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Livestock Econ

CATTLE RANCHING

IN

LASSEN COUNTY, CALIFORNIA

by

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Presenting facts and figures important to
local cattlemen and those interested in going
into the cattle business in Lassen County.

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<u>Name</u>	<u>Grade</u>	<u>Breeding</u>
Bass (Polled)	2-	Dresler Polled
Tommy	2-	Tommy Domino
Johnny	2-	Pueblos Domino
Billy	3+	California Crest
Battle	2	Battle Domino

The last bull has only bred a few head of cows this year in that he won't be a two-year-old until next spring and there are no calves from this breeding.

Beginning in 1945, the calves were graded at weaning time. Following are the grades of these calves from 1945 to 1949, inclusive:

<u>Year</u>	<u>No. Cattle</u>	<u>Grade</u>						<u>Ave. Grade</u>
		2	2-	3+	3	3-	4+	
1945	45	0	2	17	21	3	2	77.9
1946	45		5	29	10	1		79.5
1947	60		15	26	16	3		79.6
1948	55	1	11	29	9	5		81.6
1949	78	2	13	34	26	3		81.4

There has been no purchase of cows for this herd since the original purchase and the cost of the bulls has been nominal. In fact, he has almost sold them for baloney for as much as he has paid for them in that he has been buying weaner calves and growing them out or bought aged bulls and sold them with considerable weight.

BREEDING YEARLINGS

Breeding yearlings to calve as two-year-olds can be done quite satisfactorily, provided the stockman keeps normal growth in his yearlings from the time of weaning to the time of calving and depending on the kind of bulls used in breeding the yearlings. In order to breed the yearlings safely, they should weigh between 550 and 600 pounds by the time they are turned on to grass the following spring after weaning. This necessitates a good job of feeding during the winter months. These should be kept under fence during the first summer or during the breeding season. They should not be allowed to shrink in the fall months but probably brought into the feed corrals and fed concentrates and hay when the grass becomes short. During the second winter, or between the age of 18 and 24 months, they should be given all the hay they can eat, probably some concentrates, and should weigh approximately 1,000 pounds at time of calving the following spring.

The bulls used to breed to yearlings should be of such a character that they will produce a compact, relatively small-boned calf, not too heavy at birth. Some stockmen have found that by using such bulls as the Angus breed they have had less trouble at calving time. Some Hereford bulls will produce smaller calves than others and when a stockman finds such a bull it might be well to keep him to breed to his yearlings.

FEEDING

Here in this county, it is necessary to feed hay to the stock cow herd from 90 to 120 days each winter and to the weaner calves 120 to 150 days. Most stockmen have found that it requires about 20 pounds of good grade hay per day fed to a breeding cow. If the quality is poor or it is low in protein, it might be well to feed 1/2 to 1 pound of cottonseed cake along with the hay. Feeding straight alfalfa hay to the breeding cow will supply more protein than needed. If this is the hay to be used, the amount could be cut to 15 pounds per day and then feed between 5 and 10 pounds of oat or barley straw.

One of the most critical times for the stock cow herd, from the standpoint of feed, is during the months of November and December. This is a period when the green grass has dried up, it is rather early to start them on hay, and the feed that they are using is quite often very low in protein. Many stockmen make a practice of supplementing this dry feed with a protein concentrate, such as cottonseed or soybean cake, feeding about 1 pound a day per head with excellent results. They have been able to keep their cows in the fields on dry feed without a weight loss over a longer period of time when this supplement is used.

A breeding cow with calf should gain approximately 1 pound a day during the winter months in order to maintain her weight.

The handling of weaner calves is a little different program than that of the cow herd. Most stockmen have found it advisable to wean their calves in the fall before they take a shrinkage. This usually is from the first of November to the first of December, depending somewhat on the age of the calves. It is rather difficult for a calf to maintain its normal growth during its first winter on hay alone. The calf should gain from 1 to 1½ pounds per day from the time weaned until started on grass the next spring if it is to maintain its normal growth. Most stockmen have found that, in order to do this, it is necessary to supplement the hay ration with some form of concentrates. The kind of concentrates depend on the kind of hay used. If alfalfa is being fed, then the concentrates need be only grain. A good mixture in this event is about half barley and half oats, feeding around 2 pounds per day. If grass or grain hay is the roughage used, it is necessary to feed a protein concentrate; either a pound of this concentrate per head per day or, better yet, 1½ pounds of grain (barley or oats) and 1/2 pound of the protein concentrate.

A number of tests have been carried on in cooperation with stockmen over a period of years on feeding calves during their first winter. The following is results of two feeding demonstrations on weaner calves, endeavoring to determine the difference in growth where supplemented and unsupplemented. The first test is where all the steer calves were supplemented with two pounds of barley per day. The heifer calves received no supplement. It will be noted in the following table that the steer calves made approximately .7 pounds per day more gain than the heifers, or a total of 74 pounds in the 111 days on feed. The amount of feed required to put on this 74 pounds, over and above that fed to the heifers, was 220 pounds of barley.

Test No. 1

<u>Kind</u>	<u>Date</u>	<u>No.</u>	<u>Ave. Wt.</u>	<u>Days</u>	<u>Gain</u>	<u>Daily Gain</u>
Steer calves	11/30/40	111	448.4			
Steer calves	3/25/41	111	580.4	115	148	1.287
Heifer calves	11/30/40	89	423			
Heifer calves	3/25/41	89	487	115	64	.529

The second test was carried on cooperatively with one stockman, endeavoring to determine the difference between supplemented and unsupplemented steer calves. 24 head of calves were selected from the weaner steer herd. A gate cut was made and the 24 head divided into two lots; one of 18 and one of 6. The lot of 18 head of calves were fed 1 pound of cottonseed cake per day, the 6 head of calves received only hay. The following is the results of this feeding test:

Test No. 2

	<u>Lot No. 1</u>	<u>Lot No. 2</u>
Number-----	18	6
Date weighed-----	12/28/37	12/28/37
Ave. weight at start-----	368.6	372.5
Date finished-----	3/5/48	3/5/48
Weight at finish-----	425	357
Difference-----	43.6 gain	15.5 loss
Days on feed-----		66
Difference in calf weight between lots-----		59.1
Concentrates fed to Lot No. 1-----		70
Cost of concentrates-----		\$1.26

Feeding 66 pounds of concentrates increased lot No. 1 over lot No. 2 by 59.1 pounds, or a cost per pound of 2.1¢.

Other tests carried on with stockmen in supplementing weaner calves indicate that there is a variation between the daily gain, depending somewhat on the kind of calves used, the quality of hay, and the feeding conditions in the corrals, such as shelter, dry corrals, and ample water. The following tables are results of supplementing the hay with concentrates on two ranches during the year 1937:

Test No. 3

No. calves-----	91
Date start-----	12/2/37
Ave. weight-----	425 lbs.
Date finish-----	4/27/38
Total gain-----	208 lbs.
Days on feed-----	135
Daily gain per head-----	1.54 lbs.
Concentrates fed daily - 1/2 lb. cottonseed cake, 1 3/4 lbs. barley	

Test No. 4

No. calves-----	27
Date start-----	12/1/37
Ave. weight at start-----	455
Date finished-----	4/11/38
Ave. weight at finish-----	582
Total gain per head-----	127 lbs.
Days on feed-----	116
Daily gain per head-----	1.09 lbs.
Daily feed per head concentrates, cottonseed cake .8 lbs. and barley 2 lbs.	

Some stockmen have carried on a practice of feeding more concentrates than is required for normal growth to weaner steer calves. The reason back of such a feeding program is to put sufficient weight on the calves during the first winter to insure sufficient size to finish up on pasture the following summer as grass fat cattle. Most of them who carry on such a program start off feeding at weaning time about 2 pounds of concentrates per head per day, of which 1½ pounds would be cereals and 1/2 pound of protein concentrates. At the end of the first 30 days, they increase the grain up to 2 pounds and the protein concentrates to 1 pound, making a total of 3 pounds per head per day the second month. The protein concentrate then is left at 1 pound per day and they increase the grain 1/2 pound per head per day each 30-day

period until they reach a total of 4 pounds of grain per day along with 1 pound of protein concentrates. These calves have been kept on this ration until they are turned on to grass. This kind of a feeding program will give gains varying from 1.65 pounds per day up to 2 pounds per day, again depending on the quality of hay used, the kind of calves, and the kind of winter. During a cold, wet, damp winter the gains will not be as great as during a mild, dry period.

If alfalfa hay is the roughage fed to the calves, the stockmen will eliminate the protein concentrates and replace this with cereals, in which event not over 1/2 of the cereal should be barley and preferably not more than 1/3, otherwise there may be some bloat troubles.

The following tables are results of such feeding practices, carried on by three of our ranchers in 1948-49. The first table, on ranch No. 1, not only gives the gains by weighing periods but the amount of feed during the same period:

FEEDING WEANER STEER CALVES FOR BETTER THAN NORMAL GAIN

1948-1949

<u>Date</u>	<u>No.</u>	<u>Ave. Wt.</u>	<u>Gain</u>	<u>Days</u>	<u>Daily Gain</u>
11/15/48	69	454	51		
12/15/48	69	505	51	29	1.75
1/17/49	69	542	37	31	1.15
3/18/49	69	635	93	50	1.86
4/15/49	69	705	70	40	1.76
Total	69		251	150	1.67

Feed

<u>Date</u>	<u>Days</u>	<u>Barley</u>		<u>Cake</u>		<u>Hay</u>	
		<u>Daily Lbs.</u>	<u>Total Lbs.</u>	<u>Daily Lbs.</u>	<u>Total Lbs.</u>	<u>Daily Lbs.</u>	<u>Total Lbs.</u>
Nov. 16 to Nov. 24	8	2	16	0	0	9	72
Nov. 24 to Dec. 15	21	2	42	0.75	16	9	189
Dec. 15 to Jan. 10	26	2.5	65	1	26	9	234
Jan. 10 to Feb. 1	22	3	66	1	22	9	198
Feb. 1 to Feb. 28	27	3.5	94	1	27	9	243
Feb. 28 to Apr. 15	46	4	184	1	46	9	414
Total feed	150		467 lbs.		137 lbs.		1,350 lbs.

FEED REQUIRED FOR 100 LBS. GAIN

<u>Kind</u>	<u>Lbs. Feed</u>
Chopped grass hay	538
Ground barley	186
Cottonseed cake	55

The second table is of rancher No. 2:

FEEDING WEANER STEER CALVES - 1948-49

No. calves----- 50
 Date of start----- Oct. 24, 1948
 Weight at start----- 460
 Date of finish----- April 28, 1949
 Weight at finish----- 792
 Total gain----- 332 lbs.
 Days on feed----- 186
 Daily gain----- 1.78 lbs.

FEED CONSUMED PER HEAD - COST OF FEED

Hay - 1893 lbs. @ \$25----- \$23.66
 Oats - 98 lbs. @ \$60----- 2.94
 Barley - 540 lbs. @ \$50----- 13.50
 Cake - 165 lbs. @ \$93----- 7.67
 Hauling and mixing----- 1.20
 Total cost feed----- \$48.97
 Cost per lb. of gain for feed----- 14.75¢

FEED REQUIRED FOR 100 LBS. GAIN

Hay----- 570 lbs.
 Barley----- 162 "
 Oats----- 30 "
 Cake----- 50 "

RANCHER NO. 3

No.----- 41
 12/15 - weight at start----- 492
 4/28 - weight at finish----- 724
 Total gain----- 232
 Days----- 135
 Daily gain----- 1.71

<u>Feed</u>	<u>Daily</u>	<u>Total</u>	<u>Cost</u>
Hay average daily	12	1,620 @ \$20	\$16.20
Cake average daily	1	135 @ \$90	6.07
Grain average daily	3	405 @ \$50	10.12
		Total	\$32.39

FEED FOR 100 LBS. GAIN AND COST

Hay - 678 @ \$20----- \$ 6.78
 Grain - 158 @ \$60----- 4.74
 Cake - 53 @ \$90----- 2.38
 Cost per 100 lbs. gain----- \$13.90

The following table is a comparison of these three ranchers in their feeding program for 1948-49:

FEED REQUIRED FOR 100 LBS. GAIN FOR THREE COOPERATORS

	<u>1</u>	<u>2</u>	<u>3</u>
No. calves	69	50	41
Weight at start	454	460	492
Weight at finish	705	792	724
Total gain	251	332	232
Days	150	186	135
Daily gain	1.67	1.78	1.71
<u>Feed for 100 lbs. gain</u>			
Hay	538	570	678
Grain	186	192	158
Cake	55	50	53

Cooperator No. 1 has carried on such a program for a three-year period and the following is the results of a three-year feeding program:

COMPARISON OF FEED FOR THREE YEARS - WEANER CALVES

	<u>1946-47</u>	<u>1947-48</u>	<u>1948-49</u>
No.	55	68	69
Weight at start	478	430	454
Weight at finish	706	660	705
Total gain	228	230	251
Days	115	138	150
Daily gain	1.988	1.66	1.67

AVERAGE FEED REQUIRED TO PUT ON 100 LBS. GAIN

WEANER STEER CALVES

	<u>Hay</u>	<u>Barley</u>	<u>Cake</u>
1946-47	520	131	44
1947-48	780	149	45
1948-49	538	186	55
	<u>1,838</u>	<u>460</u>	<u>144</u>
Ave. for 3 years	613	153	48

Feeding yearling steers on pasture in order that they can be finished for market depends somewhat on the individual operator's feed conditions and the weight of steers at the time they go on pasture. Yearling steers that have made normal gain during the winter months, that is between 1 1/3 and 1 1/2 pounds per day, will probably finish up as fleshy feeders.

One of our ranchers, who normally finished up long two-year-old grass fat steers, changed his practice in 1938 to selling long yearling feeders. The change in practice was brought about because he had, for the first time, supplemented his weaner steer calves with a concentrate and, during the winter months, they put on an average of 1.54 pounds per day, weighing 582 pounds at the time that they were turned on grass. This group of calves were kept inside on reasonably good pasture and weighed 800 pounds at market time in the fall. He normally had been selling long two-year-old fat cattle weighing approximately 1,000 pounds.

Since this operator has been carrying on beef enterprise cost studies, it was possible to determine the number of different classes of steers he sold and their weights. The following is the results of these sales:

<u>Year</u>	<u>Steers - 2's & Over</u>		<u>Steers - 1</u>	
	<u>No.</u>	<u>Weight</u>	<u>No.</u>	<u>Weight</u>
1935	56	56,784		
1936	81	85,698		
1937	93 (230)	95,511		
1938	90	93,600	87	76,386
1939	<u>17</u>	17,204	82	60,762
1940	337		96 (691)	72,384
1941			164	127,100
1942			127	97,633
1943			133	115,311
1944			171	141,758
Ave. weight		1,035	860	803
Total ave. lbs. steer per year		82,898		98,762

It will be noted that the average weights of yearling steers was a little over 200 pounds less than two-year-olds and yet he sold more meat on an average per year under the yearling sale program. He immediately began to increase his cow herd to offset the animal units of steers not maintained on his property. The following is the number of breeding cows and the number of calves for the year 1935 to 1944. It will be noted that the average number of calves during the period he sold two-year-old steers was 219 as compared to 330 during the years he sold yearlings:

<u>Date</u>	<u>No. Breeding Cows</u>	<u>No. of Calves</u>	
		<u>When Produced Steers 2's</u>	<u>When Produced Steers 1's</u>
1935	297	236	
1936	260	199	
1937	252	211	
1938	321	229	
1939	330		295
1940	317		261
1941	343		335
1942	417		277
1943	424		386
1944	447		430
Average		219	330

The total amount of meat that this rancher sold increased materially under the yearling type program. It will be noted in the following table that he sold approximately 45,000 pounds more meat when he sold yearlings rather than two-year-olds. There was no change in the ranch operations other than the supplementing of weaner steer calves with concentrates in order to maintain normal growth.

	<u>Years Sold Two's.</u>	<u>Years Sold One's</u>
1935	107,968	
1936	168,741	
1937 (230 h)	175,869	
1939		148,129
1940		153,047 (691 h)
1941		207,107
1942		245,500
1943		225,785
Ave. No. lbs. per year	150,859	195,913

Other stockmen have found it a profitable practice to finish yearling steers on pasture by supplementing them with a concentrate where there isn't sufficient grass through the grazing season to finish cattle as fat animals. During the year 1949, two such demonstrations were carried on in cooperation with two stockmen. It will be noted that stockman No. 1 made an excellent return for his pasture on an animal unit day basis. Stockman No. 2 had more light calves at the start of the feeding program on pasture. These were calves from heifers and weighed approximately 525 pounds when they were turned on grass. Therefore, it was necessary for him to feed over a longer period. The following tables are results of these two demonstrations:

Rancher No. 1

Spring of 1949 - feeding steers grain on pasture. Steers on pasture April 28 - 52 head. From the starting weight, deducted 3 percent of the gross weight. Steers fed 4 pounds barley per day. On June 8, 30 head sold. Balance - 22 head - sold July 5. The grain was never increased above 4 pounds of barley per head per day. Cost of rolled barley \$60 per ton. Pasture charged at 15¢ per head per day.

No. of steers-----	52
Net weight at start - ave. 762 - total-----	39,665
Sale weight - ave. 838 - total-----	43,600
Total gain = ave. 76-----	3,935
No. of A. U. days-----	2,726
Gain per head per day-----	1.44 lbs.

Feed

Barley - total 8,716 lbs. @ \$3.00-----	\$261.48
2726 A.U. days of pasture @ 15¢ per day-----	408.90
Total feed cost-----	\$670.38
Value of cattle at start (23¢ lb. 3% shrink)-----	9,122.95
Total cost of cattle and feed-----	\$9,793.33
Sale value of cattle-----	10,464.00
Profit for labor and investment-----	670.67
Return for pasture per A.U. day-----	39.6¢

Rancher No. 2

Feeding steers on pasture supplemented with concentrates - Summer of 1949.
 Started April 28 on pasture.

40 head weighed - gross - 724 ave.
 8 head weighed - gross - 518 ave.

Steers were fed from April 28 to June 20, 4 pounds of barley and 1 pound of cake per head per day. From June 20 to July 10, fed 7 pounds of barley per head per day. On July 20 sold 33 head at 24¢. Just before selling, one of the larger steers died. From July 10 to September 4, fed remaining 14 head 7 pounds of barley per head per day. Sold balance on September 4 for 22.5¢. Again, just before selling, one of the larger steers died. So, in calculating results, used only 46 steers. Subtracted from net weight, weight of two of larger steers (724 pounds) to establish net at start. In calculating, took 3 percent shrink from steers at start in that if sold at that time would have given 3 percent shrink. Allowed price of 23¢ per pound for value of steers at start. All weights that appear from here on are net weights, that is with a 3 percent shrink.

After determining cost of steers, divided this sum by the 46 steers sold to estimate cost of two died. This was subtracted from labor profit to arrive at net labor profit.

Data on 46 Head

Sale weight - ave. 900-----	41,441 lbs.
Weight at start - ave. 676-----	31,121 "
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Gain	10,520 "

A. U. days on feed - ave. 234-----	4,076
Gain per head per day-----	2.58 lbs.

Feed

Barley - 21,288 lbs. @ \$60 per ton-----	\$638.64
Cake - 2,438 lbs. @ \$90 per ton-----	109.71
4,076 A.U. days on pasture @ 10¢ per A.U. day-----	407.60

Total feed cost-----	\$1,155.95
Cost per lb. gain for feed-----	10.99¢

Profit

Value of steers at start-----	\$7,157.83
Cost of feed-----	1,155.95

Total steer and feed cost-----	\$8,313.78
Returns from sales-----	9,187.18

Profit for labor and investment-----	\$ 873.40
Loss by death - two steers-----	361.46

Net profit for labor and investment-----	\$ 511.94
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DISEASE CONTROL

Most of the stockmen in Lassen County have found it a good practice to carry on certain simple management practices in handling cattle and of controlling certain pests and diseases.

Castration

A number of stockmen are now using the elastrator for castrating of calves. This has proven a good practice, providing it is done before the calves are older than four weeks, preferably done earlier. The elastrator used for this purpose is the same one that has been used for the docking and castrating of lambs. It does have some advantages in that it is bloodless, absolutely sanitary, and no infection will occur through this method.

Dehorning

The use of dehorning pastes or caustic soda, if used when calves are young enough, has also been a good practice and one that is used by many stockmen. Calves shouldn't be over two months and preferably a little younger. Where caustic soda is used, trim off the nubbin of the horn flush with the head and then rub the caustic soda around the place trimmed until the bleeding stops. Be sure and work the caustic soda around the outside of the horn rim. While this job is slower than using some sort of tool to cut off the horns, it has the advantage of stopping blood losses and loss of weight of the calves at the time of dehorning. In all probability, it will more than pay for the extra time and is a practice that can be recommended wherever possible.

Contagious Abortion

This has been a serious thing among many of our stockmen, usually causing premature birth of calves in first-calf heifers. For a 12-year period, many of the stockmen in this county have carried on a program of control by using the Government Strain 19 vaccine. This has proven a very effective practice. By vaccinating the heifer calves that are kept for replacement between the ages of 6 and 12 months, contagious abortion has been eliminated from most of the herds that formerly had this disease.

Lice

New spray materials have made it possible to more easily control lice on cattle. The most commonly used is Benzene Hexachloride. Stockmen like this spray material because one spraying will do the job. The spraying should be done in the fall in order to kill all the lice off the cattle during the winter months. It isn't advisable to use Benzene Hexachloride on milking cows for human consumption or on animals that are to be slaughtered within 6 weeks after treatment.

The equipment for this purpose consists either of a powered orchard sprayer, developing 200 to 400 pounds pressure, putting the animals in a chute and thoroughly covering them with the spray material, or the spray dip chute, which is faster and much more effective than the orchard sprayer.

Warbles

Many of the stockmen are, at this time, controlling warbles, or the grub of the heel fly, by a spray of Rotenone. The first spraying in this area should be done around the first of February or about the time the warbles begin to emerge. A second spraying should occur approximately 4 weeks later. Use about 10 pounds of Rotenone spray powder in 100 gallons of water.

Good results can be obtained either with the orchard sprayer or spray dip machine. With the orchard sprayer, use about 400 pounds pressure, have a cone-shaped spray, spraying the backs of the animals, forcing the material under the hair by spraying against the grain of the hair. The spray dip machine does an excellent job but does require vigorous brushing of the back after the animal has been sprayed.

Redwater

Some areas in the county have had infections of Redwater each year. It seems to be located in pastures that are along swampy lands or in damp places. Redwater can be controlled by vaccinating all animals that are 6 months of age or older once each year. This should be done in the spring before turning on to these pastures.

Foot Rot

Foot rot can come most any time of the year. It affects the feet of the animal, causing swelling around the ankles, spreading of the toes, and at times becomes very painful. Usually, the animal that has foot rot loses weight. Sometimes foot rot occurs in more than one foot, in which event the animal may get completely down.

Many disinfectants have been used in the past to treat the infection between the toes. In recent years, one of the sulpha drugs, Sulphamethazine, has proven very successful. It comes in oblet form and can be given with a balling gun. The dosage is $1\frac{1}{2}$ grains per pound body weight for the first treatment, followed in 24 hours with about $\frac{3}{4}$ of a grain per pound body weight. Usually, this will do the job. Sometimes it takes a second treatment if the case has been a long standing one.

Blackleg and Malignant Edema

Vaccinating all calves for Blackleg has been a common practice for a number of years but recently a second disease, Malignant Edema, has shown up in a few herds which, to all appearances, acts like Blackleg. As a result, many of the supply houses are putting out a dual purpose vaccine that can be used for Blackleg and Malignant Edema at the same time. It is a good practice to use this new vaccine.

EQUIPMENT

Equipment around the ranch headquarters or in the fields where cattle are to be worked is very important to the average stockman. One of the most important pieces of equipment on the ranch is a stock scale. If scales are available, they probably should be so arranged that the loading chutes and working corrals are around the scales. Usually, these stockmen will need one cutting corral. The size of the corral depends entirely on the number of cattle the stockman desires to work at one time. If possible, cut all the corners off the corral so that one does not have any abrupt angles. Small holding corrals off the main cutting corral are of great advantage and one never has too many.

A good method would be to have the scales tied in with the holding corral so that the cattle could be cut, moved on to scales, and then to a loading chute in case of sale. Many stockmen have found that chutes and scales in connection with the holding corrals saves time. Again, cattle can be worked from the holding corral into the chute. The length of the chute depends, to a large extent, upon the number of cattle to be worked and plans for construction of chutes and squeezes are available at the Agricultural Extension Service office in Susanville. Many supply houses put out patented squeezes which are excellent but the stockman can build his own squeeze at a lesser cost if he so desires.

PROFITS IN THE CATTLE BUSINESS

Over a period of 14 years, stockmen in Lassen County have carried on beef cattle enterprise cost studies. Five of these stockmen have been in the study for the entire period of time. The following is information taken from a 14-year summary of these five men.

Definitions

The words "animal units" mentioned in this report means the following: A calf is 1/2 an animal unit, a yearling is 3/4 of an animal unit, and two years or older are one animal unit. The term "animal unit" is used primarily to determine feed consumption.

Management Income - Management income is the income left after paying all expenses of operation, including interest on investment at 5 percent, depreciation, taxes, all pasture costs, all cash expenditures, and all labor. In this instance, in determining costs the operator's time is charged up at the same rate as hired labor. Any monies left over then is his income as a manager and it is called management income. The following table is the number of breeding cows, animal units, and number of calves owned by each of these operators during the entire 14 year period:

<u>No. Cooperator</u>	<u>No. Cows</u>	<u>A. U.</u>	<u>No. Calves</u>
1	4,763	7,846	4,042
2	1,571	2,244	1,446
3	4,434	9,126	3,229
4	2,210	3,334	1,844
5	4,719	9,262	3,746
Total	17,697	31,812	14,307

The following information has to do with the costs and income of the cattle business for these five men. The size of their operations varies from 120 breeding cows to 340, or an average of 172 animal units to an average of 661 animal units. Some of these men use both public domain and National Forest Service lands for summer feed, some breed under fence, some on the open range. All cattle, however are handled as range cattle. The following is a summary of the entire five men for 14 years. It will likewise be noted that the management income per cow or per animal unit was relatively small. The period involved in this study was from 1935 to 1948, inclusive. Therefore, it took in some of the low priced cattle years and the highest priced cattle years. Therefore, the average for the period should be relatively good and reasonably sound in determining about what might be expected from a beef cattle enterprise.

No. of cows	17,967
No. of A. U.	31,812
No. of calves	14,307
Percent calf crop	80.8
Meat sold per cow	574 lbs.
Meat sold per A. U.	327 lbs.
Income per cow	\$59.77
Expense per cow	51.78
Management income per cow	7.99
Income per animal unit	33.22
Expense per A. U.	28.80
Management income per A. U.	4.42

The following table is the feed consumption, other than grass, for these five men for the entire 14 years. It will be noted that it required 1.03 tons of hay per animal unit, or 1.85 tons of hay per cow per year. Again, there was a variation between the operators, depending on location of the ranch and the conditions under which the cattle were fed. Where corrals were dry and cattle had some shelter, either from timber or sheds, it seemed to require less hay than where we had wet, sloppy corrals and cattle were exposed to the weather. The amount of hay consumed varied from year to year. In long, cold winters hay consumption went up, in mild winters hay consumption went down. Sometimes the stockman found he didn't have sufficient hay to feed the necessary amount to his cattle and supplemented this with cottonseed cake, which did reduce somewhat the amount of hay used. The concentrates fed by these men were the concentrates fed to their weaner calves, to their breeding cows in the form of cake, or to finish up steers.

Feed Consumed

Hay-----	4,042 tons
Concentrates-----	435,286 lbs.
Hay per cow-----	1.85 tons
Concentrates per cow-----	77 lbs.
Hay per A. U.-----	1.03 tons
Concentrates per A. U.-----	43 lbs.

The profits to be made in the cattle business are dependent, to a certain extent, on the kind of cattle sold as well as numbers of cattle or pounds of meat. Seemingly, those men who sold a higher percent of calves or steers produced higher income than those who sold a higher percentage of cows. It was quite noticeable in this study that the percent of calf crop was a determining factor in many instances in kind of cattle sold. For instance, in order to sell calves a stockman should have at least an 85 percent calf crop, or better, and his calves should be uniform in age and weigh 400 pounds or better at weaning time. Between a 75 and 85 percent calf crop it probably would be more profitable to sell long yearlings. Between 65 and 75 percent calf crop he probably will want to sell two-year-olds, and when the calf crop gets much under 65 percent quite often he will sell a few long three's along with his two-year-old cattle.

The experience by stockmen in the county has proven, through tests and demonstrations, that the most money is made and the cheapest gains made on the calf. Therefore, the higher the percent of calf crop and the more they weigh at weaning time, the more likely the stockman is to show a reasonably good profit. The following table is a general summary of all the cattle sold by these five men for 14 years, giving the kind of animals sold, numbers, total weights, and average weights and what percent each class of cattle was of the total meat production:

<u>Kind of Animal</u>	<u>No.</u>	<u>Total Wt.</u>	<u>Ave. Wt.</u>	<u>% of Total Wt.</u>
Bulls	117	169,960	1,452	0.6
Cows	3,620	3,274,872	1,003	32.4
Calves	5,027	1,749,844	348	17.4
Heifers	894	634,599	709	6.4
Steers under 2	2,761	2,207,175	799	22.1
Steers 2 and over	2,139	2,130,419	995	21.1
Totals	14,558	10,166,869	696	100

INVESTMENT

Investment in the stock cattle business here in Lassen County is large compared to the returns. The turnover of capital is slow. In 1948, the five men who were keeping enterprise cost study records sold \$131,938 worth of cattle. They had an investment at that time of \$538,240. On this basis, they turned over their money once in 4.4 years. However, 1948 was one of the highest priced cattle years in history. The average yearly income from sale of cattle of these five men for the 14 year period was \$76,655. Using the 1948 investment as a basis to determine turnover, then the stockmen turned over their capital once in 7 years.

The stock cattle operator, in addition to owning cattle, must have sufficient hay lands to produce his winter feed. He must have available lands for grazing, either public or private, for about 8 months of each year and he must have good summer pasture if he plans on selling grass fat cattle. Public lands are all controlled by government agencies. The Public Domain lands, which make up approximately 38 percent of the lands in Lassen County, are administered by the Bureau of Land Management of the Department of Interior. They issue grazing permits on these lands but the grazing permits are issued to those ranches that are adjacent to the range and have used the range in past years. These grazing permits become a part of an individual ranch operation and can not be acquired separate from the ranch. The National Forest, which owns about 22 percent of the land in Lassen County, issues grazing permits on a somewhat similar basis. Very seldom do they ever issue a permit to an operator unless he has acquired lands that already have permits. For a new operator, then, it would be impossible for him to acquire grazing rights on these public lands unless he purchased lands that already had grazing rights.

In 1948, the five stockmen who have maintained these cost studies had an average investment of \$421 per cow or \$279 per animal unit. The following is a summary of the investment of these five men:

<u>Stockman No.</u>	<u>Investment</u>	<u>No. Cows</u>	<u>No. A. U.</u>
1	\$ 44,831	106	130
2	53,388	124	186
3	146,602	363	678
4	160,076	296	442
5	133,343	389	492
Total	\$538,240	1,278	1,928

Investment per cow ----- \$421.00
 Investment per A. U. ----- 279.00

Because of the slow turnover of capital in the stock cow business in this county, it is necessary that the stockman be amply financed and he must be a good manager to survive. A good stockman doesn't make his income as a laborer but as a manager.

The minimum number of breeding cows needed to maintain a family, where no other ranch income is available, is about one hundred. Thus, the minimum investment is about forty thousand dollars.