BEEF CATTLE OF THE FUTURE: SEARCH FOR THE IDEAL STEER

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Before we begin our search for the ideal steer, I would like to reflect on where the beef industry is today and where it may be headed in the near future. My mission is to set the stage for this conference by reviewing the current status of our industry and by challenging you with some alternatives for the future.

Improving Efficiency of Beef Production

During the past several years, the beef industry has found itself mired down in an ironic and perplexing situation. Economically, we have barely been hanging on in spite of the fact that the retail price of beef is high relative to the price of other major meat items. This is illustrated in table 1, which shows that chicken has declined from 80% of the price of beef in 1950 down to 30% in 1981. Pork has not changed much--ranging from about 2/3 to 3/4 of the price of beef throughout this 31-year period. Most industry analysts would agree that the cost of producing beef is high relative to the cost of producing other protein foods such as pork, poultry meat, eggs, etc. If beef is to retain its share of the protein market, it appears that we will have to improve our efficiency so as to reduce production costs. This raises a pertinent question: "Where do our present inefficiencies lie?"

TABLE 1. RETAIL PRICES OF BEEF, PORK AND CHICKEN

Year	As percent of beef price	
	Pork	Chicken
1950	72	80
1960	67	51
1970	75	41
1981	64	30

Table 2 lists those major constraints which, in my opinion, are a road-block to more efficient and profitable beef production. First of all, our current systems take too long to produce the final product, which results in extremely high interest charges. A second problem is that nearly 70% of the dietary energy expended in producing beef goes to maintenance and only 30% goes to production. Third, the live animal and the beef it produces is transported too many miles before it is consumed, resulting in high trucking costs as well as losses in the form of shrink, morbidity and mortality. Fourth, the feeder is encouraged to overfatten cattle to ensure Choice grade so as to maximize selling price, in spite of the fact that research has shown the relationship between marbling and palatability is low.

Table 3 illustrates the relatively inefficient use of dietary energy in a beef cow herd up to weaning time. The four studies cited indicate that 75 to 80% of the TDN consumed is used for maintenance and only 20 to 25% for productive purposes. In an integrated enterprise, in which the calf is fed from weaning to slaughter without backgrounding, the average amount of TDN used for production is increased to about 32%. It is only fair to point out, however, that much of the TDN used for the maintenance of a beef cow is provided in the form of fibrous feeds that would otherwise go unutilized.

Up to this point, the relative inefficiencies and lack of profitability in the industry have been considered. The logical question that follows is: "What can be done to change it?" Presumably, significant cutbacks in the national cow herd would eventually reduce supplies of beef and force prices up to profitable levels on a long-term basis. However, this action can no longer be considered a permanent cure for the ills that plague the industry, because cost of production may have gone beyond what the consumer is willing to pay for beef. Instead, I believe the industry must reorganize its thinking and make some far-reaching changes so as to improve the efficiency of producing the product. Table 4 lists those areas that appear to deserve attention.

TABLE 2. CONSTRAINTS ON BEEF PRODUCTION EFFICIENCY

Constraint
(1) Long production cycle coupled with high interest rates.
(2) Nearly 70% of dietary energy is for maintenance.
(3) Transportation and associated costs:
(a) Trucking
(b) Shrink
(c) Morbidity
(d) Mortality
(4) High degree of fatness to ensure Choice grade.

TABLE 3. TOTAL DIGESTIBLE NUTRIENT (TDN) USAGE IN COW-CALF HERDS[a]

Reference	Usage	
	Maintenance	Production
	% of total	
Klosterman & Parker (1976)	74.6	25.4
Wyatt *et al.* (1977)	74.0	26.0
Martin & McReynolds (1979)	75.9	24.1
Brown & Dinkel (1978	80.8	19.2

[a]Based on data from references cited.

TABLE 4. IMPROVING EFFICIENCY OF BEEF PRODUCTION

Possible steps
(1) Dilute maintenance costs: sell more weight per cow.
(2) If possible, retain ownership of calves to slaughter.
(3) Reduce time on feed to minimum needed for acceptable palatability.
(4) Reduce emphasis on marbling; stress lean growth.
(5) Fine-tune the trade-off between lean growth and:
(a) More energy to maintain fertility
(b) Dystocia
(6) Adopt new technology in processing and merchandising beef.

Of the total TDN expended in producing beef, 55% goes just to maintain the breeding cow herd. In order to dilute this cost, cow-calf prodcuers must be in a position in the years ahead to sell more pounds of calf per cow exposed. One possible means of accomplishing this would be to retain ownership of the calves until slaughter. In many operations, however, this may not be possible from a cash-flow standpoint. In an integrated system, calves should be high performers in order to minimize time on feed and interest charges. Retaining ownership and feeding them on the home place, or nearby, would help eliminate some of the present transportation costs, shrinkage, disease and death loss.

At the risk of lowering meat quality, I feel it is imperative that we reduce the present emphasis on marbling, place greater emphasis on lean growth and transform ourselves into a generation of protein producers instead of fat producers. This metamorphosis may be a painful one for our tradition-bound beef industry, but I believe it will come to pass. This change would permit us to feed calves with high genetic potential for lean growth to acceptable carcass weights without their becoming excessively fat.

If the industry moves in the direction of producing calves with a higher propensity for lean growth, potential problems do exist along the way; primarily more energy to maintain fertility and a higher incidence of dystocia. I am cautiously optimistic that we can somehow select, mate and manage our way around these important problems.

Adoption of new technology in the processing and merchandising of the carcass could perhaps do more to lower the retail cost of beef than anything we could do in the production of the live animal.

Search for the Ideal Cow

In our quest to improve production efficiency in the cow-calf segment of the industry, we are logically led on a search for the ideal cow and the ideal bull with which to mate her, so that we may generate the ideal steer. Regarding mating systems, there are fewer reasons all the time for not crossbreeding. At one time, it was recommended that smaller, part-time producers with limited resources should probably stay with straight breeding because crossing systems may be too complex for them to carry out. Turning away from the 10 to 25% improvement in efficiency that can be harvested from heterosis is too high a price to pay for remaining simple and uncomplicated. The advantages of the crossbred female have been well researched and documented, but in a recent survey of cow-calf producers in the northeastern quarter of the United States, only 21% of the respondents reported having crossbred herds (Schwab and Garst, 1976). Gosey (1979), and Gregory and Cundiff (1980) as well as other workers have described effective crossbreeding programs for producers with limited time and resources that still maintain a high percentage of maximum possible heterosis. These programs should be brought to the attention of smaller herd owners.

If we can agree that the ideal cow probably ought to be a crossbred, the next question is: What size and how much milk? Prior to 1967, only limited data were available on the relationships between cow size, milking ability and efficiency. Since then, a number of important studies have shed light on this subject. Table 5 is a summary of how these studies have expressed biological efficiency. They range all the way from calf weight per cow at weaning time to cow and calf energy consumption per unit of edible portion. It should be stressed that these are measures of biological efficiency. In recent years, a number of comprehensive computer simulation studies have evaluated economic efficiency. These simulation models have attempted to

TABLE 5. EXPRESSING BEEF COW BIOLOGICAL EFFICIENCY

	Expression of Efficiency
(1)	Weaning weight/cow at weaning.
(2)	Weaning weight/cow calving.
(3)	Weaning weight/cow wintered.
(4)	Weaning weight/cow exposed.
(5)	Cow + calf TDN/weaning weight.
(6)	Cow + calf TDN/yearling or slaughter weight.
(7)	Cow + calf TDN/edible portion weight.

account for all inputs and outputs, including feed for replacements and cull cow salvage value.

The largest body of genetic data has been generated from the Germ Plasm Evaluation Program at the U.S. Meat Animal Research Center (MARC). Table 6 summarizes weaning weight and retail product weight from F_1 steer progeny out of Hereford and Angus dams during Cycles I, II and III of the program. Except for Jersey sired calves, there was not much difference between sire breeds in weaning weight per cow calving. However, in terms of pounds of retail product produced per cow calving, the large, lean Continental breeds excelled the others. Table 7 shows the estimated profit per cow in Cycle I when steer progeny were fed to the same carcass grade (Smith, 1976). Cows mated to Limousin, Simmental and Charolais sires made the most profit in these comparisons.

Table 8 summarizes data on F_1 crossbred cows in Cycle I at U.S. MARC. Weaning weight produced per cow exposed was very similar, with a slight advantage for the Simmental cross cows. Using body weights and milk production data reported for these cows (Laster _et al._, 1979), I estimated annual TDN consumption, based on NRC (1976) allowances. Differences in estimated TDN consumption per pound of weaning weight per cow exposed are small, although there is a slight tendency for the Angus-Hereford cross cows to be more efficient.

Table 9 presents a comparable set of data for F_1 cross cows in Cycle II at

TABLE 6. PRODUCTIVITY OF F_1 MATINGS, U.S. MARC[a]

Breed of steer (Hereford & Angus dams)	Weight/cow calving	
	Weaning	Retail product
	Trait ratio	
HA & AH	100	100
Jersey-X	90	87
South Devon-X	95	100
Limousin-X	96	105
Simmental-X	96	104
Charolais-X	95	104
Red Poll-X	100	98
Brown Swiss-X	105	111
Gelbvieh-X	101	107
Maine-Anjou-X	98	109
Chianina-X	99	112
Brahman-X	102	105
Sahiwal-X	97	97
Pinzgauer-X	100	101
Tarentaise-X	100	103

a Cundiff _et al._, (1980).

TABLE 7. PROFITABILITY OF F_1 MATINGS, U.S. MARC[a]

Breed of calf (Here. & Angus dams)	Profit/cow when progeny fed to constant carcass grade endpoint, $
HH & AA	50
HA & AH	59
Jersey-X	36
South Devon-X	63
Limousin-X	89
Simmental-X	86
Charolais-X	90

[a] Smith (1976).

TABLE 8. SUMMARY OF 7 CALF CROPS, CYCLE I - U.S. MARC[a]

Breed of cow	Est. annual TDN, lb	Wean. wt. per cow exposed lb	TDN per wean. wt., lb
Angus x Hereford	4203	380	11.1
Jersey-X	4382	389	11.3
South Devon-X	4410	383	11.5
Limousin-X	4233	369	11.5
Simmental-X	4735	399	11.9
Charolais-X	4458	373	11.9

[a] Based on data from NRC (1976), Laster *et al.*, (1979), and Cundiff *et al.* (1981).

TABLE 9. SUMMARY OF 6 CALF CROPS, CYCLE II, U.S. MARC[a]

Breed of cow	Est. annual TDN, lb.	Wean. wt. per cow exposed lb	TDN per wean. wt., lb
Angus x Hereford	4147	370	11.2
Red Poll-X	4343	363	12.0
Brown Swiss-X	4679	441	10.6
Gelbvieh-X	4679	448	10.4
Maine Anjou-X	4637	424	10.9
Chianina-X	4668	424	11.0

[a] Based on data from NRC (1976), Laster et al., (1979), and Cundiff et al. (1981).

U.S. MARC (Cundiff et al., 1981). In this study, Gelbvieh and Brown Swiss cross cows were more efficient than the other crossbred groups with respect to either calf weight per cow exposed or estimated TDN required per pound of weaning weight.

Table 10 is summary of data from Cycle III at Clay Center in which Pinzgauer, Tarentaise, Brahman and Sahiwal F_1 cross cows were compared with Angus-Hereford controls. Both groups of Zebu cross cows - the Brahman and Sahiwal - were slightly more efficient than the British and Continental crosses.

Table 11 is taken from an extensive Canadian project involving 1150 cows at two locations for eight calf crops (Rahnefeld et al., 1980). Weight of calf weaned per cow exposed is used here as the measure of efficiency. Five groups of cows stand out in this study: Simmental-Shorthorn, Simmental-Angus, Charolais-Shorthorn, Simmental-Hereford and Charolais-Angus.

Table 12 is a progress report from a study involving 4,329 matings over 6 years at five locations in Virginia (Marlowe and Oliver, 1979). In terms of weaning weight per cow exposed, the Holstein crosses were clearly superior to all other crosses and straightbreds.

Magee (1979, 1981) reported similar results in a selection study in which Holstein blood was used in one of four breeding groups. Table 13 shows that the rotational cross group with Holstein blood weaned more calf weight and more retail cut weight per cow exposed than another rotational cross group and two straightbred Hereford groups.

TABLE 10. SUMMARY OF 4 CALF CROPS, CYCLE III, U.S. MARC[a]

Breed of cow	Est. annual TDN, lb	Wean. wt. per cow exposed lb	TDN per wean wt., lb
Angus x Hereford	4035	335	12.0
Pinzgauer-X	4438	370	12.0
Tarentaise-X	4415	367	12.0
Brahman-X	4595	411	11.2
Sahiwal-X	4455	403	11.1

[a] Based on data from NRC (1976), Laster et al. (1979), and Cundiff et al. (1981).

Table 14 is a summary of data taken from a project at the Oklahoma Station (Wyatt et al., 1977; Totusek, 1981). In this study, Herefords, Holsteins and

TABLE 11. CALF WEIGHT WEANED PER COW EXPOSED[a]

Breed of cow	Trait ratio (Hereford x Angus = 100)
Simmental x Shorthorn	111
Simmental-Angus	111
Charolais x Shorthorn	110
Simmental x Hereford	108
Charolais x Angus	108
Charolais x Hereford	102
Limousin x Shorthorn	101
Limousin x Angus	101
Hereford x Angus	100
Limousin x Hereford	92

[a] Rahnefeld et al. (1980).

TABLE 12. SUMMARY OF 4,329 BEEF COW MATINGS (1972-78)

Breed of cow	Calves weaned/ 100 cows exposed	Wean wt./ cow exposed, lb
Straightbreds	73.5	295
All crosses	79.0	377
Holstein crosses	83.9	410

[a] Marlowe and Oliver (1979).

TABLE 13. STRAIGHT BREEDING VS. ROTATIONAL CROSSING [a]

Breeding group	11th calf crop (1978) Calf wt. weaned per cow exposed	Retail cuts/cow exposed
	Trait Ratio	
Unselected Hereford	100	100
Selected Hereford	115	117
Sim X Char X Ang X Her	135	139
Sim X Hol X Ang X Her	173	151

[a] Magee (1979, 1981).

TABLE 14. EFFICIENCY OF HOLSTEIN AND HOLSTEIN-X COWS

Breed of cow	Energy level	Cow & calf TDN, lb	Wean wt. per cow exposed, lb	TDN per wean. wt., lb
Hereford	Mod	4370	503	8.7
Hereford	Hi	4597	494	9.3
Her x Hol	Mod	4721	494	9.6
Her x Hol	Hi	4858	538	9.0
Holstein	Mod	5149	478	10.8
Holstein	Hi	5539	545	10.2
Holstein	Very Hi	5629	624	9.0

[a] Based on data from Wyatt et al. (1977) and Totusek (1981).

the crosses thereof were compared at various levels of dietary energy. The important observation that came out of this work was that efficiency, when expressed as TDN consumed per unit of weaning weight, was similar if each group was fed according to its potential level of production. For straight Herefords, the proper TDN level was moderate, for Hereford-Holstein crosses, it was high, and for straight Holsteins the correct level of energy was very high.

Table 15 summarizes the results of a study by Bowden (1980) in which he measured megacolories (Mcal) of digestible energy intake by both the cow and calf in four crossbred groups. There were no significant differences in Mcal required per kilo of calf weaning weight.

In an integrated beef enterprise in which the progeny are fed out for slaughter, an important measure of efficiency would be the amount of feed energy consumed per weight of edible portion produced. The classicial work of Klosterman and Parker (1976) is summarized in table 16. They found no significant differences in TDN per unit of edible portion between the four breeding groups compared.

Table 17 summarizes comparable research from South Dakota (Brown and Dinkel, 1978), where the results were similar to the Ohio work in that there were no differences in TDN consumed per unit of edible portion between Angus, Charolais and their reciprocal crosses. Table 18 shows a third study of this kind, reported by Martin and McReynolds (1979), in which three groups of F_1 cross cows were compared: Hereford-Angus, Jersey-Angus and Simmental-Angus. In terms of TDN consumed per unit of edible portion, the differences between breeding groups were small, alghough there was a tendency for the Hereford-Angus cows to be slightly less efficient that the other two groups.

Since 1975, a number of research teams have used computer simulation models to predict the economic efficiency of various breeding, management and marketing systems in beef herds (Long _et al._, 1975; Morris and Wilton,

TABLE 15. CONVERSION OF DIGESTIBLE ENERGY[a]

Breed of dam	Mcal DE/kg calf wean. wt.	
	Dam	Dam + calf
	Mcal	
Simmental X Angus	20.7	23.9
Charolais X Angus	20.8	24.8
Hereford X Angus	20.2	24.1
Jersey X Angus	20.5	23.6

[a] Bowden (1980).

TABLE 16. EFFICIENCY, BIRTH TO SLAUGHTER[a]

Breed of cow	TDN/ wean. wt.	TDN/ feedlot gain	TDN/ slaughter wt.	TDN/ edible portion
	lb			
Hereford	10.1	5.1	7.1	17.4
Ang X Her	8.6	5.4	6.9	17.0
Char X Her	10.0	5.1	7.1	17.3
Charolais	9.2	5.3	7.0	17.1

[a] Klosterman and Parker (1976).

TABLE 17. EFFICIENCY, BIRTH TO SLAUGHTER[a]

Breed of cow	TDN/ wean. wt.	TDN/ feedlot gain.	TDN/ slaughter wt.	TDN/ edible portion
	lb			
Angus	10.8	5.9	8.3	15.7
Ang x Char	11.0	6.0	8.6	15.6
Char X Ang	10.9	6.2	8.6	15.7
Charolais	11.0	5.9	8.5	15.4

[a] Brown and Dinkel (1978).

TABLE 18. EFFICIENCY, BIRTH TO SLAUGHTER[a]

Breed of cow	TDN/ wean. wt.	TDN/ feedlot gain	TDN/ slaughter wt.	TDN/ edible portion
			lb	
Ang X Her	9.8	5.0	7.4	16.3
Jer X Ang	8.3	5.1	6.9	15.4
Sim X Ang	8.8	5.3	7.4	15.8

[a] Based on data from Martin and McReynolds (1979).

1975; Cartwright, 1970; Notter et al., 1979a,b,c; Smith, 1979; Buckley, 1980; Farris _et_ _al_., 1981). In the most recent study (Farris _et_ _al_., 1981), Texas researchers compared the profitability of nine biological types of cows whose calves could either be marketed as weaned feeders or fed for slaughter (table 19). They used the period from 1972 to 1979 to establish input and output prices and considered three cow sizes and three levels of milk. If the calves were sold as weaners, the heaviest milking cows within a size category had the lowest production cost per cwt of calf, but if the calves were fed out to slaughter, the lightest milkers tended to have the lowest costs. Under either marketing strategy, large cows generally exhibited the lowest cost of production. Table 20 shows net return per cow in a South Dakota simulation study (Buckley, 1980) which closely resembled the Texas work. Under either marketing strategy, the larger heavier-milking cows tended to rank higher in net return. Although they are not shown here, the absolute differences in net income were relatively small.

TABLE 19. RANK OF COW BREEDTYPE UNDER TWO MARKET STRATEGIES (1972-1979 PERIOD)[a]

Cow size and milk production	Marketing Strategy: Sell weaner calf	Marketing Strategy: Feed out calf
	Rank, lowest to highest production cost, $/cwt of calf	
Large-heavy	1	4
Large-moderate	3	2
Large-light	2	1
Medium-heavy	4	6
Medium-moderate	5	3
Medium-light	8	5
Small-heavy	6	9
Small-moderate	7	8
Small-light	9	7

[a] Farris et al. (1981).

TABLE 20. RANK OF NINE BIOLOGICAL TYPES OF COWS[a]

Cow size and milk production	Marketing Strategy: Sell weaner calf	Marketing Strategy: Feed out calf
	Rank, net return/cow, $	
Large-heavy	1	1
Large-medium	2	2
Large-light	4	3
Medium-heavy	3	4
Medium-medium	5	5
Medium-light	6	6
Small-heavy	7	8
Small-medium	8	7
Small-light	9	9

[a] Buckley (1980).

Cartwright (1979) at Texas A & M summarized much of the cow efficiency research to date when he made the following statement: "Optimal values for both size and milk production may vary as production conditions and costs and relative prices of cattle change. There does appear to be sufficient potential for increasing efficiency through matching size and milk production to a given set of conditions to warrant further research in this area; that is, there appears to be an opportunity, largely untapped, for increasing efficiency of beef production by more closely matching cattle to the production conditions." Table 21 presents examples of this match-up; that is, less size and less milk as feed becomes more limiting. The breeds used are examples of combinations of the more common breeds available, but others could be substituted in their place.

Accelerated Systems of Beef Production

In the Midwest, where we are generally blessed with moderate to abundant forage resources, it appears that we can justify systems in which roughly one-half to two-thirds of the genes in the end-product are contributed by larger, heavier-milking breeds. An excellent example of what can be achieved is presented in table 22 (Miller et al., 1980). This table is a summary of

TABLE 21. EXAMPLES OF MATCHING SIZE AND MILK TO FEED RESOURCES

Feed resources	Example
Abundant:	Holstein-Simmental cow x Charolais bull.
Moderate:	Angus-Simmental cow x Gelbvieh bull.
Limited:	Shorthorn-Hereford cow x Limousin bull.
Sparse:	Brahman-Angus cow x Hereford bull.

TABLE 22. EXAMPLE OF ACCELERATED BEEF PRODUCTION

Summary of fourth calf crop (1979).

Mating system: Charolais sire x Simmental-Angus cows	
Weaning wt. at 205 days (steer basis), lb.	646
Weaning wt/cow exposed, lb	576
Steer slaughter wt at 15 mo, lb	1284
Carcass wt, lb	815
Fat thickness, in.	.20
Yield grade	1.9
Retail cuts/cow exposed, lb	567

[a] Miller et al. (1980).

the fourth calf crop from a highly productive herd of Simmental-Angus cows mated by A.I. to a superior Charolais sire. Both the actual and adjusted weaning weights were identical, 646 lb. With an 89% calf crop, this herd yielded 576 lb of weaned calf weight per cow exposed. The cows averaged 1148 lb, so they produced a calf that weighed 56% of their body weight. The steer progeny were fed out and slaughtered at 15 mo of age at a weight of 1284 lb with a yield grade of 1.9. Average weight of retail cuts produced per cow exposed was a phenomenal 567 lb. This cow herd is maintained on high quality native range in the summer plus hay and protein supplement in the winter. There is no record of the TDN consumption in this herd, but it does seem reasonably safe to assume that it represents an efficient and potentially profitable system of beef production.

Magee (1979, 1981) at Michigan State University maintains a four-way rotational cross herd of 50 cows composed of Simmental, Holstein, Angus and Hereford blood. They are being compared with three other breeding groups - an unselected Hereford group, a selected Hereford group and another rotational group. Selection is for yearling weight. Figure 1 illustrates the power of selection and crossbreeding in this project. These steers are pictured at 15 months of age, when they were slaughtered. The Hereford came from the unselected straightbred control group and the large steer is from the four-way rotational cross group. These steers are descended from the same base herd of Hereford cows that was used to initiate the project 14 years ago. They each received a quality grade of Choice and a yield grade of 3. The only difference was that the crossbred outweighed the control steer by 75% (1525 vs. 875 lb). The large steer was carried to this age, weight, and fatness to ensure that he would grade Choice. This was perhaps a waste of resources. He could have been killed at 12 mo of age, weighing 1170 lb. when he would have probably yield graded 2 and quality graded Good. For that matter, he could have been

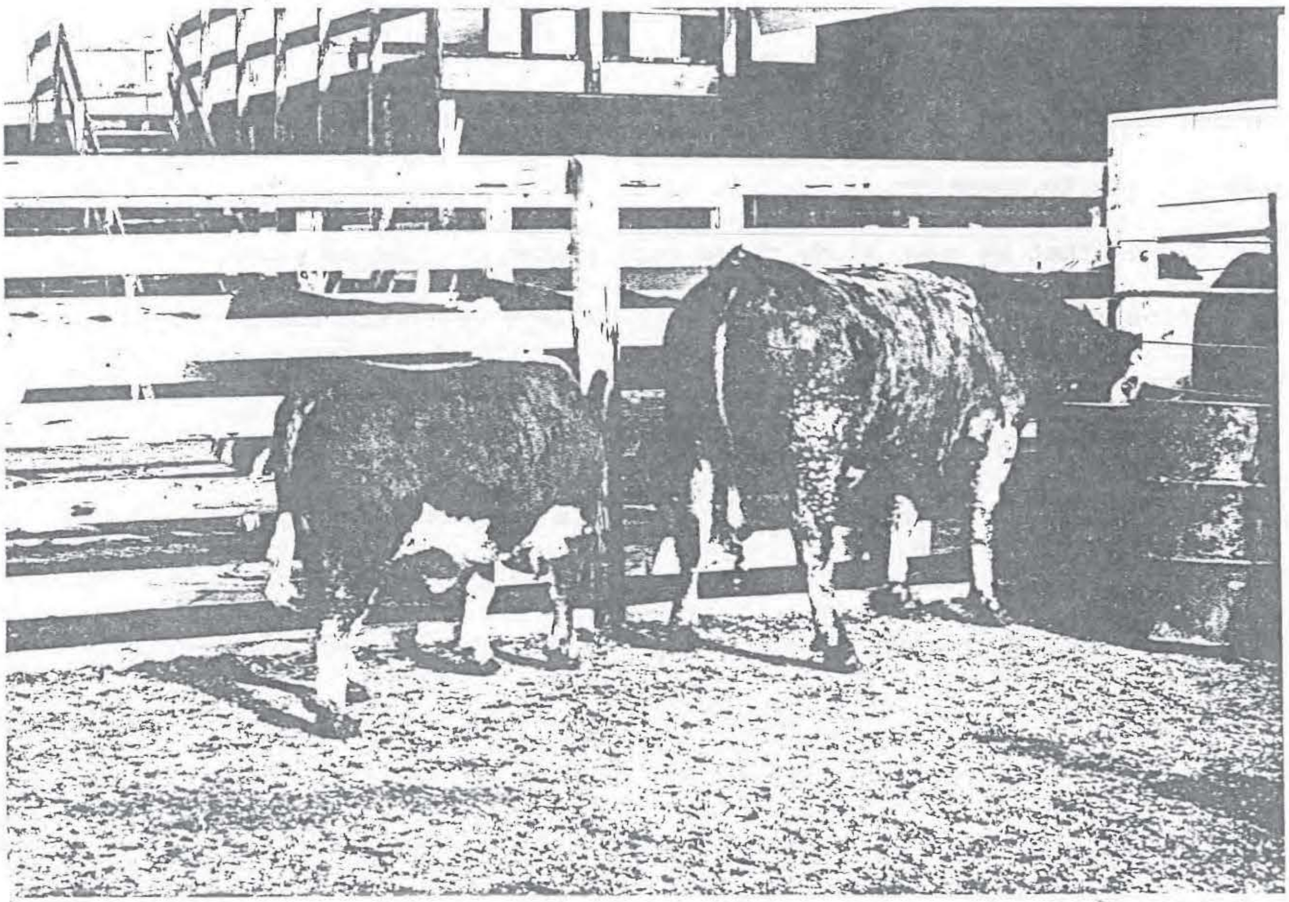

Figure 1. Example of 14 years of selection and crossbreeding (Magee, 1981). These two steers are descendents of the same straightbred Hereford cow herd which was used to initiate this project in 1967. On the day they were slaughtered, they were each 15 months old. The unselected straightbred Hereford control steer weighed 875 lb; the selected 4-breed rotational cross steer weighed 1525 lb.

left on his dam until 9 mo of age and then weaned and slaughtered at a weight of 850 lb. This may seem preposterous to those of us who have been reared in the culture of Choice corn-fed beef. However, I have spent a considerable amount of time in the Adelaide area of South Central Australia, where the bulk of the beef consumed comes from 8- to 11-mo-old weaner calves weighing 600 to 800 lb. Because of its youth, the beef is tender as well as being lean. Whether American consumers would find this younger beef as acceptable as older beef is open to question.

I feel that we must study these accelerated systems as possible beef production alternatives. In addition, I believe we should continue to investigate the feasibility of leaving male calves as intact bulls. The advantage that bulls hold over steers in lean growth has been well documented. Amidst all of this, several questions must be answered by research: (1) How young can we kill cattle and maintain consumer acceptability? (2) What is the lower fat limit on extremely young cattle? (3) Can we make young bull beef as acceptable as steer and heifer beef? For example, recent research at South Dakota (Stout et al., 1981) suggests that palatability of the meat may be improved by implanting young bulls with a hormonal growth stimulant.

The Ideal Steer

The ideal steer is an elusive beast that seems to defy our best efforts to capture him. I can recall attending in 1965 at Chicago my first steer judging conference held on a national level. It was sponsored by the major beef breed associations. I was a wide-eyed cub professor just out of graduate school and I expected that all sorts of wisdom would be flowing out of this event. The underlying reason for calling the conference was the fact that some leading show judges had been selecting steers considered to be too lean for that time. In those days, anything under 0.6 inches of external finish was relatively lean. It was a nice meeting, but not much was accomplished because we had a very small data base from which to draw up guidelines. Subsequent seminars, sponsored by various organizations, have been more fruitful as a result of the continuing growth of knowledge in the area of performance testing, live animal evaluation and carcass composition.

Now we are gathered together for another seminar in which our objective is to once again more clearly define the ideal slaughter steer. Will we accomplish anything meaningful? I'm not sure. Perhaps the ideal steer is something akin to the ancient unicorn, a mythical beast that existed only in the minds of men. But this analogy is too pessimistic a note with which to begin the symposium. I am confident that with the quality of resource people we have coming up, we will have a worthwhile meeting.

Before closing, I would like to leave you with a few items to think about during the symposium. These are personal biases based upon my own experiences over the years with both steers and breeding cattle:

(1) A lot of people are worried about getting steers too tall. I don't believe height *per se* is the main issue. If steers have enough muscle and finish on them within the proper weight range, height should probably be allowed to float.

(2) What is the proper weight range? Over the country as a whole, 600 to 800 lb. carcasses sell for the highest price. Depending upon dressing percent, this translates into a live weight range of about 950 to 1350 lb. In our state, we sell a significant number of 800 to 900 lb. carcasses to the east coast at no discount, so we can tolerate a live weight of 1400 lb. if the cattle are not over-finished. Other parts of the country undoubtedly have other specifications that differ somewhat from the norm.

(3) What about finish? Whether we come up with a grade change or not, much of the industry seems willing to treat the top half of the present Good grade on a par with the Choice grade if the cattle are fed properly, which of course is hard to verify. At any rate, Champion steers which grade top Good do not seem to raise the ire of the public like they once did.

(4) Most of my work involves commercial cow-calf producers as well as purebred breeders in Michigan and surrounding North Central states. I have some concern that we need to think about maintaining so-called "volume," "doing-ability," "constitution," "fleshing-ability," etc. in our beef cattle population. I have noted some problems in herds where certain cows lack these characteristics. They don't winter well and they have trouble re-breeding the following spring, especially if they are heavy milkers. Selecting extremely trim, shallow-bodied, shallow-ribbed steers may encourage purebred breeders to select too far in this direction. I think this could become a real problem if we are not careful.

(5) Related to the "volume" issue is our preoccupation with trim front ends. As judges, we probably pay too much attention to this trait, and I have been as guilty as anyone. We need to keep in mind that there is little economic significance to this trait.

There are many other issues that we could discuss, but I am certain they will come to light as this symposium develops.