

Economic Impact of Agriculture



Statewide Report



Report produced by MSU Extension

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December 2020

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Introduction

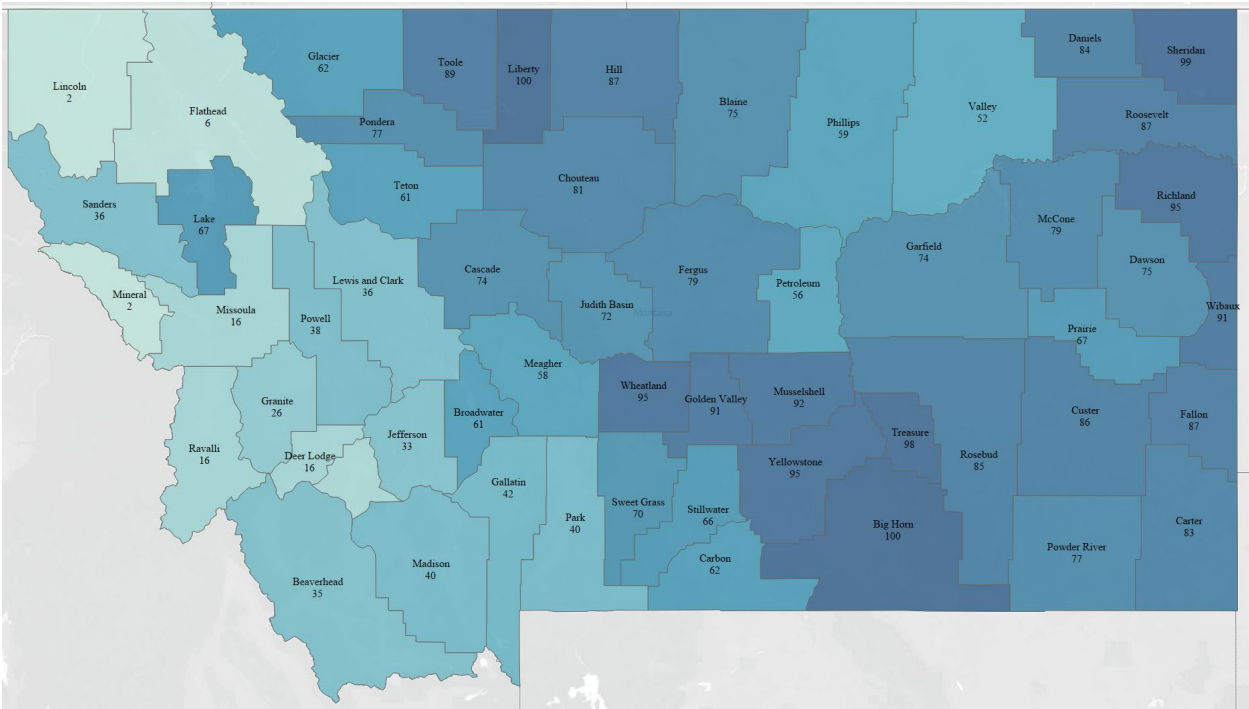
Agriculture has been considered the foundation of Montana economy. Over the last few years, other sectors of the economy, especially tourism and business services, have become increasingly important to the Montana economy. While studies in other geographic regions explore on-farm activity and food processing, this study focuses on the contribution of on-farm activity.

This agricultural impact study utilizes data from the 2017 Census of Agriculture and the IMPLAN economic impact model to assess the impact of farmers and ranchers on the Montana economy. This study examines agricultural land use, finance (including revenues, expenses, and taxation), producer profiles, and agriculture production’s impact on jobs and gross state product.

Agricultural Land Use

The State of Montana with a population of 1.1 million people has 93 million acres of land with 58 million acres (62%) used for agricultural production. The percentage of land used for agricultural production varies from less than 3% in Mineral and Lincoln to nearly 100% in Big Horn, Liberty, Treasure, and Sheridan counties (Map 1).

Map 1: Percentage of Land in Farms and Ranches

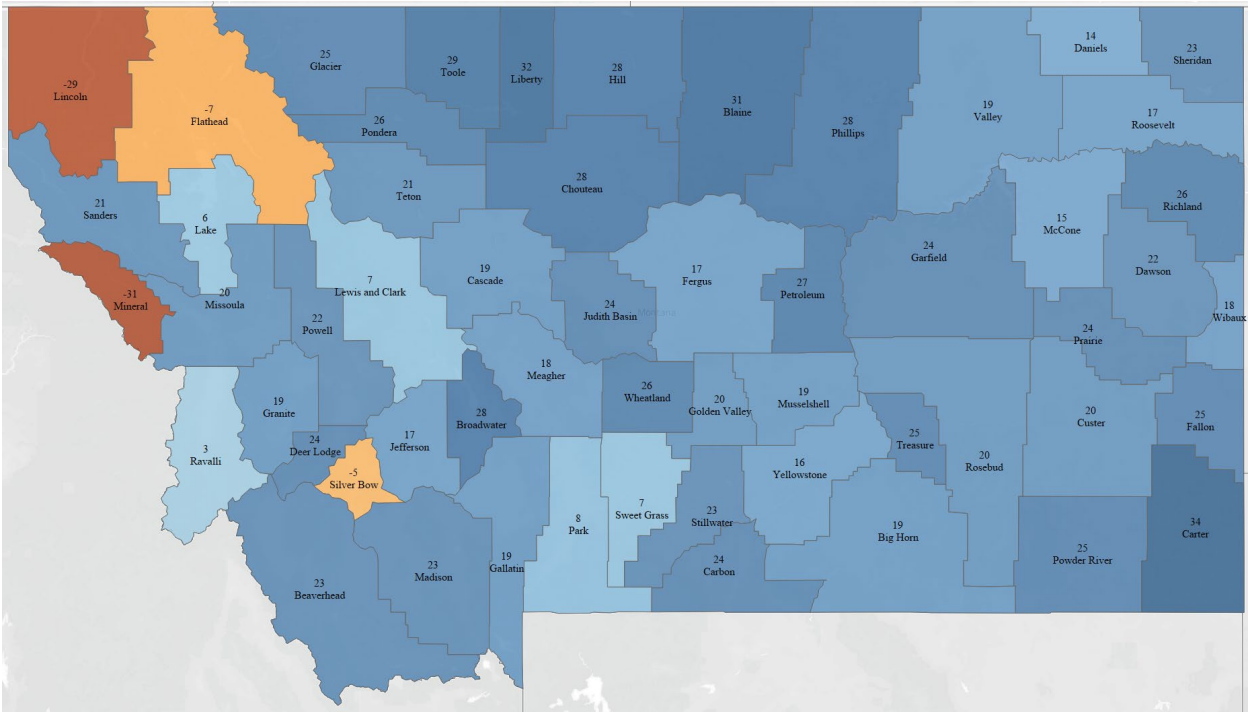


Farm Revenue

The market value of agricultural products sold was \$3.5 billion with crop-related sales totaling \$1.6 billion and livestock-related sales totaling \$1.9 billion. Other income included on the farm’s profit and loss statement was government payments (\$0.3 billion) and other farm related income (\$0.4 billion). After subtracting production expenses of \$3.3 billion, net cash income was \$0.9 billion in 2017.

The market value of crops and livestock varied between counties with sales exceeding \$10 billion (Beaverhead, Cascade, Chouteau, Fergus, Gallatin, Glacier, Hill, Pondera, Richland, Teton, and Yellowstone) to counties with sales less than \$10 million (Deer Lodge, Lincoln, Mineral, and Silver Bow). The average net profit percentage, as reported by the USDA, was 18 percent in 2017. The counties with the highest net profit percentage were Blaine, Carter, Liberty in 2017 (Map 2). Four counties (Silver Bow, Flathead, Lincoln, and Mineral) had negative net profits in 2017.

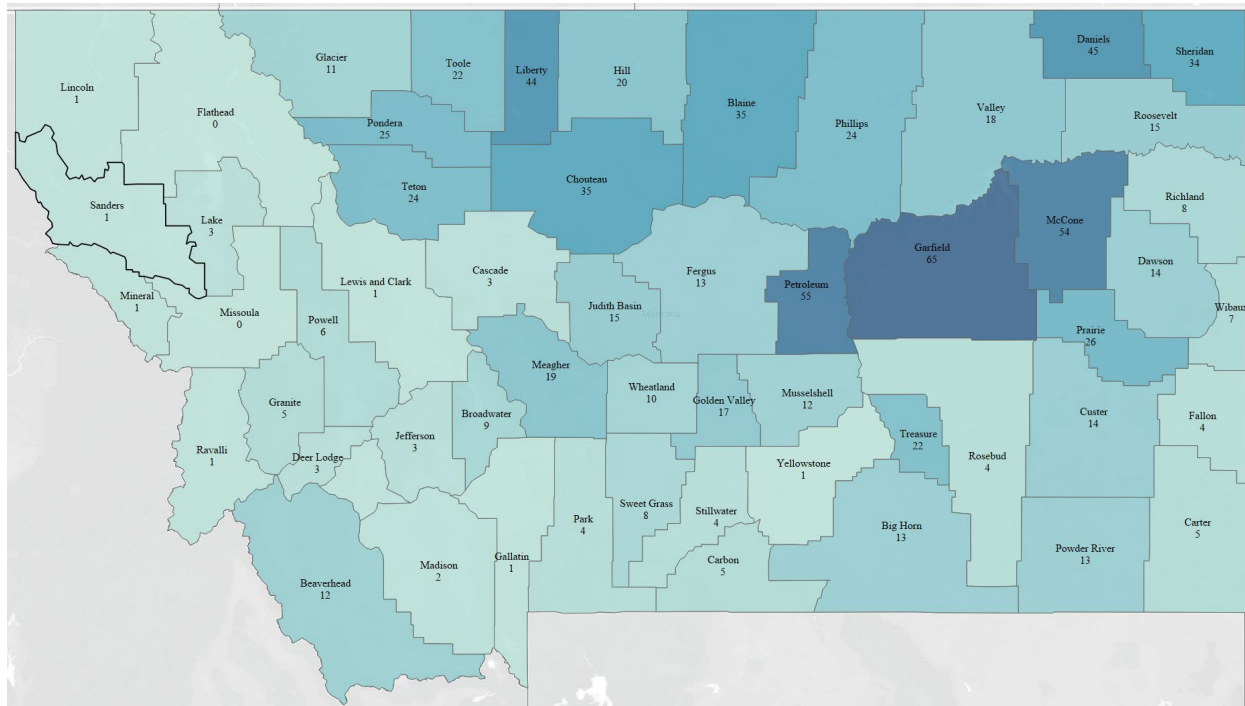
Map 2: Net Profit Percentage in 2017



Property Taxation

Montana farmers and ranchers owned property with a taxable value of \$157 million in 2017. The taxable value of agricultural property was less than 1% of all taxable property in Montana. The share of taxable property held by farmers and ranchers varied widely by county from less than 1% in Missoula, Flathead, Silver Bow, Mineral, Lincoln, and Yellowstone counties to over 40% in Liberty, Daniels, McCona, Petroleum, and Garfield counties (Map 3).

Map 3: Agricultural Share of the Taxable Value of All Property



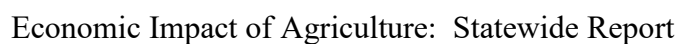
Market Value of Crops and Livestock from 1997 to 2017

After adjusting for inflation, the market value of crops and livestock increased by 14% and 28%, respectively, from 1997 to 2017. The percentage change varied widely by county from increases of 68% or more in Carter and Treasure counties to decreases of 40% or more in counties with fewer farms and ranches, including Lincoln, Silver Bow, and Mineral (Map 4). The market value of crops more than doubled in Treasure and Beaverhead, but decreased by more than 40% in Deer Lodge, Mineral, and Lincoln. The market value of livestock increased by more than 80% in McCone, Glacier, Carter, and Judith Basin and decreased by more than 50% in Missoula, Silver Bow, and Mineral.

This map displays the 2012 US House election results for Montana, showing the percentage of the vote for each candidate by county. The color scale ranges from dark blue (Democrat) to dark red (Republican), with white representing the winning margin in each county.

County	Democrat (%)	Republican (%)	White Margin (%)
Lincoln	44	56	12
Flathead	12	88	76
Glacier	54	46	8
Toole	41	59	18
Liberty	51	49	2
Hill	28	72	44
Blaine	23	77	54
Phillips	20	80	60
Valley	33	67	34
Daniels	8	92	84
Sheridan	29	71	42
Pondera	27	73	46
Teton	2	98	96
Chouteau	21	79	58
Roosevelt	9	91	82
Richland	22	78	56
Garfield	12	88	76
McCone	40	60	20
Dawson	10	90	80
Wibaux	12	88	76
Prairie	40	60	20
Fallon	46	54	8
Custer	55	45	10
Rosebud	51	49	2
Treasure	68	32	36
Big Horn	10	90	80
Powder River	50	50	0
Carter	72	28	44
Beaverhead	40	60	20
Madison	55	45	10
Gallatin	25	75	50
Park	8	92	84
Sweet Grass	21	79	58
Stillwater	17	83	66
Carbon	49	51	2
Golden Valley	6	94	88
Musselshell	41	59	18
Yellowstone	7	93	86
Silver Bow	45	55	10
Deer Lodge	1	99	98
Ravalli	17	83	66
Granite	22	78	56
Powell	18	82	64
Lewis and Clark	49	51	2
Cascade	6	94	88
Judith Basin	55	45	10
Meagher	6	94	88
Broadwater	29	71	42
Jefferson	55	45	10
Lake	13	87	74
Missoula	19	81	62
Mineral	66	34	32
Sanders	4	96	92

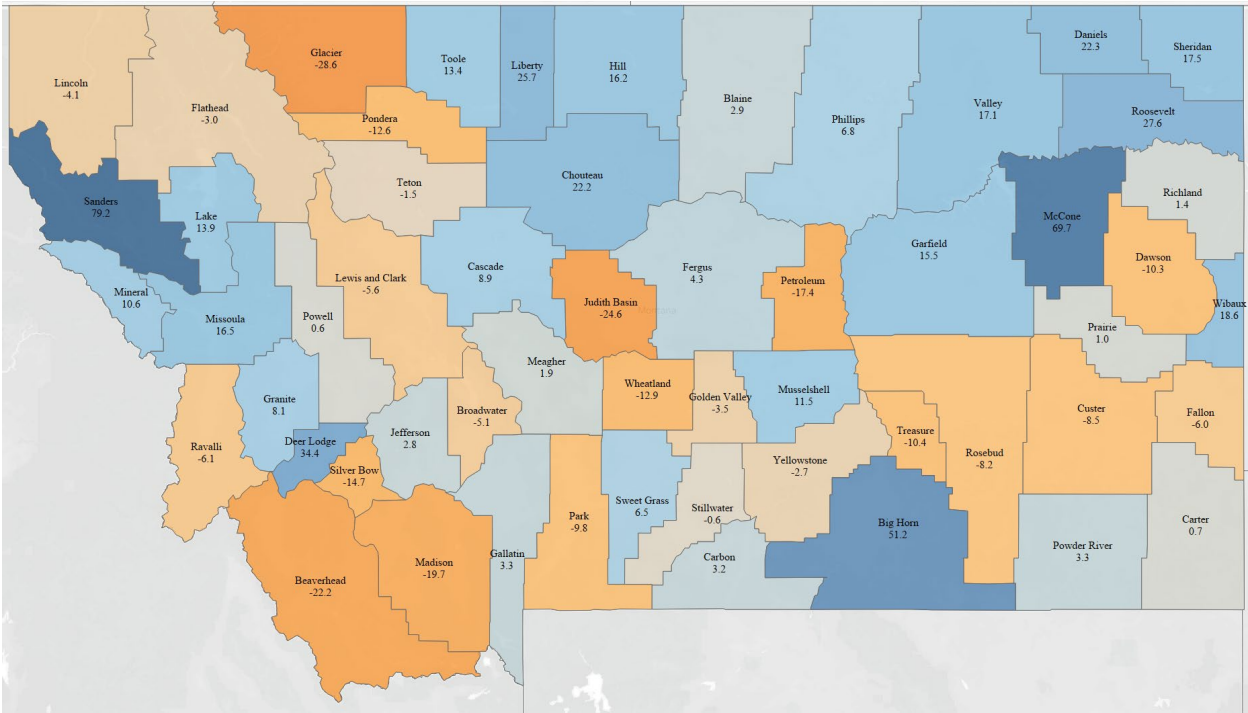
Chart 1: Crop and Livestock Shares of Market Value in Montana in 2017



Farm Size by Acres and Sales

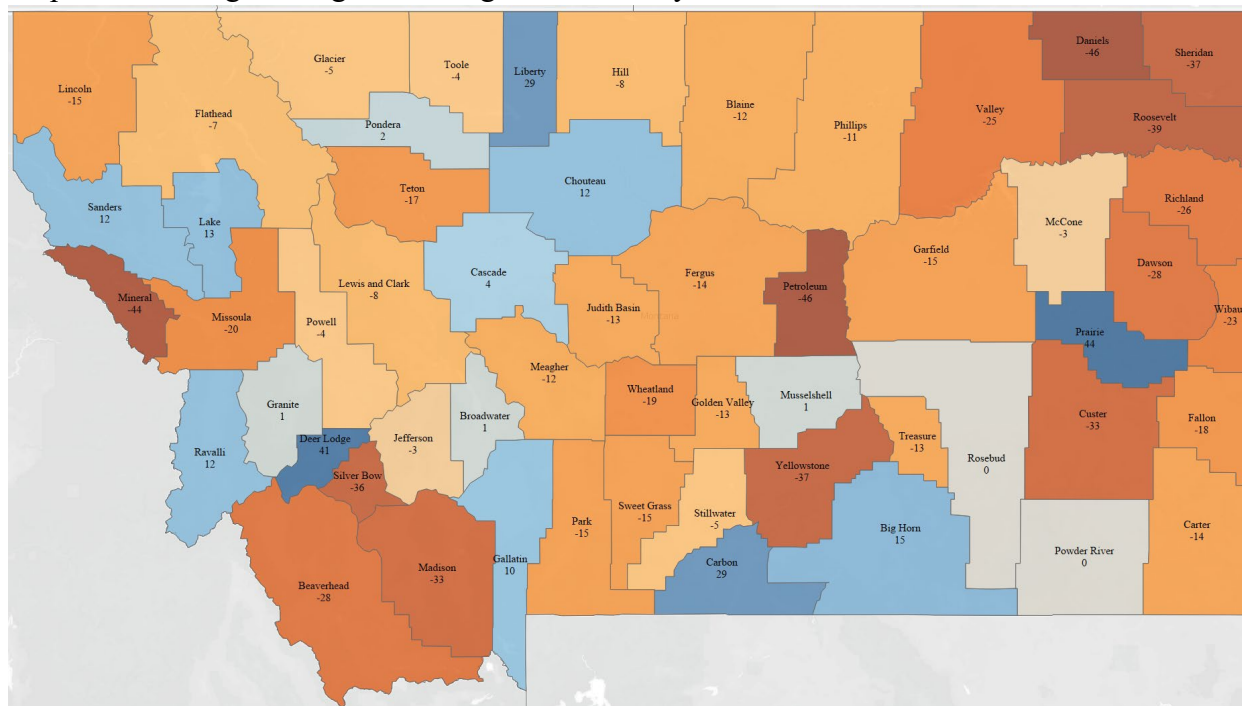
Farm size remained relatively stable between 2012 and 2017 with 60% of farms with less than 500 acres and 40% of farms with 500 acres or more (Map 5). Average farm size decreased by 20% or more in Glacier, Judith Basin, and Beaverhead; but, increased by 20% or more in Chouteau, Daniels, Liberty, Roosevelt, Deer Lodge, Big Horn, McCone, and Sanders counties.

Map 5: Percentage Change in Average Farm Size by Acres from 2012 to 2017



The 2017 year was a challenging year with nearly three-fourths of Montana counties realizing less total farm sales in 2017 than 2012. Average farm sales decreased by nearly 14% statewide. Four counties (Prairie, Deer Lodge, Carbon, and Liberty) had average farm sales increase by 25%, while three counties (Petroleum, Daniels, and Mineral) had average farm sales decrease more than 40% (Map 6).

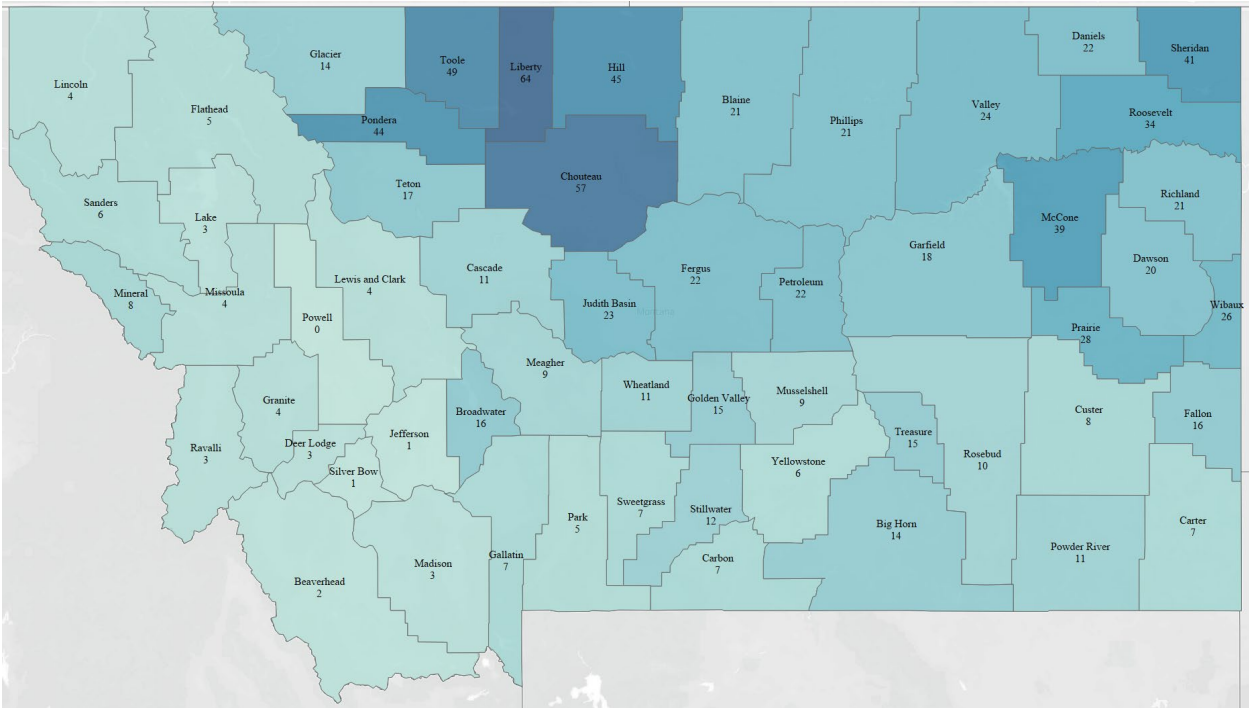
Map 6: Percentage Change in Average Farm Size by Sales from 2012 to 2017



Tillage and Land Use

In 2017, no till was used by 16%, reduced tillage was used by 8%, intensive tillage was used by 10% and cover crops were used by 4% of farms (Map 7). More than 40% of farms utilize no-till in Liberty, Chouteau, Toole, Hill, Pondera, and Sheridan counties. More than 20% of farms in Treasure and Sheridan counties utilize other reduced tillage methods. Cover crops are less widely used; although, more than 7% of farms used cover crops in Treasure, Toole, and Jefferson counties.

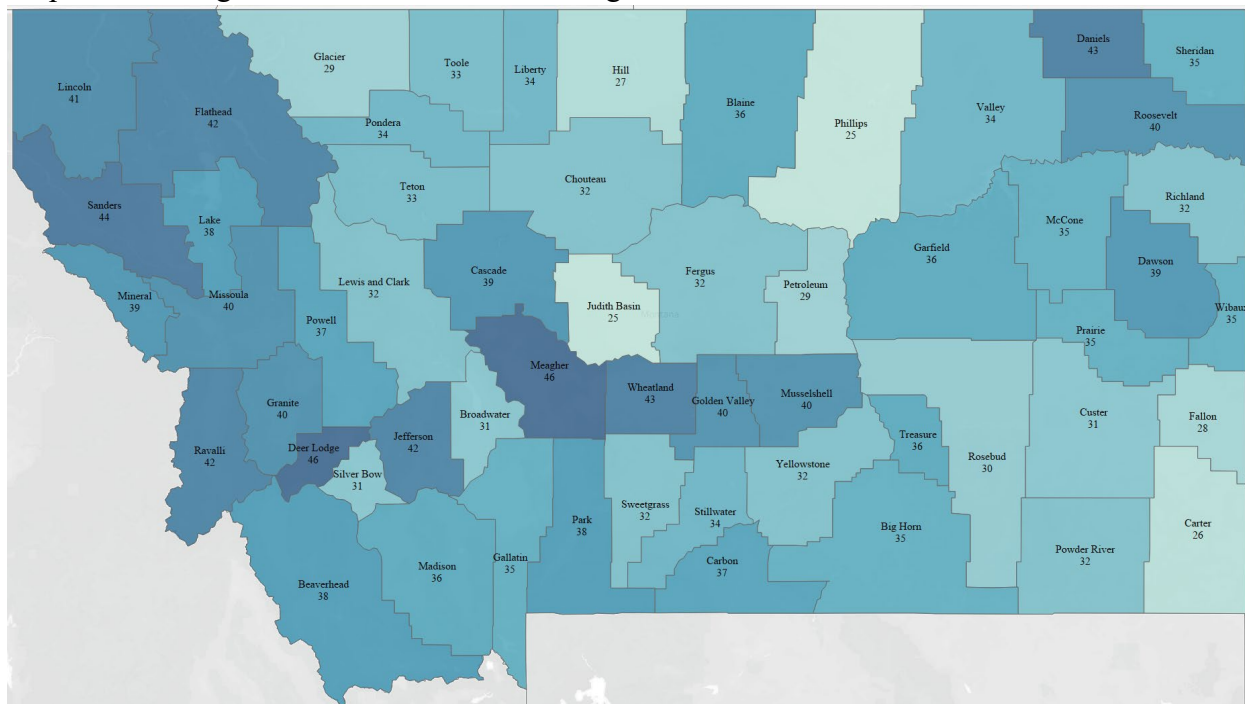
Map 7: Percentage of farms using no-till in 2017



Producer Profile

Deer Lodge, Meagher, Sanders, Daniels, Wheatland, Flathead, Jefferson, Ravalli, Lincoln, Golden Valley, Missoula, Musselshell, and Granite had more than 40% of producers 65 and older. Judith Basin, Phillips, Carter, Hill, Fallon, Petroleum, Glacier, and Rosebud had less than 30% of producers 65 and older. Thirty-two percent of producers were 65 or older, 58% were males, and 36% listed farming as their primary occupation in Montana.

Map 8: Percentage of Producers 65 Years of Age and Older

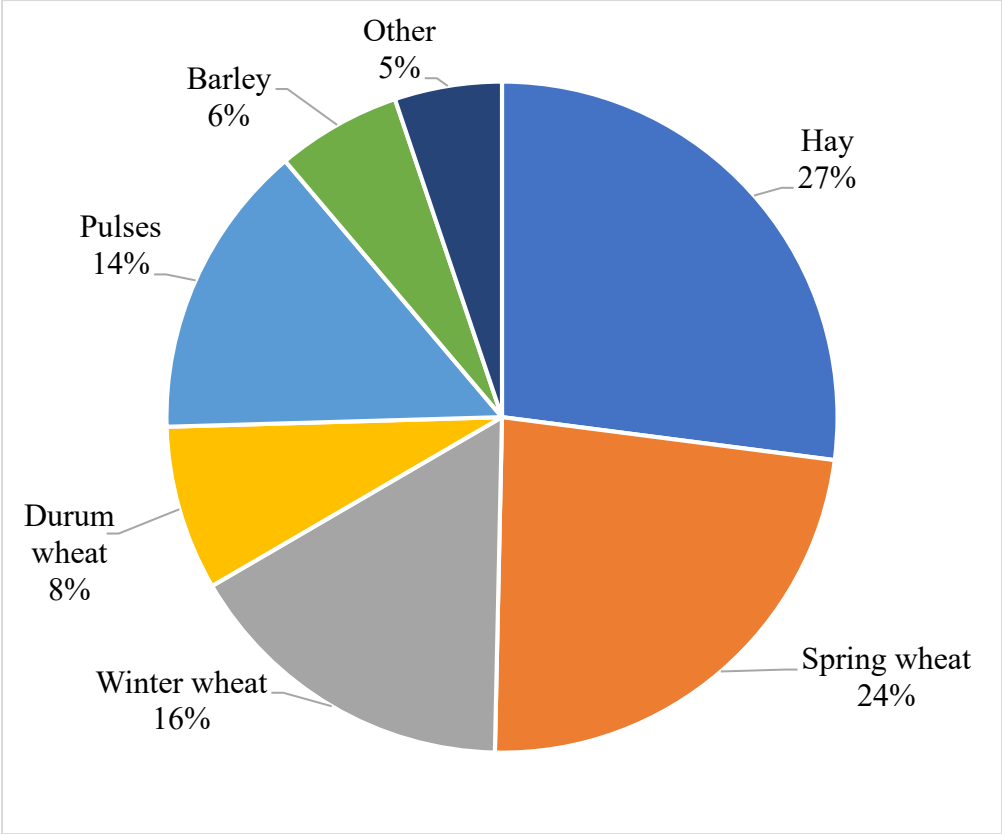


Top Crops by Number of Acres Harvested

Hay and winter, spring, and durum wheat account for 75% of harvested acreage (Chart 2). The remainder of harvested acres is planted in barley, pulses (lentils, dry edible peas, chickpeas, and other pulse crops) and other crops, including oilseeds (canola, flaxseed, mustard, and safflower), corn for grain and silage, sugar beets, potatoes, and other minor crops.

The top 5 producing counties in 2017 for each of the major crop categories was the following: hay - Fergus, Madison, Big Horn, Lake, and Judith Basin in 2017; winter wheat - Chouteau, Hill, Cascade, Teton, and Liberty; spring wheat - Chouteau, Hill, Valley, Toole, and Liberty counties; durum wheat - Sheridan, Daniels, Roosevelt, Pondera, and Hill counties; pulses – Sheridan, Hill, Chouteau, Roosevelt, and Toole counties; and, barley – Teton, Pondera, Chouteau, Toole, and Gallatin.

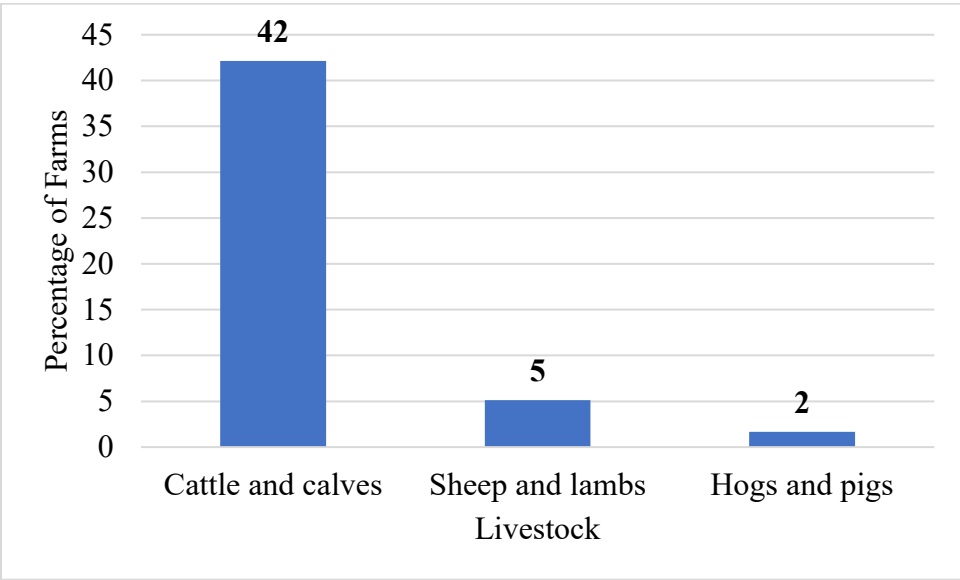
Chart 2: Share of Harvested Acres of Major Crops in 2017



Top Livestock by Percentage of Farms Raising Livestock

Montana is largely a grain and cattle state. Over 40% of farms had cattle (and calves), 5% had sheep (and lambs), and less than 2% had hogs (and pigs) in 2017 (Chart 3). The top 5 livestock producing counties were Beaverhead, Custer, Fergus, Carter, and Rosebud counties in 2017.

Chart 3: Percentage of Farms and Ranches with Livestock



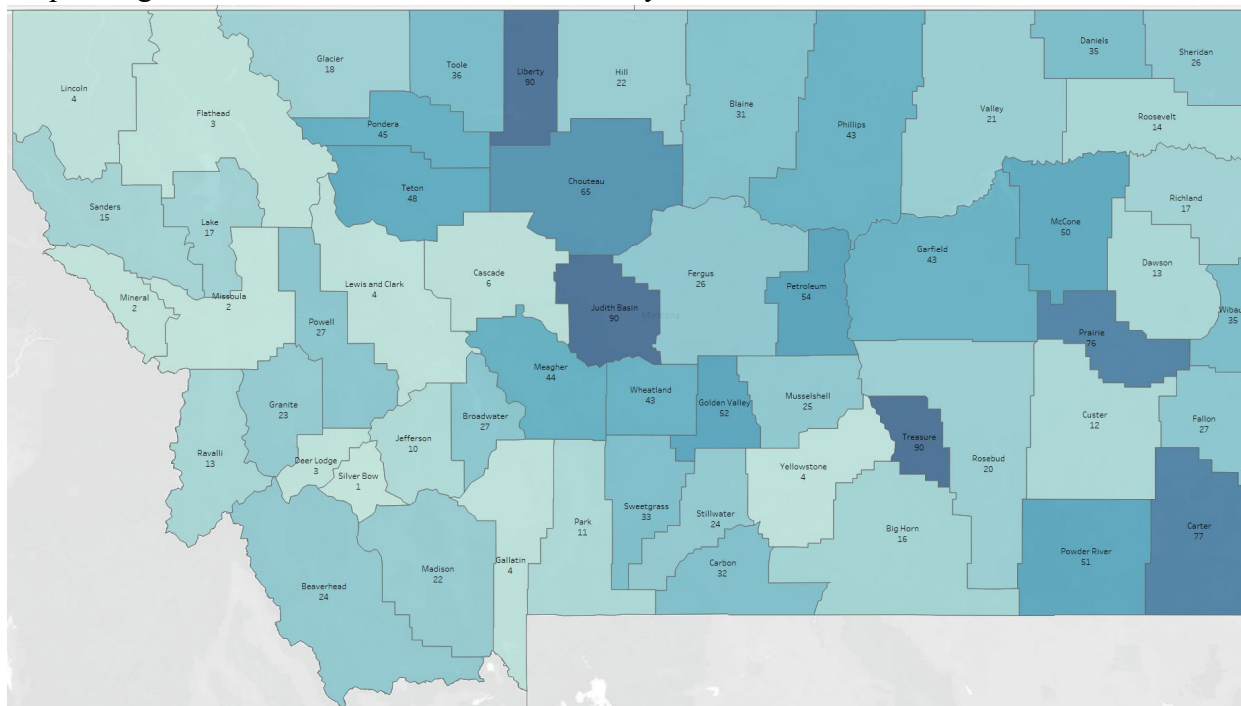
IMPLAN Model Results

Job Impacts

Agricultural production employed 52,629 workers or 10% of the state’s labor force in 2017 (Map 3). According to IMPLAN’s economic impact model, 31,924 of the workers were directly employed in production agriculture. An additional 15,597 workers were employed in businesses supporting agricultural production, such as feed and fertilizer dealers, and another 3,980 were employed in other related businesses, such as grocery and drug stores. For every 10 jobs on farms and ranches, 6 additional jobs are generated in Montana.

Direct and indirect employment in production agriculture was more than 60% of the labor force in Liberty, Treasure, Judith Basin, Carter, Prairie, and Chouteau counties (Map 9). In more urban counties (Missoula, Flathead, Lewis and Clark, Yellowstone, and Gallatin), direct and indirect employment in agricultural production was less 5% of the labor force.

Map 9: Agricultural Production's Share of County's Labor Force

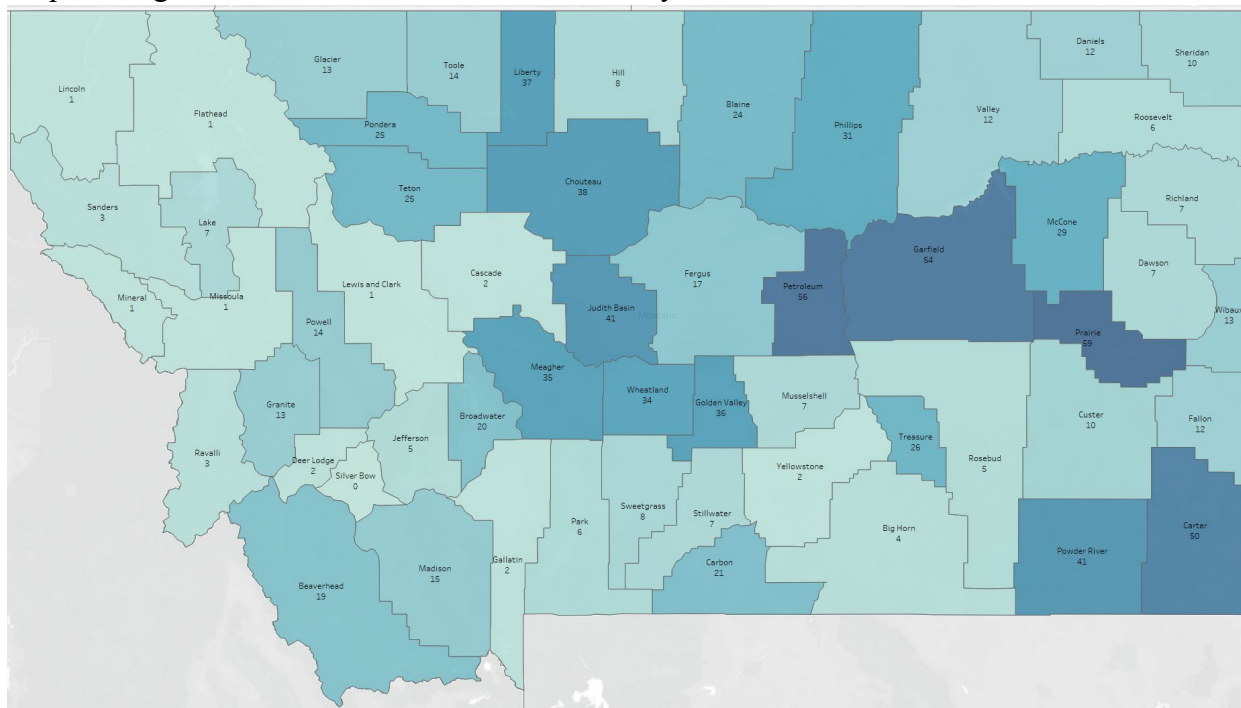


Value Added Impacts

Farms and ranches generated \$2.2 billion of valued-added, or 4.6% of the state's total gross domestic product of \$47.6 billion in 2017. According to the IMPLAN estimate, \$1.1 billion was directly contributed by farmers and ranchers. An additional \$820 million was generated by businesses supporting agricultural production and \$236 million was generated by other related businesses. Each dollar of value-added in agriculture by a farmer or rancher contributed an additional \$0.92 of value-added in other sectors of the state's economy.

Direct and indirect value-added in production agriculture was more than 50% of county gross domestic product (GDP) in Prairie, Petroleum, Garfield and Carter counties (Map 10). In more urban counties (Missoula, Flathead, Lewis and Clark, Cascade, Yellowstone, and Gallatin), direct and indirect value-added in agricultural production was less 5% of county GDP.

Map 10: Agricultural Production's Share of County's GDP



Conclusions

Agricultural production varies substantially across Montana. Land use patterns varied from counties with minimal arable land to counties with over three-fourths of the land area used in crop or livestock agriculture. The Census Agriculture data showed minor changes in farm size (measured by acres and total sales) and profitability. The IMPLAN analysis utilized Census of Agriculture data to estimate the direct, indirect, and induced economic impacts of farms and ranches in Montana. This economic impact analysis showed the importance of recognizing the diversity in Montana agriculture. While this study has only considered direct sales of farms and ranches (behind the farmgate), the next iteration of this economic impact work will focus on food processing and other valued-added enterprises beyond the farmgate.

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