Vertical Coordination in the Beef Industry: Packer, Retailer and HRI Linkages

By

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Introduction

In this study, we focus on two elements of the vertical coordination linkages between meatpackers, processors, and those retailers and hotels, restaurants, and institutions who are their primary customers for beef:

(1) Pricing systems -- particularly focusing on the extent of use and the relative advantages/disadvantages of formula price contracts versus other exchange mechanisms where the prices are individually negotiated or determined in each transaction.

(2) Physical distribution systems -- focusing on the extent and relative advantages/disadvantages of carcass beef distribution systems, boxed beef distribution systems by packers, and retail centralized cutting and fabrication systems for beef.

In doing so, we hope to gain a better understanding of the pervasiveness of formula pricing in the beef industry, the incentives which might cause its use to grow even more, and the particular problems and benefits associated with that pricing mechanism. We may then be better able to assess whether some of the policy proposals regarding formula pricing and price reporting in the beef industry are necessary or in the public interest.¹

In addition, the rapid growth of the "boxed beef" distribution system has been apparent to outside observers of the beef industry in the last decade, but the full extent of its growth hasn't been well documented. We hope to gain some insights into the implications which this distribution system may have on industry structure and performance, now and in the future.

¹These include policies banning formula pricing contracts, mandatory reporting of prices paid or received, criminal penalties for false price reports, etc.
Procedure

There are few sources of up to date relevant secondary statistics which could help cast some light on these subjects. Also, there are a large number of market participants in the beef industry at the slaughtering, breaking, boning and fabrication, distributing, retailing, and hotel, restaurant, and institutional (HRI) levels. The industry is complex and geographically dispersed, making a broad mail survey instrument difficult to construct, costly to administer, and quite unlikely to get a high level of response due to significant litigation recently or currently in progress in the beef industry. Consequently, we opted for a less comprehensive set of "not for quotation" interviews (some personal visits, some by telephone) with knowledgeable personnel in the beef industry involved in buying or selling beef at any place in the distribution chain between a beef slaughtering operation and the food retailer or the hotel, restaurant, or institutional buyer of beef. This resulted in interviews with managers in approximately 30 firms, including many leading beef slaughter and processing firms, food retailers, fast food operations and few other HRI and food service users of beef. This was supplemented by descriptions of the beef procurement, processing, and warehousing procedures of many large food retailers which are part of the public record in litigation still in progress at this writing (in the consolidated cases in Texas). In addition, recent data on the size of the largest beef slaughter firms and their boxed beef sales become available from the U.S. vs. Iowa Beef Processors, Inc. and Columbia Foods, Inc. case.

These cases include: Irvin Bray, et al vs. Safeway Stores, Inc., The Great Atlantic and Pacific Tea Company, Inc., The Kroger Co; several cases against retail chains consolidated in the Northern District of Texas, including Meat Price Investigators Association vs. Safeway, et al; and current price fixing indictments against ten meatpackers in Los Angeles.
The Physical Distribution System

The dominant fresh beef distribution system in the 1950's and early 60's could be characterized as a multi-specie slaughter facility which slaughtered the animal and shipped it in the form of carcass halves or quarters to: (a) regional packer warehouse for subsequent distribution to small retailers, (b) directly to a retail chain's warehouse for subsequent distribution to that chain's retail outlets, or (c) to smaller carcass breakers and fabricators for further processing and subsequent distribution to hotel, restaurant and institutional distributors. Very little processing was done by the slaughter firm, and most carcass fabrication was done in the back room of retail stores, or in specialized processing facilities owned by independent meat processors and purveyors who cater to the hotel, restaurant and institutional trade. The retail distribution system was clearly the dominant part of the physical distribution system for beef, as the rapid growth of away from home eating was still in its early stages.

In the last two decades, this system has evolved dramatically, particularly through the functional integration of slaughtering firms into performing further processing and fabrication functions. Many meat-packers now slaughter the animal, break beef carcasses into primal cuts, and even further process those cuts into sub-primals which have even more fat and bone removed; these slaughter-processors usually vacuum-pack the resulting product and ship it in a box to their customers. The dominant customer is the retailer, who receives the product at a retail warehouse for further shipment to the retail store. However, rapidly growing outlets for beef are the processors and fabricators owned by or servicing the hotel, restaurant and institutional users of beef. While precise statistics aren't available, some industry observers now estimate that
55-60 percent of all beef leaving meatpacking firms now is boxed beef.\(^3\)

A parallel development which may have slightly preceded the move of meatpackers into the boxed beef distribution system was the development of large scale beef processing, fabrication, and warehouse centers by some of the large retailers. While Safeway might have been one of the first innovators in this area, many large retailers (including Safeway, A&P, Kroger, Stop N' Shop, Winn-Dixie, American, Giant, and west coast retailers like Ralph's, Lucky Stores, Albertson's and Vons) purchase carcasses to satisfy some (in some cases, most) of their beef requirements and centrally fabricate them into primal and sub-primal cuts. While some of these retailers may eliminate the boxing or vacuum packing in locations where their warehouse and processing facility is in very close proximity to a large number of their stores, most retailers mentioned essentially have their own boxed beef processing and distribution system; assembly line techniques are utilized in centralized facilities to custom process products to the particular merchandising specifications of the chain, thus significantly reducing the amount of further processing required in the back room of retail stores when the ready-for-the-saw product arrives. These cuts are then fabricated into retail cuts and packaged by store employees. The proportion of the beef fabricated by their own central fabrication facility ranges from

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\(^3\) That estimate may include lean trim and ground beef. A study by the Cryovac Division of W.R. Grace estimated that the combination of boxed beef from meatpackers and fabricated cuts from retailers' central cutting and fabrication facilities (excluding ground beef) totaled 57 percent of retailer primal/subprimal receipts at the store level in 1977. If that study is accurate, boxed beef primals and subprimals may comprise 40-50 percent of meatpacker shipments to retailers in 1978. This can be contrasted with the 16 percent of U.S. commercial slaughter that was the boxed beef production of the 27 largest beef slaughter and processing firms in 1976, according to a USDA Packers and Stockyards survey (See Appendix Tables). However, the difference in the time of these surveys, the possible differences in boxed beef definitions used, and their failure to include all beef users or all beef producers keeps our picture of the current importance of boxed beef still slightly out of focus.
approximately 25 percent for A&P, to nearly all of the requirement for most of the other retailers named. While the proportion of beef moving through centralized retail fabrication and warehousing operations isn't accurately known, one can roughly estimate that it now comprises 10-15 percent, based on the known retail central fabrication facilities and those retailers' market shares of retail food sales.

Since several of the largest food retailers have a high proportion (some near 100%) of their beef further processed in their own centralized processing facility (their own boxed beef system), the boxed beef distribution system of major meatpackers primarily services small and medium-sized retail chains, voluntary and cooperative retail groups, and beef processors which supply portion-control product for the HRI distribution system. In addition, there are many major cities where retailers are restricted from using boxed beef by existing union contracts with meat cutters. While we have not done a comprehensive study of the relative importance of the various distribution systems now being used in the beef industry beyond the slaughter operation, some USDA studies are planned in some major metropolitan areas to give a detailed, up to date picture of the relative importance of the various beef distribution systems employed in serving both the retail and institutional markets for beef.

The Boxed Beef Distribution System

Advantages - Boxed Beef

In theory, the boxed beef distribution system established by meatpackers would seem to have the potential to significantly increase the efficiency of the distribution system. By doing further processing of the carcass at or near the location of production and slaughter, less low value product like fat and bone would need to be shipped to retailers who wouldn't want that product, and assembly line techniques could be used to better utilize
skilled labor in areas where land, facility, and labor costs might be less expensive than in the major metropolitan areas where retail stores are concentrated. Interviews with meatpackers and retailers confirm those general concepts; however, both meatpackers and retailers generally emphasize that a very significant benefit of the boxed beef distribution system is the flexibility which it affords retailers. Whereas retailers in a carcass distribution system are forced to buy the number of quarters or halves necessary to provide an adequate supply of their fastest moving item, the slower moving cuts which accompany them in fixed proportions create merchandising problems. Because the packer now offers a much greater number of products, the retail buyer is now in a position to purchase high velocity cuts needed to cater to the merchandising requirements in his marketing area, and buy fewer low velocity cuts. Expensive retail labor can be utilized to merchandise the high margin, high velocity cuts rather than process slow moving cuts into other, faster moving forms, but offering little value-added and profit from the additional processing.

While many packers involved in the boxed beef distribution program felt there were significant efficiencies inherent in the system, and that it definitely was the "wave of the future", many expressed the view that retailers were gaining the primary benefits at this stage in the evolution of the industry's processing and distribution system. While one might be initially skeptical and consider such statements to be "poor mouthing" or "sour grapes", further reflection may suggest otherwise. Typically, the profitability in the introductory phases of a product life cycle is not expected to be great due to (a) the large incentives necessary to induce new customers to adopt the product, and (b) the excess capacity which is typical in such situations, especially when some firms enter primarily to
"keep up with the Jones's" and hedge the risk that their competitors might get firmly established in a market which might turn out to have great potential in the future. The cost disadvantages of insufficient operating experience also contribute to relatively unattractive price-cost margins in the early phases of introducing changes in the product offered and the related distribution system. Another factor which might be even more important in making the boxed beef processing and distribution systems unprofitable for many packers is the difference in wage rates paid by some of the older, full line packers with master union contracts compared to the newer, more specialized meatpackers like IBP and MBPXL; low wage rates combined with high labor productivity may give them a significant competitive advantage (which may be reflected in low price-cost margins in the marketplace for their competitors).

Both retailers and packers agree that there are significant cost efficiencies in a boxed beef processing and distribution system, including:

(1) less customer freight costs, since he does not pay freight on unsalable product;

(2) shipping less weight in boxes allows better utilization of a limited supply of independent truckers, and reduces fuel requirements per pound of retail product;

(3) because of vacuum packing, there is less shrink in the cooler and in transit (perhaps 1/4-1/2 percent of shrink and trim loss per day);

(4) the low value product like bone and fat can be more efficiently salvaged at the packer level than at the retail store level, and more effectively merchandised as higher value items (e.g. fat may be sold as edible rather than inedible, etc.);

(5) some packers have lower hourly wage rates than most retailers with stores in major metropolitan areas;
(6) less warehouse space and labor are required for storage by both packers and retailers (over twice the amount of retailable product can be stored per unit of space; also boxes are easier to handle than "on-rail" swinging beef carcass halves or quarters). In addition, other advantages suggested include:

(7) the better utilization of labor in assembly line techniques, allowing functional specialization, increasing labor productivity and providing a more uniform product;

(8) the packer is now in a position to do the inventory balancing of the larger number of cuts which he now merchandises; packers are in a better position than many retailers to notice and to capitalize upon regional demand differences by selling individual primal or subprimal cuts in a variety of ways (as primals or subprimals, bone in or bone out, etc.), whichever will move best at the time in the local and regional markets serviced by the plant;

(9) increased wholesale product shelf life due to the reduced quality deterioration of a vacuum packed product, allowing packer or retailer to hold the product longer (estimates range from a week to three weeks longer than carcass beef);

(10) because the product has improved storability, packers are unlikely to find themselves in a panic selling situation, which too frequently occurs when carcass beef has to be moved out within a day or two after slaughter;

(11) the ability to store inventories for a longer period of time sometimes facilitates forward selling, since packers rely partly on known available inventories plus the more risky projected slaughter volumes, making it less risky to make advance commitments on volume and price to some customers;
one key element of a boxed beef distribution system is the increased potential for buyers now to "cherry pick" bargains from packers with particular cuts in surplus in the short run. This is considered to be a significant advantage of the boxed beef distribution system for retail and institutional buyers. However, the ability of buyers to play off one packer against another in the negotiation process can be a significant disadvantage to packers, leading to reduced margins or even negative margins when excess inventories of some cuts build up for packers in one area of the country or another.

Disadvantages - Boxed Beef

The disadvantages of the boxed beef distribution system were generally not considered major by the survey respondents, though they sometimes have led to a slower rate of growth in its adoption, or eliminated its use completely. For example, the union contract restrictions on the use of boxed beef by retail chains in major cities were cited by many packers and retailers as a key constraint; cities like Chicago, Milwaukee, Omaha, St. Louis, and several other metropolitan areas were cited as areas where union contracts with retailers either restrict its use altogether, or include disincentives like wage premiums where boxed beef is used by retailers. However, some industry participants felt that escalating retail labor costs would probably give retailers an increasing incentive to "chip away" at those restrictions over the next five to ten years.

In some areas, meat suppliers are located close to the retail store outlets; the close proximity facilitates fast delivery, minimizing quality or perishability problems, especially where there are high volume stores with rapid product turn over. In such settings, the additional cost of boxing and packaging materials (approximately $2 per 100 pounds carcass weight) provides little added benefit to retailers. In addition, there is
very little demand for boxed beef by large retailers who have their own centralized cutting and fabrication facilities, although they do sometimes require shipments of boxed primal or subprimal cuts in unusual demand in some local markets, or to supplement the supply from their own carcass breaking and fabrication operation for special promotions.

Even where retailers don't have their own centralized cutting and fabrication operation, current retail store handling and processing equipment adapted to on-the-rail carcass handling and storage would have to be modified to handle the boxed primals and subprimals. This sometimes requires significant added investment in some old stores, and mandates changes in the amount of skilled labor in the back room of the retail store, and the functions to be performed by in-store labor.

While the longer storage life of vacuum packed product appears to be a significant advantage which would alleviate the panic selling often brought on by excess supplies of perishable products in packer inventories, many meatpackers indicate that the longer storage life also give packers a feeling of false security which sometimes has adverse consequences. Because chucks and rounds are the fastest moving retail items for most packers, many packers have a tendency to build up inventories of the slower moving, higher priced ribs, loins, and related products rather than reduce prices on "slow markets" to expedite their movement. Several packers suggested that they too easily end up with burdensome inventories which, though the tonnage may be small, may require several weeks to reduce to desirable levels, or require significant price reductions (perhaps more than ten cents a pound) to entice retailers or HRI customers to significantly increase their purchases of a two or three dollar per pound item.

Finally, some packers felt that the boxed beef distribution system adds greatly to the complexity of marketing and management in the meat-
packing industry, increases the capital intensity in meatpacking because of the added investment in facilities and equipment, and makes it much more difficult for any new entrant to become a viable competitor in a market which is not yet fully developed. Some of the larger firms in the meatpacking industry (e.g. Iowa Beef Packers, MBPXL, Monfort) and some smaller specialized slaughter, breaking and fabrication operations currently sell a very large portion (80% or more) of their output as boxed, vacuum-packed primals, subprimals, and beef trimmings or gound beef. Many of the formerly dominant full line packers (e.g. Swift, Armour, Wilson) now sell 30-60% of their beef in the form of further fabricated boxed beef (See Appendix Tables for earlier data on firm slaughter and boxed beef production); however, many have higher labor rates compared to some of the newer specialized packers (especially IBP) in this labor intensive operation (ranging from approximately $1 to $3-4 per hour more in some plants, according to the Wall Street Journal, August 10, 1978).

Certainly, the growth of some of the older major packers in the boxed beef distribution system is limited by older facilities which are not easily adapted to this system, and by high union labor rates which put them at a comparative disadvantage compared to some of the new, very efficient slaughter-processing operations which enjoy relatively low wage rates. Until the market for boxed beef is more fully developed, or the unit labor cost differentials between some of the old line and new independent packers narrow, the primary incentives for expansion appear to lie with the most efficient large operations like IBP and MBPXL who can capitalize upon their current wage differentials and their current and future cost advantages derived from increased scale and movement along the "learning curve" in the new assembly-line boxed beef processing, marketing, and distribution system.
Central Cutting and Fabrication by Retailers

Advantages

Retailers involved in centralized cutting and fabrication operations for beef observed several different advantages of this beef processing and distribution system, but generally emphasized that (a) it was usually profitable, (b) it facilitated improved quality control through uniform cutting to meet the retail chains' particular merchandising specifications, and (c) the system offered significant scale economies and efficiencies compared to a very large number of small, back room carcass processing operations in retail stores. Most retailers surveyed felt that they usually could purchase carcasses, do their own processing, and end up with a cost advantage relative to purchasing the same processed item from a meatpacker. One retail buyer felt he could accumulate product for features without the knowledge of others, and sometimes do a better job of purchasing. However, another commented that it was essential to get high value by-product utilization in order to make the retail cutting and fabrication system profitable; if tallow were not salvaged in the form of edible rather than inedible tallow, lean trimmings not utilized in hamburger production and retail merchandising rather than being sold at wholesale prices, or ground bone not merchandised to soup companies, profitability would be small or nonexistent. For those retailers who have some flexibility, and can choose to purchase carcasses and process them, or purchase fabricated cuts, depending upon their relative prices and the fabrication margin, the centralized cutting and fabrication facility could be quite profitable. Retailers with such flexibility strongly felt that the better knowledge of costs and values provided by their experience with the centralized cutting and fabrication operation proved very useful in negotiating for requirements which were not to be centrally fabricated.
Retailers typically felt strongly that better quality control inherent in their own cutting and fabrication operation was particularly important in more effective merchandising. Not only did they feel that they got more uniform cutting from their own trained labor force compared to several boxed beef suppliers, they also felt that they could more tightly control the quality of beef carcasses being purchased and delivered to their central cutting operation in comparison to the quality of boxed and vacuum packed product that they otherwise would purchase.

Many retailers mentioned the economies involved in breaking and processing beef via high volume assembly line process involving functionally specialized labor, in contrast to skilled, highly paid meat cutters who do all processing operations in the back room of each retail store. In addition, they indicated that some retail processing and warehouse facilities located close to a large number of retail outlets can avoid using boxes, cutting the cost involved relative to a meatpacker's boxed beef system.

Disadvantages

The key disadvantages noted were the elimination of the possibility of retailers "cherry picking" among cuts in surplus at the packer level; in many cases, retail competitors may be able to acquire boxed sub-primals in surplus from some packers, and be able to undercut the cost and ultimate retail price of beef coming from a retailer's central fabrication facility. While retail labor costs are usually high compared to those of the lowest cost slaughter-processor firms, most retailers felt their costs were generally on a par with the older, master contract packers. However, centralized retail cutting and fabrication systems could become uneconomical in the long run relative to packer boxed beef programs if the wage and productivity differentials widen further and increasingly favor processing closer to the location of beef production.
Results of Other Recent Studies

A recent telephone survey reported by the Cryovac Division of W.R. Grace and Company (a leading supplier of packaging material and equipment to the meat industry) indicated that primals and subprimals accounted for approximately 57 percent of total U.S. retail fresh beef receipts (excluding ground beef) in 1977. This includes both boxed beef distributed by meat-packers, and the output of the centralized cutting and fabrication facilities owned by retailers. While this percentage is somewhat lower than some estimates by industry participants in our interviews, this is additional evidence confirming the recent growth and current importance of the boxed beef system and its competing centralized retail cutting and fabrication system. Of the prefabricated cuts, the Cryovac study reported that well over half were received vacuum-packed. Retail chains received 71 percent of their fresh beef receipts at the store level in primal or subprimal form, as opposed to only 30 percent reported by independent retailers.\textsuperscript{4} The continued expected growth of breaking and fabricating carcasses more extensively prior to arrival at the retail store was strongly evident in our interviews and Cryovac study, though some industry members felt that central retail fabrication units might be gradually displaced as current facilities get outmoded, citing one or two retail chains who have discontinued their fabrication operations and shifted to using boxed beef.

Two industrial engineering studies of the relative costs of various packer-retailer beef distribution systems in 1975 and 1977 have been done

\textsuperscript{4}An estimated 66 percent of the retail fresh beef volume was handled by chains, and 34 percent by independent retailers. Further, Cryovac estimated that 40 percent of the fresh beef volume was by large retail chains (with 26 or more stores), approximately one-third of that volume by retailers with fabricating facilities.
by Case and Company, Inc., a consulting firm. These studies commissioned by the U.S.D.A. (in 1975) and Iowa Beef Processors (in 1977) analyzed the relative costs of retail central fabrication, packer boxed beef systems, and in-store fabrication of carcasses. The 1975 study suggested that there was little appreciable difference among those distribution systems, though the estimated costs were slightly understated for the system involving direct shipment of carcasses or boxed beef to the retail store. The 1977 study evaluated the relative costs of distribution systems in shipping beef long distances to very large stores on the East coast. Since this is a setting in which the benefits of a packer boxed beef system would be expected to be greatest, the results not surprisingly showed a packer boxed beef system involving a central warehouse to be favorable to direct store delivered boxed beef by 1.8 cents/pound, and favorable to direct store delivered carcass beef by 3.3 cents per pound. Centrally fabricated retail cuts or a retail central breaking and fabrication system (though not to retail cuts) were approximately equivalent in cost to the warehouse boxed beef system, though the relative costs and ranking varied depending upon the particular transportation and labor costs that were used in the comparison. While the long distance, high volume case undoubtedly accentuated the benefits of the boxed beef or the central cutting systems compared to the in-store carcass fabrication system, it does seem clear that those "weight losing" processing and distribution systems have some obvious shipping cost advantages when retailers are not located in or close to the areas in which beef is produced. However, the cost differentials would undoubtedly be much less in "short distance" situations, as might be the case in many surplus beef producing

states in the Midwest and Southwest. Since these studies were based upon standard wage costs, labor use, and transport rates, greater wage rate differentials favoring packers or retail central cutting facilities would make boxed beef or central cutting look relatively more favorable; this seems to be applicable to some packers known to have low wage rates, and may also apply to some retailers with cutting facilities located outside of high wage metropolitan areas.

Just because the processing, handling, and distribution costs are lower doesn't necessarily mean that a retailer will share in that cost reduction if they shift to a new system -- for example, meatpackers' prices for boxed beef products could include a higher profit margin. However, a study published by the National Association of Retail Grocers of the U.S. (NARGUS)\(^6\) contrasted retailers purchasing boxed beef with retailers purchasing carcasses and doing further processing in the store. While the results are based upon buying and selling prices prevailing at that time, they concluded that:

(a) retailer gross profit margins using boxed beef were at least equal to margins using carcass beef, and in many cases increased by 1-2% or more.

(b) merchandising and sales promotion was improved.

(c) pounds of retail product produced per hour increased 14-20%.

(d) storage life of the retail product increased.

The results of the Case and Co. and NARGUS studies appear to be generally consistent with the views expressed by the survey respondents. The boxed beef system often appears to have some cost advantages, especially in situations where wage rates favor slaughter-processors, and longer shipping distances favor shipping vacuum-packed cuts rather than carcasses to minimize freight cost, shrink, and quality deterioration. Retail central cutting can sometimes

match the efficiencies of boxed beef, and provide other benefits. Neither system has much benefit, though, when suppliers and retailers are in very close proximity to each other, and may even be more costly. Finally, the benefits of the boxed beef systems currently seem to be accruing to retailers and to the most efficient, lowest wage rate slaughter-processors. Retailer central cutting facilities offer some advantages compared to in-store carcass operations, but the impression remains that many retailers now involved in centralized cutting operations may find better uses for their capital and shift away from central cutting to using boxed beef as the boxed beef system becomes more mature, especially if wage differentials would widen and give boxed beef systems an increased comparative cost advantage.

**HRI Distribution Systems**

Distributors to most hotel, restaurant and institutional food service outlets for beef can generally be described as full-line suppliers who service the needs for meat, paper goods, and most other supplies (with the exception of bread products which typically are locally supplied) to the individual restaurant or cafeteria. Usually distributors are functionally specialized, serving as middlemen who work with approved suppliers of the individual products on the basis of the pricing arrangement made by the central purchasing operation in the hotel or restaurant chain. The distributor then takes orders from the individual outlets, aggregates them, and passes them on to the supplier; the product is then shipped to the distributor's warehouse, and delivered in conjunction with all other requirements to the customer outlet, typically once or twice a week.

While our sample of HRI suppliers and buyers was small, our interviews did bring out that there are wide varieties of ownership or contractual
arrangements in the HRI distribution network. McDonald's is a prime example of an extremely large operation which is serviced by both independent meat suppliers and independent distributors who are centrally approved, with the service or product pricing arrangement centrally or jointly negotiated with the regional or local franchise owners. McDonald's typically requires approved distributors to be exclusively serving McDonald's, with an open book accounting method used to insure that prenegotiated target rates of return are achieved. Some restaurant operations use independent distributors. In other cases, the restaurant chain may elect to do its own distribution only in areas where store density and overall volume is sufficiently large to make their owning and operating their own distribution system a more economical alternative to fees charged by an independent distributor. Where independent distributors are used, the price or fee is sometimes negotiated by the franchisee, sometimes jointly with the central purchasing arm of the chain.

The advantages of a restaurant chain owning its distribution network were generally said to be the better service from doing it themselves, though some mentioned that sometimes there was a tendency to provide too much service, with corresponding higher costs. However, hotel and restaurant operations that aren't really large enough to justify hiring competent people to run a distribution system sometimes felt that it is better to hire independent distributors to provide that service, eliminating the investment and payroll otherwise required. Particularly with full-line restaurants, the large number of items required for the distribution system to handle makes it a complex management problem; if the overall regional volume is not sufficient to make it an economical proposition, contracting with full-line distributors who service other HRI customers as well is often preferred to ownership. For larger fast food chains with fast inventory turn over and
a relatively small number of products to purchase and handle, a centrally owned and operated distribution system is more easily justified.

**Pricing Systems**

In recent years, pricing systems in the wholesale meat market have been a subject of significant public concern and controversy, as evidenced by a series of congressional hearings on the subject, and a significant amount of litigation brought by producer groups against retailers, meatpackers, and a private price reporting firm. Part of the controversy centers on the pricing procedures utilized by many of the major meatpackers and food retailers, particularly the practice of using the National Provisioner's "Yellow Sheet" price reports on a specified date in the future as the base price (plus or minus some differentials for freight, quality, or trim) for transactions which are made today. Concerns have been expressed about the accuracy of the "Yellow Sheet" price reports and the possibility of those prices being manipulated through selective reporting of transactions by retailers or meatpackers, misrepresentation of transaction prices to reporters, or artificial manipulation of prices through market activities designed to enhance a firm's position.7 These concerns raise additional questions about the incentives or benefits which prompt firms in the meat industry to adopt a formula-pricing system, the extent of the formula price utilization, and the actual extent of problems which may be associated with the use of that pricing system. While not all of these questions can be adequately answered by this study, some insights are available from the interviews conducted with a reasonably large number of meatpackers, retailers, HRI users of beef, and other knowledgeable participants in the wholesale meat trade.

Carcass Beef Pricing Systems

Generally, formula pricing is the dominant pricing system used in carcass (or swinging) beef transactions, particularly for small and middle sized retailers. Some of the very large retailers like A&P and Safeway establish firm prices in advance on all carcasses purchased for their centralized cutting and fabrication facilities, as do most leading retailers on the west coast (including Ralphs, Lucky Stores, Albertson's, and Von's) for their west coast operations. The latter may be related to the fact that the "Yellow Sheet" does not report west coast prices for beef carcasses. Safeway, the largest food retailer, and American (Acme and Alpha Beta) use the offer and acceptance system of purchasing beef carcasses, in which suppliers offer the number of carcasses meeting the buyer's specifications which they are willing to provide to the retail buyer during the next week, and the lowest price they will accept for that quantity; the buyer then selects from those offers enough supply to satisfy his projected requirements, taking into account the prices offered and his recent experience regarding the suppliers' service, quality control, and yields. A&P accepts offers from suppliers, but then proceeds to counter-offer, with the negotiation continuing until a price is mutually agreed on. In addition, there are many retail chains and affiliated retail groups who utilize some combination of formula pricing and negotiated pricing, sometimes differing regionally within the chain, depending upon the buyer's individual preferences or the preferences of their preferred suppliers.

One can generally conclude that formula pricing is most used by small and medium sized retailers, while the largest retailers primarily arrive at prices prior to shipment via either direct negotiation or the offer and acceptance pricing procedure. This seems generally consistent with the industry estimate that 70 percent of all carcass transactions with retailers or breakers and processors are formula priced; this also is
consistent with the results of our interviews with many of the leading meatpackers' the weighted average of this particular (nonrandom) sample reported 66 percent of their carcass sales were formula-priced. The percentage was much higher in the eastern two-thirds of the United States, since the west coast carcass transactions typically involve firm prices developed through either negotiation or the offer and acceptance pricing system.

**Boxed Beef and Ground Beef Pricing Systems**

The predominant pricing system for boxed beef primals and subprimals was significantly different from carcass pricing systems. Except for the Iowa Beef Processors Cattle-Pak program (boxing the high value cuts from the entire carcass and selling it on a formula price related to the "Yellow Sheet" carcass price report), nearly all other primals and subprimals are generally purchased on a negotiated or offer and acceptance basis, resulting in a firm price established for the product prior to shipment. Probably 80-90 percent of the boxed beef, which comprises approximately half of the wholesale beef volume, moves with firm prices established.

The pricing systems adopted by the hotel, restaurant and institutional trade are varied, as one might expect with the variety of products utilized in this industry. While many of the institutional purchases (schools, prisons, military, etc.) are typically based upon suppliers' bids for particular quantities of specified product, the bulk of the hotel and restaurant purchases of ground beef are based upon a pricing formula which uses the "Yellow Sheet" prices for two or three types of beef trimmings which vary in their lean-fat ratio, weighted in proportion to the lean-fat ratio for ground beef being purchased by the customer, plus a pre-negotiated mark-up to cover processing costs, manufacturing yield, profit, and freight charges if applicable. The pre-negotiated mark-up may be constant for
six months or a year, until changes in wage or utility rates, or some other factor prompts the supplier or customer to ask to renegotiate the markup. Two primary exceptions to this procedure stand out: (1) McDonald's, which negotiates a profit target with its hamburger patty suppliers, and then operates on an open book basis to determine the weekly prices paid (with adjustments for unusual operating inefficiencies, bad purchasing decisions by its suppliers, etc.). Since a high proportion of McDonald's purchases comes from four companies which have nine plants approved as exclusive McDonald's suppliers, this cost accounting pricing procedure on the basis of an oral agreement is unique, but apparently workable. (2) Fast food or restaurant suppliers or HRI-owned portion control processing operations which purchase imported lean beef typically must establish the price on that product several weeks in advance of arrival and use. In addition, a few restaurant chains have begun to fix the price of some stock items on their menu well in advance of use by cross-hedging in live cattle futures contracts, or negotiating a fixed price with a packer, and letting the packer hedge the fixed price in the futures market.

**Formula Pricing**

**Advantages**

If there is so much controversy about formula pricing, why is it so prevalent in carcass beef transactions and hamburger purchases? On the other hand, why is formula pricing virtually absent in pricing boxed primals and subprimals? Interviews with major meatpackers, retailers, and HRI users of beef indicate that primary advantages of formula pricing are two:

1. Formula pricing facilitates long standing supplier-customer relationships, reducing the risk involved in shifting from supplier to supplier, or customer to customer, and ending up in a panic buying or selling situation. Customers may get more
uniform cuts from a long standing supplier compared to many often changing suppliers, enhancing the efficiency of their in-store processing and merchandizing, while the supplier can be more sure of a base volume and lower operating costs. Both the customer and supplier require fewer people and less time for the transaction, and less market information to protect their interests in the price determination process.

The advantage of formula pricing may be even more pronounced in the rapidly growing fast food, restaurant, and hotel segment of the market. Standing arrangements between large volume hamburger users and hamburger suppliers facilitate a steady supply of lean beef products which meet the tight specifications of many high volume users, but are getting more difficult to acquire as demand continues to grow. With fairly predictable standing orders, suppliers of fresh or frozen hamburger patties can proceed with some assurance to make similar longer term supply arrangements for lean trim from fed beef slaughter-processors and specialized cow slaughter and boning operations. While formula pricing may lead to slightly higher prices than might be paid on a negotiated basis, the continuity and security of supply of a product which meets tight specifications is frequently more important for fast food operators who may be able to absorb modest fluctuations in cost or slightly adjust their menu prices while not incurring a major competitive disadvantage.

(2) The retail buyer feels that he is protected from paying more than his competitors, insuring against any competitive disadvantage. Some retailers insist on this pricing system, particularly those that are small and less well-informed than their suppliers or competitors.
Thus, the key advantages are the simplicity of the pricing process, the operating efficiencies for both participants in the transaction, and the insurance for both buyer and seller that the prices paid and received are representative of what their competitors are paying or receiving; these advantages clearly provide some strong incentives for the use of formula pricing.

**Disadvantages**

However, there were several factors cited as disadvantages or constraints on the use of formula pricing by some packers or retailers. While many of those interviewed considered "Yellow Sheet" price reports generally representative of the market, many others indicated their concern that those price reports may not accurately reflect the actual market price on any particular day. While no specific examples or evidence were offered, some were concerned about the possibility of price reports being manipulated by selective reporting of transactions, or by packer to packer trades to artificially enhance the market price for one or two trades. Also, some felt that there was too little input into the price reporting process to make a price report representative, since several of the biggest retail chain buyers (the largest carcass purchasers) do not report prices paid for carcasses to the "Yellow Sheet". With a high proportion of carcass trades on a formula basis, this sharply limits the number of transactions which might be reported, and may make the carcass market price and price report unusually sensitive to relatively small changes in individual firm market behavior or price reporting behavior. West coast retailers and meatpackers strongly felt that the "Yellow Sheet" report based on midwest

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8 This concern is supported by testimony of House Small Business Committee investigator, Nick Wulfich, cited in Small Business Problems in the Marketing of Meat and Other Commodities (Part 2 - Meat Marketing) Hearings before the Subcommittee on SBA and SBIC Authority and General Small Business Problems of the Committee on Small Business, House of Representatives, 95th Congress, Second Session, 1978.
markets were not representative of the west coast market, and were not appropriate as a price base for most of their beef purchases. In addition, many packers and retailers suggested that they did not want to buy or sell on the basis of a price determined by somebody else; in some cases, they were philosophically against it, in others they felt that they were better informed or smarter buyers or sellers than many of their competitors, and felt that they would not be able to get the full benefits of their expertise or large volume of purchases if they elected to use formula pricing in their beef procurement.

The reasons offered for not using formula pricing on boxed primals and subprimals brought out some interesting differences between the carcass and boxed beef markets. Both packers and retailers expressed concern about basing their price or cost on a reported market exhibiting the large and frequent day to day fluctuations they observed in reported prices on fabricated cuts, and wide price ranges reported on individual cuts at the close of the day. Some of the possible reasons that were speculatively offered for the wide ranges and fluctuations were the possibility that the prices reported are sometimes based upon different product specifications (different trim, for example), on product shipped in less than truck load rather than truck load lots, or reflective of one or two packers or retailers being caught with excess inventories or insufficient supplies in one or a few local or regional markets, leading to a wide price range within a particular day, and corresponding large movements from day to day. Since small operating margins are typical in both meat packing and retailing, both customers and suppliers felt quite uncomfortable relying upon a highly volatile reported price where the difference between the mid-range and the low or high end of the price range could significantly affect the firm's profitability and their ability to compete with others buying and selling on a negotiated basis. Because highly fabricated cut prices typically are a
high multiple of carcass or primal cut prices, basing subprimal prices through a formula on carcass or primal price reports that have wide ranges or that might be in error for other reasons (like selective reporting, misrepresentation, etc.) could be very costly to the retailer since competitors could conceivably end up with significant price advantages which could be quite noticeable at the retail level (10¢ per pound or more).

Other disadvantages cited for formula prices included packers' concerns that formula sales prices may lock them into a loss on their breaking and fabrication operation (some cited the occasional negative margins, which sometimes lasted for fairly long periods of time). Also, some packers felt that retailers who, at one time, had some purchase contracts based on a formula related to past (not future) prices sometimes shifted purchases to negotiated sources of supply when the formula was unfavorable to them, or ordered more from formula-priced suppliers when that price was favorable. Others mentioned that the byproduct credits which are part of the formula for some of the whole carcass boxed beef pricing arrangements are sometimes determined by the packer, so the formula price isn't necessarily based entirely on reports of disinterested third parties.

The Offer and Acceptance Purchasing Method

A strictly interpreted offer and acceptance method of purchasing beef differs from the normal negotiation process in that there is no give and take between buyer and seller; rather, the supplier offers a specific product that he wishes to sell, specifying the quality and yield grade, quantity, and other terms of sale, and the price. These typically are weighed by the buyer considering not only the price offer but the past performance of the supplier in meeting the required quality specifications, and the ability to make delivery on the schedule required. In a strictly construed
offer and acceptance system, the buyer would not attempt to influence the price offered by the supplier by any means, or make counter offers. Thus, the only pressure put on the buyer to reduce his price is his own. As a consequence, some larger retailers might feel on safer legal grounds using this kind of pricing system than in a system which their buyers may be accused of using their market power to force prices down. Less negotiating skill and market expertise may also be required for retail buyers using that purchasing method. At the same time, the supplier making an offer to a large retail buyer may have a very strong incentive to offer an attractive low price to insure that his operating capacity is used to near capacity, reducing his average unit operating cost and increasing the profitability of his other customer sales. However, the retailer strictly adhering to an offer and acceptance system may sometimes have to go to a marginal supplier to get enough product to satisfy expected store requirements, even if his offered price might be two or three cents per pound above the prices of other suppliers whose offers were accepted. As a consequence, the use of the offer and acceptance system sometimes might lead to higher prices being paid by the retailer.

**Summary and Conclusions**

The current pricing and distribution systems in the wholesale beef market were explored in interviews with managers in 30 firms involved in slaughtering, processing and fabrication, distribution, food retailing and hotel, restaurant, and institutional procurement of beef. These were supplemented by information on many large food retailers' beef purchasing systems and processing operations which is part of the public record in some current court cases.
The growth of meatpacker boxed beef and retailer central cutting and fabrication operations has been so rapid in the last decade that approximately half of the beef now arriving at the retail store is in the form of carcass halves or quarters. The integration of some carcass processing and fabrication steps into the functions normally performed by beef slaughter firms has had a beneficial effect on the cost of the packer-retailer processing and distribution system. In contrast to the system of shipping carcasses and doing all processing in the back room of the retail store, the boxed beef system eliminates shipment of some low value, undesired byproducts to retailers, reduces quality deterioration and shrink and increases shelf life, and facilitates use of functionally specialized labor in more efficient assembly line processing operations. The retailers' central cutting and fabrication operations essentially shift a large part of the processing from the back room of the retail store to a central processing and warehousing operation, and provides many of the same benefits that a boxed beef system provides, along with greater uniformity in product. However, the primary benefits of boxed beef or centralized retail fabrication systems are greatest when long distance shipment is required, or lower wage rates or labor costs per unit are possible, and least (or even negative) when suppliers are in close proximity to their customer's retail stores.

The growth of the boxed beef distribution system, now comprising an estimated 40-60% of all beef leaving meatpacking firms, has had a significant impact on the structure of the meatpacking industry and the pricing systems employed in the wholesale beef trade. While the meatpacking industry was once dominated by such familiar names as Swift and Armour, Iowa Beef Processors (IBP) and MBPXL have surpassed them in size, partly due to their specialized plants, rapid adoption and development of new
technology, and significantly lower wage rates. Further, the formula pricing system which is used in approximately 70 percent of carcass trans-
actions and a high proportion of fast food and restaurant ground beef purchases is little used in boxed beef transactions (with the exception of IBP's Cattle-Pak whole carcass boxed beef program, and similar competitor's programs). Thus, an estimated 80-90 percent of boxed beef prices are negotiated, even though the advantages of formula pricing are considered significant by many industry participants.

Formula pricing arrangements were felt to facilitate longstanding supplier-customer relationships, reducing the risk involved in shifting suppliers, or customers, and avoiding a panic buying or selling situation with a highly perishable commodity. This was particularly important for ground beef fabricators and their major fast food chain customers to insure a steady, large volume of product that meets their tight specifications. At the same time, small, less well-informed market participants, especially buyers for small retail chains, felt that formula pricing protected them from any major procurement mistakes, insuring that their price would be in line with their major competitors with minimal time and effort involved in making the transaction.

While the economic incentives to use formula pricing are quite strong, some industry participants expressed concern about basing their price on price reports that may not be representative of what competitors might pay or receive. The wide price ranges quoted for boxed beef primals and subprimals, and the sharp fluctuations frequently noted, were given as primary reasons for avoiding formula pricing on those cuts, since competitors could easily have a significant price advantage if the wrong point in the range or the wrong day were selected as the bases for the price formula.
What are the primary implications emerging from this study? First, some of the concerns about the extent of formula pricing in the beef industry may be exaggerated -- several large retailers avoid formula pricing of beef carcasses, and a high proportion of the very rapidly growing boxed beef sales involve negotiated prices. While there may be problems involving inaccurate or selective reporting, the total volume of wholesale beef products on which prices are negotiated appears quite large and growing, so the volume base upon which price reports could potentially be based is probably sufficient for most market information needs. However, the high proportion of carcass transactions based on formula prices, combined with the largest retailers not reporting their purchase prices, may make carcass price reports most susceptible to problems at the present time.

Also, there would be substantial difficulty in translating a plethora of wholesale cut prices into a useful index of value for a live animal in a feedlot. While an adequate base of wholesale cut price information may provide a "parallel" index of beef carcass value to meatpackers with a computer system and detailed cut-out, processing cost, and byproduct value information, cattle producers and feedlot operators may have difficulty in translating the raw data on wholesale cut prices into a carcass price which could be compared with the carcass price report from the more thinly traded carcass market.

Secondly, the increased labor and capital intensity of the new assembly line beef slaughter-processing operations, and the wide differences in labor rates among beef slaughter-processing firms have led to dramatic structural changes in the meatpacking industry. While the approximate national market share of the largest four beef slaughtering firms has not
changed significantly in the last decade, the composition of the largest four has changed dramatically. IBP is not only a new member of the top four (beginning in 1966), but now is twice the size of its nearest competitor (in 1978) in slaughter, with an estimated commercial slaughter market share in the 10-12% range, and 25-35% of boxed beef sales. MBPXL is now second largest of the top four slaughter firms, with 5-6% of commercial beef slaughter, and second in boxed beef sales. These relatively new specialized firms have displaced the former industry leaders, and continue to have a competitive advantage in boxed beef systems and slaughtering which appears likely to lead to even further structural change.

Finally, some retailers with centralized cutting and fabrication facilities may find that the growth of the boxed beef distribution system and increased competition among potential boxed beef suppliers has reached the point where the investment capital of retail chains does not have the greatest payoff in centralized fabrication facilities. While such facilities may have been wise investments ten or fifteen years ago, some retailers are reconsidering and shifting to boxed beef systems when facilities become outmoded or their labor rates put retail central fabrication facilities at a competitive disadvantage.

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9 23% of all commercial cattle slaughter in 1965, vs. 19.3% in 1975; 29.5% of federally inspected steers and heifer slaughter in 1969 vs. 28.1% in 1975, cited in The Future Role of Cooperatives in the Red Meats Industry, Marketing Research Report 1089, ESCS-USDA, April 1978, pp. 13, 91.
### Appendix Table 1

**PRODUCTION OF BOXED BEEF AND STEER AND HEIFER SLAUGHTER**

(Thousand Pounds, Dressed Weight)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IBP</td>
<td>1,630,646</td>
<td>2,388,074</td>
<td>1,187,152</td>
<td>2,067,780</td>
<td>788,659</td>
<td>2,010,869</td>
</tr>
<tr>
<td>MBPXL</td>
<td>610,320</td>
<td>772,504</td>
<td>232,152</td>
<td>717,333</td>
<td>233,750</td>
<td>783,176</td>
</tr>
<tr>
<td>Monfort</td>
<td>243,318</td>
<td>329,850</td>
<td>201,761</td>
<td>272,071</td>
<td>246,259</td>
<td>287,427</td>
</tr>
<tr>
<td>Morrell</td>
<td>193,128</td>
<td>884,834</td>
<td>137,481</td>
<td>817,651</td>
<td>138,661</td>
<td>843,318</td>
</tr>
<tr>
<td>Spencer</td>
<td>180,533</td>
<td>667,340</td>
<td>133,863</td>
<td>523,578</td>
<td>133,272</td>
<td>516,093</td>
</tr>
<tr>
<td>Armour</td>
<td>158,930</td>
<td>710,346</td>
<td>146,021</td>
<td>730,780</td>
<td>136,431</td>
<td>732,153</td>
</tr>
<tr>
<td>Swift</td>
<td>129,890</td>
<td>1,315,901</td>
<td>55,924</td>
<td>1,027,457</td>
<td>9,394</td>
<td>1,182,197</td>
</tr>
<tr>
<td>Flavoriland</td>
<td>110,471</td>
<td>536,954</td>
<td>98,631</td>
<td>348,490</td>
<td>66,449</td>
<td>315,470</td>
</tr>
<tr>
<td>E. W. Kneip</td>
<td>103,864</td>
<td>163,786</td>
<td>99,563</td>
<td>156,142</td>
<td>88,347</td>
<td>149,927</td>
</tr>
<tr>
<td>Dubuque</td>
<td>102,647</td>
<td>515,223</td>
<td>57,263</td>
<td>502,063</td>
<td>4,893</td>
<td>389,899</td>
</tr>
<tr>
<td>Illini</td>
<td>67,721</td>
<td>224,218</td>
<td>13,937</td>
<td>215,866</td>
<td>9,269</td>
<td>195,454</td>
</tr>
<tr>
<td>Landy</td>
<td>65,542</td>
<td>32,747</td>
<td>30,858</td>
<td>48,220</td>
<td>28,360</td>
<td>72,085</td>
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<tr>
<td>Wilson</td>
<td>64,580</td>
<td>757,889</td>
<td>56,870</td>
<td>565,932</td>
<td>68,750</td>
<td>624,553</td>
</tr>
<tr>
<td>Columbia Foods</td>
<td>47,404</td>
<td>76,844</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kenosha</td>
<td>44,950</td>
<td>39,250</td>
<td>33,190</td>
<td>32,345</td>
<td>23,524</td>
<td>31,317</td>
</tr>
<tr>
<td>Packerland</td>
<td>42,471</td>
<td>173,674</td>
<td>66,400</td>
<td>205,000</td>
<td>65,000</td>
<td>191,875</td>
</tr>
<tr>
<td>Hormel</td>
<td>19,227</td>
<td>120,930</td>
<td>11,957</td>
<td>110,859</td>
<td>17,353</td>
<td>132,159</td>
</tr>
<tr>
<td>Union Packg.</td>
<td>11,896</td>
<td>195,975</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Great Plains</td>
<td>18,638</td>
<td>195,401</td>
<td>-</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Am. Beef</td>
<td>-</td>
<td>250,094</td>
<td>172,015</td>
<td>541,359</td>
<td>253,513</td>
<td>681,480</td>
</tr>
<tr>
<td>Others (5)</td>
<td>21,247</td>
<td>187,145</td>
<td>15,830</td>
<td>197,768</td>
<td>15,172</td>
<td>165,641</td>
</tr>
</tbody>
</table>

**TOTAL**

| 4,139,642 | 11,145,240 | 2,963,675 | 9,663,609 | 2,457,416 | 9,886,499 | 2,114,694 | 9,813,694 | 1,690,785 | 9,988,255 | 1,278,484 | 8,987,469 |

Appendix Table 2
Boxed Beef Production and Slaughter Market Share of the Twelve Largest Firms

<table>
<thead>
<tr>
<th>Rank Steer &amp; Heifer Slaughter '76 &amp; of Comm. slaughter '76</th>
<th>Rank &amp; of Comm. slaughter '71</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxed Beef as % of '76 production</td>
<td>'71</td>
</tr>
<tr>
<td>1. IBP</td>
<td>6.36</td>
</tr>
<tr>
<td>2. MBPXL</td>
<td>2.38</td>
</tr>
<tr>
<td>3. Monfort</td>
<td>.95</td>
</tr>
<tr>
<td>4. Morrell</td>
<td>.76</td>
</tr>
<tr>
<td>5. Spencer</td>
<td>.71</td>
</tr>
<tr>
<td>6. Armour</td>
<td>.62</td>
</tr>
<tr>
<td>7. National</td>
<td>.53</td>
</tr>
<tr>
<td>8. Sterling</td>
<td>.51</td>
</tr>
<tr>
<td>9. Swift</td>
<td>.51</td>
</tr>
<tr>
<td>10. Flavorland</td>
<td>.43</td>
</tr>
<tr>
<td>11. Wilson Fds.</td>
<td>.26</td>
</tr>
<tr>
<td>12. Dubuque</td>
<td>.40</td>
</tr>
</tbody>
</table>

Total | 14.42 | 37.01 | 34.71


Appendix Table 3
Boxed Beef production as a percent of U.S. Commercial Beef Production, 1971-1976

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IBP</td>
<td>6.36</td>
<td>4.93</td>
<td>3.41</td>
<td>3.59</td>
<td>3.09</td>
<td>2.27</td>
</tr>
<tr>
<td>MBPXL</td>
<td>2.38</td>
<td>.97</td>
<td>.97</td>
<td>.91</td>
<td>.87</td>
<td>.62</td>
</tr>
<tr>
<td>Monfort</td>
<td>.95</td>
<td>.85</td>
<td>1.07</td>
<td>1.10</td>
<td>1.03</td>
<td>1.02</td>
</tr>
<tr>
<td>Morrell</td>
<td>.76</td>
<td>.58</td>
<td>.58</td>
<td>.64</td>
<td>.58</td>
<td>.45</td>
</tr>
<tr>
<td>Spencer</td>
<td>.71</td>
<td>.56</td>
<td>.58</td>
<td>.38</td>
<td>.16</td>
<td>.08</td>
</tr>
<tr>
<td>Armour</td>
<td>.62</td>
<td>.61</td>
<td>.59</td>
<td>.63</td>
<td>.58</td>
<td>.55</td>
</tr>
<tr>
<td>National</td>
<td>.53</td>
<td>.50</td>
<td>.65</td>
<td>.51</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sterling</td>
<td>.51</td>
<td>.38</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Swift</td>
<td>.51</td>
<td>.24</td>
<td>.04</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Flavorland</td>
<td>.43</td>
<td>.42</td>
<td>.29</td>
<td>.23</td>
<td>.20</td>
<td>.20</td>
</tr>
<tr>
<td>Wilson</td>
<td>.26</td>
<td>.24</td>
<td>.30</td>
<td>.43</td>
<td>.16</td>
<td>.10</td>
</tr>
<tr>
<td>Dubuque</td>
<td>.40</td>
<td>.24</td>
<td>.03</td>
<td>-</td>
<td>-</td>
<td>-</td>
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