



Economic Contribution of Nevada Agriculture



2014

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Economic Contribution of Nevada Agriculture

Executive Summary:

As a longstanding contributor to the state economy, particularly for the rural areas, Nevada agriculture and its cluster industries have a symbiotic relationship; they provide and receive products and services from each other. Modern agriculture touches every aspect of our society from the individual consumer's health and safety to the nation's welfare and security. Agriculture is a dynamic export-based sector that infuses dollars into the economy and is the basis for the future of economic development. To develop a comprehensive understanding of the impact of agriculture on the Nevada economy, it is important to understand the scope and structure of Nevada agriculture, how agriculture connects itself to other industries, and how it contributes to the state economy.

This report is intended to serve as a starting point for analysis across the broad span of agricultural activities in Nevada. The analysis of the value chain of Nevada agriculture illustrates connections among different industries and sectors and provides valuable information necessary for the development of this important industry, its workforce, and future economic development strategies.

The need to identify and map the structure of the Nevada food and agriculture cluster has arisen from recent efforts to engage agriculture as an economic development driver. Understanding the agriculture value chain provides an opportunity to build bridges between different commodities and industries in Nevada; reduce some of the existing economic gaps within the sector; and, develop the collaboration across different segments of the value chain.

Agriculture has a significant impact on the economy of Nevada. A majority of the materials and inputs for agricultural and food production are coming from farms and ranches, but modern agriculture is more than just farms and ranches. Many inputs used by farms and ranches are purchased from other industries. For that reason the agriculture and food sector value chain includes those businesses engaged in the processing, manufacturing, and marketing activities, and they are all linked together into a common framework.

To determine the interconnection within the agriculture value chain, it is necessary to examine the capital base of Nevada's farms and ranches, all those inputs that go into agriculture production.

This report examines all the segments of the agriculture and food value chain, value of production, number of establishments, occupation, and employment characteristics. With this report we are creating a framework for a future detailed analysis – which will include an economic contribution analysis, detailed supply chain analysis, and workforce analysis for the agriculture and food sector and its value chain.

The main objectives of the Nevada Department of Agriculture and its agriculture industry partners is to explore all the challenges and opportunities within the agriculture sector and its related industries, foster statewide business environment, improve access to labor by understanding industry needs, and develop a strong new brand that will promote Nevada agriculture and its value.

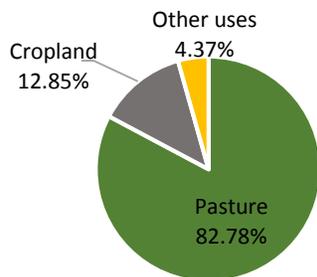
Agriculture in Nevada - Overview:

Nevada Farms and Ranches – Type of Operations and Entity:

Nevada farming and ranching operations vary in size and type of farms and ranches. In 2012, there were a total of 4,157 farms and ranches with 5.9 million acres of land dedicated to farming and ranching¹, accounting for approximately 8% of the state’s total land being engaged in some kind of agricultural production.

Nevada farms and ranches are relatively large in terms of land by national standards – the average size of Nevada farms in 2012 was 1,423 acres which is more than twice the national level (434 acres). The majority of Nevada’s agriculture operations – 82.78% are those primarily engaged in raising livestock; 12.85% of Nevada farms and ranches are engaged in crop production while the remaining 4.37% are land in farms designated for other usage. (Figure 1.)

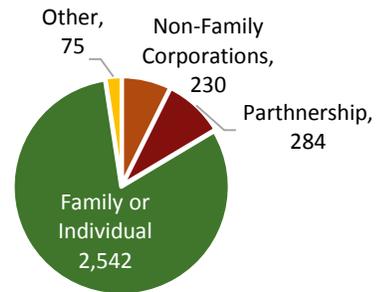
Figure 1. Land in farms by type of land²



Source: (USDA, Census of Agriculture, 2007)

The largest share of farms and ranches (82.2%) are owned by families or individuals, and many of these have been Nevada small family owned businesses for many years. Partnerships represent 9.1% of all ranches and farms, and 7.3% of operations are non-family corporations. 2.4% of total operations are registered as other cooperative operations, or some estate or trust operations.

Figure 2. Farms and ranches by type of entity



Source: (USDA, Census of Agriculture, 2007)

Nevada Farms and Ranches – Location and Number of Farms:

The number of farms and ranches and acreage these operations cover varies within the different counties in Nevada. Most of Nevada’s rural communities have agriculture and food production as a significant part of their economic operations.

Counties with the highest number of farms are: Churchill (529), Elko (456), Washoe (393), and Lyon (325). More than half of all Nevada farms and ranches are located in those counties. Fifty four percent of all Nevada farm and ranches in 2007 were located in 4 counties. (Table 1.) Elko County has 2.1 million acres (36%) of land out of total of 5.8 million acres dedicated to farming, which is the highest count for all counties in Nevada.³

Table 1. Farm data by county – Nevada 2007:

County	Number of Farms
Churchill	529
Elko	456
Washoe	393
Lyon	325
Other counties combined	1,428
Total	3,131

Source: USDA, *Census of Agriculture, 2007 State and County Data*, Vol.1. Geographic

¹ 2012 Census of Agriculture – Preliminary report, USDA, NASS

² Percentage calculation is based on 2007 USDA Census of Agriculture data.

³ Source: Nevada Agriculture Statistical Bulletin 2013 (2007 data)

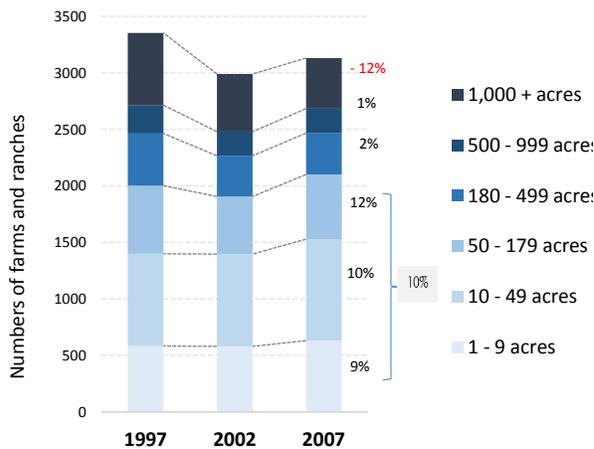
Nevada Farms and Ranches - Size of Operations:

The trend when it comes to the size of farms and ranches in the state, based on the Census data from 1997 – 2007, shows an increase in the number of small (1 to 9 acres and 10 to 49 acres) operations. The number of smaller farms in 2007 (those less than 179 acres) increased by 10% on average from 2002.

Typically these smaller operations will most likely sell their products to local farmer markets or stores, and in most cases they do not consider farming as their full time professions, but rather a part time lifestyle. Many small part-time operators are in agriculture business to preserve their way of life.

At the same time the number of large operations (1,000 acres or more) decreased by 12% for the same period.

Figure 3. Changes in the number of Nevada farm and ranch operations



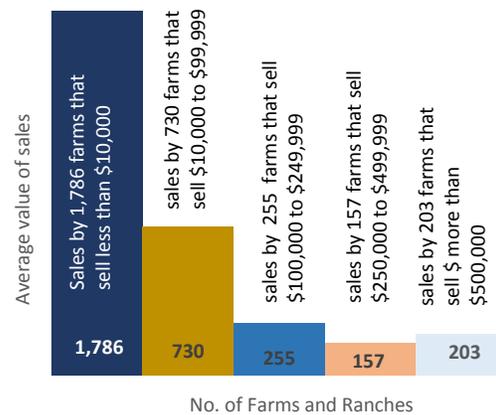
Source: USDA, *Census of Agriculture, 2007*

The most recent data for 2012 published by the Census of Agriculture are showing a significant increase in the number of farms and ranches (from 3,131 in 2007 to 4,157 in 2012). The most significant change was the number of small farm operations (1 – 9 acres). Those operations increase almost double in size in 2012 (from 631 in 2007 to 1,003 in 2012).

Nevada Farms and Ranches - Sales by Different Economic Classes:

More than half of the farm and ranch operations in Nevada, 1,786 out of a total 3,131, or 57% are small businesses with annual sales of less than \$10,000. (Figure 4.)

Figure 4. Distribution of total value of agricultural sales across farms and ranches in Nevada



Source: USDA, *Census of Agriculture, 2007*

These small farm and ranch operations in the state contributed approximately \$3.9 million or about 1% of total agriculture commodity sales in 2007.

On the other side, the largest operations, those with annual sales of more than \$500,000, represent only 6% of total farm and ranch operations. These 203 operations account for approximately 76% of the state's agricultural sales. The total commodity sales of the largest farms and ranch operations were \$388.4 million.

In between these two, there is span of mid-size farm and ranch operations, 1,142 farms with sales between \$10,000 and \$500,000, creating 23% (approximately \$121.1 million) of the total value of commodity sales.

Nevada Farms and Ranches – Capital Inputs:

In general, the agriculture industry is very capital intensive, water dependent, and land locked. Nevada farm and ranch enterprises create value from the capital they use and workers they employ. Capital used in food and agriculture production can be categorized as human capital, natural-resource capital (land and water), physical capital (agricultural equipment, livestock inventory, and crop inventories), and off-farm manufactured capital like fertilizers, pesticides, and financial capital.

Human Capital:

Important asset for agriculture and food production is human capital. Human capital has a high degree of specialization because of specific knowledge, skills, and abilities that farmers and ranchers have. Their experience and expertise is what assures the ongoing economic productivity of the Nevada food and agriculture production industry. In 2007, there were 5,117 total operators in Nevada.⁴ The majority of them had 10 or more years of experience of working on a farm.

The knowledge about agriculture and food production is crucial for this industry. Quality of human capital is extremely important, as well as an investment in training, higher education, and professional development.

Natural Resources – Land and Water:

In 2012, there were 4,157 farms covering a total of 5.9 million acres of land. Out of those 5.9 million acres more than half were owned by farmers and ranchers, and the rest of the land was rented.

The total value of agriculture land and buildings in Nevada in 2012 was \$5.0 billion.⁵ The average farm real estate value in 2012 was \$1,050 per acre.

The difficulty for ranchers and farmers regarding land and its use in Nevada stems from the fact that more than 80% of Nevada’s land is under federal control. The table below shows 2010 land inventory in Nevada with land cover/use measured in acres.

Table 2. Land cover/use – Nevada, 2010:

Land cover/use	Acres:
Federal Land	59,868,900
Water Areas	432,100
Developed Land	554,900
Rural Land:	9,907,200
<i>Crop Land</i>	<i>595,000</i>
<i>Pastureland</i>	<i>215,600</i>
<i>Rangeland</i>	<i>8,357,900</i>
<i>Forest Land</i>	<i>315,800</i>
<i>Other Rural Land</i>	<i>422,900</i>
Total	70,763,100

Source: Summary Report – 2010 National Resources Inventory

The primary use of federal land in agriculture production is livestock grazing. The majority of Nevada’s livestock operations are highly dependent on the use of federal rangelands to maintain the viability of their enterprises.

About 45 million acres of public rangelands in Nevada are divided into 745 grazing allotments. There are 550 operators, with a total of 635 permits to graze livestock. Nevada has six grazing districts: Elko, Winnemucca, Carson City, Ely, Las Vegas, and Battle Mountain.⁶

The two major agencies administering public land in Nevada are the Bureau of Land Management (BLM) and the USDA Forest Service (USDA-FS). The Federal grazing fee for 2013 was \$1.35 per animal unit a month for public lands administered by the Bureau of Land Management and the U.S. Forest Service. At the state level, grazing fees on state-owned trust lands fluctuates, depending on differences in state rate formulas and local market conditions. Table 3. shows the average grazing fees for Nevada and neighboring states (2012 data).

⁴ Data represent the total reported number of operators for the operations.

⁵ USDA, Land Values 2013 Summary – August 2013, National Agriculture Statistics Service

⁶ Source: <http://www.blm.gov/nv/st/en/prog/grazing.html>

Table 3. Grazing Fee Average Rates for Cattle in \$:

State Region	Animal Unit	Cow-Calf	Per Head
California	19.4	23	20
Arizona	9	-	11
Utah	13.7	16.7	16
Oregon	15	17	17
Nevada	15	-	15.5

Source: Nevada Agricultural Statistics Bulletin, 2013

Nevada's high desert climate provides unique growing conditions for crop production. These growing conditions are warm-to-hot summers days, with low temperature drops of 40-50F during the nights. The proper application of water is important for agriculture and food production.

Water is always important part of agriculture production, and is always at a premium even in good years. Water rights represent an important asset held and used by ranchers and farmers in Nevada.

Nevada has 14 hydrographic regions with water basins and sub-basins that provide water supply to farmers and ranchers for their operations:

- Northwestern Region
- Black Rock Desert Region
- Snake River Basin
- Humboldt River Basin
- West Central Region
- Truckee River Basin
- Western Region
- Carson River Basin
- Walker River Basin
- Central Region
- Great Salt Lake Basin
- Escalante Desert Basin
- Colorado River Basin
- Death Valley Basin

Source: Basin Boundary Map – State of Nevada Division of Water Resources

Nevada cannot rely on rain for agriculture and food production. Due to Nevada's arid climate, irrigation is an important way to assure the high productivity of agricultural land. Almost all crop production in Nevada is dependent upon irrigation to maintain economically viable yields. Irrigation is a primary activity on farms and ranches during the summer months (May, June, July, and August), and the purpose of irrigation is to provide optimum amounts of water at the needed time to maximize economic yields. A total of 691,030 acres of Nevada's cropland in 2007 was irrigated land.

Table 4. Irrigated farms (all size) by type of water, 2008:

Irrigation/water Source	No. of Farms (all farm size):	Total irrigated acres	Total water applied (acre feet 1,000)
Ground Water	715	272,032	677.9
On-farm Surface Water	687	266,419	389.9
Off-farm Water	530	158,980	336.1

Source: <http://www.ers.usda.gov/data-products/western-irrigated-agriculture.aspx>

There were 1,676 irrigated farms (all size farms) in Nevada in 2008. Total acres covered by irrigated farms were 5.4 million with 1.4 million acre feet total water applied.⁷ Data in the table below shows the estimated number of establishments, jobs, and payroll in Nevada's Water Supply and Irrigation Systems industry (NAICS 221310) in 2012:

Table 5. Water supply and irrigation system industry annual average employment, establishments and wages:

Water Supply and Irrigation Systems (221310)	Establishments	Annual Average Employment (2012)	Total Annual Wages (2012)
Private	20	96	\$3,224,635
Local Government	24	868	\$68,444,161

Source: Bureau of Labor Statistics – QCEW Industry Tables

⁷ Source: USDA, ERS, Western Irrigated Agriculture

Based on the numbers provided by the Bureau of Labor Statistics, there were 20 private and 24 local government establishments engaged in operating water treatment plants and water supply systems, providing on average approximately 1,000 jobs in 2012.

Physical Capital:

Physical capital used on farms and ranches is could be divided into fixed capital such as agricultural machinery and equipment, and other capital inputs used like seeds, feed, crop, or livestock inventory.

Farm machinery and equipment:

The investment in machinery and equipment, and upgrades in technology, are also essential for keeping agriculture production competitive and assuring production growth. The estimated value of all equipment and machinery used on Nevada farms and ranches was nearly \$350 million, averaging approximately \$112,000 in machinery per farm. (USDA, Census of Agriculture, 2007).

Farm machinery and equipment manufacturing (NAICS 33311) establishments do not have a significant presence in Nevada, and supply from this industry to agriculture production has to be delivered from outside of our state. Investments in equipment used in agriculture and food production involve mostly purchases from dealers/wholesalers of manufacturing products. There are approximately 26⁸ farm and garden machinery and equipment wholesale companies, which supported approximately 198 jobs with \$9.1 million annual wages in 2012. However, these establishments met only a small portion of the local demand. The majority of industry requirements were satisfied from suppliers out of the region.

Repair and maintenance is an important part of farm and ranch operations. It includes the repair and maintenance of not only equipment used in agriculture production, but also maintenance of farm buildings and facilities. These services cover everything from building contractors, HVAC service

providers, electricians, plumbers, painters, and any other professionals that would be hired to help repair and maintain physical facilities and equipment of the farm or ranch. Nevada ranching and farming operations invested approximately \$30.6 million in repairs and maintenance of physical capital on farms and ranches, according to the most recent data in 2012.



A small number of home and garden equipment repair businesses (NAICS 811411) have operations in Nevada, and they usually service and repair lawnmowers, edgers, handheld power tools, trimmers, etc.

Most of the repair and maintenance services were provided by local mechanics, as well as service departments of equipment manufacturers and vendors. Approximately 276 commercial machinery repair and maintenance (NAICS 811311) establishments in Nevada were available to provide repair and maintenance of agriculture and other heavy industrial machinery equipment, however it is difficult to determine the exact number of jobs used for maintenance and repair of agriculture equipment.

Given the fact that most of the time service providers would have to come physically to farm or ranch locations to perform services, it is safe to assume that at least half of the agriculture production needs were supported by businesses and contractors within the state.

⁸ Source: Bureau of Labor Statistics – QCEW Industry Tables

Table 6. Machinery repair and maintenance industry annual average employment, establishments and wages:

Industry (NAICS)	Establishments	Annual Average Employ. (2012)	Total Annual Wage (2012)
Farm and garden machinery and equipment wholesalers (423820)	26	198	\$9,053,374
Commercial machinery repair and maintenance (81131)	276	1,271	\$70,305,373

Source: Bureau of Labor Statistics – QCEW Industry Tables

Other options for farmers and ranchers are to rent machinery or services. These options include rental or lease of equipment, or to pay somebody who owns equipment to perform certain services. Usually services would be performed by a contractor or neighboring farm or ranch operator. This is a cost effective solution for farms and ranches in those cases when jobs need to be performed only once a year, or on an occasional basis. Machine hired work and custom work costs for Nevada farms and ranches was \$7 million in 2012.

Crop and Livestock Inventory:

Harvested crops are used on livestock farms as feed, as seed stock for replanting, or held in storage for sale. Farmers can decide to save some of the harvested seed to replant. For example, in 2012, 20,000 acres were designated for new seeding for alfalfa hay production.⁹ Most of the time farmers decide to purchase new prepared seed in order to save some cost rather than storing and preparing their own, but sometimes they purchase new seed in order to improve their inventory. Nevada farms and ranches spend approximately \$11.4 million in new seed purchases. Most of the companies selling seed products are located outside of Nevada, which means that money spent on purchases leaves the state.

In their efforts to provide regulatory support to Nevada’s seed industry, the Nevada Department of Agriculture offers seed certification services, phytosanitary inspection of crops designated for export, and testing services for seed identity, viability, purity and diseases.

⁹ Source: Nevada Agriculture Statistical Bulletin 2013

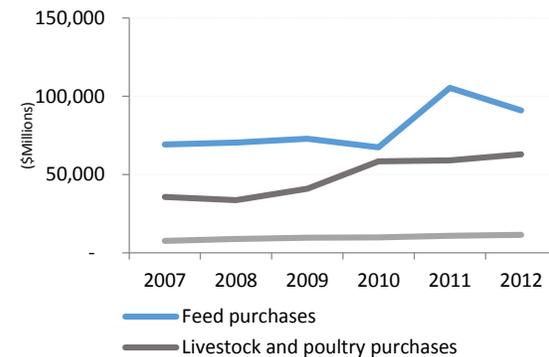
When it comes to feed, livestock growers and producers are the largest buyers, but some of them grow at least some portion of feed for animals. In 2007 Nevada ranchers paid approximately \$69 million for feed purchase. This expense was significantly higher in 2011, when costs went up to \$105 million, making up to 26% of total farm origin purchased inputs. In 2012, the feed purchases were estimated at \$90.8 million.

The purchase of livestock is another element of the value chain. The most common method of livestock purchasing is contracting. Contracting provides secured transactions for livestock growers. Other transactions include animal auctions and market sales that occur directly between interested parties.



In 2012, total expenses for livestock and poultry purchases were \$62.9 million. Figure 5. shows total expenses for feed, livestock and seed purchased by Nevada’s farms and ranches between 2007 – 2012.

Figure 5. Expenses for Feed, Livestock, and Seed Purchases; 2007 – 2012



Source: USDA/ERS Farm Income and Wealth Statistics

Fertilizers & Pesticide:

The majority of fertilizers used in crop production consist of chemical nitrogen. Fertilizing products used are mostly sourced from all over the U.S.

In 2012, Nevada farmers paid \$32 million for fertilizers. Only a small percentage of Nevada's agriculture production needs for fertilizers is satisfied within the state. The majority is supplied outside of Nevada. Only small number of manufacturers, approximately 8 establishments¹⁰, have their operations in Nevada and most of them are establishments involved with mixing only.

Weed and pest control represents an ongoing challenge for Nevada farmers. Similar to fertilizers, the manufacturing, distribution, and sale of chemicals for pest control is a global business, so the majority of chemical products and pesticides used were manufactured and purchased from companies outside of the Nevada. It is estimated that Nevada farms and ranches paid approximately \$15 million for pest control in 2012. The Nevada Department of Agriculture (NDA), through the Pest Control Licensing Section and NRS 555 and NAC 555, requires that all pest control companies are licensed in specific categories of pest control for which they apply pesticides¹¹. The noxious weed program is also administered through the NDA and provides resources to all land owners and users to proactively prevent, control, and manage invasive weed species.

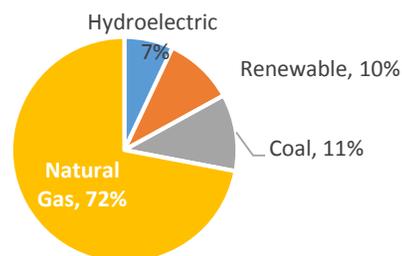
There are approximately 424 licensed companies in Nevada that perform pest control services and approximately 89 licensed companies that perform weed control services. The majority of them are in state companies, and a few are from California, Idaho, Utah, Oregon, etc.

Electricity and Petroleum Fuel and Oils:

Electricity is an important requirement for agriculture production, not only to power the farm and ranch equipment like irrigation pumps, power equipment, etc., but also to provide electricity for farm buildings and offices.

Some of the farms are generating their own energy, and according to the 2007 Census of Agriculture data, there were 102 farms generating their own energy or electricity. However, most of Nevada's farms and ranches are purchasing services from electric power generators or wholesalers. A major provider of electricity is NV Energy, providing 85 % of the state's electrical power. Eight percent is provided by the rural electric co-ops, municipal utilities, and general improvement districts, 3% is provided by Shell Energy of North America, the Colorado River Commission of Nevada makes up the remaining 4 % and provides power to the Southern Nevada Water Authority and a group of industrial companies in Clark County. The remaining 0.2% is provided by Solar Star. To generate electricity, the state uses several sources including natural gas, coal, hydroelectric, and renewables (Figure 6).

Figure 6. Source of electric energy:



Source: "Nevada Status of Energy", Governor's Office of Energy, 2012-13

Two significant energy cost categories associated with farming and ranching operations are the energy cost for animal housing, and energy cost associated with irrigation operations.

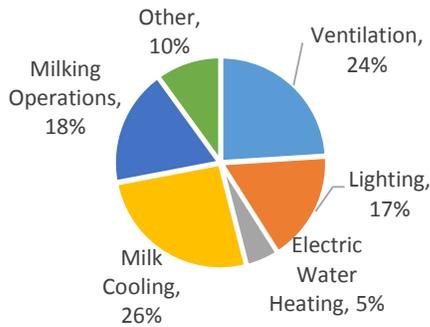
Electricity used for animal housing operations and its cost, in particular dairy farms, can have a significant impact on production. Figure 7. shows the estimated dairy farm electric energy consumption on average. (Adopted from Peterson, 2008)¹². This data is developed for cow dairies, but may be easily applicable to goat or sheep dairies. Dairy farms use a significant amount of energy. On average, milk cooling and ventilation utilize the highest percentage of the electrical energy .

¹⁰ Source: Bureau of Labor Statistics – QCEW Industry Tables

¹¹ Full list of companies: <http://agri.nv.gov/Pest-Control/>

¹² Source: "Dairy Farm Energy Efficiency", Andy Pressman, ATTRA, 2010

Figure 7. Dairy farm electric energy consumption:



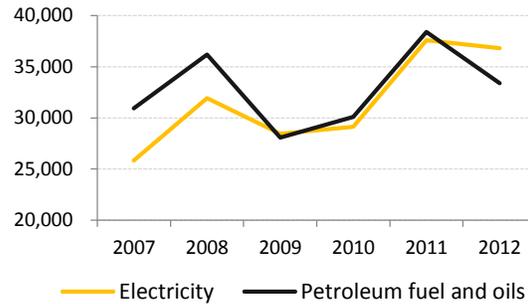
Source: "Dairy Farm Energy efficiency", ATTRA Publication.

Another cost associated with energy consumption on farms and ranches is the cost of pumping water in irrigation operations. According to data from USDA, in 2008, 789 farms were using electricity to power pumps (with or without wells) with an average energy pumping cost of \$81.22 per acre for farms with wells or pumps powered by electricity for 2008 irrigated farms.

Gasoline, diesel, and other petroleum products are important for agriculture production, and they are mainly used for farm equipment and machinery. Diesel fuel requirements and costs associated with tillage is one part of the expenses, and it varies by tillage implement. Diesel fuel could also be used to power pumps used for irrigation. The number of the farms using diesel fuel to power pumps (with or without wells), in 2008, was 45 farms with an average energy cost \$120.34 per acre, and approximately 50 farms were using gasoline to power pumps (with or without wells).¹³

In 2007, Nevada farms and ranches paid \$26 million in electricity costs. That cost increased by 2012 to \$37 million. Fuel and oil expenses on Nevada farms and ranches were approximately \$33.4 million in 2012, decreasing significantly from the previous year.

Figure 8. Farm and ranch expenditure on energy, 2007 – 2012:



Source: USDA/ERS Farm Income and Wealth Statistics

Veterinary Services and Animal Health:

The veterinary services industry (NAICS 541940) employed approximately 2,620 people in 2012 with the total annual wages of \$98.5 million. Currently there are 878 active veterinarians in Nevada.¹⁴ However, some of the services provided by this industry, in particular small animal care, are not part of agriculture operations.

Because of the nature of services, and the fact that veterinarians have to, in most cases, visit the ranches and farms to provide services, a significant portion of the agriculture industry needs were supplied within the state.



¹³ There was an insufficient number of observations for this category to determine average cost according to data source. Source: USDA, ERS, Western Irrigated Agriculture

¹⁴ State of Nevada Board of Veterinary Medical Examiners data

Table 7. Veterinary service industry annual average employment, establishments and wages:

Industry (NAICS)	Establishments	Annual average Employment (2012)	Total Annual Wages (2012)
Veterinary Services (541940)	217	2,620	\$98,468,825

Source: Bureau of Labor Statistics – QCEW Industry Tables

Financial Capital:

Financial investment in land and physical capital are the most common ways of assuring a successful agriculture production process. Farmers and ranchers are using financial investments, along with government programs, crop and livestock contracts, and other types of insurance, to manage business risks associated with market fluctuations (prices and market conditions).

A variety of insurance programs are available to farmers and ranchers. Most of these programs are backed (reinsured or supplemented) by different insurance program products managed by the Federal Crop Insurance Corporation (FCIC), which is overseen by the Risk Management Agency (RMA) of the USDA.

According to Rain & Hail Insurance Society, the total amount of crop insurance premiums in Nevada, in 2010, was \$2.5 million, with the total of 51,689 acres of crop land insured. There were 192 contracts, with total premiums of \$911,090 paid by farmers. The total insurance premium amount for livestock was \$3,842. The amount of premiums paid by farmers was \$3,343.¹⁵

Most of the insurance companies are headquartered outside of the state. According to EMSI data, in 2012, a majority of services provided by direct property and casualty insurance carriers (NAICS 524126) were supplied out of the state to meet the needs of Nevada agriculture producers.

¹⁵ 2011 Crop Insurance Update, Securing America’s Farmers, Rain & Hail Insurance Society

¹⁶ Western Region Includes following states: AK, AZ, CA, HI, MT, ID, NV,OR,UT,WA, WY

Farm credit systems consist of a combination of federal, state, cooperative, and private financial institutions that provide loans, or at least back loans, to those farmers and ranchers who qualify.

The most recent analysis done by the American Bankers Association (ABA) shows that the U.S. banking industry is the most important supplier of credit to agriculture, providing more than 50% of all farm loans. The analysis of bank activities within the Western Region¹⁶ of the U.S. found that farm banks increased farm loans by 14.9% in 2012 from the previous year. Agriculture production loans were up by 12.9% in 2012, and farmland loans increased 16.7% for the same period.¹⁷

Major farm lenders like Wells Fargo Bank, Pinnacle Financial, Bank of America, etc. have their branches and operations in Nevada, but they are headquartered in different states.¹⁸

Table 8. Financial industry annual average employment, establishments and wages:

Industry (NAICS)	Establishments	Annual average Employ. (2012)	Total Annual Wages (2012)
Real Estate Credit (522292)			
Private	167	1,420	\$118,929,581
Federal	4	27	\$2,053,964
Direct Life Insurance Carriers (524113)	88	4,430	\$205,869,955
Direct Property and Casualty Insurance Carriers (524126)	104	1,027	\$76,757,768

Source: Bureau of Labor Statistics – QCEW Industry Tables

According to the latest USDA data, the estimated amount of financial loan interests in 2012 was \$25 million, \$18 million were interests on loans secured by real estate, and \$7 million of loan interests were not secured by real estate.

¹⁷ Source: American Bankers Association (ABA)

<http://www.aba.com/Press/Documents/2012FarmBankPerformance031813.pdf>

¹⁸ <http://www.aba.com/Tools/BankType/Ag/Pages/default.aspx>

Nevada Agriculture Value Chain Analysis:

The value chain analysis represents linkages in the process of turning raw materials and necessary inputs into a final product that will be of a service and consumed by end users. The agriculture value chain for Nevada is defined as the linkages between inputs and outputs of agriculture sector enterprises in the process of creating products and its value through sales to final customers.

The core of the Nevada agricultural value chain is defined as [Agriculture and Food Production](#), and it comprises all establishments engaged in growing crops and raising animals, farms, ranches, dairies, greenhouses, nurseries, orchards, or hatcheries. Nevada farms and ranches vary based on the type of land, ownership, size, and economic class. It is important to determine the value and size of their operations, recent trends, and changes in sizes of ranches and farms, as well as the contribution of their operations in the agriculture sector value chain.

An important part of the value chain analysis is an analysis of the capital base of Nevada farms and ranches. Capital base is the production capital that includes labor, land, water, and equipment, as well as inputs outside of the farm such as fertilizers, pesticides, electricity, and fuel necessary for Nevada farms and ranches to perform their operations. Capital base analysis shows all the linkages that exist between production and other support industries, and determines what other inputs agriculture production needs to purchase to exist. Through the identification of the linkages, it is possible to determine the potential for future growth and development of all market opportunities in Nevada.

Another crucial part of the value chain analysis is developing a sound understanding of agriculture production output or the value of goods coming from agriculture production – crops and livestock products – that will provide an input for food manufacturing and processing, or that will be retailed to its final user.

The [Agriculture Processing and Manufacturing](#) sector of the agriculture value chain comprises those establishments that create additional value to agriculture products by marketing them, processing them, or using them as an input in manufacturing.

The marketing and logistics functions that ultimately deliver products and services to final consumers is accounted for in the [Agriculture Distribution and Wholesale](#) sector of the value chain.

The last segment of the value chain are those industries that are included in [Retail and Food and Beverage Service](#) sector as part of value chain where products are sold and used by customers.

Each of these sectors, identified as a part of the value chain, are chosen because they have an economic link with farm or ranch operations and present potential marketing opportunities for the future growth of agriculture in Nevada.

Agriculture and Food Production Sector:

Agriculture and Food Production activities include primary livestock and crop production, while agriculture support activities are those associated with farm operations such as soil preparation, planting, and harvesting.

Agriculture and Food Production Industries - Definition:

The agriculture and food production industries include establishments primarily engaged in growing and harvesting crops, raising animals, harvesting timber, etc. Establishments are described as farms, ranches, dairies, greenhouses, nurseries, orchards, or hatcheries and can be operated by the operator alone or with the assistance of members of the household or hired employees.

Industry Groups:

Animal Farming:

- 112111 Beef Cattle Ranching and Farming
- 112112 Cattle Feedlots
- 112120 Dairy Cattle & Milk Production
- 112210 Hog & Pig Farming
- 112920 Horse and Other Equine Production
- 112990 All Other Animal Production

Crop Farming:

- 111150 Corn Farming
- 111199 All Other Grain Farming
- 111219 Other Vegetable and Melon Farming
- 111332 Grape Vineyards
- 111339 Other Non-citrus Fruit Farming
- 111998 All Other Misc. Crop Farming

Greenhouse, Nursery and Floriculture:

- 111411 Mushroom Production
- 111419 Other Food Crops Grown Under Cover
- 111421 Nursery and Tree Production
- 111422 Floriculture Production

Fishing & Hunting:

- 112511 Finfish Farming & Fish Hatcheries
- 112519 Other Aquaculture
- 114210 Hunting & Trapping

Forestry Operations:

- 113310 Logging

Support Activities for Agriculture Production

- 115112 Soil Preparation, Planting, Cultivating
- 115113 Crop Harvesting
- 115210 Support Activities for Animal Prod.
- 115310 Support Activities for Forestry
- 115115 Farm Labor Contracting & Crew Leaders
- 115116 Farm Management Services

Agriculture and Food Production – Economic Contribution:

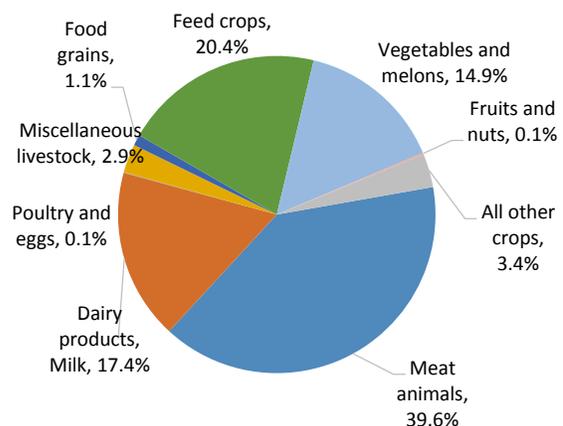
Direct Economic Effect:

Direct economic effect of Nevada agriculture and food production could be analyzed by its contribution to the state's economy using traditional economic indicators such as cash receipts from marketing, value of agriculture production, tax revenues that the state collects, and employment.

Agriculture and Food Production Output:

In 2012, the annual cash receipts from marketing agriculture commodities was \$718 million, 60% were cash receipts for livestock and products, and 40% were cash receipts for marketing crop products. The graph below lists a detailed breakdown of total cash receipts from farm marketing in Nevada in 2012.

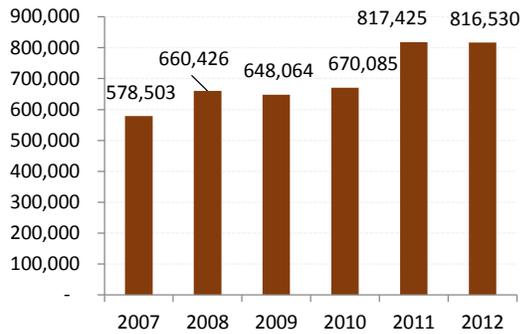
Figure 9. Total cash receipts, percent by commodity, Nevada 2012:



Source: USDA Economic Research Service (www.ers.usda.gov/dtat-products/farm-income-and-waeth-statistics.aspx)

Although commodity cash receipts have a tendency to fluctuate, in recent years agriculture cash receipts have increased, from \$555 million in 2010 to \$718 million in 2012. The total value of the agriculture and food sector production in 2012 was \$816 million.

Figure 10. Value of Agriculture Sector Production¹⁹ (\$1,000); 2007 – 2012:



Source: Nevada Agriculture Statistics Bulletin, 2013

Another way Nevada agriculture and food production sector contributes to the economy is through tax revenues that the state collects from farms and ranches. In 2012, Nevada farms and ranches paid \$19 million in property taxes. That amount increased from 2010 when the amount of property taxes was \$17 million.²⁰

Livestock production:

Livestock production represents the largest segment of agriculture in Nevada. The value of livestock production in 2012 was \$420 million.

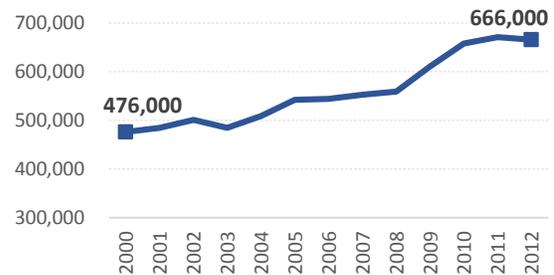
Cow-calf operations are the most common agriculture enterprise and can be found on over half of the farms and ranches in the state. Nevada farms were raising 470,000 cattle and calves in 2012. The value of cattle and calves production in 2012 was \$212 million. Elko County has the largest inventory of cattle and calves (140,000 head), followed by Humboldt (65,000), Churchill (39,000), and Lyon County (38,500). Cash receipts from cattle and calves marketing in 2012 were \$283 million.



¹⁹ Value of agricultural production is the gross value of the commodities and services produced within a year.

Milk cow and dairy production is becoming a significant contributor to the Nevada food and agriculture production sector. There were 29,000 dairy cows²¹ in Nevada in 2012. The primary revenue source of dairy is milk production. Total milk production in 2012 was 666 million pounds, and almost of all (99%) was sold to plants for processing or to dealers. Only 1% of milk production is consumed on the farms. The value of cash receipts from marketing was \$125 million.

Figure 11. Value of milk production by Nevada dairies (1,000 pounds), 2000-2012:



Source: Nevada Agriculture Statistical Bulletin 2012

Dairy operations are becoming the fastest growing in Nevada with the cash receipts almost doubling in 2012 (\$125 million) compared to \$52 million in 2000s.



Sheep and lamb production numbers are considerably lower, but remain the alternative on many ranges. 2012 inventory shows 70,000 sheep and lambs with a total inventory value of \$17.9 million. The total value of sheep and lamb production in 2010 was \$2.6 million. Cash receipts from sheep and lamb marketing in 2010 were 4.5 million.

²⁰ Source: USDA/ERS Farm Income and Wealth Statistics
²¹ Average number during the year, excludes heifers not yet fresh.

There were 2,700 hogs and pigs produced on Nevada farms with a total inventory value of \$405,000 in 2012. The production value in 2012 was \$990,000, showing a slight increase from a year before, and cash receipts from marketing were \$1.4 million.

Export of livestock products to global markets is an important activity within the Nevada agriculture sector. Data for 2012 lists the total value of livestock exports outside of the U.S. in the amount of \$ 23.8 million, the value of exported beef was \$22.9 million and value of pork was \$0.4 million.²²

Crop production:

The total value of crop production in 2012 was \$281 million. The cash receipts from marketing crop products were \$287 million. The main crop commodity produced in Nevada is hay. Nevada’s climate and irrigable soil are conducive to the production of high quality and specialty hays. 415,000 acres were harvested, and the total value of hay production was \$267 million (2012 data).

Much of Nevada grown alfalfa is marketed to California dairymen, and significant quantities are shipped overseas. Production of alfalfa in 2012 was 1 million tons, and the total value of that production was \$218 million.

Table 9. Alfalfa Hay - Acreage Harvested and Production, 2012:

County	Acres	Production (tons)
Humboldt	47,000	223,600
Lyon	33,000	154,700
Pershing	30,000	147,400
Lander	20,000	95,500
Other counties combined	110,000	410,730
Total	240,000	1,032,000

Source: Nevada Agricultural Statistical Bulletin 2013

All other hay includes wild and improved grasses, Timothy, Tiffany (Teff), Sudan, and grains. Grass hay is used to meet the winter feeding demands of resident livestock herds, and Timothy hay is marketed

primarily to race horse accounts across the Western United States.

A majority of Nevada’s grain acreage is harvested for hay rather than grain. Wheat, barley oats, rye, and triticale are commonly cut and baled for cattle feed. The total value of all other hay production was \$50 million in 2012.

Exports of crop products in 2012 to global markets outside the U.S. were around \$13.6 million, wheat exports were valued at \$4.2 million, and grain product exports at \$9.4 million.²³

Vegetables, fruits, and nuts production:

Fruit and vegetable production in Nevada is limited by climate, but specific regions of Nevada have proven favorable for fruit and vegetable crops like melons, potatoes, onions, and garlic.

Nevada’s onions are primarily produced for fresh market use, and Nevada garlic is used primarily for seed, although some is also dehydrated. Most of the acreage planted for these crops is in Lyon County.

The value of onion production in 2011 was \$71 million, and the value of garlic production for the same year was \$2.2 million. Along with onions and garlic, potatoes are another important row crop in Nevada. Warm days, cold nights, and quality soil provide excellent growing conditions for potatoes.

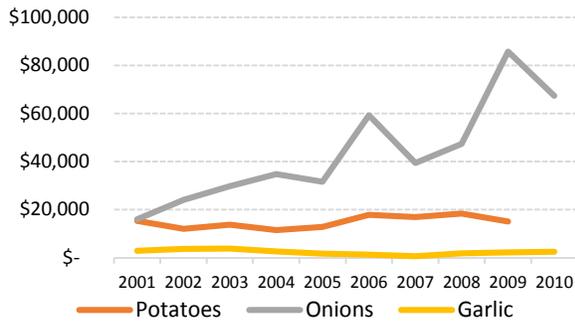


The value of potato production was \$15 million (2009 data). The total value of vegetables and melons production in Nevada in 2012 was \$107 million.

²² Source: USDA Economic Research Service; USDA Foreign Agricultural Service (Global Agricultural Trade System).

²³ Source: USDA Economic Research Service; USDA Foreign Agricultural Service (Global Agricultural Trade System).

Figure 12. Values of production - potatoes, onions, and garlic (2000 – 2010):



Source: USDA, Nevada Agricultural Statistics, 2010-11

Fruit and nut tree production represents a small part of total agriculture production in Nevada. In 2007, there were 38 farms growing non citrus fruits, covering 1,465 acres of land, and those farms were mostly growing apple, grapes, peaches, and pears. There were 12 farms involved in tree nut farming of almonds, pecans, walnuts, pistachios, etc. The estimated value of capital assets, including land, building, machinery, and equipment on these farms in 2007 was \$ 445,508. The most recent numbers for 2012 show a total value of fruits and nuts production was \$1.1 million.²⁴

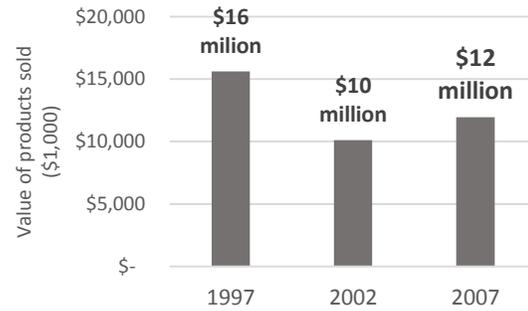
Exports of fresh fruits and vegetables in 2012 to global markets was \$11.5 million; the value of fresh fruit exported was smaller, at \$0.3 million; and the value of fresh vegetables exported outside the U.S. was \$11.2 million.

Greenhouse, Nursery, and Floriculture Production:

Greenhouse and nursery crops are sometimes an overlooked category when it comes to traditional agriculture production. These crops are typically grown in greenhouses and nurseries, and they are grown mostly for residential and commercial landscaping, gardening, or indoor use. Based on the latest Census of Agriculture data for 2007, there were a total of 41 establishments; two farms that were growing crops under cover (11141 NAICS) and 39 production nurseries and floriculture establishments.

²⁴ Source: Nevada Agricultural Statistics Bulletin 2013

Figure 13. Nursery, Greenhouse, Floriculture and Sod - market value of products sold 1997-2007:



Source: USDA, National Agricultural Statistic Service, 1997, 2002, 2007

Greenhouses and nursery crops are considered high value crops, and they usually do not require significant land. However, they do require a significant amount of water, fertilizers, and pesticides so their production could be considered fairly capital intensive. Growth in urban areas of the state has provided a demand base for these crops. The estimated market value of selected capital assets of green house, nursery, and floriculture production in 2007 was \$697,602, and the estimated market value of products sold in the same year was \$12 million.



Growing food under cover or indoors is becoming a popular method of crop production. According to information provided by the Governor’s Office of Economic Development, every year, Nevada’s Tourism, Gaming, and Entertainment sector spends \$2 billion on the food supply chain outside the state. If locally grown food could satisfy a small fraction of what the average Nevada visitor spends on food, with development of indoor agriculture and food production all year around, it would benefit Nevada’s economy by keeping those dollars in state. ²⁵

²⁵ “Commercial Indoor Agriculture,” Governor’s Office of Economic Development.

Forestry Operations:

Forestry operations in Nevada represent a small segment of agriculture and food production sector. In 2007, there were 1,320 woodland farms in Nevada covering 36,327 acres of land. The amount of forest product sold in that same year was \$20,000.

Wildlife Operations:

It is important to mention the value of agriculture that is tied to wildlife and open space land operations. The value can be measured by what locals and tourists are willing to pay in order to visit areas that offer different activities such as hunting, fishing, and boating on public lands and waters.

Although Nevada is widely known as a dry state, it is home to over 200 lakes and reservoirs and 600 streams and rivers, which provide nearly 400,000 surface acres of sport fishing opportunity.

The majority of Nevada's fishable still waters consist of man-made reservoirs that vary in size from one acre to the 115-mile-long Lake Mead. A good portion of the pristine waters of Lake Tahoe are in Nevada. Nevada's fish species vary as widely as the state's geography (Cutthroat Trout, Rainbow trout, Largemouth bass, etc.).

Nevada big game species include mule deer, bighorn sheep, elk, mountain goats, and pronghorn antelope. Hunters may also choose to hunt certain migratory birds and upland birds.

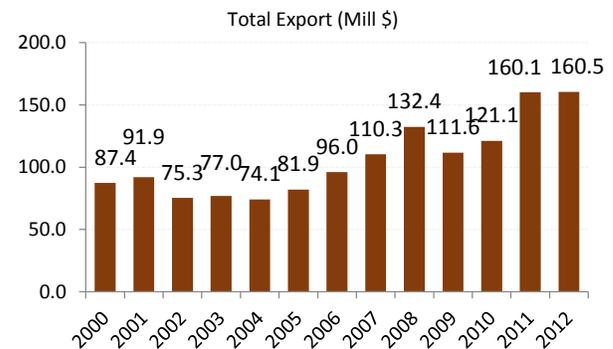
The Nevada Department of Wildlife (NDOW) is the state agency responsible for the restoration and management of fish and wildlife resources, and promotion of boating safety. The agency and its subdivisions manages 17 urban ponds around the state. They also manage the hunting, fishing, and boating licensing and permitting privileges in state. A recent increase has been noticed in the number of citizens participating in fishing and hunting.

In FY 2012, over 156,000 licensing privileges (licenses, stamps) were sold resulting in more than \$7 million in revenue for the state. Also, 51,000 boats were registered in Nevada, totaling to almost \$2 million in revenue. The largest annual hunting draw, Nevada's big game draw, received over 159,000 applications submitted for the 2012 big game season, and total revenues for applications, tags, and other related fees exceeded \$5 million in FY 2012.²⁶

Agriculture and Food Commodity Exports:

The agriculture sector is an important export-based sector that brings dollars back to the local economy. A wide range of products and commodities produced in Nevada are exported to international markets.

Figure 14. Agriculture Commodity Export²⁷ 2000 – 2012:



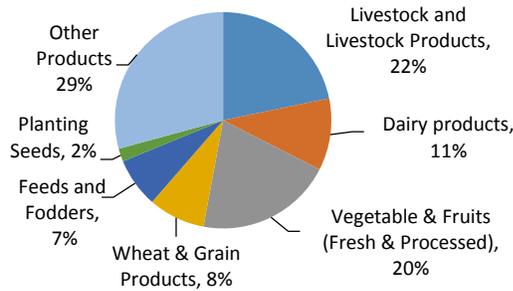
Source: USDA Economic Research Service; USDA Foreign Agricultural Service (Global Agricultural Trade System).

The value of the Nevada foreign export in 2012 was \$160.5 million, the value of beef and veal exports was \$22.9 million, the total value of processed and fresh vegetables exported was \$32.2 million, and the value of dairy product exported to international market was \$17.3 million for the same year. \$46.9 million was the total value of other products sold on the foreign market, which includes other animal and poultry products, other grains and oilseeds, wine, beer, other beverages, coffee, chocolate, other horticulture products, and prepared foods.

²⁶ Source: "2012 Annual Report", July 1, 2011 – June 30, 2012; The Nevada Department of Wildlife

²⁷ Export values are calibrated such that the sum of state export estimates for a commodity equals the total U.S. export value for the commodity.

Figure 15. Value of Export by Commodity – Nevada 2012:



Source: USDA Economic Research Service; USDA Foreign Agricultural Service (Global Agricultural Trade System)

Agriculture and Food Production Workforce:

There are roughly three main categories of workers on Nevada farms and ranches:

- Owner-operators (primary operators and part-time operators)
- Employees (primary operators, part time operators, and hired farm labor)
- Contractors (skilled contractors and contracted labor)

In 2007, the latest Census of Agriculture data counted a total of 4,969 farm operators²⁸ and 9,811 household members on Nevada farms and ranches. More than half, or 2,480 of them, have farming and ranching as their primary occupation.

There were 3,131 principal operators, and more than half (52.7%) listed farming as their primary occupation. The majority of principal operators in Nevada have been working on their farms and ranches for more than 10 years.

Table 10. The characteristics of principal, second and third farm operators, 2007:

Characteristics: (Operators)	All	Principal	Second	Third
Total Number:	4,969	3,131	1,588	250
Sex of Operators:				
Male	3,222	2,530	544	148
Female	1,747	601	1,044	102
Primary Occupation:				
Farming	2,480	1,650	701	129
Other	2,489	1,481	887	121

Source: Census of Agriculture, Nevada 2007

²⁸ Data were collected for a maximum of 3 operators per farm

Demographic characteristics indicate there were more male (81%) than female (19%) principal operators in 2007. The most recent data for 2012 are showing increased number of principal operators (4,157) with 3,253 male and 904 female operators on Nevada farms.

Table 10. The characteristics of principal, second and third farm operators, 2007 (continued):

Demographics:	All	Principal	Second	Third
>25	75	15	25	35
25 - 34	288	119	131	38
35 – 44	729	379	295	55
45 - 64	2,632	1,632	899	101
65 <	1,245	986	238	21

Source: Census of Agriculture, Nevada 2007

In 1997 the average age of the principal operator was 54.9, and in 2002 the average age had risen to 55.9, and in 2007, the average age was 57.5. The average age based on the most current data for 2012 is 59.7. The farm population used to be younger on average, than urban and other non-farm residents, but today they are much older, on average. There is a relative shortage of people younger than 25 years on farms compared with those who are 45 to 69 years old.

Although farm operators and their families account for most of agricultural employment, hired farmworkers are a vital resource. In 2012, there were 4,481 farm workers. The amount of hired labor used on farms is related to the size of farm operations and the commodity that is produced. Larger farms will more likely have labor needs in excess of the capacities of the families who farm them. Some commodities whose production has been largely mechanized (such as many grains), as well as livestock operations, do not require large amounts of labor per farm.

However there are crops that require hand harvesting - such as many fresh fruits and vegetables, tree nuts, and horticultural commodities – that continue to use large amounts of hired labor. Because these commodities are perishable, more labor is needed for short periods, mostly during the harvesting season.

An additional 1,624 jobs were employed in the forestry, fishing, and supporting activities industry.²⁹

²⁹ Source: Bureau of Economic Analysis (BEA)

Total labor expenses on Nevada ranches and farms were approximately \$85 million in 2012. This amount includes hired, part time, and full time employee compensation (\$80 million), as well as contract labor (\$5 million).

For the work that needs to be performed on farms and ranches, besides regular employment, it is necessary to hire services of contract labor workers. Usually these workers are hired for certain labor-intensive jobs, and most of the time these workers will be provided as labor under contract by contracting companies. Contract labor costs are usually significantly smaller than the cost of full time labor, and it was rounding up to \$5 million in 2012. It is easy to determine the total cost associated with contracting labor; however, it is difficult to determine the number of workers employed as contract labor.

Agricultural employment is extremely seasonal. Farm work has periods of peak labor use, for example during the harvesting of perishable fruits and vegetables. In most cases, labor use peaks during the spring, summer, and fall, and few workers are employed during the winter. When it comes to earnings, farm work earnings are much lower on average compared to many non-farm jobs. All this combined causes many farm workers to work at non-farm jobs to increase their income.

When determining the total employment in agriculture and food production, difficulty comes from the fact that significant number of self-employed and extended proprietors are not captured by Bureau of Labor Statistics QCEW numbers. It is estimated by Economic Modeling System International (EMSI) that extended proprietors make up roughly half or more of the agriculture and food production industry.

Staffing patterns were provided using Economic Modeling Specialist, Inc. (EMSI). The most common occupations within the agriculture and food production sector were compiled providing current job numbers, average wages, and education requirements (Table 11).

Table 11. Staffing Patterns – Top 10 jobs in Agriculture and Food production:

SOC	Occupation	Jobs (2013)	Median Hourly Earnings	Education Level
11-9013	Farmers, Ranchers, and Other Ag. Managers	2,665	\$9.92	Work experience
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,320	\$12.99	Short-term OJT
45-3011	Fishers and Related Fishing Workers	314	\$14.34	Moderate-term OJT
39-2011	Animal Trainers	224	\$9.41	Moderate-term OJT
39-2021	Nonfarm Animal Caretakers	222	\$8.58	Short-term OJT
45-2093	Farmworkers, Farm, Ranch, and Aquaculture Animals	140	\$16.62	Short-term OJT
45-2091	Agricultural Equipment Operators	118	\$13.47	Short-term OJT
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	99	\$22.02	Work experience
53-3032	Heavy and Tractor-Trailer Truck Drivers	51	\$20.34	Short-term OJT
45-2041	Graders and Sorters, Agricultural Products	51	\$10.01	Short-term OJT

Source: Traditional Production Group Staffing Patterns, EMSI Data
 Note: OJT – On-the-Job Training.

Indirect Economic Effect:

Indirect economic effect, or “ripple effect,” is a value-added contribution of the agriculture cluster³⁰ to Nevada’s economy created as a result of business-to-business relationships. In assessing indirect economic effect it is important to identify the transfer of goods and services within the sectors of agriculture and food cluster. These secondary transactions and created employment have an indirect impact on the state economy.

A report on the economic impact of agriculture in Nevada – “2013 Nevada Agriculture: Analysis and Opportunities” - used input-output analysis, utilizing IMPLAN modeling to report direct, indirect, and induced impact of agriculture.³¹ Data provided in that report estimates the total economic impact of the Nevada agriculture cluster is \$5.3 billion; the direct impact of the agriculture cluster on the state economy is \$3.3 billion, indirect impact from business-to-business relationships is \$835 million, and induced impact from household spending on goods and services is \$1.1 million for the state.

Total employment impact of the Nevada agriculture cluster is 60,700 employees. 35,600 jobs were directly generated by the agriculture cluster. This number includes 5,700 jobs within agriculture production sector, 4,800 jobs within agriculture processing and packaging sector, 10,400 jobs within agriculture distribution sector, and 14,645 jobs within the agriculture support sector. 13,600 jobs were supported by direct and indirect household spending on goods and services.

However, to adequately quantify and integrate all the possible indirect costs and benefits of the agriculture cluster is an exceedingly difficult and somewhat inconsistent task, and it depends on the definitions of sectors and industries that are part of each sector.

When considering the indirect economic impact of the agriculture cluster it is important to consider the relationship that agriculture and food production has with different sectors in the value chain. We will continue the analysis of each sector separately to determine the size of market, employment, and characteristics of defined industries within each value chain.

³⁰ Agriculture Cluster – is comprised of agriculture and food production sector, agriculture and food manufacturing and processing sector, agriculture and food

distribution and warehousing sector, and agriculture and food retail and food and beverage service sector

³¹ Source: “2013 Nevada Agriculture – Analysis and Opportunities”, NNDA and GOED

Agriculture and Food Processing and Manufacturing Sector:

Demand for food exists, not only as a growing preference for locally grown fresh food, but also for food products that are processed and manufactured for final customers and their consumption. This creates a great environment for processing and manufacturing companies to successfully establish and develop their business based on existing demand. Raw products produced on farms and ranches are sold to those businesses that will add value to them by using it as an input in processing and manufacturing, or to individuals who will determine the final value of the produced commodity by making a decision to purchase it. In this stage, the value chain is integrated with, not only domestic markets, but also with economies of neighbor states, and international /global markets.

Agriculture and Food Processing and Manufacturing Industries - Definition:

Enterprises in the agriculture and food manufacturing and processing operations transform products of agriculture, forestry, and fishing into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products. These operations represent a significant part of Nevada agriculture value chain.

Industry Groups:

Animal Food Manufacturing

- 311111 Dog and Cat Food Manufacturing
- 311119 Other Animal Food Manufacturing

Grain and Oilseed Manufacturing

- 311211 Flour Milling
- 311221 Wet Corn Milling
- 311222 Soybean Processing
- 311223 Other Oilseed Processing
- 311225 Fats and Oils Refining and Blending

Industry Groups:

Sugar/Confectionery Product Manufacturing

- 311230 Breakfast Cereal Manufacturing
- 311313 Beet Sugar Manufacturing
- 311330 Confectionery Mfg. from Purchased Ch.
- 311340 No chocolate Confectionery Mfg.

Fruit, Vegetable and Specialty Food Mfg.

- 311411 Frozen Fruit, Juice, and Vegetable Mfg.
- 311412 Frozen Specialty Food Manufacturing
- 311421 Fruit and Vegetable Canning
- 311422 Specialty Canning
- 311423 Dried and Dehydrated Food Mfg.

Dairy Products Manufacturing

- 311511 Fluid Milk Manufacturing
- 311512 Creamery Butter Manufacturing
- 311513 Cheese Manufacturing
- 311514 Dry, Condensed, and Evaporated Dairy
- 311520 Ice cream and Frozen Desert Mfg.

Animal Slaughtering and Processing

- 311611 Animal (except Poultry) Slaughtering
- 311612 Meat Processed from Carcasses
- 311613 Rendering and Meat Byproducts Proc.
- 311615 Poultry Processing
- 311711 Seafood Canning
- 311712 Fresh and Frozen Seafood Processing

Bakeries and Tortilla Manufacturing

- 311811 Retail Bakeries
- 311812 Commercial Bakeries
- 311813 Frozen Cakes, Pies, and Other Pastries
- 311821 Cookie and Cracker Manufacturing
- 311822 Flour Mixes and Dough Manufacturing
- 311823 Dry Pasta Manufacturing
- 311830 Tortilla Manufacturing

Other Food Manufacturing

- 311911 Roasted Nuts and Peanut Butter Mfg.
- 311919 Other Snack Food Manufacturing
- 311930 Flavoring Syrup and Concentrate Mfg.
- 311941 Mayonnaise, Dressing, and Other Mfg.
- 311942 Spice and Extract Manufacturing
- 311991 Perishable Prepared Food Mfg.
- 311999 All Other Miscellaneous Food Mfg.

Beverage Manufacturing

- 311920 Coffee and Tea Manufacturing
- 312111 Soft Drink Manufacturing
- 312112 Bottled Water Manufacturing
- 312113 Ice Manufacturing
- 312120 Breweries
- 312130 Wineries
- 312140 Distilleries

Agriculture and Food Processing and Manufacturing in Nevada - Market Size:

Nevada agriculture and food processing and manufacturing sectors, in 2011, accounted for 10% of the total manufacturing output³² in the state. Food beverage and tobacco manufacturing industry is the second largest manufacturing industry, after miscellaneous manufacturing, in Nevada.

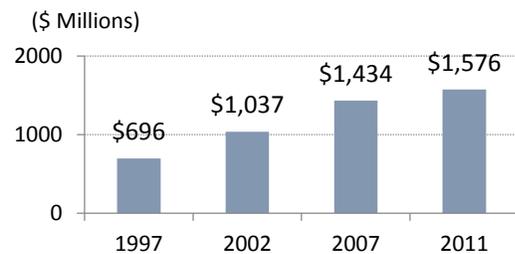
Figure 16. Top 5 Nevada Manufacturing Industries (in millions of dollars, in 2011):



Source: U.S Bureau of Economic Analysis

Receipts (net selling value)³³ shows constant increase from the past several years (see Figure 17), and the value in 2011 was \$1.6 million.

Figure 17. Value of Shipments (\$millions) – Nevada:



Source: Economic Census Data

The table below provides data on number of establishments, employment, and payroll, value of shipments and changes over the period from 1997 – 2011.

Table 12. Key statistics³⁴ - Food and Beverage Manufacturing Industry, Nevada:

Category:	1997	2002	2007	2011
Number of establishments	94	147	142	157
Value of shipments (\$ Millions)	696	1,037	1,434	1,576
Annual payroll (\$ Millions)	83	118	134	158
Total employment ³⁵	2,917	3,759	4,482	3,636
Value of shipments per establishment (\$1,000)	7,407	7,054	10,098	10,040
Value of shipments per employee (\$1,000)	239	276	320	433
Employees per establishment	31	26	32	23
Population per establishment	17,825	14,747	18,066	17,312

Source: Economic Census Data

Characteristics of the Agriculture and Food Processing and Manufacturing Industries:

Agriculture and food manufacturing and processing facilities are less dependent on land and microclimate conditions of a given region than agriculture production. Some manufacturing and processing enterprises base their location decision on proximity to agricultural inputs that go into production, while others, due to transportation costs and safety concerns, are moving closer to population centers and towards the points of consumption. Other site selection needs are specific to a type of food processing; for example, wastewater can be of concern, or water supply, or some other factor. Agriculture and food processing and manufacturing in Nevada is an important part of the agriculture value chain, and establishments are spread around the state.

³² Manufacturing output is Gross Domestic Product (GDP) by state (millions of current dollars).

³³ Net selling value is value (exclusive of freight and taxes) of all products shipped as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and sold without further processing. Included are all items made by or for the establishments from material owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment.

³⁴ Data in Key Industry Statistics include only establishments with paid employees. All figures are in current dollars for the period shown, and do not reflect changes in prices.

³⁵ Total Employment all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period that included the 12th of the months specified on the report form. Included are employees on paid sick leave, paid holidays, and paid vacations; not included are proprietors and partners of unincorporated businesses. If salaried officers and executives of corporations, who were on the payroll in the pay period including March 12, are included number of paid employees would be 4,895 for year 2011.

Animal Feed and Animal Food Manufacturing:

The products of animal feed and animal food manufacturing businesses include bulk grain-based products, as well as protein supplements and other dietary supplements, primarily sold to feedlots. Products also include bagged feeds sold to smaller livestock operations and to consumers via animal feed stores, and farm and ranch supply retail outlets. Other products include bagged and canned dog and cat foods manufactured using a range of grain, vegetable, meats, and other animal byproducts in their formulations. A small number of these establishments were operating in Nevada in 2012, creating approximately 110 jobs.

Table 13. Animal feed and food manufacturing employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Other Animal Food Manufacturing (311119)	4	18	\$51,711
Dog and Cat Food Manufacturing (311111)	1	92	\$66,261

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) - DETR

According to USDA State Export Data (2012), an estimated \$12 million worth of animal feeds and fodder exported from the U.S. in 2012 originated in Nevada.

Baked Goods and Confectionary Manufacturing:

The group of companies involved in baking and confectionery manufacturing represent a significant portion of agriculture and food processing and manufacturing. More than 100 establishments within these industries were creating more than 2,000 jobs in 2012. To manufacture their products, the industry demand for wheat and milk is high, and domestic wheat production, as well as fluid milk supply, does not meet the industry demand. Significant amounts of fluid milk, crop products, as well as some other inputs, like flavoring syrup, are supplied from out of the state.

* Source: Bureau of Labor Statistics – QCEW Industry Tables (2012 annual data)

Table 14. Baked goods and confectionary mfg. employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Breakfast Cereal Manufacturing (311230)	1	153	\$81,809
Confectionery Mfg. from Purchased Chocolate (311330)	(*)	189	\$28,365
Non-chocolate Confectionery Mfg. (311340)	6	103	\$42,498
Retail bakeries (311811)	62	488	\$26,297
Commercial Bakeries (311812)	31	963	\$34,891
Frozen cakes, pies, and other pastries Mfg. (311813)	2	<10	-
Cookie, cracker, and pasta Mfg. (311821)	7	57	\$36,783

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) - DETR

Fruit and Vegetable Processing and Mfg.:

The processing of fruits and vegetables usually involves canning, pickling, and fresh-frozen processing, but it also includes manufacturing of food such as salsa products, and other forms of processing. A total of 9 companies were engaged in fruit and vegetable processing and manufacturing in 2012, providing 600 jobs.



Table 15. Fruit and vegetable processing and manufacturing employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Frozen Specialty Food Manufacturing (311412)	2	321	\$33,235
Frozen Fruit, Juice, and Vegetable Manufacturing (311411)	2	32	\$75,925
Fruit and Vegetable Canning (311421)	3	111	\$60,977
Dried and Dehydrated Food Manufacturing (311423)	2	135	\$44,278

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) – DETR

Export data for 2012 shows that \$21.2 million of processed fruits and vegetables sold internationally originated from Nevada. (USDA-ERS, State Exports Data, 2012).

Dairy Product Manufacturing:

Nevada is home to several dairy processors, ice cream, and frozen desserts manufacturing, and a few cheese processing companies. It is estimated that \$17.3 million was the value of exports to international markets of dairy products in 2012³⁶. In 2012, dairy manufacturing firms in Nevada provided more than 800 jobs.



Table 16. Dairy product manufacturing employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Fluid Milk Manufacturing (311511)	6	316	\$71,132
Ice Cream and Frozen Desserts Manufacturing (311520)	3	490	\$64,422

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) – DETR



³⁶ USDA-ERS, State Exports Data, 2012

* Source: Bureau of Labor Statistics – QCEW Industry Tables (2012 annual data)

Animal Slaughter and Meat Processing:

The largest species handled in Nevada when it comes to animal meat slaughtering and processing is cattle. Only a small number of companies were operating currently in Nevada, with approximately 168 jobs in 2012 within two industry groups listed in the table below:

Table 17. Animal slaughtering and meat processing employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Meat Processed from Carcasses (311612)	5	81	\$56,880
Rendering and Meat Byproduct Processing (311613)	2	87	\$70,409

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) - DETR

According to USDA State Export Data (2012), an estimated \$23.3 million worth of the beef and pork exported from the U.S. in 2012 originated in Nevada. Hides and skins produced in Nevada at \$11.6 million are also exported.

Other Food Manufacturing:

Other food manufacturing includes industries like snack food, seasoning, perishable food, and other miscellaneous food manufacturing. In 2012, there were about 24 companies and more than 700 jobs in this category.

Table 18. Other food manufacturing employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Spice and Extract Manufacturing (311942)	4	268	\$49,509
Mayonnaise, Dressing, and Other Prepared Sauce Mfg (311941)	3	106	\$58,762
Perishable Prepared Food Mfg. (311991)	14	290	\$24,172
Other Snack Food Mfg. (311919)	1	10	--
All Other Miscellaneous Food Manufacturing (311999)	2	67	\$45,790

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) - DETR

Beverage Manufacturing:

The major industry of beverage manufacturing is coffee and tea manufacturing. Typically this industry involves coffee roasting and tea blending and/or packaging for commercial use. Almost all input material for this industry comes outside of the state. Companies like Blind Dog Coffee, Starbucks, and Boyd Coffee Company have their operations in Nevada.



Breweries, distilleries, and wineries are emerging industries, and a small number of establishments already are showing remarkable results. Unfortunately data on employment in these establishments are not available³⁷. Together, around 22 beverage manufacturing establishments and 7 coffee and tea manufacturing establishments were operating in Nevada, creating more than 458 jobs.

Table 19. Beverage manufacturing employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Coffee and Tea Mfg. (311920)	7	258	\$59,345
Soft Drinks Mfg. (312111)	2	104	\$58,213
Bottled Water Mfg. (312112)	4	66	\$46,097
Ice Mfg. (312113)	4	72	\$48,842
Breweries (312120)	3	<10	-
Distilleries (312140)	2	-	-
Wineries (312130)	7	-	-

Source: Agriculture Manufacturing Report Industry Breakdown Report (EMSI data) - DETR

³⁷ Data do not meet BLS or State agency disclosure standards.

* Source: Bureau of Labor Statistics - QCEW Industry Tables (2012 annual data)

Agriculture & Food Manufacturing and Processing Workforce Characteristics:

The structure of the workforce engaged in agriculture and food manufacturing and processing depends on the type of manufacturing and processing in which a particular industry is involved. Employment was growing at a rate of 4.4% between 2011 and 2012. Data for 2013 are reporting 5,409 jobs in agriculture and food processing and manufacturing sector. Based on a demographic analysis, employment is generated mostly within a younger population group, between 25-44 years. Sixty four percent (64%) of the male population is employed compared to 36% of the female population.³⁸

The most common occupations were compiled in Table 20. providing current job numbers, average wages, and education requirements.



Table 20. Staffing Patterns – Top 10 jobs in Agriculture and Food Manufacturing and Processing:

SOC	Occupation	Jobs (2013)	Median Hourly Earnings	Education Level
51-3092	Food Batchmakers	531	\$14.09	Short-term OJT
51-3011	Bakers	361	\$13.70	Long-term OJT
51-9111	Packaging and Filling Machine Operators and Tenders	353	\$12.58	Moderate-term OJT
51-9198	Helpers-Production Workers	237	\$11.64	Short-term OJT
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	206	\$12.68	Short-term OJT
53-7064	Packers and Packagers, Hand	185	\$11.29	Short-term OJT
49-9071	Maintenance and Repair Workers, General	126	\$20.64	Moderate-term OJT
53-7051	Industrial Truck and Tractor Operators	123	\$15.13	Short-term OJT
51-1011	First-Line Supervisors of Production and Operating Workers	120	\$26.00	Work experience
43-5071	Shipping, Receiving, and Traffic Clerks	119	\$13.19	Short-term OJT

Source: Agriculture Manufacturing Report (EMSI Data), DETR
 Note: OJT – On-the-Job Training.

³⁸ Agriculture Manufacturing Report – Economic Modeling Specialists International (EMSI), DETR

Agriculture and Food Distribution and Wholesale Sector:

Distribution and wholesale sales of agriculture and food products are significant segments of the agriculture sector value chain. Wholesalers and distributors are an integral part of marketing and logistics, as well as transportation and storage of products that were grown and produced or used in agriculture and food production.

Agriculture and Food Distribution and Wholesale Industries - Definition:

Enterprises in agriculture and food distribution and wholesale operations move products of agriculture, forestry, and fishing to processors or to a place of final consumption.

Industry Groups:	
Farm Products Wholesalers, Warehousing & Storage:	
424510	Grain and Field Bean Merchant
424520	Livestock Merchant Wholesalers
424590	Other Farm Product Raw Material
493130	Farm Product Warehousing and Storage
Food Wholesale:	
424410	General Line Grocery Merchant
424420	Packaged Frozen Food Merchant
424430	Dairy Product (except Dried or Canned)
424440	Poultry and Poultry Product Merchant
424450	Confectionery Merchant Wholesalers
424460	Fish and Seafood Merchant Wholesalers
424470	Meat and Meat Product Merchant
424480	Fresh Fruit and Vegetable Merchant
424490	Other Grocery and Related Products
493120	Refrigerated Warehousing and Storage
Beverage Wholesalers:	
424810	Wine and Distilled Alcoholic Beverage Merchant Wholesalers
424820	Beer and Ale Merchant Wholesalers
Nursery and Florist Wholesale:	
424930	Flower, Nursery Stock, and Florists' Supplies Merchant Wholesaler

Agriculture and Food Distribution and Wholesale in Nevada - Market Size:

To capture the market size of industry groups that define agriculture and food distribution and wholesale sector, key statistics are presented in the table below. The value of sales in 2007 was \$27 billion. Total wholesale trade industry output accounted for 4% of the total output in the state in 2011.³⁹

Table 21. Key Statistic for Agriculture and Food Wholesale industry group, 2007:

Category:	NAICS (4245)	NAICS (4244)	NAICS (4248)	NAICS (42493)
	Farm product raw material whls.	Grocery and related product whls.	Beer, wine, and distilled alcoholic beverage whls.	Flower, nursery stock, and florists' supplies whls
Number of establishments	10	240	36	23
Sales (\$ Millions)	36	3,101	1,815	31
Annual payroll (\$ Millions)	2	223	153	4
Total employment	127	4,776	2,220	139
Population per Establishment	256,538	10,689	71,261	111,538

Source: Economic Census Data

Characteristics of the Agriculture and Food Distribution and Warehousing Industries:

The industry group operates mostly “behind the scene,” making it difficult to capture the full amount of activities as well as the impact these industries have within the agriculture sector. A reason this difficulty exists is that some wholesale operations that supply Nevada’s markets and retailers, are managed by big retail centers, and in these cases, it’s difficult to determine value.

³⁹ Source: Bureau of Economic Analysis

* Source: Bureau of Labor Statistics – QCEW Industry Tables (2012 annual data)

Farm Products Wholesalers, Warehousing & Storage:

Moving down the value chain, ranch and farm product wholesalers are those enterprises that are involved in agricultural commodity marketing. Wholesalers are selling raw crop and livestock products to manufactures that will process them into final products, or they will be involved into supplying retail chains with fresh products. When it comes to farm and ranch commodity marketing there is only a small number of wholesalers operating in Nevada.

Table 22. Farm product wholesalers, warehousing and storage employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Grain and Field Bean Merchant Wholesalers (424510)	1	53	\$15,673
Livestock Merchant Wholesalers (424520)	2	<10	--
Other Farm Product Raw Material Merchant Wholesalers (424590)	3	0	\$0
Farm Product Warehousing and Storage (493130)	0	0	\$0

Source: Agriculture Commodity Marketing Report Industry Breakdown Report (EMSI data) - DETR

Food Wholesalers:

When it comes to employment, the largest industry group within the agriculture wholesale and distribution is Food Wholesale. Food Wholesale is comprised of general line grocery wholesalers and other grocery related product wholesalers. In Nevada, there were 254 grocery product merchant wholesalers with approximately 4,558 jobs in 2012, with approximately 6 warehousing and storage establishments providing their services and jobs to 142 people.



Table 23. Food wholesale employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
General Line Grocery Merchant Wholesalers (424410)	25	1,173	\$70,006
Packaged Frozen Food Merchant Wholesalers (424420)	21	174	\$53,199
Dairy Product (except Dried or Canned) Merchant Wholesalers (424430)	16	190	\$52,862
Poultry and Poultry Product Merchant Wholesalers (424440)	1	<10	--
Confectionery Merchant Wholesalers (424450)	30	422	\$54,372
Fish and Seafood Merchant Wholesalers (424460)	12	158	\$60,723
Meat and Meat Product Merchant Wholesalers (424470)	14	277	\$59,628
Fresh Fruit and Vegetable Merchant Wholesalers (424480)	19	477	\$58,427
Other Grocery and Related Products Merchant Wholesalers (424490)	116	1,684	\$58,220
Refrigerated Warehousing and Storage (493120)	6	142	\$50,595

Source: Agriculture Commodity Marketing Report Industry Breakdown Report (EMSI data) - DETR

Beverage Wholesalers:

There were a total of 43 beverage wholesalers who employed approximately 2,146 employees in 2012. Wholesalers are primarily engaged in the wholesale of wine and spirits, and beer and ale merchant wholesalers.

Table 24. Beverage wholesale employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Wine and Distilled Alcoholic Beverage Merchant (424820)	21	1,254	\$101,018
Beer and Ale Merchant Wholesalers (424810)	12	892	\$57,291

Source: Agriculture Commodity Marketing Report Industry Breakdown Report (EMSI data) - DETR

Nursery Wholesaler:

Nineteen nursery and florist merchant wholesalers employed 124 jobs providing services to the Nevada market in 2012.

Table 25. Flower, nursery and florists' supplies wholesale employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Flower, Nursery Stock, and Florists' Supplies Merchant Wholesalers (424930)	19	124	\$36,250

Source: Agriculture Commodity Marketing Report Industry Breakdown Report (EMSI data) – DETR



Agriculture and Food Distribution and Wholesale Workforce Characteristics:

Employment growth in the agriculture and food distribution and wholesale sector was strong in 2013; the total job count for this sector was 7,429. The demographic structure is younger with the largest group, 25% of employment, within the age group between 25-44 years.⁴⁰ There is significant imbalance when it comes to the gender, with 78% male, and only 22% of females in the workforce.

The occupations were compiled in table below providing current job numbers, average wages, and education requirements.

Table 26. Staffing Patterns – Top 10 jobs in Agriculture and Food Warehousing and Distribution:

SOC	Occupation	Jobs (2013)	Median Hourly Earnings	Education Level
41-4012	Sales Representatives Wholesale and Mfg.,	1,247	\$24.01	Moderate-term OJT
53-7062	Laborers and Freight, Stock, and Material Movers	859	\$12.68	Short-term OJT
53-3031	Driver/Sales Workers	647	\$13.51	Short-term OJT
53-3032	Heavy and Tractor-Trailer Truck Drivers	520	\$21.85	Short-term OJT
43-5081	Stock Clerks and Order Fillers	390	\$11.35	Short-term OJT
53-3033	Light Truck or Delivery Services Drivers	364	\$14.97	Short-term OJT
53-7051	Industrial Truck and Tractor Operators	219	\$15.13	Short-term OJT
43-9061	Office Clerks, General	210	\$14.08	Short-term OJT
43-5071	Shipping, Receiving, and Traffic Clerks	199	\$13.19	Short-term OJT
27-1026	Merchandise Displayers and Window Trimmers	196	\$11.68	Moderate-term OJT

Source: Agriculture Commodity Marketing Report (EMSI Data), DETR
Note: OJT – On-the-Job Training.

⁴⁰ Source: Agriculture Commodity Marketing Report – Economic Modeling Specialists International (EMSI), DETR

* Source: Bureau of Labor Statistics – QCEW Industry Tables (2012 annual data)

Agriculture and Food Retail and Food and Beverage Service Sector:

Retail, as well as, food and beverage service establishments, are part of the agriculture and food sector and its value chain where the final value of product is determined by consumers their willingness to pay certain amounts of money for agriculture and food products and services. This is the part of the value chain where consumers determine the amount of products that will be delivered and distributed to the market.

Agriculture and Food Retail and Food & Beverage Services Industries - Definition:

The industry groups in this segment of the agriculture and food sector cover retail stores that are in the business of selling food and beverages, fruits and vegetables, providing different food services, and it includes food and beverage establishments.

Industry Groups:

Fresh Markets, Supermarkets and Groceries:

- 445210 Meat Markets
- 445220 Fish and Seafood Markets
- 445230 Fruit and Vegetable Markets
- 445291 Baked Goods Stores
- 445110 Supermarkets and Other Grocery (except Convenience Stores)
- 445292 Confectionery and Nut Stores
- 445299 All Other Specialty Food Stores
- 445310 Beer, Wine, and Liquor Stores
- 446191 Food (Health) Supplement Stores
- 452910 Warehouse Clubs and Supercenters

Bars & Restaurants:

- 722110 Full-Service Restaurants
- 722211 Limited-Service Restaurants
- 722212 Cafeterias, Grill Buffets, and Buffets
- 722213 Snack and Nonalcoholic Beverage Bars
- 722410 Drinking Places (Alcoholic Beverages)

Food & Beverage Services:

- 722310 Food Service Contractors
- 722320 Caterers
- 722330 Mobile Food Services

Horticulture & Pet Supply:

- 444220 Nursery, Garden Center, and Farm Supply Stores
- 453110 Florists
- 453910 Pet and Pet Supplies Stores

Agriculture and Food Retail and Food and Beverage Services in Nevada - Market Size:

The market size of retail food and beverage industry groups is presented in table below.

Table 27. Key Statistic for Agriculture and Food Wholesale industry group – Nevada 2007:

Category:	NAICS (445)	NAICS (722)	NAICS (44422)
	Food and Beverage Stores	Food services and drinking places	Nursery, garden center, and farm supply stores
Number of establishments	868	4,939	68
Sales (\$ Millions)	4,979	5,461	188
Annual payroll (\$ Millions)	531	1,526	27
Total employment	22,123	97,104	1,156
Population per establishment	2,956	519	37,726

Source: Economic Census Data

Food and beverage stores' value of sales was \$5 billion with total employment of 22,123 in 2007, while sales of nursery, garden, and farm supplies were \$188 million for the same year. Those stores' total employment was 1,156 with an annual payroll of \$27 million.

In 2007, food services and drinking establishments provided employment to 97,104 people, and the value of sales was \$6 billion. Total output (GDP) in 2011 was \$4.7 billion accounting for 3.7% of total state industry output. (U.S. Department of Commerce – BEA Data)

Characteristics of the agriculture and food retail and food and beverage service industries:

It is very difficult to estimate the value of the retail, and food and beverage establishments and their contribution to the agriculture and food sector and its value chain. Difficulties come from the fact that these grocery stores, chains, and supercenters sell more than just agriculture food and products. There are no public data available to measure these sales and values.

Fresh Markets, Supermarkets and Grocery Stores:

In 2012, about 704 establishments in this industry group were providing approximately 32,293 jobs. Interest in local food is growing substantially, and understanding how beneficial that is for both producers and consumers is becoming more articulated and understood. The expansion of local food markets can help to contribute to the growth and diversification of local economies.

However, big supermarkets and grocery stores still create a large number of jobs; 316 supermarkets and grocery stores were providing more than 17,000 jobs in 2012.

Table 28. Fresh Market, Supermarkets, and Grocery Stores employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Meat Markets (445210)	19	173	\$25,223
Fish and Seafood Markets (445220)	19	<10	--
Fruit and Vegetable Markets (445230)	1	<10	--
Baked Goods Stores (445291)	11	78	\$31,544
Supermarkets and Other Grocery (except Convenience) Stores (445110)	316	17,419	\$34,015
Confectionery and Nut Stores (445292)	48	431	\$22,036
All Other Specialty Food Stores (445299)	50	268	\$20,383
Beer, Wine, and Liquor Stores (445310)	113	561	\$21,765
Food (Health) Supplement Stores (446191)	83	417	\$30,983
Warehouse Clubs and Supercenters (452910)	44	12,946	\$34,921

Source: Agriculture and Food Retailers Industry Breakdown Report (EMSI data) - DETR



A total of 44 supercenters provided more than 12,000 jobs, and this category includes some of the large retailers like Walmart, Inc., Safeway Inc., Whole Foods, Target, etc.

Some of these retailers have just a small portion of their total sales attributed to food sales. For example 54% of Walmart’s total sales are food sales. With Target, the total percentage of food sales was only 17% in 2011⁴¹.



⁴¹ Source: “The Value Chain of Colorado Agriculture”, Colorado State University, 2013

* Source: Bureau of Labor Statistics – QCEW Industry Tables (2012 annual data)

Bars and Restaurants:

Food and service establishments represent the largest segment of the value chain in terms of employment and jobs. Growing trends between local restaurants and agriculture and food production is directly supplying fresh products from farms and ranches to these establishments, creating growth opportunities within the sector. There were 5,054 food services and drinking places in Nevada employing approximately 94,719 jobs in 2012.

Table 29. Bars and Restaurants employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Full-Service Restaurants (722110)	1,791	49,018	\$26,212
Limited-Service Restaurants (722211)	2,230	32,328	\$16,978
Cafeterias, Grill Buffets, and Buffets (722212)	41	687	\$18,734
Snack and Nonalcoholic Beverage Bars (722213)	434	4,059	\$18,364
Drinking Places (Alcoholic Beverages) (722410)	558	8,627	\$29,609

Source: Agriculture and Food Retailers Industry Breakdown Report (EMSI data) - DETR

Food and Beverage Services:

Establishments in this group of industries are primarily engaged in providing food services at personal, institutional, governmental, commercial, or industrial locations based on contractual arrangements with these types of organizations for a specified period of time.

The establishments of this industry provide food services for the convenience of the contracting organization or the contracting organization's customers. Sixty three private catering establishments, 17 mobile food service, and 110 food service contractors were operating in Nevada employing approximately 3,366 jobs in 2012.

* Source: Bureau of Labor Statistics – QCEW Industry Tables (2012 annual data)

Table 30. Food and Beverage Services employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Caterers (722212)	63	570	\$25,660
Mobile Food Services (722330)	17	53	\$17,989
Food Service Contractors (722310)	110	3,313	\$31,596

Source: Agriculture and Food Retailers Industry Breakdown Report (EMSI data) - DETR

Nursery, Horticulture Retailers and Pet Supply Stores:

The last group is comprised of those establishments selling nursery and crop products to the public as well as products for animal care. There were 63 nursery, garden centers and 79 florists in Nevada in 2012, employing more than 1,000 jobs. Some of these were part of the big food retail stores or supercenters, but they are important in the value chain creating new opportunities for locally grown products and their sales to final customers. In connection with these establishments are landscaping service providers – 679 companies were registered in Nevada employing more than 7,000 jobs in 2012. Last in the chain are suppliers and retailers of animal products that mostly include pet supplies, but they are used for animal care and health. There were 73 pet and animal supply stores employing more than 1,000 jobs in 2012.

Table 31. Nursery, Horticulture Retailers and Pet Supply Stores employment and average payroll:

Industry (NAICS)	Establishments*	2012 Jobs	2013 Avg. Earnings Per Job
Nursery, Garden Center, and Farm Supply Stores (444220)	63	716	\$29,298
Florists (453110)	79	322	\$26,135
Landscaping Services (561730)	679	7,108	\$31,044
Pet and Pet Supplies Stores (453910)	73	1,039	\$24,801

Source: Agriculture and Food Retailers Industry Breakdown Report (EMSI data) - DETR

Agriculture and Food Retail and Food and Beverage Services Workforce Characteristics:

Employment in agriculture and food retail and food and beverage service is stable showing moderate growth with a rate of 1.9 %. The total number of jobs in 2013 was 140,933, and demographic structure shows 44% of employment in the age group from 25-44, followed by 23% of employment in the age group from 19-24.⁴² When it comes to gender, there is an equal ratio (50%-50%) of male to female employment. The occupations were compiled providing current job numbers, average wages, and education requirements and provided using Economic Modeling Specialist, Inc. (EMSI).



Table 32. Staffing Patterns – Top 10 jobs in Agriculture and Food Retail and Food & Beverage Services:

SOC	Occupation	Jobs (2013)	Median Hourly Earnings	Education Level
35-3021	Combined Food Preparation and Serving Workers	28,702	\$9.53	Short-term OJT
35-3031	Waiters and Waitresses	21,144	\$11.08	Short-term OJT
41-2011	Cashiers	11,306	\$10.03	Short-term OJT
35-2014	Cooks, Restaurant	9,447	\$14.55	Moderate-term OJT
35-3011	Bartenders	6,981	\$11.90	Short-term OJT
35-2011	Cooks, Fast Food	6,752	\$9.58	Short-term OJT
35-1012	First-Line Supervisors of Food Preparation and Serving	5,476	\$17.64	Work experience
43-5081	Stock Clerks and Order Fillers	5,432	\$11.35	Short-term OJT
41-2031	Retail Salespersons	4,948	\$10.84	Short-term OJT
35-9021	Dishwashers	4,929	\$12.12	Short-term OJT

Source: Agriculture and Food Retailers Report, (EMSI Data), DETR

⁴² Source: Agriculture and Food Retailers Report, Economic Modeling Specialists International (EMSI), DETR

Conclusion:

When looking at the Nevada agriculture value chain it is clear that there are a broad span of activities across the Nevada agriculture and food sector. All the industries within the value chain share resources and provide support for each other in mutual growth efforts.

The information presented in this report shows the flow of inputs and outputs between all the segments of the agriculture and food sector value chain. That flow enables agricultural and food enterprises to realize full growth potential and create more value of their production or services. It is important to understand the interrelations and connections between different segments of the value chain, and all the opportunities for growth and prosperity that exist.

For Nevada to develop and strengthen agriculture and food production, it is important to examine the current status within the sector. It is also important to discover who is currently doing business in the sector, what the needs of those establishments are, and how the community can assist them to be more successful. At the same time, it is important to attract new businesses and learn what type of businesses to target to support increased economic growth. To attract new business we need to create compelling reasons for them to move to, or expand in Nevada, and show them the potential the agriculture sector has to offer. It is important to show these businesses the size of the local market for their industry product, availability of qualified labor, and skilled workforce, and the willingness of the community and state to help and assist in any regulatory, financial, or promotional aspect to create a business friendly environment.

Based on the value chain analysis, it is easy to determine the existing demand for certain goods and services that are needed and required in agriculture and food production, but are not available in the state. Those shortages represent opportunities where new companies could be attracted or existing companies could expand their operations. It is evident that there is potential within meat processing and slaughtering companies, agriculture equipment

manufacturing companies, chemical and fertilizer producers, dairy production, grain and oilseed manufacturing, and beverage manufacturing market that have been recently developed. Another growing and wide-spread trend is the local food supply and development of local food markets. It is a growing trend within the communities to start the consumption of locally grown and processed products. More and more people like to “know their food” – where it comes from, and where it is grown, not only to support local food growers and the local economy, but also because it creates a certain level of food security.

This report is just a “surface” analysis of the Nevada agriculture and food sector. The need for a more in depth analysis is imminent. Future analysis will develop a detailed study to provide information needed to form “well-established” supply chains within the agriculture sector. Also, future studies will need to pay special attention to workforce needs and occupational gaps to fill in the voids and create a report defining the needs for a skilled and educated workforce.

Agriculture and food production is one of the key industries, not only in our state, but also worldwide. The Nevada Department of Agriculture (NDA) assists businesses to discover the existing opportunities within the sector and to help them grow and become a successful part of the Nevada economy. NDA created the new “*Buy Nevada*” marketing brand to support agriculture and food companies marketing efforts. Buy Nevada promotes food and agriculture products made and grown in Nevada.



FOOD & AGRICULTURE PRODUCTS
MADE & GROWN IN NEVADA

Similar to most other states, the Buy Nevada program represents a state-led effort to promote these industries. It is clear that consumers value agriculture products.

To ensure a strong Nevada economy and growth of agriculture cluster, we must continue to strengthen the supply chain through recruitment of companies where shortages exist.



Director Jim Barbee (left) and Governor Brian Sandoval with Buy Nevada gift baskets.

NDA ADMINISTRATORS:

Directors Office:

Jim Barbee, *Director*

Lynn Hettrick, *Deputy Director*

Dale Hansen, *Fiscal Administrator*

Consumer Equitability:

Dave Jones, *Administrator*

Animal Industry:

Flint Wright, *Administrator*

Plant Industry:

Dawn Rafferty, *Administrator*

Food and Nutrition:

Donnell Barton, *Administrator*

BOARD OF AGRICULTURE MEMBERS:

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Paul Anderson – *Washoe County*

Representing Viticulture:

Charlie Frey – *Churchill County*

Representing General Agriculture:

Ramona Morrison – *Nye County*

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Representing Dairy:

Allan Perazzo – *Churchill County*

Representing Row Crops:

Jim Snyder – *Lyon County*

Representing Livestock:

Boyd Spratling, D.V.M. – *Elko County*

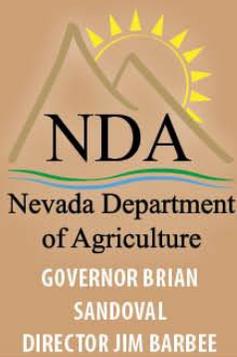
Representing Sheep:

Dave Stix Jr. – *Lyon County*

Representing Pesticides:

Brian Nakaguchi – *Clark County*

Tim Duffurena



The Nevada Department of Agriculture promotes sustainable agriculture and natural resources, which work to protect food, fiber, human health and safety and the environment through effective service, regulatory action and agricultural literacy. The Department was established in 1915 by Chapter 561 of the Nevada Revised Statutes.

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