

The Size and Scope of Agriculture in Box Elder Countyⁱ

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Area: 5,723 square miles
(3,662,720 acres)
Population: 49,975 (2010)
County seat: Brigham City

Location

Box Elder County is located in the northwest corner of Utah and is bordered by the states of Idaho and Nevada. 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 has more non-irrigated or dryland agriculture and cattle and sheep ranching and is characterized with a steppe desert climate. The Golden Spike National Monument is located in Promontory in the eastern central part of the county and is famous as the meeting point of the first transcontinental railroad completed in 1869.

Land Ownership

The land ownership within the county is divided into private ownership (39%), federal ownership (30%), and state ownership (20%) with the remainder in water (11%).

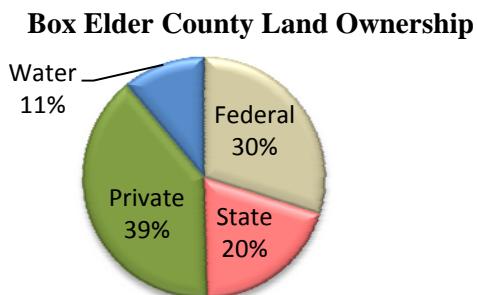


Table 1. Farms, Land in Farms and Use.

Land in Farms (acres)	1,320,177
Number of Farms	1,113
Average Farm Size (acres)	1,186
Acres in Cropland (acres)	327,695 ¹
Harvested Cropland (acres)	137,779
Irrigated Land (acres)	112,113
Leased BLM Grazing (acres)	695,000 ²

Source: 2011 Utah Agricultural Statistics Utah Department of Agriculture and Food

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 ground 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 2010, the Utah Department of Agriculture and Food (UDAF) estimated there were 1,113 farms with an average size of 1,186 acres and an average value of \$917 per acre. The county had 327,695 acres in cropland. Cropland is defined as land that currently has crops growing on it plus land that historically has been cropped. One example of cropland that has been historically cropped is the

¹ Cropland is defined as land that currently has crops growing on it plus land that has historically had crops.

² USDA Field Office, Tremonton, UT

Conservation Reserve Program (CRP) where current enrollment stands at 71,110 acres. There were 138,558 acres harvested and of those 112,113 acres were irrigated (Table 1). Value of livestock and crops produced was listed at \$119,293,000 (UDAF).

Crop Production

Box Elder County is located in one of the primary agricultural production regions in the state. The majority of the irrigated and dry land farming is done in the eastern half of the county from Snowville to the Wasatch Mountain Range. Some of the major commodities grown include alfalfa, winter wheat, spring wheat, grain and silage corn, barley, oats, peaches, onions, apricots and cherries. Crop rotation practices vary widely on irrigated land in Box Elder County. However, on non-irrigated or dry land, a couple of methods practiced are planting winter wheat in the fall, harvesting the grain crop the following summer and then fallowing the ground to control weeds and store a portion of the winter precipitation in the soil for use by the succeeding year's wheat crop. It is also becoming more common to plant a wheat crop followed by safflower and then fallowing the ground for a season. Direct seeding and reduced tillage on non-irrigated or dry land are practices that are becoming more common.

The typical hay producer will leave the alfalfa stand in for 4 to 5 years. Producers in the Bear River Valley harvest three or four crops of

alfalfa annually while the producers in Grouse Creek, Park Valley and Snowville, harvest one to three crops depending on available water and growing season.

Most irrigated alfalfa ground is plowed with a moldboard or chisel plow, disced and leveled in the fall prior to planting. The seed bed is prepared with special attention to building a firm and even planting surface to facilitate flood irrigation and harvest.

Typical ground preparation procedures vary for different crops. For irrigated grain production, the ground is usually disced twice after fall harvest, then smoothed and leveled with a Danish harrow. It is then fertilized with urea, anhydrous ammonia, ammonium nitrate or ammonium sulfate and planted to winter wheat.

Non-irrigated or dry land ground is chisel plowed in the fall and again in the spring of the year. It is followed by two or three weeding operations in preparation to being planted with winter wheat.

Much of the dry land grain in the county is hard red winter wheat (HRW) and is planted utilizing deep furrow drills while most irrigated ground is planted to soft white wheat (SFW) or spring wheat using double disc drill systems. About 94 percent of wheat planted is winter wheat and 6 percent is spring wheat.

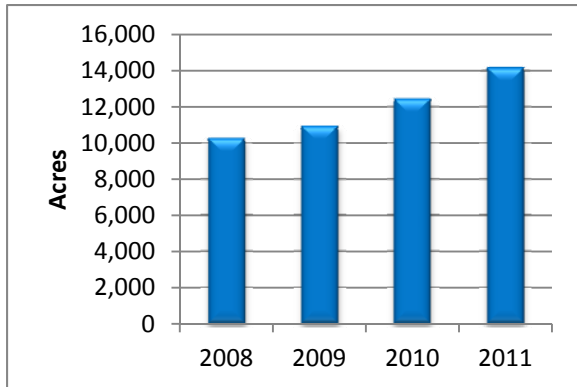
Table 2. Major Crops, Production, Harvested Acres and Average Yield.

2010 Primary Crops	Production	Total Harvested Acres	Avg. yield/Acre
All alfalfa hay	188,000 tons	55,500	4 – 6 tons
Other hay	25,000 tons	12,000	2.1 tons
Corn for silage	160,000 tons	6,400	29 tons
Corn for grain	912,000 bu.	7,767	200 bu.
Barley	225,000 bu.	4,100	110 bu.
Winter wheat	3,090,000 bu.	50,600	30 - 110 bu.
Oats	69,900 bu.	700	110 bu.

Source: Jim Hall, USDA Farm Service Agency (personal communication, February 2012)

Irrigated land consists mostly of soft white wheat, silage and grain corn, alfalfa, barley and onions. These acres vary over time with the number of acres of corn increased in recent years primarily due to better prices and yields. Acres of barley, oats and onions have notably decreased.

Silage and Grain Corn Acreage (2008 – 2011)



Source: Jim Hall, USDA Farm Service Agency (personal communication, February 2012)

Producers in the county also raise some unique crops. Onions are grown in the Bear River Valley from Tremonton south to the Corinne area. Many other vegetables such as sweet corn, tomatoes, squash, pumpkins and peppers are grown valley wide. In the area around Corinne it is common to see peppermint and spearmint grown for use in the commercial oil flavoring market. The county is also famous for the Fruit Way which is located south of Brigham City through the small towns of Willard and Perry on Highway 89. The land lies along the base of the mountains and the climate is ideal for growing peaches, apricots and apples as well as sweet and tart cherries.

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

Livestock Production

The county has the state's largest inventory of beef cattle and calves. It is second in sheep

Table 3. Major Livestock Commodities.

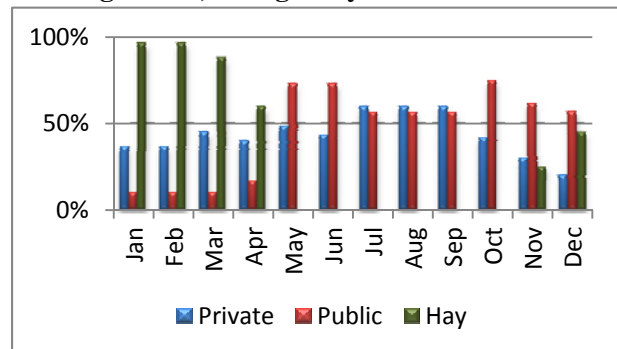
Primary Livestock	2010	2011	Change	Percent of State
All Cattle & Calves	94,000	93,000	-1,000	11
Beef Cows	38,500	38,500	0	12
Milk Cows	10,200	10,300	100	12
All Sheep & Lambs	43,000	41,500	-1,500	14

Source: 2011 Utah Agricultural Statistics

production and has the third largest number of milk cows in the state (Table 3).

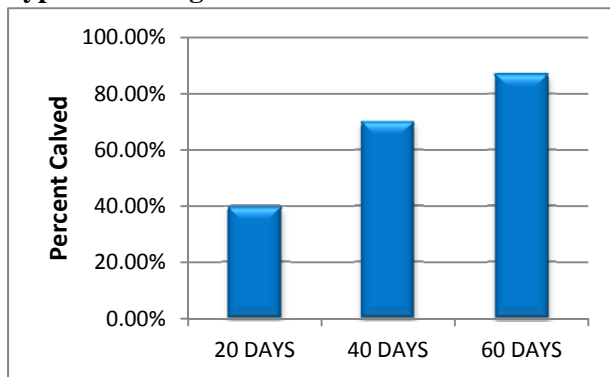
Beef cattle and sheep ranching are the most common forms of livestock production in the county and are done countywide. Many of the larger commercial ranches are located in the western part of the county. While nearly all ranches rely on public and private grazing lands, the eastern part of the county primarily has private lands while grazing in the western part is mostly done 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.

Typical Annual Use of Public and Private Grazing Lands, Forage Hay



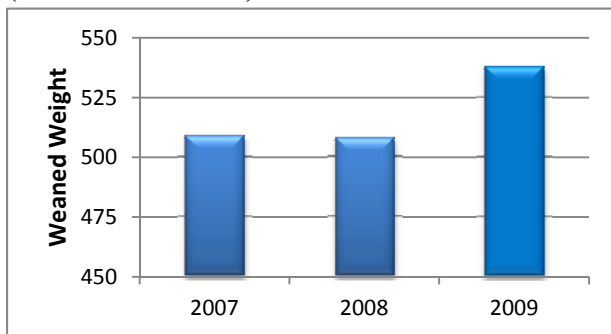
The typical average weight of cows is 1,025 lbs. Breeding season for cows usually lasts 85 days (May 7 to July 31) with 40 percent of calves typically born in the first 20 days of the calving season, 70 percent within the first 40 days and 87 percent born within 60 days.

Typical Calving Season



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.

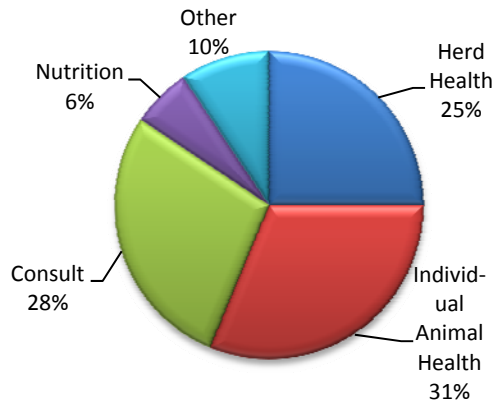
Typical Weaned Calf Weight (Steers and Heifers)



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.

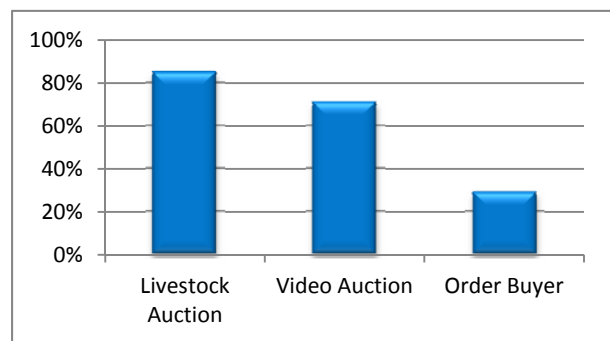
Rancher's Use of Veterinarians



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.

Typical Methods for Marketing Weaned Steers and Heifers



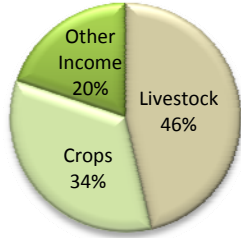
Farm Income

Box Elder County was ranked fourth in the categories of total cash receipts and crop revenue and was ranked fifth in livestock revenue according to data published in the 2010 Utah Department of Food and Agriculture Annual Report.

About 46 percent of the farm or ranch income in the county comes from livestock. Another 34 percent comes from crop production with another

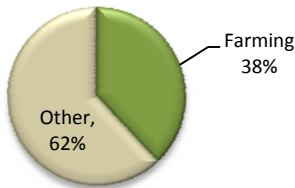
20 percent coming from other sources such as off-farm income, government support payments, etc.

Sources of Farm and Ranch Income

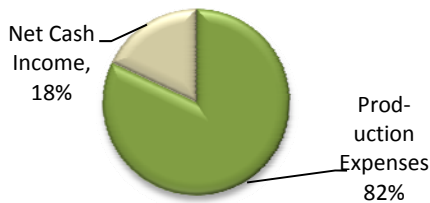


Off-farm income has risen steadily over the years. While operators and spouses across all sizes and typologies work off-farm or manage nonfarm businesses, the level of off-farm income varies inversely with farm size³. Approximately 38 percent of producers in the county rely entirely on the farm or ranch while 62 percent depend on some source of off-farm income. Farm expenses make up approximately 82 percent of net farm income.

Principal Operators Primary Source of Income



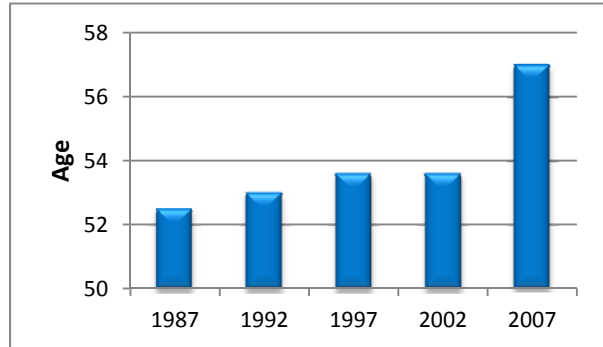
Net Cash Income and Expense Per Operation



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 1987 to 53.6 years 2002. In 2007 the average age of the farmer or rancher increased to 57 years of age.

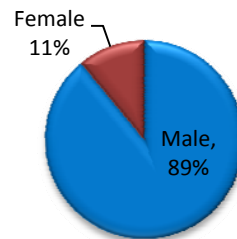
Average Age of Principal Operator



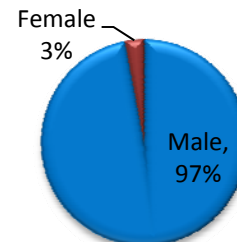
Source: 2007 Census of Agriculture

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.

Principal Operators by Sex (2007)



Principal Operators by Sex (1987)



³ Economic Research Service, Off Farm Income and Farm Household Characteristics

Table 4. Box Elder County Climate Characteristics.

County Locations	Annual Precipitation	Last Average Spring Freeze	First Average Fall Freeze	Average Freeze-free Period
Brigham City	19.33 inches	May 4	October 11	159 days
Corinne	17.68 inches	May 14	September 30	139 days
Park Valley	9.58 inches	May 29	September 25	119 days
Snowville	12.80 inches	June 9	September 12	95 days
Tremonton/Garland	17.80 inches	May 3	October 10	160 days

Source: USU Climate Center

Growing Season

The growing season in Box Elder County averages about 95 to 119 days in length in the western part and usually lasts 140 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 4 illustrates some of the details on climatology in the county.

There tends to be a significant difference in the length of the growing season within the valley.

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. Brigham City weather station receives an average of 19.41 inches annually, while Tremonton/Garland receives 17.80 inches. Un the western part, Snowville receives 12.07 inches and Park Valley averages 11.15 inches. The dryer and colder climates in the central and western part of the county influence the yield potential and limit the number of crops raised.

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ⁱ This document is an update from a publication titled "Box Elder County Agriculture Profile" by Godfrey, Pace and Holmgren published in 2005.