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IN CALIFORNIA

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# FEEDING BEEF CATTLE IN CALIFORNIA

H. R. GUILBERT<sup>1</sup>

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## INTRODUCTION

In the beef cattle industry conducted on a range basis, finishing in the feed lot is usually a separate business from raising the cattle. Cattle may be raised on cheap lands on grazing areas not suitable for cultivation, whereas the feeding or finishing must be done in farming areas where a surplus of roughage and concentrates is produced. The Southwest and Intermountain regions are typical cattle raising or breeding grounds, while the Corn Belt is the great finishing area.

In California there are vast areas of grazing lands, which at present are depended upon not only to carry breeding herds, but also to furnish fat cattle for market. Although feeding is done in the irrigated valleys, it does not at present occupy a very significant place in the program of beef production of the state.

Combining the growing of livestock with other lines of agricultural production furnishes a logical means for maintaining the productivity of the soil. A part of the acreage of many valley ranches should be devoted to the production of feed for livestock, and the manure from the feeding operations used to maintain the fertility of the land. The advisability of this practice has been demonstrated by farmers who have successfully balanced their business through the keeping of livestock. Beef cattle should find a place with other livestock production on valley ranches. The finishing of cattle should become a more important factor in the beef cattle industry for the following reasons:

1. The increasing cost of production of beef in general and a rapidly growing market demand for lighter carcasses of beef necessitate more economical methods of production through quicker turnover, that is, through a more rapid growth of cattle to market weight. The range man can produce feeder calves and yearlings economically, but these younger cattle from the range are not ordinarily fat enough for market. Such cattle are economical feeders and, if well bred, should top the market when fat.

2. Many ranges do not furnish the quality and quantity of feed necessary to put cattle in marketable condition.

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3. Feeding makes possible the marketing of California cattle throughout the year. Fed cattle can be marketed before and after the heavy runs of grass cattle, gradually diminishing the excess supply of these periods, and thus tending in some degree toward stabilizing prices for both thin and fat cattle, the former going to the feed lot and the latter to the block. The period of heavy receipts of California cattle is usually during May, June, and July, when large numbers are marketed from the spring range. During November, December, and January a large percentage of the cattle slaughtered is shipped in from neighboring states.

4. There appears to be a demand for beef of better quality than can be regularly secured now in the coast markets.

5. Most of the feeds necessary for the finishing of cattle are being produced or can be produced on valley ranches, and through the utilization of home-grown feeds, cattle feeding as a regular part of the farm business should be profitable under favorable conditions.

#### WHY CATTLE ARE FATTENED

Cattle are fattened because the meat of fat cattle is more tender, has a higher flavor, and keeps better than the meat from thin or half-fat animals. The consumer likes well fattened beef and is willing to pay for it, provided there be not too much waste. This means it must come from a young animal which has been bred for beef. In the meat from such an animal, there is a mixture of fat and lean resulting in tenderness. In animals lacking in beef tendencies, the fat is distributed in rolls and patches on the outside and around the internal organs, not improving the quality of the meat. Such fat, trimmed off, goes either to the soap factory or the garbage can.

#### BUYING FEEDERS

*Cost of Feeding Operations.*—The cost of a pound of gain in the feed lot is usually greater than the ultimate selling price of the animal to the pound. The profit in cattle feeding, therefore, comes largely from increasing the value of the original weight of the animal by improving the quality.

A spread or margin between the buying and selling price is clearly necessary if a profit is to be made. The following example will make this point clear. Suppose that a 750-pound feeder cost \$6.50 a cwt., or \$48.75, and that the cost of 200 pounds of gain is \$15.00 a cwt., or \$30.00. The total cost of the steer would then be \$78.75. The finished

steer, weighing 950 pounds, would have to bring \$8.29 a cwt. for the owner to break even. In other words, a margin of \$1.79 a cwt. between buying and selling price is necessary in order to meet the cost of feeding. Though the gain cost \$15.00 a cwt., a spread of only \$1.79 a cwt. between the buying and selling price would be necessary to break even, because of the increased value of the original weight. By studying the market prices of thin and of finished cattle and approximating the cost of gains, an estimate of the probable outcome of feeding operations can be made. When estimating the cost of feeding operations, the feed, interest on the investment, labor, freight, marketing expense, and shrinkage should be considered.

In an investigation made by W. F. Ward<sup>2</sup> cattle in transit less than 24 hours shrank 2.05–3.91 per cent. Those in transit 24 to 36 hours shrank 3.46–6.37 per cent. Those in transit 36 to 72 hours shrank 3.88–5.40 per cent. These figures are based upon the weight at the loading point and the terminal weights after the cattle had taken a fill. Great variation is found in the shrinkage for the same length of haul. This is caused by the weather conditions, amount of fill at the time of loading, the fill taken at the market, and other factors.

Cows shrink slightly more than steers of the same weight, but the difference is not so great as is commonly believed. The fill taken at the market varies greatly and depends upon the condition of the cattle and length of time in the yards before weighing. The fill taken by a 900–1000 pound steer at the terminal market usually runs between 25 and 35 pounds. When selling on off-car weights, the shrinkage averages from 2 to 3 per cent higher. A twelve-hour stand without feed or water is approximately equivalent to a 3 per cent shrink.

The profit from a feeding operation is often made impossible at the start by the high price paid for the feeders. Good judgment in buying and selling is as important as efficient feeding for successful cattle feeding operations.

*The Type of Steers to Feed.*—High grade steers as shown in figure 1, sired by good purebred beef bulls, make more economical gains and turn out better carcasses than common steers and, therefore, are usually most satisfactory to feed. Less margin is required to break even with choice feeder steers than with common ones. The cattle feeder needs to know values as well as types.

Sometimes the spread in price between common cattle and the better grades is greater when the animals are thin than when they are ready

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<sup>2</sup> Ward, W. F. The shrinkage of weight of beef cattle in transit. U. S. D. A. Bul. 25:1–78, 1913.

for market, thus giving a greater margin for common grades than for choice. If this margin is sufficient to more than offset the less economical gains, the feeding of the poorer grade is made profitable. This situation sometimes occurs in the middle western markets where the competition among the cattle feeders for the best cattle may raise the price above a point where the market outlook justifies buying. If common cattle can be bought cheaply enough, there is money in



Fig. 1.—A good feeder steer. This animal has a good feeder head, deep chest and middle, and a fairly good top, but is somewhat deficient in hind quarters.

feeding them, but the man who raises them is the loser. Also, there is more satisfaction in feeding a good steer than a poor one. An inferior steer, such as that shown in figure 2, is not profitable to feed. This photograph was taken after the animal had been grain-fed 100 days. It is almost impossible to fatten a steer of this type.

Table 1 shows that the choice steer dressed out a lower percentage of cheap cuts and a higher percentage of high priced cuts, than the average steer.

The chief characteristics of the best type of feeder steer are broad, deep, lowset, compact body; straight back and underline; wide sprung ribs and loin; thick thighs; and deep twist. A large girth, short neck, short, broad head with large nostrils, clear eyes, and a quiet disposi-

tion indicate easy and economical fattening qualities. Breeding counts in the feed lot; feed cannot make a choice steer out of a common feeder.

It is important to select feeders that are uniform in size, quality, conformation, and color. They finish more evenly and are more attractive to the buyer. Steers should be dehorned before they go

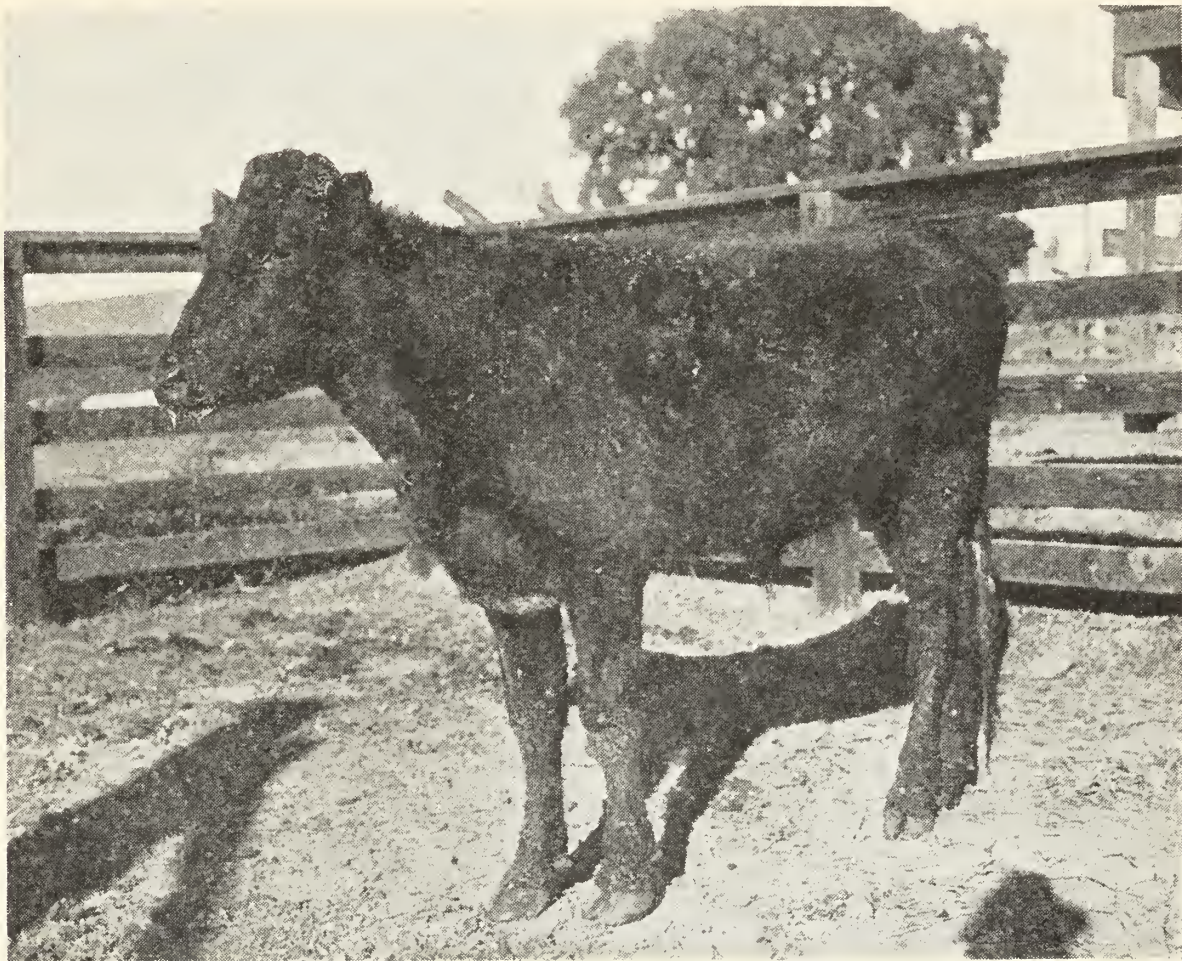


Fig. 2.—Inferior steer after having been full-fed on grain for 100 days.

TABLE 1

CUTS FROM THE AVERAGE STEER KILLED BY CALIFORNIA PACKERS COMPARED WITH THOSE FROM A CHOICE STEER USED IN A CARCASS DEMONSTRATION AT THE UNIVERSITY FARM, DAVIS, CALIFORNIA

Cuts	Average steer, per cent	Choice steer, per cent	Wholesale price per lb. (June, 1925)
Shin and shoulder.....	11	8.20	13c
Plate.....	14	12.77	8c
Chuck.....	19	15.72	9c
Prime rib.....	10	13.88	21c
Loin.....	17	22.23	27c
Round.....	24	22.10	15c
Trimming.....	5	5.10	6c
Totals.....	100	100.00	

into the feed lot, as they will gain faster, be more quiet, take up less room at the feeding bunks, and will not injure or bruise one another in shipping to market. It is preferable to buy dehorned feeders as they are ready to start fattening immediately without shrinkage or setback.

*Weight and Age of Feeders to Buy.*—In considering the age of steers to feed, the following facts should be considered:

1. Older steers gain slightly more a day than do younger steers, but not more a day to each 1000 pounds of live weight.

2. Younger steers require less feed for each pound of gain. Feeding trials in general show a saving of from 25 to 30 per cent of feed for a pound of gain in the case of calves and from 15 to 25 per cent in the case of yearlings, as compared with 2-year-old steers.

3. Older steers utilize a larger proportion of roughage in their feed than younger cattle.

4. Younger steers may require a longer period to acquire the same degree of finish. The time required to fatten calves is from 5 to 8 months; yearlings from 4 to 6 months; and 2-year-old steers from 3 to 4 months.

5. A larger proportion of gain in older steers is fat, and less is protein and water. In other words, more of the gain in young steers is in growth of lean tissues, which are high in protein and water.

6. Steers of different ages utilize about equally the excess digestible nutrients consumed above the requirements for maintenance. However, the maintenance requirement of older steers is greater.

*Financial Aspects of Feeding Steers of Different Ages.*—1. The profit or loss depends largely upon the difference in the price paid for feeders and the price received for the finished steers.

2. The cost of a pound of gain is less with younger cattle, but they have to be fed for a longer period than mature cattle. The feed cost of a pound of gain is usually greater than the selling price. The longer feeding period with young cattle results in a relatively larger portion of the investment being in feed cost and less in the purchase price of the feeder as compared to mature cattle. The longer feeding period, together with the fact that the operator gets the increase in value on only a small original weight, tend to offset the advantage of requiring less feed for a pound of gain.

3. Heavy cattle come suddenly to the end of the period when it is profitable to feed them, while younger cattle continue to grow and make normal gains at a fairly low cost after they are in marketable condition, thus offering a more extended period in which they may be marketed.



4. Light-weight, finished cattle have commanded the best price for the last few years.

5. Feeding younger cattle is less speculative than feeding older ones.

6. The difference in favor of older cattle is greatest when the margin between thin and finished cattle is greatest and when concentrated feeds are high. These two factors depend upon the future of the market and are difficult, if not impossible, to predict.

*Where to Buy Feeders.*—Men in the Corn Belt buy feeders extensively at central markets where they can find large numbers of cattle from which to make selection without making an extended trip over the country. It is also easy to secure uniform loads, and the contact with the market helps to familiarize the operator with the kind and quality of cattle wanted. In California most of the feeder cattle are bought directly from the producer, a system which has the advantages of saving freight and commissions for the buyer. The California Cattlemen's Association maintains a feeder department to facilitate the locating of feeder cattle.

### PRINCIPLES OF FEEDING

Feeds are composed of water, protein, sugar and starches, fiber, fats, and mineral matter. Protein is used in the animal body largely for the production of the lean or muscular tissue, hair, hide, horn, hoof, etc. The sugar, starch, and fiber are all grouped together under the name of carbohydrates. Carbohydrates are used by the animal for the production of heat and energy to run the machinery of the body and for muscular work. Any surplus is changed into fat and stored in the body. Fat is used for the same purpose as carbohydrates. The food value of a pound of fat is equivalent to that of  $2\frac{1}{4}$  pounds of carbohydrates. Mineral matter is used in building the skeleton and in the vital processes of the body.

In addition to these feedstuffs, there are several substances of unknown composition which are called vitamins that are necessary to health, growth, and reproduction.

All of the food nutrients will be supplied if the following rules for feeding beef cattle are observed:

1. Feed a balanced ration, which means using feeds containing protein, carbohydrates, and fat in the proper proportion to take care of the animal's needs.
2. Have plenty of fresh clean water available at all times.

3. Feed plenty of roughage or bulky feed. The mineral requirement, with the exception of salt, will then be met, especially if the roughage is a legume hay.

4. Keep salt available at all times.

5. Feed a variety of feeds in order to get the right quality of protein.

6. Feed green or succulent feed as much of the time as possible in order to meet the vitamin requirement. Bright alfalfa hay and most grains also supply vitamins.

The animal uses a certain amount of food to repair the body tissues, to maintain the body temperature, and to furnish the energy required. This amount is referred to as *maintenance requirement*.

In young animals, feed consumed above the maintenance requirement is used for growth, and if there is still an excess, for fat production. In mature animals, the excess is used for the production of fat alone.

*The Problem of the Cattle Feeder.*—The problem of the cattle feeder is to furnish his animals a surplus of feed above the requirements for maintenance and growth sufficient to produce rapid gains and quick finish. The steer is always using a large quantity of feed just to keep alive. The greater the quantity of feed consumed daily, the greater the gain will be and the quicker the finish, thereby decreasing the proportion of feed used for maintenance. Economy of gain is based on this principle. The best ration is the one which will give quick results at low cost. No one ration is best at all times because of the fluctuating price of feeds.

*The Value and Use of Common Feeds.*—**Barley, milo, kafir, and feterita** are worth almost as much as corn for fattening cattle. Small grains should be ground or rolled for cattle feeding.

**Cottonseed meal and linseed meal** are equal to barley as a fattening feed. They are more valuable as sources of protein to balance such feeds as barley or other grain, grain hay, silage, or fodders low in protein. By balancing the ration, one pound of cottonseed meal may save many pounds of other feeds in making gains. If alfalfa hay, which is rich in protein, be the chief roughage, protein concentrates such as cottonseed meal are unnecessary and should be used only when they are the same price or cheaper than the common grains. An exception to this might be in the case of full feeding grain and alfalfa hay, especially to calves and yearlings, when protein concentrates toward the end of the feeding period may prove advantageous.

Cattle sometimes eat one or two pounds of cottonseed meal in addition to all the hay and grain they will consume. The extra feed may, on account of the greater consumption, increase the gains sufficiently to be profitable. Cottonseed meal varies in grade from 36 per cent protein to about 43 per cent, the grades being designated by the terms choice, prime, and good. Choice represents the highest grade.

The results from feeding cottonseed meal and linseed meal are about equal, although linseed meal contains about 10 per cent less protein.

**Cold pressed cottonseed cake** contains about 21 per cent digestible protein as compared with 37 per cent digestible protein in choice cottonseed meal.

**Coconut meal** contains about one-half as much protein as choice cottonseed meal.

**Alfalfa** is the best single roughage; silage and alfalfa are better than alfalfa alone. Silage has a feeding value approximately two-fifths that of alfalfa, if fed with it or with protein feed and some dry roughage. Steers fed bald barley hay at the Oregon Station<sup>3</sup> made only a little over a quarter of a pound daily gain as compared with one pound daily gain on alfalfa alone. Grain hay is low in protein. When grain hay of good quality is fed with a protein concentrate, it should have a value as a fattening feed approximating that of alfalfa.

When fed in amounts not exceeding 5 or 6 pounds, **molasses** is almost equal to corn in food value. It often sells for less than half the price of barley or corn and can be used with advantage if mixed with such feeds as chopped hay and cottonseed hulls. The molasses is diluted with water and poured or sprayed over the feed which is then thoroughly mixed. In smaller amounts, not over one or two pounds, it may be sprinkled over ordinary roughage or grain to increase palatability and to induce the consumption of greater quantities of feed.

**Cottonseed hulls** have an actual feeding value approximating oat straw. Because of the nature of the feed and the ease with which it can be mixed with grain or cottonseed meal, larger quantities are consumed, and better results are obtained than on a ration of cottonseed meal and straw.

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<sup>3</sup> Potter, E. L., and Robert Withycombe. Fattening steers. Oregon Agr. Exp. Sta. Bul. 193:1-18, 1922.

### FERTILIZER VALUES OF FEEDS AND MANURE

The fertilizing constituents of feeds have an important bearing on their net value, especially on farms where fertilizer would otherwise have to be purchased. With nitrogen retailing at 20 cents a pound and potash and phosphorus at 7 cents a pound, the fertilizer values which may be recovered in manure from a ton of some common feeds are as follows:

Barley, \$6.19
Cottonseed meal, choice, \$23.37
Linseed meal, \$17.42
Alfalfa hay, \$9.29

Such computation is usually based on the general fact that about 80 per cent of the fertilizer constituents are recovered in the manure. However, some loss occurs in the manure under the best of conditions; therefore, these figures are based upon the recovery in the manure of 65 per cent of the actual fertilizer value in a ton of feed.

Over a 120-day feeding period, a mature steer will produce about 4 tons of manure, having a value of from \$10 to \$12. Operators who properly conserve and need to utilize the manure consider that even though they just break even on the feeding enterprise, they still have a profit in the increased yield of crops resulting from the application of the manure.

### METHODS OF FEEDING

*Grass Alone.*—Grass is the cheapest of feeds but, even when present in abundance and under favorable conditions, it will not put cattle in marketable condition at less than two years of age, while in the past many steers so handled have been carried to 3, 4, and 5 years of age. Too often the steer on grass alone gains during one season of the year and loses during the season of short feed, on account of overstocking and a lack of reserve feed. This results in carrying the steer on from year to year until fat. Such procedure cannot result in much profit. The steer that goes steadily forward in a gaining condition to market weight, is the one most likely to return a profit.

*Grass Plus Grain or Cottonseed Cake.*—Although not extensively practiced, and although few records are available, it seems feasible to finish out long yearlings and 2-year-olds and possibly younger stuff on the spring ranges by feeding ground barley, milo, kafir, or cottonseed cake in addition to the grass. When the prices of these feeds are not prohibitive, the use with the grass of enough concentrates to finish

the steers seems to be more profitable than carrying the cattle another six months or a year and a half on grass alone. Cattle fed on green pasture, which is high in protein, do not require much protein feed, such as cottonseed cake, to balance the ration. What is needed is additional fattening feed. For fattening purposes, cottonseed meal is worth no more, pound for pound, than barley. Some cattlemen who feed cottonseed cake to cattle on dry pasture, find it more profitable than carrying them a longer period on grass alone.

TABLE 2

A SUMMARY OF SEVERAL FEEDING TRIALS CONDUCTED BY VARIOUS EXPERIMENT STATIONS ADAPTED TO CALIFORNIA CONDITIONS

	Lot I Alfalfa hay*	Lot II Alfalfa hay plus small feed of barley*	Lot III Alfalfa hay plus full feed of ground kafir†	Lot IV Alfalfa hay plus sorghum silage and linseed oil meal‡
Initial weight.....	1039 lbs.	1090 lbs.	952 lbs.	986.60 lbs.
Final weight.....	1155 "	1239 "	..... "	1208.67 "
Daily gain.....	.97 "	1.24 "	2.4 "	1.85 "
Daily ration:				
Alfalfa hay.....	32 "	28.95 "	15.1 "	2.98 "
Grain.....	.....	4.80 "	16.7 "	.....
Silage.....	.....	.....	.....	48.21 "
Linseed oil meal.....	.....	.....	.....	2.51 "
Feed for 100 lbs. gain:				
Alfalfa hay.....	3298 "	2334.67 "	636 "	160.76 "
Barley.....	.....	387.09 "	697 "	..... "
Silage.....	.....	.....	.....	2605.29 "
Linseed oil meal.....	.....	.....	.....	135.77 "

\* Potter, E. L., and Robert Withycombe. Fattening steers. Oregon Agr. Exp. Sta. Bul. 193: 1-18. 1922.

† Henry, W. A., and F. B. Morrison. Feeds and feeding. 18th edition. 1-770. Henry and Morrison Co., Madison, Wisconsin. 1923.

‡ McCampbell, C. W., and H. B. Winchester. Cattle feeding investigations. 1919-1920. Kansas Exper. Sta. Circ. 18: 1-11. 1921.

*Feeding in Dry Lot.*—Table 2 shows the results of several feeding trials at different agricultural experiment stations. The data from lots I, II, and III offer the comparative results of feeding (1) hay alone, (2) hay with a light grain ration, and (3) hay with a full grain ration, while data from lot IV show the results obtained from a ration of hay, silage and linseed oil meal. The rate of gain and the amount of feed for 100 pounds gain is given in each case.

The feeding values of kafir and barley are so similar that barley may be substituted for kafir in the above table for purposes of comparison and for estimating the probable cost of gain. By applying

current feed prices to the amount of feed required to make 100 pounds of gain in the above trials, an estimate can be made of the relative economy of the different rations. It should be borne in mind, however, that the finish determines the selling price and that rations containing grain put on a higher finish than hay alone. The economy of a ration is not determined alone by the daily cost to the head, but by this cost in relation to the results secured.

Considering the gains made, the finish secured, and the economy of gain in table 2, the ration of silage, alfalfa hay, and linseed oil meal seems to be one which will work most advantageously under California conditions for the finishing of yearling and 2-year-old steers, except that cottonseed meal should be substituted for linseed oil meal. Cottonseed meal is cheaper in California than linseed oil meal; both produce practically the same results. Corn or sorghum silage can be used, according to the comparative yields of the crop in a particular locality. When barley or other grain is cheap, it can be added with advantage. This ration contains a minimum of concentrated feed, the bulk of the ration being made up of feed suited to valley conditions.

TABLE 3

AVERAGE OF 20 TRIALS WITH A TOTAL OF 377 TWO-YEAR-OLD STEERS AVERAGING 978 POUNDS IN WEIGHT, WHICH WERE FED AN AVERAGE OF 153 DAYS\*

	Lot I (no silage)	Lot II (fed silage)
Average daily gain.....	2.41 lbs.	2.43 lbs.
Average daily ration:		
Legume hay.....	11.30 lbs.	3.40 lbs.
Shelled corn.....	16.80 lbs.	13.90 lbs.
Supplement.....	2.70 lbs.	2.70 lbs.
Silage.....		26.40 lbs.
Feed for 100 lbs. gain:		
Legume hay.....	474 lbs.	141 lbs.
Concentrates.....	810 lbs.	685 lbs.
Silage.....		1101 lbs.

\* Henry, W. A., and F. B. Morrison. Feeds and feeding. 18th edition. 1-770. Henry and Morrison Co., Madison, Wisconsin. 1923.

The value of silage is shown by table 3. These results are the averages of several feeding trials at different experiment stations, comparing legume hay, corn, and protein supplement with legume hay, corn, protein supplement, and silage.

A ton of silage replaced 227 pounds of grain and 605 pounds of hay. With grain at \$40 a ton and hay at \$15 a ton, the silage was worth \$9.08 a ton. The cost of producing corn silage, exclusive of

rent and the power charge for irrigation, on the University Farm at Davis, has been between \$4.50 and \$5.00 a ton. With sorghum silage, which produced a yield of from 20 to 30 tons to the acre, the cost has been as low as \$2.50 a ton. Corn under irrigation should yield about 15 tons of silage to the acre.

*Starting Steers on Feed in the Feed Lot.*—The steers should be fed all the roughage they will consume from the start. The concentrate should be fed lightly at first and gradually increased until the animals are on full feed. A good procedure in the case of feeding grain to mature steers is to start with a pound the first day, increasing a pound a day for 3 days, then to hold for 3 days, repeating until on full feed. Another procedure is to increase the feed a pound a day up to about 8 pounds, then to increase one pound every third or fourth day. When cottonseed meal or cake is fed, not more than a pound a day should be given at first. This should be increased a quarter of a pound a day until the amount desired is reached. The best guide is the appetite of the steers. Feed about all the grain they will clean up in one-half to three-quarters of an hour, or about all they will eat and still want more. Cattle should always be hungry at feeding time. In feeding practice, approximately a pound and a half of concentrates to 100 pounds of live weight constitute a full feed, although cattle will eat as much as 2 pounds of concentrates to 100 pounds of live weight. The usual practice is to feed twice daily. If alfalfa hay alone is fed, however, this may be given three times daily to induce greater consumption.

#### HOW TO KNOW WHETHER CATTLE ARE GAINING SATISFACTORILY

Scales should be available for weighing at intervals. This is the most accurate means of determining how well the steers are doing. Cattle that are gaining will eat heartily, have a sleek, well filled, contented appearance, and spend much time lying down chewing their cuds. If the manure is thin, watery, and evil smelling, digestive trouble is present. This is most likely to be caused by over-feeding. If the cattle do not relish their food, are “tucked up” in the flanks, and have harsh coats, perhaps the whole ration is wrong and needs to be properly balanced.

### PREPARATIONS FOR SHIPMENT TO MARKET

When the cattle are not sold and weighed at the feed lot, the shrinkage from feed yard to market is an important item and should be reduced to the minimum. When silage is fed, the amount should be reduced the last few days and dry hay increased. If a heavy grain ration is fed, it should be reduced somewhat the last two or three days. Cattle should have water a few hours before loading, but a heavy fill just before loading is not desirable. Every effort should be made to have the steers in a condition as nearly normal as possible. Cars should be well sanded and not too crowded. Twenty 1200-pound steers is about the right number for a 36-foot car.



Fig. 3.—A baby beef, ready for market.

### BABY BEEF

During recent years the ideal of the market has changed. The 1600-pound prime heavy steer, formerly the ideal market animal, now shares the highest market quotations with baby beef. The demand for the prime heavy steer is very limited. Fat young cattle varying in age from 10 to 15 months and weighing usually from 700 to 900 pounds, are called baby beeves (see fig. 3). Cattle carried to heavier weights before being finished, and marketed at from 16 to 20 months



of age are frequently designated on the market as short yearlings. The distinction, however, is not very definite. Baby beef is produced through an economical utilization of feed. The carcass is not wasteful in excess fat; the cuts are of a size most desired by the consumer. The meat is very tender and palatable. Although it may retain some veal flavor and is usually not as highly flavored as prime mature beef, these are criticisms offered only by epicures. Heifers at this age do almost as well as steers in the feed lot, fatten even more quickly, and bring as much on the market. In order to produce baby beef, it is

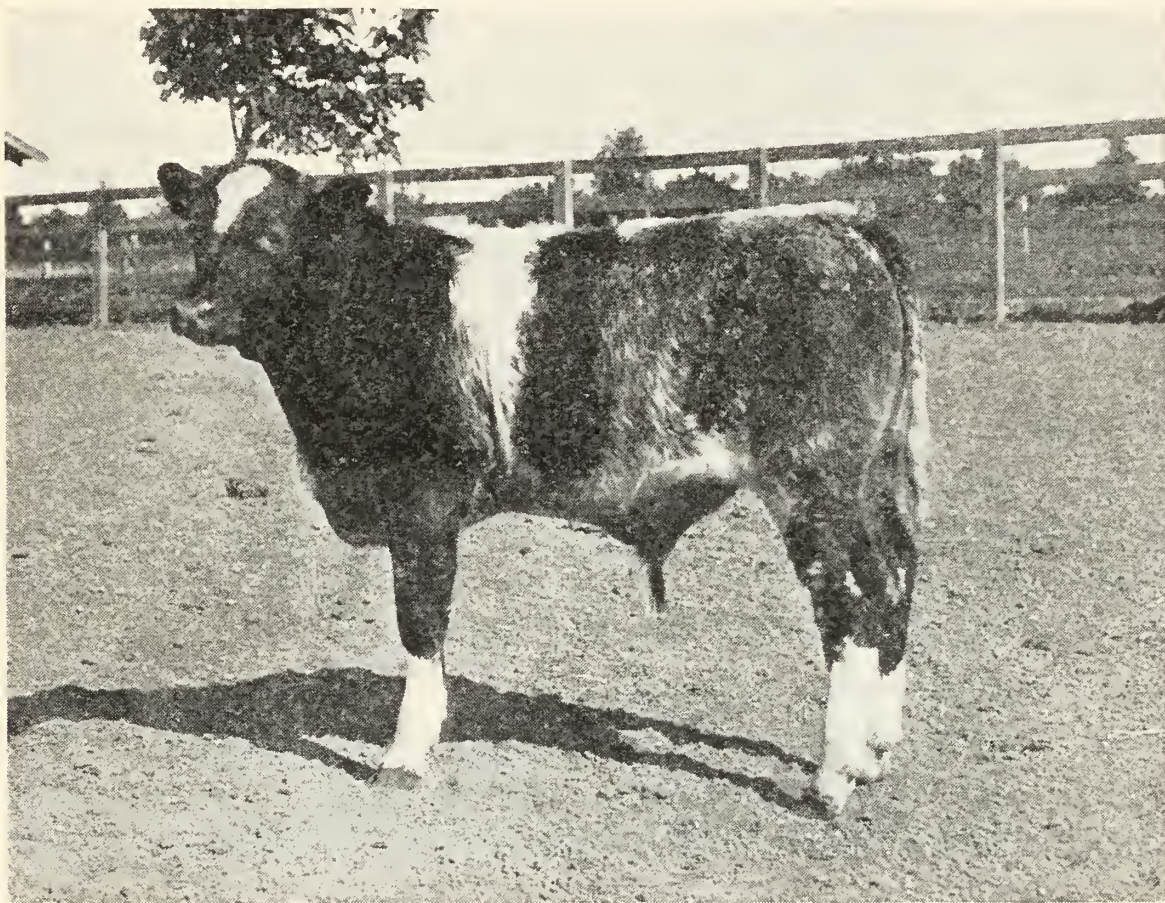


Fig. 4.—This 400-pound calf represents the ideal type for baby beef production.

absolutely necessary that the calves have quality, natural, thick fleshing, and the good feeding qualities characteristic of the best beef breeding.

Production of baby beef is especially adapted to those ranches where it is possible to both raise and finish on the same place. Where this can be done, the calves may be started on feed while still with the mothers and loss of the baby fat may thus be prevented. In this way fall calves could be run with the cows until the following summer, then put on feed, either in the feed lot or on alfalfa or other good pasture, and marketed in November and December when cattle prices are usually higher. An alternative plan would be to start spring

calves on feed in the fall after weaning and to market them in March and April before the general marketing of cattle from spring pasture. Figure 4 shows the ideal type of calf for baby beef production.

Although it is advantageous to start calves on feed while still suckling the cows, it is not necessary. The right kind of calves can be bought at weaning time and finished in the feed lot. The tendency of the calf is to grow rather than to fatten, and it requires skillful feeding to produce baby beef. The calf must get enough feed to provide for body maintenance, rapid growth, and putting on fat. To do this it must, in the first place, have a natural tendency to fatten, and secondly, it must be fed liberal quantities of concentrated feed.

*Some Suggested Rations for Baby Beef Production.*—These rations give the approximate amount of the various feeds which the animal will consume when on full feed. The grain should be increased more slowly with calves than with mature steers. Small quantities of grain should be placed in the feed bunk until the calves are all eating the grain; then the amount can usually be increased one pound every third day until six pounds are fed. The grain should then be increased more slowly, always gauging the amount by the appetite of the calves. By the end of the second month the calves will probably each consume eight pounds of grain daily. As the calves develop in size, the amount of feed is gradually increased until they may consume daily from ten to twelve pounds of grain to the head at the finish.

1. Alfalfa hay, 8 pounds  
Rolled barley, milo or kafir, from 8 to 10 pounds.
2. Alfalfa hay, 2 pounds  
Rolled barley, milo or kafir, from 8 to 10 pounds  
Cottonseed meal, 1 pound  
Silage, from 8 to 10 pounds
3. Alfalfa hay, from 2 to 4 pounds  
Silage, from 15 to 20 pounds  
Cottonseed meal, 1½ pounds  
Barley or other grain full fed the last half of feeding period  
and silage decreased
4. Grain hay, 8 pounds  
Rolled barley, 8 pounds  
Cottonseed meal or linseed meal, 2 pounds

### FEED LOTS AND EQUIPMENT

Steers on feed should have a well drained lot and shelter from rain. An open shed and a lot without too much room to range is best for this purpose. From twenty to twenty-five square feet of ground space to the head should be allowed in the shed. The area of the lot should be at least three times the area of the shed space. During dry weather, no shelter is necessary, though available shade is very beneficial. Small lots of an acre or so are preferable to large fields, unless the cattle are on pasture. Cattle will not gain economically when forced to stand in mud. Concrete lots are advisable where there is poor drainage and heavy soil. Plenty of feed racks and feed bunk space should be provided so that the steers will not be crowded at meal time. Two and one-half feet of space to the steer at the feed bunk is about right.

### HOGS FOLLOWING STEERS

When heavy grain rations are fed, it will pay to have hogs follow the steers. Pigs weighing from 80 to 150 pounds are best for this purpose. With a full ration of ground or rolled barley, one hog to every four or five steers should clean up the unmasticated and undigested grain. The pigs do better if they have access to tankage to balance their ration, and if they do not appear to be getting enough feed, they should be given additional grain.

