

### 3.4 AGRICULTURE

Agriculture is the predominant land use in Big Horn County. As such, agriculture has a major impact on the character and economy of the county. Into the future, farming and ranching will continue to be important in Big Horn County. The following is an examination of the characteristics and trends of agriculture in the county.

#### NUMBERS OF FARMS AND RANCHES

Big Horn County had 501 farms and ranches in 2002, covering 411,782 acres or 643 square miles, according to the U.S. Census of Agriculture. These farms and ranches accounted for 20.5 percent of the county’s land area and vast majority of deeded land. During the period 1992 to 2002, the number of farms has held roughly steady. Average size of ranches and farms has also remained roughly the same at over 800 acres. Within size classes of farms/ranches, the smaller than 100-acre class and the 1,000 to 1,999-acre class increased in numbers and acreage while all other size classes decreased.

| NUMBER OF FARMS AND RANCHES IN BIG HORN COUNTY, BY SIZE CLASS<br>1992 AND 2002 |                             |      |                     |                     |         |                     |
|--|-----------------------------|------|---------------------|---------------------|---------|---------------------|
|  | Number of Farms and Ranches |      |                     | Approximate Acreage |         |                     |
|  | 2002                        | 1992 | Change<br>1992-2002 | 2002                | 1992    | Change<br>1992-2002 |
| 1 to 49 acres  | 128                         | 98   | 30                  | 2,556               | 2,156   | 400                 |
| 50 to 99 acres   | 67                          | 57   | 10                  | 5,013               | 3,949   | 1,064               |
| 100 to 259 acres   | 88                          | 107  | -19                 | 15,019              | 18,852  | -3,833              |
| 260 to 499 acres   | 78                          | 99   | -21                 | 28,521              | 36,478  | -7,957              |
| 500 to 999 acres   | 58                          | 73   | -15                 | 38,898              | 51,750  | -12,852             |
| 1,000 to 1,999 acres   | 46                          | 43   | 3                   | 68,615              | 53,998  | 14,617              |
| 2,000 acres or more  | 36                          | 39   | -3                  | 253,160             | 274,140 | -20,980             |
| Totals   | 501                         | 516  | -15                 | 411,782             | 441,323 | -29,541             |

Source: U.S. Census of Agriculture

| <b>OVERVIEW - LIVESTOCK - BIG HORN COUNTY</b> |                                |                                    |
|---|--------------------------------|------------------------------------|
|   | <b>Number of farms/ranches</b> | <b>Number of livestock (total)</b> |
| Cattle and calves                             | 262                            | 46,598                             |
| Hogs and pigs                                 | 16                             | 3,396                              |
| Sheep and lambs                               | 70                             | 13,991                             |
| Poultry $\square$ layers 20 weeks and older   | 29                             | 851                                |

Source: U.S. Census of Agriculture, 2002

| <b>OVERVIEW - CROPS - BIG HORN COUNTY</b> |                                |                                  |
|---|--------------------------------|----------------------------------|
|   | <b>Number of farms/ranches</b> | <b>Number of acres harvested</b> |
| Corn for grain                            | 21                             | 2,165                            |
| Corn for silage                           | 34                             | 3,533                            |
| Wheat                                     | 4                              | 360                              |
| Oats for grain                            | 28                             | 1,677                            |
| Barley                                    | 79                             | 13,981                           |
| Dry edible beans (excluding limas)        | 22                             | 3,255                            |
| Forage (hay)                              | 328                            | 37,883                           |
| Sugarbeets                                | 40                             | 8,128                            |
| Vegetables for sale                       | 2                              | Not released                     |
| Orchards                                  | 3                              | 4                                |

Source: U.S. Census of Agriculture, 2002

The increase in small-acreage agricultural operations probably reflects an increasing number of “ranchettes” or “hobby farms” where the operator is not dependent on farm income and may have substantial off-farm employment. Life style may be more important than profitability for these small operations. The decrease in mid-sized operations is consistent with statewide trends and may portend a gradual shift in agriculture toward more large operations with more smaller, ranchette or hobby farm operations.

In Big Horn County, most of the acreage in farms and ranches is in large farms and ranches. A full 95 percent of the land in farms and ranches is in farms and ranches of 260 acres or more in size. These larger sized farms and ranches are more likely than the smaller ones to be economically efficient.

#### **AGRICULTURAL PRODUCTS**

Big Horn County’s agriculture is primarily in beef cattle, sheep, barley, sugar beets, oats, hay, dry beans, and other irrigated crops. More than half the farms and ranches in the county produce cattle and three-fifths produce forage crops such as hay.

The major agricultural products produced in Big Horn County are cattle and various crops. The following statistics highlight historical trends and how the county ranks in the state for each of these products.

**Cattle:** Big Horn County ranked 15th in the state for inventory of cattle and calves (2007). In 2007, Big Horn County had a total of 50,000 head of cattle. Lowest number of cattle in last 30 years (1978-2007) was 40,000 in 1991 and 1992, and highest number in 1996 with 55,000 head.

**Sugar beets:** The county ranked 3rd in state for production of sugar beets (2007). In 2007, 6,700 acres of beets were planted, with a yield of 123,000 tons total. This is the second lowest amount of acres planted in 30 years—lowest was 5,900 acres planted in 1982. Highest was 15,820 acres in 1991. Average between 1978 and 2007 was 11,722 acres planted.

**Barley:** The county ranked 3rd in state for production of barley (2007). In 2007, 10,100 acres were planted in barley with a total production of 910,000 bushels. Average annual amount of land planted in barley over the past 30 years is 21,123 acres. Highest annual production was in 1996, with over 2.5 million bushels total.

**Dry Beans:** The county ranked 3rd in the state for production of dry beans (2007). In 2007, 4,800 acres were planted in beans and produced 90,000 cwt. Average annual amount of land planted in beans over the past 30 years is 6,687 acres. Highest annual production was in 1981 with almost 217,000 cwt.

**Corn:** The county ranked 2nd in the state for production of silage corn and 5th for grain corn (2007). In 2007, 12,400 acres were planted in corn and produced 98,400 tons of silage and 380,000 bushels of grain. Silage production has averaged 83,600 tons and grain averaged 350,000 bushels over the past 30 years.

**Hay:** The county ranked 10th in the state for hay production (2007). In 2007, 34,000 acres were in hay and over 114,000 tons were harvested. Hay production is relatively consistent, with production averaging about 111,000 tons over the past 30 years.

### VALUE OF AGRICULTURAL PRODUCTS

In terms of overall agricultural production value, Big Horn County ranks 10th among Wyoming's 23 counties with \$ 86.7 million in crops and livestock produced (2005-2006; Source: Equality State Almanac).

Countywide, the largest 19 percent of agricultural producers contributed 81 percent of market value of Wyoming's agricultural production. Conversely, smaller producers (those grossing under \$100,000) count as 81 percent of all producers but contribute only 19 percent of the value of the county's agricultural production.

| <b>MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD, 2002, BIG HORN COUNTY</b> |                      |                                 |                      |                         |
|--|----------------------|---------------------------------|----------------------|-------------------------|
|  | <b>Farms/Ranches</b> | <b>Percent of Farms/Ranches</b> | <b>\$ Value</b>      | <b>Percent of Value</b> |
| Less than \$100,000  | 408                  | 81%                             | \$ 6,978,000         | 19%                     |
| \$100,000 or more  | 93                   | 19%                             | \$ 30,244,000        | 81%                     |
| <b>TOTAL</b>   | <b>501</b>           | <b>100%</b>                     | <b>\$ 37,222,000</b> | <b>100%</b>             |

Source: U.S. Census of Agriculture, 2002

Compared to ten years earlier, the total value of agricultural products sold has decreased overall. The value sold by large operations has remained steady even though there were 20 fewer large-value farm/ranches by 2002. The overall decline in value can be attributed entirely to the smaller operations.

| <b>MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD, 1992, BIG HORN COUNTY</b> |                      |                                 |                      |                         |
|--|----------------------|---------------------------------|----------------------|-------------------------|
|  | <b>Farms/Ranches</b> | <b>Percent of Farms/Ranches</b> | <b>\$ Value</b>      | <b>Percent of Value</b> |
| Less than \$100,000  | 403                  | 78%                             | \$ 9,326,000         | 23%                     |
| \$100,000 or more  | 113                  | 22%                             | \$ 30,619,000        | 77%                     |
| <b>TOTAL</b>   | <b>516</b>           | <b>100%</b>                     | <b>\$ 39,945,000</b> | <b>100%</b>             |

Source: U.S. Census of Agriculture, 1992

## AGRICULTURAL OPERATORS

As in many places, agriculture in Big Horn County includes some farms and ranches that are not the primary income generator for the operators. In addition, many farms and ranches depend on supplemental income sources to maintain viability of the agricultural operation. Statistics show the nearly two-fifths of all farms and ranches in the county are run by someone whose principal occupation is other than farming. The number of farms run by persons whose principal occupation is farming has decreased by nearly one-fifth since 1987.

| FARM OR RANCH OPERATOR'S<br>PRINCIPAL OCCUPATION |      |      |
|--|------|------|
|  | 2002 | 1992 |
| Farming/Ranching                                 | 304  | 320  |
| Other Occupation                                 | 197  | 196  |

Source: U.S. Census of Agriculture

The University of Wyoming's *Trends in Wyoming Agriculture* report notes that Big Horn County has experienced a long term decline in agricultural employment and agricultural proprietors (farm or ranch operators). The report suggests this can be due to consolidation in the agriculture business. It can also be due to land going out of agriculture and into other uses. According to the U.S. Agricultural Census, land in farms and ranches decreased by nearly 30,000 acres in Big Horn County from 1992 to 2002. In other places in the state, the number of proprietors increased reflecting an increase in ranchettes and hobby farms. All these things are probably happening in Big Horn County.

## FARM AND RANCH INCOME

Farm and ranch profitability, as reflected in average net farm/ranch income has declined both at the county and state levels from 1992 to 2006. Nationally, farm ranch incomes have increased since 2002. The drought in Wyoming may be a factor in the state and county deviation from the national pattern.

Net farm/ranch incomes have actually been negative (net loss) on average for the state and county in 2006. Available agricultural profitability statistics do not allow us to separately examine the profitability of small operations versus large operations. Since most market value is produced by the larger (but less numerous) farms and ranches, it is conceivable that the smaller operations are less profitable and pull down average figures.

The *Trends in Wyoming Agriculture* report notes that long term agricultural sales and expenses have remained fairly constant statewide when adjusted for inflation. However, net incomes have been volatile and low. However, such low statewide incomes (just \$936 per proprietor in 2002) are at least partly due to the inclusion of part-time operators in the statistics. The report also predicts that profitability will continue for larger operations that are "innovative users of resources in a changing economic climate."

| <b>AVERAGE FARM/RANCH INCOME, 1992, 2002, 2006,<br/>FOR US, WYOMING, AND BIG HORN COUNTY</b> |                   |                   |                   |
|--|-------------------|-------------------|-------------------|
|  | <b>1992</b>       | <b>2002</b>       | <b>2006</b>       |
| <b>UNITED STATES</b>   |                   |                   |                   |
| Realized net income  | \$ 37,500,786,000 | \$ 21,326,546,000 | \$ 34,125,346,000 |
| Number of farm proprietors   | 2,191,000         | 2,207,000         | 2,116,000         |
| Average realized net income  | \$ 17,116         | \$ 9,663          | \$ 16,127         |
|  |                   |                   |                   |
| <b>WYOMING</b>   |                   |                   |                   |
| Realized net income  | \$ 187,439,000    | \$ 101,408,000    | \$ (57,442,000)   |
| Number of farm proprietors   | 9,117             | 9,039             | 8,759             |
| Average realized net income  | \$ 20,559         | \$ 11,219         | \$ (6,558)        |
|  |                   |                   |                   |
| <b>BIG HORN COUNTY, WY</b>   |                   |                   |                   |
| Realized net income  | \$ 14,434,000     | \$ 2,648,000      | \$ (2,633,000)    |
| Number of farm proprietors   | 545               | 477               | 462               |
| Average realized net income  | \$ 26,484         | \$ 5,551          | \$ (5,699)        |

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis

**IRRIGATION SYSTEMS**

Big Horn County has well-developed agriculture irrigation systems. According to State Engineer’s Office, there are 174,940 acres of irrigated agricultural land in Big Horn County. Irrigation water comes from a variety of surface and groundwater sources. Several major canal systems and numerous minor ditches convey surface water to locations in the county. In many areas of the county, irrigation districts have been formed. Major districts include the Big Horn Canal, Deaver, Greybull Valley, Lovell, and Sidon irrigation districts. In addition to the districts, there are several major canal companies, including Bench Canal, Farmers Canal, and Shell Canal companies as well as other less formal associations with smaller ditches.

**LAND MARKET**

The University of Wyoming’s *Wyoming Farm, Ranch, and Rural Land Market* report is one of the best sources of published information about agricultural land prices. The latest edition of the report, covering 2002-2004, presents average market prices for agricultural lands sold in Wyoming (excluding Teton County). The report indicates that land market is generally favorable for agriculture in much of the Big Horn Basin.

Land sales data were collected on 411 land sales that took place throughout the state. Sales reports for lands that explicitly stated that the lands were not going to remain in agricultural production were excluded from the analysis. It is important to recognize, however, that many non-agricultural amenities could have affected the prices of lands analyzed in the report.

Average land prices were reported on a per AU (Animal Unit) or per-acre basis. An AU is defined as the feed required to maintain one 1,000-pound cow with or without a calf for a 12-month period. Ranch prices per AU include the value of structural improvements (buildings), public grazing permits, and private leases transferred with deeded land. Per-acre prices shown for grazing land, irrigated pasture, irrigated cropland, and dry cropland do not include the value of any buildings, wasteland, or grazing leases associated with a sale; however, fixed improvements such as fences, stock-water developments, and ditches for gravity irrigation are included when relevant to the per-acre land sale prices.

| <b>AGRICULTURAL SOIL RATING FOR BIG HORN COUNTY, WY</b> |               |  |               |
|---|---------------|--|---------------|
| <b>Soil Capability Class for Irrigated Crops</b>        |               | <b>Soil Capability Class for Non-Irrigated Agriculture</b> |               |
| Class 2 Soils   | 10,303 acres  | Class 4 Soils  | 11,848 acres  |
| Class 3 Soils   | 77,130 acres  | Class 6 Soils  | 371,742 acres |
| Class 4 Soils   | 168,238 acres | Class 7 Soils  | 96,487 acres  |
| Class 6 Soils   | 4,635 acres   | Class 8 Soils  | 43,695 acres  |

Source: Big Horn County Soil Survey and Big Horn County GIS

| <b>RANCHES</b><br>(Including buildings and other improvements) |                        |                          |                                    |                                  |             |
|--|------------------------|--------------------------|------------------------------------|----------------------------------|-------------|
| <b>Counties</b>  | <b>Number of sales</b> | <b>Average size (AU)</b> | <b>Average sales price (\$/AU)</b> | <b>Sales price range (\$/AU)</b> |             |
|  |                        |                          |                                    | <b>Low</b>                       | <b>High</b> |
| Big Horn, Fremont, Hot Springs, Park, and Washakie             | 39                     | 156                      | \$ 7,106                           | \$ 636                           | \$ 33,000   |
| Statewide  | 272                    | 171                      | \$ 7,238                           | \$ 636                           | \$ 37,389   |

Source: Univ. of Wyo., Agricultural Experiment Station

The report authors compared the sales data to earlier data from 1999-2001. For the region that includes Big Horn County, ranch sale prices (on a per AU basis) more than doubled. Comparing the nominal (unadjusted for inflation) average prices for the two periods indicates an overall increase of 59 percent in ranch prices statewide. This increase was likely due to strengthening cattle prices and increased speculation from non-agricultural interests such as mineral development, recreation, and demand for rural home sites including scenic amenities.

Average price of grazing land in the region including Big Horn County was lower than the statewide average. This region also did have the extreme high prices that were seen elsewhere in the state.

| <b>GRAZING LAND</b>                                |                        |                             |                      |  |  |             |
|--|------------------------|-----------------------------|----------------------|--|--|-------------|
| <b>Counties</b>                                    | <b>Number of sales</b> | <b>Average size (acres)</b> | <b>AUMs per acre</b> | <b>Average sales price (\$ per acre)</b> | <b>Sales price range (\$ per acre)</b> |             |
|  |                        |                             |                      |  | <b>Low</b>                             | <b>High</b> |
| Big Horn, Fremont, Hot Springs, Park, and Washakie | 27                     | 3,111                       | 0.39                 | \$ 305                                   | \$ 100                                 | \$ 1,100    |
| Statewide  | 204                    | 2,296                       | 0.37                 | \$ 428                                   | \$ 60                                  | \$ 3,500    |

Source: Univ. of Wyo., Agricultural Experiment Station

| IRRIGATED CROPLAND                                 |                 |                      |               |                                   |                                 |          |
|--|-----------------|----------------------|---------------|-----------------------------------|---------------------------------|----------|
| Counties   | Number of sales | Average size (acres) | AUMs per acre | Average sales price (\$ per acre) | Sales price range (\$ per acre) |          |
|  |                 |                      |               |                                   | Low                             | High     |
| Big Horn, Fremont, Hot Springs, Park, and Washakie | 13              | 160                  | 10.35         | \$ 1,558                          | \$ 675                          | \$ 3,000 |
| Statewide  | 95              | 152                  | 11.37         | \$ 1,417                          | \$ 500                          | \$ 6,150 |

Source: Univ. of Wyo., Agricultural Experiment Station

#### LAND TENURE

Land tenure refers to whether landowners live on their land or live elsewhere, such as outside the county. Using County Assessor's data available through the Big Horn County GIS, the land tenure of agricultural land in the county was evaluated. Big Horn County has a relatively high proportion of locally-owned agricultural land. On an acreage basis, 78% of land assessed as agricultural in the county is owned by people who live in Big Horn County. (By comparison, only 59% of the agricultural land in Park County is locally-owned.) This indicates that the county has not experienced much in the way of inroads by non-local owners. Non-local owners often tend to have more interest in non-agricultural uses of the land, including investment or development purposes. This can drive up land prices and make it harder for agricultural operations expand or even remain in agriculture.

#### PLANNING IMPLICATIONS

Agriculture in Big Horn County is the single biggest factor in terms of county land use. Much of the open space and wildlife habitat that characterize the county and that residents prize exists because of the county's farm and ranch operations.

Much about the county is favorable for agriculture including extensive areas of good agricultural soils, well-developed irrigation systems, and a land market that is still fairly favorable to agriculture. The County continues to be a major producer of sugar beets, beans, barley, hay, corn and cattle.

Larger agricultural operations, particularly those of over 260 acres, produce the vast majority of the value in agricultural products in Big Horn County. These larger operations are typically more economically efficient and may be more profitable than smaller operations.

Hobby farms and ranchettes are increasing. They may not have the beneficial economic impacts and profitability of larger operations. In some instances they may compete with larger operations for the same land and water resources. However, hobby farms and ranchettes contribute to the agricultural character of the county.

The county certainly has an agricultural industry worth protecting. Consideration should be giving adjusting county land use program and policies to help support the retention of agriculture in the county.

#### **REFERENCES**

*Trends in Wyoming Agriculture*, Foulke, T., et. al., University of Wyoming, Cooperative Extension Service, Publication B-1164, Aug. 2005, 48 pp.

*Wyoming Farm, Ranch, and Rural Land Market, 2002-2004*, Bastain, C., et. al., University of Wyoming, Agricultural Experiment Station, Publication B-1168, Dec. 2005, 19 pp.