(\$65.73)	(\$47.50)	(\$57.65)	(\$78.85)	(\$84.91)	(\$13.05)	(\$36.79)
AVERAGE	\$6.80	(\$32.64)	(\$6.15)	(\$9.56)	(\$34,66)	(\$37.13)	\$15.45	\$2.12
STDEV	\$70.41	\$59.90	\$70.96	\$75.73	\$74.18	\$68.62	\$68.74	\$75.12
+STDEV	\$77.21	\$27.27	\$64.81	\$66.18	\$39.52	\$31.49	\$84.20	\$77.24
-STDEV	(\$63.62)	(\$92.54)	(\$77.10)	(\$85.29)	(\$108.85)	(\$105.75)	(\$53.29)	(\$72.99)

Differences in RET-VC for FEB-MAR vs. Other calving seasons with various sized cowherds

		SPRING	FA	LL	FI	LL	FALL F	ESCUE
Born	a :	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weat	ned:	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL I	SEP 1
RET	-VC vs. FEB	-MAR						
per	COW	(\$39.43)	(\$12,94)	(\$16.36)	(\$41.46)	(\$43.93)	\$8,66	(\$4,67)
50	COWS	(\$1,972)	(\$647)	(\$818)	(\$2.073)	(\$2,196)	\$433	(\$234)
100	cows	(\$3,943)	(\$1,294)	(\$1,636)	(\$4,146)	(\$4,393)	\$866	(\$467)
200	COWS	(\$7,887)	(\$2,589)	(\$3,271)	(\$8,292)	(\$8,785)	\$1,731	(\$935)
500	COWS	(\$19,717)	(\$6,472)	(\$8,178)	(\$20,731)	(\$21,963)	\$4,328	(\$2,337)
200	cows							
for	ten yrs.	(\$78,868)	(\$25,886)	(\$32,712)	(\$82,924)	(\$87,852)	\$17,312	(\$9,348)
TABLE 18 .--- Returns minus total costs (Ret-TC) of various calving seasons

			an can come		CONTRACTOR DECEMBERS
	SPRING	F.	ALL	FALL	FALL FESCUE
Born :	FEB-MAR API	R-MAY SEP-OCT	NOV-DEC	SEP-OCT NOV-DEC	SEP-OCT NOV-DEC
Weaned:	NOV 1	NOV 1 JUL 1	SEP 1	MAY 1 JUL 15	JUL 1 SEP 1
1975	(\$192.04)(\$2	21.00)(\$216.57	)(\$220.11)	(\$252.89)(\$244.60)	(\$192.51)(\$205.64)
1976	(\$192.85)(\$2)	12.89)(\$191.34	)(\$201.37)	(\$197.21)(\$213.12)	(\$170.98)(\$191.30)
1977	(\$182.55)(\$20	05.09)(\$200.67	)(\$194.70)	(\$220.33)(\$218.27)	(\$171.12)(\$175.12)
1978	(\$52.64) (\$9	95.87) (\$93.85	) (\$77.71)	(\$140.89)(\$110.36)	(\$73.52) (\$65.48)
1979	(\$8.66) (\$6	56.46) (\$2.66	) (\$8.60)	(\$3.22) (\$35.42)	\$17.36 \$4.65
1980	(\$86.48)(\$14	40.79)(\$113.62	) (\$98.75)	(\$162.67)(\$159.47)	(\$94.63) (\$88.82)
1981	(\$175.27)(\$2)	18.13)(\$173.33	)(\$180.51)	(\$210.41)(\$213.51)	(\$156.20)(\$173.16)
1982	(\$193.82)(\$2	37.65)(\$202.07	)(\$194.92)	(\$238.72)(\$232.72)	(\$185.74)(\$190.38)
1983	(\$189.79)(\$2	29.24)(\$186.32	)(\$227.72)	(\$207.93)(\$225.38)	(\$171.53)(\$223.20)
1984	(\$191.42)(\$2	32.76)(\$214.52	)(\$224.67)	(\$245.88)(\$251.93)	(\$180.08)(\$203.81)
AVERAGE	(\$146.55)(\$14	85.99)(\$159.50	)(\$162.91)	(\$188.02)(\$190.48)	(\$137.90)(\$151.23)
STDEV	\$69.84 \$6	51.94 \$68.90	\$74.76	\$73.91 \$69.08	\$67.36 \$75.01
+SIDEV	(\$76.72)(\$1:	24.05) (\$90.59	) (\$88.15)	(\$114.10)(\$121.40)	(\$70.53) (\$76.21)
-STDEV	(\$216.39)(\$24	47.93)(\$228.40	)(\$237.66)	(\$261.93)(\$259.56)	(\$205.26)(\$226.24)

TABLE 19.---Cow unit feed costs (CFC) of various calving seasons

	SPR	RING	FI	LL	¥.	LL	FALL F	ESCUE		
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC		
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1		
1975	\$140.69	\$125.59	\$162.85	\$156.39	\$162.85	\$156.39	\$140.11	\$142.71		
1976	\$143.67	\$128.60	\$166.17	\$159.01	\$166.17	\$159.01	\$146.93	\$149,49		
1977	\$148.22	\$131.36	\$171.92	\$165.39	\$171.92	\$165.39	\$143.99	\$146.88		
1978	\$142.66	\$128.48	\$164.66	\$159.40	\$164.66	\$159.40	\$145.44	\$147.85		
1979	\$155.07	\$141.61	\$178.23	\$174.15	\$178.23	\$174.15	\$159.37	\$161.66		
1980	\$163.81	\$147.91	\$188.90	\$183.14	\$188.90	\$183.14	\$171.19	\$173.87		
1981	\$168.27	\$149.97	\$194.79	\$188.86	\$194.79	\$188.86	\$178.92	\$182.05		
1982	\$171.83	\$153.04	\$198.92	\$191.13	\$198.92	\$191.13	\$183.82	\$186.93		
1983	\$166.57	\$149.43	\$192.41	\$185.65	\$192.41	\$185.65	\$178.60	\$181.43		
1984	\$181.72	\$159.53	\$211.27	\$202.21	\$211.27	\$202.21	\$179.16	\$182.76		
AVERAGE	\$158.25	\$141.55	\$183.01	\$176.53	\$183.01	\$176.53	\$162.75	\$165.56		
STDEV	\$14.18	\$12.14	\$16.62	\$15.94	\$16.62	\$15.94	\$17.39	\$17.65		
*STDEV	\$172.43	\$153.69	\$199.63	\$192.47	\$199.63	\$192.47	\$180.15	\$183.21		
-STDEV	\$144.07	\$129.41	\$166.39	\$160.59	\$166.39	\$160.59	\$145.36	\$147.91		
differenc	es in									
cow unit	feed FEB-MAR	(\$16.70)	\$24.76	\$18.28	\$24.76	\$18.28	\$4.50	\$7.31		

COW UNIT FEED COSTS AS A 7 OF FEB-MAR

	SPRING		FALL		FALL		FALL FESCUE	
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	100.00%	89.27%	115.75%	111.16%	115.75%	111.16%	99.59%	101.44%
1976	100.00%	89.51%	115.66%	110.68%	115.66%	110.687	102.27%	104.05%
1977	100.002	88.63%	115,99%	111.58%	115.99%	111.58%	97.15%	99.107
1978	100.00%	90.06%	115.42%	111.73%	115.427	111.73%	101.95%	103.64%
1979	100.00%	91.32%	114.94%	112.30%	114.94%	112.30%	102.77%	104.25%
1980	100.00%	90.29%	115.32%	111.80%	115.32%	111.80%	104.51%	106.14%
1981	100.00%	89.122	115.76%	112.24%	115.76%	112.24%	106.337	108.19%
1982	100.00%	89.06%	115.77%	111.23%	115.77%	111.232	106.98%	108.79%
1983	100.00%	89.71%	115.51%	111.45%	115.51%	111.45%	107.22%	108,922
1984	100.00%	87.79%	116.26%	111.28%	116.26%	111.28%	98.59%	100.57%
AVERAGE	100.00%	89.48%	115.64%	111.55%	115.64%	111.55%	102.74%	104.51%
STDEV	0.00%	0.96%	0.37%	0.50%	0.37%	0.50%	3.55%	3.48%
+STDEV	100.00%	90.44%	116.017	112.041	116.01%	112.04%	106.28%	107.99%
-STDEV	100.002	88.51%	115.27%	111.05%	115.27%	111.05%	99.19%	101.02%

TABLE 20 .-- Total cow unit revenue of various calving seasons

assesses	SAA SWARTER		N II N II II N M M N I	THE SCHOLD	NEEDENALUE	the lot of the lot be he had to be
	SPR	ING	FA	LL	FALL	
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Wesned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15
1975	\$173.10	\$128.16	\$177.38	\$167.00	\$141.06	\$142.51
1976	\$177.36	\$141.35	\$208.51	\$190.91	\$202.65	\$179.16
1977	\$198.41	\$158.04	\$210.87	\$209.93	\$191.21	\$186.36
1978	\$325.62	\$267.39	\$313.83	\$324.42	\$266.80	\$291.77
1979	\$408.96	\$336.88	\$446.97	\$436.70	\$446.41	\$409.88
1980	\$375.22	\$303.86	\$382.92	\$391.61	\$333.87	\$330.90
1981	\$310.87	\$248.26	\$349.52	\$335.94	\$312.44	\$302.95
1982	\$307.55	\$243.41	\$336.75	\$335.47	\$300.10	\$297.67
1983	\$293.29	\$235.48	\$334.21	\$285.58	\$312.60	\$287.91
1984	\$313.81	\$248.68	\$331.42	\$311.55	\$300.07	\$284.29
AVERAGE	\$288.42	\$231.15	\$309.24	\$298.91	\$280.72	\$271.34
STDEV	\$80.77	\$68.77	\$85.06	\$87.09	\$86.19	\$80.01
+STDEV	\$369.19	\$299.92	\$394.30	\$386.00	\$366.91	\$351.35
-STDEV	\$207.64	\$162.38	\$224.17	\$211.82	\$194.53	\$191.33
REVENUE V	s FEB-MAR	(\$57.27)	\$20.82	\$10.49	(\$7.70)	(\$17.08)

TOTAL REVENUE AS A 7 OF FEB-MAR

	SPR	ING	FA	LL	FALL		
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	
1975	100.00%	74.04%	102.47%	96.48%	81.49%	82.33%	
1976	100.00%	79.70%	117.56%	107.64%	114.267	101.017	
1977	100.00%	79.65%	106.287	105.81%	96.37%	93.937	
1978	100.00%	82.12%	96.38%	99.63%	81.94%	89.60%	
1979	100.00%	82.37%	109.29%	106.78%	109.16%	100.22%	
1980	100.00%	80.98%	102.05%	104.37%	88.98%	88,19%	
1981	100.00%	79.86%	112.43%	108.06%	100.517	97.45%	
1982	100.00%	79.14%	109.49%	109.08%	97.58%	96.79%	
1983	100.00%	80.29%	113.95%	97.37%	106.58%	98.17%	
1984	100.00%	79.25%	105.61%	99.28%	95.62%	90.59%	
AVERAGE	100.00%	79.74%	107.55%	103.45%	97.25%	93.831	
STDEV	0.00%	2.30%	6.317	4.78%	10.97%	6.027	
+STDEV	100.00%	82.04%	113.86%	108.23%	108.22%	99.84%	
-STDEV	100.00%	77.44%	101.25%	98.67%	86.28%	87.81%	

TABLE 21.---Steer revenue of various calving seasons

STREET, STREET	· · · · · · · · · · · · · · · · · · ·								
	SPR	ING	FA	LL	FALL				
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC			
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15			
1975	\$92.42	\$64.69	\$91.48	\$85.72	\$69.43	\$70.52			
1976	\$93.78	\$71.32	\$105.24	\$98.18	\$99.33	\$87.97			
1977	\$102.86	\$78.11	\$107.27	\$108.50	\$95.99	\$93.38			
1978	\$167.63	\$129.36	\$162.04	\$168.03	\$132.55	\$148,10			
1979	\$213.86	\$167.04	\$228.26	\$232.28	\$228.07	\$213.68			
1980	\$194.61	\$147.85	\$198.90	\$202.65	\$172.78	\$166.93			
1981	\$158.77	\$120.69	\$176.63	\$170.07	\$155.76	\$149.44			
1982	\$158.52	\$119.93	\$172.60	\$171.84	\$148.14	\$147.94			
1983	\$154.09	\$117.84	\$170.91	\$144.23	\$158.90	\$142.23			
1984	\$164.12	\$123.64	\$171.74	\$159.68	\$148.48	\$143.31			
AVERAGE	\$150.07	\$114.05	\$158.51	\$154.12	\$140.94	\$136.35			
STDEV	\$41.42	\$33.21	\$43.87	\$46.24	\$44.96	\$42.11			
+STDEV	\$191.49	\$147.25	\$202.38	\$200.36	\$185.90	\$178.46			
-STDEV	\$108.64	\$80.84	\$114.64	\$107.88	\$95.98	\$94.24			
REVENUE VI	FEB-MAR	(\$36.02)	\$8.44	\$4.05	(\$9.12)	(\$13.72)			

STEER REVENUE AS A Z OF FEB-MAR

		SPR	ING	FA	LL	FALL		
Born		FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	
Weane	ed :	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	
1	975	100.00%	70.00%	98.98%	92.75%	75.12%	76.30	
1	976	100.00%	76.05%	112.22%	104.69%	105.92%	93.807	
1	977	100.00%	75.94%	104.29%	105.48%	93.32%	90.787	
1	978	100.00%	77.17%	96.67%	100.247	79.07%	88.357	
1	979	100.00%	78.11%	106.73%	108.61%	106.64%	99.927	
1	980	100.00%	75.97%	102.20%	104.13%	88.78%	85.787	
1	981	100.00%	76.02%	111.25%	107.12%	98.107	94.127	
1	982	100.00%	75.66%	108.88%	108.40%	93.45%	93.337	
1	983	100.00%	76.47%	110.92%	93.60%	103.12%	92.302	
1	984	100.00%	75.34%	104.64%	97.29%	90.47%	87.32%	
AVERA	GE	100.00%	75.67%	105.68%	102.23%	93.40%	90.202	
STDEV		0.00%	2.15%	5.31%	5.92%	10.64%	6.34%	
+STDE	V	100.00%	77.82%	110.99%	108.15%	104.04%	96.547	
-STDE	v	100.00%	73.52%	100.37%	96.31%	82.77%	83.86%	

TABLE 22 .--- Heifer revenue of various calving seasons

	SPR	ING	FA	LL	FALL	
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15
197	\$45.31	\$28.10	\$47.82	\$44.70	\$33.64	\$36.20
1976	\$48,44	\$34.88	\$57.06	\$53.40	\$51.04	\$46.86
1977	\$55.47	\$39.85	\$59.07	\$57.97	\$48.45	\$49.77
1978	\$91.59	\$71.64	\$87.36	\$91.82	\$69.59	\$79.47
1979	\$117.35	\$92.09	\$131.09	\$122.35	\$121.39	\$113.50
1980	\$105.16	\$80.55	\$109.81	\$108.29	\$88.34	\$92.58
1981	\$87.34	\$62.81	\$97.18	\$92.81	\$82.62	\$78.93
1982	\$88.28	\$62.73	\$93.08	\$95.76	\$77.79	\$79.11
1983	\$81.10	\$59.54	\$93.54	\$77.78	\$82.45	\$77.50
1984	\$89.09	\$64.43	\$90.74	\$88.33	\$77.93	\$75.56
AVERAGE	\$80.91	\$59.66	\$86.68	\$83.32	\$73.32	\$72.95
STDEV	\$23.95	\$20.21	\$25.54	\$24.83	\$24.61	\$22.95
+STDEV	\$104.86	\$79.87	\$112.22	\$108.15	\$97.93	\$95.90
-STDEV	\$56.97	\$39.45	\$61.13	\$58.49	\$48.71	\$49.99
REVENUE	vs FEB-MAR	(\$21.25)	\$5.76	\$2.41	(\$7.59)	(\$7.96)

#### BEIFER REVENUE AS A Z OF FEB-MAR

		SPR	ING	FA	LL	FALL		
Born	n :	FEB-HAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	
Wear	ned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	
	1975	100.00%	62.02%	105.54%	98.65%	74.24%	79.892	
	1976	100.00%	72.01%	117.80%	110.24%	105.37%	96.742	
	1977	100.00%	71.84%	106.49%	104.51%	87.34%	89.727	
	1978	100.00%	78.22%	95.38%	100.25%	75.98%	86.772	
	1979	100.00%	78.47%	111.717	104.26%	103.44%	96.722	
	1980	100.00%	76.60%	104.42%	102.98%	84.01%	88.04%	
	1981	100.00%	71.91%	111.27%	106.26%	94.60%	90.37%	
	1982	100.00%	71.06%	105.44%	108.47%	88.12%	89.617	
	1983	100.00%	73.42%	115.34%	95.91%	101.66%	95.562	
	1984	100.00%	72.32%	101.85%	99.15%	87.47%	84.81%	
AVE	RAGE	100.00%	72.79%	107.52%	103.07%	90,22%	89.82%	
STDE	SV	0.00%	4.69%	6.64%	4.58%	10.91%	5.421	
+STI	DEA	100.00%	77.48%	114.16%	107.64%	101.137	95.25%	
-STI	)EV	100.00%	68.09%	100.88%	98.49%	79.31%	84.40%	

TABLE 23, --- Cull cow revenue of various calving sessons

REALENAMEN	ананасын	<b>INCOMPAGE</b>	NUCLEOR ST	INAL STORAGE	N D D D D D D D D D D D	T.0.0 T.0.0 0 0 0	
	SPR	ING	FA	LL	FALL		
Born :	FEB-HAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	
1975	\$35.38	\$35.38	\$38.08	\$36.58	\$38.00	\$35.79	
1976	\$35.15	\$35.15	\$46.22	\$39.34	\$52.29	\$44.34	
1977	\$40.08	\$40.08	\$44.53	\$43.46	\$46.78	\$43.21	
1978	\$66.40	\$66.40	\$64.43	\$64.56	\$64.66	\$64.20	
1979	\$77.75	\$77.75	\$87.62	\$82.07	\$96.95	\$82.70	
1980	\$75.45	\$75.45	\$74.22	\$80.67	\$72.75	\$71.40	
1981	\$64.76	\$64.76	\$75.70	\$73.06	\$74.05	\$74.58	
1982	\$60.75	\$60.75	\$71.07	\$67.86	\$74.17	\$70.62	
1983	\$58.10	\$58.10	\$69.76	\$63.57	\$71.25	\$68.18	
1984	\$60.60	\$60.60	\$68.94	\$63.54	\$73.66	\$65.42	
AVERAGE	\$57.44	\$57.44	\$64.06	\$61.47	\$66.46	\$62.04	
STDEV	\$15.55	\$15.55	\$15.90	\$16.40	\$16.87	\$15.48	
+STDEV	\$72.99	\$72.99	\$79.95	\$77.87	\$83.33	\$77.52	
-STDEV	\$41.89	\$41.89	\$48.16	\$45.07	\$49.58	\$46.57	
REVENUE vs	FEB-HAR	\$0.00	\$6.62	\$4.03	\$9.01	\$4.60	

## CULL COW REVENUE AS A % OF FEB-MAR

	SPR	ING	FAI	LL	FALL		
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	
1975	100.00%	100.00%	107.63%	103.39%	107.41%	101.16%	
1976	100.00%	100.00%	131.49%	111.92%	148.76%	126.15%	
1977	100.00%	100,00%	111.10%	108.43%	116.72%	107.81%	
1978	100.00%	100.00%	97.03%	97.23%	97.38%	96.69%	
1979	100.00%	100.00%	112.69%	105.56%	124.69%	106.37%	
1980	100.00%	100.00%	98.37%	106.92%	96.42%	94.63%	
1981	100.00%	100.00%	116.89%	112.82%	114.35%	115.16%	
1982	100.00%	100.00%	116.99%	111.70%	122.09%	116.25%	
1983	100.00%	100.00%	120.07%	109.41%	122.63%	117.35%	
1984	100.00%	100.00%	113.76%	104.85%	121.55%	107.95%	
AVERAGE	100.00%	100.00%	112.60%	107.22%	117.20%	108.95%	
STDEV	0.00%	0.00%	10.13%	4.75%	15.11%	9.91%	
+STDEV	100.00%	100.00%	122.73%	111.97%	132.31%	118.86%	
-STDEV	100.00%	100.00%	102.47%	102.48%	102,09%	99.05%	

TABLE 24.--Steer prices of various calving seasons

		SPR	ING	FA	LL	FALL	
Born		FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weane	: be	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15
1	975	\$37.34	\$35.67	\$35.17	\$34.89	\$33.25	\$32.58
1	.976	\$37.89	\$39.33	\$40.46	\$39.96	\$47.57	\$40.64
1	.977	\$41.56	\$43.07	\$41.24	\$44.16	\$45.97	\$43.14
1	978	\$67.73	\$71.33	\$62.30	\$68.39	\$63.48	\$68.42
1	979	\$86.41	\$92.11	\$87.76	\$94.54	\$109.23	\$98.72
1	980	\$78.63	\$81.53	\$76.47	\$82.48	\$82.75	\$77.12
1	981	\$64.15	\$66.55	\$67.91	\$69.22	\$74.60	\$69.04
1	982	\$64.05	\$66.13	\$66.36	\$69.94	\$70.95	\$68.35
1	983	\$62.26	\$64.98	\$65.71	\$58.70	\$76.10	\$65.71
1	984	\$66.31	\$68.18	\$66.03	\$64.99	\$71.11	\$66.21
AVERA	GE	\$60.63	\$62.89	\$60.94	\$62.73	\$67.50	\$62.99
STDEV		\$16.74	\$18.31	\$16.87	\$18.82	\$21.53	\$19.46
+STDE	V	\$77.37	\$81.20	\$77.81	\$81.55	\$89.03	\$82.45
-STDE	v	\$43.90	\$44.58	\$44.07	\$43.91	\$45.97	\$43.54
PRICE	vs.	FEB-MAR	\$2.25	\$0,31	\$2.09	\$6.87	\$2.36
STEER	PR	CE AS A 7	OF FEB-M	AR			
		SPR	ING	FA	LL	FA	LL
Born	:	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weane	d :	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15

	1975	100.007	95.532	94.19%	93.44%	89.05%	87.251
	1976	100.00%	103.807	106.78%	105.467	125.55%	107.267
	1977	100.007	103.637	99.237	106.267	110.617	103.807
	1978	100.00%	105.327	91.987	100.97%	93.737	101.02%
	1979	100.00%	106.60%	101.567	109.41%	126.41%	114.257
	1980	100.00%	103.69%	97.25%	104.90%	105.24%	98.08%
	1981	100.00%	103.74%	105.86%	107.90%	116.29%	107.62%
	1982	100.00%	103.25%	103.61%	109.20%	110.77%	106.71%
	1983	100.00%	104.37%	105.54%	94.28%	122.237	105.54%
	1984	100.00%	102.82%	99.58%	98.01%	107.24%	99.85%
45	ERAGE	100.00%	103.27%	100.56%	102.98%	110.71%	103.14%
S7	DEV	0.00%	2.93%	5.05%	5.96%	12.61%	7.25%
+8	TDEV	100.00%	106.21%	105.61%	108.95%	123.327	110.39%
-8	TDEV	100.00%	100.34%	95.51%	97.02%	98.10%	95.891

TABLE 25 .-- Average calf breakeven prices (variable costs)

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	SPR	ING	FA	LL	FA	LL	FALL F	ESCUE
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	\$42.11	\$53.07	\$45.33	\$46.86	\$56.46	\$53.42	\$40.57	\$43.83
1976	\$43.15	\$54.49	\$44.83	\$47.30	\$54.31	\$52.54	\$40.80	\$45.19
1977	\$43.85	\$54.92	\$46.99	\$48.52	\$57.95	\$55.17	\$41.15	\$44.42
1978	\$36.87	\$46.17	\$41.37	\$42.60	\$51.45	\$48.47	\$37.35	\$40.03
1979	\$39.94	\$50.58	\$42.47	\$45.21	\$50.58	\$51.21	\$38.51	\$42.43
1980	\$45.19	\$56.98	\$50.24	\$50.53	\$62.91	\$59.61	\$46.48	\$48.45
1981	\$50.38	\$63.31	\$53.15	\$55.47	\$66.57	\$62.65	\$49.76	\$53.93
1982	\$53.18	\$66.98	\$56.09	\$58.27	\$69.07	\$65.54	\$52.86	\$57.32
1983	\$52.88	\$67.11	\$55.53	\$58.55	\$68.77	\$65.42	\$52.60	\$57.61
1984	\$57.60	\$72.03	\$61.34	\$64.02	\$75.21	\$72.28	\$54.52	\$59.65
AVERAGE	\$46.52	\$58.56	\$49.73	\$51.73	\$61.33	\$58.63	\$45.46	\$49.29
STDEV	\$6.65	\$8.35	\$6.62	\$6.95	\$8.40	\$7.69	\$6.55	\$7.20
+STDEV	\$53.17	\$66.91	\$56.35	\$58.69	\$69.73	\$66.32	\$52.01	\$56.48
-STDEV	\$39.86	\$50.21	\$43.11	\$44.78	\$52.93	\$50.94	\$38.91	\$42.09
BE(VC) vs.	FEB-MAR	\$12.05	\$3.22	\$5.22	\$14.81	\$12.12	(\$1.05)	\$2.77

# CALF BREAKEVENS (VC) AS A % OF FEB-MAR

	SPR	ING	FA	LL	FA	LL	FALL F.	ESCUE
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	100.00%	126.03%	107.65%	111.28%	134.08%	126.86%	96.34%	104.087
1976	100.00%	126.28%	103.89%	109.62%	125.867	121.762	94.55%	104.732
1977	100.00%	125.25%	107.16%	110.65%	132.167	125.827	93.842	101.30%
1978	100.00%	125.22%	112.217	115.54%	139.54%	131.46%	101.307	108.57%
1979	100.00%	126.64%	106.33%	113.19%	126.64%	128.22%	96.42%	106.237
1980	100.00%	126.09%	111.18%	111.82%	139.217	131.912	102.85%	107.21%
1981	100.00%	125.66%	105.50%	110.10%	132.14%	124.35%	98.77%	107.05%
1982	100.00%	125.95%	105.47%	109.57%	129.88%	123.24%	99.40%	107.78%
1983	100.00%	126.91%	105.01%	110.72%	130.05%	123.71%	99.47%	108.94%
1984	100.00%	125.05%	106.49%	111.15%	130.57%	125.49%	94.65%	103.56%
AVERAGE	100.00%	125.91%	107.09%	111.367	132.012	126.28%	97.76%	105.95%
STDEV	0.00%	0.62%	2.66%	1.82%	4.59%	3.39%	3.06%	2.46%
+STDEV	100.00%	126.53%	109.75%	113.18%	136.61%	129.67%	100.82%	108.417
-STDEV	100.00%	125.29%	104.43%	109.54%	127.42%	122.89%	94.70%	103.49%

TABLE 26.--Average calf breakeven prices (total costs)

	COMPANY OF REAL PROPERTY AND ADDRESS	*********			*******	a see maa daa daa daa gaa daa ka da	PERSONALISE	**********
	SPR	ING	FA	LL	FA	LL	FALL F	ESCUE
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP I	MAY 1	JUL 15	JUL 1	SEP 1
1975	\$68.42	\$89.05	\$70.42	\$73.42	\$87.70	\$83.59	\$65.66	\$70.39
1976	\$69.52	\$90.56	\$69.98	\$73.92	\$85.63	\$82.78	\$65.95	\$71.81
1977	\$70.73	\$91.68	\$72.62	\$75.65	\$89.86	\$85.99	\$66.78	\$71.54
1978	\$64.71	\$84.25	\$67.92	\$70.70	\$84.51	\$80.40	\$63.90	\$68.14
1979	\$70.52	\$92.40	\$71.64	\$76.08	\$86.89	\$86.27	\$67.68	\$73.30
1980	\$80.14	\$104.78	\$83.57	\$85.81	\$104.41	\$99.68	\$79.81	\$83.73
1981	\$87.43	\$113.99	\$88.48	\$92.87	\$110.57	\$105.13	\$85.09	\$91.33
1982	\$91.43	\$119.29	\$92.56	\$96.87	\$114.47	\$109.39	\$89.33	\$95.92
1983	\$88.18	\$115.40	\$89.20	\$94.19	\$110.69	\$105.90	\$86.27	\$93.25
1984	\$92.26	\$119.44	\$94.39	\$99.00	\$116.36	\$112.02	\$87.58	\$94.63
AVERAGE	\$78.33	\$102.08	\$80.08	\$83.85	\$99.11	\$95.12	\$75.81	\$81.40
STDEV	\$10.69	\$13.93	\$10.52	\$11.05	\$13.28	\$12.43	\$10.66	\$11.46
+STDEV	\$89.03	\$116.01	\$90.60	\$94.90	\$112.39	\$107.54	\$86.46	\$92.86
-STDEV	\$67.64	\$88.15	\$69.56	\$72.80	\$85.83	\$82.69	\$65.15	\$69.94
BE(TC) vs.	FEB-MAR	\$23.75	\$1.74	\$5.52	\$20.77	\$16.78	(\$2.53)	\$3.07

# CALF BREAKEVENS (TC) AS A % OF FEB-MAR

	SPR	ING	FA	LL	FA	LL	FALL F	ESCUE
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	100.00%	130.15%	102.92%	107.31%	128.18%	122.17%	95.97%	102.88%
1976	100.00%	130.26%	100.66%	106.33%	123.17%	119.07%	94.86%	103.29%
1977	100.00%	129.62%	102.67%	106.96%	127.05%	121.58%	94.42%	101.15%
1978	100.00%	130.20%	104.96%	109.26%	130.60%	124.25%	98.75%	105.30%
1979	100.00%	131.03%	101.59%	107.88%	123.21%	122.33%	95.97%	103.94%
1980	100.00%	130.75%	104.28%	107.08%	130.28%	124.38%	99.59%	104.48%
1981	100.00%	130.38%	101.20%	106.22%	126.47%	120.24%	97.32%	104.46%
1982	100.00%	130.47%	101.24%	105.95%	125.20%	119.64%	97.70%	104.91%
1983	100.00%	130.87%	101.16%	106.82%	125.53%	120.10%	97.83%	105.75%
1984	100.00%	129.46%	102.31%	107.31%	126.12%	121.42%	94.93%	102.57%
AVERAGE	100.00%	130.32%	102.30%	107.11%	126.58%	121.52%	96.73%	103.87%
STDEV	0.00%	0.50%	1.43%	0.95%	2.56%	1.82%	1.76%	1.41%
+STDEV	100.00%	130.82%	103.73%	108.06%	129.14%	123.34%	98.50%	105.28%
-STDEV	100.00%	129.81%	100.87%	106.16%	124.02%	119.70%	94.97%	102.47%

TABLE 27	Average	beef	cowherd	investment
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	IN S. S. S.			NAMES OF TAXABLE PARTY.			
		SPR	ING	¥.	LL	FALL F	ESCUE
Born	:	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
,	975	\$3 228	\$3.220	\$2 512	\$2 5.00	\$2 201	\$2 2.02
	07/	03,220	00,220	03,312	03,509	40,001	05,502
	1970	23,4/5	93,468	93,/08	\$3,785	\$3,499	\$3,500
	9//	\$3,714	\$3,706	\$4,053	\$4,050	\$3,732	\$3,733
1	978	\$3,899	\$3,892	\$4,256	\$4,253	\$3,938	\$3,939
1	979	\$4,437	\$4,431	\$4,852	\$4,850	\$4,445	\$4,447
1	1980	\$4,930	\$4,922	\$5,396	\$5,393	\$4,993	\$4,994
1	981	\$5,176	\$5,167	\$5.671	\$5,668	\$5,208	\$5,209
1	982	\$4.738	\$4.728	\$5,182	\$5,178	\$4.875	\$4.877
	083	\$4 464	\$6 455	\$4,980	\$4 876	\$6 576	\$4 575
	00.	\$4,767	\$4,936	\$4,600	\$4,676	\$4,357	\$4,350
		44,24/	V4,230	04,035	44,034	V4,337	V4,JJJ
AVERA	GE	\$4,231	\$4,223	\$4,623	\$4,620	\$4,292	\$4,294
STDEV	1	\$640	\$640	\$709	\$7.08	\$652	\$652
+STDE	w	\$4.871	\$4.862	\$5.331	\$5.328	\$4.944	\$4.946
-STDE	177	\$3 590	\$2 582	\$2 914	\$2 011	\$7.640	\$2.661
0101		\$5,550	¢5,505	vJ,914	<b>VJ</b> , <b>J</b> 11	¢J,040	03,041
INV.	vs.	FEB-MAR	(\$8)	\$392	\$389	\$61	\$63
INVES	THE	T AS A Z	OF FER-MAI	R			
		SPR	INC	¥4	T.T.	FALL F	RSCHE
Born		FFR-MAD	ADD-MAY	SED-OCT	NOW-DEC	SED-OCT	NOW-DRC
0010		e DD " MAA	ALA-MAI	3 MI 001	HOI-DEC	3 DE -001	aor-DEC

Born	:	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
	1975	100.002	99.75%	108.807	108.71%	102,26%	102.292
	1976	100.00%	99.80%	109.01%	108.92%	100.69%	100.722
	1977	100.00%	99.78%	109.13%	109.05%	100.48%	100.517
	1978	100.00%	99.82%	109.167	109.08%	101.007	101.037
	1979	100.00%	99.86%	109.35%	109.31%	100,187	100.237
	1980	100.007	99.84%	109.45%	109.39%	101.28%	101.302
	1981	100.00%	99.83%	109.56%	109.51%	100.62%	100.647
	1982	100.00%	99.79%	109.37%	109.29%	102.89%	102.937
	1983	100.00%	99.80%	109.32%	109.237	102.46%	102,497
	1984	100.00%	99.74%	109.23%	109.117	102.59%	102.64%
AVER	AGE	100.00%	99.80%	109.24%	109.16%	101.45%	101,487
STDE	v	0.00%	0.04%	0.227	0.24%	1.01%	1.012
+STD	EV	100.00%	99.84%	109.46%	109.39%	102.45%	102.497
-STD	EV	100.00%	99.76%	109.017	108.92%	100.44%	100.477

TABLE 28.--Gross asset turnover (TR/Investment)

74224477777777777777777777777777777777										
	SPR	ING	FA	LL	FA	LL	FALL F	ESCUE		
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC		
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1		
1975	7.41%	6.03%	6.93%	6.64%	5.89%	5.94%	7.37%	7.05%		
1976	7.00%	5.98%	7.25%	6.79%	7.09%	6.48%	7.85%	7.34%		
1977	7.12%	6.05%	6.837	6.827	6.35%	6.23%	7.42%	7.40%		
1978	10.08%	8.617	8,96%	9.227	7.86%	8,45%	9.69%	9.95%		
1979	10.927	9.317	10.77%	10.56%	10.76%	10.017	11.75%	11.527		
1980	9.46%	8.027	8.78%	8.957	7.87%	7.82%	9.492	9.66%		
1981	7.94%	6.75%	7.937	7.702	7.287	7.127	8.647	8.38%		
1982	8.76%	7.421	8.57%	8.56%	7.877	7.837	9.117	9.09%		
1983	8,73%	7.45%	8.837	7.83%	8.387	7.882	9.427	8.35%		
1984	9.60%	8.09%	9.17%	8.75%	8.50%	8.17%	9.77%	9.131		
AV ERAGE	8.70%	7.37%	8.40%	8.18%	7.791	7.59%	9.05%	8.79%		
STDEV	1.337	1.167	1.207	1,267	1.347	1.217	1.32%	1.38%		
+STDEV	10.03%	8.53%	9.61%	9.442	9.122	8.80%	10.37%	10.17%		
-STDEV	7.37%	6.21%	7.20%	6.92%	6.45%	6.38%	7.73%	7.41%		
GROSS TURNOVER										
vs FEB-MAR		~1.33%	-0.30%	-0.52%	-0.92%	-1.11%	0.35%	0.09%		
ASSET TURE	NOVER									
TOTAL REVI	ENUE/INVES	STMENT AS	A Z OF FI	SB-HAR						
	SPRI	ENG	FAI	LL	FAI	L	FALL FE	SCUE		
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC		
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1		
1975	100.00%	81.38%	93.52%	89.61%	79.49%	80.16%	99.46%	95.14%		
1976	100.00%	85.43%	103.57%	97.00%	101.29%	92.57%	112.14%	104.86%		
1977	100.00%	84.97%	95.93%	95.79%	89.19%	87.50%	104.217	103.93%		
1978	100.002	85.42%	88.89%	91.47%	77.98%	83.83%	96.13%	98.71%		
1979	100.00%	85.26%	98.63%	96.70%	98.53%	91.67%	107.60%	105.49%		
1980	100.00%	84.78%	92.81%	94.617	83.19%	82.66%	100.32%	102.117		
1981	100.00%	85.017	99.87%	96.98%	91.69%	89.67%	108.82%	105.54%		
1982	100.00%	84.70%	97.83%	97.72%	89.84%	89.38%	104.00%	103.77%		
1983	100.00%	85.34%	101.15%	89.69%	95.99%	90.26%	107.90%	95.65%		
1984	100.00%	84.27%	95.52%	91.15%	88.54%	85.10%	101.77%	95.10%		
AVERAGE	100.00%	84.66%	96.77%	94.07%	89.57%	87.28%	104.24%	101.03%		
STDEV	0.00%	1.217	4.35%	3.25%	7.76%	4.15%	4.92%	4.421		
+STDEV	100.00%	85.86%	101.12%	97.32%	97.33%	91.43%	109.16%	105.46%		
-STDEV	100.00%	83.45%	92.42%	90.82%	81.82%	83.13%	99.31%	96.61%		

TABLE 29, -- Net asset turnover (Rev-TC/Investment)

			*********	*********		ADDE ADDE ADDE		********
	SFR	ING	FA	LL	FAI	LL	FALL F	ESCUE
Born :	FEB-HAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	-3.917	-4.81%	-4.29%	-4.39%	-5.32%	-5.09%	-3.83%	-4.23%
1976	-3,65%	-4.237	-3.317	-3.58%	-3.461	-3.89%	-3.00%	-3.58%
1977	-3.13%	-3.75%	-3.32%	-3.17%	-3.80%	-3.76%	-2.81%	-2.92%
1978	0.38%	-0.73%	-0.62%	-0.247	-1.72%	-1.01%	-0.15%	-0.05%
1979	1,50%	0.20%	1.50%	1.38%	1.491	0.837	2.09%	1.80%
1980	0.09%	-1.01%	-0.42%	-0.147	-1.337	-1.27%	-0.07%	-0.04%
1981	-1.45%	-2.28%	-1.29%	-1.417	-1.94%	-2.00%	-1.07%	-1.40%
1982	-1.827	-2.75%	-1.82%	-1.69%	-2.53%	-2.42%	-1.60%	-1.70%
1983	-2.097	-2.98%	-1.847	-2.69%	-2.28%	-2.64%	-1.64%	-2.77%
1984	-2.29%	-3.27%	-2,60%	-2.82%	-3.27%	-3.41%	-1.97%	-2.52%
AVERAGE	-1.64%	-2.56%	-1.80%	-1.88%	-2.42%	-2.47%	-1.41%	-1.74%
STDEV	1.80%	1.617	1.70%	1.79%	1.817	1.70%	1.72%	1.867
+STDEV	0.167	-0.95%	-0.11%	-0.08%	-0.61%	-0.76%	0.317	0.12%
-STDEV	-3.43%	-4.17%	-3.50%	-3.67%	-4.221	-4.17%	-3.12%	-3.60%
NET TURNO	VER							
vs FEB-M	AR	-0.92%	-0.16%	-0.24%	-0.78%	-0.83%	0.23%	-0.10%

TABLE 30 .--- Cow unit feed costs as a percent of total revenue (CFC/TR)

STREET, DOLLARS, DOLL	*****		*****		*****	en nie en het be ke pe wit ke	en er de be be be be de de let	
	SPR	ING	FA	LL	FA	LL	FALL FI	ESCUE
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	81.28%	97.99%	91.81%	93.65%	115.45%	109.74%	78.99%	85.467
1976	81.00%	90.98%	79.69%	83.29%	82.00%	88.75%	70.47%	78.302
1977	74.70%	83.12%	81.53%	78.78%	89.91%	88.75%	68.28%	69.97%
1978	43.81%	48.05%	52.47%	49.13%	61.721	54.63%	46.34%	45.57%
1979	37.92%	42.04%	39.88%	39.88%	39.93%	42.49%	35.66%	37.02%
1980	43.66%	48.68%	49.337	46.77%	56.58%	55.35%	44.71%	44.40%
1981	54.13%	60.41%	55.73%	56.22%	62.34I	62.34%	51.19%	54.19%
1982	55.87%	62.87%	59.07%	56.97%	66.28%	64.217	54.59%	55.72%
1983	56.79%	63.46%	57.57%	65.01%	61.55%	64.48%	53.44%	63.531
1984	57.91%	64.15%	63.75%	64.90%	70.41%	71.13%	54.06%	58.66%
AVERAGE	58.71%	66.17%	63.08%	63.46%	70.62%	70.19%	55.77%	59.28%
SIDEV	15.55%	18.827	16.27%	17.25%	20.81%	20.04%	13.16%	15.36%
+STDEV	74.261	85.00%	79.35%	80.71%	91.431	90.227	68.93%	74.64%
-STDEV	43,16%	47.35%	46.81%	46.21%	49.80%	50.15%	42.61%	43.922

TABLE 31.---CFC/TR and profitability measures sorted by Ret-VC

Costs         / Bartings         Particles         OPEL           Gotta         -7.8.         -7.0.14         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.4         -7.0.5         -7.0.4         -7.0.5         -7.0.4         -7.0.5         -7.0.4         -7.0.2         19.2.0         -7.0.4         -7.0.2         19.2.0         -7.0.5         19.0.7         -7.0.5         19.0.7         -7.0.2         19.2.7         19.7.0         -7.0.2         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0         19.7.0 <th></th> <th>CON REED</th> <th>TOTAL</th> <th>TOTAL</th> <th>BRFAFFUF</th> <th>N CALR</th> <th></th>		CON REED	TOTAL	TOTAL	BRFAFFUF	N CALR	
CALTTOR         TOTAL         → AR.         → TOTAL         × LADE         TOTAL           PEAGOR         REFAGOR         REFAGOR <td></td> <td>COSTS /</td> <td>RETTIRNS</td> <td>RETURNS</td> <td>PRICES</td> <td>OVER</td> <td></td>		COSTS /	RETTIRNS	RETURNS	PRICES	OVER	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CALVING	TOTAL	- VAR	- TOTAL	VARIABLE	TOTAL	
To-boli         Society         Society <t< td=""><td>SEASON</td><td>REVENUE</td><td>COSTS</td><td>COSTS</td><td>COSTS</td><td>COSTS</td><td>YEAR</td></t<>	SEASON	REVENUE	COSTS	COSTS	COSTS	COSTS	YEAR
$ \begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$							
p:h=/bit         37.022         512.046         44.65         442.43         771.46         1979           =b=/bit         35.86         314.47.51         614.64.34         442.47         871.64         1979           =b=/bit         35.86         314.47.51         614.65         814.47.51         871.64         1979           =b=/bit         35.865         613.8.79         68.60         359.49         770.52         1979           =b=/bit         42.447         811.197         (533.42)         631.21         884.71         1979           =b=/bit         42.447         811.197         (533.42)         631.21         884.71         1979           =b=/bit         42.447         811.197         (534.42)         551.31         884.71         1979           =b=/bit         42.447         811.137         (534.42)         551.31         884.71         1970           =b=/bit         44.417         871.31         (534.62)         464.43         887.73         1980           F1=-b_0/bit         45.257         865.71         (646.64)         501.34         887.73         1980           F1=-b_0/bit         45.35         554.66         577.63         517.66         513.21	F:S-0/J1	35.66%	\$164.74	\$17.36	\$38.51	\$67.68	1979
B-0/11         39.885         314.4.73         (22.66)         842.47         71.64         1979           B-0/11         39.885         314.4.73         (22.66)         842.47         71.64         1979           B-0/11         39.722         513.84.17         (82.66)         1979           B-0/13         34.73         (85.66)         1979         1979           P-1/15         42.45         811.1.97         (85.64)         153.74         1980.74           P-1/15         42.45         811.1.97         (85.64)         156.71         1979           P-4/11         43.662         81.1.96         (85.42)         56.71         1970           F1-4/11         43.662         81.1.97         (85.42)         56.71         1970           F1-4/11         43.662         81.1.96         (85.43)         46.43         82.71         1970           F1-4/11         43.662         81.1.96         (85.46)         36.73         85.71         1970           F1-6/11         43.72         87.63         46.46         367.75         1976         45.11         1970           F1-6/11         53.73         85.84         (177.11)         84.47         87.61 <t< td=""><td>F:N-D/S1</td><td>37.02%</td><td>\$152.04</td><td>\$4.65</td><td>\$42.43</td><td>\$73.30</td><td>1979</td></t<>	F:N-D/S1	37.02%	\$152.04	\$4.65	\$42.43	\$73.30	1979
$ \begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	S-0/J1	39.88%	\$144.73	(\$2.66)	\$42.47	\$71.64	1979
h=-β(11)         39.882         \$13.8.79         (68.60)         64.61         39.48         \$17.97           p=/MII         37.662         \$13.8.79         (68.60)         64.61         39.48         \$17.57         \$197.97           p=/MII         37.662         \$13.8.79         (68.60)         \$65.51.97         \$57.57         \$197.97           p=/MII         45.662         \$81.84         (58.642)         \$45.44         \$196.94         \$197.97           p=/MII         45.662         \$81.87         \$15.864         \$15.643         \$16.454         \$197.97           p=/MII         42.402         \$80.93         \$166.64.64         \$50.53         \$82.11         \$1990           p=-MII         42.472         \$26.69         \$168.51         \$46.456         \$46.14         \$1976           p=-MII         46.472         \$26.69         \$168.51         \$1976         \$1976         \$1976           p=-MII         46.452         \$53.53         \$58.69         \$10.717         \$150.60         \$10.717         \$1976           p=-MII         46.452         \$53.53         \$168.797         \$161.40         \$1978         \$184.53         \$1978           p=-MII         46.452         \$53.5	S-0/M1	39.93%	\$144.17	(\$3.22)	\$50.58	\$86.89	1979
$ \begin{array}{c} r = M/M & 37, 222 & 513, 72 & (64, 66) & 693, -94 & 770, 52 & 1977 \\ r = M/M & 34, 523 & 513, 72 & (64, 66) & 513, 12 & 863, 74 & 1976 \\ r = M/M & 34, 623 & 843, 75 & (64, 66) & 553, 55 & 863, 74 & 1976 \\ r = M/M & 34, 623 & 843, 55 & (652, 46) & 553, 55 & 954, 60 & 1976 \\ r = M/M & 44, 623 & 757, 864, 864, 864, 863 & 563, 56 & 954, 864 \\ r = M/M & 44, 623 & 757, 864, 864 & 864, 864, 853 & 863, 854, 81 & 1986 \\ r = M/M & 44, 623 & 757, 864, 864 & 764, 864, 853 & 863, 854, 81 & 1986 \\ r = M/M & 44, 623 & 757, 864, 864 & 764, 863 & 764, 854, 814 & 1976 \\ r = M/M & 44, 623 & 757, 864, 864 & 764, 753 & 753, 854, 854 & 1986 \\ r = M/M & 44, 623 & 757, 864, 864 & 764, 753 & 855, 854 & 1976 \\ r = M/M & 44, 623 & 553, 824 & 853, 71 & 1646, 853 & 464, 174 & 884, 274 & 1976 \\ r = M/M & 44, 623 & 553, 824 & (813, 623 & 464, 174 & 884, 274 & 1976 \\ r = M/M & 44, 623 & 553, 824 & (813, 714) & 464, 174 & 884, 274 & 1976 \\ r = M/M & 44, 623 & 553, 824 & (813, 714) & 464, 174 & 884, 274 & 1976 \\ r = M/M & 44, 523 & 553, 244 & (1212, 16) & 554, 474 & 884, 264 & 1976 \\ r = M/M & 44, 523 & 553, 364 & (1212, 16) & 554, 374 & 1978 \\ r = M/M & 44, 523 & 553, 364 & (1212, 16) & 554, 374 & 892, 40 & 1978 \\ r = M/M & 44, 523 & 553, 304 & (1212, 16) & 554, 564 & 580 & 00 & 1981 \\ r = M/M & 454, 523 & 553, 364 & (1212, 16) & 554, 564 & 580 & 00 & 1981 \\ r = M/M & 544, 524 & (514, 512, 16) & 554, 564 & 580, 40 & 1978 \\ r = M/M & 544, 524 & (514, 512, 16) & 554, 564 & 583, 574 & 1981 \\ r = M/M & 544, 524 & (514, 512) & (5154, 524) & 584, 544 & 1981 \\ r = M/M & 544, 544 & (1344, 513) & (1354, 534) & 534, 574 & 892, 874 & 1981 \\ r = M/M & 544, 544 & (1344, 513) & 553, 514 & 892, 564 & 1982 \\ r = M/M & 544, 544 & (1344, 513) & (1354, 534) & 584, 544 & 1982 \\ r = M/M & 544, 544 & (1344, 514) & (1344, 544) & (1345, 514) & 1882 \\ r = M/M & 544, 544 & (1344, 514) & (1344, 544) & (1344, 544) & 1882 \\ r = M/M & 544, 544 & (1344, 544) & (1344, 544) & (1344, 544) & 1884 \\ r = M/M & 544, 544 & (1444, 124) & 574, 6144, 544 & 1844 \\ r = M/M & 144$	N-D/S1	39.88%	\$138.79	(\$8.60)	\$45.21	\$76.08	1979
h-b/115         42.445         \$\$11.197         \$\$55.42         \$\$11.21         \$\$86.17         1979           h-b/115         42.445         \$\$11.197         \$\$55.42         \$\$11.21         \$\$86.17         1979           h-b/114         43.64         \$\$41.51         \$\$86.17         1980         \$\$75.55         \$\$97.40         1979           h-b/114         44.72         \$\$77.51         \$\$66.640         \$\$55.55         \$\$97.40         1979           F1=-0/11         44.712         \$\$77.51         \$\$66.640         \$\$55.55         \$\$97.640         1979           F1=-0/11         45.327         \$\$65.71         \$\$65.60         \$\$65.35         \$\$97.71         \$\$95.160         \$\$97.60         1978           F1=-0/11         45.332         \$\$56.46         \$\$77.71         \$\$47.60         \$\$97.70         1976           F1=-0/11         45.332         \$\$56.46         \$\$77.71         \$\$47.60         \$\$85.37         1980           A-M/11         45.652         \$\$33.22         \$\$97.77         \$\$47.70         \$\$97.60         \$\$97.70         1976           P-0.113         45.652         \$\$37.63         \$\$160.798         \$\$60.40         \$\$1980         \$\$164.397.90         \$\$164.40         198	F-M/N1	37.92%	\$138.73	(\$8.66)	\$39.94	\$70.52	1979
p-m/mil         43.662         88.1.96         (68.4.62)         68.7.19         880.1.4         1980           p-m/mil         43.662         88.1.96         (68.4.62)         65.7.19         880.7.14         1980           p-m/mil         43.612         88.1.20         85.7.10         880.7.10         1980           p-m/mil         43.612         81.7.10         87.6.1         1980         1980           p-m/mil         44.022         87.6.3         86.8.42         86.7.3         850.7.3         87.6.1         1980           p-m/mil         45.77         86.7.6         (69.8.7.3)         850.5.3         885.1         1980           p-m/mil         45.37         86.7.1         86.7.1         867.7         1978           p-m/mil         45.37         86.7.1         86.7.1         867.7         1978           p-m/mil         55.37         85.8.6         (77.7.1)         86.2.5         1978           p-m/mil         51.33         54.4.8         (77.8.1)         88.7.9         1981           p-m/mil         51.37         850.36         198.8.3.7         1980         1978           p-m/mil         51.37         850.36         198.4.4.7         8	N-D/J15	42.49%	\$111.97	(\$35.42)	\$51.21	\$86.27	1979
$ \begin{array}{rrrr} P-M/m & 4,3.12 & 81.,3 & (32.4.4) & 56.,6.7 & 56.,7.1 & 1978 \\ p-M/m & 4.4.24 & 697.5 & 1.5.4.6 & 55.0.5 & 59.4.5 & 1.9.8.8 \\ p-M/m & 4.4.24 & 697.5 & 1.5.4.6 & 55.0.5 & 59.4.5 & 1.9.8.8 \\ p-M/m & 4.4.27 & 87.5.8 & (58.4.3) & 84.6.4 & 875.6 & 1.980 \\ p-M-m & 4.4.712 & 97.5.8 & (58.4.3) & 84.6.4 & 875.6 & 1.980 \\ p-M-m & 4.4.712 & 97.5.8 & (58.4.3) & 84.6.1 & 1978 \\ p-M-m & 4.5.712 & 86.6.7 & (58.4.3) & 84.0.3 & 86.1.1 & 1990 \\ p-M-m & 4.5.712 & 84.6.7 & (57.711 & 84.2.6 & 97.7.0 & 1.976 \\ p-M/m & 4.5.712 & 84.6.3 & (131.6.2) & 80.7.8 & 67.7.0 & 1978 \\ p-M/m & 4.5.82 & 59.4.8 & (141.5.2) & 84.7.8 & 67.7.0 & 1978 \\ p-M/m & 4.5.83 & 59.4.8 & (141.5.2) & 84.7.8 & 67.7.0 & 1978 \\ p-M/m & 4.5.83 & 59.4.8 & (511.5.2) & 50.2.4 & 58.5.7 & 1980 \\ p-M/m & 4.5.83 & 52.3.5 & 51.84 & 51.84 & 51.84 & 51.94 & 51.97 & 51.94 \\ p-M/m & 4.5.83 & 52.3.5 & 51.84 & 51.94 & 51.94 & 51.94 & 51.94 \\ p-M/m & 4.5.83 & 52.3.5 & 51.84 & 51.94 & 51.94 & 51.94 & 51.94 \\ p-M/m & 54.53 & 52.43 & 51.94 & 51.94 & 51.94 & 51.94 & 51.94 \\ p-M/m & 54.53 & 52.44 & (137.14) & 53.54 & 64.74 & 685.09 & 1981 \\ p-M/m & 54.72 & (54.24 & (147.15.16) & 54.4.7 & 95.46 & 1981 \\ p-M/m & 54.72 & (54.24 & (147.15.64) & 53.54 & 687.54 & 1981 \\ p-M/m & 54.72 & (54.24 & (147.16) & 53.54 & 57.47 & 1981 \\ p-M/m & 54.72 & (54.24 & (147.16) & 53.54 & 57.47 & 1981 \\ p-M/m & 54.72 & (54.24 & (147.16) & 53.54 & 57.47 & 59.57 & 1981 \\ p-M/m & 54.72 & (54.24 & (147.16) & 53.54 & 57.47 & 59.57 & 1981 \\ p-M/m & 54.77 & (59.51) & (115.66) & 58.4.74 & 59.57 & 1981 \\ p-M/m & 54.77 & (59.51) & (115.66) & 184.74 & 97.56 & 197.57 \\ p-M/m & 54.77 & (154.76) & (154.86) & 184.52 & 37.56 & 881.16 & 1982 \\ p-M/m & 54.77 & (157.57) & (157.57) & (157.57) & (157.57) & 57.56 & 881.16 & 1982 \\ p-M/m & 54.77 & (157.57) & (157.57) & (157.57) & 157.56 & 881.16 & 1982 \\ p-M/m & 54.77 & (157.57) & (157.57) & 157.57 & 198.57 & 198.57 \\ p-M/m & 54.77 & (157.56) & (156.77) & 186.66 & 11 \\ p-M/m & 54.77 & 188.78 & 198.74 & 11 \\ p-M/m & 54.77 & 188.78 & 11 \\ p-M/m & 54.77 & 188.78 & 11 \\ p-M$	F-H/N1	43.66%	\$81.96	(\$86.48)	\$45.19	\$80.14	1980
A-#/(TI 42.042 880.78 (664.66) 850.58 992.60 1979 P1=07/11 44.072 896.69 (968.73) 850.53 892.60 1979 P1=07/11 46.772 896.69 (968.73) 850.53 895.61 1980 P1=07/11 46.772 896.69 (968.73) 850.53 895.61 1980 P1=07/11 46.725 896.7 (973.12) 877.53 865.70 1978 P=07/11 45.735 865.7 (673.12) 877.53 865.70 1978 P=07/11 45.755 865.7 (673.12) 877.53 865.70 1978 P=07/11 45.755 865.7 (673.12) 877.53 865.70 1978 P=07/11 45.755 865.7 (673.12) 857.76 865.70 1978 P=07/11 45.755 865.7 (673.12) 857.76 865.70 1978 P=07/11 52.775 865.7 (673.12) 857.76 865.70 1978 P=07/11 52.775 865.7 (673.12) 857.76 865.70 1978 P=07/11 52.755 853.23 (583.53 (583.07) 865.77 865.70 1978 P=07/11 46.955 853.23 (583.07) 865.77 865.70 1980.70 1978 P=07/11 45.755 853.23 (583.07) 865.77 865.70 1980.70 1978 P=07/11 45.755 853.23 (583.07) 865.77 865.70 1980.70 1978 P=07/11 45.755 (513.13) (517.157) 855.35 885.77 1983.77 P=07/11 33.442 (51.38) (517.157) 855.35 887.43 1981 P=07/11 35.772 (513.4) (517.157) 855.35 887.43 1981 P=07/11 35.772 (513.4) (517.87) 855.35 887.43 1981 P=07/11 35.772 (513.4) (517.87) 855.35 887.43 1981 P=07/11 35.772 (513.6) (518.2) 857.73 857.35 887.43 1981 P=07/11 35.772 (513.6) (518.2) 857.73 855.35 887.43 1982 P=07/11 35.772 (513.6) (518.2) 855.73 887.43 1982 P=07/11 35.772 (518.6) (518.2) 855.73 887.45 1982 P=07/11 35.772 (518.76) (518.2) 855.73 887.45 1982 P=07/11 55.772 (518.76) (518.2) 855.73 887.45 1982 P=07/11 55.772 (518.76) (188.2) 815.73 887.45 1982 P=07/11 55.772 (518.76) (188.2) 815.73 887.45 1982 P=07/11 55.772 (518.76) (188.2) 815.73 887.45 1982 P=07/11 55.772 (518.76) (188.2) 817.77 857.53 887.45 1982 P=07/11 55.772 (518.76) (188.2) 814	F-M/N1	43.81%	\$81.55	(\$52.64)	\$36.87	\$64.71	1978
<ul> <li>µ:h=/µ:11</li> <li>44.402</li> <li>47.6.3</li> <li>(48.4.2)</li> <li>48.4.5</li> <li>48.4.6</li> <li>49.5.7</li> <li>49.5.7</li> <li>48.5.7</li> <li>48.5.8</li> <li>49.6</li> <li>48.5.7</li> <li>48.5.1</li> <li>49.6</li> <li>49.5.5</li> <li>49.5.5</li> <li>49.5.5</li> <li>49.5.5</li> <li>49.5.5</li> <li>49.5.5</li> <li>49.5.5</li></ul>	A-M/N1	42.04%	\$80.93	(\$66.46)	\$50.58	\$92.40	1979
$ \begin{array}{rrrr} r=0-(r) & 4-,112 & 97.3.8 & (59.4,63) & 64.64 & 97.9.51 & 1980 \\ m=-0.141 & 45.7.2 & 69.5.6 & (59.7.1 & 56.3.5 & 85.1.8 & 1990 \\ m=-0.141 & 45.7.2 & 69.5.6 & (59.7.1 & 54.5.6 & 85.1.8 & 1990 \\ r=0-0.11 & 45.3.2 & 56.6, 67 & (73.2.2 & 57.3.3 & 56.3.6 & 1978 \\ m=-0.11 & 45.3.2 & 55.6, 46 & (77.1 & 54.5.6 & 77.7.0 & 1976 \\ m=-0.11 & 45.3.2 & 55.6, 46 & (77.1 & 54.5.6 & 77.7.0 & 1976 \\ m=-0.11 & 45.3.2 & 55.6, 46 & (77.1 & 54.5.6 & 77.7.0 & 1976 \\ m=-0.11 & 45.3.2 & 53.5.4 & (510.7.9 & 44.5.7 & 56.5.9 & 1980 \\ m=-0.11 & 45.3.2 & 53.5.4 & (510.7.9 & 44.5.7 & 56.5.9 & 1980 \\ m=-0.11 & 51.5.2 & 52.5.7 & (516.7.9 & 56.9 & 510.4.1 & 1980 \\ m=-0.11 & 51.5.2 & 52.5.7 & (516.7.9 & 56.9 & 510.4.1 & 1980 \\ m=-0.11 & 51.5.7 & 57.6 & (516.7.9 & 55.6.9 & 510.4.1 & 1980 \\ m=-0.11 & 51.5.7 & 57.7 & (515.7.6 & 55.4.7 & 55.6 & 584.7 & 1981 \\ m=-0.11 & 53.5.7 & (516.5.4 & 55.7.6 & 55.6.7 & 56.5.9 & 510.4.1 & 1980 \\ m=-0.11 & 53.5.7 & (515.7.6 & 55.6.7 & 55.6 & 584.7 & 1981 \\ m=-0.11 & 53.5.7 & (515.7.6 & 55.6.7 & 55.6.7 & 55.6 & 584.7 & 1981 \\ m=-0.11 & 53.7.7 & (515.7.6 & 55.6.7 & 55.6.7 & 58.7.8 & 1981 \\ m=-0.11 & 53.7.7 & (515.7.6 & (516.5.7) & 55.5.6 & 584.7 & 1981 \\ m=-0.11 & 53.7.7 & (515.7.6 & (516.5.7) & 55.5.6 & 584.7 & 1981 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.8.5 & 57.6 & 584.5 & 1984 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.2 & 53.3.1 & 591.5.1 & 1975 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.2 & 53.3.1 & 591.5.1 & 1975 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.2 & 53.5.1 & 1975 & 57.6 & 1984 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.2 & 53.5.6 & 584.5.7 & 1981 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.2 & 53.5.6 & 584.5.7 & 1982 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.6.7) & (515.6 & 581.5.7 & 1982 \\ m=-0.11 & 55.7.7 & (515.5.7) & (515.6.7) & 55.5.7 & 59.5.7 & 1982 \\ m=-0.11 & 50.7.7 & (515.7.6) & (515.7.7) & (55.6.7 & 58.5.7 & 1982 \\ m=-0.11 & 50.7.7 & (515.7.6) & (515.7.7) & (55.6.7 & 58.7.8 & 58.18 & 1983 \\ m=-0.11 & 50.7.7 & (515.7.6) & (515.7.7) & (55.6.7 & 58.7.8 & 1982 \\ m=-0.11 & 50.7.8 & 59.7.7 & (515.7.6) & (515.7.7) &$	F:N-D/S1	44.40%	\$79.63	(\$88.82)	\$48.45	\$83.73	1980
m-b/11         46.772         686.76         (687.75)         885.81         1980           Pm-b/14         51.772         686.71         686.14         1970           Pm-b/14         51.772         686.71         686.14         1970           Pm-b/14         51.372         686.71         686.14         1970           Pm-b/14         64.132         1976         686.14         1970           Pm-0/11         30.33         556.83         611.62         350.24         687.97           Pm-0/11         32.477         840.34         693.857         1860.75         1862.27         1978           A-M/M1         46.07         82.38         1978         82.37         1980         1978           Pm-011         53.53         58.83         1980.71         44.17         867.97         1981           Pm-011         53.53         889.613.94.71         85.61         1978         1978           Pm-011         53.53         889.613.97.61         895.66         1980.85         1980.87.99         1981           S-0/11         35.57.23         851.77.71         53.33.13         884.84         1981.77         1978         1982.77.2         1983.87.43         1981.4	F:S-0/J1	44.71%	\$73.81	(\$94.63)	\$46.48	\$79.81	1980
$\begin{array}{rrrr} P_1 = -p_1(1) & 45.727 & 48.7.1 & (645.48) & 80.0.03 & 68.1.4 & 1978 \\ p_1 = -p_1(1) & 45.327 & 48.61.5 & (75.75 & 57.53 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 55.75 & 5$	N-D/S1	46.77%	\$69.69	(\$98.75)	\$50.53	\$85.81	1980
p:t=-0/11         46.342         866.67         673.321         877.35         863.96         1978           =>-0/11         46.342         866.67         673.322         877.35         863.96         1978           =>-0/11         32.432         556.44         673.521         877.75         977.77         1978           =>-0/11         32.472         840.34         673.533         841.37         857.97         1978           =>-0/11         32.472         840.34         673.533         841.37         857.97         196.17           =>-0/11         32.453         23.33.2         659.957         364.17         884.53         1978           =>-0/11         35.433         23.353         151.303         844.47         884.53         1978           =>-0/11         35.353         23.353         151.303         844.47         884.53         1978           =>-0/11         35.435         133.25         25.53         85.64         1980         89.45         1981           =>-0/11         35.437         83.37         83.54         1981         89.45         1981           F1=-0/11         3.442         (13.33)(121.33)         83.54         1981.43         1982<	F:N-D/S1	45.57%	\$68.71	(\$65.48)	\$40.03	\$68.14	1978
h=/f(1)         49.132         35.4.46         (37,7,1)         442.4.60         370.7.0         1978           h=/f(1)         49.132         35.4.8.6         (11.42)         50.4.2.4         65.3.57         1980           h=/f(1)         44.3.23         53.4.8.6         (11.42)         50.4.8         53.57         1980           h=/f(1)         46.4.53         133.12         (19.5.97)         54.4.7         584.7.5         1981.7           h=/f(1)         46.4.53         133.12         (19.7.97)         55.9.9         50.4.7         1984.75         1978.7           h=0.11         34.53         23.1.2         (19.7.97)         55.9.9         50.9         1981.7         1980           h=0.11         34.53         23.1.2         (19.1.6.9)         54.9         1980.7         1980         59.9         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7         1981.7	F:S-0/J1	46.34%	\$60.67	(\$73.52)	\$37.35	\$63.90	1978
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	N-D/S1	49.13%	\$56.48	(\$77.71)	\$42.60	\$70.70	1978
b→0/11         32.472         \$40.36         (59.35)         \$61.37         \$67.92         \$978           b→0/11         32.672         \$53.32         \$68.971         \$64.1.37         \$67.92         \$978           b→0/11         34.632         \$53.32         \$68.970         \$64.1.37         \$67.92         \$978           b→0/11         34.632         \$53.32         \$68.970         \$64.1.37         \$67.92         \$978           b→0/12         34.632         \$27.361         \$101.640         \$46.47         \$98.40         \$978           b→0/13         35.532         \$89.4015.477         \$82.94         \$976.61         \$99.66         \$98.69         \$98.61           b→0/11         35.572         \$83.764         \$101.533         \$83.16         \$106.41         \$1960           b→0/11         35.572         \$61.393         \$107.153         \$88.46         \$88.74         \$1981           b→0/11         35.572         \$61.393         \$107.153         \$88.74         \$1981         \$17.94         \$15.46         \$89.79         \$1982         \$1.43         \$1982         \$1.43         \$1982         \$1.43         \$1982         \$1.43         \$1.86         \$1.43         \$1.98         \$1.91	s-0/J1	49.33%	\$54.83	(\$113.62)	\$50.24	\$83.57	1980
$ \begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	S-0/J1	52.47%	\$40.34	(\$93.85)	\$41.37	\$67.92	1978
μ-M/M1         46.662         827.65         (164.079)         556.98         510.78         1980           PP-J113         35.332         83.98         (113.64)         84.74         880.40         1978           PP-J113         35.332         83.98         (113.94.77)         856.40         1978           PP-J113         35.332         83.98         (113.94.77)         856.40         1978           PP-J113         35.332         83.98         (113.94.77)         851.61         893.68         1980           P-0/11         35.132         83.14         (117.13)         83.13         884.40         1980           P-10/11         35.142         851.76         852.64         884.37         1981           F18-0/11         35.442         (113.9)(131.33)         83.13         884.34         1981           F18-0/11         35.427         (61.45.01)(168.21)         853.47         852.47         1981           F18-0/11         35.677         (19.5.01)(118.68)         353.14         891.43         1982           F16/11         55.677         (13.5.01)(118.68)         853.14         1982         1981           F17-0/11         35.677         (13.5.671)(118.68)         89	A-M/N1	48.05%	\$38.32	(\$95.87)	\$46.17	\$84.25	1978
B-D/115         34.651         \$23.83         (\$110.36)         \$48.47         \$80.40         \$978           B-D/115         34.651         \$23.73         \$15.701         \$84.76         \$95.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.61         \$99.62         \$98.71         \$98.71         \$98.71         \$98.72         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71         \$98.71	A-M/N1	48.68%	\$27.65	(\$140.79)	\$56.98	\$104.78	1980
$\begin{array}{llllllllllllllllllllllllllllllllllll$	N-D/J15	54.63%	\$23.83	(\$110.36)	\$48.47	\$80.40	1978
h=0.115         35.325         88.98 (2139.47)         899.61         999.68         1980           h=0.411         35.527         85.757         816.471         85.01         810.411         1980           h=0.411         35.573         85.74         (161.477)         85.13         816.441         1980           h=0.411         35.573         85.74         (161.71.33)         85.13         884.44         1980           h=1.411         35.573         85.74         (161.71.33)         85.74         1981           h=1.411         35.573         85.74         (161.71.33)         85.74         1981           h=1.411         35.573         85.73         85.73         85.74         1981           h=1.411         55.572         (161.62)         85.73         85.73         85.73         1982           h=0.411         55.572         (161.62)         (161.62)         85.73         1982         86.51         1976           h=0.411         55.677         (161.62)         (161.62)         35.53         88.2.51         1978           h=0.411         55.777         (161.62,101.82)         35.53         389.20         1983           h=0.411         55.777	F:S-0/J1	51.19%	\$22.37	(\$156.20)	\$49.76	\$85.09	1981
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	N-D/J15	55.35%	\$8.98	(\$159.47)	\$59.61	\$99.68	1980
P:H=/P(i)         34.197         85.4.4         (17).160         83.9.9         91.33         991.3           P=/P(i)         35.125         83.2.4         (17).313         83.1.4         88.4.4         191.3           P=/P(i)         35.125         83.2.4         (13).313         83.1.4         88.4.4         191.3           P:I=/P(i)         33.4.42         (13).39(12).33         83.1.4         88.4.4         191.3           P=/P(i)         34.42         (13).39(12).33         83.1.5         88.4.5         191.3           P=/P(i)         34.227         (14.40)(184.5.1)         85.7.4         85.2.6         88.2.7         193.1           P=/P(i)         36.7.27         (14).51(184.20)         83.1.4         197.2         194.1           P=/M(i)         5.6.77         (14).51(184.20)         83.1.4         197.2         194.1           P=/61         5.6.77         (14).51(184.20)         83.1.4         197.2         194.6           P=/61         5.6.77         (14).51(184.20)         83.1.4         197.2         194.6           P=/61         5.6.77         (14).51(184.20)         83.1.2         197.6         194.2           P=/61         5.6.77         (15).707	S-0/M1	56.58%	\$5.78	(\$162.67)	\$62.91	\$104.41	1980
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	F:N-D/S1	54.19%	\$5.41	(\$173.16)	\$53.93	\$91.33	1981
T=M/H1         34.132         93.30 (8175,27)         850.38         887.43         1981           T1=-0/L1         34.525         63.4.30 (8175,74)         852.66         889.23         1982           T1=-0/L1         34.525         63.4.30 (8185,74)         851.66         889.33         1982           T1=-0/L1         34.525         63.4.30 (8185,74)         851.66         889.33         1982           T1=-0/L1         34.525         63.4.30 (8185,74)         851.66         889.32         1982           T=M/H1         5.577 (850.62) (810.83)         857.32         851.64         884.51         1978           T=M/H1         5.677 (89.5.3) (810.68)         857.22         851.68         891.43         1982           T=M/H1         5.677 (89.5.3) (810.68)         854.22         891.63         1982         57.58         1984           S=0/H1         57.777 (817.77) (1168.20)         55.33         897.26         1983         7-4/H1         1976           T=M/H1         57.77 (817.77) (1168.20)         57.53         884.18         1983         7-8/H1         88.18         1983           T=M/H1         57.75 (819.46) (1167.79)         57.68         88.18         1983         7-4/H1         80.76	S-0/J1	55.73%	\$5.24	(\$173.33)	\$53.15	\$88.48	1981
ri-θ-(/)1     33.442     (81.38)(117.33)     632.60     684.27     1983       ri-θ-(/)1     33.52     (81.38)(137.13)     632.60     684.27     1983       ri-θ-(/)1     35.72     (84.36)(181.33)     637.32     693.37     1982       ri-θ-(/)1     35.722     (56.60)(118.38)     677.32     693.27     1982       θ-0/11     35.722     (56.60)(118.38)     677.32     693.27     1982       θ-0/11     35.772     (59.51)(119.22)     353.73     684.51     1976       θ-0/11     55.772     (69.51)(118.22)     353.33     893.20     1983       θ-0/11     57.772     (516.12)(118.22)     553.33     893.26     1983       θ-0/11     57.772     (516.12)(118.32)     553.33     893.26     1983       θ-0/11     57.772     (516.72)(118.37)     532.68     884.18     1983       -w/MIX     5.797     (517.64)(128.79)     532.68     884.18     1983       -w/MIX     = 300.71     Famed Jul     1     484.14       -0/11     = 300.71     Famed Jul     1     484.14       -0/11     = 300.71     Famed Jul     1     484.14       -0/11     = 300.700.700.71     famed Jul     1       -0/11 </td <td>F-M/N1</td> <td>54.13%</td> <td>\$3.30</td> <td>(\$175.27)</td> <td>\$50.38</td> <td>\$87.43</td> <td>1981</td>	F-M/N1	54.13%	\$3.30	(\$175.27)	\$50.38	\$87.43	1981
T:=-0/11         34.957         (31.4.3)(185.74)         (35.2.66         389.33         1982           T:=-0/13         34.957         (31.4.3)(185.74)         352.467         391.47         1992           T:=-0/13         35.127         (31.6.4)(181.38)         357.12         891.47         1997           T:=-0/13         35.127         (49.6.1)(181.38)         857.12         891.45         1992           T:=0/13         36.77         (49.6.7)(181.38)         857.12         891.45         1992           T:=0/13         36.077         (49.6.7)(181.82)         853.16         894.25         1982           T:=0/13         56.777         (510.6.7)(184.22)         853.53         893.20         1983           T:=0/13         56.077         (510.7.6)(180.08)         854.22         895.25         1983           T:=0/13         56.077         (510.7.6)(180.08)         854.22         895.20         1983           T:=0/13         56.077         (510.7.6)(180.08)         854.22         895.20         1983           T:=0/13         70.715         (510.7.6)(180.10)         850.90         897.20         1983           T:=0/13         70.715         (510.7.6)(180.7.40)         897.20         1983 <td>F:S-0/J1</td> <td>53.44%</td> <td>(\$1.38)</td> <td>(\$171.53)</td> <td>\$52.60</td> <td>\$86.27</td> <td>1983</td>	F:S-0/J1	53.44%	(\$1.38)	(\$171.53)	\$52.60	\$86.27	1983
m=/f(i)         36.227         (31.4)49((180.5.1)         355.47         992.87         1981.           m=/f(i)         36.227         (61.4)49((180.5.1)         357.24         992.87         1981.           m=/f(i)         36.57.27         (64.8)(180.83         357.24         991.43         1982.           m=/f(i)         35.67.77         (64.9.5)(180.82)         353.16         991.43         1982.           m=/f(i)         36.47.77         (180.6.01)(180.403)         354.32         897.43         1982.           m=/f(i)         36.47.77         (180.6.01)(180.403)         354.32         897.43         1982.           m=/f(i)         36.47.77         (180.7.6)(180.403)         180.42         877.63         1984.           m=/f(i)         35.477         (193.7.6)(180.403)         180.42         1987.64         1982.           m=/f(i)         35.777         (193.7.6)(180.77)         352.68         881.16         1983.           m=/f(i)         15.777         (193.7.6)(180.77)         352.68         881.16         1983.           m=/f(i)         = born xT=-Mat / branced Jul         1         4.474.41         1         1           = 0.711         = born xT=-Cat / branced Jul         1         1 <td>F:S-0/J1</td> <td>54.59%</td> <td>(\$1.43)</td> <td>(\$185.74)</td> <td>\$52.86</td> <td>\$89.33</td> <td>1982</td>	F:S-0/J1	54.59%	(\$1.43)	(\$185.74)	\$52.86	\$89.33	1982
P:H=0/161         55.721         (66, 68) (199.0.36)         67, 37, 32         95,92         1982           S=0/H1         61.721         (66, 70) (146, 90)         51.43         51.73         58.4.31         1976           S=0/H1         61.771         (51.6.27) (148, 420)         51.43         58.4.31         1976           S=0/H1         61.771         (51.6.27) (148, 420)         551.47         58.4.71         1982           S=0/H1         50.777         (51.6.27) (148, 521         555.53         589.20         1983           S=0/11         50.777         (51.6.17) (158.527         555.53         589.20         1983           S=0/11         50.777         (51.6.17) (158.527         552.53         589.26         1983           S=0/11         50.777<(510.64) (161.979)	N-D/81	56.22%	(\$1.94)	(\$180.51)	\$55.47	\$92.87	1981
B=O/M1 61,727 (56,70)(140,89) 851,45 884,51 1976 F=/M1 55,077 (510,52)(151,82 53,18 51,45 1952, F=/D1 55,077 (510,52)(151,82 53,18 51,47 1952, F=/D1 55,077 (510,52)(151,82) 553,53 882,20 1952, F=/D1 57,777 (510,517)(151,20) 553,53 882,20 1952, F=/D1 57,777 (510,517)(151,20) 553,53 882,20 1952, F=/M1 55,777 (510,517)(151,20) 557,50 882,10 1953, F=/M1 57,971 (510,577)(151,20) 557,50 882,10 1953, F=/M1 57,971 (510,577)(151,20) 557,50 882,10 1953, F=/M1 57,971 (510,577)(151,20) 557,50 882,10 1953, F=/M1 57,971 (510,577) (510,570) 552,68 881,10 1953, F=/M1 57,971 (510,577) (510,570) 552,68 881,10 1953, F=/M1 57,971 (510,577) (510,570) 552,68 881,10 1953, F=/M1 57,971 (510,577) (510,570) 552,68 51,10 1953, F=/M1 57,971 (510,570) 552,68 51,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,10 10,1	F:N-D/S1	55.72%	(\$6.08)	(\$190.38)	\$57.32	\$95.92	1982
T=M/RI         55.072         (59.51)((159.42)         553.16         591.43         1982           H=M-RI         55.072         (59.51)((159.42)         553.27         696.63         1982           H=M-RI         55.072         (59.51)((159.42)         553.31         69.63         1982           H=O/LI         57.072         (516.12)(118.32)         555.33         898.20         1983           H=O/LI         57.072         (516.17)(118.32)         557.33         898.20         1983           P=M/RI         57.072         (516.17)(118.32)         557.33         898.20         1983           P=M/RI         57.072         (517.67)(158.40)         (158.79)         552.88         888.18         1983           P=M/RI         57.012         (53.40)         (518.47)         852.68         982.16         1982           Mote:         F=M/RI         = Sorn RF-MAT / Vescale Kovi<1	S-0/M1	61.72%	(\$6.70)	(\$140.89)	\$51.45	\$84.51	1978
H=D/61         56.97 (\$10.62)(\$19.4,\$22) \$58.27         \$96.87         \$99.27           S=0/11         57.377 (\$16.1)(\$18.32) \$55.33         \$89.26         \$193.25           S=0/11         57.377 (\$16.1)(\$18.32) \$55.33         \$89.26         \$193.25           F=M/81         57.77 (\$16.1)(\$18.32) \$55.33         \$89.26         \$193.25           F=M/81         57.77 (\$16.1)(\$18.32) \$55.33         \$89.26         \$193.25           F=M/81         57.61 \$19.64 \$10.77\$         \$52.86 \$83.16\$         \$193.25           F=M/81         57.61 \$19.64 \$10.77\$         \$52.86 \$83.16\$         \$193.25\$           F=M/81         50.77 \$12.58         \$10.77\$         \$10.86 \$1.16\$         \$10.75\$           Note:         F=M/81         50.77 \$12.58         \$10.76\$         \$19.66\$           S=0.741         50.77 \$12.58         \$10.77\$         \$10.76\$         \$10.76\$           S=0.7041         50.77 \$12.58         \$10.77\$         \$10.76\$         \$10.76\$           S=0.7041         50.77 \$12.58         \$10.77\$         \$10.76\$         \$10.76\$           S=0.7041         50.77 \$10.76\$         \$10.77\$         \$10.76\$         \$10.76\$           S=0.7041         50.77 \$10.76\$         \$10.76\$         \$10.76\$         \$10.76\$ <t< td=""><td>F-H/N1</td><td>55.87%</td><td>(\$9.51)</td><td>(\$193.82)</td><td>\$53.18</td><td>\$91.43</td><td>1982</td></t<>	F-H/N1	55.87%	(\$9.51)	(\$193.82)	\$53.18	\$91.43	1982
ri=-0.71         54.057         (81.05)(1610.068)         854.52         87.58         1984           r=-0.71         55.775         (810.77)(161.77)(161.62.71)         855.33         897.26         1985           r=-M/M1         55.775         (810.77)(161.77)         852.78         888.18         1983           r=-M/M1         55.797         (819.44)(161.97.79)         852.88         888.18         1983           Note:         r=M/M1         = Nort 727-484.7         / Manada Mov 1         4.444.94         1984           δ-0/11         = Nort 727-474.7         / Manada Mov 1         8.07.01         1.07.07         1.07.07           δ-0/11         = Nort 827-6077         / Manada Mov 1         8.07.01         1.07.07         1.07.07           δ-0/11         = Nort 827-6077         / Manada Mov 1         1.07.07.07.07         1.07.07.07         1.07.07.07.07.07           F=0/0.11         = Nort 827-6077         / Manada Mov 1         1.07.07.07.07.07.07.07.07.07.07.07.07.07.	N-D/S1	56.97%	(\$10.62)	(\$194.92)	\$58.27	\$96.87	1982
8 −0/11 57,77 (816,17)(8186,32) 855,53 889,20 1983 5−0/11 59,071 (817,76)(826,32) 855,53 889,20 1983 5−0/11 59,071 (817,76)(826,79) 852,08 883,18 1983 5−24/11 57,18 (84,46)(8187,79) 852,88 883,18 1983 844,19 199,18 (84,46)(8187,79) 852,88 883,18 1983 844,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,19 199,199,	F:S-0/J1	54.06%	(\$13.05)	(\$180.08)	\$54.52	\$87.58	1984
8-0/J1 59.07 (\$17.76)(\$20.07) \$56.09 \$92.56 1982 P-M/II 56.775 (\$19.46)(\$180.79) \$52.86 \$88.18 1983 F-M/II 57.912 (\$19.44)(\$181,42) \$57.60 \$92.26 1984 Note: F-M/BI = horn XF-MAX / kenned for 1 8-0/JI = horn AFF-MAX / kenned JI 1 5-0/JI = horn AFF-MAX /	S-0/J1	57.57%	(\$16.17)	(\$186.32)	\$55.53	\$89.20	1983
T-M/H1         5.797 (81)-6.40 (818-79)         852.88         888.18         1983           T-M/H1         5.711 (524.40) (818-79)         852.88         1984           Note:         T-M/H1         = 30rn 7H-M41 / stands for 1           -M-M1         = 30rn 7H-M41 / stands for 1           -M-M2         = 30rn 7H-M41 / stands for 1           -M-M2         = 30rn 7H-M41 / stands for 1           -M-M2         = 30rn 8H-M20 / s	S-0/J1	59.07%	(\$17.76)	(\$202.07)	\$56.09	\$92.56	1982
T=M/MI         57.011 (\$24.40) (\$191,42)         57.00         \$92.26         1984           Note:         F=M/S1         = Born PZ=MaR         Vasand Nov 1         1           A=0/H         = Born PZ=MaR         Vasand Nov 1         1         1           A=0/H         = Born PZ=MaR         Vasand Nov 1         1         1           B=0/H         = Born PZ=MaR         Named Nov 1         1         1         1           B=0/H         = Born PZ=MaR         = Born PZ=MaR         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         <	F-M/N1	56.79%	(\$19.64)	(\$189.79)	\$52.88	\$88.18	1983
Note: F-M/N1 = Born FEB-MAR / Weaned Nov 1 	F-M/N1	57.91%	(\$24.40)	(\$191.42)	\$57.60	\$92.26	1984
note:							
$a \rightarrow a_1 a_1 = boun arr \neg AAI / Meaned Roy I S \rightarrow 0/BI = Born SEP \rightarrow OCT / Meaned Jul I S \rightarrow 0/BI = Born NOP \rightarrow DC / Meaned Sep I R \rightarrow D/BI = Born NOP \rightarrow DC / Meaned Jul I (FESCUE) F: S \rightarrow 0/BI = Born SEP \rightarrow OCT / Meaned Jul I (FESCUE)$	note:	z-n/81	- porn h	DD MAY /	weaned Nov	1	
0-0/02 - DOTD SEP-OCT / Weamed Mul 1 S-0/M = BOTD SEP-OCT / Weamed May 1 N-D/S1 = BOTD NOV-DEC / Weamed Sep 1 N-D/J15 = BOTD NOV-DEC / Weamed Jul 15 F:S-0/J1 = BOTD SEP-OCT / Weamed Jul 1 (FESCUE)		8-0/11	- Born A	TR-nAI /	weaned Nov	1	
N=D/S1 = Born NOV-DEC / Weaned Sep 1 N=D/S1 = Born NOV-DEC / Weaned Jul 15 FiS=O/J1 = Born SEP=OCT / Weaned Jul 1 (FESCUE)		8-0/M1	- Born a	EF-OUT /	weaned Jul	1	
R-D/JI = Born NOV-DC / Weaned Jul 15 F:S-O/JI = Born SEP-OCT / Weaned Jul 1 (FESCUE)		N-D/01	- Born S	DEP-DEC /	weaned May	1	
F:S-0/J1 = Born SEP-OCT / Weaned Jul 1 (FESCUE)		N-D/115	- Born N	CR-DEC /	weaned Sep	15	
The big and ber out / weated Jul 1 (FESCUE)		K-S=0/11	- Borr C	FP-OCT /	Weened Jul	1 (FROCTER)	
FINED/SI E SOFE NUVERKE / Weened See 1 (VVC/UV)		F:N-D/S1	= Born N	OV-DEC /	Weened Sen	1 (FESCUE)	

TABLE 31.--Continued.CFC/TR and profitability measures sorted by Ret-VC  $\ensuremath{\mathsf{Ret}}$ 

	OOU NEED	month and	TOTAL	DDTATTUT	CATE	
	COM FEED	TUTAL	DETUDIO	DRIAKETE	OFFR	
	00515 /	REIURNS	REICKNO	TABYABIT	TOTAL	
CALVING	TUTAL	- VAR.	- 101AL	VARIABLE	COSTS	VEAD
SEASON	REVENUE	CUSIS	00515	00313	00313	1686
S-0/H1	62.347	(\$31.84)	(\$210.41)	\$66.57	\$110.57	1981
N-D/J15	62.341	(\$34.94)	(\$213.51)	\$62.65	\$105.13	1981
F-N-D/SI	58.667	(\$36.79)	(\$203.81)	\$59,65	\$94.63	1984
S-0/H1	61.55%	(\$37.78)	(\$207.93)	\$68.77	\$110.69	1983
A-M/N1	60.41%	(\$39.56)	(\$218.13)	\$63.31	\$113.99	1981
F:S-0/J1	68.28%	(\$41.60)	(\$171.12)	\$41.15	\$66.78	1977
F:S-0/J1	70.47%	(\$43.88)	(\$170.98)	\$40.80	\$65.95	1976
F:N-D/S1	69.97%	(\$45.60)	(\$175.12)	\$44.42	\$71.54	1977
s-0/J1	63.75%	(\$47.50)	(\$214.52)	\$61.34	\$94.39	1984
N-D/J15	64.217	(\$48.41)	(\$232.72)	\$65.54	\$109.39	1982
F-M/N1	74.70%	(\$53.03)	(\$182.55)	\$43.85	\$70.73	1977
F:N-D/S1	63.53%	(\$53.05)	(\$223.20)	\$57.61	\$93.25	1983
A-M/N1	62.87%	(\$53.34)	(\$237.65)	\$66.98	\$119.29	1982
S-0/M1	66.28%	(\$54.41)	(\$238.72)	\$69.07	\$114.47	1982
N-D/J15	64.48%	(\$55.23)	(\$225.38)	\$65.42	\$105.90	1983
N-D/S1	65.01%	(\$57.57)	(\$227.72)	\$58.55	\$94.19	1983
N-D/S1	64.90%	(\$57.65)	(\$224.67)	\$64.02	\$99.00	1984
A-M/N1	63.46%	(\$59.09)	(\$229.24)	\$67.11	\$115.40	1983
F:N-D/S1	78.30%	(\$64.19)	(\$191.30)	\$45.19	\$71.81	1976
S-0/J1	79.69%	(\$64.23)	(\$191.34)	\$44.83	\$69.98	1976
N-D/S1	78.78%	(\$65.18)	(\$194.70)	\$48.52	\$75.65	1977
F-M/N1	81.28%	(\$65.24)	(\$192.04)	\$42.11	\$68.42	1975
F:S-0/J1	78.99%	(\$65.71)	(\$192.51)	\$40.57	\$65.66	1975
A-M/N1	64.15%	(\$65.73)	(\$232.76)	\$72.03	\$119.44	1984
F-M/N1	81.00%	(\$65.74)	(\$192.85)	\$43.15	\$69.52	1976
S-0/M1	82.00%	(\$70.10)	(\$197.21)	\$54.31	\$85.63	1976
S-0/J1	81.53%	(\$71.15)	(\$200.67)	\$46.99	\$72.62	1977
N-D/S1	83.29%	(\$74.26)	(\$201.37)	\$47.30	\$73.92	1976
A-H/N1	83.12%	(\$75.56)	(\$205.09)	\$54.92	\$91.68	1977
F:N-D/S1	85.46%	(\$78.84)	(\$205.64)	\$43.83	\$70.39	1975
S-0/M1	70.41%	(\$78.85)	(\$245.88)	\$75.21	\$116.36	1984
N-D/J15	71.13%	(\$84.91)	(\$251.93)	\$72.28	\$112.02	1984
A-H/N1	90.98%	(\$85.78)	(\$212.89)	\$54.49	\$90.56	1976
N-D/J15	88.75%	(\$86.01)	(\$213.12)	\$52.54	\$82.78	1976
N-D/J15	88.75%	(\$88.75)	(\$218.27)	\$55.17	\$82.99	19//
s-0/J1	91.81%	(\$89.78)	(\$216.57)	\$45.33	\$70.42	1975
S-0/M1	89.91%	(\$90.81)	(\$220.33)	\$57.95	\$89.86	1977
N-D/S1	93.65%	(\$93.32)	\$220.11)	\$40.86	\$13.42	19/0
A-M/N1	97.99%	(\$94.20)	(\$221.00)	\$53.07	\$89.05	1975
N-D/J15	109.74%	\$11/.81)	(\$Z44.60)	\$53.42	\$83.59	19/5
s-0/M1	115.45%(	\$120.10)	\$452.89)	930.46	90/./0	19/2

TABLE 32.--Average calf price per pound produced (AP/PP Cwt)\*

	SPR	SPRING		LL	FA	FALL	
Born :	FEB-MAR	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	
Weaned:	NOV 1	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	
1975	\$28.57	\$26.36	\$27.58	\$27.34	\$25.38	\$25.41	
1976	\$29.50	\$30.17	\$32.14	\$31.78	\$37.03	\$32.10	
1977	\$32.85	\$33.51	\$32.94	\$34.90	\$35.57	\$34.08	
1978	\$53.78	\$57.10	\$49.39	\$54,48	\$49.79	\$54.18	
1979	\$68.72	\$73.62	\$71.16	\$74.35	\$86.07	\$77.90	
1980	\$62.19	\$64.89	\$61.13	\$65.19	\$64.32	\$61.79	
1981	\$51.06	\$52.13	\$54.22	\$55.11	\$58.72	\$54.37	
1982	\$51.20	\$51.89	\$52,61	\$56.10	\$55.65	\$54.06	
1983	\$48.79	\$50.39	\$52.37	\$46.54	\$59.45	\$52.32	
1984	\$52.53	\$53.43	\$51.98	\$51.99	\$55.77	\$52.11	

Average prices as a % of Feb-Har

	SPRING	FA	LL	FALL	
Born :	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15
1975	92.25%	96.54%	95.69%	88.84%	88.93%
1976	102.26%	108.92%	107.70%	125.52%	108.807
1977	102.02%	100.27%	106.24%	108.30%	103.76%
1978	106.17%	91.83%	101.30%	92.58%	100.75%
1979	107.13%	103.55%	108.19%	125.26%	113.37%
1980	104.34%	98.29%	104.817	103.417	99.35%
1981	102.107	106.19%	107.93%	115.00%	106.49%
1982	101.35%	102.75%	109.57%	108.68%	105.58%
1983	103.27%	107.32%	95.39%	121.83%	107.22%
1984	101.71%	98.94%	98.97%	106.15%	99,20%
APPRACE	100.005	101 // 8			
AVERAGE	102.26%	101.46%	103.58%	109.56%	103.34%
STDEV	4.03%	5.30%	5.35%	12.70%	6.73%
+STDEV	106.28%	106.77%	108.93%	122.25%	110.08%
-STDEV	98.23%	96.16%	98.23%	96.86%	96.61%
of the local day has been deep on an and set of the local day has been				and the local data and the local data and	

\* AP/PP = TR - Cull cow revenue / 1bs of calf produced

TABLE 33.--Average calf prices needed to equal FEB-MAR calving period profitability (PN)\*

	seacacceccecc	econcere e	CODDDDDDDDD	TENERGEBEI	STORDER AND	INCORCECC	CHCCCHNN
	SPRING	FA	LL	F	LL	FALL F	ESCUE
Born :	APR-MAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	\$34.59	\$32.44	\$33.23	\$40.37	\$37.93	\$27.68	\$30.19
1976	\$35.86	\$31.84	\$33.56	\$38,11	\$36.93	\$27.81	\$31,45
1977	\$39,91	\$36.53	\$37.45	\$44.88	\$42.59	\$30.68	\$33.34
1978	\$69.38	\$57.55	\$59.73	\$71.52	\$67.93	\$53.52	\$57.17
1979	\$90.04	\$69.97	\$74.33	\$84.73	\$84.27	\$66.01	\$71.56
1980	\$80.32	\$66.50	\$67.76	\$83.08	\$79.16	\$62.74	\$65.68
1981	\$64.31	\$53.84	\$56.21	\$67.37	\$63.48	\$50.45	\$54.67
1982	\$64.34	\$54.24	\$56.34	\$66.71	\$63.32	\$51.01	\$55.38
1983	\$61.60	\$51.68	\$54.49	\$63,91	\$60.79	\$48.75	\$53.55
1984	\$65.17	\$56.55	\$58.96	\$69.18	\$66.52	\$49.73	\$54.59

PRICES NEEDED TO EQUAL FEB-MAR AS A Z OF FEB-MAR PRICES

	SPRING	FA	LL	FA	LL	FALL F	ESCUE
Born :	APR-HAY	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC	SEP-OCT	NOV-DEC
Weaned:	NOV 1	JUL 1	SEP 1	MAY 1	JUL 15	JUL 1	SEP 1
1975	121.047	113.55%	116.29%	141.30%	132.74%	96.87%	105.67%
1976	121.55%	107.91%	113.75%	129.167	125.16%	94.25%	106.602
1977	121.50%	111.207	114.00%	136.62%	129.65%	93.38%	101.50%
1978	129.01%	107.00%	111.07%	132.99%	126.30%	99.52%	106.307
1979	131.03%	101.837	108,18%	123.317	122.64%	96.06%	104.132
1980	129.14%	106.937	108.95%	133.58%	127.28%	100.88%	105.60%
1981	125.94%	105.44%	110.09%	131.95%	124.32%	98,80%	107.07%
1982	125.66%	105.94%	110.02%	130.28%	123.67%	99.62%	108.167
1983	126.24%	105.91%	111.68%	130.99%	124.58%	99.91%	109.74%
1984	124.06%	107.65%	112.24%	131.68%	126.62%	94.66%	103.922
AVERAGE	125.522	107.33%	111.637	132,197	126.30%	97.40%	105.877
STDEV	3,507	3.207	2.517	4.707	3.027	2.707	2.321
+STDEV	129,027	110,537	114,147	136.892	129.32%	100.097	108.197
-STDEV	122.02%	104.13%	109.12%	127.49%	123.27%	94.70%	103.55%

\* PN = Ret-VC for FEB-MAR - Ret-VC for the other calving season / the lbs of calf produced in the other calving period + the AP/PP of the other calving season

#### APPENDIX 7 RETAINED OWNERSHIP BUDGETS

In the analysis of retained ownership strategies, the hudgeting technique was again the primary analytical tool. A budget for retained ownership programs was constructed utilizing the Lotus 123 electronic spreadsheet software program on a Zenith Z-130 microcomputer. The budget format was similar to that of the beef cowherd contreturn hudget and an example is illustrated in Table 34.

A more detailed explanation of the factors used to calculate the retained ownership hudget is now appropriate. Rations and steer performance were based on conversations with Kansas State University Extension Animal Scientists, Dr. Larry Corah and Dr. Gerry Kuhl. Ration prices were based on Kansas monthly average feed prices over the time periods in which each retained ownership program took place. Labor hours for each program were derived from KSU Farm Management Guides. Wages represented hourly pay received by livestock workers as quoted for the month of January by the Kansas Crop-Livestock Reporting Service. All other variable costs and fixed costs were hased on the average of costs incurred hy farms with heef hackgrounding operations enrolled in Kansas Farm Management Associations for each year of the analysis. Steer prices were monthly average prices around the sale date for choice medium framed feeder steers from Kansas City. Tables 35-37 summarize the feed prices, calf prices and variable and fixed costs used in the retained ownership hudgets. Tables 38-42 combine the returns minus variable costs for the retained ownership phase with those of the cow-calf phase and

show the total returns for each calving season management strategy.

## TABLE 34.--Steer grower budget

1984

PROGRAM: compares steer grower budgets for various starting weights & rates of gain

CALF DATA					
Calving Season	:	FEB-HAR	FEB-MAR	APR-MAY	APR-MAY
Date Weaned	:	NOV 1	NOV 1	NOV 1	NOV 1
Age in Months		8	8	6	6
Date On Feed		NOV 1	NOV 1	NOV 1	NOV 1
Date Off Feed		APR 25	APR 25	APR 25	APR 25
PRODUCTION DATA					
Starting Weight	:	550	550	403	403
Expected ADG	:	1.25	2.25	1.25	2.25
Days On Hand	÷	175	175	175	175
Lbs. Produced	:	219	394	219	394
Ending Weight	:	769	944	622	797
Purchase Price	:	\$66.31	\$66.31	\$68.18	\$68.18
Sale Price	:	\$63.96	\$61.45	\$67.13	\$63.96
Death Loss %		1.57	1.5%	2.57	2.5%
COST DATA					
1.Labor		\$7.35	\$7.35	\$7.35	\$7.35
2.Feed		\$138.91	\$160.21	\$111.06	\$128.06
3.Repairs-Tools-Sup	plies	\$4.91	\$4.91	\$4.91	\$4.91
4.VetMedicine-Dru	ige	\$6.60	\$6.60	\$6.60	\$6.60
5.Marketing		\$3.01	\$3.01	\$3.01	\$3.01
6.Gas-Fuel-0il		\$3.01	\$3.01	\$3.01	\$3.01
7.Utilities		\$2.48	\$2.48	\$2.48	\$2.48
8.Auto Expense		\$0.49	\$0.49	\$0.49	\$0.49
9.Misc.		\$2.50	\$2.50	\$2.50	\$2.50
10.Interest (Calf &	1/2 VC)	\$31.67	\$32.42	\$24.35	\$24.95
A. TOTAL VARIABLE COS	TS	\$200.93	\$222.99	\$165.76	\$183.36
B. TOTAL FIXED COSTS		\$51.28	\$51.28	\$51.28	\$51.28
C. TOTAL COSTS (A+B)		\$252.21	\$274.27	\$217.04	\$234.64
					ennengene
RETURNS					
a.Feeder Sales		\$491.71	\$579.93	\$417.35	\$509.62
b.Feeder Cost		\$364.71	\$364.71	\$274.77	\$274.77
c.Death Loss		\$5.47	\$5.47	\$6.87	\$6.87
D.GROSS RETURNS (a-(	b+c))	\$121.54	\$209.76	\$135.72	\$227.99
ANALYSIS		****			
E.RETURNS-VARIABLE C	OSTS (D-A)	(\$79.39)	(\$13.23)	(\$30.04)	\$44.63
F.RETURNS-TOTAL COST	S (D-C)	(\$130.67)	(\$64.51)	(\$81.32)	(\$6.65)
G.FEED COST/CWT. GAI	N	\$63.50	\$40.69	\$50.77	\$32.52
H.SELL BREAKEVEN/VAR	. COST	\$73.58	\$62.27	\$70.85	\$57.50
I.SELL BREAKEVEN/TOT	AL COST	\$80.25	\$67.71	\$79.10	\$63.93
J.ACTUAL MARGIN (Sel	1-Buy)	(\$2.35)	(\$4.86)	(\$1.06)	(\$4.22)
K.BE/VC MARGIN		\$7.27	(\$4.04)	\$2.67	(\$10.68)
L. BE/TC MARGIN		\$13.94	\$1.40	\$10.92	(\$4.25)

## TABLE 34.--Continued. Steer grower budget -budget input factors

CALF DATA				
Date Born :	FEB-MAR	FEB-MAR	APR-WAY	A DR _MAY
Date Weaned :	NOV 1	NOV 1	NOV 1	NOV 1
Age in Months :	8	8	6	6
Date On Feed :	NOV 1	NOV 1	NOV 1	NOV 1
PRODUCTION DATA				
Starting Weight :	550	550	403	403
Expected ADG :	1.25	2.25	1.25	2.25
Days On Hand :	175	175	175	175
Purchase Price :	\$66.31	\$66.31	\$68.18	\$68.18
Sale Price :	\$63.96	\$61.45	\$67.13	\$03.90
Death Loss % :	1.5	4 1.54	2.34	2.34
COST DATA				
I. FEED	AMOUNT	AMOUNT	AMOUNT	AMOUNT
(UNIT & PRIC	z) (P	ounds fed	per day)	**************************************
a.Alfalfa Hay (Tons) \$80.	.00 16.3	12.4	12.7	9.7
b.Milo (Cwt) \$4	.80 0.5	6.0	0.2	4.5
c.P-V-M Supp. *(Cwt) \$11.	.40 1.0	1.0	1.0	1.0
d.Processing \$0	.25			
II.MISC. COST FACTORS (Hele	i Constant)			
A.VARIABLE COSTS				
a.Labor Hours \$4.	.20 1.75			
b.Repairs-Tools-Supplies	\$4.91			
c.VetMedicine-Drugs	\$6.60			
d.Marketing	\$3.01			
e.Gas-Fuel-Oil	\$3.01			
f.Utilities	\$2.48			
g.Auto Expense	\$0.49			
b.Misc.	\$2.50			
i.Operating Interest Rate	14.50	z		
B.FIXED COSTS	\$51.28			
III.STEER PRICES				
A.January 15	\$68.42	\$67.85	\$70.59	\$69.10
B.February 15	\$69.08	\$68.70	\$72.20	\$69.08
C.Marcb 15	\$65.78	\$63.52	\$72.12	\$65.78

\* Protein-Vitamin-Mineral Supplement

NOTE:Variable costs (b-h) & fixed costs were based on the average of costs incured by farms with heef backgrounding operations, enrolled in KS Farm Management Associations for each year of the analysis.

:Peed prices were obtained from KS Grop-Liv. Rep. Ser. data. Livestock prices are monthly average prices around the sale date for choice medium framed feeder steers from Kanas Gity. :Rations & steer performance were based on conversations with Kanass State Dniversity Animal Sciencists.

	Duebere					
	*********************	********				
	Year	1984	1983	1982	1981	1980
1.	Range Rent	\$12.80	\$12.80	\$12.80	\$12.40	\$12,90
2.	Mineral-Salt Price	5.83	5.81	5.80	5.52	5.11
3.	Wages	4.20	4.57	3.77	3.74	3.70
4.	Repairs-Tools-Supplies	4.91	5.83	6.11	5.40	5.20
5.	VetMedicine-Drugs	6.60	6.05	6.02	6.29	5.70
6.	Marketing	3.01	3.98	5.22	2.87	4.08
7.	Gas-Fuel-0il	3.01	3.65	3.12	4.11	2.90
8.	Utilities	2.48	2.53	2.74	2.50	1.80
9.	Auto Expense	0.49	0.56	0.54	0.45	0.54
10.	Hisc.	2.50	2.07	6.90	2.61	0.93
11.	P-V-M Price	11.40	9.12	9.49	11.40	9.12
12.	<b>Operating Interest Rate</b>	14.50%	14.15%	16.23%	15.91%	14.461
13.	Fixed Costs	51.28	60.03	56.06	51.04	33.03

TABLE 35.--Input prices held constant among retained ownership

	lear	12/2	19/0	1 2 / /	1 / / 0	2010
1.	Range Rent	\$12.80	\$11.10	\$10.70	\$10.90	\$10.50
2.	Mineral-Salt Price	4.43	4.20	3.94	3.75	3.56
3.	Wages	3.50	2.91	2.60	2.76	2.53
4.	Repairs-Tools-Supplies	5.59	3.92	3.23	4.18	4.21
5.	VetMedicine-Drugs	4.87	3.79	2.98	1.04	0.81
6.	Marketing	2.09	2.16	2.71	3.29	4.46
7.	Gas-Fuel-Oil	1.29	1.04	1.45	1.70	1.48
8.	Utilities	1.98	1.59	1.54	2.06	1.79
9.	Auto Expense	0.46	0.46	0.53	0.66	0.50
10.	Hisc.	2.27	1.29	0.57	0.73	0.61
11.	P-V-M Price	8.74	7.98	9.12	6.46	7.37
12.	<b>Operating Interest Rate</b>	12.28%	11.58%	11.58%	11.70%	11.702
13.	Fixed Costs	30.40	27.76	25.53	24.89	24.28

TABLE 36.--Feed prices for beef backgrounding budgets

calving_season managem	ent_optic	015*			
	1984	1983	1982	1981	1980
Feb-Mar/Alfalfa	\$80.00	\$86.00	\$61.50	\$56.00	\$72.00
Feb-Mar/Hilo	4.80	4.82	4.29	3.87	5.22
App-May/Alfalfa	*** **	\$96.00	\$61.50	\$56.00	\$7.2 0.0
Apr-May/Milo	4.80	4.82	4.29	3.87	5.22
Sept-Oct/Alfalfa	\$74.00	\$65.33	\$53.50	\$60.33	\$56.50
Sept-Oct/Hilo	4.51	5.19	4.13	4.41	5.02
Nov-Dec/7.5 mo./Alf.	\$77.20	\$72.00	\$53.50	\$59.20	\$62.20
Nov-Dec/7.5 mo./Hilo	4.29	5.11	3.98	4.16	5.16
Nov-Dec/9 mo./Alfalfa	\$80.66	\$79.00	\$53.50	\$58.66	\$68.17
Nov-Dec/9 mo. Milo	4.03	5.05	3.88	3.83	5.29
NOT DECKY BUT HILD	4105	5105	5100	5105	
	1070	1079	1077	1076	1075
	19/9	19/0	1977	19/6	19/5
Feb-Mar/Alfalfa	\$52.33	\$56.17	\$39.83	\$61.50	\$53.42
Feb-Mar/Hilo	3.85	3.37	3.12	3.36	3.96
Apr-May/Alfelfe	\$52.33	\$56.17	\$39.83	\$61.50	\$53.42
Apr-May/Milo	3.85	3.37	3.12	3.36	3.96
Sept-Oct/Alfalfa	\$49.33	\$38.33	\$43.50	\$51.83	\$47.75
Sept-Oct/Milo	4.10	3.30	2.63	4.13	4.54
Nov-Dec/7.5 mo./Alf.	\$49.90	\$42.80	\$41.90	\$54.00	\$48.50
Nov-Dec/7.5 mo./Milo	4.00	3.32	2.72	3.78	4.32
Non-Dec/9 mc /416-16-	¢50 17	\$47 50	841 00	055 03	640 67
Nov-Dec/9 mo /Mila	3 89	2 31	2 74	2 50	40.07
					4.17
* Feb-Mar backgroundin;	g takes p	lace Nov-	-Apr		
Apr-May backgrounding	g takes p	lace Nov-	-Apr		
Sep-Oct backgrounding	g takes p	lace Jul-	-Sep		
Nov-Dec/7.5 mos. bac	kgroundin	g takes j	place Jul-	Nov	

Nov-Dec/9 mos. backgrounding takes place Sep-Dec

TABLE 37.--Steer prices for retained ownership budgets

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PURCHASE PRICES

Calving Season	Management	Strategies			
	1984	1983	1982	1981	1980
FEB-MAR	\$66.31	\$62.26	\$64.05	\$64.15	\$78.63
APR-MAY	\$68.18	\$64.98	\$66.13	\$66.55	\$81.53
SEP-OCT/7 mo.	\$71.11	\$76.10	\$70.95	\$74.60	\$82.75
SEP-OCT/9 mo.	\$66.03	\$65.71	\$66.36	\$67.91	\$76.47
NOV-DEC/7.5 mo.	\$66.21	\$65.71	\$68.35	\$69.04	\$77.12
NOV-DEC/9 mo.	\$64.99	\$58.70	\$69.94	\$69.22	\$82.48
	1979	1978	1977	1976	1975
FER-WAR	\$86.41	\$67.73	\$41.56	\$37.89	\$37.34
APR-MAY	\$92.11	\$71.33	\$43.07	\$39.33	\$35.67
SEP-OCT/7 mo.	\$109.23	\$63.48	\$45.97	\$47.57	\$33.25
SEP-OCT/9 mo.	\$87.76	\$62.30	\$41.24	\$40.46	\$35.17
NOV-DEC/7.5 mo.	\$98.72	\$68.42	\$43.14	\$40.64	\$32.58
NOV-DEC/9 mo.	\$94.54	\$68.39	\$44.16	\$39.96	\$34.89

### SALE PRICES

Calving Season Ma	anagement_	Strategies			
	1984	1983	1982	1981	1980
FEB-MAR/1.25 ADG	\$66.62	\$65.84	\$67.26	\$65.57	\$66.93
FEB-MAR/2.25 ADG	\$69.40	\$65.30	\$65.35	\$62.45	\$69.18
APR-MAY/1.25 ADG	\$62.00	\$60.56	\$64.28	\$63.93	\$71.19
APR-MAY/2.25 ADG	\$66.80	\$66.30	\$67.54	\$65.30	\$66.10
SEP-OCT/7 mo.	\$63.15	\$57.63	\$64.78	\$65.57	\$72.50
SEP-OCT/9 mo.	\$63.36	\$57.31	\$65.38	\$65.57	\$73.26
NOV-DEC/7.5 mo.	\$64.55	\$60.24	\$62.72	\$63.10	\$72.50
NOV-DEC/9 mo.	\$65.34	\$61.30	\$62.48	\$62.95	\$72.50
	1979	1978	1977	1976	19/5
	866 20	000 05	652 00	\$20 70	\$43.19
FEB-MAK/1.25 ADG	000.30	003.33	\$14 23	636 33	020 16
FEB-MAR/2.25 ADG	\$76.65	\$72.85	044.51	030.22	\$27.04
APR-MAY/1.25 ADG	\$75.50	\$55.37	\$39.32	039.09	037.04
APR-MAY/2.25 ADG	\$67.47	\$82.56	\$52.37	\$38.30	\$41.39
SEP-OCT/7 mo.	\$79.46	\$62.73	\$39.77	\$34.17	\$39.30
SEP-OCT/9 mo.	\$79.75	\$62.33	\$39.62	\$35.38	\$38.69
NOV-DEC/7.5 mo.	\$79.39	\$61.75	\$39.16	\$35.30	\$38.88
NOV-DEC/9 mo.	\$80.28	\$64.31	\$39.37	\$35.59	\$39.55

Sustinging.			STREET, STREET
OPTION 1		BACKGROUND	CUMULATIVE
	COW/CALF	2,25/ADG	RET-VC
1975	(\$65.24)	\$2.80	(\$62.44)
1976	(\$65.74)	(\$15.32)	(\$81.06)
1977	(\$53.03)	\$36.16	(\$16.87)
1978	\$81.55	\$90.25	\$171.80
1979	\$138.73	\$7.16	\$145.89
1980	\$81,96	(\$27.79)	\$54.17
1981	\$3.30	\$16.31	\$19.61
1982	(\$9.51)	\$31.16	\$21.65
1983	(\$19.64)	\$29.16	\$9.52
1984	(\$24.40)	\$38.90	\$14.50
AVERAGE	\$6.80	\$20.88	\$27.68
STDEV	\$70.41	\$32.93	\$80,26
+STDEV	\$77.21	\$53.81	\$107.94
-STDEV	(\$63.62)	(\$12.05)	(\$52.59)

TABLE 38.--Feb-Mar retained ownership; cumulative returns-variable costs @ 750 lbs

OPTION 2

	COW/CALF	BACKGROUND 1.25/ADG	CUMULATIVE RET-VC
1975	(\$65.24)	(\$0.04)	(\$65.28)
1976	(\$65.74)	(\$37.81)	(\$103.55)
1977	(\$53.03)	\$66.31	\$13.28
1978	\$81.55	\$117.84	\$199.39
1979	\$138.73	(\$122.77)	\$15.96
1980	\$81.96	(\$108.15)	(\$26,19)
1981	\$3.30	(\$19.15)	(\$15.85)
1982	(\$9.51)	(\$17.25)	(\$26.76)
1983	(\$19.64)	(\$41.90)	(\$61.54)
1984	(\$24.40)	(\$54.23)	(\$78.63)
AVERAGE	\$6.80	(\$21.72)	(\$14.92)
STDEV	\$70.41	\$72.36	\$84.70
+STDEV	\$77.21	\$50.65	\$69.78
-STDEV	(\$63.62)	(\$94.08)	(\$99.62)

OPTION 1 Calf born MAR 1 and weaned NOV 1 @ 550 lbs. Backgrounded @ 2.25 ADG until JAN 28

OPTION 2 Calf born MAR 1 and wesned NOV 1 @ 550 lbs. Backgrounded @ 1.25 ADG until APR 10

	returns-variable	COSES @ /JU IDS	
OPTION 1	BACKGROUND		CUMULATIVE
	COW/CALF 2	.25/ADG	RET-VC
1975	(\$94.20)	\$56.02	(\$38.18)
1976	(\$85.78)	\$16.33	(\$69.45)
1977	(\$75.56)	\$120,68	\$45.12
1978	\$38.32	\$210.44	\$248.76
1979	\$80.93	(\$0.43)	\$80.50
1980	\$27.65	\$3.31	\$30.96
1981	(\$39.56)	\$76.41	\$36.85
1982	(\$53.34)	\$84.43	\$31.09
1983	(\$59.09)	\$65.20	\$6.11
1984	(\$65.73)	\$57.68	(\$8.05)
AVERAGE	(\$32.64)	\$69.01	\$36.37
STDEV	\$59.90	\$62.53	\$86.18
+STDEV	\$27.27	\$131.54	\$122.55
-STDEV	(\$92.54)	\$6.48	(\$49.80)
OPTION 2		FULL	
	BACKGROUND	GRAZE	CUMULATIVE
	COW/CALF 1.25/ADG	1.45/ADG	RET-VC
1975	(\$94.20) \$29.37	\$26.09	(\$38.74)
1976	(\$85.78) (\$10.35)	(\$31.10)	(\$127.23)
1977	(\$75.56) \$77.31	(\$17.92)	(\$16.17)
1978	\$38.32 \$156.97	\$15.83	\$211.12
1979	\$80.93 (\$69.46)	(\$67.90)	(\$56.43)
1980	\$27.65 (\$66.03)	\$31.91	(\$6.47)
1981	(\$39.56) (\$3.13)	(\$9.85)	(\$52,54)
1982	(\$53.34) (\$1.77)	\$2.06	(\$53.05)
1983	(\$59.09) (\$20.43)	(\$33.12)	(\$112.64)
1984	(\$65.73) (\$30.04)	(\$17.83)	(\$113.60)
1000 100	(000 (1) 0( 0)	(410,10)	(00( 50)

TABLE 39. -- Apr-May retained ownership; cumulative

1904	(403.73)	(030:04)	(01/.03)	(0113.00)
AVERAGE	(\$32.64)	\$6.24	(\$10.18)	(\$36.58)
STDEV	\$59.90	\$68.08	\$30.42	\$96.34
+STDEV	\$27.27	\$74.32	\$20,24	\$59.77
-STDEV	(\$92.54)	(\$61.84)	(\$40.60)	(\$132.92)
NAME AND ADDRESS OF TAXABLE		a deside all des 10 Million des des des ser 17 Mil		

OPTION 1 Calf born MAY 1 and weaned NOV 1 8 403 lbs. Backgrounded @ 2.25 ADG until APR 3

OPTION 2 Calf born MAY 1 and weaned NOV 1 @ 403 1bs. Backgrounded @ 2.25 ADG until APR 25 Grazed @ 1.45 ADG full season (2 ADG early) until JUL 3

OPTION 3		INTENSIVE	
	BACKGROUND	GRAZE	CUMULATIVE
	COW/CALF 1.25/ADG	2.0/ADG	RET-VC
1975	(\$94.20) \$29.37	\$42.96	(\$21.87)
1976	(\$85.78) (\$10.35)	(\$13.04)	(\$109.17)
1977	(\$75.56) \$77.31	(\$0.32)	\$1.43
1978	\$38.32 \$156.97	\$34.24	\$229.53
1979	\$80.93 (\$69.46)	(\$46.61)	(\$35.14)
1980	\$27.65 (\$66.03)	\$52.49	\$14.11
1981	(\$39.56) (\$3.13)	\$10.32	(\$32.37)
1982	(\$53.34) (\$1.77)	\$22.04	(\$33.07)
1983	(\$59.09) (\$20.43)	(\$12.67)	(\$92.19)
1984	(\$65.73) (\$30.04)	\$2.93	(\$92.84)
AVERAGE	(\$32.64) \$6.24	\$9.23	(\$17.16)
STDEV	\$59.90 \$68.08	\$29.86	\$95.94
+STDEV	\$27.27 \$74.32	\$39.09	\$78.78
-STDEV	(\$92.54) (\$61.84)	(\$20.63)	(\$113.09)

TABLE 39.--Continued.Apr-May retained ownership; cumulative returns-variable costs @ 750 lbs

OPTION 3 Calf born MAY 1 and weamed NOV 1 @ 403 lbs. Backgrounded @ 2.25 ADG until APR 25 Grazed @ 2.0 ADG intensive until JUL 3

OPTION 1	COW/CALE	BACKGROUND	CUMULATIVE RET-VC
1975	(\$89.78)	\$21,42	(\$68.36)
1976	(\$64.23)	(\$33.74)	(\$97.97)
1977	(\$71.15)	\$1.20	(\$69.95)
1978	\$40.34	\$45.00	\$85.34
1979	\$144.73	\$10.81	\$155.54
1980	\$54.83	\$17.50	\$72.33
1981	\$5.24	\$7.80	\$13.04
1982	(\$17.76)	\$16.48	(\$1.28)
1983	(\$16.17)	(\$44.45)	(\$60,62)
1984	(\$47.50)	(\$2.23)	(\$49.73)
AVERAGE	(\$6.15)	\$3.98	(\$2,17)
STDEV	\$70.96	\$26.25	\$83.10
+STDEV	\$64.81	\$30.23	\$80.93
-STDEV	(\$77.10)	(\$22.27)	(\$85.26)
OPTION 2	INTENSIO	p	
01 1 1 0 1 2	CRATE	BACKGROUND	CUMIT ATTER
	COW/CALF 1.75/ADG	2.25/ADG	RET-VC

TABLE 40.--Sep-Oct retained ownership; cumulative returns-wariable costs @ 750 lbs

OFIION 2	GRAZE COW/CALF 1.75/ADG	BACKGROUND 2.25/ADG	CUMULATIVE RET-VC
1975	(\$126.10) \$16.61	\$35.45	(\$74.04)
1976	(\$70.10) (\$12.18)	(\$42.53)	(\$124.81)
1977	(\$90.81) \$6.97	(\$4.73)	(\$88.57)
1978	(\$6.70) \$62.58	\$22.57	\$78.45
1979	\$144.17 (\$13.65)	(\$15.46)	\$115.06
1980	\$5.78 \$20.85	\$11.70	\$38.33
1981	(\$31.84) \$2.48	\$16.14	(\$13.22)
1982	(\$54.41) \$19.51	\$7.04	(\$27.86)
1983	(\$37.78) (\$14.03)	(\$37.86)	(\$89.67)
1984	(\$78.85) \$17.32	(\$4.19)	(\$65.72)
AVERAGE	(\$34.66) \$10.65	(\$1.19)	(\$25.21)
STDEV	\$74.18 \$23.00	\$25.21	\$79.39
+STDEV	\$39.52 \$33.64	\$24.02	\$54.18
-STDEV	(\$108.85) (\$12.35)	(\$26.40)	(\$104.59)

OPTION I Calf born OCT 1 and weaned JUL 1 @ 578 lbs. Backgrounded @ 2.25 ADG until SEP 15

OFTION 2 Calf born OCT 1 and weaned MAY 1 @ 464 lbs. Grazed @ 1.75 ADG Intensive until JUL 15 Backgrounded @ 2.25 ADG until SEP 23

**************		
	FULL	
	GRAZ E	CUMULATIVE
OW/CALF	1.27/ADG	RET-VC
\$126.10)	\$45.92	(\$80.18)
(\$70.10)	(\$46.78)	(\$116.88)
(\$90.81)	(\$0.35)	(\$91.16)
(\$6.70)	\$71.31	\$64.61
\$144.17	(\$38.85)	\$105.32
\$5.78	\$28.12	\$33.90
(\$31.84)	\$6.13	(\$25.71)
(\$54.41)	\$7.45	(\$46.96)
(\$37.78)	(\$42.88)	(\$80.66)
(\$78.85)	\$14.48	(\$64.37)
(\$34.66)	\$4.46	(\$30.21)
\$74.18	\$38.91	\$73.94
\$39.52	\$43.36	\$43.73
\$108.85)	(\$34.45)	(\$104.15)
	DW/CALF \$125.100 (\$70.100 (\$50.81) (\$5.701 \$31.44.17 \$5.78 (\$31.44) (\$54.41) (\$31.44) (\$54.41) (\$31.44) (\$54.41) (\$31.44) (\$54.41) (\$31.46) \$74.18 \$39.52 \$106.85)	PULL CRLF         PULL CRLF           0W/GALF         1.27/AGC           \$126.10)         442.92           \$126.10)         (46.32)           \$126.10)         (40.32)           \$126.10)         (40.32)           \$126.10)         (40.32)           \$126.10)         (40.32)           \$126.10)         (40.32)           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.31           \$126.12)         \$1.41           \$126.12)         \$1.4.48           \$126.12)         \$1.4.49           \$127.23         \$43.36           \$126.45)         \$4.45           \$126.45)         \$1.4.45

TABLE 40.--Continued.Sep-Oct retained ownership; cumulative returns-variable costs 0 655 lbs

OPTION 3 Calf born OCT 1 and weaned MAY 1 8 464 lbs. Grazed 8 1.27 ADG Full season until OCT 1 (655 LBS)

OPTION 1		BACKGROUND	CUMULATIVE
	COW/CALF	2.25/ADG	RET-VC
1975	(\$117.81)	\$43.56	(\$74.25)
1976	(\$86.01)	(\$22.69)	(\$108.70)
1977	(\$88.75)	\$5.50	(\$83.25)
1978	\$23.83	\$43.77	\$67.60
1979	\$111.97	\$8.62	\$120.59
1980	\$8.98	\$43.99	\$52.97
1981	(\$34.94)	\$15.78	(\$19.16)
1982	(\$48.41)	\$17.73	(\$30.68)
1983	(\$55.23)	\$0.26	(\$54.97)
1984	(\$84.91)	\$30.70	(\$54.21)
AVERAGE	(\$37.13)	\$18.72	(\$18.41)
STDEV	\$68.62	\$22.03	\$74.58
+STDEV	\$31.49	\$40.75	\$56.17
-STDEV	(\$105.75)	(\$3.31)	(\$92.98)
007108 2		RACECROTERD	CDM71 ATT 72
011100 1	COW/ CALF	2.25/ADG	RET-VC
1975	(\$93.32)	\$33.17	(\$60.15)
1976	(\$74.26)	(\$24,22)	(\$98,48)
1977	(\$65.18)	(\$10.68)	(\$75.86)
1978	\$56.48	\$33.43	\$89.91
1979	\$138.79	(\$4.24)	\$134.55
1980	\$69.69	(\$15.88)	\$53.81
1981	(\$1.94)	(\$5.53)	(\$7.47)
1982	(\$10.62)	(\$14.21)	(\$24.83)
1983	(\$57.57)	\$28.25	(\$29.32)
1984	(\$57.65)	\$26.34	(\$31.31)
AVERAGE	(\$9.56)	\$4.64	(\$4.92)
STDEV	\$75.73	\$22.85	\$74.85
+STDEV	\$66.18	\$27.49	\$69.94
	(00=)	(*** ***	(4

TABLE 41.--Nov-Dec retained ownership; cumulative returns-variable costs @ 750 lbs

OPTION 1 Calf born DEC 1 and weaned JUL 15 @ 481 lbs. Background @ 2.25 ADG until NOV 13

OPTION 2 Calf born DEC 1 and weaned SEP 1 @ 546 lbs. Background @ 2.25 ADG until DEC 1

******			****
FEB-MAR		BACKGROUND	CUMULATIVE
	COW/CALF	2.25/ADG	RET-VC
1975	(\$65.24)	\$54.13	(\$11.11)
1976	(\$65.74)	\$22.60	(\$43.14)
1977	(\$53.03)	\$132.22	\$79.19
1978	\$81.55	\$226.10	\$307.65
1979	\$138.73	(\$48.25)	\$90.48
1980	\$81.96	(\$37.46)	\$44.50
1981	\$3.30	\$69.02	\$72.32
1982	(\$9.51)	\$54.63	\$45.12
1983	(\$19.64)	\$24.97	\$5.33
1984	(\$24.40)	(\$13.23)	(\$37.63)
AVERAGE	\$6.80	\$48.47	\$55.27
STDEV	\$70.41	\$82.21	\$100.68
+STDEV	\$77.21	\$130.68	\$155.95
-STDEV	(\$63.62)	(\$33.74)	(\$45.41)
AND MAY		RACECROBIND	CUMULATIVE
PLY-MU	COW/ CALF	2.25/ADG	RET-VC
1975	(\$94.20)	\$85.95	(\$8.35)
1976	(\$85.78)	\$46.36	(\$39.42)
1977	(\$75.56)	\$147.92	\$72.36
1978	\$38.32	\$256.26	\$294.58
1979	\$80.93	\$8.82	\$89.75
1980	\$27.65	\$20.37	\$48.02
1981	(\$39.56)	\$92.25	\$52.69
1982	(\$53.34)	\$83.41	\$30.07
1983	(\$59.09)	\$57.21	(\$1.88)
1984	(\$65.73)	\$44.63	(\$21.10)
AVERAGE	(\$32.64)	\$84.31	\$51.67
STDEV	\$59.90	\$72.43	\$95.12
+STDEV	\$27.27	\$156.74	\$146.79
-STDEV	(\$92.54)	\$11.88	(\$43.45)

TABLE 42.--Feb-Har and Apr-May retained ownership; cumulative returns-variable costs (November-April)

FEB-MAR Calf born MAR 1 and weaned NOV 1 @ 550 lbs. Backgrounded @ 2.25 ADG until APR 25

APR-MAY Calf born MAY 1 and weaned NOV 1 @ 403 lbs. Backgrounded @ 2.25 ADG until APR 25

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AN ANALYSIS OF CALVING SEASON STRATEGIES

bу

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B. S., Kansas State University, 1983

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Agricultural Economics

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The purpose of this thesis was to evaluate the impacts of calving season on cowherd profitability. The budgeting technique was the primary analytical tool used in this study with eight different management options heing analyted. Cow feed costs and calf prices were the major variables. All other factors of production that were not directly affected by calving season were held constant or in constant proportion throughout the analysis. By analyzing these key variables, significant relationships were sought that could aid producers and ag specialists concerning the calving season decision and analyzing individual cow-calf operations.

The completed hudgets revealed low average returns coupled with high year to year variability in its analysis of cowherd profitability. These results, combined with the high capital investment necessary and low rates of return to cowherd ownership, imply that there are both financial and risk barriers to entry in the cattle business.

Early spring calling was the most profitable calving period in this analysis. Feb-Mar was the only calving season to average positive returns over its variable costs while no calving season could cover its total costs of production.

The results indicated that spring calving cowherds, hy better matching cow meeds with range nutritional value, had lower feed costs than fall calving herds. Early spring feed costs averaged ll-161 lower than the fall periods while feed costs for the late spring period (Apr-May) averaged 21-265 lower. The Peh-Mar hour calves, being heavier at sale time, utilized the
lower feed costs to earn positive returns to variable costs, while the 130 lbs lighter Apr-May calves lost an average of \$32.64.

It was found that, in fall calving herds, calf size spain played an important role. The more profitable management strategies were those wearing the larger nice month old calves as opposed to the lighter serves month old calves. In addition, fall calving cowherd returns were found to be significantly improved with the implementation of a supplemental feacue option. In the case of Sep-Oct calving, supplemental feacue option. In the fead costs an average of \$20.26 and increased average returns over variable costs \$21.40, from (%6.15) to \$15.45.

Because cowherd profits are affected by both costs and revenue, the ratio of cov unit feed costs over total revenue vas evaluated. This measure showed that long run profitability would be difficult unless cov unit feed costs were forty percent or less of total cov unit revenue.

Cattle prices were found to be the critical factor in determining overall covherd profitability, with positive returns for any calving season being dependent upon above average prices. In this saniysis it was found that, although cattle prices are strongly influenced by seasonal trends and premiums between weight classifications, these price differentials had less influence on profitability than factors such as cow feed corts and calf weights. This finding implies that producers should concentrate not on metching calving season strategies with seasonal highs in prices, but on organizing a complete marketing plan for the cattle they produce. Retained overschip was the final section of this study. Comparisons of the various calving season management strategies suggested that, although retained ovmership can often improve overall profitability, only the spring calving seasons were improved enough to significantly cover their overall variable costs. This resulted from the spring born calves being shle to take advantage of the seasonally higher prices which occur after a typical overvitaering program. In addition, backgrounding operations may represent one of the few ways that young and highly leveraged operators can survive in the heef cattle inductry.