

Agriculture



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Size and Scope of Box Elder County Agriculture 2018

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Location

Located in the northwest corner of Utah, Box Elder County is bordered by the states of Idaho on the north and Nevada on the west as well as Cache, Weber and Tooele counties. The eastern part of the county is where the majority of the population is located and where the bulk of the irrigated farmland lies. The western part of the county is characterized by public land, non-irrigated or dryland agriculture, as well as vast amounts of cattle and sheep ranching.

Box Elder County is one of the largest counties in Utah with 3,662,720 acres or 5,723 square miles of land. Population for the county totaled 54,079 as of July 1, 2017, estimates. Major population centers are primarily congregated around the Brigham City and Tremonton areas.

Land Ownership

The majority of Box Elder County land is owned and managed by state (21.7 percent) and federal (34.2 percent) government agencies, with 44 percent owned privately.

About 75 percent of the federally owned land is under the jurisdiction of the Bureau of Land Management (BLM). The remainder is managed by the military and the United States Forest Service (USFS). About 89 percent of the state controlled land is under the jurisdiction of the Utah School and Institutional Trust Land Administration (SITLA) and the remainder is part of the Utah State Wildlife Reserves. Private ground is primarily made up of farmland, rangeland and residential areas.

In 2017, the Utah Department of Agriculture and Food (UDAF) estimated there were 1,235 farms with an average size of 948 acres and an average value of \$917 per acre. The county had 328,644 acres in cropland (Table 1). Cropland is defined as land that currently has crops growing on it plus land that historically has been cropped. In 2016 irrigated cash-rent prices were \$115 per acre, with non-irrigated cash-rent prices at \$39.50 per acre, and pastureland valued at \$4.80 per acre in 2014. The total value of livestock and crops produced in Box Elder County in 2016 was listed at \$175,582,000.

Table 1. Farms, Land in Farms and Use¹

Land in Farms (acres)	1,170,736
Number of Farms	1,235
Average Farm Size (acres)	948
Median Farm Size (acres)	70
Area in Cropland (acres)	328,644
Harvested Cropland (acres)	151,884
Irrigated Land (acres)	102,925

Table 2. Box Elder County Annual Precipitation and Average Frost Free Days.

Location	Annual Precipitation	Last Average Spring Freeze	First Average Fall Freeze	Average Freeze-Free Period
Brigham City	19.41 inches	May 4	Oct 11	159 days
Corinne	17.68 inches	May 14	Sept 30	139 days
Grouse Creek	10.83 inches	June 12	Sept 11	91 days
Park Valley	11.15 inches	May 29	Sept 25	119 days
Plymouth	13.04 inches	May 19	Sept 9	113 days
Snowville	12.07 inches	June 9	Sept 12	95 days
Tremonton	17.80 inches	May 3	Oct 10	160 days

Source: Utah Climate Center

Growing Season

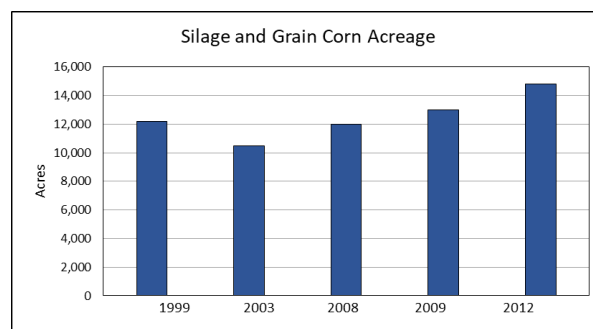
The growing season in Box Elder County averages from 91 to 119 days in the western part of the county and 113 to 160 days in the eastern part. Brigham City is located in the southeastern part of the county, Snowville is located in the north central part of the county and Park Valley is in the west central part of the county. Table 2 shows the annual precipitation, last spring frost, first fall frost and average frost free days in selected parts of the county. There tends to be a significant difference in the length of the growing season within the county. Brigham City is located in the Bear River Valley and tends to receive more rain and warmer weather year-round. The average precipitation received countywide also tends to be significantly different. The Brigham City weather station receives an average of 19.41 inches annually, while Tremonton/Garland receives 17.80 inches. In the western part, Snowville receives 12.07 inches and Park Valley averages 11.15 inches. The dryer and colder areas in the county influence the yield potential and limit the number and types of crops raised in these areas.

Crop Production

Box Elder County is one of the largest agricultural producing regions in the state. A majority of the crops are grown in the eastern part of the county, which consists largely of flood and pivot irrigated farmland, include alfalfa, winter and spring wheat, barley, grain and silage corn, oats, safflower, and onions. The south end of the county also has fruit

orchards consisting of peaches, cherries, apricots and apples. It ranks first in the state for wheat, safflower, and grain corn acreage and second in forage production (including alfalfa, haylage, grass silage, and greenchop) (Table 3).

On non-irrigated or dryland ground, a couple of crop rotation methods are practiced. A wheat, fallow, wheat, fallow, rotation is one of the methods practiced. With this rotation, winter wheat is planted in the fall of the year with a deep furrow grain drill and harvested the following summer. The ground is fallowed (not planted to a crop) the following summer to help control weeds and to conserve winter and spring precipitation in the soil for the next wheat crop. It is also becoming more practical to follow a wheat, safflower, fallow, wheat, safflower, fallow rotation to harvest four crops in six years. This rotation allows growers to control jointed goatgrass and other problem weeds in a safflower crop. Direct seeding and reduced tillage on non-irrigated or dryland are becoming more common. Much of the dryland grain grown in the county is hard red winter wheat (HRW).



Source: Utah Agriculture Statistics and Utah Department of Agriculture Annual Report

Table 3. Major Crops, Production, Harvested Acres, and Average Yield.

Primary Crops	2012 Production	Area Harvested 2012 (Acres)	Ave. Yield (Per Acre)
Corn for Grain	1,533,252 Bushels	8,488	181 Bushels
Corn for Silage	171,865 Tons	6,338	27.10 Tons
Alfalfa & Hay	173,500 Tons	41,500	4.20 Tons
Winter Wheat	2,712,050 Bushels	53,180	50.99 Bushels
Spring Wheat	86,771 Bushels	3,021	28.72 Bushels
Barley	363,012 Bushels	4,561	79.59 Bushels

Source: 2012 Census of Agriculture- County Data

The typical alfalfa hay producer will leave an alfalfa stand into production for 4 to 5 years before rotating to another crop. Producers in the eastern part of the county harvest three or four crops of alfalfa annually, while the producers in western part harvest one, two or three crops depending on available water and frost free growing season. Most irrigated ground is planted to soft white wheat (SWW) or spring wheat using double disc drill systems. About 94 percent of wheat planted is winter wheat and 6 percent is spring wheat. Irrigated land consists mostly of soft white wheat, silage and grain corn, alfalfa, barley and onions.

Producers in the county also raise some diversified crops. About 700 to 900 acres of onions are grown in the Bear River Valley. Vegetables such as sweet corn, tomatoes, squash, pumpkins and peppers are grown valley wide. The county does have several growers that grow peppermint and spearmint for the commercial oil flavoring market. The county is also famous for the Utah Fruit Way (roadside fruit and vegetable stands) which is located south of Brigham City through the small towns of Willard and Perry on Highway 89. The land and climate along the base of the mountains are ideal for growing peaches, pears, apricots and apples as well as sweet and tart cherries.

Irrigation Water

About 60 percent of the irrigation water available in Box Elder County comes from the Bear River Canal System. Pineview reservoir contributes another 15 percent, while deep wells provide the remaining 25 percent of needed irrigation water.

Livestock Production

Beef and dairy cattle and sheep production make up the majority of the county's receipts for animal agriculture production. Box Elder County ranks first in the state for total cattle numbers, second in sheep numbers due the large amounts of pasture and public land for grazing and third in the state for dairy cattle (Table 4). Beef cattle and sheep ranching are the most common forms of livestock production in the county and are countywide.

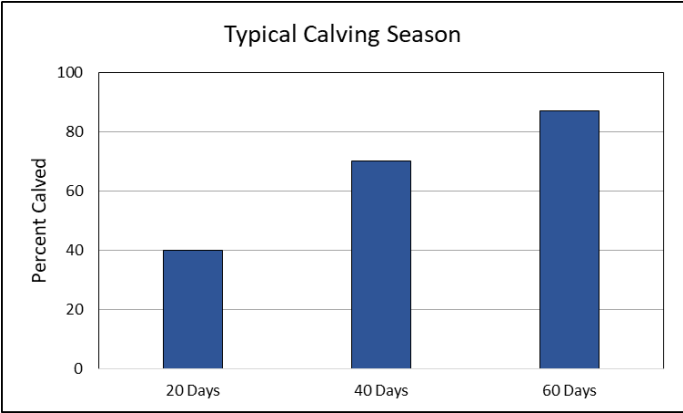
Many of the larger commercial ranches are located in the western part of the county. While nearly all ranches rely on public and private grazing lands, the eastern part of the county primarily has private lands while grazing in the western part is mostly on a combination of public and private lands. Ranchers typically utilize this combination as well as forage hay throughout the year. In the winter months, they keep livestock on private and public lands as long as the winter and/or permits allow and then supplement with forage such as alfalfa and grass hay. During summer months, livestock are typically kept on a combination of public and private lands.

Table 4. Major Livestock Commodities.

Primary Livestock	2016	2017	Change
All Cattle & Calves	92,000	90,000	-2,000
Beef Cows	33,000	34,500	1,500
Milk Cows	9,500	8,900	-600
All Sheep & Lambs	38,000	36,000	-2,000

Source: Utah Department Agriculture.

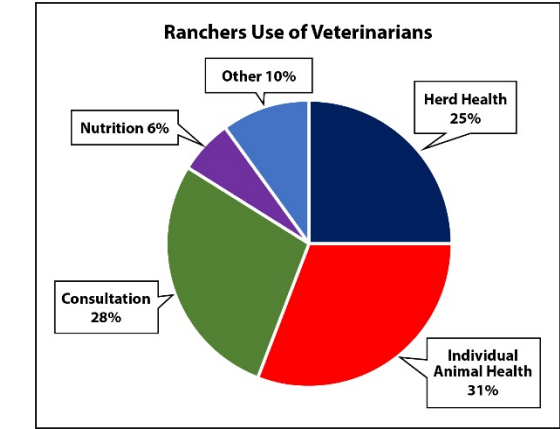
The typical average weight of beef cows is 1,025 lbs. Breeding season for cows usually lasts 85 days (May 7 to July 31) with 40 percent of calves typically born in the first 20 days of the calving season, 70 percent within the first 40 days and 87 percent born within 60 days.



Calves are mostly weaned in the fall as cows and calves come off summer ranges. The average weaned calf weight for heifers and steers is around 500 to 550 lbs.

Disease and Health Concerns

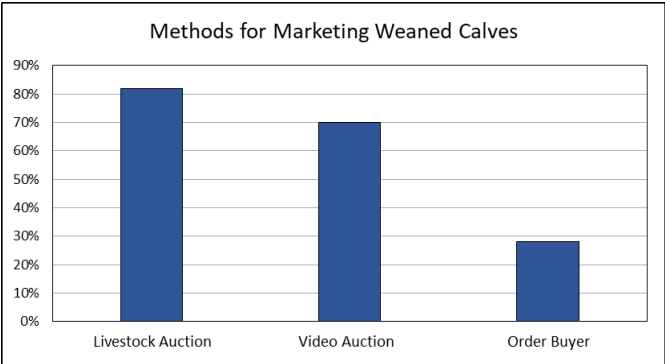
Ranchers are concerned about many health and disease problems such as calf scours, respiratory diseases, blackleg, parasites and mineral deficiencies. They usually utilize and consult veterinarians for general herd health, individual animal health, consultation and nutrition. Most ranchers have increased their use of preventative vaccinations. Predation, mostly coyote and mountain lion, is on the rise. Ranchers have implemented the use of multiple species of guard animals (dogs, llamas, donkeys) to assist in the control and prevention of attacks by predators. USU Extension in Box Elder County is currently



assisting with research to test the efficacy of using alpacas as another option for guard animal control.

Marketing

Marketing is an important part of the ranching business, but the way ranchers market their livestock has changed over time. Ranchers increasingly utilize video auctions in addition to more traditional marketing techniques such as order buyers and local livestock auctions.



Farm Income

Looking at historic census farm income data, the value of agricultural production has increased significantly. Net cash farm income of operation grew by 27 percent. Economic factors played a key role in these extreme changes as well as increased production from 2007 to 2012, which improved agricultural production, increased receipts, and improved net cash farm income per operation.

Table 5. Agricultural Production Value and Change.

Farm Income Indictors (dollars)	2007	2012	Change
Value of Ag. Sector Production	141,243,000	169,546,000	28,303,000
Value of Crop Production	50,497,000	76,316,000	25,819,000
Value of Animals \$ Products	90,747,000	93,230,000	2,483,000
Net Cash Farm Income	38,699,000	49,269,000	10,570,000

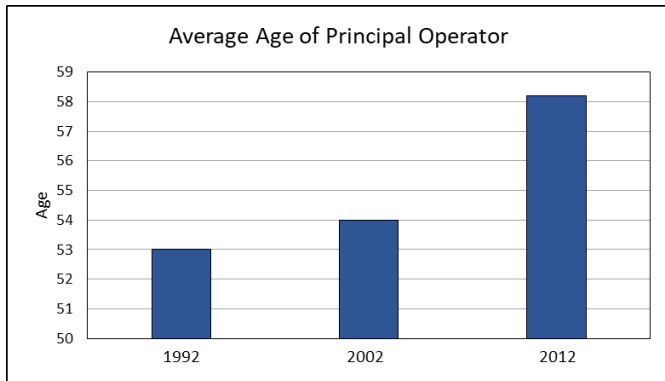
Demographics

Two of the most notable changes in the county’s demographic are the age of the principal operator and an increase in the number of female primary operators. The age of the primary farmer or rancher

increased slightly from 52.5 years in 1987 to 53.6 years in 2002. In 2007 the average age of the farmer or rancher increased to 57 years of age and to 58.3 in 2012.

Another important change is the increase in the number of female principal operators. In 1987, females consisted of only 3 percent of the principal operators. That number increased to 11 percent in 2007 and to 11.2% in 2012.

¹ 2012 Census of Agriculture – County Data, USDA, National Agricultural Statistics Service



Source: 2012 Census of Agriculture- County Data

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This document is an update from a publication titled "The Size and Scope of Agriculture in Box Elder County".