Postscript: A Glance beyond 1940

During the early 1940s, as many young people in Kansas exchanged their overalls and blue jeans for the uniforms of the armed forces, they left behind a mature beef industry. Some of the state's cattlemen marketed calves from their large and small cow herds, others specialized in producing younger cattle on grass, and a few fattened the grass-matured stock on grain. Cattlemen had upbred their herds beyond the wildest dreams of their nineteenth-century predecessors; science had mitigated the evils of many livestock diseases; and technology had solved many of the problems involved in producing beef. Stockmen had responded to the evolving economic situation first by organizing the Kansas Livestock Association and then by building it into one of the nation's strongest state organizations. The KLA, in turn, provided cattlemen with the collective power to deal with big business and to win from government the concessions they needed for improving the industry's health. In short, the Kansas beef industry was well prepared to make its contribution to the country's war effort and to develop still further after the conflict ended.

From a national perspective the Kansas industry, like that in states surrounding it, was transitional in beef-producing techniques. Here, in a state located strategically at the threshold of the Great Plains, were stockmen engaged in full-feeding cattle on grain, a practice that dominated the Midwest, and those involved in more expansive grazing operations that characterized the cattle industry to the west and south. This transitional character reflected to a large degree the state's environment and its agriculture as a whole. As one moved from east to west, rainfall declined, long grass gave way to short, and corn yielded to wheat as the basic field crop. Kansas producers, who had chosen to specialize in calf production, maturing of stocker cattle, or grain fattening of feeder stock, had adapted well to their environment.
After almost a decade of drought, adequate rain returned to the Great Plains during the 1940s. Thirsty pastures again grew green and lush, demand for beef rose substantially, and cattlemen smiled on their newly found prosperity. Although troubled somewhat during World War II with ceiling prices, transportation and labor shortages, rustling, blackmarkets, and rationing, cattlemen adapted to these difficulties along with an increase in number of cattle and greatly improved prices. In Kansas, the number of beef cattle and calves rose from 2.0 million in 1940—with an average selling price of $7.95 per hundredweight—to 3.4 million in 1945, bringing $12.41 per hundredweight. Prices had not been as good since the First World War, nor had cattlemen had as many cattle to market since 1903. In larger numbers than ever before, cattle moved away from their traditional marketing locations to help meet the growing demands of the West Coast, especially California. The higher ceiling prices there, railroad rates that favored live animals, and the concentration of military personnel and defense plants, all contributed to the change.

The prosperity and optimism that characterized the beef industry during the war continued into the postwar period. Although the number of beef cattle in the state declined—remaining, for the most part, below three million head until 1951—and despite the fear of many that a repeat of the post–World War I depression was in store, prices climbed to unparalleled heights. An average of $23.29 in 1948 was the highest for any year of the decade. The demise of ceiling prices, full employment with high wages, aid for European recovery, and the desire of American consumers for more beef contributed to the higher prices. Cattlemen enjoyed unprecedented prosperity and needed no direct government subsidies. As a result, they loudly rejected Secretary of Agriculture Brannan’s plans for increased aid. It was time for “rugged individualism” again, although cattlemen still demanded high tariffs and disaster relief.¹

A severe blizzard toward the end of the forties was one of the few things that dampened the spirits of Kansas cattlemen during this period. Sweeping in from the northwest during November, 1948, and with a repeat performance in January, 1949, heavy snows, strong winds, and bitter cold blanketed that part of Kansas west of Salina. By late January, 1949, the Kansas Stockman estimated that 50,000 sheep and 10,000 cattle had perished and that hundreds more were unaccounted for. Losses sometimes reached 40 to 50 percent of individual herds. Hundreds of young cattle died as the calving season arrived before the snow and cold had passed. It was the worst storm for the
Great Plains since the legendary winter of 1886–87, with the final count in April, 1949, approaching 200,000 cattle deaths in the whole region.2

Many of the cattle and sheep that perished in western Kansas were pasturing on wheat, a growing practice in that part of the state after the drought of the 1930s. The return of normal rainfall and the advent of the tractor encouraged raising more winter wheat. As the rains increased during the forties and fall wheat got a better start, pasturing livestock on wheat had increased in popularity. Over 300,000 cattle, but occasionally as many as 600,000, and over a million sheep were grazed commercially—about half by nonresident operators—when moisture and the growth of wheat were favorable. While the practice added a few coins to the pockets of farmers and ranchers, it proved disastrous for some during an unusual winter like that of 1948–49, when feed reserves were inadequate and it sometimes was impossible to transport to the fields the feed that did exist.3

Despite some adverse weather, however, the 1940s were good to cattlemen, especially when compared to the difficult struggles of the previous decade. One observer has noted, “The whole story, briefly told, came to this: Prosperity deadened all pain, and few cattlemen felt any pain anyhow.”4

Phenomenal weather patterns and fluctuations of over $10.00 per hundredweight in cattle prices perplexed Kansas stockmen during the 1950s. In 1951, to begin with, the state experienced the wettest year since records were begun in 1887, culminating in heavy and severe floods in the eastern part of the state. With the Korean War in full swing, an all-time high average price of $29.69 per hundredweight for beef cattle accompanied the unusual amount of rainfall. The next year, beef prices dropped $4.00 a hundredweight and rainfall also declined to below normal. By August the Topeka Daily Capital reported that trucks were hauling hay and other cattle feeds into the western section of the state because of drought. Drivers kept their trucks running twenty-four hours a day, hauling feed from as far as Iowa, Minnesota, Illinois, and Indiana. At times, water also had to be hauled, but the many farm ponds that had been constructed since the 1930s helped alleviate this shortage.5

Beginning in Texas in 1951, the drought hit most of the Great Plains before it had run its course by the late fifties. Consequently, dust storms that reminded older residents of the 1930s struck western Kansas in full force. Herds were reduced but the state’s total beef-cattle population was not affected by the drought nor the decline in demand after the Korean War ended until 1957. Beef cattle, which numbered 3.3 million head in 1951, rose rapidly by half a million before 1956, then declined to below 3 million by 1957. The
The Kansas Beef Industry
decline in numbers was brief, however, and by 1960 the state had over 4
million beef cattle and calves. Beef prices fell as a result of the drought­
induced marketings and the end of the war, forcing the government, with
machinery that had been established during the New Deal, and also the
Farmers' Home Administration established in 1946, to enter the marketplace
and credit outlets to help support prices and profits. The lowest price occurred
in 1956 when beef cattle averaged $16.34 per hundredweight before a slow
climb to almost $24.00 in 1959, and to just under $22.00 in 1960. In all, ac­
­cording to John T. Schlebecker, "Times were not bad, but neither were they
good." Some of the prosperity of the forties carried into the early fifties; then
drought, inflation, and rising production costs eroded the profits in
raising beef. Ironically, a severe blizzard struck western Kansas during this
generally dry period. This 1957 storm caused estimated losses of 15,000 cattle,
6,000 sheep, and 2,000 hogs. As was true during the winter of 1948–49, many
of the sheep and cattle that died were grazing winter wheat.

Notable progress also occurred after World War II in the area of disease
control, although the large battles against the tick, blackleg, and tuberculosis
had almost been won before the war. Brucellosis control moved forward, but
not until the 1950s were serious measures taken by range producers to eradi­
cate it. Vaccination of calves was the main means, but there were also ex­
panded testing programs and some slaughtering of stock. In 1949 Kansas
restricted sales of cattle without brucellosis tests unless they came from a herd
certified to be free of the disease. A few cases of anthrax appeared in the
state during the fifties, but immediate quarantines effectively stopped its
spread. Vesicular stomatitis and anaplasmosis also appeared in the state on
occasion, but not in epidemic proportions.

One of the major accomplishments of scientists was the elimination of
parasites. The cattle grub, caused by heel flies, was especially troublesome,
affecting a third of the range cattle on the Great Plains in 1945, with millions
of dollars lost as a result of damaged hides and inferior meat. Nor did cattle
that were continually annoyed by heel flies gain as well as they might have.
By 1947 Kansas was in its third year of a DDT-spraying program to rid herds
of the heel fly. Better weight gains followed, but the spraying affected only
indirectly the grub that ruined hides and damaged meat. By the middle
1950s, however, USDA scientists, working with the large chemical companies,
had developed effective chemical treatments that spelled doom for many costly
parasites, including the destructive grub. The new vaccines and chemical

284
treatments were expensive and pushed up production costs, but the investment was more than repaid at market time.7

Many other changes also occurred in the Kansas beef industry during the dramatic twenty years following World War II. Most of the prewar concern over packers, stockyards, and railroads disappeared, as more and more of the stock found markets outside the terminal centers. Trucks and pickups continued to replace the railroads, who made little effort to retain their livestock-carrying trade. In their attitude toward the government, cattlemen, as might have been expected, displayed much inconsistency. While opposing the likes of social security, and price and production controls, they demanded at the same time disaster relief, high tariffs, government purchases of beef, and much aid in the area of disease control.

The most visible changes in producing beef in the state after the war, however, did not occur in marketing, in the cattlemen's attitude toward government, or in disease control, but rather in developments related to irrigation and feedlots. To many, the unprecedented rise in irrigation and the full-feeding of cattle in large commercial lots amounted to a revolution. As it happened, these spectacular developments also affected most of the other aspects of the business of raising cattle.

Feeding cattle on grain before slaughtering has been a part of the American beef business almost from the beginning and has always had some role in the Kansas industry. With few exceptions, single family operators before World War II fattened the cattle that were full-fed or partially fed. Most frequently, a cattlemen bought a carload or even several carloads of older steers and fed them throughout the winter. The work provided the feeder profitable employment during the slow winter months, kept some of his equipment in use, and often supplied a better market for his grain. Fattening with grain also occurred in conjunction with the use of forage crops or the roughage left over from harvesting grain. A few Kansas cattlemen fed several thousand head a year, but they were exceptional. Before the war, most of the state's cattle were still marketed as grass fattened and ready for slaughter, or as "warmed up" feeders destined for cornbelt feedlots.8

Although most cattle marketed from Kansas before World War II were not finished on grain, there was a slight increase in feeding toward the end of the 1930s. After a short burst of feeding during the early forties, however, the ceiling prices and the rising demand for beef brought many cattle directly to slaughter from grass, interrupting the trend toward more feeding that had begun earlier. But after the war Kansas participated in the growth of
feeding that occurred throughout the Great Plains and the Southwest. The expansion occurred when more of the state’s farmers and stockmen began feeding, when those who already fed cattle expanded from 50 or 60 head to 150 or even as many as 500, and when the large commercial lots developed.

Large commercial feedlots—usually defined as operations with a thousand-head capacity or more, feeding cattle that are owned by the operator or are fed on contract for others—were the most visible development in the postwar revolution but, until after 1960, not necessarily the most important. The spectacular growth of feeding in Kansas came after the middle 1950s and was initiated by the smaller feeders, usually one man and his family. Many of today’s urban dwellers, who are struck by the pungent odor emanating from the large commercial feedlots dotting the highways, sometimes located just outside a city, may conclude that most of the beef in their supermarkets comes from the large lots. But this was untrue of Kansas beef as late as 1960. Although the Board of Agriculture failed to tabulate the number of small feeders during the fifties, it did report in 1960 that “in spite of the remarkable development of large commercial feed lots in many areas of the state, it was significant to note that more than 75 percent of the 1960 Kansas cattle feeding was still in smaller farm operations.” The most remarkable development before 1960, then, was not the large commercial lots that dealt exclusively in cattle, but rather the significant rise in the number of smaller lots that were only a part of the total farm or ranch operation.

The percentage of cattle being fed in large commercial lots, however, rose dramatically soon after the Board of Agriculture made its report. From 26.7 percent in 1960, the portion of cattle fed in commercial lots with a capacity of a thousand or more rose to 57.5 percent five years later, and to 87.6 percent by 1975. The number of commercial lots in the state also increased, but not as dramatically as did the percentage of cattle fed in them. In 1952, for instance, there were 7 large feedlots in the state and only 22 by 1960. Five years later the number had grown to 88 and to 140 by 1974. As the large lots grew in size, many of the smaller feedyards went out of business, reducing the total number of lots in the state from 13,500 in 1965 to only 6,300 in 1975. By the 1970s the number of large commercial lots had stabilized at around 135. The many smaller feeders who responded to market conditions by going in and out of business, however, caused fluctuations of more than a thousand a year in the total number of feedlots in the state. As a result of the revolution, Kansans by the 1970s marketed around two million head of grain-fed cattle each year, up from less than half a million in 1955.

286
Many reasons account for the remarkable postwar development of feedlots in Kansas. Most of the reasons apply to similar developments throughout much of the Great Plains. The relatively dry climate reduced the diseases that feedlot operators had to deal with and led to fewer environmental problems; and the area was close to large supplies of feeder cattle and grain, and near several good markets for fat stock. The postwar period brought a rising demand for meat, especially the smaller cuts from quality beef that could be produced efficiently in feedlots. Economic factors, such as the rising cost of grass-fattening cattle and the desire of cow herd owners for income at times other than their traditional fall marketing of calves, also encouraged feeding. Science and technology played a role. Growth hormones, like stilbestrol, in addition to the many antibiotics that were mixed with feed, not only produced healthier cattle but also larger gains at a more profitable rate of growth. Mechanical loading, feeding, and mixing devices saved much labor in the fattening process and added to profits, once the initial investment had been retrieved.  

The large supplies of grain and forage in the immediate area of the feedlots, however, encouraged expanded feeding on the Great Plains more than any other factor. Access to these raw materials eliminated the prohibitive expense of shipping grain into the feeding area. Irrigation, which provided the increased yields of grain and forage, thus became the second basic element in the postwar revolution in beef production. Few travelers through the semi-arid western part of Kansas today can remain unmoved by the sight of thickly planted corn towering alongside the highways, the lush fields of green alfalfa, and the millions of bronze and heavily laden heads of sorghum, waving gently in the summer breeze. Somewhere, often hidden during the late summer by the tall corn, is probably an aluminum pipe, almost a quarter of a mile long, supported and moved along by a half dozen or more giant, wheeled towers. With a single rotation around a center pivot, at the operator’s command, this amazing device spreads several inches of precious moisture on thirsty crops that formerly had to beg the heavens, often unsuccessfully, for a taste of rain. Even the Sand Hills around Garden City, relatively rough land for irrigating, now feels the tread of the towering center-pivot systems. The first settlers in western Kansas learned painfully that corn was not the best crop for the environmental conditions; now irrigation has circumvented, at least for a while, the laws of nature that send or withhold rain.

Although irrigation had been a part of Kansas agriculture for a long time, its growth at first was slow. A little over 50,000 acres were artificially
The Kansas Beef Industry

watered in 1920, less than 90,000 by 1940, and only 100,000 by the end of World War II. Then a rapid expansion began. The number of irrigated acres in 1945 had more than doubled by 1950 and had risen to 900,000 by the time the drought ended a few years later. By the late fifties over 90 percent of the irrigated acreage was located within twenty counties in the southwest corner of the state.

The increase in irrigation during the 1950s, however, proved to be only a shadow of the explosion that occurred the following decade. From fewer than a million acres in 1960, the number shot upward to over two million by the early 1970s. Drought encouraged some of the expansion, as did the scientific advances that were made in crops, fertilizers, and watering techniques. Extremely important in the growth of irrigation, however, was the large demand for grain and forage that developed as cattle feeding increased, a demand that farmers, with the greatly improved irrigation equipment, easily filled. In all, the rapid and large increase in cattle feeding and irrigation proved to be concomitant developments with significant reciprocity. Sorghums, especially after hybrids were introduced in the 1950s, rivaled wheat in importance. The state's cornbelt shifted from the northeast to the southwest, and the yields of the crops under irrigation more than doubled the dry-land production. Feedlots fostered and then consumed the added production. In many ways feedlots made farmers and ranchers partners in the beef business rather than adversaries, if, indeed, they had ever been anything else.11

As a result of the developments in feeding and irrigation, the number of beef cattle and the amount of red meat packed in the state rose significantly. The western one-third of the state had more cattle than ever before (see Map 4, p. 73). The count of beef cattle in Kansas grew from 4 million in 1960 to over 5.8 million by 1970, and to 6.8 million by 1974. Numbers fluctuated with market conditions, but the last figure represented two and three times the number of beef cattle the state had kept before the feedlot industry expanded. Between 1.6 and 2.8 million of these cattle came from other states, some for grazing, but most for the large feedlots that dotted the countryside. Oklahoma and Texas, as in the period before World War II, provided about half the inshipped cattle, with the balance coming from more than a dozen other states.12 Meat packing also expanded as many packers moved closer to the supply of butcher cattle. In 1961 Kansas packers slaughtered enough livestock to produce over a billion pounds of meat with a value of $432.8 million. By 1974, slaughter was up to 2 billion pounds at a value of $1.5
billion. Beef and veal accounted for 61 percent of the total poundage of red meat packed in 1961 and over 82 percent in 1974. By the 1970s the packaging of red meat was one of the state's leading industries, generating six or seven times its dollar value in other business activities. The growth of feedlots with their large concentrations of fat cattle had helped make it profitable for the packing houses to move from the congested cities to the small towns near where the stock was produced.13

The extraordinary growth of feedlots and irrigation did not occur without difficulties, especially in the area of the environment. Despite many unknowns, such as the rate of recharge and the quantity of available water, for example, farmers plunged into the irrigation era full force. Slowly, the Water Resources Division of the Kansas State Board of Agriculture caught up with developments and began to impose more rational planning in the use of water. When many owners located feedlots near urban areas, citizens complained of the offensive odor that rose from the lots, especially during wet weather, and the many flies that were attracted by the manure. The lot operators, on the other hand, pointed out the numerous economic advantages that cattle feeding provided the communities. Both groups had viable arguments. The most serious problem for feedlot owners, however, was not the offensive odor but rather the disposal of waste without polluting surface and underground water supplies. Natural conditions—a lower water table, as well as less surface water—helped solve most of these problems in western Kansas, but feeders in the eastern part of the state were not as fortunate. During the late 1960s fish kills in the Neosho and Cottonwood rivers led to the closing of several feedlots, including yards that were owned by the Crofoot and Anderson families. Gradually, though, and at the request of government agencies, most yards overcame these difficulties by building large lagoons into which the waste drained. Sometimes the waste was then used for irrigation, thus providing both moisture and fertilizer for crops that were later consumed by the cattle in the lots. The Pratt feedyard became one of the best models in the nation for this type of efficient disposal and reuse of waste from fattening cattle.14

While hundreds of Kansas farmers and ranchers participated in the revolution in cattle feeding, the names of several families stand out most prominently. Their operations exemplified the new trends in feeding. E. T. Anderson, one of the earliest large feeders, began buying land and feeding cattle during the early 1900s. He made good money during World War I, then nearly went broke during the 1930s. He continued to deal in cattle, however, and in 1940, with his son Kenneth, purchased a decrepit feedyard near
Emporia that eventually became a modern feeding enterprise. They gradually improved and expanded the lot until by the early 1960s it reached a capacity of 20,000 cattle. But Anderson’s operation closed down a few years later, when faced with large remodeling expenditures to prevent polluting surface water in the area.15

The Crofoot family fed cattle along the Cottonwood River near Strong City and Cedar Point, not far from Anderson’s base at Emporia. These men contributed much to the advent of large commercial feeding in the Flint Hills, traditionally the summer home of thousands of grazing cattle. In conjunction with his pasturing operation, J. F. Crofoot began feeding cattle during the depression of the early 1920s. As his sons, Ray, E. C., and Glen, grew older, they first became partners with their father and then in the late thirties developed their own cattle businesses. By the time of World War II the Crofoots had several feeding establishments. Ray Crofoot, operating near Cedar Point, even used a water-powered mill for grinding feed. The old mill continued in operation until the disastrous flood in 1951 destroyed the water wheel and forced conversion to electric power. As the demand for fed cattle rose during the early 1950s, the Crofoots expanded, carving large feedlots from the hills west of Strong City. The hillsides provided shelter for the stock
during bad weather, and the pens were easily cleaned because of the natural rock floors. Proper drainage of the lots that lay close to the Cottonwood River, however, eventually proved an insurmountable obstacle. By the early 1960s the Crofoots, now aided by a third generation, had expanded their lots in the Flint Hills to a capacity of over 20,000 head, and were interested in other feeding enterprises outside the state. But stricter pollution standards during the late 1960s drove the feedlots along the Cottonwood River out of business. Girdner, a son of E. C. Crofoot, estimated that to remodel their lots in accordance with government specifications would require an expenditure of over a quarter of a million dollars, a sum that the family chose not to spend. The Crofoots, however, did not give up feeding cattle. E. C. Crofoot and his son Jay moved to the drier climate of west Texas to operate a large feedlot near Lubbock.  

While eastern and central Kansas had always had some cattle feeding and had witnessed much expansion after World War II, the western part of the state was more properly the home of the postwar revolution in feeding. It occurred, naturally, in the twenty counties that were mentioned earlier for their large growth in irrigation. As a result, one observer was able to note in 1971 that over half the total cattle feeding in the state was done within a hundred mile radius of Dodge City.  

Earl C. Brookover, more than any other individual, led the developments in the western part of the state, beginning his operation in 1951 at a site north of Garden City in the fertile valley of the Arkansas River. Ed Robbins, a rancher from Belvidere, who wanted income from his cattle at times other than during the fall marketing of calves, supplied Brookover with some of his first feeder cattle. The Garden City stockman started with 500 steers, then, using his own and other local capital, gradually increased the capacity so that today the yard has bunk-line space for 42,000 cattle. The turnover rate is about two-and-a-half times a year, allowing over 100,000 cattle to pass through the yards in a single year.  

Today, Brookover's feeding enterprise is typical of the many large commercial operations that exist throughout the West. The cattle, most of which come from within a 300-mile radius of Garden City, are either owned by Brookover or fed commercially for others. Brookover's own cattle are usually purchased by order buyers who are stationed throughout the Southeast and Southwest, receiving twenty-five cents per hundredweight for their part in buying cattle. Brookover prefers steers for his operation, purchased at 650 to 700 pounds, fed for 120 days or until most grade choice, and then sold at
Modern feedlot with feed mill in the background. Courtesy of the Kansas State Board of Agriculture.

around 1,000 pounds. Heifers, young bulls, and thin cows are also fed at times, but medium-grade steers often make their owner the most profit. Cattle that are owned by others are fed and cared for by the yards' employees at a charge of five cents a head per day, plus the cost of feed, medical care, and branding. Packer buyers come directly to the yards to make their purchases. Trucks bring the light cattle to the feedyards, then haul the finished stock to packers. Upon first arriving in the yards, cattle are routinely vaccinated for red nose, blackleg, and malignant edema, then dipped and wormed to kill external and internal parasites. Each pen of cattle receives its own brand. Cattle are initially fed a diet that contains a high percentage of roughage to gradually "warm them up" for the concentrated ration of grain that follows. Brookover began his feeding enterprise with a random mixture of
Postscript: A Glance beyond 1940

grain and ensilage that was hand-scooped into bunks from the back of trucks. Today, an ultra-modern, computerized mill that mixes and processes thirty tons of feed an hour, all according to a prescribed formula, provides the diet that is carried to the cattle several times daily. Mechanized feed trucks have replaced scoop shovels. Depending upon which can be purchased at the most advantageous price, alfalfa or some other forage crop and steam-rolled wheat, milo, or corn may make up the basic ration, all mixed according to plan with molasses, minerals, and other necessary feed additives.

Consistent with the vertical integration that has occurred in many agricultural enterprises, some of the four million bushels of grain that Brookover uses each year is produced on his own irrigated farms, making him also a leader in expanding irrigation in southwest Kansas. In 1977, he purchased a ranch just south of Garden City, which had belonged for many years to O. C. Hicks, in order to expand his irrigated farming. Preparations were soon begun for using processed waste from a Garden City packer to supply some of the water for the sprinkler systems that Brookover erected on the Hicks ranch. The completed project was expected to work to the advantage of both the feeder and the packer.

Brookover's feedlot is a clean and efficient operation, with few problems in disposing of waste. Pens are carefully cleaned after cattle are shipped out, and the manure is spread over his land or stored for use after the crops have been removed from the fields. Some manure is also sold to farmers in the area, who use it to fertilize their irrigated crop land.¹¹

From the beginning, Brookover has been at the forefront of the changes that have occurred in cattle feeding and irrigation in southwest Kansas. The daily operations of most other commercial yards are similar to those at Brookover's modern factory for making beef; but few yards are operated as efficiently or, most likely, with any more profit. Today, the feedlots operated by Brookover and those run by the many others in western Kansas who have followed his lead are an important stimulus to the local economy, providing markets for the ranchers' calves and an outlet for the abundant grain and forage that is raised in the immediate area. The lots have become the focal points of the communities' agricultural endeavors. In addition, employment is provided for numerous people, who either care for the cattle or shuffle the necessary papers that facilitate the many transactions that must accompany the business. Packers are supplied with quality beef and truckers are provided cattle to haul or meat to carry away to distant urban centers. Millions of dollars are
The Kansas Beef Industry

added to the Kansas economy each year as a result of the recent developments in the making of fine beef.

In addition to increasing the number of grain-fattened cattle that came out of Kansas after World War II, the revolution described above affected other segments of the Kansas beef industry as well. Production in the state's best-known area for cattle raising, the Flint Hills, did not escape the changes. During the 1950s and after, the expansion of feeding operations and the increased use of commercial feed supplements significantly changed cattle production in the Flint Hills. In the state's most distinctive beef-producing area, more cow herds began to eat the lush grass that had formerly been reserved for cattle shipped in from the Southwest. Despite the increased number of breeding herds, however, cattle were still shipped in for summer grazing; but even this practice changed as the age of the cattle gradually declined as a result of commercial feeding and changing consumer demands. In 1945, for instance, Wayne Rogler, a pastureman from Chase County, grazed 3,100 three-year-old steers for Dolph Briscoe of Uvalde, Texas. The cattle gained 284 pounds each as a result of their three months on the bluestem. A few years later, E. T. Anderson still pastured over 3,000 three-year-old Matador steers, but the practice soon declined. During the 1950s, two-year-old stock began to dominate. By the late 1960s breeding herds and yearlings accounted for most of the cattle in the Flint Hills. By 1976 Rogler estimated that 30 to 40 percent of the bluestem was used by locally owned cow herds, with the remainder utilized by yearlings.

In addition to the increased consumer demand for grain-fed beef and the commercial feeds that aided winter use of pastures, the general prosperity that cattlemen experienced during and after World War II encouraged residents to buy their own cow herds and to cut down on out-of-state cattle. Stockmen also learned that rising land prices and other production expenses had raised the cost of fattening cattle on grass. Highly mechanized feedyards, using the large grain supplies that became available, fattened cattle almost as cheaply, and did so in less time.

The origin of and the type of cattle that continued to come into the Flint Hills after the war also changed a good deal. High-quality Herefords from the Texas Panhandle and Oklahoma dominated the Flint Hills trade before the 1930s, then cattle from southern Texas became prominent in the movement. Today, yearling steers move into the Flint Hills from several states to the south and east of Kansas, together with those from the traditional sources in the Southwest. Today's cattle are owned mostly by producers in
Kansas and Oklahoma, are of mixed colors rather than straight-bred Herefords, and are generally of poorer quality than most of the earlier stock. Pasturemen refer to them as "#1 and #2 Okies."\textsuperscript{20}

The drought of the 1930s and the rising costs of grass fattening encouraged more scientific research in grass utilization during the postwar period. Feeling that research in the use of grassland had fallen behind that in other areas of agriculture, leading stockmen in the Flint Hills helped persuade the state to buy a small tract west of Manhattan for the use of Kansas State College of Agriculture in its research. The benefits from rotating pastures, weed and brush control, and the use of supplemental feeds were demonstrated, as were the harmful effects of overgrazing. The advantages and disadvantages of annual pasture burning also received much study, but as late as 1970 university scientists had not ended completely all of the old arguments. The time of burning, the moisture content of the soil, and the intended use of the pasture were discovered to be critical in the decision on whether to burn. Though some cattlemen have completely dispensed with burning, others still fire their pastures periodically in hopes of gaining better weed and brush control and more forage per acre for their cattle.

Today, cattlemen in the Flint Hills continue to experiment. Some, for instance, are increasing the number of cattle per acre while reducing the length of the grazing period. Normally, a steer is allowed about four acres for the summer grazing season. By cutting the acreage in half and by making sure that all cattle are gone by early July, some cattlemen have found that they can get more gain and profit per acre and that the grass still has time to replenish the food supply to its roots before dormancy in the fall. A July sale to one of the many feedlots and the rising costs of production on grass contributed to this development.\textsuperscript{21}

Two decades or so after World War II the Flint Hills exemplified another postwar development in the western beef industry—cattle of different hues had replaced many of the straight-bred Angus and Herefords. This change offended some traditionalists, who argued that the crossbred cattle destroyed the eye appeal of stock and that it mongrelized the traditional breeds. But the multicolored steers and heifers, although sometimes offensive to older stockmen, suggested that the traditional British breeds were being crossbred with each other or mixed with one of the new exotic breeds that had recently been introduced into the United States.

While there had been much crossbreeding during the nineteenth century, when British breeds were being used extensively to upgrade the Longhorn,
most large ranchers had settled on straight-bred herds once the cattle had been improved. These straight-bred herds generally dominated the range country until the late 1950s and 1960s. Then, led to a large extent by the work of USDA scientists at the experiment station near Miles City, Montana, and by following scientific advances that had already been made in the development of hybrid seeds, swine, and even chickens, cattlemen also began to seek hybridization. They desired the earlier maturity and greater milking ability from mother cows, the heavier weaning weights from calves, and the better gaining qualities from feeder stock that advocates claimed for crossbred cattle. In the end, cattlemen hoped for larger profits from more beef production with the same quantity of feed. But the breeding of purebreds continued because maximum results from crossbreeding were not attainable without purebreds for use in crossing.

Some ranchers developed sophisticated breeding programs that involved three-way crosses, but this was often a complicated procedure and required more pasture space than many had available. Most simply altered the breed of their bulls, often by running Angus bulls with their Hereford cows or whiteface bulls with their black cows. Cattlemen also used exotic breeds—Charolais, Simmental, Santa Gertrudis, Brahman, Limousin, and others—in their crossbreeding programs. While the Brahman had been in the country for a number of years, most of the exotics came only after World War II or, in the case of the Santa Gertrudis, were developed here through specialized breeding programs.

Few exotics grazed Kansas grass before 1960. Paul Mannell, who farmed southwest of Lincoln, brought some of the first Charolais into the state in 1960, while E. Wallace Johnson, near Towanda, registered the same year the first purebred Santa Gertrudis in the state. Several other exotics were also represented, including M. A. Bell’s herd of Highland cattle from Scotland. But most crossbreeding in Kansas followed the trend of mixing Hereford and Angus cattle.

Many of the advantages claimed by advocates of crossbreeding resulted from mixing the traditional British cattle and by introducing exotic blood from continental Europe. Due to their hybrid vigor, calves were larger and better muscled, brood cows matured earlier and gave more milk, and feeder stock gained weight more efficiently. As a result of the many attempts at crossbreeding and because the breed itself had been improved, Angus cattle became more popular in the range country. Shorthorn blood also became more common in the West, although the breed was hampered by a
shortage of breeding stock. Conversely, straight-bred commercial Hereford and Angus herds declined in number. Not all crossbreeding, however, had the desired effects, as some herds were downgraded by the use of inferior sires. But cattlemen soon realized that although crossing two animals of poor quality might produce some hybrid vigor, it also resulted in inferior progeny.\(^{22}\)

While many owners of commercial herds experimented with crossbreeding, producers of purebreds were reluctant at first to endorse crossing, fearing that the purebred business might be injured. But there was little loss of business, as purebred sires and dams were still necessary for the crosses. Herefords, traditionally the most favored cattle, continued to be popular, most crossbreeders using the whitefaces somewhere in their programs. Cattlemen who crossbred cattle desired above all the aggressive breeding of the Hereford bull, as well as his superior ability to transmit his desirable characteristics.

Several other developments appeared after World War II in purebred Herefords, some detracting from the breed and others adding to its popularity. During the late 1940s and early 1950s, for example, several prominent stockmen in the West contributed to a change in the Hereford's conformation as they bred and selected shorter, more compact animals. The new Herefords had much eye appeal, style, and heavy muscling; but, after being plied with grain in modern feedlots, they also had too much fat for the modern consumer. As a result, the trend turned back to the long-legged, rangier types of Herefords.

Dwarfism, a problem caused by a recessive gene, became a more serious problem for the breed. Further, most other breeds, especially the Angus, also were affected by dwarfism at about the same time. One government expert estimated in 1952 that 15 percent of the calves born that year were affected by the abnormality. Cattlemen and their breed associations first tended to ignore the problem, while high-grade sires and dams continued to spread the genes throughout the country. Numerous avenues looking toward the detection of the offensive gene, such as insulin injections designed as a possible means of identifying dwarf carriers, were explored by scientists; but the ultimate practical solution involved checking of pedigrees for any known dwarf-carrying ancestry, screening of herd bulls by progeny testing, and the prompt elimination of all animals which proved to be carriers of the defective gene. Thus, by the 1970s, dwarfism as a major industry problem not only had been significantly reduced but for all practical purposes was virtually eliminated.\(^{23}\)

Artificial insemination and performance-testing were new developments
The Kansas Beef Industry

that aided cattlemen. The first allowed a high-quality bull to spread his characteristics to literally thousands of calves, to some even after his death. Performance-testing, which requires the systematic weighing of calves at various stages of development, added scientific evidence to the judgment of cattlemen in selecting the most desirable breeding stock. Superior and inferior sires and dams were more easily identified. Before it had gained popularity, however, some disagreements developed between the people who showed their cattle and the advocates of performance-testing; but by the 1960s the groups worked together to the advantage of both. Most were already convinced by the time the 1976 reserve grand champion Hereford bull at the Denver stock show demonstrated that the same animal could do well in both performance-testing and in the show ring. Clair Parcel, one of the state’s early advocates of performance-testing, had raised the bull.24

Although the state’s beef producers confronted many production and marketing problems during the decades following 1890—some resolved, some not—the cattle industry experienced remarkable growth in its size and in its contribution to the total agricultural economy of the state. Throughout most of the twentieth century, between 35 and 40 percent of the state’s total acreage has been used for grazing, which represents more land than that devoted to any other single use. In addition, part of the millions of acres planted to field crops produced forage or feed grains that were used as cattle feed. By 1940 over 64 percent of the cash receipts of Kansas agricultural producers came from the marketing of livestock and its products; over 31 percent of the total receipts derived from cattle and calves alone. By World War II, after the depression and government programs of the 1930s had dealt the hog industry a severe blow, beef cattle were easily the dominant species of livestock in the state. After 1940 there was a temporary decline in the importance of the livestock sector as a whole, relative to that of field crops, but this was not the case with the beef cattle portion of the state’s agricultural economy. In 1950 and 1960, for instance, cattle accounted for 34 and 35.7 percent, respectively, of the total cash receipts from the marketing of the state’s major farm commodities. This was almost the same as for wheat. Beef gradually increased its share until by 1970 nearly 50 percent of the total cash receipts came from marketing cattle, while that from wheat declined to 22.4 percent. Livestock’s contribution as a whole had also risen by this time to almost 64 percent. The land that was used, then, the crops
that were fed, and the cash receipts all pointed to the tremendous significance that beef production had attained in the Kansas economy.²⁵

Even though beef production increased its contribution to the state's economy during the twentieth century, financial returns to individuals from ranching over an extended period of time were sometimes not large. Considering the capital invested and the amount of work involved, cattle producers often could have made more money in other endeavors. One study of Flint Hills grazing, for example, estimated that landowners received net profits of less than 3 percent on capital invested, capital which in "other forms of investment could readily bring immediate returns of four to six per cent."²⁶ These figures applied to ranching during the 1960s; but, judging from the many references to no or low profits, they were representative of returns to Kansas beef producers throughout much of the twentieth century, especially the period after the First World War. The profit figures, however, did not include the gains that accrued to property owners as a result of rising land values. In fact, the increased value of the land, especially since the 1930s, may have outstripped the profits from producing cattle. Nor did the study measure the many intangible attractions of raising cattle, such as pride of ownership, continuing a family heritage, enjoying the primitive beauty of the land and the environment as a whole, and the pleasure of improving a product. These advantages, both tangible and intangible, help explain why Kansas and other beef-producing states have never suffered a shortage of cattlemen, and why the nation's consumers have seldom endured a shortage of meat. Through good times and bad, cattlemen can be expected to continue to produce an adequate supply of beef for the nation's consumers.
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