

reduction of indebtedness to a sound basis and that hereafter such monies as may remain available be invested in War Bonds.

Nevertheless, we are confident that the men and women on the ranches and farms of New Mexico realize the necessity of supplying the government with dollars required in this period when the fate of freedom in the world rests upon the result of the present invasion campaign.

We are certain that the men and women of the farms and ranches of this State realize the importance of building a substantial backlog of readily available reserves for use in the replacement of windmills, fences, home ranch equipment and household equipment so long delayed by the priorities enforced by the war, and that they know there can be found no safer investment and no more readily marketable a reserve for these things than in the bonds of our government.

It will not be surprising if New Mexico again exceeds its quota in the present Fifth War Loan Campaign, and it will not be surprising if the livestock growers of our state do more than their share, as has been the case in each of the previous war loan campaigns.

THE 1944 STATE FAIR

NEW MEXICO'S annual State Fair will be held as usual during the eight days from September 24 thru October 1. It will be a good Fair. It will provide a period of relaxation for our people—to which they are entitled. It will provide competitive exhibits which cannot fail to encourage improved production of everything that goes to build prosperity in an agricultural state.

The management of the State Fair has done a remarkable job. Starting with nothing but a tract of bare mesa land and a pitifully small appropriation from the State, it has built, within seven years, a plant with an inventory value of approximately half a million dollars and has provided exhibit buildings which will compare favorably with any similar plant in any of the Western states.

The management, by careful attention to its operating expense, has been able to increase its offerings in cash awards for livestock, farm products and home sciences and arts in each succeeding year. This year, these awards are again increased. They are sufficient to attract the attention, the interest and the exhibits of livestock growers, farmers and housewives. If you who are interested in entering exhibits in your State Fair and expect to participate this year, now is the time to begin the conditioning of your cattle, the saving of your choice fleeces and the preparation of those articles of the home arts and sciences—which latter attract increasing attention each year.

The State Fair has had a definite influence in encouraging better breeding, improved farming methods and in the production of food for home tables, so essential in this war period.

Attendance has proven that our people want the Fair, that they enjoy it and find satisfaction in the amusements offered and in the notable expansion of its agricultural and other exhibits.

A Deming newspaper reports two recent sales of yearlings and twos in the southwestern area, at good prices. W. O. Hall of Deming sold 300 steers at 13½ and 14 cents; while Numa Brothers of Hillsboro, were reported to have sold 1 000 head of two-year-olds at \$70 per head. The cattle were for May 1st delivery.

WHAT CALF CROP FOR PROFIT?

00065

By FRED N. ARES and S. CLARK HARTIN

Southwestern Forest and Range Experiment Station, U. S. Forest Service

TWO VISITORS always welcomed by cattlemen are a good rain and a new born calf. Obviously the occurrence of rain is beyond man's influence, but the number of curly-haired, wobbly-kneed calves that appear each spring is, to a considerable extent, within his control.

During the early days of the cattle industry in the Southwest, when large numbers of cattle drifted at will on the open range, a 30- or 40-percent calf crop was considered fairly good. However, with the advent of barbed wire and more intensive ranching methods, including some reduced stocking, calf crops have steadily increased until an average of 75 percent or better for a locality is not uncommon and on some ranches even higher rates of increase are obtained.

Like a manufacturing enterprise, the southwestern cattle ranch, with its range land, saddle and work stock, improvements and equipment, and its carefully selected breeding herd represents a plant in which capital is invested to turn out a finished product—the calf. Whether the calf is turned into beef or is used for replacement, all the energies and efforts of the enterprise are

dedicated to turning out the greatest possible number of high-quality calves. For the ranch as well as the factory the economic story is told by the quantity and quality of the product together with the cost of production and the price received. Profits on a cattle ranch are increased not so much by depending upon an increase in price of the product as by bettering the quality, increasing the rate of production, and reducing costs.

A Sample Operation

The U. S. Department of Agriculture's Jornada Experimental Range in southern New Mexico is a sample cow and calf operation on which the various items of expense involved in producing a calf have been analyzed and the influence of the calf crop on profits determined.³ This study covered the 15-year interval from 1928 to 1942 and included all the climatic and economic fluctuations of that period. Close cooperation with practical cowmen, who own and operate the experimental herd on the Jornada under cooperative agreement with the Secretary of Agriculture, has made possible the

(Continued on Page 5)

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WHAT CALF CROP FOR PROFIT?

(Continued from Page 3)

collection of the data used here. The present cooperating stockman is Mr. B. A. Christmas of Las Cruces, New Mexico.

Production Costs and Income

Economic analysis of the Jornada operations indicates that with a total per calf investment of \$159.51 in ranch improvements, equipment, land and livestock the average cost of producing a calf was \$13.70 for the 15-year period. Since the gross income per calf from all sources was \$27.74, the average net income per calf was \$14.04. As discussed in a previous article,⁴ the various items of cost involved are necessary overhead expenses of any ranching operation. These costs include charges for labor, feed, grazing fees, depreciation, supplies, and other miscellaneous expenses.

Influence of Calf Crop on Returns

The results obtained from the Jornada calf study referred to above are based on an average herd of 882 cows with an average of 652 calves, or a calf crop of about 72 percent each year for the 15-year period (see table 1). For semidesert range with its adverse climatic conditions, the size of the operation, and the length of time involved this percentage of calf crop is considered good. It paid all operating costs, yielded a 4-percent return on the capital invested, and, in addition paid the operator a salary of \$416.19 per month.

Referring to table 1, it is interesting to see what the results would have been if the average calf crop for the 15-year period had been 706 calves, or 80 percent. Considering costs as remaining the same as for the 74 percent calf crop, the total annual outlay per calf for an 80 percent calf crop would have been \$12.65, yielding a net income of \$15.09. Similarly, for 750 calves or an average of 85 per cent calf crop the total annual operating cost per calf would have been reduced still further to \$11.91 with the net income increased to \$15.83. At this rate the rancher would have paid all operating expenses, received a 4-percent return on capital invested, and in addition secured an

annual compensation for his time, labor and ability amounting to \$7,710.00, or \$642.50 per month.

Let us now examine some cases with low calf crop and see what the penalty is for entertaining a bunch of dry cows on the range. If for instance, the average annual calf crop had been 60 percent or 529 calves and costs had remained the same, the average cost of raising a calf would advance to \$16.88, leaving a net income of \$10.86 per calf. In this case, after paying all expenses of operation, the ranch with a 60 percent calf crop would make the customary 4 percent on the investment but would yield only \$132.25 per month as compensation to the operator for his work and time.

A 40 percent calf crop of 353 calves under the same circumstances would raise the cost to \$25.30, leaving a net annual income of \$2.44 per calf. This would return less than 1 percent on the investment and, of course, leave nothing for owner's compensation. Following through on this line it can be seen in this particular ranch set-up it requires at least a 36.5 percent calf crop, or 322 calves, to pay operating expenses.

In the foregoing discussion and calculations, it was assumed that operating costs would be the same with 40 calves per hundred cows as with the 73.9 percent average of the 15-year study period. It was also assumed that costs would have remained the same as for the 73.9 percent calf crop if the calf crop had been increased to 80 or 85 percent. Are these assumptions logical? Remember that even with only a 40 percent calf crop 882 potential breeding cows would still have to be maintained on the range and that the expenditures for grazing charges, salt, supplies, etc., would be about the same as if the maximum calf crop had been produced. Repairs, interest, taxes, and depreciation would also show little change, because they are costs not greatly affected by changes in the calf crop. It may be seen, then, that the major costs of ranch operation which have already been mentioned would not be greatly affected by changes in the calf crop.

It is true that slightly higher labor costs

for handling the larger calf crops could occur, that more salt and vaccine would be needed, and that more supplemental feed might sometimes be used. However, enlarged profits should more than offset the additional cost.

How to Increase the Calf Crop

In the preceding discussion the economic importance of increasing calf crops has been plainly demonstrated by its relation to the costs and to the profits or losses of ranch operation. Calf crops of 80 to 85 percent have been suggested and the fact that four times during the 15-year study period calf crops exceeded 80 percent on the Jornada (three times with a score of over 90%) is ample proof that large calf crops are possible.

Now that we understand something of the importance of obtaining large calf crops, let's see what can be done to achieve them. Careful culling of the breeding herd each year and the use of plenty of good, active bulls are of course necessary, but a most important factor is the amount of forage that is available to each animal. Ordinarily the quantity of feed each cow receives can be increased in either of two ways (1) more feed can be provided or (2) the number of cows reduced.

Table 1.—Returns which may be expected from various sizes of calf crops from a breeding herd of 882 cows:

Percent calf crop	Number of calves	Cost of production	Net income per calf	Percent return on investment	Owner's compensation per month
36.5	322	\$27.74	\$ 0.00	0.0	\$ 0.00
40.0	353	25.30	2.44	0.8	0.00
60.0	529	16.88	10.86	4.0	123.25
74.0	652	13.70	14.04	4.0	416.19
80.0	706	12.65	15.09	4.0	541.27
85.0	750	11.91	15.83	4.0	642.50

¹Total investment, not considering indebtedness.

SPRING AND SUMMER FEEDING IS THE ANSWER

The challenge to the stockmen is to produce more meat and more wool at a profit and at the same time prevent ruinous overstocking of the ranges. This challenge can be met ONLY by supplemental spring and summer feeding. Summer feeding insures larger calf and lamb crops next year (an increase of from 5% to 30%) and such livestock go through the winter better on less winter feed.

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WHAT CALF CROP FOR PROFIT?

(Continued from Page 5)

On the range there is really only one choice—fewer cows.

Borrowing a term from the feedlot, we find that a maintenance ration may be defined as the quantity of feed required daily to keep a dry animal (an unbred dry cow or a steer) healthy with no gain or loss in weight. Applying this definition to the range cow, we find she must consume a certain quantity of grass, weeds, and browse merely to keep her own body in repair and that she can give no real production until after these requirements have been satisfied. Suppose then, that a range is producing just enough forage to satisfy the maintenance requirements of 100 dry cows and that a rancher is grazing a breeding herd of 100 cows on it. What will be the results? (1) Every cow that calves will lose weight as a part of the feed needed for her maintenance will be converted into milk for the calf. (2) The calves will be light at marketing time because cows cannot give maximum milk production on maintenance rations. (3) Small calf crops may be expected because a large proportion of the cows that calve one year will fail to breed and will skip a year or more before calving again. (4) The cattle will keep the range so closely grazed that no reserve forage will be left to carry them through a hard winter or a drought. (5) Actually there would be no real beef production for gains made by the calves would be reflected in losses by the cows.

A condition of this sort damages the range, causes excessive death loss from poverty, makes big feed bills, and cuts severely into the profits of the rancher. On the other hand, if only 60 breeding cows were grazed on this same range a large percentage of the cows should be able to raise big calves every year. To make it simple, let us assume that cutting the size of the breeding herd from 100 to 60 will increase the calf crop from 48 to 80 percent. A 48-percent calf crop from 100 cows and an 80-percent calf crop from 60 cows are the same from the standpoint of numbers, however, the calves from the smaller herd should be heavier and command a higher price. Conservative grazing in this case would provide both more beef and greater profits.

Paradoxically, then, the way to increase beef production may be to reduce stocking. Such action, in the case of a heavily grazed range, will help provide the remaining cows with the forage necessary for the production of more and better calves. Reducing cattle numbers to fit the forage supply is most important, and this, when coupled with other recommended management practices such as the use of good bulls and careful culling to remove the "star boarders," will make an effective contribution to wartime beef production. Surplus animals sold now will swell beef supplies this year. Bigger and fatter calves will help out next year and in the years that follow.

¹Superintendent of the Jornada Experimental Range, a branch of the Southwestern Forest and Range Experiment Station, and Range Conservationist respectively.

²Maintained by the Forest Service, U. S. Department of Agriculture, for Arizona, New Mexico, and West Texas, with headquarters at Tucson, Ariz.

³Ares, Fred N. What does a range calf cost? The New Mexico Stockman 8(12):3-4, illus.

⁴Ares, Fred N., and Valentine, K. A. Range cattle management on the Jornada Range. The American Cattle Producer 24 (12):7-10, illus.



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