

The Impact of

AgriBusiness

in the High Plains Trade Area





Dear Friends,

The Texas High Plains is one of the most diverse and intense agricultural areas in the world. It is a major economic driver not only in the region, but the State of Texas as well. The scope and economic impact of the agricultural sector of the Panhandle economy would rival the entire output of most states and many countries.

The mission of the Agriculture Council of the Amarillo Chamber of Commerce is to represent the business of agriculture to the business community at large and to foster cooperation within the entire community to ensure that we continue the beneficial relationship that has made Amarillo the thriving city it is. This publication details the contribution of agriculture and agribusiness to the regional economy and its importance to all who live here.

Our farmers and ranchers face many forces that affect their ability to produce and market a successful product, from the ups and downs of the area weather (droughts to excessive rain at the wrong time), available labor and of course market prices. These ups and downs of agriculture can certainly take their toll, and it is critical that those farmers and ranchers know that they have the support of the business community at large and their interests are represented to the members of the Chamber as well as local, state and national leaders. I know our community and business leaders are squarely behind agriculture and agribusiness on the High Plains. Thank you for that commitment.

I am honored to serve as the chair of the Agriculture Council, and I look forward to continuing to work with you toward our common goals.

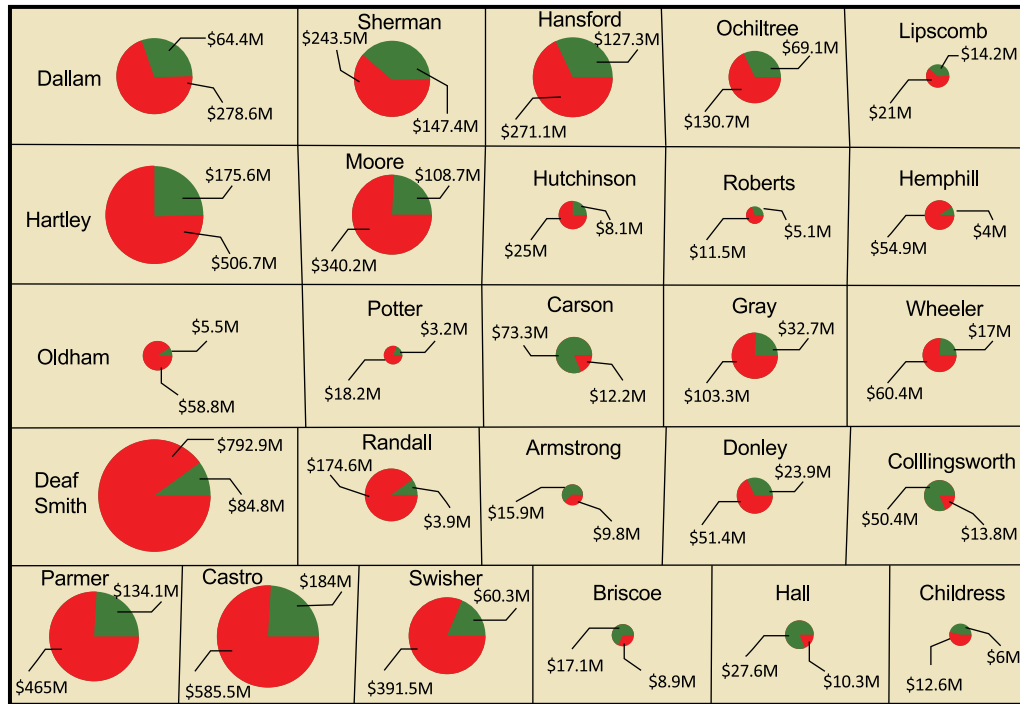
Sincerely,

Leon Church
County Commissioner, Pct. 3
Potter County

1000 S. Polk Street ~ PO Box 9480 (79105) ~ Amarillo, TX 79101
806-373-7800 fax 806-373-3909
Visit our web site: www.amarillo-chamber.org



Figure 1. Cash Receipts* from Livestock & Crops by County



■ Crops Cash Receipts ■ Livestock Cash Receipts

*Stockers and Fed Beef, both in the Livestock category, are calculated as value added rather than cash receipts

Introduction

As you drive across the Texas High Plains, it is clear agriculture production and its associated industries are at the center of local economies in this region. Farm and ranch operators of the Texas High Plains are responsible for producing a significant volume of grain crops, cotton fiber, fed beef and milk.

This study details the economic impact of agriculture in a 26-county region called the Texas "High Plains Trade Area". Parmer, Castro, Swisher, Briscoe, Hall and Childress counties form the southern border, and the region extends north to include the entire Texas Panhandle. This area covers approximately 16.5 million acres, of which 14.8 million acres (90%) are dedicated to agriculture (Fig. 2).

Fast Facts

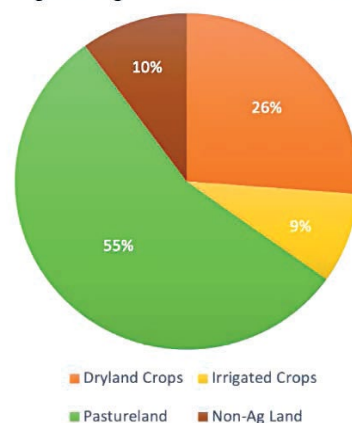
The significance of agricultural production in the Texas High Plains to the rest of the world cannot be overstated. In the last five years, if this 26-county area was considered its own state, it would rank:

- In the top three states for value added from fed beef, and in some years, would rank first.
- In the top three states for cotton production.
- In the top five states for sorghum production.
- In the top 15 states for dairy, corn and wheat production.

Even individual counties within the High Plains Trade Area account for a significant share of Texas' overall agricultural production (Fig. 1).

- The eight counties (Deaf Smith, Hartley, Castro, Parmer, Sherman, Hansford, Dallam and Swisher) with the highest average agricultural cash receipts over the last five years, 2013-2017, are in this region.
- Seven of the top 10 counties (Sherman, Hartley, Dallam, Deaf Smith, Castro, Hansford and Parmer) with the highest value of wheat, sorghum, hay and corn production are in the High Plains Trade Area.
- Swisher, Collingsworth, Hall and Carson counties rank in the top 15% for value of cotton and cottonseed produced. Hansford, Sherman, Ochiltree and Moore counties have all seen explosive growth in cotton receipts more recently.

Figure 2. High Plains Trade Area Land Use



- Sherman, Ochiltree, Dallam, Hansford and Lipscomb make up the top five counties in value of hogs produced. Five of the top seven counties in dairy production (Hartley, Parmer, Deaf Smith, Castro and Moore) are in the High Plains Trade Area.

The Agricultural Industry's Overall Impact

The total value of Texas High Plains agriculture is immense, and the industry continues to evolve as progressive operators adapt to changing markets and production practices. Total cash receipts, government program payments and agribusiness payroll for the region averaged over \$7 billion annually (Table 1). Annual average agricultural cash receipts for the area totaled over \$5.6 billion from 2013-2017 across all crops, livestock products and value-added livestock such as fed beef (Fig. 3). This represents an increase of more than 18% compared to 2009-2012 (\$4.8 billion). The amount of growth varied across industries. Average annual cash receipts derived from corn, wheat, sorghum and hogs each declined, while average annual receipts of cotton, ensilage, hay, dairy, fed beef, stockers and cow-calf operations grew (Table 2). While the impact of direct agricultural cash receipts in this region is substantial, it fails to account for the full effect of Texas High Plains production or its importance to the rest of the state.

Table 1. Average Annual Total Agricultural Cash Receipts, Government Payments and Agribusiness Payroll, High Plains Trade Area 2013-2017

Agricultural cash receipts	\$5,697,924,990
Government payments to farmers	\$204,295,000
Agribusiness payroll	\$1,188,419,000
Total	\$7,090,638,990

Figure 3. Crop and Livestock Average Annual Cash Receipts, High Plains Trade Area

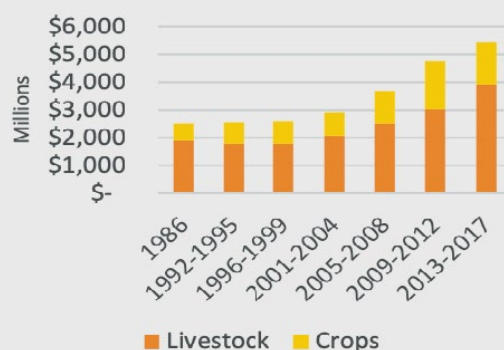


Table 2. Average Annual Agricultural Cash Receipts, High Plains Total, 2013-2017.

	Value (\$1,000,000)	Percent of State Total	Regional Economic Impact* (\$1,000,000)	State Economic Impact* (\$1,000,000)
Livestock and Livestock Products:				
Fed Beef-Value Added	\$2,402.69	82.6%	\$4,248.10	\$4,809.31
Cow-calf and Stockers	\$409.17	7.5%	\$723.44	\$819.02
Hogs	\$192.25	93.2%	\$254.71	\$287.86
Dairy	\$1,058.73	50.3%	\$1,831.92	\$2,225.35
Other	\$41.33	2.1%	\$54.76	\$61.88
Total L & LP	\$4,104.16		\$7,112.92	\$8,203.42
Crops:				
Corn	\$551.12	44.6%	\$964.17	\$1,288.62
Wheat	\$147.70	29.3%	\$258.39	\$345.35
Cotton	\$335.54	13.1%	\$630.34	\$741.28
Sorghum	\$101.34	14.3%	\$177.30	\$236.96
Ensilage	\$200.31	68.9%	\$374.24	\$448.68
Hay	\$158.58	10.0%	\$296.27	\$355.20
Other Crops	\$85.44	2.8%	\$159.63	\$191.38
Total Crop Receipts	\$1,580.03		\$2,860.34	\$3,607.46
Other Ag-Related	\$13.73		\$16.23	\$17.92
Total Agricultural Receipts**	\$5,697.92		\$9,989.49	\$11,828.80

*Does not include impacts of forward-linkages through the processing sectors.

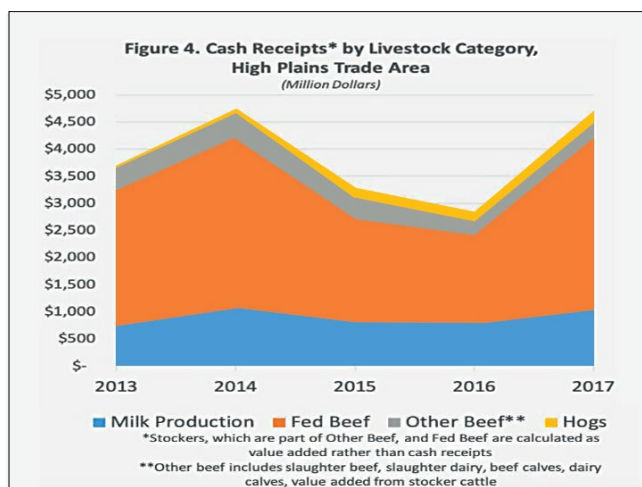
**Totals may not equal exact summation of categories due to rounding.

Local economies benefit from input purchases made by producers who grow food and fiber. Farmers, ranchers, agricultural employees and agribusinesses also spend part of their incomes purchasing vehicles, buying durable goods and eating out. In turn, employees of these businesses spend money on similar activities, and the cycle continues, multiplying the impact of the original dollar as it moves through the economy. As a result, the \$5.6 billion cash receipts from production agriculture lead to a regional impact of over \$9.9 billion. This multiplier effect of High Plains agriculture also extends beyond the region. Some money earned by farmers and ranchers is spent outside of the trade area through vacations, shopping, etc. and contributes to the state economy even though it does not add to the regional economic impact. A substantial portion of dollars spent outside of the area are still spent in Texas, which leads to an overall state-level impact in excess of \$11.8 billion.



Livestock Production

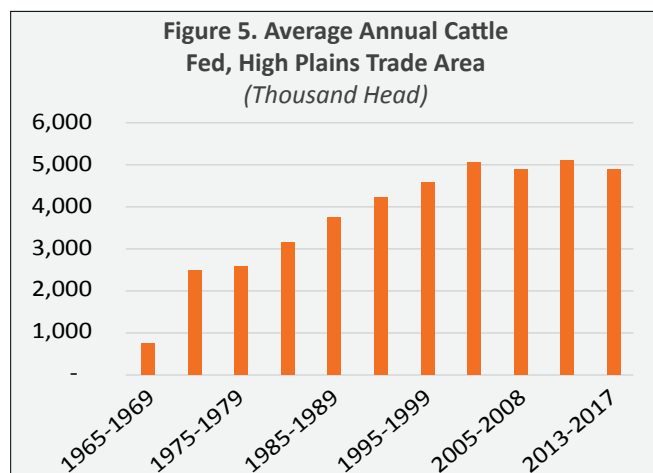
Receipts from livestock and livestock production include fed beef, cow-calf and stocker operations, commercial hog production and dairy operations along with a host of other products (Fig. 4). The value of fed beef exceeds all other livestock and livestock product categories combined, averaging \$2.4 billion annually from 2013-2017. This value represents a 28% increase over the period from 2009-2012. The value of fed beef also exceeds total crop receipts. Dairy makes up an ever-increasing portion of livestock and livestock product income, totaling just over \$1 billion annually from 2013-2017. Cash receipts from dairy nearly doubled over the period from 2009-2012. Cow-calf and stocker receipts also saw an increase, averaging over \$409 million annually. The only category of the top four livestock and livestock products to see a decline in receipts from 2013-2017 compared to 2009-2012 was hogs. Average annual High Plains cash receipts from hogs were \$192.25 million, compared to the previous period's \$204.9 million. Overall, High Plains livestock production had average annual regional and statewide impacts of \$7.1 billion and over \$8.2 billion, respectively.



Fed Beef, Cow-Calf, and Stockers

Fed cattle remains the driving force of Texas High Plains agriculture. If measured as a single state, this 26-county area would rank in the top three states for cattle-on-feed production at any time, and regularly takes the top spot. The region averages 2.2 million head of cattle on feed, leading to approximately 4.9 million head marketed annually (Fig. 5). Cattle fed in the High Plains Trade Area account for approximately 90% of the state's total cattle fed and marketed each year.

Between the 1970s and late 1990s, the fed cattle industry saw a significant amount of growth. This increase in livestock, a temperate climate, and the availability of water in the Ogallala Aquifer are the primary reasons for the substantial grain acreage seen in the area today. Since 2000, the number of fed cattle marketed has stabilized. Overall, the High Plains Trade Area showed a small decline in average annual number of cattle fed from 2013-2017 over the 2009-2012 period. However, this can be attributed to a trend towards heavier slaughter weights resulting in longer feeding periods. As the industry increases in efficiency, more beef is produced per head using fewer inputs. This increase in beef produced per cow means a stable inventory that continues to drive economic growth.



In addition to several million head of cattle on feed at any given time, over a quarter of a million cows and nearly three quarters of a million stocker cattle were in the 26-county area annually from 2013-2017. Almost a million acres of winter wheat planted each crop year provide ample forage for calves and stockers prior to their entry into nearby feedlots.

The economic impact of cattle goes well beyond the value added in the feedlot and cash receipts from cow and calf sales. The livestock processing sector also has a significant economic footprint. Industry leaders like Cargill, Tyson and JBS and family owned area processors such as Caviness Beef Packers all produce beef products from calves, cows and bulls raised in the region. JBS' beef production plant in Cactus employs more than 3,000 workers. Caviness Beef Packers, which has a planned expansion, will soon be able to process 2,600 head per day at its Hereford facility, and produces approximately 900,000 pounds of ground beef annually at its Amarillo location.

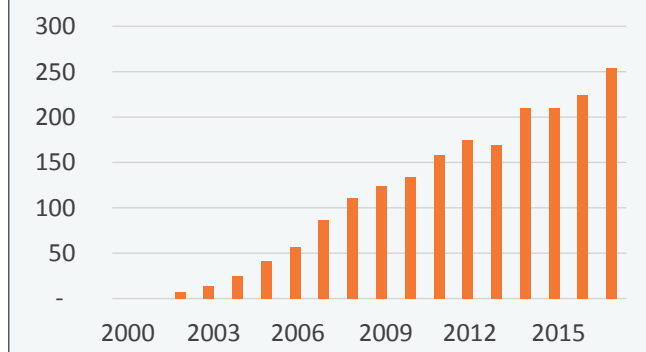


Dairy

The High Plains dairy industry has seen rapid development in the past 20 years. The total number of cows increased from approximately 3,700 head in 2000 to over 250,000 head by 2017 (Fig. 6). Total herd size grew by more than 82,000 cows between 2013 and 2017 alone. Furthermore, in the period from 2013 to 2017, over half (51.5%) of all Texas dairy cows were located in the 26-county High Plains Trade Area. Increased milk demand for further-processed dairy products, relatively cool temperatures compared to the rest of the state, fewer environmental restrictions, feed and water availability, and a dry climate have driven this regional growth. Dairy cows in the area are capable of producing approximately 6.1 billion pounds of milk annually.

The primary driver behind a rapidly increasing High Plains dairy herd is a significant expansion in local processing capacities since the mid-2000s. Hilmar Cheese in Dalhart and the Southwest Cheese Plant in Clovis, N.M., one of the largest cheese plants in the world, initiated the growth in this sector. Southwest Cheese alone can process over 3.8

Figure 6. Milk Cow Inventory, High Plains Trade Area
(Thousand Head)

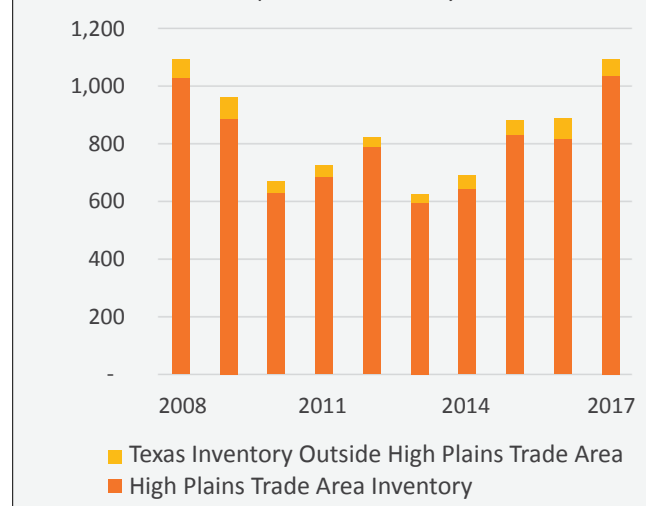


billion pounds of milk annually. Other processors such as Lone Star Dairy Products in Canyon have since joined Hilmar and Southwest in producing Cheddar, Monterey Jack, Colby, Asadero and Pepper Jack cheeses as well as whey proteins from locally sourced milk. Lone Star Dairy Products also manufactures milk powders, fluid milk products and butters. This robust demand continues to encourage an increase in the number of dairy cows.

Swine

Much like the cattle industry, hog production arose as a result of access to water, the temperate climate, and readily accessible feed. The region's hog industry also saw explosive growth in the 1990s and 2000s. In 1992, only 10% (about 50,000 head) of Texas' hog inventory was in the High Plains Trade Area. By 2000, this share grew to around 85% (775,000) of the state's total. Since 2008, about 94% of Texas hog production occurred in the 26-county region (Fig. 7), which now contains all five of the top hog-producing counties in Texas. From 2013-2017, the region housed an

Figure 7. Hog Inventory, Texas & High Plains Trade Area
(Thousand Head)



average of 785,000 hogs annually, largely operated by JBS and Seaboard Foods.

Despite growth in the sector prior to 2008, hogs were the only livestock category to see a decline in value from 2013-2017. There was a 6% decrease in the total value of hogs in the area compared to 2009-2012. This drop was largely due to the closure of a facility in Dalhart that has since reopened. Despite decreases in average inventory compared to the previous five years, regional hog numbers have begun to trend upward in the last two years, with just over 1 million head of sows, piglets and feeder hogs in the area in 2017.

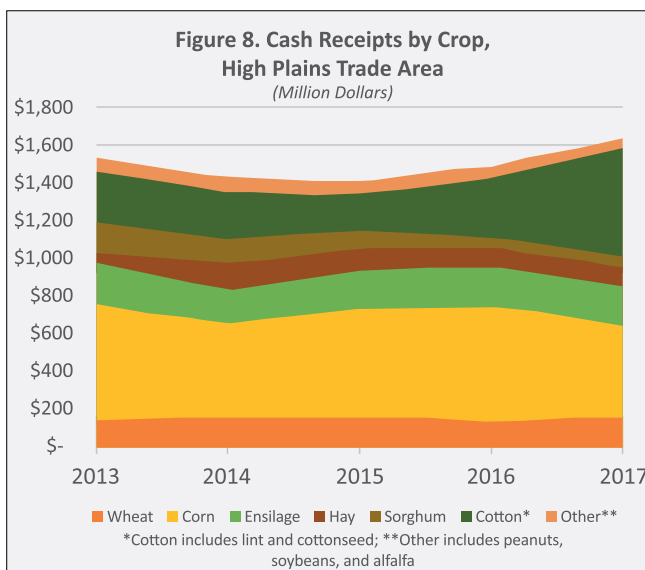
Crop Production



The High Plains Trade Area remains one of the most prolific crop-producing areas in the world. The highest total value crops in this region include wheat, corn, ensilage, hay, sorghum, and increasingly, cotton.

From 2013-2017, the High Plains Trade Area was responsible for 68.9% of the ensilage, 44.6% of the corn, 29.3% of the wheat, 13.1% of the cotton, 14.3% of the sorghum and 10% of the hay production in the state. Compared to the 2009-2012 period, the largest growth was seen in ensilage, hay, cotton and other crop production, which increased by 44.8%, 25.7%, 16.9% and 4.6%, respectively. This change was due to rising feed demands from a growing dairy industry and a trend toward less water-intensive crops, which caused a shift away from corn production to commodities like ensilage and cotton.

In addition to the major field crops grown in this region, the climate of the High Plains Trade Area is well-suited for vegetable production. A partnership between West Texas A&M University and Texas A&M AgriLife Extension Service produced the first specialty crop budgets in several decades. These new budgets provide information on the costs and returns for growing tomatoes and peppers and are available online at amarillo.tamu.edu.



The total value of crops sold within the High Plains Trade Area decreased slightly (7%) from about \$1.7 billion during 2009-2012 to just under \$1.6 billion from 2013-2017. This decline was largely a function of historically high commodity prices for major row crops from 2010 to 2012. As prices fell from annual averages around \$7/bushel for corn and relative highs in other row crops, the total value of production declined, even though crop acreage remained similar.

Corn maintained its position as the highest total value crop produced in the region and averaged \$551.12 million in cash receipts annually from 2013-2017. The annual average value of cotton in the region during the same period was \$335.5 million, which represented 21.2% of total crop receipts. This percentage is higher than cotton's 2009-2012 value of 18.9%. Ensilage accounted for \$200.3 million in cash receipts, followed by hay (\$158.6 million), and wheat (\$147.7 million). Sorghum, peanuts, soybeans and alfalfa



Table 3. Agribusiness Employment and Payroll High Plains Trade Area, 2016			
Industry	Number of Employees	Annual Payroll (\$1,000)	Total Firms
Retail Trade & Food Services	22,535	\$378,789	1,234
Manufacturing	12,904	\$490,092	125
Wholesale Trade	4,901	\$237,805	226
Agricultural Services	464	\$26,458	75
Transportation	1,093	\$55,275	98
Farm & Ranch	14,651	\$389,277	
Total	56,547	\$1,577,697	1,758

accounted for \$67 million in combined average annual receipts during 2013-2017 (Fig. 8). After accounting for the multiplier effect of expenditures incurred in crop production, the average annual regional and state impact of crops produced in the High Plains Trade Area was \$2.9 billion and \$3.6 billion, respectively.

Analysis of Agribusiness

Agribusiness encompasses output and activities from farms and ranches and the processing, manufacturing and transportation of products that occurs beyond the farm gate.

According to the “2016 County Business Patterns” and the “2017 Census of Agriculture” (Ag Census), approximately 56,547 salaried employees work jobs related to agribusiness in the High Plains Trade Area, not including government or higher education employees (Table 3). These publications along with data from the Bureau of Labor Statistics (BLS) show that employment in agribusinesses had a payroll of

\$1.58 billion in 2016. Five sectors from the “2016 County Business Patterns” that were considered agriculturally related are included in Table 3, along with farm and ranch employment and payroll estimated from the Ag Census and BLS data. Figure 9 displays a breakdown of employment in each industry.

Agricultural Manufacturing

Manufacturing firms in the agribusiness sector employed 12,904 people in 2016 and had an estimated payroll of \$490.1 million. Manufacturing is divided into eight sub-sectors related to agriculture in the High Plains Trade Area: food and kindred products, lumber and wood products, leather and leather products, furniture and fixtures, paper and allied products, textile mill products, chemical and allied products, and machinery and apparel manufacturing.

Food and Kindred Products

Food and Kindred Products is the largest sub-sector within the agribusiness manufacturing group, and accounts for more employees and payroll than the rest of the sectors combined. Food and Kindred Products includes firms that manufacture meat products, dairy products, sugar and confectionary products, fats and oils, and other food products. These companies employ 11,654 people, of which approximately 90% are involved in manufacturing. Total payroll for the Food and Kindred Products group is \$427.1 million, the largest in the manufacturing sector (Table 4), and the largest individual sub-sector of all agribusiness sub-sectors.



**Figure 9. Annual Agribusiness Payroll
High Plains Trade Area, 2016**



Firms that process livestock and livestock products account for the majority of employment in this group. The world’s three largest meat processing firms, Tyson, Cargill and JBS, all have a manufacturing footprint in the High Plains Trade Area and are major employers within their communities. For example, Friona’s Cargill processing plant employs approximately 2,000 workers in three shifts. Alongside these firms are familiar regional names such as Caviness Packing and Keeter’s Meat. Other major employers in this

Table 4. Agricultural Manufacturing Sector High Plains Trade Area, 2016			
Industry	Number of Employees	Annual Payroll (\$1,000)	Total Firms
Food and Kindred Products	11,654	\$427,151	71
Lumber and Wood Products	143	\$4,937	9
Leather and Leather Products	142	\$6,574	4
Furniture and Fixtures	148	\$4,511	15
Paper and Allied Products	175	\$6,041	2
Textile Mill Products	84	\$2,809	7
Chemical and Allied Products	265	\$23,761	5
Machinery & Apparel Manufacturing	293	\$14,308	12
Total	12,904	\$490,092	125

sector include Azteca Milling, which produces corn masa flour, and Pacific Cheese, which produces a variety of cheeses in Potter County.

Other Manufacturing Categories

The remaining categories within agriculture-related manufacturing account for approximately 10% of the employees (1,250), and 13% of the payroll (\$62.9 million) (Table 4). **Lumber and Wood Products** employ around 143 people with a payroll of \$4.9 million. The **Leather and Leather Products** group includes hide processing and contributes about \$6.6 million in annual payroll and employs 142 workers. **Furniture and Fixtures** are an important agricultural commodity market as their construction requires wood, cotton and processed textiles. This industry is concentrated largely in Randall and Potter counties and employs 148 people with an annual payroll of \$4.5 million. Manufacturing of **Paper and Allied Products** within the

Table 5. Agricultural Wholesale Trade Sector High Plains Trade Area, 2016			
Goods	Number of Employees	Annual Payroll (\$1,000)	Total Firms
Durable Goods	417	\$20,203	35
Nondurable Goods	4,484	\$217,602	192
Total	4,901	\$237,805	226

region accounts for 175 jobs with a payroll of just over \$6 million. This category consists of firms that produce paperboard boxes, corrugated and solid fiber boxes, sanitary food containers, fibers, cans and drums. **Textile Mill Products** include goods woven from synthetic and natural fibers. When compared to the “2012 County Business Pattern” publication, this group saw a decline in employees and payroll due to a facility closure. In 2016, the textile sector employed 84 people within the High Plains Trade Area and had an annual payroll of \$2.8 million. **Chemical and Allied Products** includes the manufacture of herbicides, pesticides, other agricultural chemicals and fertilizer, as well as non-agricultural chemicals. Regional employment in this sector is approximately 265 jobs with a payroll of about \$23.8 million. **Machinery and Apparel Manufacturing** are reported as separate categories in the County Business Pattern publication, but due to their relatively small size, they are presented as a combined category here. Agribusiness machinery manufacturing involves firms that make equipment used to produce commodities such as tractors, trailers, feed mill components, gin equipment, etc. Apparel manufacturing encompasses the fabrication of apparel, hats, caps and textile products such as curtains, as well as automotive components. This sector experienced growth from 2012 to 2016 and currently employs 293 people with an annual payroll of about \$14.3 million.



Agricultural Wholesale Trade

Agricultural wholesale trade is split into durable and nondurable goods. In 2016, this sector employed 4,901 people with an annual payroll of approximately \$237.8 million (Table 5). These figures show an increase over 2012, which reported 4,561 employees and a payroll of \$180.9 million. Firms that trade in **Nondurable Goods**, the larger sub-sector, distribute paper and paper products, groceries and raw farm products. This sub-sector employed 4,484 people in 2016 with an annual payroll of \$217.6 million. Much of the sub-sector’s activity comes from servicing area grocery stores with general groceries, poultry, meat and dairy. Affiliated Foods, which serves seven states, has a major warehousing facility in Amarillo. Other firms in the

Table 6. Retail Trade and Agricultural Services Sector High Plains Trade Area, 2016			
Industry	Number of Employees	Annual Payroll (\$1,000)	Total Firms
Food Service	15,150	\$220,756	776
Food and Beverage Stores	4,014	\$76,826	145
Building Materials and Garden Services	1,862	\$56,219	153
Miscellaneous Retail	1,509	\$24,988	160
Agricultural Services	464	\$26,458	75
Transportation	1,093	\$55,275	98
Total	24,092	\$460,522	1,407

area include Ben E. Keith, Frito-Lay and a local distributor, H&R foods.

The **Durable Goods** category includes firms responsible for the distribution of furniture, lumber, plywood, mill products and farm implements. This sub-sector is responsible for employing 417 workers with an annual payroll of approximately \$20.2 million. Farm and garden machinery and equipment merchant wholesalers are responsible for the bulk of the activity in this group.

Retail Trade, Agricultural Services and Transportation

Retail categories included in this study are food services, food and beverage stores, building equipment, garden supplies and miscellaneous retail dedicated to agriculture. Each of the sub-sectors examined accrue some inputs from agricultural production. This sector is responsible for the employment of 24,092 people with a payroll of over \$460.5 million (Table 6).

Food Service accounts for approximately 62% of the sector's jobs, and includes all places serving food. Employment numbers within this group grew from 13,228 people in 2012 to 15,150 in 2016 with an annual payroll of \$220.8 million. Since 2012, continued growth has occurred in locally owned single-location food service firms both nationwide and within the region. Additionally, national chains are widely present across the trade area. **Food and Beverage Stores** include grocery stores, meat markets, candy stores, bakeries and dairy-product stores. This sub-sector employed 4,014 people in 2016 with an annual payroll of approximately \$76.8 million, up from \$70.9 million in 2012. **Building Materials and Garden Supplies** include lumber yards, retail nurseries and garden stores. In 2016, this sub-sector employed 1,862 people with an annual payroll of \$56.2 million.

Agricultural Services include veterinary care, animal services other than veterinary, and landscape and horticulture. This group accounted for 464 employees in 2016 with an annual payroll of about \$26.5 million, up from 411 employees and a \$20.2 million payroll in 2012. The **Transportation** subsector includes firms that warehouse, store and/or transport commodities. Attebury Grain and Ag Producers Co-op are examples of firms engaged in warehousing and transportation. This sector grew from 86 firms in 2012 to 98 in 2016. Total employment from transportation, warehousing and storage is approximately 1,093 people with an annual payroll of \$55.3 million.

Farm and Ranch

Farm size within the High Plains Trade Area is substantially larger than in the rest of Texas. In this region, farms average roughly 1,864 acres, while the state average is 511 acres. The County Business Patterns report does not include employment from farm and ranch workers within the data set, and thus underestimates total agricultural employment. However, farm and ranch employment data, which includes workers of confined livestock operations, is available through the 2017 Census of Agriculture. The Ag Census reports there are 14,651 employees in the farm and ranch sector of the High Plains Trade Area. According to data derived from the Bureau of Labor Statistics, the total annual wages for these employees is around \$389.3 million. The number of workers and the value of annual wages are second only to the retail trade and food services and manufacturing sectors. According to the 2017 Census of Agriculture, the total number of farms in the High Plains Trade Area was 8,157, compared to 9,742 in the 2012 Ag Census.

Higher Education, Agricultural Research and Extension

While including those working at the farm and ranch level improves agricultural employment estimates, it still undervalues the total impact. Other sectors that contribute to agricultural production and agribusiness do not have readily available data on total employment and payroll. These include numerous firms such as Panhandle-Plains Land Bank, Ag Texas Farm Credit, commodity traders and trade organizations in the private sector.





Furthermore, public sector employees are not accounted for in this analysis. West Texas A&M University (WTAMU), part of the Texas A&M University System, is located in Canyon. The Department of Agricultural Sciences at WTAMU provides access to a bachelor's degrees in eight programs and master's and/or doctorate degrees in four programs. Bachelor's degrees are: Agricultural Business and Economics, Agribusiness, Equine Industry and Business, Agriculture-Teacher Certification and Non-Certification, Agricultural Media and Communication, Animal Science, Pre-Veterinary Medicine, and Plant Soil and Environmental Science. Graduate work centers on issues relevant to the Texas High Plains, including dryland agriculture, water management, livestock production, concentrated animal feeding and production agriculture. In addition to WTAMU, Frank Phillips College, Amarillo College and Clarendon College offer technical training and preparatory courses geared toward degrees in agriculture.

The Texas A&M AgriLife Research and Extension Center in Amarillo houses faculty and staff of Texas A&M AgriLife Research and the Texas A&M AgriLife Extension Service, two agencies within the Texas A&M University System. These agencies function together by developing research programs that are delivered via the Extension educational model to provide solutions to issues facing Texas High Plains producers. Some common programs include: agronomy and crop production, air quality, animal production and health (primarily for ruminants), crop physiology and plant pathology, dairy, entomology, environmental quality and natural resources, 4-H youth development, small grains genetics, irrigation and water management, rangeland resource and management, agricultural law, and the



economics surrounding many of these topics. Additionally, the Center serves as a base for AgriLife Extension District 1, a 22-county region that covers the majority of the High Plains Trade Area. Each AgriLife Extension district provides a delivery network through the local county agents for research-based information relevant to the community.

WTAMU, AgriLife Research, AgriLife Extension, the U.S. Department of Agriculture-Agricultural Research Service and the Texas A&M Veterinary Medical Diagnostic Laboratory participate in a partnership known as the Cooperative Research, Education and Extension Team (CREET). CREET's goal is to combine the efforts of member institutions toward scientifically developed research and education through multidisciplinary teamwork. Texas A&M University and WTAMU also recently announced a new Veterinary Education, Research and Outreach (VERO) facility and program aimed at producing Panhandle-educated veterinarians for the Texas High Plains.

Additionally, ground has been broken for a Texas Tech University School of Veterinary Medicine, designed to address the imperative need for rural and large-animal veterinarians. The first class is expected to begin in Fall 2021.

Significance of Findings

The economic impact of agriculture in the High Plains Trade Area continues to grow. From 2013-2017, this industry was responsible for an annual regional impact greater than \$9.9 billion, employment of at least 56,647 people, and a payroll in excess of \$1.6 billion. Annual agricultural cash receipts grew 18% from approximately \$4.8 billion during the 2009-2012 period to \$5.7 billion from 2013-2017. This growth in cash receipts was driven largely by a change in dairy (+77.9%), ensilage (+44.8%), value added from fed beef (+28.8%), hay (+25.7%), and cotton (+4.6%) production. Annual cash receipts for crops averaged \$1.6 billion from 2013-2017, and livestock and livestock products receipts averaged \$4.1 billion. Production agriculture in the High Plains Trade Area continues to be a major component of Texas agriculture. In 2017, almost 20% of all cash receipts for crops and livestock came from the 26-county trade area. To put that in context, 10% of the counties in the state were responsible for almost 20% of the state's agricultural cash receipts. This region will continue to be a major contributor of food and fiber to the local economy and the rest of the country for many years to come.



Seventh Edition By

- Justin Benavidez, Assistant Professor and Extension Economist, Texas A&M AgriLife Extension Service
- Bridget Guerrero, Associate Professor, Department of Agricultural Sciences, West Texas A&M University
- Rebekka Dudensing, Associate Professor and Extension Economist, Texas A&M AgriLife Extension Service
- DeDe Jones, Risk Management Program Specialist, Texas A&M AgriLife Extension Service
- Sydney Reynolds, Graduate Assistant, West Texas A&M University
- Editing and layout by Kay Ledbetter, Communications Specialist, Texas A&M AgriLife Extension Service/Texas A&M AgriLife Research
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