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When to Market Slaughter Cattle and Methods of Marketing  
Beef and Cow Management  
Michigan State University Extension Service  
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Issued ND  
4 pages

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## When to Market Slaughter Cattle and Methods of Marketing

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As cattle increase in weight, cost of gain increases on a given ration. Thus, selecting the optimum time to market cattle involves a consideration of the rate of increase in value of gain in relation to the increase in the value of the carcass. Once the final weight is determined, the feeder must decide what method of selling to use such as the central public markets or direct selling. If sold direct, he also has to decide whether to sell on a live or carcass weight basis and if the selling price should be based on a flat price for all cattle or on carcass quality and cutability grade. He then must decide whether to top out his cattle or sell the whole pen at once.

### When Cattle Should Be Marketed

Fat and muscle develop at the same time as part of the normal growth process, and the rate of fat deposition increases as cattle continue to grow. The proportion of fat and muscle in a carcass is mainly a function of the proportion of mature weight reached by the time of slaughter. Long bodied, long legged cattle have a heavier mature weight than short bodied, short legged cattle. Therefore, early maturing cattle will deposit a higher proportion of fat at a lighter weight than later maturing cattle and will be lighter when the same proportion of fat and muscle is obtained, as compared to large type cattle.

Cattle should be slaughtered at the point where the potential for muscle growth is declining and just prior to where the rate of fat deposition is rapidly increasing, before the increase in cost of gain offsets the increases in value of the carcass. This will result in enough fat to add juiciness, flavor and palatability to the retail cuts and enough outside fat to minimize drying and discoloration of the lean but not have an excess of fat to be trimmed from the carcass. When cattle are slaughtered at this point there will be very little difference among various sizes and shapes of cattle in distribution of muscle, or proportion of muscle in the regions of the high priced cuts. Also slaughtering at this point results in the

greatest over-all efficiency of production of beef, considering the feed cost for both the brood cow and her calf to slaughter weight.

Figure 1 shows the increase in cost of gain of steers and heifers as they increase in weight on typical feeding programs at average current prices for feedstuffs. The first reason for this increase in cost of gain is that more energy is required per lb. of gain as the proportion of fat in the gain increases. Secondly, as cattle near the fatness of the low choice grade, they tend to consume less energy above their maintenance requirement, leaving less energy available for gain. Figure 1 is based on average feed intakes, and cost of gain may increase at an even greater rate than shown here as it becomes increasingly difficult to keep cattle on feed as they increase in fatness.

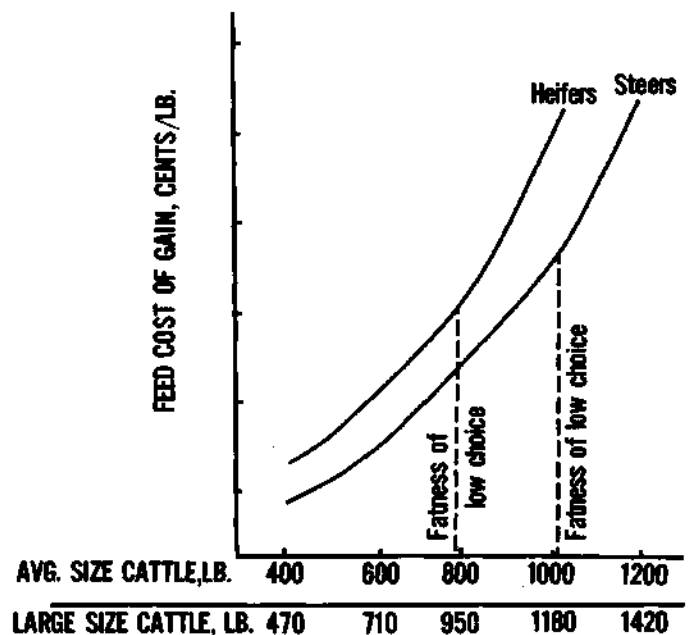
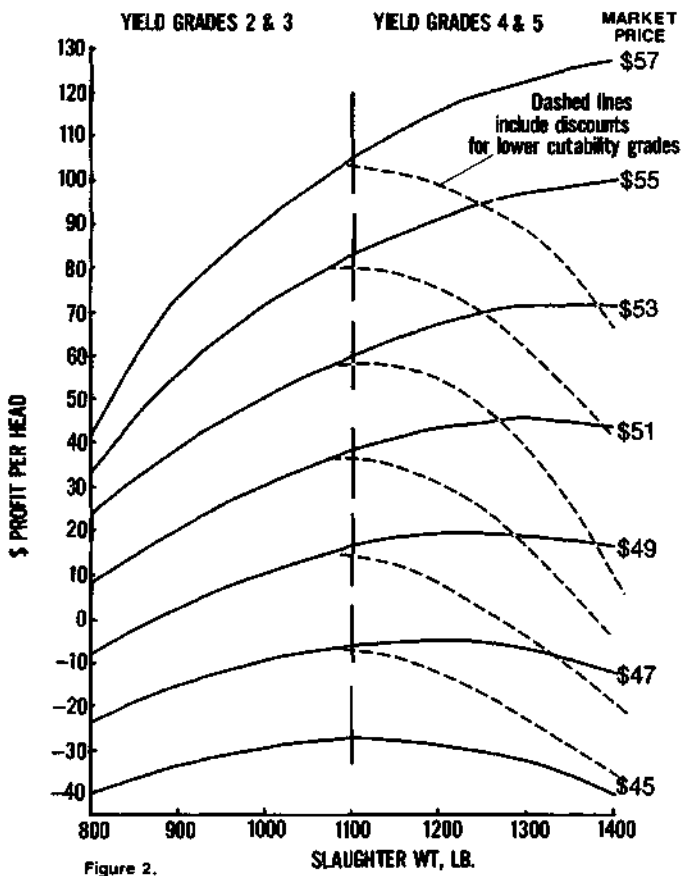


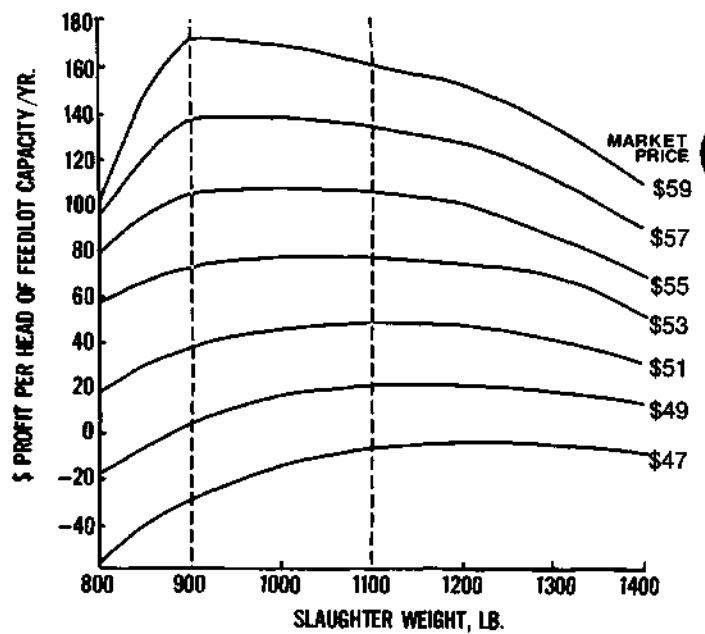
Figure 1.

The most rapid increase in cost of gain appears to occur at or shortly before the weight at which cattle reach the fatness of the low choice grade, which is about 35% carcass fat. This point appears to be reached in steers at about the mature weight of the females of the breed and about 200 lb. earlier in heifers and probably about 200 lb. heavier in bulls than in steers, as shown in Figure 1 and Table 1.

Based on the estimates given in Figure 1, Figure 2 shows average projected profits per head for average size cattle. Figure 2 indicates that at higher prices for finished cattle, maximum profits per head are obtained when cattle are fed beyond their optimum slaughter weight because the sale price is still above the cost of gain at heavier weights. If these profits are adjusted for cutability differences, however, maximum profits are still achieved when cattle are slaughtered at their optimum slaughter weight, as indicated by the dashed lines. Furthermore, Figure 3 shows that when lots are kept full year around, maximum profits per head of feedlot capacity are obtained when cattle are sold as they reach their optimum slaughter weight. Feed costs and sale prices will vary considerably from those used in Figure 1 through 3, but the relative effect of slaughter weight on profits should still apply.



Therefore, even though at times cost of gain is still below sale price when cattle reach the optimum slaughter weight, more efficient use of the feed will be made by utilizing it in younger, lighter cattle. Also when cattle are marketed continuously about the same net financial position is usually achieved if feeder cattle are purchased on the same market as the fat cattle were sold. In other words, if the fat cattle are sold on a low market, they can be replaced by feeders on the same low market. Furthermore, as consumers become increasingly fat conscious, beef is processed at the plant where



slaughtered, and more cattle are slaughtered at a young age, discounts on excessively fat cattle will increase and price spreads between good and choice cattle will decrease or more cattle will be allowed into the choice grade at a lower fat content. Cattle feeders must become increasingly aware of being able to evaluate cutability factors in live cattle such as backfat thickness and rib eye area, in addition to quality grade. This requires getting slaughter data on all cattle sold and relating it to the live animal.

### Determining the Optimum Slaughter Point and Degree of Fatness

*Effect of weight, time on feed and age:* The point in growth or weight at which the high good or low choice grade can be expected to be reached is best determined by considering the weight of the animal in relation to its skeletal size and age. Table 1 gives estimated optimum slaughter weights for various types and breeds of cattle. These weights are estimated to be the optimum stage of growth for slaughter as described previously, based on research to date and experience of livestock producers and beef processors. Extending full feeding beyond this point will usually result in a lower proportion of saleable retain cuts, an increase in waste fat and a rapid increase in cost of gain.

Many cattle feeders use time the cattle have been on their ration as an indication of readiness for slaughter. This is useful where a certain initial weight, type and size of cattle are always fed and the environment and ration composition do not greatly vary.

The age at which the weights shown in Table 1 are reached may influence the distribution of fat somewhat. Animals that have been continuously full-fed a high energy ration from weaning to slaughter and reach these weights at an early age (12 to 15 months) may have somewhat more total fat but may not have as much marbling as similar cattle that are older when this weight is reached. This reduction in marbling may be offset in the grading standards by giving credit for the greater

**Table 1. Projected Average Optimum Slaughter Weights for Various Breeds**

	Projected average optimum slaughter weights, lb.	
	Steers	Heifers
Small type Angus or Shorthorn	900	700
Large type Angus or Shorthorn	1100	850
Small type Hereford	950	800
Large type Hereford	1150	900
Brahman crosses	1150	950
Brown Swiss and Limousin	1200	1000
Charolais, Holstein, Maine Anjou and Simmental	1250	1050

tenderness of the meat from the younger animals, however, and these differences due to method of feeding are usually quite small compared to differences due to stage of growth and weight. Under most conditions methods of feeding will not have any major effect on the carcass composition of cattle of a similar type and breeding when compared at similar slaughter weights. The major factor influencing carcass composition is breed, sex and weight in relation to the skeletal size, and the distribution of muscle is affected little by the shape of the animal or method of feeding used.

*Use of visual appraisal:* Animals may differ in distribution of the fat, and this can be detected to a certain degree by visual appraisal. Fullness in the brisket, flanks, twist and over the back and around the twist indicate excessive fat deposits in these areas that will be waste fat in the carcass. Carcasses from cattle with desirable yield grades will show less fullness and thickness in these areas. To become skillful in evaluating the quality and quantity of beef in live cattle it is very helpful to evaluate cattle alive and then observe their weights and their carcasses after slaughter.

It should be pointed out here that although conformation or shape of cattle is of little value in estimating carcass quality, it is useful in selecting breeding and feeder cattle. Using bulls that have coarse heads and shoulders may result in increased calving difficulties, particularly if they are of large type and are used on small to medium sized cows. Also traits such as double muscling and unsound or weak legs may result in a short useful life in a herd. Another factor is that long bodied, long legged cattle will have a greater weight per day of age. Although a larger type animal is probably not any more efficient in feed utilization, a large type fast growing sire used on a highly fertile moderately sized cow may result in maximum efficiency of beef production, provided that excessive calving difficulties are not encountered. Also a greater weight per day of age reduces fixed overhead costs per lb. of beef produced.

## METHODS OF MARKETING

The methods used in marketing cattle depend on several conditions. First of all one has to decide whether or not the whole pen should be sold at once or topped out (removing cattle from the pen as they reach their optimum slaughter weight).

Topping out is advisable where the cattle in a pen were different in weight at the start, and the difference in weight represents a difference in age. Under these conditions it is probably advisable to top out lots once or twice and then sell the remainder. When cattle are of similar sex and weights at the start, however, then it is probably advisable to sell the whole pen at once when they average 80 to 90% choice, assuming the cattle are capable of reaching the choice grade. If the cattle are topped out under these conditions, the cattle left after topping are likely to be unable to make economical gains beyond that point.

The selling methods to use depends on several conditions, and they will be discussed separately.

*Selling direct.* There are several things a feeder should know if he intends to sell his cattle direct to a packer. First of all, he needs to know the price of carcass beef and the strength of the dressed beef market and the potential quality and cutability grades of the cattle he has. The price of beef can be obtained from *Cattle Fax*, *USDA Market News* and the *River Provisioner* as they are commonly used as a basis for pricing cattle in New York. Secondly, he needs to know the needs of packers in his area for numbers of cattle to keep the slaughter plant in operation. Thirdly, he needs to know current kill costs and offal credits to get an idea of current packer margins, which can be obtained from the USDA market news service. If he intends to sell the cattle on a live weight basis, he needs to know how to calculate live prices from carcass beef prices, or vice versa. Live price is determined by multiplying the dressed beef price x the expected dressing per cent or dressed beef price is determined by dividing the live price by the average dressing per cent, then the answer multiplied by 100. For example, a 1000 lb. steer at about the fatness of low choice can be expected to have a carcass weight of about 600 lb., or a dressing percentage of 60. If the price quoted is 42-cents per lb. alive, then the carcass value is  $\frac{42¢}{.60} = 70¢/lb.$  Also, he needs to know the expected amount of shrink under different weighing conditions and how to adjust the price offered for the expected shrink (see Fact Sheet 4301).

If the feeder is aware of these factors and becomes skilled in marketing, there are probably some advantages to selling direct such as less transportation and shrink, no unnecessary handling costs and fewer bruises, sale price is determined before cattle leave the lot and being able to obtain carcass information. There are several ways to sell cattle direct, and the method to use may depend on existing conditions and the confidence you have in the potential buyer. It may be advisable to sell based on live price and weight if you are concerned about the ability of the cattle to grade or when the market is strong and competition is good. Weighing conditions that are fair to all concerned should be carefully agreed upon, however. If the feeder is not satisfied with the weighing conditions offered, but still wants to use a live price, then it might be best to sell on live price but with a guaranteed dressing per cent. If cattle are muddy or the dressing per cent is in doubt for other reasons but you still want to know the price of the cattle before they leave the lot, then it might be best to sell based on a flat over-all carcass beef price. If you feel that the cattle are better quality than the price offered, however, then it might be best to sell them based on carcass

weight and a price schedule for different quality grades.

In addition, if the carcass pricing schedule recognizes the value of high cutability and you market the type of cattle that will have a high cutability then it might be advantageous to sell based on carcass weights and prices for quality and cutability grades.

Several factors should be understood when cattle are sold based on carcass weights such as who stands the condemnation and bruises, and if standardized slaughtering and trimming procedures are followed for all cattle slaughtered, how soon the cattle should be slaughtered (tissue shrink probably starts after 12-14 hours off feed) how much slaughter information can be obtained and how soon payment is made.

Above all, in selling direct you must have confidence in those you are dealing with and treat them fairly and honestly at all times. A wise feeder knows that he needs the buyer as much as they need you. Eliminate those that are not honest and fair and then deal justly with those you trust.

*Selling on central public markets.* If you do not sell often enough or do not have the information necessary to become skilled at marketing, then selling on the central public markets may be the best way to market fat cattle. Additional reasons for using terminal markets might be when the seller does not have the kind of cattle in demand by local packing plants, if the terminal market is relatively close or as a means of periodically checking out the ability to sell cattle direct. It would be a good idea to let your local auction know when you have cattle ready for sale and they can advise you when there will be buyers present for your type of cattle.

Marketing systems should be developed and used that will minimize the time and handling between the time the cattle leave the feedlot and the beef is in the consumer's hands to minimize handling and shrinkage costs. In addition, pricing systems are needed that maximize pricing based on edible beef produced and the current market value of edible beef. As more of the carcasses are processed at the slaughter plant, it will become increasingly possible to develop pricing systems based on both quality and cutability grade. This will improve the ability of a cattle feeder to market the cattle he produces for what they are worth by enabling him to know what quality he produces. In addition, by taking advantage of improved sources of market information such as *Cattle Fax* and other markets news services, he can determine what this quality is worth.

*Addresses for these services are:*

1. *Market News*, U.S. Dept. of Agriculture, 609 Livestock Exchange Building, Omaha, Nebraska 68107
2. *Market News*, U.S. Dept. of Agriculture, 536 S. Clark

St., Chicago, Ill. 60605

3. *Cattle Fax*, 1001 Lincoln St., Denver, Colorado 80203

4. *Drovers Journal*, One Gateway Center, 5th at State Ave., Kansas City, Kansas 66101

*Selling for freezer trade.* When selling direct to consumers, most prefer to quote a price on a carcass weight basis plus slaughtering and processing costs. The consumer should be aware, however, of the loss in cutting a carcass to trimmed retail cuts. The following table shows the pounds of fat trim, bone and trimmed retail cuts per 100 lb. of carcass for each of the five yield grades (the fatter the animal, the higher the yield grade number).

	Yield Grades				
	1	2	3	4	5
Fat Trim	7.6	12.7	17.8	22.9	28.0
Bone and shrink	10.4	9.9	9.4	8.9	8.4
Trimmed retail cuts	82.0	77.4	72.8	68.2	63.6

Some other factors important in selling for the freezer trade are as follows:

1. You will likely want to have cattle at various stages of growth on hand so customers do not have to wait too long for beef. Also, encourage them to place their orders in advance so you can plan your feeding program.

2. Feed the size and type of cattle that will consistently provide the size of carcass and quality preferred by your customers, and avoid feeding the cattle beyond their optimum slaughter weight to avoid excessive fat trim and beef with a high fat content. If small carcasses are preferred, feed earlier maturing cattle, or heifers. If very lean, moderate sized carcasses are preferred, consider feeding larger type cattle such as Holsteins or crosses with the larger breeds and slaughter them at 1000 to 1100 lb.

3. Feed cattle that will reach the desired slaughter weight by 15 to 17 months of age or less, to insure obtaining tender beef.

4. Work with a slaughter and processing plant that is clean and conscientious. Nothing will "turn off" a customer faster than picking up his meat in a dirty, smelly slaughter plant that appears to be operated by dishonest people.

There are excellent profit opportunities in developing a freezer trade, if properly conducted. People will pay a premium for beef they know the origin of and know it will consistently be good. Also, you can price your product more on a retail basis where the price does not drop as rapidly as it does at the producer level.