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EC94-807 A Measure of Agribusiness on Nebraska's Economy

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A Measure of Agribusiness on Nebraska's Economy

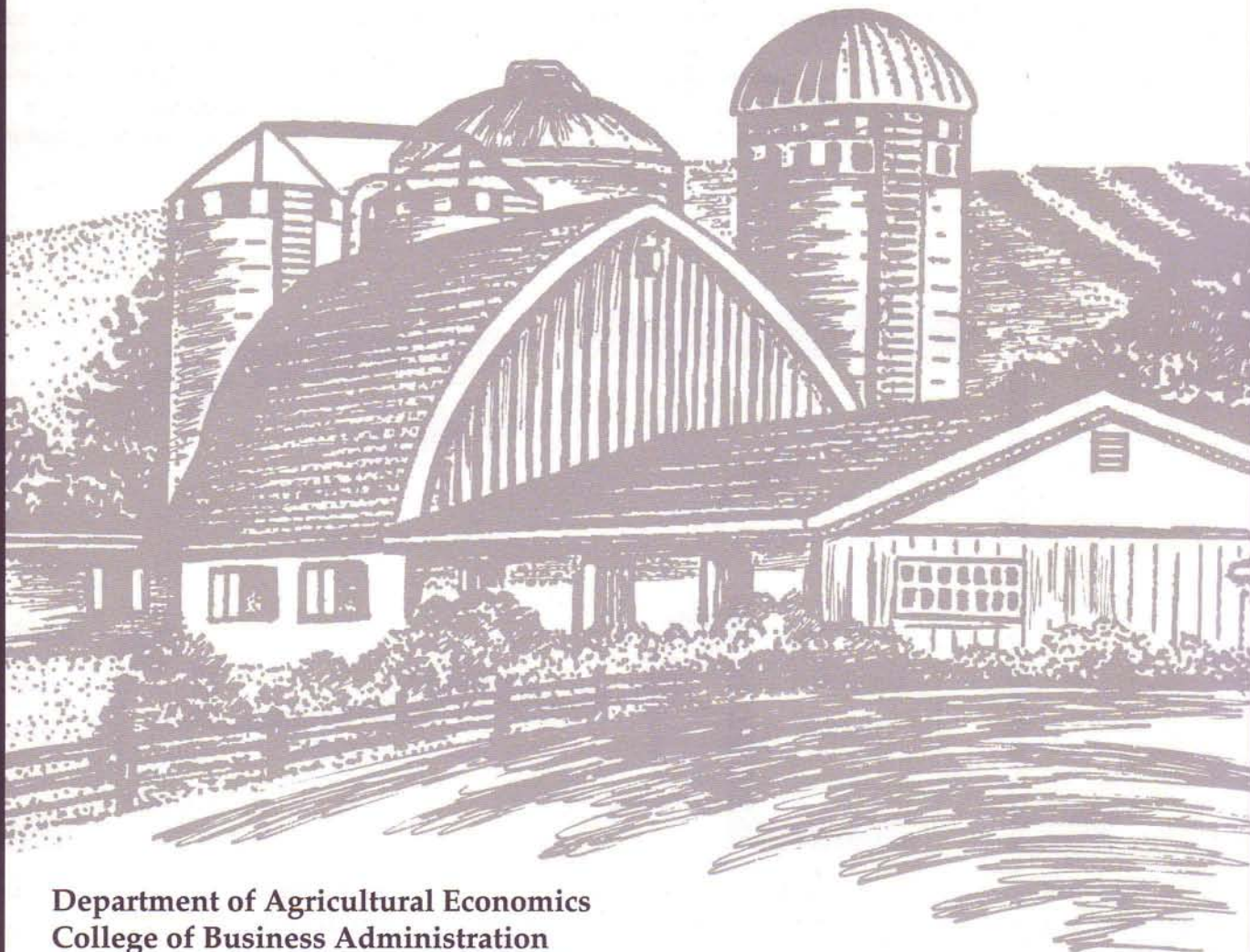
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A Measure of Agribusiness on Nebraska's Economy

In 1990, agribusiness in Nebraska sold over \$14.9 billion in goods and services, employed over 121,000 workers, paid an estimated \$3.6 billion in wages and salaries, and contributed \$4.5 billion to value added. Moreover, agribusiness' total direct and indirect contribution to Nebraska's economy in 1990 was close to 250,000 jobs, with an estimated payroll of nearly \$6 billion. Twenty-five percent of the state's total employment is directly and indirectly dependant on agribusiness. Over one-fourth of value added in the state is directly and indirectly attributed to Nebraska's agribusiness industry (Figure 1).

Nebraska agriculture is agribusiness.

Agribusiness is an industrial complex; a group of industries engaging in product-related production, exchange and marketing. In agribusiness, agricultural producers on farms and ranches, farm suppliers, and processors of food, fiber and energy products for state, national, and international markets make up the complex. The farm remains the foundation of Nebraska's agribusiness, with "backward links" to farm suppliers and "forward links" to agricultural processors.

Backward-linked to production agriculture is the

agricultural service industry which includes agricultural chemical manufacturers, farm machinery manufacturers, agricultural service agents (e.g., aerial dusting and spraying services), and agricultural machinery, chemicals, and fertilizer services. Forward-linked from production agriculture are the agricultural processing industries—meat, grain, food processing and ethanol.

Any definition of agribusiness is arbitrary. Excluded from this definition of agribusiness are restaurants and grocery stores; included are greenhouses and nursery products, forestry products, and landscape and horticultural services. A complete listing of the industries within Nebraska's agribusiness complex is found on the last page.

Agribusiness is measured by its contribution to Nebraska's economy. Its total contribution to the state's economy is apportioned into three levels. The first level is the agribusiness complex itself. The second is the impact on other Nebraska businesses that **directly** serve the agribusiness complex, and the final level is the impact on Nebraska businesses that **indirectly** serve the agribusiness complex. The sum of the three parts measures the total contribution of agribusiness to the state's economy.

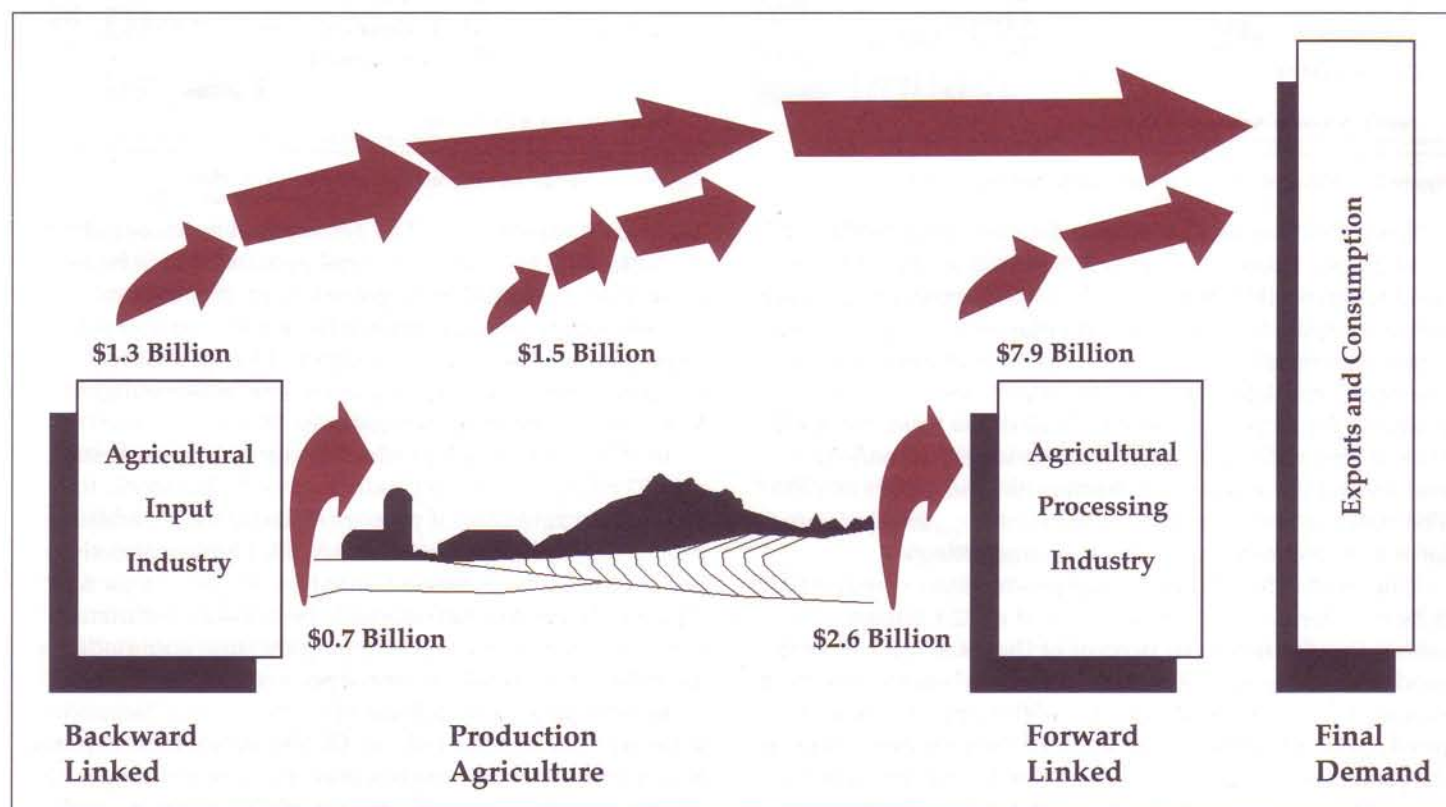


Figure 1. Nebraska's agribusiness industry transactions in 1990.

Nebraska's Agribusiness Complex

Nebraska's agribusiness complex is comprised of three sectors: production agriculture, agricultural processing, and agricultural services.

Production agriculture provides the base for the agribusiness complex. Nebraska is nationally ranked in the production and marketing of crop and livestock products. Only California, Texas and Iowa rank above Nebraska in cash receipts from crop and livestock marketings. The total value of agricultural production for 1990 was an estimated \$9.6 billion. Agriculture's main products for 1990 were cattle, corn, and swine (Figure 2).

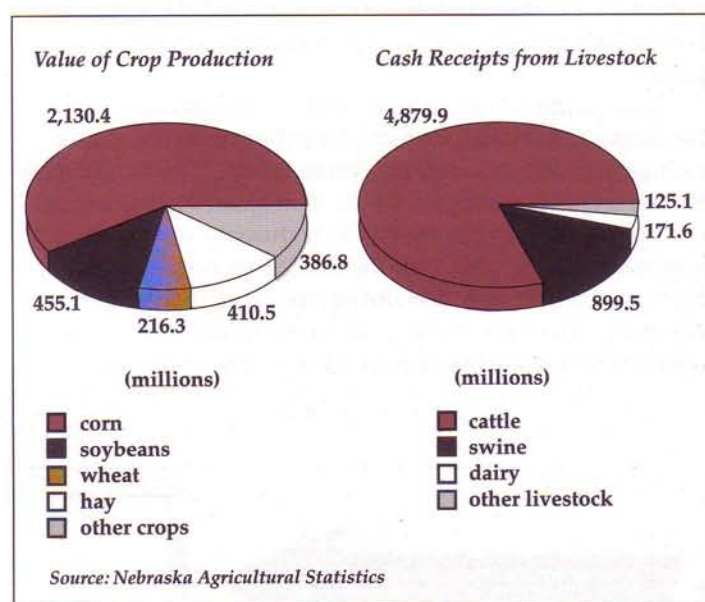


Figure 2. Value of crop and livestock in Nebraska, 1990.

Crop and livestock economic data are not directly comparable. Crop production is reported as the value of production while livestock and livestock products data are based on cash receipts from farm marketings. In 1990, the total cash receipts from farm marketings of livestock and livestock products were over \$6 billion, with cattle accounting for 80 percent (\$4.8 billion) of the total. Nebraska ranked first nationally in fed cattle and calves marketed, and second in cash receipts from cattle and calves in 1990. The state ranked fourth in the value of hogs and pigs on farm and cash receipts from swine marketings.

The total value of 1990's crop production exceeded \$3.6 billion. Corn production was valued at \$2.1 billion, accounting for nearly 60 percent of the total value of crop production. Nearly 80 percent of the total corn production was grown on irrigated land. In 1990, Nebraska ranked third nationally in the production of corn for grain, third in the production of grain sorghum, third in the production of sorghum silage, and first in great northern beans production.

To produce this agricultural abundance, 73,000 persons were employed full-time and part-time in production agriculture during 1990; 57,600 farm proprietors, and 15,400 farm and ranch workers. **Over 7 percent or one in 14 of Nebraska's full-time and part-time jobs were in production agriculture.** The agricultural processing sector, which represents the manufacture of food and kindred products, and the production of ethanol, employed approximately 30,500 workers in 1990 (Figure 3). Over 60 percent of the agricultural processing jobs were in meat processing. In 1990, full-time and part-time employment in Nebraska was 987,000 jobs. Of those, 121,500 jobs were directly employed in Nebraska's agribusiness complex. **Over one-eighth of the jobs in Nebraska are directly in agribusiness.** Total employee earnings in 1990 for the agribusiness complex was estimated at \$3.6 billion.

In 1990, agriculture purchased an estimated \$69 million

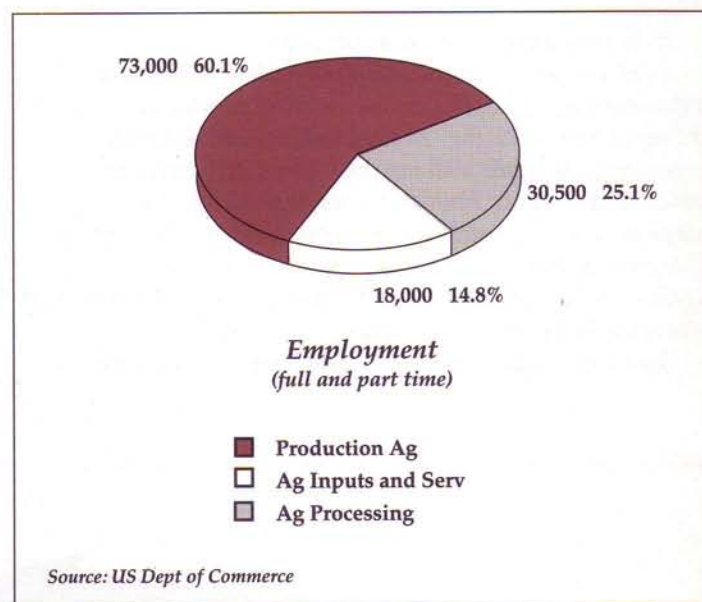


Figure 3. Nebraska agribusiness employment, 1990.

in agricultural services. The agricultural services industry also sold over \$1.5 billion to final demand which includes direct sales to households, government, and exports. Exports represent sales outside Nebraska and account for 65 percent of sales to final demand. The agricultural services industry's total output for 1990 was estimated at \$1.8 billion, with employment over 18,000.

In 1990, Nebraska's production agriculture industry sold \$2.6 billion of farm products, mostly livestock, to Nebraska's agricultural processing industry. In addition, production agriculture sold nearly \$1.3 billion directly to final demand. Exports accounted for 97 percent (or \$1.23 billion) of sales to final demand. Nebraska's estimated share of U.S. foreign exports of agricultural commodities for 1990 was \$2.6 billion, or 6.4 percent, of the U.S. total.

In 1990, foreign and domestic exports from Nebraska were estimated at \$24 billion. **Of the state's total exports, 39 percent was from agribusiness** (3.5 percent crops, 1.7 percent livestock, 4.1 percent agricultural services, and 30.2 percent agricultural processing). Agricultural pro-

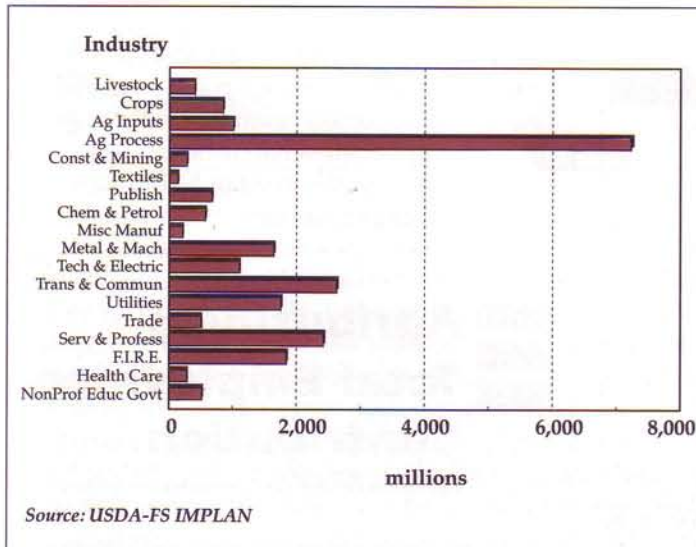


Figure 4. Nebraska exports, 1990

cessing alone was the single largest exporting sector in Nebraska agribusiness. Agricultural processing provided nearly three times more exports than the second ranking exporter, the Transportation and Communications sector, and close to three times more exports than the third ranked exporter, the Service and Professional sector (Figure 4). Agribusiness was the cornerstone of Nebraska's foreign and domestic export base.

Direct Employment Impact

Many Nebraska businesses directly depend on the agribusiness complex for sales. Examples include accountants who handle accounts for farmers and ranchers; bankers who make direct loans to farmers, ranchers, and food processors; insurance agents who sell crop, property, and the liability insurance; utilities that sell electricity to agricultural services, farms, ranches, and food processors; and commodity futures brokers who buy and sell commodity contracts for agricultural producers.

To calculate the direct purchases by the agribusiness complex from other businesses in Nebraska, businesses were grouped into sectors or industries, ranging from Construction and Mining to Education, Government, and Nonprofit Organizations.

In 1990, the Agribusiness Complex directly purchased an estimated \$1.6 billion of goods and services from other Nebraska businesses. The direct purchases of agribusiness create an estimated 29,800 jobs in Nebraska industries (Figure 5). In other words, 29,800 jobs outside agribusiness were directly employed to provide goods and services

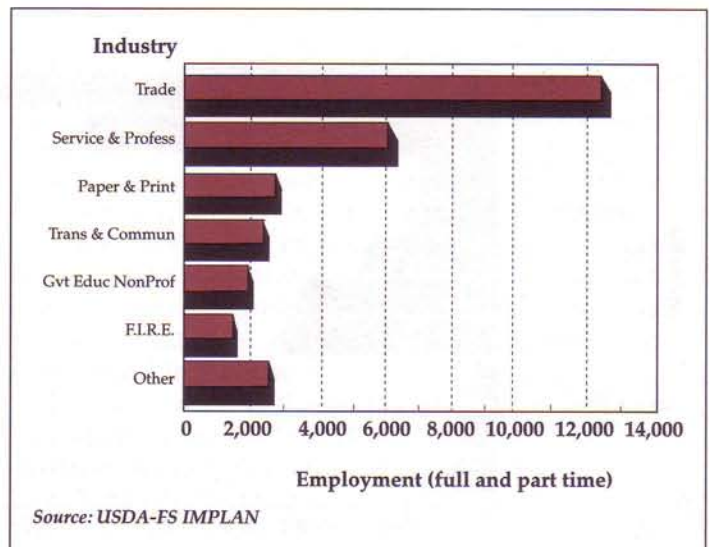


Figure 5. Direct agribusiness employment in other Nebraska industries, 1990.

for Nebraska's agribusiness complex, with employee earnings equal to an estimated \$560 million. Over 60 percent of the direct job impact was concentrated in two industries: Trade and Service and Professional. Little direct employment was generated by agribusiness in the manufacturing industries. Agribusiness provided the customer base for many trade and service businesses across the state.

Indirect Employment Impact

The final component in the measure of agribusiness' contribution to Nebraska's economy is the indirect employment impact. The agribusiness complex buys goods and services from other Nebraska businesses for operation and production purposes. Other businesses, in turn, buy goods and services from Nebraska-based businesses to provide the goods and services demanded by the agribusiness complex. Numerous rounds of interindustry transactions occur, resulting from direct purchases by agribusiness. Agribusiness transactions create a multiplier effect—a change in the output of the agribusiness complex generates or induces changes in the outputs of many other industries in Nebraska's economy. Therefore, total economic activity or output increases by some multiple of the initial change in output. This multiplier effect, or impact, is captured in the popular economic multiplier concept.

An input-output model was constructed to determine the indirect effect that the agribusiness complex has on other industries in the state. An input-output model is an excellent tool for identifying and measuring economic impact or the multiplier effect. To measure the multiplier

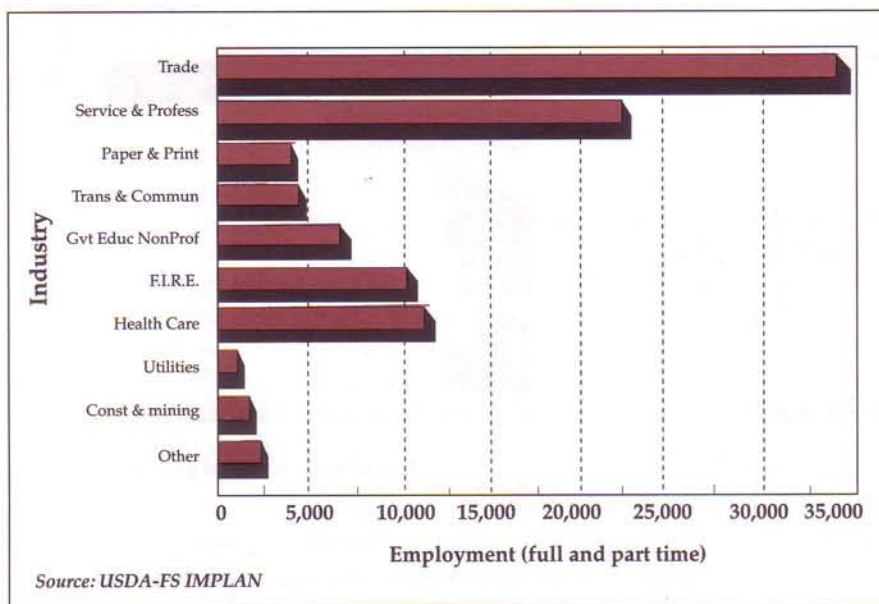


Figure 6. Indirect agribusiness employment in other Nebraska Industries, 1990.

effect, an input-output model, constructed for the state, measured the interindustry relationships or linkages between Nebraska producers and suppliers in 1990. The principal data source was input-output data files from the U.S. Department of Agriculture, Forest Service IMPLAN program.

In 1990, agribusiness indirectly generated an estimated \$5 billion in gross sales for Nebraska businesses. The \$5 billion in gross sales supported 98,000 jobs for all industries across the state (Figure 6). Total employee earnings from this indirect employment were estimated at \$1.8 billion. The Trade, Service and Professional, Health Care, and Financial and Insurance industries ranked as the top four industries in agribusiness' indirect employment

contribution. Indirect employment in the trade industry alone constituted over one-third of agribusiness' indirect employment impact. Agribusiness had little indirect impact upon employment in Nebraska's manufacturing industries.

Agribusiness' Total Employment Contribution

In employment terms, the total contribution of agribusiness on Nebraska's economy was close to 250,000 jobs, with total employee earnings estimated at \$5.9 billion. Total employment (and wage contribution) is the sum of agribusiness activity, plus direct

other-business activity, plus indirect other-business activity. The 250,000 jobs are 25 percent of the state's total employment, thus one in four jobs depended either directly or indirectly on agribusiness (Figure 7).

Nebraska's agribusiness complex makes a contribution to every industry in every region of the state. The Trade, Services, Financial, Insurance and Real Estate group (F.I.R.E.), and Health Care sectors receive the greatest total employment impact from agribusiness. An estimated 46,600 workers were employed in the Trade industry as a result of agribusiness activity. Over 70 percent of the 46,600 jobs in trade resulted from the indirect impact that agribusiness had upon Nebraska's economy. In total, more than 28 percent of the employment in the state's

trade industry was directly and indirectly due to agribusiness. Nearly 29,000 Service sector jobs existed in Nebraska in 1990 because of agribusiness. Close to 80 percent of those jobs created by agribusiness in the Service sector resulted from the indirect impact of agribusiness on Nebraska's economy.

Agribusiness' indirect impact on employment exceeds the direct contribution. Such is the case of agribusiness' impact upon the Trade and Service industries. The contribution of agribusiness to the Trade and Service sectors is quite evident in many of Nebraska's communities. To a very large extent, the Trade sector represents Nebraska's rural "main street" businesses.

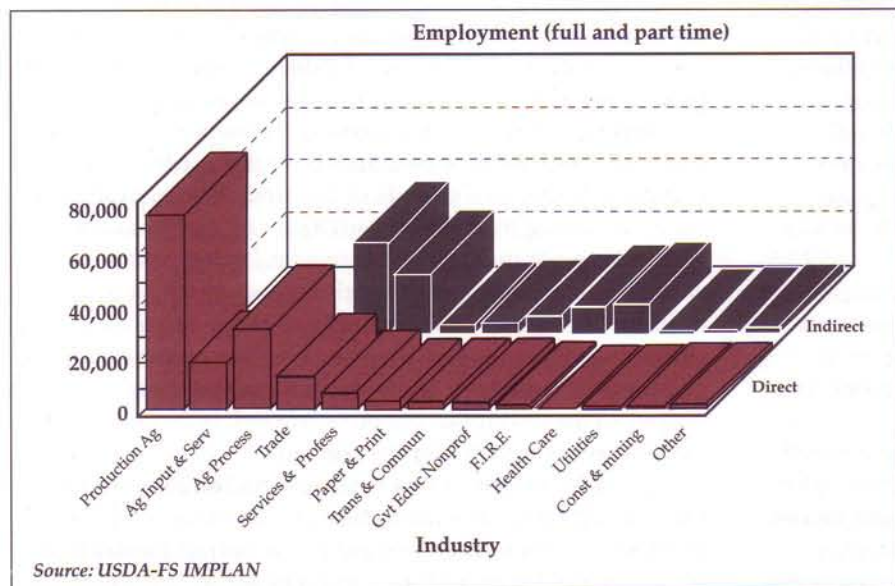


Figure 7. Direct and indirect agribusiness employment.

Value Added

Value added measures return above production costs—wages and salaries, income from sole proprietorships, and property income (dividends, interest and rentals, and sales and excise taxes). In 1990, industries in Nebraska's economy added \$31.4 billion of value above production costs. Agribusiness contributed over 14 percent or \$4.5 billion of Nebraska's value added (Figure 8). Within the agribusiness complex, over 62 percent of agribusiness' value added can be attributed to production agriculture. Livestock alone contributes over half of agribusiness' total value added. Despite the presence of the huge Agricultural Processing industry in the state, the farm and ranch dominate agribusiness' value added.

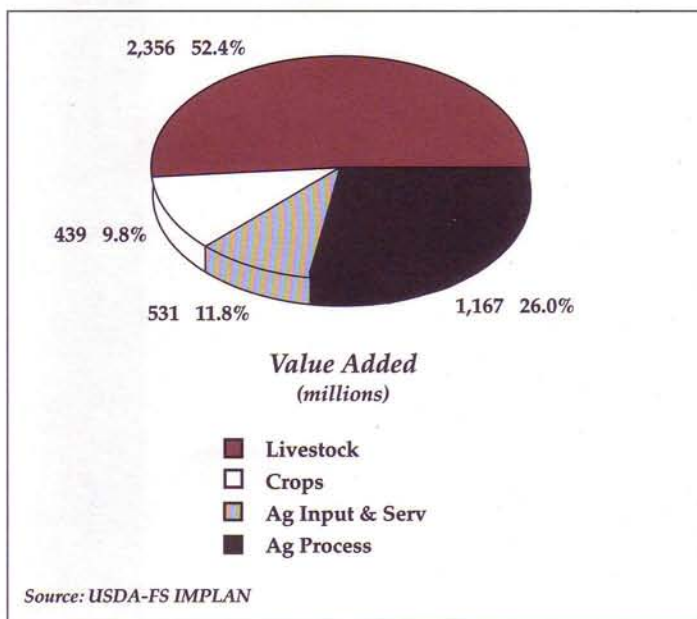


Figure 8. Nebraska's agribusiness value added, 1990.

Just under \$1 billion of value added are directly created by agribusiness in other industries in Nebraska's economy. When value added in agribusiness is added to that directly generated by agribusiness in other industries, the direct contribution of agribusiness to the state's total value added totals to \$5.3 billion. As with employment, much of the direct value added generated by agribusiness is in the Trade and the Service and Professional industries. However, \$138 million of value added is created in the Transportation and Communication industry, reflecting the heavy reliance of agribusiness upon transportation. This illustrates that the backward linkages of agribusiness extend beyond the Agricultural Service industry to every industry in the state.

The indirect impact of agribusiness on value added in Nebraska was over \$3.2 billion in 1990. The indirect

contribution of agribusiness upon value added in other industries in the state is over three times that of the direct impact. The agribusiness complex buys goods and services from other Nebraska businesses which in turn buy goods and services from Nebraska based businesses to provide the goods and services demanded by the agribusiness complex. This indirect impact of agribusiness upon value added is most evident in the Trade, F.I.R.E., and Service and Professional industries. Those three industries constitute 63 percent of the agribusiness' indirect impact upon value added in the state.

Over 27 percent of the value added in Nebraska can be directly or indirectly attributed to Nebraska's agribusiness complex (Figure 9). Agribusiness' total contribution to value added in Nebraska is the sum of; (1) the value added in the agribusiness complex, (2) value added in the other Nebraska businesses that directly serve the agribusiness complex, and (3) the value added

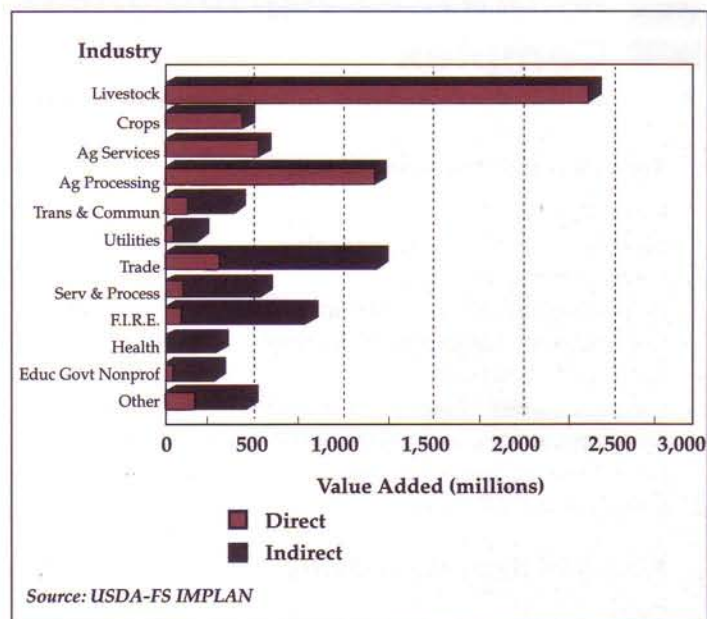


Figure 9. Nebraska agribusiness, direct and indirect value added, 1990.

from other Nebraska businesses that indirectly serve the agribusiness complex. The sum of the three, \$8.6 billion in 1990, measures agribusiness' total contribution to value added in Nebraska's economy. Of the total value added impacts, production agriculture remains atop the list. Over 32 percent of the agribusiness' total contribution to value added in the state is the direct value added in Production Agriculture. The Trade industry ranks above the Agricultural Processing industry in contribution to value added.

Many of Nebraska's industries owe a portion of their value added to agribusiness. For example, over 17 percent of the value added in the state's Financial and Insurance industry can be attributed directly and indirectly to agribusiness and 28 percent of the Trade industry. As with employment, value added in Nebraska's manufacturing industries is not highly impacted by agribusiness.



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Nebraska's Agribusiness Complex

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Agricultural Services and Inputs Industry

Forest Products

Greenhouse and Nursery Products

Forestry Products

Agriculture, Forestry, and Fishery Services

Landscape and Horticultural Services

New Farm Structures

Nitrogenous and Phosphatic Fertilizers

Fertilizers, mixing only Agricultural Chemicals, n.e.c.

Farm Machinery and Equipment

Food Products Machinery

Production Agriculture Industry

Crops

Livestock and Livestock Products

Agricultural Processing Industry

Meat Products

Dairy Products

Canned, Frozen, and Preserved Fruits, Vegetables,
and Food Specialties

Grain Mill Products

Bakery Products

Sugar and Confectionery Products

Fats and Oils

Beverages

Miscellaneous Food Preparations and Kindred Products

Ethanol Products



Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Kenneth R. Bolen, Director of Cooperative Extension, University of Nebraska, Institute of Agriculture and Natural Resources.

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