

Your

Cow and Calf Business



TEXAS A&M UNIVERSITY
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YOUR COW AND CALF BUSINESS

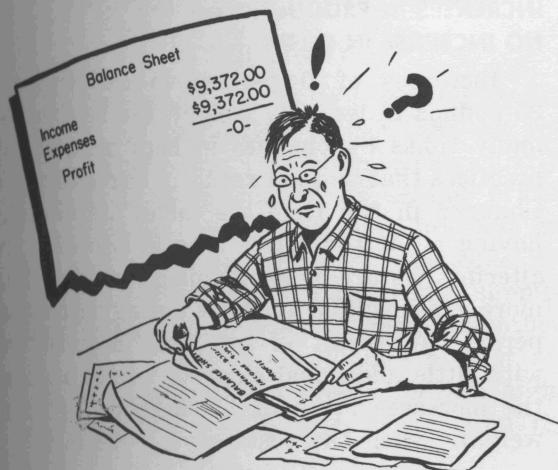
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FARMERS AND RANCHMEN, like many businessmen, frequently fail to keep and study sufficient records to *know* the business they are operating. Cattlemen should keep enough records to determine the profit or loss and production efficiency of the enterprise. They should study the records to find the problem areas of the enterprise and then they should investigate the probable costs and returns of new practices that would correct major problems. Finally, they should use those practices that will make their cow and calf business more profitable.

Analyzing the Overall Business

POUNDS OF CALF PRODUCED PER COW

To study efficiency in any business of production, the output is measured in terms of the producing unit; for example, per man-hour, per machine or per acre. The business of producing calves should be measured in terms of pounds of calf produced per cow. (*Weaning weight* is the average weight of all calves at an average age of 7 months. Percentage of calf crop is based on the number of calves born alive per 100 cows that were with bulls during the preceding breeding season.)



To find the number of pounds of calf produced per cow in your herd, use Table 1. Find the figure nearest your average weaning weight at the top of the table and move down the column of figures until you reach a figure across from your percentage calf crop. This figure is the pounds of calf produced per cow on your place.

Table 1. Pounds of calf produced per cow at various weaning weights and calf crops

Percent calf crop	Average weaning weight in pounds						
	500	475	450	425	400	375	350
95	475	452	425	404	380	366	333
90	450	428	405	383	360	338	315
85	425	404	383	361	340	319	298
80	400	380	360	340	320	300	280
75	375	356	338	319	300	282	263
70	350	333	315	298	280	263	245

This table was developed by multiplying average weaning weights by percent calf crop.

POUNDS OF PRODUCTION TO PAY ANNUAL COSTS

After finding the pounds of calf produced per cow, consider the annual costs per cow before deciding how a cow and calf enterprise is doing.

Table 2 shows items to consider and average charges against each cow in different sections of Texas. These costs are average and each cattleman should calculate or estimate his costs each year.

There are two basic philosophies in operating a cow and calf business. One is based on maximum efficiency where both operating costs and production are high. The other is to keep the expenses as low as possible so that low production still can be profitable. Cattlemen operating on the second philosophy may have annual costs per cow much less than those shown in Table 2.

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Table 2. Annual cost per cow

Items to consider	Western	Eastern	Your costs
Interest on investment and taxes (land*) or grass lease	\$30.00	\$20.00	_____
Fertilizer, seed and weed control	_____	12.00	_____
Protein supplement	10.00	8.00	_____
Interest on investment and taxes (cows)		\$ 5.00	_____
Hay or other roughage		6.00	_____
Bull costs		6.00	_____
Labor		10.00	_____
Death loss		3.00	_____
Miscellaneous		10.00	_____
		\$80.00	_____

*Cattlemen who own their land may find it easier to use what the land could be leased for instead of interest on investment and taxes.

PROFIT IN POUNDS OF CALF

The annual costs should be considered in terms of pounds of calf. Table 3 shows the number of pounds of weaned calf required per cow to pay annual costs at various selling prices.

Table 3. Pounds of production per cow necessary to pay annual cost

Annual cost per cow	Average selling price per lb., liveweight							
	18¢	20¢	22¢	24¢	26¢	28¢	30¢	32¢
\$100	555	500	454	417	385	357	333	313
90	500	450	409	375	346	322	300	218
80	444	400	364	333	308	292	266	250
70	388	350	318	292	269	250	233	219
60	333	300	273	250	231	214	200	188
50	277	250	227	205	192	179	166	156

This table was developed by dividing average selling price by annual costs per cow.

Using production figures of 80 percent calf crop and 425-pound calves, Table 1 shows 340 pounds of calf produced per cow. When annual costs per cow are \$80 and calves are selling for \$26 per 100 pounds, Table 3 shows that 308 pounds of calf are required to pay

Table 4. Figuring profit per cow in pounds of calf and dollars

Production:	Pounds
425 lb. calves with 80% calf crop	340
Costs:	
\$80 per cow, calves selling for \$26 cwt. (See Table 3)	308
Profit:	
Pounds of calf	32
Dollars at 26¢ per lb.	\$8.32

the costs of each cow. Table 4, using these production and cost figures, shows a profit of 32 pounds of calf or \$8.32 per cow.

Increasing Profit by Increasing Production

Often cattle producers think in terms of more land and more cattle as a means of making more money when the present operation actually could be managed more efficiently and result in 50 to 100 percent increase in profit. An analysis of production in terms of pounds of calf produced per cow and the pounds of calf required to pay the annual costs will point out that small increases in production per cow can make large increases in profit.

INCREASES IN PRODUCTION— NO INCREASE IN COSTS

Increases of 5 percent in calf crop, or 25 pounds in weaning weight, can be obtained many times by changes in herd management practices that will not result in increased costs. Changes in the time the calves are dropped, having all of the calves born in one season or altering pasture or range management so that more grass will be available during the nursing period can result in increases in production with little additional expense. Table 5 shows the increases in profit by increasing weaning weights when the costs remain the same.

The increase in production shown in Table 5 over that shown in Table 4 results in a 60 percent increased profit.

Table 5. Figuring profit per cow in pounds of calf and dollars

	Pounds
Production:	
450 lb. calves with 80% calf crop (See Table 1)	360
Cost:	
\$80 per cow, calves selling for \$26 cwt. (See Table 3)	308
Profit:	
Pounds of calf	52
Dollars at 26¢ per lb.	\$13.52

INCREASES IN PRODUCTION AND COSTS

Usually more money must be invested to increase production. Look at the profit when costs are increased \$10 per cow, calves are the same selling price, calf crop is increased 10 percent and weaning weights are increased 25 pounds over the example in Table 4.

Table 6. Figuring profit per cow in pounds of calf and dollars

	Pounds
Production:	
450 lb. calves with 90% calf crop (See Table 1)	405
Costs:	
\$90 per cow, calves selling for \$26 cwt. (See Table 3)	346
Profit:	
Pounds of calf	59
Dollars at 26¢ per lb.	\$15.34

This increase in production resulting from an additional cost of \$10 per cow would increase profit by 82 percent over the example in Table 4.

Analyzing Each Phase of Production

Most producers can make a greater profit by increasing production rather than by reducing annual cost. This is true, particularly if the levels of production or selling prices are average or below what most breeders in the area are getting. Then a reasonable investment in better breeding programs, supplemental feeding, pasture improvement and other management practices should pay a good return. If all measures of production are high, additional profit may have to come from reduced per unit costs.

The real problem that limits profit usually can be identified in calf crop percentage,



weaning weight, selling price or production of ranges and pastures.

PERCENTAGE OF CALF CROP

Take a look at calf crop percentage to see what conclusion can be drawn from high, average or low calf crop percentage. The average calf crop percentage should be the average that other producers get with similar-type cattle, land and pasture in your area. For example, assume that the average for your area is 80 to 85 percent. Consider 90 to 95 percent as high and 65 to 75 as low.

High

Producers who have high calf crop percentage can conclude that they are doing better than average on the following management practices:

1. Cows have sufficient feed to come into heat and settle.
2. Cows are genetically capable of regular reproduction.
3. Fertile bulls are in adequate numbers to service the cows.
4. The herd is reasonably free from diseases.

When the calf crop percentage is 90 to 95 percent, constant attention to breeding, feeding and health problems can further improve this level of production.

Average or Low

Calf crop percentage that is average or below for the area may be caused by one or more of the following:

1. Cows may be physically unable to conceive because of poor feed conditions.

2. The cows may have some genetic weakness that affects regular reproduction.

3. The bulls may be too few in number.

4. The nutritional level of the bulls may be too low for them to settle cows.

5. A large percentage of the bulls may be sterile or have low fertility.

6. Particular nutrients, such as protein, minerals or vitamins, may not be available in sufficient amounts.

7. External and internal parasites may be the cause.

8. Diseases that affect reproduction may exist in the herd.

Note that calf crop percentage is based on number of calves born alive. If the death loss before weaning is more than 1 or 2 percent a study should be made to determine the causes of these deaths.

WEANING WEIGHTS

Average weaning weights for your area will be those which other producers get with similar-type cattle, land and pasture in your area. For example, if you assume an average weaning weight of 425 pounds that varies according to rainfall from 400 to 450 pounds, you can consider weights of 475 to 500 pounds as high weights and those of 350 to 375 as low weights.

Heavy

Producers who raise calves with heavy weaning weights have:

1. Cows that are in fair-to-good physical condition when the calves are dropped.

2. Sufficient feed and forage during the nursing period for the cows to supply adequate amounts of milk.

3. Good milk production bred into the cow herd.

4. Calves with the genetic ability to grow rapidly.

5. Calving time scheduled so that good pasture is available for the growing calf.

6. Cows and calves that are reasonably free from external and internal parasites.

High weaning weights can be increased if more attention is given to breeding, feeding and health problems.

Average or Low

Average or below weaning weights of calves may be due to one or more of the following:

1. Cows may be too poor when calves are dropped to supply enough milk.

2. Total feed during part or all of the nursing period may be inadequate.

3. Particular nutrients, such as protein, minerals or vitamins, may be available in inadequate amounts.

4. The genetic ability of the calf to grow rapidly may be low.

5. Selection of replacement heifers and bulls may have resulted in poor milking mother cows.

6. Poor milking cows in the herd may not have been culled.

7. Internal and external parasites may be a problem.

8. Diseases affecting milk production for a long period of time may exist in the herd.

9. The calving time may be scheduled at a time when pastures are poor for the nursing cow and her calf.

SELLING PRICE

The average price for calves of similar type, conformation, finish and weight should be determined before considering a selling price. Suppose that the average selling price is \$26 per 100 pounds; a selling price of \$27 or \$28 would be considered high for that year and less than \$26 would be below average.

High

Higher than average selling prices indicate that:

1. The calves are the type, conformation, finish and weight that are in demand in that area.

2. The calves are marketed in a manner that is more efficient than most producers.

3. The calves are sold during the time that there is a demand for this type and grade of calves.

Average or Low

Average or lower selling prices must be considered in relation to the kind of calves being produced. Lower selling prices in stocker or feeder cattle might be the result of the following:

1. Not enough conformation to satisfy stocker or feeder buyers.
2. Trying to sell feeder calves (500 lb. or more) to stocker buyers.
3. Selling at markets where stocker and feeder buyers have little competition.
4. Failure to concentrate a sufficient number for economical shipping.
5. Lack of vigorous or healthy appearance of the calves sold.
6. Lack of uniformity in type, conformation and weight in groups sold.
7. Selling calves that have not been dehorned.
8. Selling male calves that have not been castrated.
9. Selling calves with unusual fill.

Low-selling prices of slaughter calves may be caused by:

1. Lack of enough finish to be sold as slaughter calves.
2. Lack of enough beef conformation to bring top price.
3. Lack of uniformity in finish and weight in the group sold.
4. Selling male calves that have not been castrated.
5. Selling calves with too much fill.
6. Selling calves in small groups at a distance from a logical slaughter point.

PRODUCTION OF RANGES AND PASTURES

Considerable improvement can be made in range and pasture production in many areas of Texas. Compare your pounds of calf produced per acre with other producers who have similar-type cattle and land. The difference probably is due to the pasture.

High

Higher than average pounds of calf produced per acre show that range and pasture management has included:

1. Plenty of strong, high-producing grass plants.
2. No serious invasions of trees, brush or weeds.
3. Supplemental protein and roughage used when necessary.

Average or Low

Range and pasture conditions that cause pounds of calf per acre to be average or lower include:

1. Pasturing poorly adapted or low-producing plants.
2. Overgrazing that has resulted in weak, low-producing plants and weed invasion.
3. Poor grazing management that may cause the same damage as overgrazing.
4. Invasion of trees, brush and weeds that shade grass and use available moisture.
5. Poor establishment practices that result in poor stands or growth.
6. Improper fertilization.
7. Lack of planning for ample grazing at all seasons.
8. Lack of adequate temporary pastures to rest or supplement permanent pastures in seasons of low productivity.
9. Lack of hay, silage or other feed to supplement pastures as needed.

Studying Practices for Possible Improvement

The cattleman is faced constantly with the decision as to whether he should invest money in a new management practice. Before making a wise decision, he must have a good estimate of its cost, how much it will increase production and the expected selling price.

PERCENTAGE OF CALF CROP

In the beef business, production per unit or per cow may be increased by increasing the percentage of calf crop. Table 7 shows the increased income per cow for a 5 percent increase in calf crop at various weaning weights and selling prices.

Use More Bulls

Using the minimum number of bulls may be poor economy. Suppose four bulls were used per 100 cows and it was decided that

Table 7. Increased annual income per cow for each 5 percent increase in calf crop

Av. weaning weight, lb.	Average selling price per lb., liveweight							
	18¢	20¢	22¢	24¢	26¢	28¢	30¢	32¢
550	\$4.95	\$5.50	\$6.05	\$6.60	\$7.15	\$7.70	\$8.25	\$8.80
500	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
450	4.05	4.50	4.95	5.40	5.85	6.30	6.75	7.20
400	3.60	4.00	4.40	4.80	5.20	5.60	6.00	6.40
350	3.15	3.50	3.85	4.20	4.55	4.90	5.25	5.60
300	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80

This table was developed by multiplying the number of extra calves per 100 cows (5) by the average weaning weight by the selling price per pound and dividing by 100.

five could increase the calf crop 5 percent. Would it be profitable to buy another bull? Estimated annual cost for the extra bull is \$200. With 400-pound calves selling for 24 cents per pound, the expected extra income would be \$480 or \$280 profit (See Table 8).

Table 8. Estimating the dollar value of increasing bull numbers by 25 percent (using 5 bulls instead of 4 per 100 cows)

Added income		
Should increase calf crop 5%		
400 lb. calves at 24¢ would be \$480		
per cow or \$480 per 100 (See Table 7)		\$480
Added cost		
Feed	\$100	
Depreciation	100	
Total		\$200
Additional profit per year from this practice		\$280

If the extra bull increased the calf crop 10 percent, or twice as much as you estimated, that would be a \$960 increase in annual income for a \$200 annual investment. Using more bulls should get the cows settled more

quickly and result in a heavier, more uniform group of calves at weaning time.

Test Bulls for Fertility

Approximately 7 percent of the bulls in Texas are sterile and another 9 percent have low fertility. Fertility of bulls can be determined by using an electro-ejaculator to collect the semen and having a qualified person to evaluate it. The cost will vary from \$2 to \$10 per bull, depending mostly on the number to be checked. When one bull is used per pasture, \$5 to \$10 is cheap insurance against having a calf crop 3 to 6 months late, or in the case of a bull with low fertility, the calf crop being only 35 to 65 percent. Suppose a ranchman has 20 bulls and spends \$5 per head to test them. If he finds one sterile bull, it cost him \$100 to identify that bull which would have cost him \$200 to \$250 per year and would not have sired a calf.

Cull Open Cows

Beef cattle producers are beginning to use rectal palpation to determine cows that are not with calf. The open cows can be identified 45 days after the bulls have been removed from the breeding herd. Pregnancy determination permits the manager to decide early on the disposal of open cows. Culling by palpation eliminates the cost of keeping the cows until the calving season and then being disappointed. Culling open cows as their calves are weaned and replacing them with outstanding replacement heifers will not reduce the number of calves produced if the replacement heifers are bred to calve at 2 years of age. If a group of replacement heifers were palpated at a cost of \$1 per head 45 days after the bulls were taken out and 10 percent were found



open, for every \$10 invested, an open heifer would be identified. If it cost \$25 to keep that open heifer until the end of the calving season, the \$10 investment would return \$25 or a \$15 profit.

Provide Better Pastures During Breeding Season

The quality and amount of forage available prior to and during the breeding season affects the number of cows that conceive. If the forage is low in quality or quantity, a reasonable investment in pasture improvement or supplemental feeds should pay large dividends. Many times, temporary pasture such as Sudangrass or small grain or a native pasture that has been deferred for use at this time, furnishes the feed necessary for a high conception rate. An investment of \$5 per cow for better pasture during the breeding season may result in an increase of 5 percent in calf crop, which would be profitable if the average weaning weight is above 450 pounds or the selling price is above 28 cents per pound.

Provide Supplemental Feeding During the Breeding Season

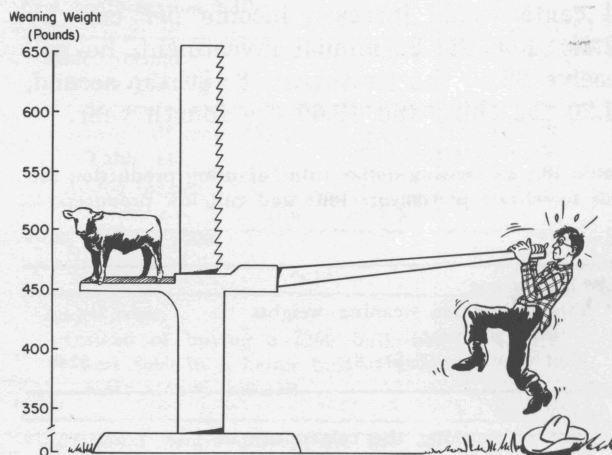
When pasture is short or low in quality during the breeding season, supplemental feeding will help get a higher percentage calf crop. Supplemental feeding may include extra protein, hay and mineral. In some cases, this extra feed should begin before the breeding season if the cows are thin. A ranchman who sells 400-pound calves for 24 cents may decide that extra feed during the breeding season would help the calf crop percentage. If \$5 per cow were invested in extra feed and the calf crop percentage were increased by 10

percent, \$9.60 would be the return on the \$5 investment. If the calves sold for only 18 cents then \$7.20 would be returned for the \$5 investment.

Control Diseases That Affect Reproduction

Diseases that affect reproduction should be considered when the calf crop percentage is low or drops suddenly, or when other practices do not increase the calf crop percentage. These diseases (brucellosis, leptospirosis, vibriosis, trichomoniasis, vaginitis) should be controlled, whatever the cost. Eradication is the next step, but may take several years. Prevention of these diseases is more economical than treatment. When the calf crop percentage is high, you can assume that the cow herd is relatively free from reproductive diseases.

WEANING WEIGHTS



Another way to increase production per cow is to increase the weaning weights of the calves. Table 9 shows the increased income per cow for increases in weaning weights at different selling prices.

Table 9. Increased annual income per cow for increases in weaning weight

Weight increase lb.	Av. selling price per lb., liveweight							
	18¢	20¢	22¢	24¢	26¢	28¢	30¢	32¢
10	\$ 1.80	\$ 2.00	\$ 2.20	\$ 2.40	\$ 2.60	\$ 2.80	\$ 3.00	\$ 3.20
20	3.60	4.00	4.40	4.80	5.20	5.60	6.00	6.40
30	5.40	6.00	6.60	7.20	7.80	8.40	9.00	9.60
40	7.20	8.00	8.80	9.60	10.40	11.20	12.00	12.80
50	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00
60	10.80	12.00	13.20	14.40	15.60	16.80	18.00	19.20

This table was developed by multiplying the increase in weaning weight by the selling price per pound.

Replace Low Producers with High Producers

When feed and forage are adequate and weaning weights are low, the limiting factor may be that poor milk production and slow growth have been bred into the cow herd. Proper use of production records in selecting replacement cattle should increase weaning weights approximately 10 pounds per year. This increase in the herd average is the result of (1) selection of high-producing replacement heifers, (2) selection of herd bulls capable of high production and (3) culling cows and bulls that have low production records.

A producer may decide that a complete set of production records would make his business more efficient. He estimates the total cost at \$2 per cow per year and an increase of 10 pounds per year in production. Table 9 shows that a 10-pound increase in weaning weight at 24 cents would increase income per cow by \$2.40. For the \$2 annual investment, he will receive \$2.40 the first year, \$4.80 the second, \$7.20 the third and \$9.60 the fourth year.

Table 10. Estimating dollar value of using production records to select replacement cattle and cull low producers

100 cows	
Added income	
Should increase weaning weights 10 lb. per year.	
First year (See Table 9)	\$240
Added costs	
Cost of marking the calves, use of scales and extra time for handling cattle and records estimated at \$2 per cow per year. This added cost will be an annual cost.	\$200
Additional profit the first year from practice	
Second year	\$ 40
Third year	280
Fourth year	520
	760

Provide Better Pasture During the Nursing Period

The daily requirement for wintering a pregnant cow is 8 pounds of total digestible nutrients. The amount of TDN changes to 16.8 pounds for the cow while nursing a calf. Temporary pasture, such as Sudangrass or small grain, or a native pasture that has been deferred for use at this time will produce the extra feed necessary for maximum growth.

Added income from good pasture during the nursing period which results in heavier calves at weaning time may vary from that of a few to 50 or more pounds per calf. A 40-pound increase in weaning weights at 26 cents per pound would add \$10.40 to the income per calf. If this better pasture could be furnished for less than \$10 per cow, it would be profitable.

Provide Supplemental Feeding During the Nursing Period

Insufficient amounts and low-quality pasture during the nursing period cause considerable stress on the cow and calf. Supplemental feeding of protein, hay, silage and minerals may so improve the feed that good increases in weaning weights will result. An extra \$5.20 spent on supplemental feeding would be returned if the calves sold for 26 cents and their weight increased by 20 pounds. Any additional increase in weight would mean profit. In the production of slaughter calves, the additional finish that should up-grade some calves might make the practice profitable if the additional gain paid for the extra feed.

Creep Feed Calves

The practice of creep feeding usually fits into the production of slaughter calves more so than for stocker or feeder calves. It takes about 950 pounds of creep feed to put 100 pounds additional gain on a group of calves. If a producer wishes to add 50 pounds per head to the weight of his calves with creep feeding, it probably would take 475 pounds of feed per head. If creep feed cost \$3 per 100 pounds, the cost would be \$14.25 for a 50-pound gain. Fifty pounds of gain at 28 cents would return only \$14 or a loss of 25 cents per calf from the gain alone. This does not take into consideration the increase in slaughter grade and the resulting increase in price nor the cost of equipment, labor, etc. These factors also must be considered in calculating profit from creep feeding.

Change Calving Time to Produce Heavier Calves

Cows normally begin calving soon after grass takes on green growth in the spring. In most areas, green forage begins to dry up and hot weather starts while the calves are too small to market. A combination of dry pas-

tures and hot weather slows the growth of the calf. When calving time can be scheduled so that most of the calves are 1 to 3 months of age when pastures get green, the weaning weights can be increased as much as 100 pounds per calf. Changing the calving period probably would take several years and supplemental feed might be necessary during the breeding season. An extra pound and a half of protein supplement for 80 or 90 days during or just before the breeding season normally would cost only \$5. Thirty pounds increase in weaning weight at 18 cents would add \$5.40 to the income, resulting in 40 cents profit. In many cases the weaning weights can be increased 60 pounds.

SELLING PRICE

A higher selling price per pound of calf produced can make substantial increases in total income and profit. When calves are produced for the stocker or feeder market, an improvement in grade or beef conformation will result in a higher selling price. When calves are produced for the slaughter calf market, an improvement can be made in beef conformation or finish. Table 11 shows the additional income for each \$2 increase in selling price at different weights and calf crop percentage.

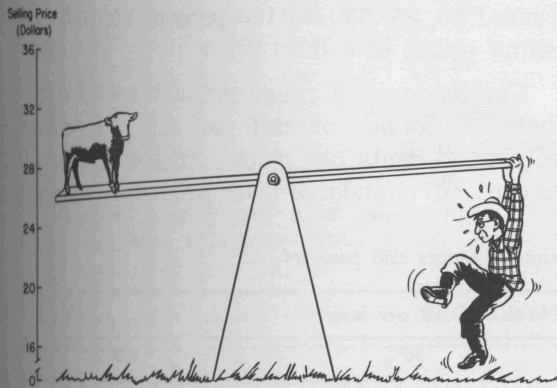


Table 11. Increased annual income per cow for each \$2 per 100-pound increase in selling price

Av. weaning weight	Percentage of calf crop						
	65	70	75	80	85	90	95
550	\$7.15	\$7.70	\$8.25	\$8.80	\$9.35	\$9.90	\$10.45
500	6.50	7.00	7.50	8.00	8.50	9.00	9.50
450	5.85	6.30	6.75	7.20	7.65	8.10	8.51
400	5.20	5.60	6.00	6.40	6.80	7.20	7.60
350	4.55	4.90	5.25	5.60	5.95	6.30	6.65

This table was developed by multiplying average weaning weight by percent calf crop by \$2 cwt.

Use Better Bulls

Some commercial breeders are topping the market with high-quality calves. These breeders must strive constantly to find outstanding bulls to maintain the quality they have in their cattle. Increased efficiency of such operations must come from heavier weaning weights. Other cattlemen can increase income by producing better quality calves. Table 11 shows that an increase of \$2 per 100 would result in an increased income of \$6 per cow with a production level of 75 percent calf crop and 400-pound weaning weight. If one bull were used for each 20 cows, the added income would be \$120 per year and in 5 years the outstanding bull could increase the income \$600. Investing \$300 more for a better bull could return \$600 or twice the added investment.

Table 12. Estimating dollar value for using an outstanding beef conformation bull

Added income	
Better grading calves should sell for \$2 more cwt. Production level 75% calf crop, 400 lb calves. (See Table 11)	
Added income	
\$6 per cow X 20 cow = \$120 X 5 years = \$600	\$600
Added costs	
Instead of buying a \$200 bull, invest \$500 in a better bull = \$300 extra money invested	\$300
Additional profit during the life of the bull	\$300

Have Proper Finish for the Market

When cattlemen produce slaughter calves from crossbred or mixed cows, all of the calves may not carry enough finish for the top slaughter price. If only half do, the remaining half may sell at 3 to 6 cents per pound less. For

example, assuming that the top half of the calves sell for 26 cents to the packers and the remaining half would sell as stockers and feeders at 22 cents. Suppose a production level of 80 percent calf crop with an average weaning weight of 450 pounds existed. Under these circumstances, how much could be spent for creep feeding the calves to make all calves sell for 26 cents to the packer? If creep feeding would make all of the calves sell for 26 cents instead of half of them selling for 22 cents, then the average increase would be \$2 per hundred. Then if the additional gain would pay for the feed and feeding, the increase in selling price would cause an additional income of \$7.20 per cow.

Consider Other Practices

Sell calves in groups that are uniform in sex, age, size and grade. Do not try to slip in a few off-type calves, because the buyer will reduce the price per pound accordingly.

When marketing small groups of stocker and feeder calves, use feeder calf sales when possible. Order or commission buyers of these cattle want large numbers. If the calves are available in less than truck load lots, bids usually are lower.

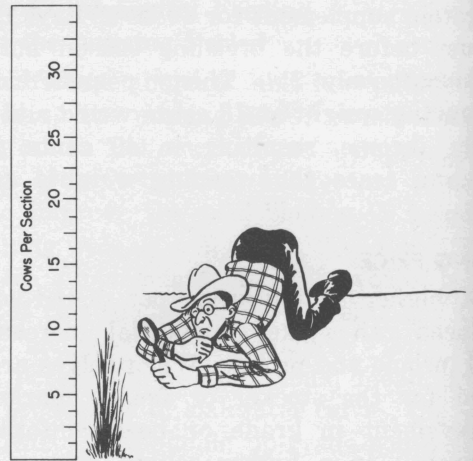
Castrate male calves except those that are marketed as vealers (2 to 6 weeks of age). Bull calves will be docked \$1 to \$3 per 100 pounds.

Dehorn all calves that you plan to sell as stockers and feeders. The buyer will take the horned ones at \$1 to \$2 per 100 pounds less.

PRODUCTION OF RANGES AND PASTURES

Use the pounds of calf produced per acre as a measure to study possibilities for increasing land production.

Assume you have 100 cows, 1,000 acres of pasture, a 90 percent calf crop and 450-pound average weaning weight. Table 1 shows that a 90 percent calf crop with an average 450



pound weaning weight produces 405 pounds per cow. With 100 cows on 1,000 acres, or 10 acres per cow, divide 405 pounds by 10. You will have 40 pounds of calf produced per acre. Table 13 shows the annual additional income if the production of ranges and pastures is increased 10, 25, 50 and 100 percent at different selling prices of calf.

For example, a range or pasture that produces 40 pounds of calf per acre and calves sell for 25 cents per pound, an increase of 10 percent in pounds of calf produced by good

Table 13. Increased annual income per acre to increase the production of ranges and pastures

Lb. of calf per acre	Expected increase in lb. of calf per acre											
	10%			25%			50%			100%		
	20¢ ^a	25¢	30¢	20¢	25¢	30¢	20¢	25¢	30¢	20¢	25¢	30¢
140	2.80	3.50	4.20	7.00	8.75	10.50	14.00	17.50	21.00	28.00	35.00	42.60
120	2.40	3.00	3.60	6.00	7.50	9.00	12.00	15.00	18.00	24.00	30.00	36.00
100	2.00	2.50	3.00	5.00	6.25	7.50	10.00	12.50	15.00	20.00	25.00	30.00
80	1.60	2.00	2.40	4.00	5.00	6.00	8.00	10.00	12.00	16.00	20.00	24.00
60	1.20	1.50	1.80	3.00	3.75	4.50	6.00	7.50	9.00	12.00	15.00	18.00
40	.80	1.00	1.20	2.00	2.50	3.00	4.00	5.00	6.00	8.00	10.00	12.00
20	.40	.50	.60	1.00	1.25	1.50	2.00	2.50	3.50	4.00	5.00	6.00
10	.20	.25	.30	.50	.63	.75	1.00	1.25	1.75	2.00	2.50	3.00
5	.10	.13	.15	.25	.31	.38	.50	.66	.88	1.00	1.25	1.50

^aExpected selling price of calves.

This table was developed by multiplying pound of calf produced per acre by percentage increase by selling price per pound.

range or pasture management would increase the income \$1 per acre. If this same land could be improved by reseeding, fertilizing or other good practices and it increased the production 100 percent or to 80 pounds per acre, the extra annual income would be \$10 per acre.

Methods, Costs and Possible Returns

Increasing pounds of calf production per cow will increase pounds of calf per acre. Consider brush control, range management and pasture improvement as methods of increasing production per acre.

Brush Control

Chemical spraying of brush followed by deferred grazing will increase grass production in most Texas areas. Mesquite can be controlled for 5 to 10 years with one chemical spraying. The cost is \$2.30 to \$3 per acre and will increase profit by increasing grass production and reducing the amount of labor required to care for the cattle. Table 14 shows how the value of this practice may be determined.

Table 14. Estimating dollar value of controlling mesquite on rangeland

Added income:	
Range land producing 20 lb. of calf per acre should increase an average of 25% per year. With calves selling for 25¢ per pound (See Table 12)	\$1.25
Reduction in labor costs	.75
	\$2.00
Added costs:	
Contract spraying job \$2.85 per acre. Must be repeated every 7 years. ($2.85 \div 7 = .41$)	\$.41
Additional profit per acre per year	\$1.59

Rootplowing is a mechanical method of brush control and costs \$8 to \$15 per acre. It should be used on areas of mixed brush that cannot be controlled by other methods. Reseeding with a mixture of adapted grasses at the time of plowing is necessary. Seed will cost \$1.50 to \$8 per acre. The returns from rootplowing and seeding vary according to moisture conditions. With favorable moisture, grass production may be increased 200 percent. With unfavorable moisture conditions, grass pro-

duction will be reduced and another reseeding will be necessary.

Chaining is an effective method for controlling single-stemmed brush and nonsprouting cedar. Chaining should be done when the soil is moist so that a large number of trees will be uprooted. The cost of chaining two ways varies from \$2 to \$5 per acre and control lasts 4 to 8 years. In the oak area, the chained pasture should be grazed by goats during the growing season to control the sprouts. Cattle can graze the cured grass moderately during the winter without damage to the pasture. After the control measure has been applied, deferment for one or more growing seasons is necessary to obtain full establishment of the better grasses. Returns from the goats will pay the cost of additional fencing and the cost of the goats within 3 to 5 years, in some cases. Beef production also will increase during this period.

Bulldozing is an effective control method for mixed brush and large trees, and costs \$5 to \$75 per acre, depending on the density and size of the trees. Bulldozing should be used on high potential production sites. Returns from this method are variable as the existing turf is destroyed and considerable time and expense are required for grass re-establishment.

A stinger attached to a bulldozer blade may be used to control mesquite. The stinger does not disturb the existing stand of grass as thoroughly as a regular bulldozer blade. This method of controlling mesquite costs \$4 to \$8 per acre and lasts about 10 years, or 40 to 80 cents per acre per year. The increased income from this practice is about the same as shown in Table 14.

Range Management

A deferred rotation system that systematically permits different parts of the farm or ranch to produce mature seed each year without being grazed during the growing season will increase beef production per acre. A deferred rotation system can be set up for two, three or four pastures. Assuming that a four-section pasture needs developing into a four-pasture system and the fencing and water development would cost about \$2.10 per acre. The increased calf production should be

3 to 5 pounds per acre per year. For example, if the increased calf production is 4 pounds per acre, in 3 years 12 pounds more calf at 20 cents per pound would return \$2.40 per acre or pay for the fencing and water development.

Pasture Improvement

Weed control is essential in permanent pastures. The best means of control is a dense, vigorous growth of grass that keeps weeds out. Weeds use moisture, plant nutrients, air,



space and light that could be used to grow good grazing plants. Weeds can reduce grazing by 50 to 75 percent. They may be controlled by mowing or with chemicals. The cost of one mowing, approximately \$1.75 to \$2 per acre, is about the same as one spraying, when equipment costs and depreciation, fuel, materials and labor are considered. However, one spraying at the proper time often is more effective than three mowings.

For successful permanent pasture establishment, select adapted plants and varieties and plant the proper amount of good-quality seed in the proper kind of seedbed at the right time with proper fertilization. Control weeds and avoid grazing the new planting until it is well established. Establishing a new stand may cost \$5 to \$30 per acre. Saving a few dollars by skimping on establishment may give a poor stand that produces only 25 to 50 percent when 100 percent production is needed to be profitable.

Table 15. Estimating dollar value of controlling permanent pasture weeds with 2,4-D

Added income:	
Bermudagrass pasture producing 40 lb. of calf per acre should increase 100% when weeds are controlled	
Calves selling at 25¢ per lb. (See Table 13)	\$10.00
Added costs:	
Spraying per year with 1 lb. 2,4-D amine at \$1.90 per acre	\$1.90
Added investment in cattle and expenses for additional cattle	5.00
	\$ 6.90
Added profit per acre per year from this practice	\$ 3.10

Temporary pastures are needed to furnish good-quality green grazing when it is not available from permanent pastures and native rangeland and to provide another source of hay or silage. Temporary pastures may cost \$3 to \$20 per acre per year, but they often produce 100 to 400 pounds of beef gain valued at \$20 to \$80 per acre.

In many areas, it is not possible to establish and maintain good pastures with fertilization. Each \$1 spent for pasture fertilization where it is needed will return \$3 to \$6.

Proper grazing is necessary to get the most benefit from a good pasture program. Overgrazing costs by weakening stands and encouraging weeds. It can reduce beef production easily by 50 percent, or \$10 to \$40 per acre.



ANALYZE

your own cow
and calf business

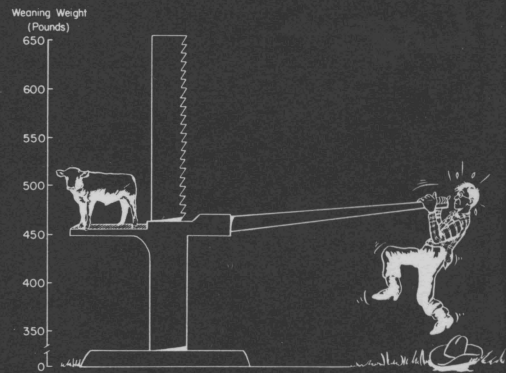


DETERMINE

phases of production
that are limiting profits

IMPROVE

production in
these phases



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the benefits



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