



Possibilities for

EXPANDING

ARIZONA'S

MEAT

PACKING

INDUSTRY

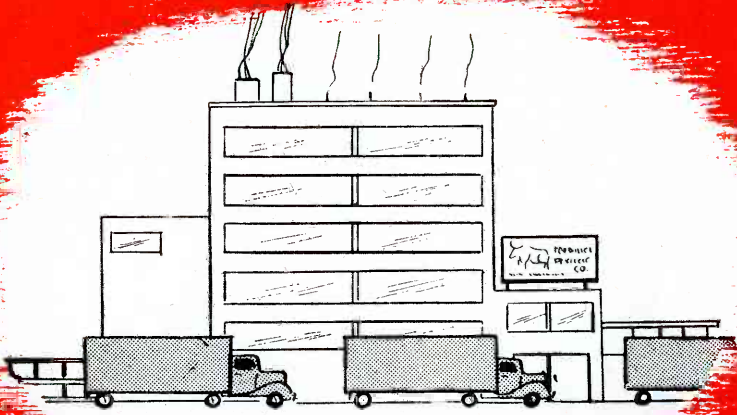


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Possibilities for

Expanding Arizona's Meat Packing Industry

1. Arizona is a surplus cattle producing state, but is a deficit area from the standpoint of meat processing.
2. During the period 1935-1956, the population of Arizona more than doubled, but local cattle slaughter has failed to keep pace with the rapidly expanding population.
3. Arizona slaughtered an annual average of 105 pounds of beef per person, 1935-1939, while during the period 1951-1956, Arizona's per capita beef slaughter was only 54 pounds per year.
4. The cattle feeding industry of Arizona has expanded rapidly in recent years and provides an adequate volume of slaughter cattle at all seasons of the year to support a greatly expanded meat packing industry. There are approximately 225 feedlots in the state with a capacity of over 300,000 cattle. Cattle feeding operations are concentrated in the vicinities of Phoenix and Yuma. In spite of the hot summer months, records show that the seasonal variation in the number of cattle on feed in Arizona is no greater than that found in other sections of the nation. Feed supplies, both roughages and concentrates, are available to support an increased cattle-feeding industry.
5. Arizona is both an importer and an exporter of cattle. Approximately 300,000 head are shipped into the state each year. Nearly all of these inshipments are feeder cattle. Sixty-five per cent of these cattle come from Texas, but Mexico, New Mexico, Oklahoma, Colorado, and Louisiana are also important supply areas. Shipments of cattle from Arizona during 1956 totaled 556,669 head and were the largest on record. Eighty-nine per cent of these outshipments went to California and 62 per cent of these went for immediate slaughter.

6. There are approximately 50 establishments in Arizona licensed to slaughter livestock. However, most of the commercial meat packing in the state is done by 12 packers. The four largest packers in the state kill approximately 75 per cent of the total slaughter of cattle and calves, one plant accounting for a large part of this volume. About 70 per cent of the total slaughter of cattle and calves takes place in the Phoenix area.
7. In just four years the volume of meat—fresh, cooked, cured, and dried—shipped into Arizona from other states increased from 24,645,000 pounds in 1953 to 39,276,000 pounds in 1956. This meat originated in 21 different states and in Mexico. However, over 75 per cent of the total comes from Colorado, Texas, and California. About 60 per cent of the meat in shipments went to Phoenix and 27 per cent to Tucson.
8. Should the Arizona meat packing industry expand to a degree which would enable it to more nearly supply the local demand for meat, a substantial savings in freight costs could be made. For 1956, this saving would have amounted to approximately \$1,220,000.
9. Based on population projections for Arizona, and an estimated per capita beef consumption of 90 pounds, by 1960 Arizona will require an additional 18 million pounds of beef annually compared to consumption in 1956.
10. The expansion of the Arizona meat packing industry would effect substantial savings in transportation costs now paid on meat shipped in and slaughter cattle shipped out, would strengthen local livestock markets, and would provide added industrial employment for the state. Producers, consumers and labor all could expect to benefit if this took place.

EXPANDING ARIZONA'S MEAT PACKING INDUSTRY

by

R. E. SELTZER and M. D. JOHNSON ¹

Arizona is a surplus cattle producing state, but is a deficit area from the standpoint of meat processing. During the past 20 years the population of Arizona has more than doubled, but local cattle slaughter has failed to keep pace with the rapidly expanding population.

In the period 1935-1939, Arizona slaughtered an average of 105 pounds of beef per person, but during the period 1951-1956, Arizona's per capita beef slaughter had dropped to only 54 pounds. This compares with a United States per capita consumption of beef of 83.5 pounds for 1956, and an indicated annual per capita consumption of approximately 100 pounds for California. Considering these figures, it is apparent that a considerable amount of beef must be shipped into Arizona.

The purpose of this report is to present, in some detail, information concerning the supply and demand

for beef in Arizona, in order that interested persons might intelligently appraise the feasibility of locating additional meat packing facilities in this state.

An expansion in meat packing house capacity in Arizona might serve several purposes. By slaughtering more cattle locally, savings would be made by avoiding transportation costs on meat formerly shipped into the state and on cattle formerly shipped out. Such savings could result in lower beef prices to consumers and better returns to packers and livestock producers. Additional local slaughter demand might strengthen local markets, while the increased buying competition would tend to raise local cattle market prices. Finally, an expansion in meat packing operations would provide additional employment and payrolls in the areas in which such packing houses might be located.

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THE ARIZONA CATTLE INDUSTRY

An important part of Arizona's agricultural economy is devoted to production and feeding of cattle and calves. On January 1, 1957 there were 1,012,000 cattle and calves on Arizona's farms and ranches. Of this number 51,000 were dairy cows, 410,000 were beef cows and 220,000 represented cattle on feed in feedlots. The 410,000 beef cows produced approximately 320,000 calves. In addition to the calves and yearlings produced within Arizona, 304,000 head of cattle were shipped into Arizona during 1956, mainly for feeding, from other states.

Cattle Feeding Operations

Cattle feeding operations in Arizona have expanded rapidly in recent years. A strong demand for finished cattle in California and Arizona has resulted in a substantial expansion in feedlot capacity, and in the number of cattle fed.

Arizona has approximately 225 cattle feedlots ranging in capacity from 25 head up to 30,000 head. Feeding operations are located mainly in the irrigated valleys, pri-

marily in the Salt River Valley around Phoenix and in the Yuma area. Large feedlots are also found in other sections of southern Arizona.

From the above table, the concentration of cattle feeding in the Maricopa County area is easily seen. The location of cattle feeding in Arizona is determined largely by the importance of feed grain, hay and silage production in these areas. In 1956, Maricopa County had 258,000 acres of feed grains and hay or 46 per cent of the total state acreage in these crops. Pinal County had 116,000 acres or 21 per cent of the total, and Yuma County had 67,000 acres or 12 per cent. These three counties thus accounted for 79 per cent of the total state production of feed grains and hay. In addition, both Maricopa and Yuma Counties had large quantities of by-products from commercial vegetable and citrus operations which were available for feeding cattle. These same three counties had 88 per cent of the total feedlot capacity of the state.

Trends in Cattle Feeding

The rapid growth of the cattle feeding industry in Arizona and California is apparent when changes in the number of cattle on feed in these states are compared with changes for the United States as a whole.

Since 1940 the cattle feeding industry in Arizona and California has tripled in size whereas the volume of feeding for the United States as a whole has increased but 68 per cent (Figure 1). On January 1, 1940 Arizona had 64,000 cattle on feed, and on January 1, 1957 Arizona's feedlot inventory had increased to 220,000 head, a gain of 244 per cent. Much

Table 1. *Number and Capacity of Arizona's Cattle Feedlots in Major Cattle Feeding Counties, 1956.*

County	Number of Feedlots	Capacity (head)
Maricopa	92	190,500
Yuma	48	43,000
Pinal	31	35,000
Pima	6	13,000
Cochise	14	7,500
Graham	4	5,000
Total	195	294,000

Source: Records of the Department of Agricultural Economics, University of Arizona, Tucson.

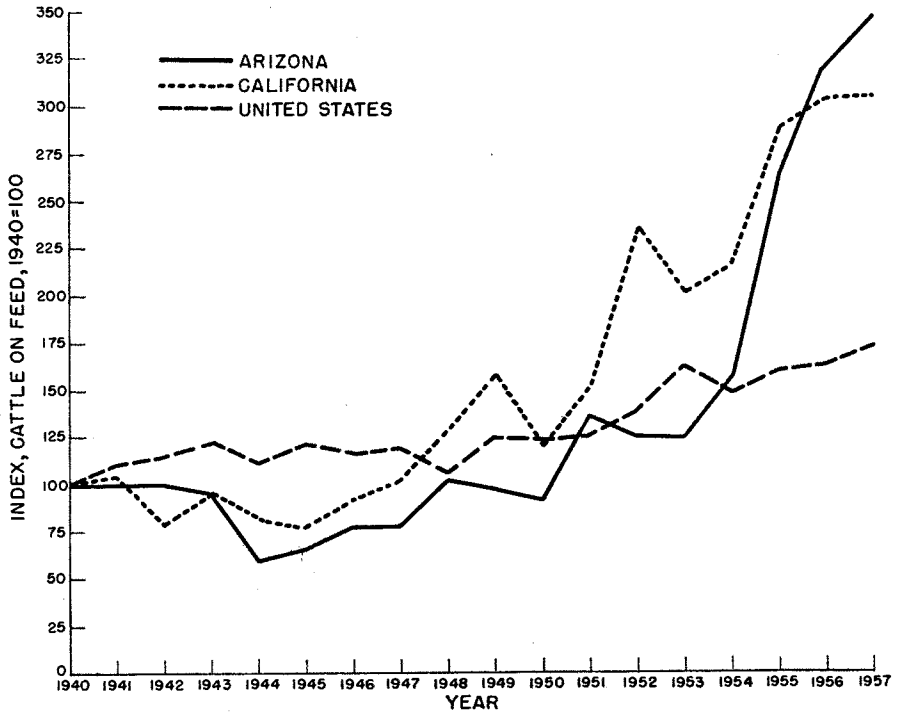


Figure 1.- Trends in numbers of cattle on feed January 1, Arizona, California and United States, 1940-1957

Table 2. Number of Cattle on Feed, January 1, Arizona, California and the United States, 1940-1957.

Year	ARIZONA		CALIFORNIA		UNITED STATES	
	Number (000)	Index 1940=100	Number (000)	Index 1940=100	Number (000)	Index 1940=100
1940	64	100	163	100	3,633	100
1941	64	100	169	104	4,065	112
1942	64	100	128	79	4,185	115
1943	60	94	154	95	4,445	122
1944	38	59	134	82	4,015	111
1945	42	66	125	77	4,411	121
1946	50	78	149	91	4,211	116
1947	50	78	166	102	4,307	119
1948	65	102	209	128	3,821	105
1949	62	97	258	158	4,540	125
1950	59	92	196	120	4,463	123
1951	87	136	248	152	4,598	127
1952	87	125	383	235	5,024	138
1953	97	125	327	201	5,884	162
1954	102	156	350	215	5,394	149
1955	169	264	467	287	5,816	160
1956	204	319	489	300	5,880	162
1957	220	344	496	304	6,099	168

Source: Agricultural Marketing Service, U. S. Department of Agriculture, *Cattle on Feed January 1*.

the same situation exists in California where the number of cattle on feed has risen from 163,000, January 1, 1940, to 496,000 in 1957, a gain of 204 per cent.

Seasonal Variation in Cattle Feeding

One condition necessary to the efficient operation of a meat packing plant is stability of supplies of cattle for slaughter. The plant and its personnel must be employed as close to capacity as possible throughout the year in order to minimize per unit costs of processing.

Prior to 1945, there was an appreciable degree of seasonal variation in numbers of cattle on feed in Arizona. Feedlots were often nearly empty during the hot summer and early fall months. During the past 10 years, however, this seasonal pattern of feeding has changed to the point where there is only moderate variation in numbers of cattle on feed in the state.

New methods of feeding, increased use of shade and the introduction of cross-bred cattle have all combined to make summer feeding a more profitable operation. The development of large commercial feedlots has also tended to result in more summer feeding because the large investment in these facilities requires that they be utilized as fully as possible.

Data on feedlot inventories are not extensive, but weekly feedlot reports by members of the Arizona Cattle Feeders' Association are sufficient to establish a seasonal pattern. These weekly feedlot inventories were available for the years 1953, 1954, and 1955. Table 3 indicates the average seasonal index of number of cattle on feed.

Table 3. *Seasonal Variation in Number of Cattle on Feed in Arizona, Average of Years 1953, 1954, and 1955.*

Month	Index of Number on Feed
	(average of year = 100)
January	125
February	121
March	109
April	98
May	89
June	90
July	87
August	81
September	77
October	87
November	108
December	128

Source: Calculated from data in the Arizona Cattle Feeders' Association's Weekly Newsletter.

Figure 2 shows the seasonal index plotted for each year and illustrates the uniformity of the pattern of seasonal variation in feeding operations. The data show that the greatest number of cattle are on feed during December, January, and February, the number during this period being about 25 per cent above the average for the year. As the fall inventory of cattle begins to reach an acceptable degree of finish, shipments to slaughter increase in volume and numbers drop rapidly during March and April.

During May, June, and July the volume of feeding remains near 90 per cent of the yearly average and then declines to the seasonal low of about 80 per cent in August and September. In the fall, cattle feeders begin to restock feedlots and numbers increase rapidly during October and November and reach the seasonal peak in December.

Quarterly data regarding numbers of cattle on feed are available for Arizona only for 1955 and 1956. A comparison of feedlot inventories in

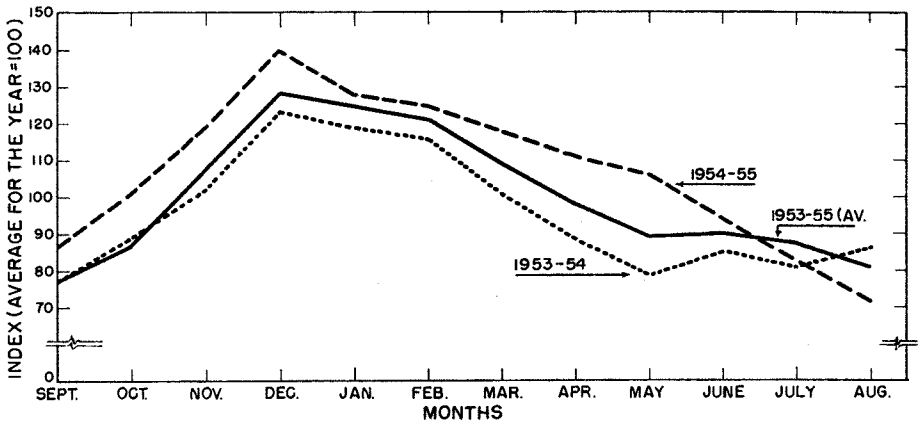


Figure 2.— Seasonal variation in numbers of cattle on feed in Arizona, 1953-1955.

Arizona with inventories in Iowa and California, two other major cattle feeding states, shows that the amount of seasonal variation in number of cattle on feed in Arizona is comparable with that found in these other states (Table 4).

Table 4. *Indexes of Quarterly Variation in Numbers of Cattle on Feed in Arizona, California, and Iowa, Average of Years 1955 and 1956.*

Date	Index of number on feed (avg. of yr. = 100)		
	Ariz.	Calif.	Iowa
January 1	126	111	112
April 1	111	71	117
July 1	81	99	96
October 1	82	118	76
Total variation high to low month	45	47	41

Source: Calculated from data in *Cattle and Calves on Feed*, quarterly reports. Agricultural Marketing Service, USDA.

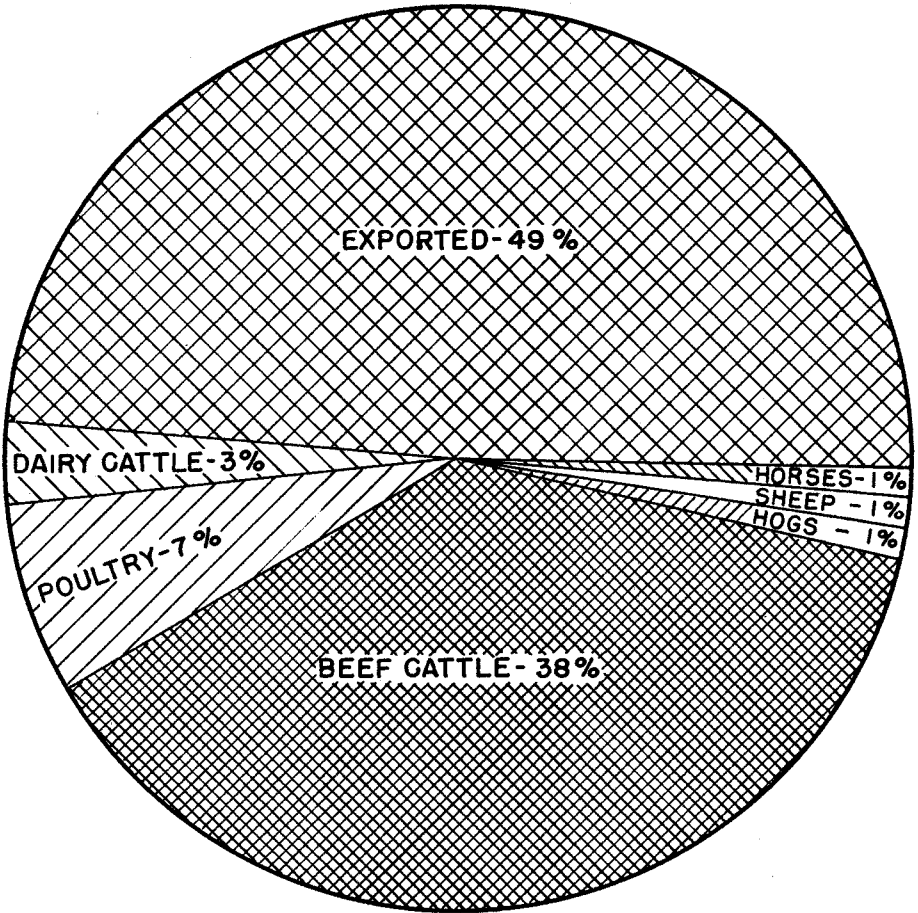
Tables 3 and 4 indicate that the seasonal variation in Arizona cattle feeding operations is probably no greater than in most other parts of the country. Further, when consideration is given to the fact that large

numbers of slaughter cattle are shipped out of Arizona to California at all seasons of the year, it becomes apparent that there would be adequate local supplies of slaughter cattle at all seasons of the year.

Arizona Livestock Feed Supplies

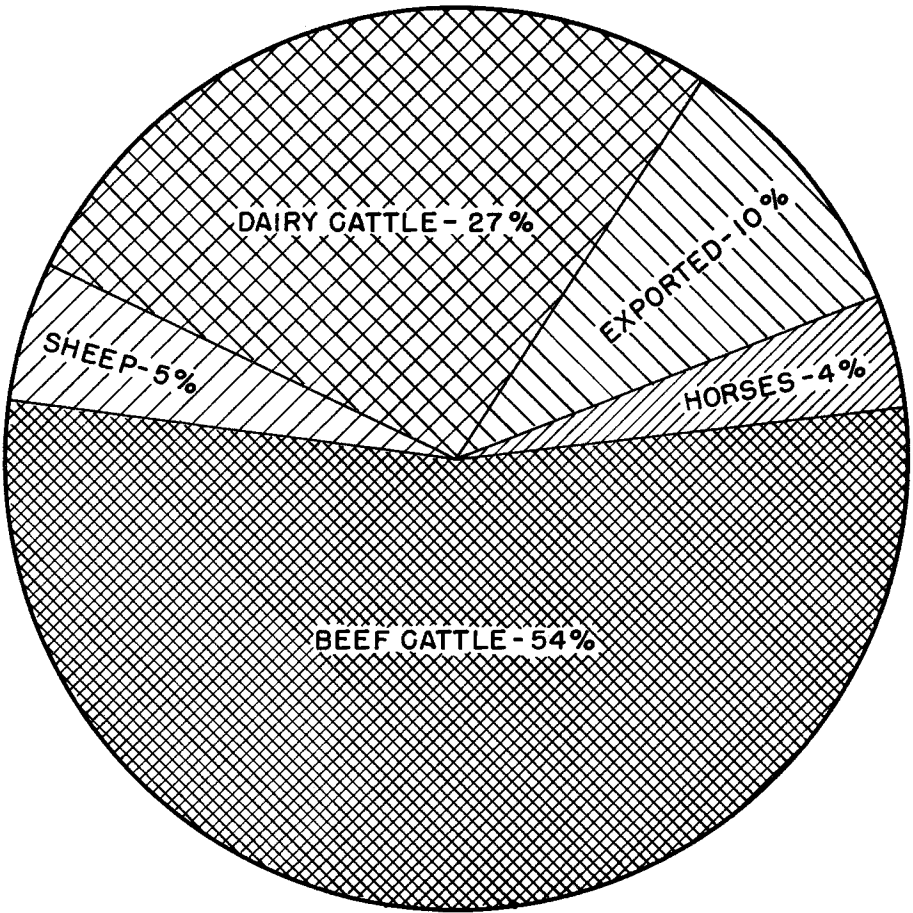
Arizona produces 11 feedstuffs in sufficient quantity to be considered important in determining the amount of feed available in the state for livestock. These include barley, grain sorghums, corn, oats, sorghum silage, corn silage, alfalfa hay, grains cut green for hay, and cottonseed meal.

The relative balance between feed consumption and feed production is important in considering the future of the cattle feeding industry in Arizona. As population increases and the demand for beef rises, local cattle feeding operations must expand, or beef and slaughter cattle must be shipped in from other producing areas. Expansion of local cattle feeding is dependent upon an adequate supply of locally-produced feeds.



TOTAL PRODUCTION - 444,000 TONS
 FROM STORAGE 70,000 TONS
 TOTAL SUPPLY 514,000 TONS

FIGURE 3.-UTILIZATION OF ARIZONA FEED GRAINS,1955-56.
 SOURCE: DEPARTMENT OF AGRICULTURAL ECONOMICS, UNIVERSITY OF ARIZONA



TOTAL PRODUCTION - 1,246,000 TONS
 ALL HAY - 748,000 TONS
 SILAGE AND FORAGE - 498,000 TONS

FIGURE 4.- UTILIZATION OF ARIZONA ROUGHAGE CROPS, 1955-56

SOURCE: DEPARTMENT OF AGRICULTURAL ECONOMICS, UNIVERSITY OF ARIZONA,

During 1956, Arizona produced the following amounts of grains, roughages, and cottonseed meal:

Table 5. *Production of Livestock Feed in Arizona, 1956.*

Feedstuff	Production in Tons
GRAINS	
Barley	249,120
Grain sorghums	120,960
Corn	29,400
Oats	19,200
ROUGHAGES	
Alfalfa hay	657,000
Sorghum silage and forage	404,000
Corn silage and forage	94,000
Grain hay	91,000
PROTEIN CONCENTRATES	
Cottonseed meal	150,000

Source: Crop and Livestock Reporting Service, Agricultural Marketing Service, *Annual Summary, Crop Production, 1956.*

Arizona produces a substantial surplus of feed grains. Total production 1955-56 amounted to 444,000 tons. This production was supplemented by 70,000 tons withdrawn from storage stocks accumulated in previous years.

Almost half of the total supply was shipped out of the state during 1955-56, 49 per cent going for this purpose (Figure 3). The remaining 51 per cent was fed locally. Beef cattle, primarily cattle in feedlots, were the major users of this feed, 38 per cent of the total supply being fed to beef cattle. Poultry consumed seven per cent of the total supply of feed grains, dairy cattle three per cent, sheep, hogs, and horses and miscellaneous livestock one per cent each.

Although Arizona produces a surplus of harvested roughages, the production and consumption of roughage is more nearly in balance, only

10 per cent of the total roughage production being exported (Figure 4). Again, beef cattle are the most important consumers of roughage in Arizona, using 54 per cent of the total tonnage produced in 1955-56. Dairy cattle accounted for 27 per cent of the total, sheep five per cent, and horses and miscellaneous livestock four per cent. Nearly all of the roughage exported consisted of hay shipments to the Los Angeles and San Diego dairy areas.

During 1956, Arizona's cotton industry produced approximately 150,000 tons of cottonseed cake and meal. Consumption of these products was estimated to be about 100,000 tons, leaving a surplus of approximately 50,000 tons.

In addition to the above grains, roughages, and cottonseed meal and cake, there are appreciable amounts of other locally produced by-products feeds available. However, the amount of such feed is unknown. Included are cottonseed hulls, gin trash, straw, fruit and vegetable wastes such as lettuce trimmings, cull cantaloupe, dried citrus meal, etc. While the volume of each of these products is relatively small, in the aggregate they constitute an important source of feed.

When the adequacy of total feed supplies is considered, it is plain that supplies of feed grains and protein supplements produced in Arizona are sufficient to permit a substantial expansion in cattle feeding operations in the state. The surplus of roughages is more limited, but is sufficient to take care of about a 15 to 20 per cent increase in numbers of cattle fed. Should the need arise, it would appear that forage production in Arizona could be rapidly expanded.

Shipments of Cattle into Arizona

Arizona is both an exporter and an importer of all classes of cattle. During the period 1935-1956 the number of cattle and calves shipped into Arizona annually varied from a low of approximately 90,000 head in 1944 to a high of about 310,000 in 1951, and during the period 1954-1956 averaged nearly 300,000 head annually (Table 6).

Most of these cattle are shipped in for feeding purposes. During the 1954-1956 period 98.8 per cent of the total inshipments were classed as feeder steers, calves, or mixed, with by far the greatest number being in the mixed class.

During the 1954-1956 period 72.6 per cent of all inshipments of cattle and calves went to Maricopa County, mainly to feedlots in the Salt River Valley. For the same period, 8.0 per cent of the inshipments went to Yuma County and 7.6 per cent went to Pinal County, both areas having extensive cattle feeding industries. The relative importance of Yuma County as an importer of cattle has increased rapidly in recent years as the result of increased cattle feeding activity in that area. The remainder of the inshipments of cattle are distributed throughout the state, with Pima, Graham, and Santa Cruz Counties importing 11,000, 5,400, and 3,100 head, respectively, during 1956, again mainly for feedlot operations.

Origins of Arizona Cattle Inshipments

Texas is by far the most important source of cattle shipped into Arizona. During the three years 1954-1956 approximately 65 per cent of the

Arizona inshipments originated in Texas. Since the Mexican border was reopened in 1955, (after the hoof-and-mouth disease flareup) Mexico has been the second most important source of cattle shipped into Arizona, accounting for 13 per cent of the total in 1955 and 5 per cent in 1956. Other important areas supplying cattle to Arizona are New Mexico, Oklahoma, Colorado, and Louisiana. These six areas accounted for 92 per cent of the total inshipments in 1955 and 95 per cent of the total in 1956. (Figure 5.)

There have been some definite shifts since 1945 in the relative importance of these areas as sources of cattle to Arizona. Prior to the closing of the Mexican border because of the outbreak of hoof-and-mouth disease in 1946, Mexico was the most important out-of-state source of cattle for Arizona, accounting for more than half the total inshipments.

After the border was closed, Texas stepped in to fill the gap. For example, in 1945 cattle from Texas accounted for only 18 per cent of Arizona's inshipments, but in 1947 some 56.4 per cent of the inshipments originated in Texas. New Mexico also stepped up shipments of cattle into Arizona. But whereas the volume of Texas shipments to Arizona has continued at a high level, shipments from New Mexico have become relatively less important, particularly since 1950. One other general area has increased in importance as a source of cattle to Arizona. This area includes Louisiana, Oklahoma, East Texas and Arkansas. For example, Oklahoma's share of the Arizona inshipments increased from less than 1 per cent in 1945 to 8.2 per cent in 1954 and Louisiana increased her shipments to Arizona from none in

Table 6. *Cattle Shipped into Arizona, by Class, 1935-1954.*

Year	Feeder steers	Calves	Cows and heifers	Bulls	Mixed	Total—feeder steers, calves and mixed	Grand total
1935	3,385	5,908	25,976	4,309	107,949	117,242	147,527
1936	3,405	22,761	35,245	3,194	57,421	83,587	121,846
1937	10,032	10,202	16,720	3,808	50,718	70,952	92,474
1938	20,908	6,671	11,065	2,909	31,026	72,579	108,394
1939	6,593	1,059	5,484	1,835	80,815	88,467	122,395
1940	13,703	3,579	5,094	2,140	135,903	153,185	160,419
1941	5,485	6,288	1,604	1,297	175,269	187,042	189,943
1942	4,581	6,365	3,009	1,278	122,641	133,587	137,874
1943	13,972	21,335	6,842	1,284	135,533	170,840	178,966
1944	17,311	6,361	3,018	1,614	61,774	85,446	90,084
1945	64,066	11,777	9,108	2,663	127,473	203,316	215,087
1946	43,110	25,819	13,407	2,203	116,490	185,419	201,029
1947	31,659	47,114	13,535	1,878	59,057	137,830	153,343
1948	18,781	29,676	12,567	1,361	70,887	119,344	133,272
1949	10,635	18,736	3,309	1,423	63,207	92,578	97,310
1950	8,239	40,479	7,413	1,586	138,011	186,729	195,728
1951	13,066	42,068	6,859	1,059	246,939	302,073	309,991
1952	25,957	32,406	7,384	1,823	157,756	216,119	225,326
1953	23,066	15,157	2,086	1,667	141,032	180,098	183,851
1954	13,430	12,569	3,578	949	263,970	289,969	294,496
1955	6,782	3,564	1,996	837	280,187	290,533	293,366
1956	14,729	4,638	1,856	880	281,888	301,265	304,001

Source: *Arizona Cattle Shipments, Annual Summary, Federal Crop and Livestock Reporting Service, U. S. Department of Agriculture, Phoenix, Arizona.*

1945 to 4.8 per cent of the Arizona total in 1954. This area has continued to be an important source of cattle during 1955 and 1956.

The bulk of the shipments of cattle into Arizona comes during the fall months, with the peak in October and November when volume of shipments is nearly twice the yearly average. The period of smallest shipments is in early spring, when volume is only about half the yearly average.

Shipments of Cattle Out of Arizona

Shipments of cattle from Arizona during 1956 totaled 556,669 head, and were the largest on record since

1935. During this 22-year period the smallest number of cattle shipped (290,998) was in 1949. From 1951 through 1955 the number shipped annually varied between 400,000 and 450,000 head. From half to three-fifths of the total shipped in recent years has been steers. About one-quarter of the total has been cows and heifers and about one-fifth were calves.

Arizona Outshipments by County of Origin

Nearly half of the total Arizona outshipments of cattle originated in Maricopa County, mainly in the Salt River Valley. During 1956 this area

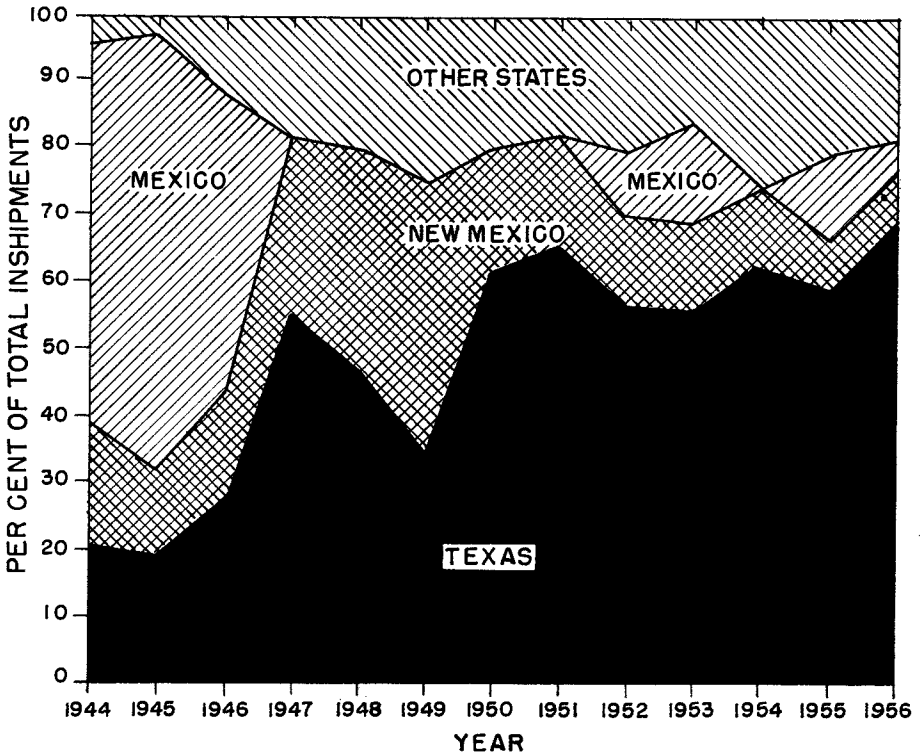


FIGURE 5.- ORIGIN OF SHIPMENTS OF CATTLE INTO ARIZONA, 1944-1956.

shipped 257,607 head, 46.3 per cent of the state's total. Other important shipping areas are found in Yuma County (59,140 head or 10.6 per cent), Pinal (6.5 per cent), Cochise (6.3 per cent), Yavapai (5.6 per cent), and Pima (5.0 per cent). The other eight counties together accounted for 19.7 per cent of the total outshipments.

The three most important counties are all major cattle feeding centers. Cochise and Yavapai counties, on the other hand, are primarily producers of feeder cattle. During recent years there have been shifts in the importance of the various counties with regard to outshipments of cattle. Prior to 1942 Cochise County was the biggest exporter of cattle. However, since 1942, Maricopa County has been the largest shipping area, and the relative importance of Cochise County exports has steadily declined. Since about 1951, both Yuma

and Pinal counties have shipped more cattle than Cochise.

Since 1954, Yuma County has gained rapidly as a cattle shipping area. The decreased importance of Cochise County, a range cattle area, is an indication that the increase in cattle shipments from Arizona in recent years has been primarily finished cattle for slaughter, reflecting the increased cattle feeding operations in the irrigated areas of the state.

Markets for Arizona Cattle

California is the major market for cattle and calves shipped out of Arizona. In the period 1952-1956, over 85.6 per cent of Arizona's total outshipments of cattle and calves went to California, and in 1956 California took 89 per cent (Figure 6). A smaller number of cattle regularly go to other near-by states. For example, in

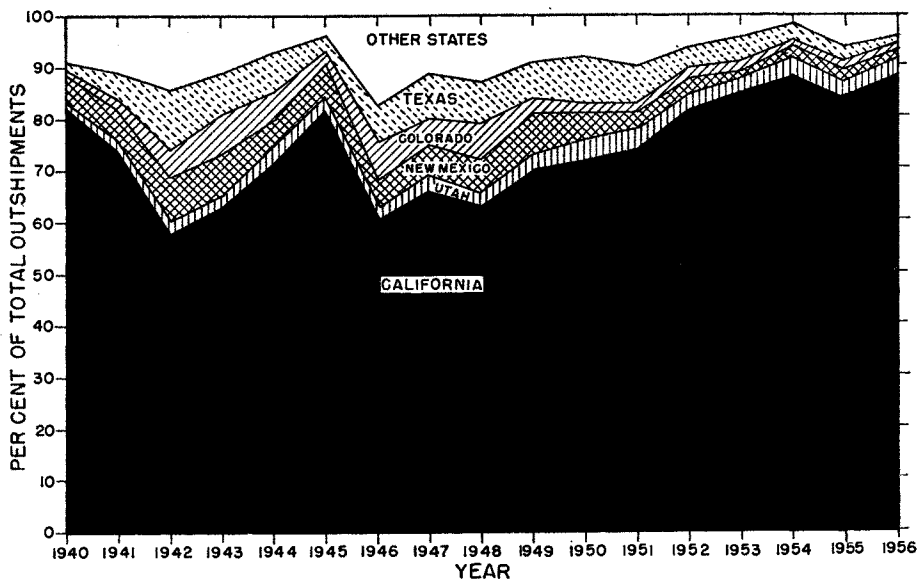


FIGURE 6. - DESTINATION OF OUTSHIPMENTS OF CATTLE FROM ARIZONA, 1940-1956.

1956 Utah received 3.2 per cent of Arizona's outshipments, New Mexico 1.8 per cent, Texas 1.2 per cent, and Colorado 0.8 per cent. The remaining four per cent went to 22 other states and to Mexico. The importance of California as a market for Arizona cattle has increased greatly in recent years, rising from 60 per cent of total outshipments in 1946 to 89 per cent in 1956. Utah also has become more important, rising from 1.8 per cent in 1946 to 4 per cent in 1955. During the same period, New Mexico, Colorado, Texas, and other states have decreased in importance.

Arizona shipments to California

consist of both feeder cattle and slaughter cattle. However, in recent years the relative importance of slaughter shipments has been increasing rapidly. In 1940, only 37 per cent of Arizona's total shipments to California went for immediate slaughter. The proportion of Arizona's California shipments going for slaughter rose rapidly beginning with World War II and during the period 1941-1951 averaged about 50 per cent. During the period 1952-1955, 65 per cent of Arizona's California shipments went for immediate slaughter, and in 1956, 62 per cent went for this purpose.

THE ARIZONA MEAT PACKING INDUSTRY

Slaughter of cattle and calves in Arizona has failed to keep up with the rapidly expanding population of this state. Since 1935 population in Arizona has more than doubled while local slaughter of cattle and calves has increased only slightly. This has been particularly true for cattle (Figure 7). Slaughter of calves in Arizona in recent years has increased rapidly, but per capita slaughter is still substantially below the average for the United States (Figure 8).

Trends in Per Capita Slaughter of Cattle and Calves, Arizona and the United States

During the period 1935-1939, Arizona slaughtered an average of 105 pounds of beef (carcass weight) annually per capita, but in the years 1952-1956 local slaughter of beef amounted to only 54 pounds. While annual per capita slaughter of beef

in Arizona was decreasing, slaughter for the nation was increasing. In the 1935-1939 period, the United States slaughtered an average of 57 pounds of beef per capita annually, and during the years 1952-1956, slaughtered 77 pounds each year per capita.

The decreased per capita slaughter of beef in Arizona has resulted from increased population rather than from decreased number of cattle slaughtered. During the period 1935-1956, the year of smallest cattle slaughter in Arizona was 1950, when 75,100 head were killed in the state. The greatest number (140,000 head) were killed in 1945 and the second largest slaughter (135,000 head) occurred in 1956. For the United States, the trend in cattle slaughter was generally upward during the entire 1935-1956 period, 14,566,000 head being slaughtered in 1935, and 26,868,000 head in 1956. In both Arizona and the United States slaughter has risen rapidly since 1952.

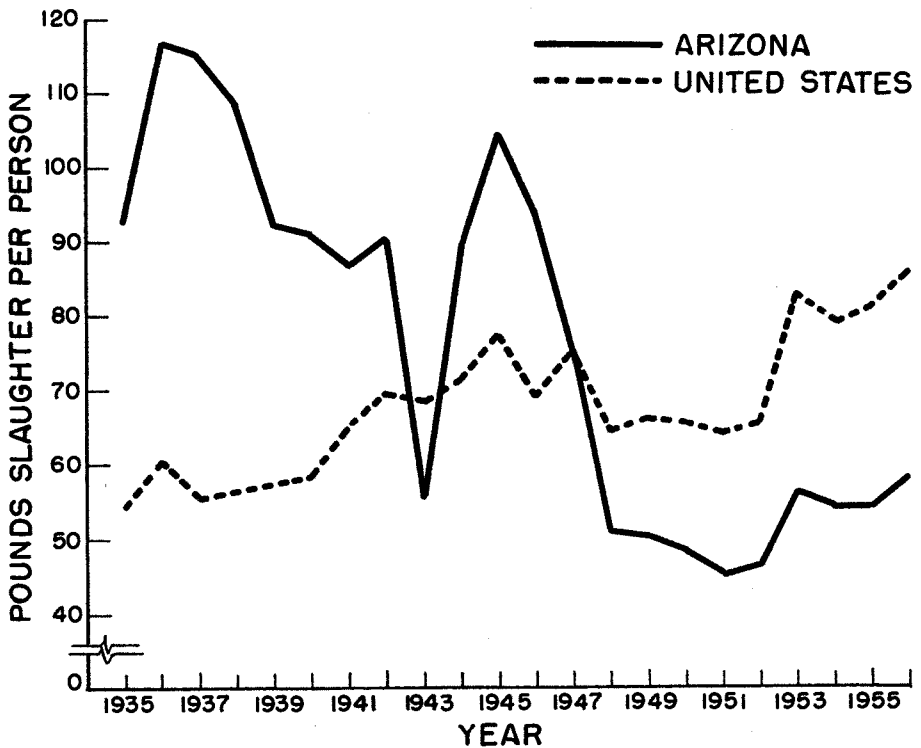


Figure 7.- Per capita slaughter of beef, Arizona and the United States, 1935-1956 inclusive.

The situation with respect to calf slaughter is somewhat different. Although Arizona has lagged in per capita slaughter of cattle, slaughter of calves has been maintained at a higher level. During the 1935-1939 period, Arizona slaughtered 5.1 pounds of calf and veal (carcass weight) annually per person. During the 1952-1956 period, such slaughter averaged 4.6 pounds per capita. The year of smallest per capita slaughter was 1951, when only 1.2 pounds per capita of calf and veal were killed in the state. The greatest slaughter, 6.4 pounds per capita, came in 1955, and

the 1956 slaughter (14,400 head) equalled 5.4 pounds per person.

Even though Arizona has nearly maintained its per capita slaughter of calf and veal, such slaughter is far below the average for the United States. For the years 1935-1939, the average annual per capita slaughter of calf and veal (carcass weight) in the United States, was 8.0 pounds, and during the 1952-1956 period the average annual per capita slaughter was 9.1 pounds. The year of greatest slaughter was 1944 (12.9 pounds per capita) and the least was 1951 (6.8 pounds).

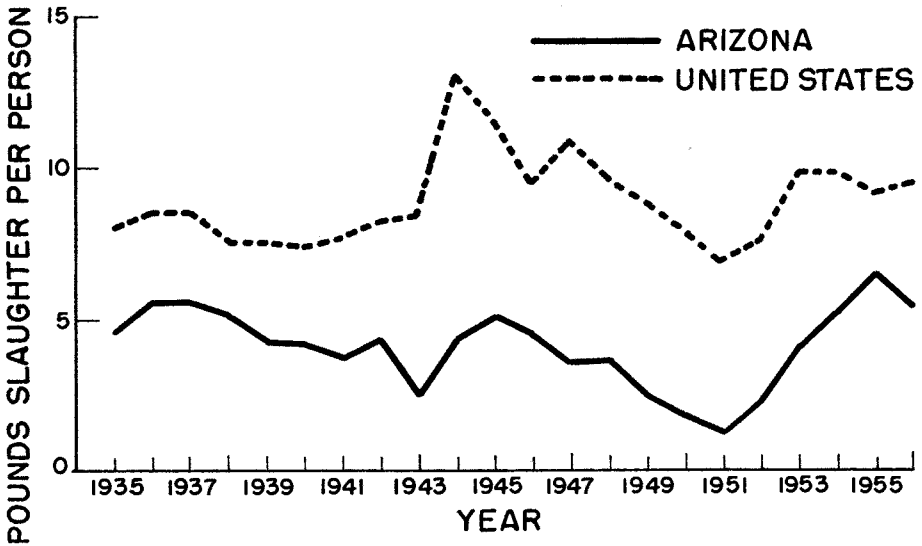


Figure 8.-Per capita slaughter of calf and veal, Arizona and the United States, 1935-1956 inclusive.

Table 7. Per Capita Slaughter of Beef and Calf and Veal, Arizona and the United States, 1935-1956.

Year	ARIZONA			UNITED STATES		
	Beef	Calf & Veal	Total	Beef	Calf & Veal	Total
	(Dressed wt. lbs. per capita)			(Dressed wt. lbs. per capita)		
1935	92.8	4.5	97.3	54.5	8.0	62.5
1936	116.1	5.6	121.7	60.5	8.5	69.0
1937	114.7	5.7	120.4	55.6	8.6	64.2
1938	108.2	5.2	113.4	56.4	7.6	64.0
1939	92.4	4.3	96.7	57.1	7.5	64.6
1940	91.0	4.2	95.2	58.1	7.3	65.4
1941	87.0	3.7	90.7	65.1	7.7	72.8
1942	90.7	4.3	95.0	69.7	8.4	78.1
1943	55.1	2.6	57.7	68.2	8.5	76.7
1944	89.9	4.3	94.2	71.7	12.9	84.6
1945	104.3	5.0	109.3	77.6	11.5	89.1
1946	93.3	4.5	97.8	69.0	9.4	78.4
1947	74.6	3.5	78.1	74.8	10.8	85.6
1948	51.0	3.6	59.6	64.2	9.6	73.8
1949	50.6	2.4	52.4	66.0	8.8	74.8
1950	48.5	1.7	50.2	65.7	7.8	73.5
1951	45.5	1.2	46.7	60.4	6.8	67.2
1952	46.2	2.2	48.4	65.8	7.5	73.3
1953	56.6	4.0	60.6	76.5	9.8	86.3
1954	54.6	5.2	59.8	79.0	9.9	88.9
1955	54.6	6.4	61.0	80.9	9.3	90.2
1956	58.4	5.4	63.8	83.5	9.3	91.8

Source: *Agricultural Statistics*, 1935-1955, U. S. Department of Agriculture, and "Livestock and Meat Situation," U. S. Department of Agriculture, December, 1956.

Seasonal Variation in Slaughter

A uniform volume of slaughter throughout the year permits the meat packer to operate his plant at or near capacity and reduces seasonal variation in labor requirements. Such uniformity in volume is, therefore, desirable.

An examination of the seasonal variation in numbers of cattle killed in Arizona meat packing houses indicates a very uniform seasonal pattern of slaughter. The month of greatest slaughter is January, when the number killed is 11.6 per cent greater than the average for the year. Volume then gradually declines to a summer low in August and September when volume of slaughter is still 97 per cent of the yearly average. There is an increase in October, and then the volume drops to the annual low of 91.2 per cent in November. It would appear that cattle slaughtering operations in Arizona could be maintained with very little seasonal variation in volume.

Classes Slaughtered

Information on classes of cattle slaughtered was obtained from records of the Arizona Livestock Sanitary Board for 1953 and 1954. Of the total Arizona slaughter of cattle and calves, approximately 40 per cent were steers, 34 per cent heifers, 12 per cent calves, 10 per cent cows,

and 4 per cent bulls. Thus a relatively high proportion (74 per cent) of the Arizona slaughter consists of steers and heifers.

Location of Packing Houses

There are approximately 50 establishments in Arizona licensed to slaughter livestock. However, most of the commercial meat packing in the state is done by 12 packers. The remaining 38 plants are small custom-killers, frozen food locker plants, and retail butchers who kill some of their own beef.

In 1953 and 1954, the four largest plants in the state accounted for approximately 75 per cent of the total slaughter of cattle and calves, one plant killing a large part of this total, and the three smaller plants being more nearly equal in volume of operations. Farm and ranch slaughter accounted for about 10 per cent of the total, retail butchers killed about one per cent, and the remaining 14 per cent was slaughtered by other commercial meat packers.

Geographically, the meat packing industry of Arizona is concentrated in the Phoenix area, 15 plants and about 70 per cent of the total slaughter of cattle and calves being in this area. A smaller meat packing industry is located at Tucson. The rest of the plants are scattered throughout the state (Figure 9).

SHIPMENTS OF MEAT INTO ARIZONA

Arizona produces a surplus of slaughter cattle but at the same time imports from other states a large amount of meat and meat products. Two reasons may be given for the necessity of such inshipments. First,

Arizona produces very few hogs, so most of the state's pork and pork products must be brought in from the Midwest. A second reason could be the lack of meat packing house capacity in Arizona.



Figure 9. - ARIZONA MEAT PROCESSING PLANTS

In an attempt to measure volume of inshipments, data were obtained on the movement of meat into Arizona by truck and rail. Truck shipment data came from port-of-entry inspection stations. Each truck entering Arizona is required to furnish information as to commodity carried,

weight of load, origin and destination. This data was compiled for the four major inspection stations, Yuma, San Simon, Lupton, and Ehrenburg, for the years 1953-1956. Rail shipment data came from annual reports of the Southern Pacific and Santa Fe railroads submitted to the Arizona

Corporation Commission. Such reports on rail shipments did not list specific origins and destinations, but supplemental information was obtained from the railroads themselves.

Increase in Meat Shipped Into Arizona

The volume of meat (fresh, cooked, cured, and dried) shipped into Arizona from other states increased from 24,645,000 pounds in 1953 to 39,276,000 pounds in 1956.

Because of the lack of direct rail

Albuquerque to Flagstaff or El Centro to Yuma, most of the meat is shipped in full truck or rail carloads, of from 20,000 to 30,000 pounds.

Origin of Shipments

In the period 1953-1956, meat was shipped into Arizona from 21 different states and from Mexico. However, over 75 per cent of the total shipped by truck comes from three states — Colorado, Texas, and California.

Table 8. *Shipments of Meat into Arizona from Out-of-State Sources, 1954-1956.*

Year	Trucks ^(a)		Rail ^(b)		Total	
	pounds	per cent	pounds	per cent	pounds	per cent
1953	9,971,000	40	13,674,000	60	24,645,000	100
1954	13,704,000	49	14,172,000	51	27,876,000	100
1955	20,798,000	54	17,464,000	46	38,262,000	100
1956	22,362,000	57	16,914,000	43	39,276,000	100

(a)Source: Inspection Station records, Arizona State Highway Department.

(b)Source: Annual reports to Arizona Corporation Commission by Southern Pacific and Santa Fe Railroads.

routing, most of the meat from Colorado, New Mexico and the other intermountain states moves into Arizona by truck. Truck shipments also account for most of the meat received from California and from El Paso, Texas. Rail shipments are most important for meat originating in the Great Plains States, in the Midwest and in East Texas.

Except for local hauls, such as from

As shown in Table 9, Colorado is the most important source of truck shipments of meat into Arizona, accounting for approximately 33 per cent of the total in shipments. Virtually all of this meat comes from Denver. Texas accounts for about 25 per cent. About two-thirds to three-fourths of this Texas meat originates in El Paso. California furnishes 16.5 per cent of the total, of which about

Table 9. *States of Origin of Meat Shipped into Arizona by Truck, 1953-1956.*

State of Origin	Percentage of Total Inshipments				
	1953	1954	1955	1956	Average 1953-1956
Colorado	36	40	29	25	33.0
Texas	27	26	29	23	26.7
California	16	13	18	18	16.5
Midwest	18	18	14	26	19.3
Miscellaneous States	3	3	9	7	4.5

Source: Inspection Station records, Arizona State Highway Department.

two-thirds originates in the Los Angeles area. Truck shipments from the Midwest make up 19 per cent of the total. Miscellaneous other states contribute the remaining 4.5 per cent.

Lack of available data prevents a complete analysis of the origin of railroad shipments of meat into Arizona. However, such information as was obtained indicates that virtually all of the rail shipments originate in the Midwest. Omaha, Sioux City, St. Paul, Kansas City, and Wichita are the principal origins of meat shipped by rail from the Midwest to Arizona.

If truck and rail shipments are added, it would appear that from half to two-thirds of Arizona's inshipments of meat originate in the Midwest.

Destination of Inshipments

As would be expected, Phoenix, Tucson, and Yuma are the three most important destinations of meat shipped into Arizona. Table 10 shows destinations of truck shipments of meat into Arizona, 1953-1956. As an average of this period about 60 per cent of the meat shipped in went to Phoenix, 27 per cent to Tucson, 6 to

7 per cent to Yuma and a like amount to other destinations in the state.

Virtually all of the rail shipments terminating in Arizona go to Phoenix or Tucson. In 1956 about two-thirds went to Phoenix and one-third to Tucson.

Table 11 gives the relative importance of the various origins for meats shipped by truck to major Arizona destinations. The major origins of meat for Phoenix are Colorado (Denver) and the Midwest. California is becoming increasingly important as a source of meat for the Phoenix area. Texas (El Paso) is by far the most important origin of meat shipped into Tucson. However, in 1956 Colorado, the Midwest, and California became more important sources of meat to Tucson.

Virtually all of the meat shipped into Yuma comes from California, Los Angeles, El Centro, and Banning being the principal shipping points. The Arizona destinations listed as miscellaneous cities lie principally in northern Arizona (Flagstaff, Grand Canyon, Winslow, etc.). For these cities, New Mexico (Albuquerque) is the most important source of meat, although an appreciable volume is also received from Texas.

Table 10. *Destinations of Truck Shipments of Meat into Arizona, 1953-1956.*

Arizona Destination	Percent of Total Arizona Receipts				
	1953	1954	1955	1956	Average 1953-1956
Phoenix	64	64	57	53	59.5
Tucson	26	25	27	31	27.2
Yuma	8	8	5	5	6.5
Miscellaneous Cities	2	3	11	11	6.8

Source: Calculated from records of Inspection Stations, Arizona State Highway Department.

Table 11. *Origin and Destination of Meat Shipped by Truck into Arizona, Per Cent of Each City's Receipts Originating in Each State.*

State of Origin	Destination in Arizona															
	Phoenix			Tucson			Yuma			Miscellaneous Cities						
	1953	1954	1955	1956	1953	1954	1955	1956	1953	1954	1955	1956				
Colorado	55	60	51	37	5	4	3	19	...	...	...	...	2	3	1	
California	7	4	21	17	11	10	3	10	100	95	100	100	...	6	3	7
Texas	10	8	4	6	80	84	92	58	...	...	...	...	...	...	...	...
New Mexico	...	...	...	...	...	...	...	...	...	...	...	...	100	66	73	62
Midwest	27	27	23	39	4	2	2	13	...	5	...	...	...	12	5	9
Miscellaneous	1	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Inspection Station records, Arizona State Highway Department.

COST OF TRANSPORTATION OF LIVESTOCK AND MEAT

Should the Arizona meat packing industry expand to a degree which would enable it to more nearly supply the local demand for meat than it does at present, a substantial savings in freight costs could be made. Savings could be made in freight now paid on slaughter cattle presently shipped out of the state, which could be killed in Arizona should packing house capacity be expanded. It is realized that some inshipments of meat, particularly pork and pork products, will always occur. However, judging by their origin, the bulk of the inshipments of meat seems to be beef, and this meat could be readily supplied by the local cattle feeding industry.

In the analysis which follows, truck and rail freight costs have been applied from specific origins to specific destinations for slaughter cattle and for carcass beef in an attempt to

calculate the freight costs which might be attributed to the inshipment of beef, and the outshipment of an equivalent weight of slaughter cattle.

Table 12 shows rail and truck freight rates for fresh meats from major origins to Phoenix, Tucson, and Yuma, by truck and rail where applicable.

Combining freight rate data with the volume of fresh meat from the major points of origin to Arizona destinations, one learns the total freight cost on meat shipped into Arizona.

If all the meat now shipped in were provided by slaughter of locally produced livestock, substantially all of the costs shown in Table 13 could be saved. However, it is known that a great part of the meat originating in the Midwest consists of pork and pork products. Therefore, if the

Table 12. *Truck and Railroad Freight Rates for the Shipment of Fresh Meats into Arizona, June 1957.*

Origin	Destination and Freight Rate ^(a)					
	Phoenix		Tucson		Yuma	
	Truck	Rail ^(b)	Truck	Rail ^(b)	Truck	Rail ^(b)
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
Denver, Colorado	\$1.76 ^(c)	...	\$1.76 ^(c)	...	...	...
El Paso, Texas	...	\$1.52	1.00 ^(d)	\$1.36	...	...
Los Angeles, Calif.	1.10	1.92	1.29	2.20	\$1.43 ^(f)	...
El Centro, Calif.	...	...	...	...	.66	...
Banning, Calif.	...	...	...	...	.66	...
San Diego, Calif.	1.10	...	1.29	...	1.43 ^(f)	...
Ft. Worth, Texas	...	2.74	2.70	2.74	...	...
Kansas City, Mo.	...	2.97	2.86 ^(e)	2.97	...	...
St. Louis, Mo.	...	3.18	3.28	3.18	...	...
Sioux Falls, S. Dak.	...	3.18	...	3.18	...	...
Omaha, Nebraska	...	.....	3.17	...	...	...

(a) All rates subject to 3 per cent federal tax.

(b) Includes standard refrigeration, 21,000 lb. minimum, except El Paso, 20,000 lb. minimum.

(c) For 32,000 lb. minimum load; for 25,000 lb. minimum rate equals \$2.03 per cwt.

(d) For 20,000 lb. minimum load.

(e) Hanging carcass beef, 28,000 lb. minimum.

(f) For 10,000 lb. minimum load.

freight on these shipments were deducted from the total freight bill on fresh meats, the remainder would represent a more realistic appraisal of the savings which might be made through the slaughter of locally-produced livestock. If this adjustment were accomplished, the savings which

Table 13. *Estimated Cost of Shipping Fresh Meat into Arizona, 1953-1956.*^(a)

Year	Cost of Freight ^(b)
1953	\$631,000
1954	720,000
1955	909,000
1956	970,000

(a) Calculated from freight rates multiplied by weight moved from each origin.

(b) Includes freight carried by both truck and railroad.

might be made would be approximately \$670,000 for 1956.

Assuming that an equivalent amount of meat, in the form of slaughter cattle is now being shipped to Los Angeles, a further saving could be made if these cattle were slaughtered locally and freight on live cattle shipped to Los Angeles were avoided.

Slaughter cattle shipped from Arizona to Los Angeles will dress out about 61 per cent. (From each 100 pounds of live animal, the meat packer will obtain approximately 61 pounds of beef.) Using the 28,000,000 pounds of beef estimated as shipped into Arizona during 1956, and expanding this weight to a live-animal basis, approximately 47,000,000 pounds of cattle would be required to produce this amount of meat.

As was previously pointed out, the major cattle feeding areas in Arizona are located in the Phoenix and Yuma areas. Approximately 73 per cent of

the state's total feedlot capacity is located in central Arizona and 13 per cent at Yuma. The freight rate on cattle from Phoenix to Los Angeles is \$0.55 per hundred weight, and the rate from Yuma to Los Angeles is \$0.50 per hundredweight.

Using the relative proportions of feedlot capacity located in the Yuma area and in central Arizona, a total freight charge for the shipment of the live animal equivalent of Arizona's slaughter deficit can be calculated (Table 14).

Table 14. *Estimated Cost of Shipping Cattle to Los Angeles in Weight Equivalent to Arizona's Slaughter Deficit, 1953-1956.*^(a)

Year	Cost of Freight ^(b)
1953	\$150,000
1954	174,000
1955	250,000
1956	250,000

(a) Calculated from freight rates multiplied by weight moved from Phoenix and Yuma.

(b) Based on truck rates only.

The cost of shipping these cattle from Arizona must be added to the freight cost of Arizona's meat shipments in order to arrive at the approximate total freight cost which results from the deficit in local slaughtering operations. Table 15 shows this total cost of freight.

Table 15. *Estimated Total Freight Cost on Beef Shipped into Arizona and on an Equivalent Weight of Cattle Shipped Out.*

Year	Cost of Freight
1953	\$ 781,000
1954	894,000
1955	1,159,000
1956	1,220,000

Based on Tables 13 and 14.

Were a large part of this freight cost to be avoided through local slaughter of locally-produced cattle, substantial savings could conceivably be distributed among producers in the form of higher prices, among marketing and processing agencies

in the form of lower costs, and among consumers in the form of lower beef prices. The extent to which each of these groups would share in the savings would be dependent upon their competitive strength in the market.

DEMAND FOR BEEF IN ARIZONA WILL GROW

The demand for beef, in terms of pounds of meat consumed, is associated with population numbers and per capita beef consumption. Per capita beef consumption is a function of personal income, population composition, meat prices, and the supply of beef in relation to competing meats, poultry, and fish.

Arizona's Population Growth

Arizona is one of the fastest growing areas, in terms of population, in the United States. Table 16 shows the population of Arizona and the United States by census years from 1900-1950 and estimates of the population from 1951 through 1956.

Table 16. *Population, Arizona and United States, 1900-1956.*

Year	Arizona	United States
	(000)	(000)
1900	123	75,995
1910	204	91,972
1920	334	105,711
1930	436	122,775
1940	499	131,669
1950	750	150,697
1951	788	153,384
1952	846	155,761
1953	894	158,320
1954	928	161,183
1955	982	164,280
1956	1,080	167,191

Source: Bureau of the Census.

As seen from Table 16, Arizona has grown from 123,000 people in 1900 to 1,080,000 in 1956, a gain of 778 per cent as compared to a 120 per cent population increase in the nation in this same period. A gain of 116 per cent in Arizona's population has taken place from 1940 to 1952 compared to a gain of 27 per cent for the United States. Finally, during the 1950 to 1956 period, Arizona's population increased 44 per cent, four times the national average.

As the population of Arizona has grown, there has been a tendency toward concentration of such growth in Maricopa (Phoenix) and Pima (Tucson) counties. In 1910, these two counties accounted for but 28 per cent of the state's population while in 1956 over 68 per cent of the people in the state lived in Maricopa and Pima counties. Maricopa County had 47 per cent of the total population of the state in 1956 and Pima County 21 per cent. In 1956 over 32 per cent of the state's population lived in the Phoenix metropolitan area, and 19 per cent in the Tucson metropolitan area.

Figure 10 shows trends in population growth for the United States, Arizona, and Maricopa and Pima counties, 1910-1956 and population

estimates projected to 1960. The pattern of growth for the United States as a whole is seen to have been gradually upward at a rate just under two per cent per year. From a population of approximately 91 million in 1910, the number of people in the United States increased to 167 million in 1956 and is expected to reach

1956 and is expected to reach approximately 1,280,000 by 1960. The pattern of growth in Pima and Maricopa counties has paralleled that for the state as a whole, but in both counties the rate of growth has been much more rapid than for the state as a whole. In 1956 Pima County had a population of 225,000 and

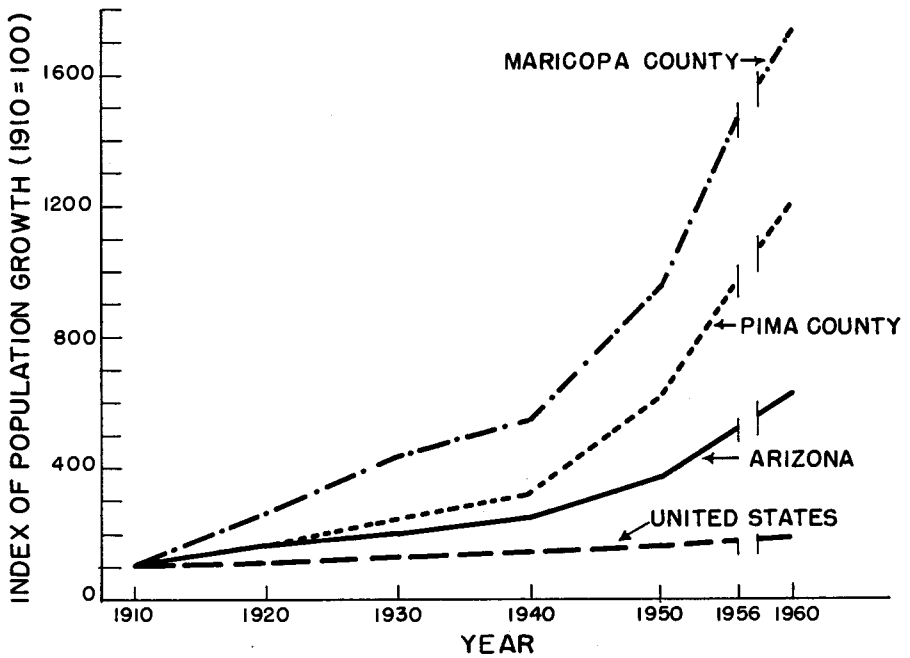


Figure 10.- Trends in population growth-United States,Arizona,Maricopa and Pima Counties-1910-1956, and projections to 1960.

176 million by 1960. Population in Arizona increased steadily until 1940. Then with the entrance of the United States into World War II and increased defense activity in Arizona, population gained rapidly. However, of even more significance is the fact that population in Arizona has increased at an even faster rate since 1950. From 204,000 in 1910, Arizona's population increased to 750,000 in 1950, then to 1,080,000 in

Maricopa County 510,000. By 1960 it is estimated that Pima County will have grown to 275,000 people, Maricopa County to 600,000.

Non-Agricultural Employment

As population in Arizona has increased, employment in industries outside of agriculture has also increased. Table 17 shows non-agricultural employment in Arizona, 1950-1956.

Table 17. *Non-Agricultural Employment in Arizona, 1950-1956.*

Type of Employment	June 1950	June 1951	June 1952	June 1953	June 1954	June 1955	June 1956
Construction	11,800	13,800	15,300	17,500	16,900	19,000	19,000
Manufacturing	15,700	22,900	27,700	28,800	26,100	31,900	35,700
Mining	11,000	12,100	13,200	12,900	13,700	14,200	15,500
Services & Misc.	23,700	27,500	29,700	31,700	32,700	34,900	37,500
Transportation & Utilities	18,100	19,500	20,500	21,200	20,400	21,100	21,500
Wholesale & Retail Trade	40,700	44,300	48,000	51,300	50,900	54,200	55,300
Government	33,600	36,000	36,100	38,700	40,100	43,300	48,100
Total	154,600	176,100	190,500	202,100	200,800	218,600	232,600

Source: Bureau of Labor Statistics and Employment Security Commission.

Manufacturing employment led all other classifications in rate of gain during the period 1950-56, increasing 127 per cent in these seven years. A large volume of construction — industrial, business, and home — resulted in an increase of 61 per cent in employment in this category. Employment in service trades and other miscellaneous positions increased 58 per cent. Government employment was up 43 per cent, mining 41 per cent, wholesale and retail trade 36 per cent, transportation and utilities 19 per cent. Total non-agricultural employment, 1950-1956 rose 50 per cent.

In the manufacturing category, the major increases in employment were in the aircraft and electronics industries. These industries employ a large proportion of highly skilled and professionally trained employees, so most of these positions provide higher-than-average incomes.

Arizona Business Indicators

As Arizona has grown in population and employment, income and value of output have increased also. Table 18 presents selected indicators of Arizona business for the period 1950-1956.

Although data are not available for 1956, it is apparent that manufacturing has led all other industries in its rate of growth since 1950. In the period 1950-1955, value of manufacturing output produced in Arizona increased 146 per cent, and it would

appear that by 1956 the increase over 1950 would be about 175 per cent. Value of mineral production increased rapidly during 1955 and 1956 and in 1956 was 134 per cent greater than in 1950. Other major gains were registered by the tourist trade, up 100 per cent from 1950 to 1956, and by agriculture, up 36 per cent during the same period.

Income of individuals in Arizona rose 62 per cent from 1950 to 1955, and by 1956 was up about 75 per cent over 1950. Value of retail sales in 1956 was 72 per cent above 1950. During the same period bank deposits gained 82 per cent.

Per Capita Beef Consumption

Per capita consumption of the aggregate of red meats has remained relatively stable since 1940, but there have been some definite shifts in the relative consumption of the various types of red meat.

As seen in Table 19, per capita consumption of beef increased greatly during the 1940-1956 period, rising from a low of 52.5 pounds in 1943 to a high of 83.5 pounds in 1956. Beef now accounts for more than 50 per cent of the total consumption of red meats. The expansion of cattle numbers and a continuing high level of consumer income have been largely responsible for the increase in the consumption of beef.

Little information is available on regional differences in per capita beef consumption. However, food consumption surveys made by the U. S. Department of Agriculture in 1948 and 1955 indicate that per

Table 18. *Arizona Business Indicators, 1950-1956.*

Business Indicator	1950	1951	1952	1953	1954	1955	1956
Retail sales	000 dol. 776,576	000 dol. 905,393	000 dol. 1,000,104	000 dol. 1,051,887	000 dol. 1,048,367	000 dol. 1,210,748	000 dol. 1,335,046
Income of individuals	978,000	1,225,000	1,387,000	1,428,000	1,486,000	1,588,000	N.A.
Agricultural marketings	278,865	359,969	384,844	419,972	364,326	344,172	380,000
Manufacturing output	142,000	214,000	292,000	312,000	300,000	350,000	N.A.
Mineral production	201,034	235,289	231,702	261,349	254,473	378,237	471,104
Tourist business	100,000	120,000	135,000	150,000	160,000	180,000	200,000
Bank deposits	471,669	536,096	617,261	641,834	695,053	757,782	858,857

Source: *Arizona Progress*, Valley National Bank, Phoenix.

Table 19. *Annual Per Capita Meat Consumption (in pounds) in the United States, 1940-1956.*

Year	Beef	Veal	Pork	Lamb & Mutton	All Meats	Per Cent Beef
1940	54.2	7.3	72.4	6.5	140.4	33.6
1941	60.0	7.5	67.4	6.7	141.6	42.4
1942	60.4	8.1	62.8	7.1	138.4	43.6
1943	52.5	8.1	77.9	6.4	144.9	36.2
1944	54.9	12.2	78.5	6.6	152.2	36.1
1945	58.6	11.7	65.7	7.2	143.2	40.9
1946	60.8	9.8	74.9	6.6	152.1	40.0
1947	68.6	10.7	68.6	5.2	153.1	44.8
1948	62.2	9.4	66.8	5.0	143.4	43.4
1949	63.0	8.8	66.8	4.0	142.6	44.2
1950	62.6	7.9	68.2	3.9	142.6	43.9
1951	55.3	6.5	70.9	3.4	136.1	40.6
1952	61.4	7.1	71.4	4.1	144.0	42.6
1953	76.5	9.4	62.6	4.6	153.1	50.0
1954	79.0	9.9	59.2	4.5	152.6	51.8
1955	80.9	9.3	65.9	4.6	160.7	50.3
1956	83.5	9.3	66.3	4.4	163.5	51.1

From "Agricultural Statistics" U. S. D. A. and "Livestock and Meat Situation," Nov. 15, 1950, Agricultural Marketing Service, U. S. D. A.

capita consumption of beef in the West is 20 to 25 per cent higher than the average for the United States and would, in 1956, have amounted to approximately 100 pounds per capita.

Projected Beef Requirements

Based on population projections for Arizona and an estimated per capita beef consumption of 90 pounds, by 1960 Arizona will require an additional 18 million pounds of beef an-

nually compared to consumption in 1956. This represents slaughter of approximately 36,000 additional head of cattle.

Most of this additional slaughter capacity will be required for the Phoenix and Tucson areas. By 1960, Maricopa County will need 8,100,000 additional pounds of beef annually, or about 16,200 more slaughter cattle to meet local needs and Pima County will need 4,500,000 pounds more, or about 9,000 head.

Other Publications Available

Readers may be interested in other University of Arizona publications dealing with economic studies in agriculture:

Bulletins

- 199—Further Studies on the Response of Lettuce to Fertilization
- 204—Vegetable and Herb Seed Production in Arizona
- 205—Arizona's Agricultural Wealth
- 216—Growth and Diseases of Guar
- 221—Marketing Desert Grapefruit
- 224—A Study of the Possible Effects of the Standard Density Gin Press on the Marketing of Arizona Cotton
- 230—Desert Grapefruit Goes to Market
- 255—Barriers to the Interstate Movement of Milk and Dairy Products in the Eleven Western States
- 261—Arizona Agriculture 1955
- 262—Agricultural Credit in Arizona
- 264—Growing Sweet Corn in Arizona
- 267—Consumer Preferences for Beef
- 277—Quality and Cost of Ginning Upland Cotton in Central Arizona
- 281—Arizona Agriculture 1957

Reports

- 140—Cattle Feeding Costs in Arizona
- 142—The Influence of Some Factors on Prices in the Phoenix Cotton Market
- 145—Consumer Acceptance of Beef
- 147—Sources of Economic Information Relating to Cattlemen's Production Decisions
- 151—Western Lettuce—An Industry in Transition
- 159—Cotton Fires in Arizona and Their Effects on Marketing Costs

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AGRICULTURAL INDUSTRY —

A VERSATILE GIANT!

Does it pay to get a college education in preparing for a career in agricultural industry? The answer is contained in a recent issue of the Kiplinger News Letter.

Kiplinger reported the average high school graduate earns \$165,000 in a lifetime — and that the average college graduate earns \$268,000 in a lifetime. The difference: \$103,000. It does pay, apparently, to get a college education in preparing for a career in agricultural industry.

And when he completes his studies at any one of the nation's 51 great Land Grant institutions, the agricultural graduate faces an industry which can justly be called "a versatile giant." For it is gigantic — and wonderfully versatile. It consists of 12 major areas:

- ★ Machinery, equipment and supplies
- ★ Food processing
- ★ Grain and seed processing
- ★ Meat and poultry packing
- ★ Fertilizers
- ★ Feed manufacturing
- ★ Dairy processing
- ★ Fats and oils
- ★ Textiles and fibers
- ★ Buildings and utilities
- ★ Lumber and forest products
- ★ Pesticides and herbicides