



SPECIAL REPORT

TEXAS CATTLE FEEDERS ASSOCIATION

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August 1976

Seal

KEY FACTORS THAT DETERMINE THE PRICE OF FED CATTLE

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Because the fed cattle market has fluctuated so violently in recent months, and because cattle feeders were having so much difficulty in understanding what factors were responsible, the Marketing Committee of the Texas Cattle Feeders Association commissioned William C. Helming to prepare a special study and report for TCFA members.

Mr. Helming is president of Livestock Business Advisory Services, Inc., Kansas City, Mo. His report analyzes the "Important Supply Factors" and the "Important Demand Factors," in hopes that it will help cattle feeders better understand how to analyze these factors on a daily, weekly, monthly and yearly basis.

Important Supply Factors

1. **Total Cattle and Calf Inventory.** This is the most important factor determining long-term beef supplies. For example, the shortest beef cattle inventory liquidation period in the U.S. since 1904 was the two-year period from mid-1965 to mid-1967. For those two years, the total beef cattle inventory basically leveled out, before turning sharply up again for eight straight years. The normal beef cattle inventory liquidation period lasts three to five years. July 1976 represents the end of the first year of liquidation and July of 1977 will be the end of the second full year of beef cattle inventory liquidation.

Even though the U.S. beef cow inventory and the U.S. calf crop increased significantly during those eight years, and even though cow and other non-fed cattle slaughter was relatively low during that period, total beef production per cow increased sharply during each year. The primary reason was the substantial increase in cattle-on-feed numbers from 1966 through 1973, particularly in the Texas Panhandle, New Mexico, Oklahoma and western Kansas. It was in January of 1973 when the total cattle-on-feed inventory in the U.S. reached its all-time high of 13,861,000 head for the 23 states. That was an increase of 4,480,000 head or 48% more cattle on feed than on January 1, 1967.

This dramatic increase was the result of (1) cheap grain, (2) cheap land, (3) cheap grass and forage, (4) cheap money, (5) cheap fertilizer, (6) steadily increasing demand for Choice fed beef, and (7) relatively low wholesale-to-retail price spreads.

Since total cattle numbers peaked in mid-1975, major liquidation of the total U.S. cattle inventory has been taking place. This liquidation process may continue into 1978 or 1979, thereby causing total beef supplies to be only moderately under 1976 levels. But beef tonnage will remain relatively large for 1977 and 1978.

Some of the major factors affecting the rate of total cattle liquidation are:

a. The severe cost/price squeeze in which the cow-calf operator finds himself, plus the major economic advantages of carrying the calves over and making yearlings out of them, as opposed to a straight cow-calf operation, are key factors. Since there is a relatively fixed forage base in the U.S., increasing the number of yearling cattle requires that a proportionate number of cows be sold for slaughter.

b. About 70% of the total beef cows in the U.S. today are in herds of 200 or less. The average size of the Texas beef cow herd is now about 61 head. Therefore, even when feeder cattle prices are "good", about 70% of the U.S. beef cows are in herds that are not economic units by themselves and thereby must be supplemented from other sources of income. It may take two or three more years for these types of operations to respond to the severe cost/price squeeze by culling more cows.

c. The cost of all key beef production inputs, including grain and forage, will continue to increase and remain at relatively high levels.

d. Since the total beef cattle inventory only leveled out during the 1965-1967 period, there has not been a liquidation of the beef cow inventory in the U.S. since the mid-1950's. Therefore, it is not reasonable to expect that the present liquidation will be fully completed in one or two years, when inventory has been in a building process for 20 straight years.

e. The increasing consumer preference for ground beef in the U.S., at relatively low prices, is a new factor affecting the rate of beef cattle liquidation.

2. **Cattle on Feed Numbers.** The USDA 23-State Quarterly Cattle on Feed Reports are useful for determining fed beef supplies. However, total numbers on feed and feedlot placements are not always indicative of what actual fed cattle marketings will be 30 to 120 days later. Here are some examples of what causes significant variations in fed cattle marketings from time to time:

a. The new USDA beef grading standards result in cattle meeting the desired grade two to three weeks quicker than before the new grades were put into effect. Therefore, the ratio of fed cattle marketings to the total cattle on feed inventory is now and will remain at higher levels than in past years.

b. Due to the relatively high cost of grain for the past two years, almost all cattle now being placed on feed are yearling cattle (over 500 pounds). Therefore, the time on feed that is required to get these cattle to meet the desired grade and market weight has been reduced significantly. This trend will continue in the future.

c. The relative supply, price, and level of non-fed cattle slaughter is a major factor affecting the number of fed cattle that can and will be marketed for any given period of time. Generally, the larger the supply of non-fed cattle being slaughtered, the more difficult it is for the cattle feeder to

move his fed cattle on schedule.

d. Significant changes in both the cash and cattle futures market affect the rate of fed cattle marketings. For example, if the difference between the cash and futures market (basis) for the spot month is unusually wide, this has the tendency to encourage some cattle feeders to hold cattle until the basis narrows. Thus, he may hold the cattle one to three weeks, with the intention of delivering them against the futures contract or holding them long enough to lift his hedges at a more desirable level.

e. Year-around feeding of cattle in the U.S. today--due in large part to the expansion and shift of cattle feeding and beef packing facilities into Texas, New Mexico, Oklahoma and Kansas regions--has resulted in a relatively stable supply of fed cattle marketings for each quarter of the year.

3. **Total Meat Production.** Total meat tonnage, not slaughter numbers, is what counts and is what cattle feeders should focus on. Slaughter numbers alone, particularly for cattle, can be very misleading. Total beef, pork, lamb, broiler and turkey production, on a weekly and monthly basis, compared to year-ago levels, is the most important meat supply factor.

This is why average dressed beef weights are very important. For the first seven months of 1976, total cattle slaughter was up 9% and total beef production was up 11% over year-ago levels. For the week ending August 14, 1976, total F.I.S. cattle slaughter was 755,000 head or up 1% over the same week in 1975. However, total beef production for the same period was up 8%. Average dressed beef weights in August of 1976 were up 7% over year-ago levels, which amounts to an increase of 35 to 40 pounds.

4. **Daily and Weekly F.I.S. Slaughter Estimates.** The daily and weekly F.I.S. slaughter and meat production estimates made by the Market News Service of the USDA are very important. These original estimates and the subsequent revisions sometimes adversely affect the market on a short-term basis, because the cattle and meat buyers watch these slaughter and meat production estimates very closely and use them to their advantage.

Another important aspect of the F.I.S. slaughter estimates is the percentage that F.I.S. slaughter represents of the total commercial slaughter. The number of cattle represented by the F.I.S. slaughter, for example, has been generally going up since 1970. If the F.I.S. weekly cattle slaughter in 1976 is 750,000 head, this means that the commercial cattle slaughter for that same week was 810,000 head.

F.I.S. Cattle Slaughter
As a Percent of Commercial Cattle Slaughter
1970 - 1976

YEAR	% of TOTAL
1970	87.9%
1971	88.3
1972	90.2
1973	90.6
1974	90.5
1975	90.2
1976	91.6

The reason for the moderate decline in the number of cattle under Federal inspection during 1974 and 1975 was that non-fed slaughter, as a percent of fed cattle slaughter, was unusually high and the remaining non-inspected plants handle primarily non-fed cattle (cows, calves, bulls, etc.).

5. **Daily Terminal Numbers.** The daily "terminal market runs" are a major market factor, but often are misleading. They also are a relatively poor indication of the actual supply of fed cattle available in the Cornbelt. For the past two years, the weekly terminal market numbers of cattle have represented only 12% of the total weekly F.I.S. cattle slaughter. Furthermore, the quality of the cattle that show up

at the terminals is generally poor, compared to the quality of the fed cattle that are sold in the "country" on a private-treaty basis. This is more evident today than it was three to five years ago.

The rapid expansion and shift in cattle feeding and beef packing plants into Texas, New Mexico, Oklahoma and Kansas over the past 10 years should be taken into account when looking at the terminal runs published daily by the Market News Service of the USDA. Also, watch the USDA's daily advance estimate of terminal market numbers with caution. For example, on Monday afternoon, the USDA will release an estimate of what the terminal market numbers will be on Tuesday morning. Invariably, these advance estimates are understated, when compared to the actual number of cattle that are received. This "overrun" generally works to the advantage of the buyer and to the disadvantage of the cattle feeder.

6. **The Cattle Slaughter Mix.** This has a direct impact on the level of fed cattle marketings and on average dressed beef weights. Generally, the greater the proportion non-fed cattle slaughter is of total cattle slaughter, (a) the more selective the packer-buyer is in buying fed cattle, and (b) the lower average slaughter cattle weights will be. Again, it is beef tonnage that counts, not the number of cattle.

Knowing what the cattle slaughter mix is presently or what it will be in the future is an excellent guideline in determining what average dressed beef weights will be. As a general guideline for the next five years, if the weekly cow slaughter is 25% or more of the total F.I.S. slaughter, the fed cattle market will generally be less active and will tend to be under some pressure. However, if weekly cow slaughter is 21% or less of the total F.I.S. slaughter, the fed cattle market will tend to be more active and generally show signs of some strength.

7. **Beef and Feeder Cattle Imports.** Beef imports into the U.S. from other countries represent a major beef supply and market factor. For example, total beef imports into the U.S., subject to the 1964 Meat Import Act, will represent about 8 pounds per person, or 6% of the 126 pounds of beef per capita that will be consumed in this country in 1976. Also, there is a seasonal pattern to beef imports--usually down in the second quarter and up in the third quarter.

One limitation or fallacy of the 1964 Meat Import Act is that as U.S. beef production increases, beef imports from other countries also can increase. This year, for example, while domestic beef supplies are running 11% over year-ago levels, beef imports into the U.S. are up 20%.

Another limitation is that all beef imports are not controlled by the Meat Import Act. For the past several years, this has amounted to an additional 1 to 3 pounds per capita. The extra beef now entering the U.S. market from Puerto Rico is part of this problem.

Feeder cattle imports into the U.S. each year are also significant. In 1976, Canada and Mexico will export to the U.S. about 750,000 head of feeder cattle, equal to about 2% of the total 1976 calf crop. Total cattle exports from the U.S. to other countries in 1975 was 195,760 head.

8. **Boxed and Fabricated Beef Supplies.** Over 60% of the beef presently sold by beef packers is in boxed or fabricated form. Ten years ago, only 25% of the beef sold by beef packers was fabricated.

Much of this boxed or fabricated beef can now be stored by the packer, the retail stores, the H. R. & I. trade and others for two or three weeks, without any significant deterioration in quality or loss due to shrink. This is an important market factor, although a hard one to evaluate, because there presently is no reliable data available on the amount of boxed or fabricated beef in storage or in the "pipe line". Most of it is not now accounted for in the USDA Cold Storage Meat Stock Reports.

It will take time, perhaps one or two years, for the total industry, and the market, to adjust to the increasing quantities of beef that are now being sold as boxed or fabricated beef.

9. Weekly Volume of Trade Estimates. These figures for fed cattle, which are available from the Texas Cattle Feeders Association, the Market News Service of the USDA and Cattle-Fax, are helpful in making a reasonable estimate of the number of cattle being traded and sold each week. They often are misleading, however, because what counts is the tonnage of beef, pork and poultry that is sold or available for sale each week.

10. Feeder Cattle Supplies and Prices. The actual supply of feeder cattle and calves is one of the most commonly misunderstood and misinterpreted parts of the total beef supply situation. The price of feeder cattle, the price of grain, and the price of fed cattle often have very little bearing on the actual supply of feeder cattle. Just because feeder prices are relatively high, does not necessarily mean that feeder cattle supplies are tight.

The total supply of feeder cattle and calves on January 1, 1977, will be down 600,000 head or 1% below January 1, 1976. The actual number of feeder cattle weighing 500 pounds and over on January 1, 1977, will be about 25,750,000 head, which is 1,200,000 head or 5% above year-ago levels. No shortage of total feeder cattle supplies is anticipated for the next 12 months.

It is apparent that many cattle feeders were "betting on the come" during the first half of 1976, as illustrated below.

**Price Relationship Between Fed Cattle, Corn, and Feeder Cattle
For the Texas Panhandle
First Six Months, 1975 - 1976**

	1975	1976	Actual Change from 1975	% Change from 1975
1. Fed Cattle (\$ per cwt.)	\$42.62	\$40.73	\$ 1.89	- 4.4%
2. Corn (\$ per bushel)	2.64	2.63	.01	- 0 -
3. Feeder Cattle (\$ per cwt.)	30.77	41.03	10.26	+ 33.3%

11. Grain and Forage Supplies. The availability and price of feed grain and forage supplies has a major impact on the total supply of beef, pork and poultry for any given six to 12-month period. It is important for cattle feeders to keep in mind that (a) corn is the "hub of the wheel" in the entire grain complex, and (b) as go corn prices, so will go the price of grass, wheat pasture, hay, silage and other roughages. Furthermore, it is important to keep in mind that a relatively large corn crop does not necessarily mean "cheap" grain and roughage prices. There are other factors to consider, including the increasing world demand for grain, that will determine the price of corn or milo to a feedlot.

Until the price of grain-fed cattle increases sufficiently to cover all production and feeding costs, plus a profit, the trend will be toward the feeding of less grain per animal fed. This, plus the new beef grading standards, plus the further reduction in the total beef cow and calf inventory, will result in (a) a significant reduction in total beef supplies by 1982, and (b) further excess feedlot capacity than what we now have. We now have 35% to 40% excess feeding capacity, which likely will grow to 50% or 60% by 1982. By that time, 1982, we likely will have an excess in beef packing plant capacity, too.

Feed grain consumption by beef cattle will trend downward between now and 1982. This may not mean, however, that feed grain prices will trend downward in the same proportion. That will depend on worldwide feed grain supply trends (weather), the rate of U.S. feed grain exports and the rate at

which hog and poultry production is increased over the next five years. Hogs and poultry can convert grain into meat protein more efficiently than can beef cattle. Although beef cattle can effectively use and convert forage into good quality beef, the cost of forage continues to go up and will approach the cost of grain in the years ahead.

12. Ground Beef Supplies. The United States has indeed become a "hamburger society". Of the total amount of beef that will be consumed in 1976 (about 126 pounds per capita), about 40% (50 pounds per capita) will be ground beef. By 1982, this could increase as much as 60%.

The trend to ground beef will lead to turning cattle in feedlots 3.5 to 4.0 times a year and thus less feeding of grain per animal fed, as discussed above. In 1970, 18% to 22% of the grain-fed carcasses went into ground beef; and in 1976, this had increased to 25% to 30%.

Approximately 45% of the total beef consumed in the U.S. today is eaten away from home. Some managers of retail food stores and away-from-home eating establishments say, "So long as we call it hamburger, ground beef, or steak, we can sell it". Many restaurants and other away-from-home eating establishments now are serving and selling large quantities of "reconstituted" or "fabricated" meat, often called "steak".

These "steaks" generally are made from relatively rough cuts of beef and/or grades of beef that are otherwise too tough for anything other than hamburger. A common procedure is to debone the chunks of beef and trimmings and fill the voids (where the bone or other waste was) with other scraps of beef. The whole piece of beef is then tenderized by a needle process that breaks down the tough fibers, molded under pressure into a big chunk of meat, commonly called a "log", and frozen. When the "log" is later sliced, you then have what looks and cooks like a strip steak.

The trend is clearly towards every day low prices for ground beef and every day high prices for the "better" cuts of beef. The average retail price of all ground beef in the U.S. during the first half of 1976 was about 85¢ per pound, compared to an average of \$1.85 for the better cuts.

Important Demand Factors

1. Disposable Personal Income. This is a key factor in determining the effective consumer demand for beef. Disposable personal income is the "take home pay" after all tax and insurance deductions.

2. Percent of Disposable Income Spent on Beef. Historically, American consumers have spent a relatively stable percentage of disposable personal income on beef, ranging between 2.4% and 2.8% from 1950 through 1975. But a slight change in this percentage has a major impact on the price of fed cattle and dressed beef. For example, during the third and fourth quarters of 1975, the percentage of disposable income spent on beef was 2.73% and cattle prices were relatively strong. But during the summer of 1976, when the percentage has been running close to 2.45%, cattle prices were weak. A number of factors affect this percentage, some of which are not readily predictable or easily explained.

It is important to remember that per capita beef consumption is not a good indication of effective consumer demand for beef. Beef is a perishable commodity and all the beef produced in the U.S. is consumed. The only question is, "At what price?"

3. General Economy and Rate of Employment. The rate of real growth in the U.S. economy, as measured by the rate of change in the gross national product, plus the total level of employment and the rate of inflation, all have a direct impact on the effective consumer demand for beef and other meats. An important part of this is consumer attitudes and confidence in the general economy, thereby affecting consumer willingness to spend money for beef, other meats, and

on durable goods, such as automobiles, refrigerators, etc.

4. **Changes in the U.S. Population.** The rate at which the U.S. population is growing is indeed an important factor affecting total consumer demand for beef and other meats. Since 1970, the U.S. population has been increasing but at a decreasing rate, as shown in this table:

Annual Change in U.S. Population

YEAR	Number of People	% Change From Previous Year
1970	201,600,000	+ 1.3%
1971	204,200,000	+ 1.3
1972	206,500,000	+ 1.1
1973	208,100,000	+ .8
1974	209,700,000	+ .8
1975	211,400,000	+ .8
1976	213,000,000	+ .8

5. **Wholesale to Retail Price Spread.** This spread now is at historically wide levels. During the first seven months of 1976, it averaged \$51/cwt., up 32% from the same period of 1975. Inflation, as measured by the Consumer's Price Index, was up only about 6%.

The price spread for beef has widened over the past three years, primarily because (a) the supply of beef has been up sharply, (b) costs at the retail level (labor, transportation, utilities, etc.) have gone up sharply, and (c) market power at the retail level has increased.

This increased market power is a factor on demand and price of beef in two ways. First, it is estimated that retail food stores in the U.S. will spend about \$210,000,000 for beef advertising this year. This is a big figure and amounts to about \$5.00 per head for all the cattle that will be slaughtered (42,000,000 head) in the U.S. during 1976. Second, retail food stores appear to have been more consistent and successful in maintaining a positive margin on beef that they sell than has the cattle feeder.

6. **Retail Advertising and Featuring.** Retail food stores and the H. R. & I. trade are very sensitive to the needs and desires of the consumer. This is the primary reason why they want relatively stable and relatively low beef prices each week. So long as they can keep the wholesale to retail price spreads as wide as they presently are, without having to increase the price to consumers, this is what they will continue to do. The lower the wholesale price of beef, the more retail food stores will feature it. Conversely, the higher the wholesale price of beef, the less they will feature it.

Retail food stores are very sensitive to seasonal changes in consumer demand and preference for beef and other meats. They also are sensitive to major and sudden changes in the weather, which tends to affect the consumers' buying habits on a daily and/or weekly basis.

7. **Transfer Payments.** An important demand factor for beef and other meats is transfer payments. Some examples are (a) food stamps, (b) the school lunch program, (c) government purchases for the armed services, (d) social security payments, and (e) other government welfare and/or food assistance programs. The Food Stamp Program alone currently accounts for over 4% of the total dollars spent on beef in the U.S. This will amount to about \$1.2 billion in 1976.

Other Factors

1. **The Cattle Futures Market.** The cattle futures market is a very important short-term and longer-term market factor. It can be misleading and often is misinterpreted. The cattle futures market is normally not a reliable indication of what the cash fed cattle market will be four to six months in the future.

The cattle futures market does indeed affect the attitudes and the market planning decisions of many people, including the cattle feeders. It has been and will continue to be both a positive and negative factor. However, cattle feeders who take the time to learn about and effectively use cattle and grain futures, can help themselves greatly from a financial standpoint.

The cattle and grain futures markets are here to stay. The use of fed cattle, feeder cattle and grain futures markets by cattle feeders will increase substantially over the next ten years. Over 90% of the corn is now hedged by the commercial sector of the grain business. Less than 10% of the fed cattle are now hedged but this likely will increase to over 50%.

2. **Government Actions.** Various government regulations and/or policies have a direct or indirect impact on the cost of producing or on the price of cattle and dressed beef. Some examples are (a) increased grain exports, (b) grain export embargoes, (c) wage and price controls, and (d) the new beef grading standards. The most important and overriding element of government influence on the cattle market is that the U.S. government has always had and still does have a cheap food policy. Some government programs, however, such as transfer payments referred to above, are very beneficial to the effective consumer demand for beef and other meats.

3. **Market Psychology.** Market psychology is indeed one of the most important short-term influences on the fed and feeder cattle market. If cattle producers, cattle feeders, beef processors, beef packers and retail food store meat buyers are particularly bullish or bearish on any given day or week, such attitudes will affect the market to a significant degree. Cattle feeders are generally more bullish and optimistic about the fed cattle market than what the basic supply and demand factors would call for. The negative cattle feeding margins in 1976 certainly prove this point.

4. **Price Trends and Cycles.** The cattle market, both on a live and cattle futures basis, is very cyclical in nature. Such cycles, if analyzed and studied carefully, tend to be predictable. Cattle feeders should keep this in mind when they are trying to determine (a) the future price trend of the cattle market, and (b) when such a price trend will likely change direction on a weekly, monthly or annual basis.

Summary and Conclusions

1. Effectively analyzing and forecasting the fed and feeder cattle market is becoming a more complex and challenging task as each week and month passes. This trend will continue in the future.

2. Some of the key new factors now affecting the price of fed and feeder cattle are (a) major beef cattle liquidation and the subsequent increase in non-fed cattle slaughter, (b) the significant increase in ground and "reconstituted" beef supplies, (c) increased quantities of boxed and fabricated beef, (d) the relatively high price of grain and forage, (e) the significant shift in beef slaughtering capacity into the Texas Panhandle, New Mexico, Oklahoma and western Kansas, and (f) the concentrated buying power of the large retail food chains and the H. R. & I. establishments through the U.S.

3. There are now, and there always will be, some factors affecting the fed cattle market that cannot be explained or predicted by using sound logic or traditional economic analysis. One example would be market psychology.

4. The cattle feeding industry is not dying. However, it is changing rapidly. Cattle feeders today and cattle feeders of the future must be willing to change and to be flexible.