



# Overview Section: Finance

*The Economic Stability of Farms and Ranches in the Rockies*

By Emil Dimantchev

## THE 2010 COLORADO COLLEGE STATE OF THE ROCKIES REPORT CARD

### Key Findings:

- In 2007, the average net farm income in the Rockies was \$2,500 higher than the U.S.
- Total employee compensation for farm workers in the Rockies was 41 percent higher than the U.S. in 2007.
- Yuma and La Paz Counties in Arizona boast the highest net farm cash income in the region.
- Sales of livestock products in the Rockies rose by 28 percent between 2002 and 2007, crops sales showed a 13 percent increase.

### Introduction

During the Colonial period, American agriculture served local needs as well as international commerce. Agricultural products were locally exchanged for tools, housewares, exotic foods, and clothing, giving shape to the domestic economy. Tobacco, a highly demanded crop in Europe at the time, largely contributed to the survival and prosperity of English settlers.<sup>1</sup> Technological advances and increased specialization throughout the 19<sup>th</sup> century expanded domestic and international markets. By the first half of the 20<sup>th</sup> century, business opportunities in agriculture were growing as were the number of farms and farmers. Today, however, agriculture's share

of U.S. economic activity has drastically declined even as its critical contributions remain at the local, regional, national, and international levels.

Since the 1930's, the number of farms and farmers has decreased. Today, the agricultural sector contributes around one percent to the GDP of the nation and the Rockies.<sup>2</sup> Farm employment has likewise declined. Both in the Rockies and the U.S. as a whole, the small percentage of workers in agriculture indicates the profound movement toward high-efficiency and away from labor-intensive farming production. As shown in Table 1, by 2007 farm contributions to GDP stood at one percent and the proportion of national employment was two percent;

*About the author: Emil Dimantchev (Colorado College class of 2011) is a 2000-10 Student Researcher for the State of the Rockies Project*

within the Rockies states, agriculture represented somewhat larger shares, with Montana’s agriculture approaching five percent of GDP and employment. In the 1930’s one farmer supplied food to 9.8 other people in the U.S. and abroad.<sup>3</sup> By comparison, in 2002, one farmer supplied food to 144 people in the U.S. and abroad.<sup>4</sup>

Growing demand for agricultural products caused by increases in world population and economic development exposes the importance of the agricultural sector in the Rockies and across the nation. Concerns for food security, availability, and safety coexist with a desire for the preservation of traditional rural American lifestyles, raising questions about the long-term viability of farming in today’s economy. According to data from the 2007 Census of the United States Department of Agriculture (USDA), the average net farm income in the U.S. and the Rockies grew by 112 percent and 45 percent, respectively, from 2002 to 2007, partially due to rising food prices. High food prices affect farms in the Rockies and other regions of the U.S. differently due to the agricultural characteristics of the Rockies. Farms in the Rockies have higher average sales of livestock and lower average sales of soybeans and corn, compared to the average farm in the U.S. Despite the growth in net farm income, volatility in commodity prices since 2007 and the lack of credit associated with the deep financial recession have put pressure on farms. Increasing input prices have additionally narrowed the profit margins for farm operators. Many farmers are also concerned with increased investments in the commodity markets. According to a report on commodities market speculation, such investment activity drives food prices up.<sup>5</sup> Domestically, high prices put pressure on consumers, food processors, and livestock producers. According to the same report, increases in commodity investment funds and speculation have induced volatility in the market and created obstacles for farmers to use futures contracts. National Farmers Union President Tom Buis commented on futures markets, warning, “Without a properly functioning and regulated futures market, a train wreck is headed straight for rural America that will jeopardize our ability to continue providing a safe, affordable and abundant food supply for this nation.”<sup>6</sup>

**Historical Trends**

Historical trends in the net cash income per acre, as shown in Figure 1, indicate the varying profitability of the agricultural sector. Between 1950 and 2007, three main periods stand out in the U.S. and the Rockies states. The increased farm incomes in the 1970’s, 1990’s, and 2007 correlate with periods of high commodity prices.<sup>7</sup> In the 1970’s and 1990’s, the rise in world agricultural trade, the depreciation of the U.S. dollar, and government policies to support commodity prices were among the major causes of high commodity prices. The spike in 2007

shared many of its causes with the previous two periods such as high worldwide demand for agricultural products and U.S. dollar depreciation. Another factor in 2007 was the growing domestic and international markets for biofuels. In 2007, ethanol production accounted for 23 percent of U.S. corn use. Biodiesel demand increased in Europe and caused a spike in global prices for vegetable oil,<sup>8</sup> thus pushing soybean prices upward. While the previous two periods were followed by large drops in food prices, today many factors contribute to the continued rise in commodity prices, despite the financial recession. Apart from growing worldwide demand for farm products, biofuels seem to be a major driver of commodity prices today. Under the

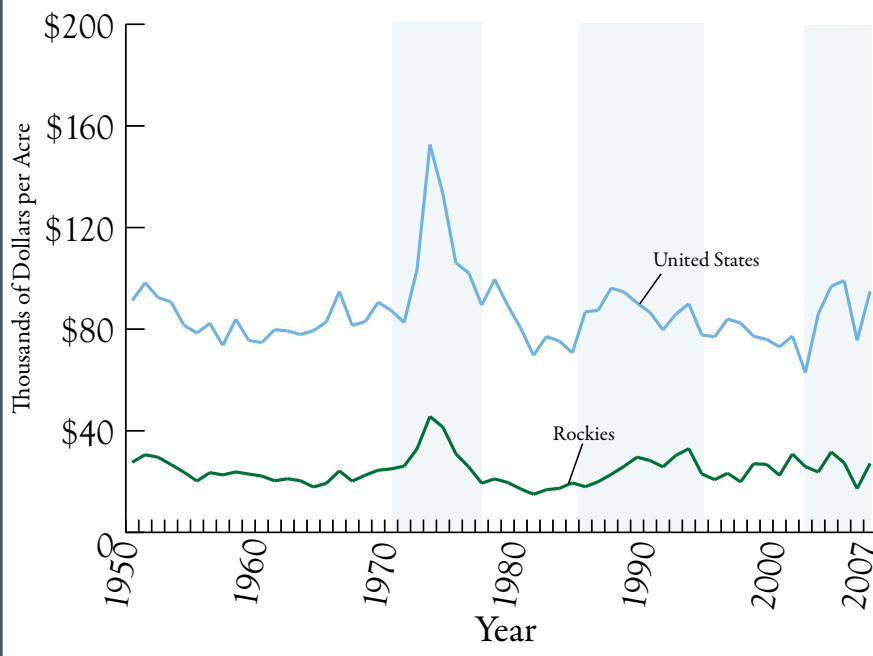
**Table 1:  
Gross Domestic Product and Farm Employment,  
U.S. and Rockies States, 2007**

	GDP from crop and animal production (Millions of Dollars)	Total GDP (Millions of Dollars)	Percent of Total GDP	Farm Employment 2007	Farm Employment as a Percent of Total Employment
United States	\$137,251	\$13,715,741	1%	2,841,000	2%
Rockies	\$10,925	\$909,800	1%	196,398	3%
Arizona	\$1,958	\$245,952	1%	23,968	1%
Colorado	\$2,473	\$235,848	1%	43,488	1%
Idaho	\$2,726	\$52,110	5%	37,876	4%
Montana	\$1,332	\$34,266	4%	31,348	5%
Nevada	\$229	\$129,314	0%	4,835	<1%
New Mexico	\$1,295	\$75,192	2%	24,508	2%
Utah	\$573	\$105,574	1%	18,903	1%
Wyoming	\$339	\$31,544	1%	11,472	3%

Source: Bureau of Economic Analysis and USDA Census of Agriculture, 2007.

**Figure 1:  
Net Farm Cash Income Per Acre, U.S. and Rockies States, 1950 - 2007**

Source: USDA Economic Research Service, 2009 (adjusted for inflation)



Energy Independence and Security Act of 2007, the U.S. Federal Government mandates the production of biofuels, guaranteeing increasing demands for ethanol and corn. A gradually rising biofuel production is supposed to be 36 billion gallons in 2022, of which 21 billion have to be other than ethanol derived from corn starch. Figure 2 shows the recent increases in commodity prices from their lows in the beginning of 2009. Rising commodity prices have varied implications for agriculture in the U.S. and the Rockies.

In all of the Rockies states except Idaho, net cash income per acre has been below the average for the U.S. since 1950. This can be attributed to the higher expenses born by Rockies farms compared to the rest of the U.S. As presented in Figure 3, data for 2007 show that expenses per value of agricultural product are generally higher in the Rockies states than in the U.S. as a whole. Compared to other regions, the Rockies region is drier, often requiring more fertilizer and chemicals to produce the same amount of output per acre of farmland. Another reason is the large amount of farmland devoted to rangeland and pasture land, which are less profitable than concentrated cropland. In the Rockies, 74 percent of all farm acres were devoted to permanent pasture and rangeland, which did not include cropland and woodland pastured, compared to 44 percent in the U.S.<sup>9</sup>

### Livestock Dependency in the Rockies

Fluctuations in net farm cash income since 1950, as shown in Figure 1, have been less pronounced in the Rockies region than in the U.S. Global trends in agriculture affect Rockies farms differently than the average U.S. farm partially due to the Rockies' focus on livestock production. As shown in Table 2 livestock products represent almost two thirds of the sales of an average farm in the Rockies. Between 2002 and 2007, livestock production grew in the U.S. and the Rockies. Sales of livestock products in the Rockies rose by 28 percent between 2002 and 2007, as shown in Table 3, compared to crops sales with a 13 percent

increase. Meat animal, or beef sales represented the largest category of livestock production in the U.S. and almost all Rockies' states, except Idaho and New Mexico where dairy prevailed. Although poultry represented a small portion of total livestock sales, sales of poultry in the Rockies increased by around 42 percent while beef sales were stagnant. Sales of dairy products have also increased in the Rockies, increasing by 76% between 2002 and 2007.

Disparity between crops and livestock sales in the Rockies is seen across most of the eight states. While Arizona and Montana have diverse sales, Colorado, New

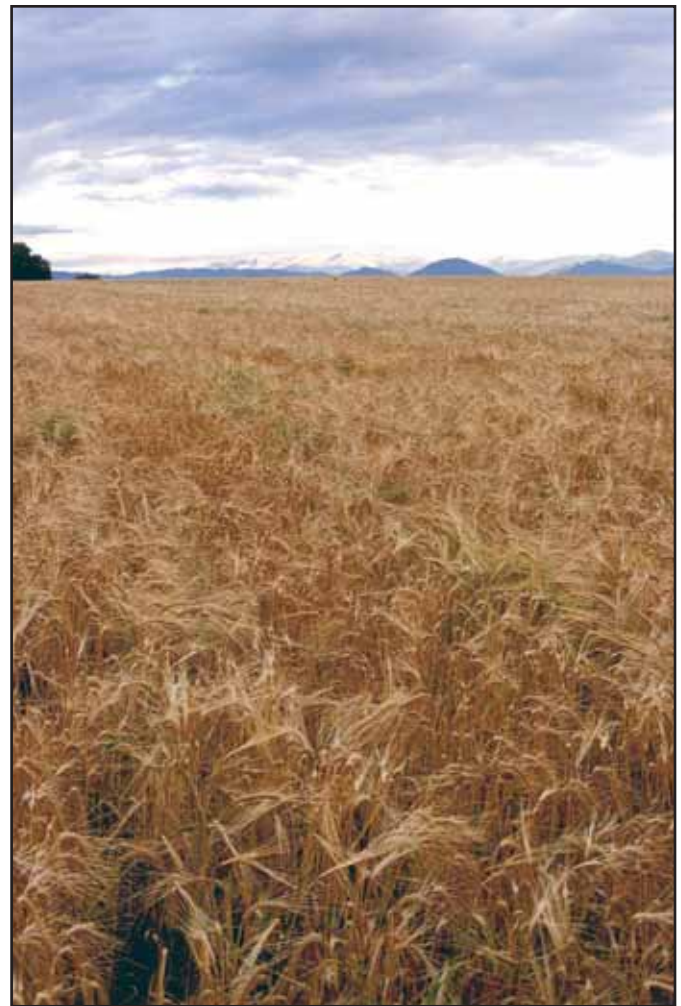
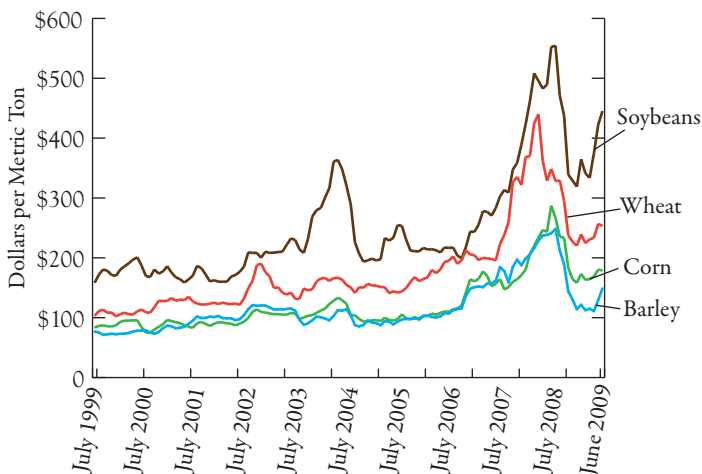


Photo: USDA-NRCS

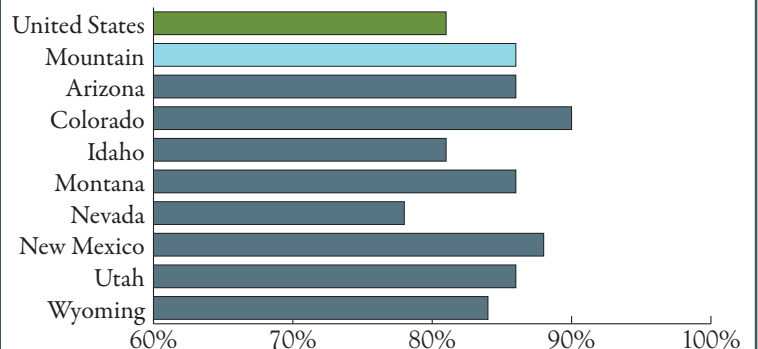
**Figure 2:**  
Selected Commodity Prices, U.S., 1999 - 2009

Source: CIA World Factbook, 2009  
(Adjusted for Inflation)



**Figure 3:**  
Production Expenses per Value of Product Sold, 2007

Source: USDA Census of Agriculture, 2007



Mexico, Utah, and Wyoming have sales in livestock that are almost two times higher than their crop receipts (Table 2). Meat animal sales decreased between 2002 and 2007 in Arizona, Colorado, Utah, and Wyoming. For their livestock sales, these states relied on poultry, eggs, and dairy which increased in sales between 2002 and 2007 (Table 3). The large proportion of livestock sales in total agricultural production in the Rockies indicates the increasing economic significance of livestock in the region. Such dependency on livestock raises concerns for agriculture in the Rockies today.

Increased commodity prices (Figure 2) translate into higher feed expenses for livestock producers, putting pressure on livestock farmers. To purchase grain, Dean Horton, owner of the fifth largest dairy farm in the U.S. located near Hatch, New Mexico, contends with the global movement toward biofuels.<sup>10</sup> In addition, weak demand for dairy since 2008 has depressed prices for milk products. The USDA projected a 35 percent decline in dairy cash receipts in 2009.<sup>11</sup> American meat producers were compelled to reduce the size of their herds by the rising feed prices in 2008. While domestic demand for beef has plummeted, exports of American beef remained strong in 2008, driven by the weak U.S. dollar. International markets provide some support for beef prices, which have risen since the beginning of 2009 (Figure 4).<sup>12</sup> Despite the increased expenses for beef producers, low demand for beef resulted in only a 24 percent increase in beef prices between 2007 and 2008. By comparison, prices for corn rose by around 100 percent in the same period. The faster growth rate of input prices compared to output prices for beef producers will continue to erode their profits. The Economic Research Service predicts sales of cattle and calves in 2009 to be lower than the ones in 2008 by \$5.5 billion in the U.S.<sup>13</sup> Poultry producers face more favorable economic conditions. One pound of dry chicken requires five pounds of dry feed material compared to beef which requires three times as much.<sup>14</sup> Thus, increases in feed expenses will have a lower impact on poultry producers. However, reduced demand associated with the financial recession is keeping prices down (Figure 4). The projected sales of poultry in 2009 are expected to decrease from 2008 levels by around \$4 billion.<sup>15</sup>

**Table 2:**  
Average Income by Source, in Dollars per Farm, 2007

		United States	Rockies	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Wyoming
Value of crop production		\$68,411	\$7,809	\$117,492	\$58,446	\$95,309	\$43,434	\$68,379	\$33,586	\$23,634	\$18,141
Percent of Total Crop Sales	Food grains	8%	20%	2%	19%	19%	64%	3%	5%	9%	10%
	Feed crops	28%	28%	12%	38%	26%	17%	67%	32%	53%	50%
	Vegetables	13%	29%	64%	14%	36%	7%	24%	20%	4%	8%
	Oil crops	15%	0%	0%	1%	0%	1%	0%	1%	1%	0%
	Other crops, home consumption and value of inventory adjustment	35%	23%	22%	28%	18%	12%	6%	41%	33%	32%
Value of livestock production		\$62,646	\$94,204	\$103,522	\$117,395	\$131,162	\$46,668	\$92,753	\$109,843	\$58,670	\$69,841
Percent of Total Livestock Sales	Meat animals	47%	59%	45%	80%	34%	76%	76%	42%	45%	107%
	Dairy products	26%	35%	50%	12%	62%	4%	36%	59%	33%	3%
	Poultry and eggs	24%	3%	2%	5%	0%	1%	0%	1%	14%	0%
	Miscellaneous livestock, home consumption and value of inventory adjustment	4%	2%	2%	1%	3%	4%	6%	1%	5%	5%
Other Farm-related income		\$18,264	\$24,491	\$39,134	\$22,698	\$23,375	\$24,199	\$40,229	\$13,436	\$27,320	\$25,474
Total value of agricultural sector production		\$149,321	\$176,504	\$260,148	\$198,539	\$249,846	\$114,301	\$201,361	\$156,865	\$109,624	\$113,457

Source: USDA Census of Agriculture, 2007

Note: Totals may not equal 100% because farmers have sold more or less than what they have actually produced during the year. "Meat animals" for example represents the sales of beef. Whereas the total category "value of livestock production" represents the annual production.

In the Rockies, high prices of feed and lower livestock sales will predominantly affect New Mexico, Utah, and Wyoming where livestock represents the largest portion of agricultural sales compared to other states in the Rockies.

### Crops Sales and Other Income

On the other hand, rising commodity prices have a positive effect on crops sales, which have risen by 49 percent in the U.S. since 2002 (Table 3). By comparison, crops sales increased by 13 percent in the Rockies region. Rockies' farms grow less oil crops (primarily less soybeans) and more vegetables than the average American farm (Table 2). Soybean prices grew by around 170 percent from 2006 to the middle of 2008 (Figure 2) and contributed to a 46 percent increase in oil crop sales in the U.S. between 2002 and 2007 (Table 3). The lack of soybean sales in the Rockies, however, prevents farms in the region from capturing the rise in prices. Rockies' farms also sell less corn. In 2007, a farm in the Rockies sold \$5,000 worth of corn on average compared to \$18,000 for an average farm in the U.S.<sup>16</sup> Lower levels of corn production in the Rockies explain why

feed crop sales increased by only 26 percent in the Rockies compared to 71 percent in the U.S. between 2002 and 2007. Nevada, Utah, and Wyoming largely rely on feed crop sales for their crop income. However, the average farm in these states sells from \$800 to \$2,300 in corn, below the averages for the U.S. and the Rockies.<sup>17</sup> Such underrepresentation of corn will make it hard for these states to capture the growth in corn prices. Vegetables, the fourth largest product group in sales in the Rockies (Tables 2 and 3), underwent an overall decline in the region while the number of vegetable acres harvested increased by 180 percent from 2002 to 2007.<sup>18</sup> This spike in supply has not met a reciprocal rise in demand except in Montana where, despite a high rise in the acres harvested, sales more than doubled. Arizona is the only state that suffered a decrease in both crops and livestock sales. The drop in crops sales was mostly due to a decrease in the sales of vegetables, which make up a large

portion of Arizona's crops receipts. In Arizona, the number of farms which harvested vegetables increased by 860 percent between 2002 and 2007 while acres harvested rose by two percent.<sup>19</sup> This phenomenon most likely occurred due to existing farms trying to diversify their products and small new farms entering vegetable production.

Farm-related income, other than income from the production of crops and livestock, has increased by more than income from sales, indicating the growing importance of alternative sources of income for farmers (Table 3). This category includes income from agricultural recreation, sale of forestry products, machine hire, custom work, and rental value of farm dwellings. While Arizona farms suffered losses in conventional farm income, the state ranked second in farm-related income. Rental value of farm dwellings, which represented the largest portion of farm-related income in the U.S. and the Rockies, rose considerably. The growing

rental value is reflected in rising demand for agricultural land, driven by farmers seeking to expand their operations, the increased efficiency of agricultural production, and development possibilities of the land.<sup>20</sup>

**Table 3:**  
Average Income by Source, Percent Change 2002 - 2007

	United States	Rockies	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Wyoming
Total value of agricultural sector production	45%	24%	-20%	20%	40%	48%	38%	31%	34%	11%
Value of crop production	49%	13%	-38%	39%	15%	59%	36%	8%	52%	40%
Food grains	82%	65%	-8%	100%	46%	84%	431%	109%	114%	85%
Feed crops	71%	26%	17%	29%	45%	1%	54%	1%	44%	15%
Vegetables	13%	-18%	-46%	-26%	5%	124%	21%	-18%	-20%	17%
Oil Crops	46%	-4%	-79%	22%	-2%	-2%	0%	-43%	151%	-16%
Value of livestock production	43%	28%	-1%	15%	63%	35%	26%	41%	15%	1%
Meat animals	31%	1%	-28%	-4%	10%	8%	44%	31%	-15%	-4%
Dairy products	67%	76%	32%	75%	120%	40%	90%	53%	53%	188%
Poultry and Eggs	49%	42%	25%	70%	14%	76%	-6%	-2%	19%	15%
Other Farm-related income	37%	35%	14%	5%	55%	54%	81%	24%	81%	23%

Source: USDA Census of Agriculture, 2007

### Rising Expenses

Farm expenses have in recent years risen due to dramatic increases in input prices, especially of fuel and fertilizer (Figure 5). The impact of this increase is mostly felt by crop farms, which require more of these inputs compared to livestock farms. Increases in input prices have encouraged many American farmers to employ cost-saving strategies. In 2007, around 34 percent of all farms in the U.S. reduced fuel expenses by regularly servicing engines, while 24 percent reduced trips over a field, and 20 percent reduced quantity used.<sup>21</sup> To reduce fertilizer expenses, 30 percent of all farms reduced the quantity used, and 23 percent conducted soil tests to

ensure fertilizer efficiency. Others negotiated price discounts and used more precise technologies.<sup>22</sup>

The average farm in the U.S. as well as in the Rockies faced increases in expenses over the last five years for which data are available, mostly for feed, fuel, and contract labor (Table 4). Purchases of livestock and poultry decreased between 2002 and 2007 in Arizona and Idaho, a sign of pressure on livestock producers in these states. Rockies' farms also spent less on seeds. Combined with rising seed prices, this indicates a reduction in the number of seeds purchased, which is likely to result in a decrease in crops sales in the long-term. Despite increased total spending, Table 5 shows net farm income grew both in the U.S. and the Rockies between 2002 and 2007. In 2007, the average net farm income was higher by around \$2,500 in the Rockies than the U.S., indicating comparatively favorable economic conditions. Farm income, however, rose by only

**Figure 4:**  
Selected Commodity Prices, U.S., 1999 - 2009

Source: CIA World Factbook, 2009  
(Adjusted for Inflation)  
Note: This table was created before July 2009 data were available.

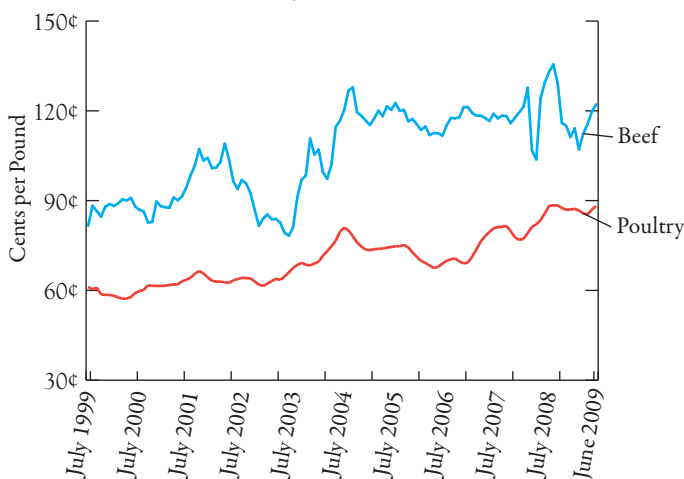
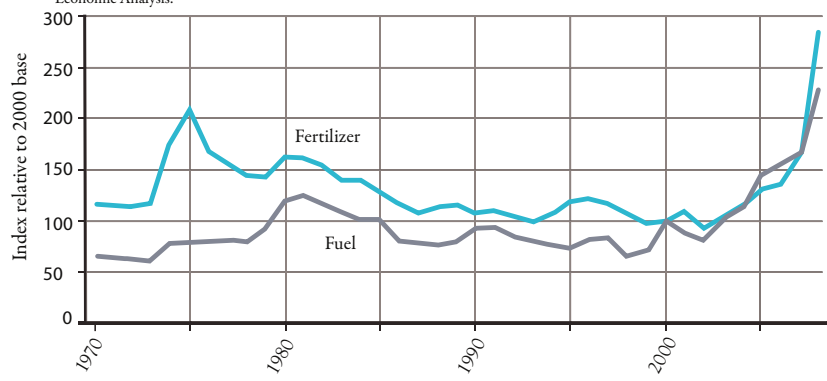


Figure 5:

Prices Paid Indices for Fuels and Fertilizers, 1970-2008

Note: 2008 forecast. Fuel index reflects annual average of real prices paid for diesel, gasoline/gasohol, and LP gas. Fertilizer index reflects annual average of real prices paid for mixed fertilizers, nitrogen, potash, and phosphate. Real prices calculated using implicit GDP price deflator with 2000 as base year (2000 = 100). Sources: J. Michael Harris, et al., Agricultural Income and Finance Outlook (Economic Research Service, USDA, 2008). USDA, National Agricultural Statistics Service and U.S. Department of Commerce, Bureau of Economic Analysis.



45 percent in the Rockies compared to 112 percent for the U.S. The focus on livestock and the low amounts of corn and soybean sales in the Rockies could drive the net income below average American levels as feed and oil crop prices continue to increase.

**Additional Factors Affecting Farmers’ Net Income**

Farms operate in many ways similar to other businesses. They require production inputs of land, labor, seeds, fertilizer, and other expenses, all of which must be subtracted from gross receipts in order to calculate the “bottom line” of net farm income. Table 6 depicts the process of measuring net farm income and compares the average farm’s operation for the entire U.S. against the average for each of the Rockies states.

An often controversial dimension to agriculture is the role of government payments in helping farms operate and continue production. Direct government payments, or farm subsidies, were lower in the Rockies region in 2007. Subsidies represented around three percent of gross farm income in the U.S. and the Rockies.<sup>23</sup> Farm subsidies decreased between 2002 and 2007 (as shown in Table 5) due to a large drop in payments since 2006, when food prices started heading upwards.

An increase in average property taxes has followed the increase in land values. The share of property taxes is almost the same in the U.S. and the Rockies, but they increased by around 40 percent for both regions between 2002 and 2007 (Table 5), indicating increased obstacles for beginning operators. Capital consumption in 2007 was higher in the Rockies due to the

larger average farm size in the Rockies of 1,500 acres, compared to the U.S with 400 acres per farm.<sup>24</sup> Farms in the Rockies contributed a higher net value added to the national economy than the average American farm in 2007 despite having seen a smaller increase in this value since 2002 (Table 5). Arizona and Wyoming are the only Rockies states where the net value added declined. In Arizona, drops in agricultural production caused the observed trend. Wyoming’s low profit margins, which were the lowest across the Rockies, affected its value added.

Employee compensation (Table 6) was also higher in the Rockies where vegetables, which are more labor intensive than other crops, made up a higher portion of crops sales. Employee compensation increased in all Rockies’ states except Arizona (Table 5), indicating expansion of agricultural practices and production of more labor-intensive products such as vegetables. Landlords received lower payments on average in the Rockies than in the U.S. Payments to landlords decreased between 2002 and 2007 both in the

Table 4: Average Farm Input Expenses, Dollar Percent Change 2002 - 2007

	United States	Rockies	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Wyoming
Purchased inputs	35%	19%	-11%	10%	32%	23%	34%	32%	25%	14%
Feed purchased	48%	42%	18%	28%	79%	5%	50%	51%	33%	20%
Livestock and poultry purchased	26%	7%	-21%	1%	-24%	39%	49%	32%	25%	23%
Seed purchased	29%	-11%	-33%	-14%	-1%	-5%	-2%	-15%	-8%	-16%
Fertilizers and lime	68%	25%	-2%	14%	46%	27%	43%	22%	36%	13%
Petroleum fuel and oils	90%	66%	25%	61%	82%	81%	83%	60%	74%	60%
Contract labor	35%	53%	5%	46%	86%	79%	83%	60%	73%	58%
Other expenses	17%	5%	-28%	1%	20%	16%	17%	11%	14%	0%

Source: USDA Census of Agriculture, 2007

Table 5: Selected Financial Variables, Percent Change 2002 - 2007

	United States	Rockies	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Wyoming
Net farm income	112%	45%	-39%	84%	71%	275%	63%	48%	69%	-22%
Net rent received by nonoperator landlords	-11%	-45%	-37%	-81%	-23%	-24%	25%	-25%	-26%	-146%
Net value added	58%	26%	-33%	41%	44%	83%	39%	28%	38%	-15%
Property taxes	40%	42%	7%	38%	59%	53%	56%	36%	48%	35%
Direct Government payments	-7%	-21%	-14%	-20%	-28%	-7%	-12%	-23%	-37%	-56%
Employee compensation (total hired labor)	11%	7%	-17%	4%	19%	14%	17%	2%	11%	1%

Source: USDA Census of Agriculture, 2007

U.S. and the Rockies despite rising land prices. Farmers in the U.S. and the Rockies own an increasing portion of the land they operate on. The overall increases in net farm income in 2007 show the expansion of the average farm both in the U.S. and the Rockies.

### Farm Net Cash Income in the Rockies: A Closer Look

Despite the expansion of farming operations, there is variability in farms' financial health across the region. Figure 6 shows that on average around eight percent of all counties in the Rockies region suffered negative farm cash income in 2007, largely clustered in the Four Corners region in the southwest. Net cash income is a measure of the funds available to a farm operator to meet family living expenses, purchase farm assets, and pay off debt. The number of farms having net losses rose by 23 percent in the Rockies region between 2002 and 2007, more than in any other region. By comparison, the number of farms with net losses in the U.S. rose by three percent in the same period.<sup>25</sup>

Table 7 focuses on the top and bottom five counties in the Rockies regarding net cash income per farm. Highest losses were observed in Santa Cruz, Arizona, and the Colorado counties of Summit, Teller, Ouray, and Park, where the losses amounted to more than \$10,000. Highest positive net cash income was found in Yuma, Arizona, with around \$650,000, followed by La Paz, Arizona, and the Idaho counties Gooding, Cassia, and Lincoln. Table 7 describes

these counties by the distribution of their farmland, economic dependency, and county population growth rate. According to this sample of 10 counties, farmland dominated by rangeland affects net income negatively. Counties specializing in crops, on the other hand, were among the most profitable. County population growth rate maintains a negative relationship with farm net cash income. As a county's population grows, land prices increase, more irrigation water is demanded for municipal uses, and demand for land from development projects puts pressure on farmers.

### The Challenge of Credit

Apart from rising expenses, the lack of credit to finance farm operations is another challenge that farmers in the U.S. and the Rockies face today. In 2009, farmers, especially dairy operations in Colorado, were hard hit by the closure of the New Frontier Bank in Greeley, Colorado. Dairy farmer Les Hardesty said that the bank financed 30 percent of the purchase of dairy cows in the state.<sup>26</sup> In June 2009, Colorado Senators Mark Udall and Michael Bennet urged the House and Senate Appropriations Committees to help American farmers by making more loans available through the Farm Service Agency, a lender of last resort. Secretary of Agriculture Tom Vilsack announced in July 2009 the implementation of the Dairy Export Incentive Program.<sup>27</sup> Through this program, exporters of dairy products will receive direct cash support.

Equation	Variable	United States	Rockies	Arizona	Colorado	Idaho	Montana	Nevada	New Mexico	Utah	Wyoming
	Value of crop production	\$68,411	\$57,809	\$117,492	\$58,446	\$95,309	\$43,434	\$68,379	\$33,586	\$23,634	\$18,141
+	Value of livestock production	\$62,646	\$94,204	\$103,522	\$117,395	\$131,162	\$46,668	\$92,753	\$109,843	\$58,670	\$69,841
+	Other Farm-related income	\$18,264	\$24,491	\$39,134	\$22,698	\$23,375	\$24,199	\$40,229	\$13,436	\$27,320	\$25,474
=	Value of agricultural sector production	\$149,321	\$176,504	\$260,148	\$198,539	\$249,846	\$114,301	\$201,361	\$156,865	\$109,624	\$113,457
-	Purchased inputs	\$77,726	\$98,148	\$137,054	\$122,541	\$128,257	\$57,316	\$103,625	\$92,374	\$57,260	\$72,680
+	Direct Government payments	\$5,398	\$5,139	\$5,940	\$5,351	\$4,765	\$8,747	\$3,322	\$3,188	\$2,218	\$3,154
-	Motorvehicle registration and licensing fees	\$275	\$351	\$243	\$353	\$414	\$428	\$388	\$275	\$289	\$369
-	Property taxes	\$4,449	\$4,672	\$4,470	\$4,668	\$5,729	\$7,016	\$5,407	\$1,945	\$2,110	\$5,134
=	Gross value added	\$72,269	\$78,473	\$124,322	\$76,328	\$120,211	\$58,289	\$95,263	\$65,459	\$52,183	\$38,428
-	Capital consumption	\$12,197	\$13,823	\$17,242	\$12,671	\$15,816	\$15,450	\$22,192	\$7,684	\$13,876	\$13,148
=	Net value added	\$60,072	\$64,650	\$107,079	\$63,657	\$104,395	\$42,839	\$73,070	\$57,775	\$38,307	\$25,280
-	Employee compensation (total hired labor)	\$9,895	\$13,954	\$30,605	\$13,334	\$19,358	\$6,278	\$23,070	\$11,544	\$9,129	\$9,885
-	Net rent received by nonoperator landlords *	\$3,994	\$1,198	-\$5,388	\$245	\$4,996	\$3,304	\$1,478	\$1,329	\$955	-\$646
-	Real estate and non real estate interest	\$6,827	\$7,550	\$7,601	\$8,469	\$9,780	\$7,473	\$7,330	\$5,771	\$4,286	\$7,858
=	Net farm income	\$39,356	\$41,949	\$74,261	\$41,609	\$70,261	\$25,783	\$41,193	\$39,131	\$23,936	\$8,183

Source: USDA Census of Agriculture, 2007  
\* Negative values indicate rent payments to operator.

### The Impact of Commodity Index Funds

Among other reasons for the commodity price spikes in 1970 and 2007 was futures market speculation.<sup>28</sup> The futures market allows farmers to sell a contract for the future delivery of an agricultural product. Such trading has existed since the mid 19<sup>th</sup> century and has been central to the economic stability of farmers in the U.S. Before futures contracts were introduced, when farmers traded their products on the spot, the seasonality of grain production brought risk and lowered farmers' gains. Their products would enter the market all at once shortly after the time of harvest and depress prices. Trading futures thus guarantees grain producers a stable and higher price for their products throughout the year and stabilized feed price for livestock producers. Financial institutions and individual investors trade agricultural products through commodity index funds. These are investment instruments which bundle agricultural and non-agricultural commodities together. They are favorable to investors and mutual funds because the various commodities diversify risk. Recently the activity in such futures markets has increased.<sup>29</sup>

According to the Institute for Agriculture and Trade Policy, large financial institutions now dominate the futures market in agricultural products. Commodity index funds controlled around 4.5 billion bushels of corn, wheat, and soybeans in 2008.<sup>30</sup> On the Chicago Mercantile Exchange these funds made up 47 percent of futures contracts in live hog, 40 percent in wheat, 36 percent in live cattle and 21 percent in corn in 2007.<sup>31</sup> According to a report on commodity market speculation, investment in these funds drives food prices up. On the other hand, when the holders of such funds decide to sell them to take their profits, prices decline. Such cycles of buying and selling commodity funds create volatility in the market and present risk for food producers and food processors. Increased demand for futures contracts on agricultural products by the index funds artificially increases their prices compared to prices on the spot. As a result, food processors will accept fewer futures contracts from farmers and buy on the spot instead. Thus, farmers experience increased risk associated with higher commodity prices because they cannot fully capture the increase in prices or use futures contracts and hedge the risk. Cotton farmer Jon Post in Marana, Arizona, said in an interview that commodity index funds have been a big problem for agriculture.<sup>32</sup> On April 17, 2009, farmers and activists protested in front of Chicago Mercantile Exchange demanding more regulation on investment banks. Kevin McNew, president of Cash Grain Bids Inc., a resource for grain market information, in Bozeman, Montana, noted that it is hard for grain businesses to operate when the spot prices are so far below the futures price.<sup>33</sup>

### Size of Farms and Polarization

The number of farms in the U.S. rose by almost four percent between 2002 and 2007 while in the Rockies region the number of farms rose by 19 percent.<sup>34</sup> A separation of farms by categories of size (Figure 7) shows that in the U.S. and the Rockies this rise is largely due to an increase in the

**Table 7:**  
Top Five and Bottom Five Counties According to Net Cash Income Per Farm, 2007

County	Net cash income per farm (dollars)	Cropland, percent of total farm acres	Pastureland, percent of total farm acres	Economic dependence code*	County population growth rate (2002 - 2007)	Average population growth rate (2002 - 2007)
<b>Top 5</b>						
Yuma AZ	\$653,151	92%	(D)	4	14%	1.6%
La Paz AZ	\$308,532	(D)**	(D)	6	6%	
Gooding ID	\$231,687	60%	31%	1	0%	
Cassia ID	\$224,870	58%	37%	1	-4%	
Lincoln ID	\$165,862	58%	35%	1	-8%	
<b>Bottom 5</b>						
Santa Cruz AZ	-\$16,927	6%	92%	4	9%	7.4%
Teller CO	-\$13,102	12%	(D)	5	4%	
Summit CO	-\$12,148	15%	74%	5	1%	
Ouray CO	-\$11,740	11%	57%	5	15%	
Park CO	-\$10,310	17%	59%	6	8%	

Source: USDA Census of Agriculture, 2007  
 \*Economic-dependence county indicator. 1=farming-dependent 2=Mining-dependent 3=Manufacturing-dependent 4=Federal/State government-dependent 5=Services-dependent 6=Non-specialized  
 \*\* Data not available due to disclosure restrictions of the Agricultural Census

number of large-scale operations with annual sales over \$500,000. The number of small farms (having sales of less than \$2,500 per year) also rose in the U.S. and most states in the Rockies region. Middle-sized farms (these with annual sales between \$50,000 and \$100,000), however, seem to be following a different trend. In the U.S. and several Rockies' states the number of these operations decreased between 2002 and 2007. In other states, the number of middle-sized farms rose by noticeably less than the numbers of large- and small-scale operations. A report on the disappearing middle argued that middle-sized operations are at risk.<sup>35</sup>

A polarization in the agricultural sector occurs naturally under the current trends. The movement toward eating healthy and local food, preserving the land, and reducing water pollution has resulted in the occurrence of direct producer-to-consumer markets for value-added products such as local foods, organics, and natural foods. Small farm operations have successfully adapted to this market.<sup>36</sup> Small operations are flexible and innovative in terms of production and can meet highly diversified demands. Such markets allow farms to receive the full retail price of their products. Middle-sized farms have a harder time adapting to such markets because of the high labor requirements, as noted by Arizona cotton farmer Jon Post.<sup>37</sup> On the other hand, large operations, which produce the highest portion of agricultural products, have expanded and become more specialized. They have gained significant buyer and seller power and taken advantage of the latest technological changes. Frederick Kirschenmann, director of the Leopold Center for Sustainable Agriculture, suggested that large commodity buyers, in an effort to reduce transaction



costs, tend to prefer larger producers.<sup>38</sup> Lower capital and flexibility in purchasing inputs and selling outputs are some of the challenges middle-sized operations face in competing with large farms.

## Conclusion

The general perception that farmers are becoming increasingly wealthier due to rising commodity prices is highly questionable, especially in the Rockies region where livestock production prevails. While the profile of the average farm both in the U.S. and the Rockies shows increasing net farm income, a closer look reveals variability of farms' financial health. Livestock producers are threatened by increasing feed crop prices and low demand. Agricultural producers endure increasing risk caused by rising activity in the futures markets by big financial institutions. Rising input prices narrow farmers' profit margins, especially for middle-sized operations. Despite these alarming trends, rapidly changing consumer preferences for natural, organic, and local products provide new opportunities for small producers and new entrants to agriculture. New policies can be drafted to assist beginning farmers and small-scale producers in buying land to develop these new business opportunities. Immigration laws can be restructured so they help provide labor for middle-sized farms in their endeavors to capture the new organic and local markets.

<sup>1</sup> Gordon, John S. *An Empire of Wealth: The Epic History of American Economic Power*. New York: HarperCollins Publishers, 2004. p. 14-16.

<sup>2</sup> Bureau of Economic Analysis and USDA Census of Agriculture, 2007.

<sup>3</sup> Growing a Nation: The Story of American Agriculture. "A History of American Agriculture: Farm Machinery and Technology." Growing a Nation. [http://www.agclassroom.org/gan/timeline/farm\\_tech.htm](http://www.agclassroom.org/gan/timeline/farm_tech.htm) (accessed August 13, 2009).

<sup>4</sup> The Agricultural Council of America. "Agriculture Fact Sheet." The Agricultural Council of America. <http://www.agday.org/media/factsheet.php> (accessed August 13, 2009).

<sup>5</sup> Institute for Agriculture and Trade Policy. "Commodities Market Speculation: The Risk to Food Security and Agriculture." IATP (2008).

<sup>6</sup> Friedlander, Liz. "NFU President Testifies on Commodity Speculation." NFU Newsroom (May 2008). <http://nfu.org/news/2008/05/20/nfu-president-testifies-on-commodity-speculation.html> (accessed July 17, 2009).

<sup>7</sup> Peters, May, Suchada Langley, and Paul Westcott. "Agricultural Commodity Price Spikes in the 1970s and 1990s: Valuable Lessons for Today." *Amber Waves* (March 2009).

<sup>8</sup> *Ibid.*

<sup>9</sup> United States Department of Agriculture. *2007 Census of Agriculture. Geographic Area Series. Table 8.* 2009.

<sup>10</sup> Horton, Dean. Interview by author, Hatch, Arizona. July 09, 2009.

<sup>11</sup> Economic Research Service, USDA, *Farm Income and Costs: 2009 Farm Sector Income Forecast.*

<sup>12</sup> Stillman, Richard. *Livestock, Dairy, and Poultry Outlook.* Economic Research Service, USDA, 2009.

<sup>13</sup> Economic Research Service, USDA, *Farm Income and Costs: 2009 Farm Sector Income Forecast*

<sup>14</sup> "Produce Profitable Beef despite High Grain Prices," *Farm & Ranch Guide* (April 25, 2008), [http://www.ars.usda.gov/SP2UserFiles/Place/54450000/News/Profitable\\_Beef\\_Kronberg.pdf](http://www.ars.usda.gov/SP2UserFiles/Place/54450000/News/Profitable_Beef_Kronberg.pdf) (accessed December 13, 2009).

<sup>15</sup> Economic Research Service, USDA, *Farm Income and Costs: 2009 Farm Sector Income Forecast*

<sup>16</sup> United States Department of Agriculture. *2007 Census of Agriculture. Table 1.* 2009.

<sup>17</sup> *Ibid.*

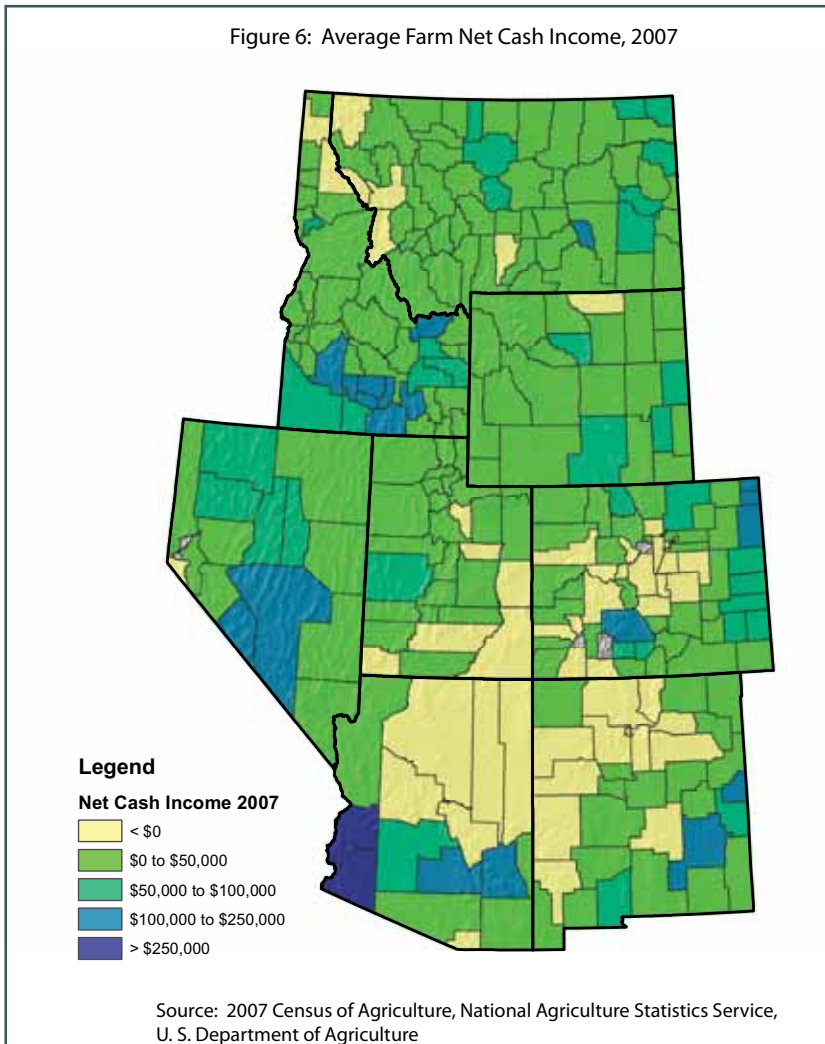
<sup>18</sup> *Ibid.*

<sup>19</sup> *Ibid.*

<sup>20</sup> United States Department of Agriculture. "Farm Bill Forum Comment Summary & Background: Land Values and Rental Rates." [http://www.usda.gov/documents/Land\\_Values\\_and\\_Rental\\_Rates.pdf](http://www.usda.gov/documents/Land_Values_and_Rental_Rates.pdf) (accessed January 4, 2010).

<sup>21</sup> Harris, Michael J., Kenneth Erickson, John Dillard, et al. "Agricultural

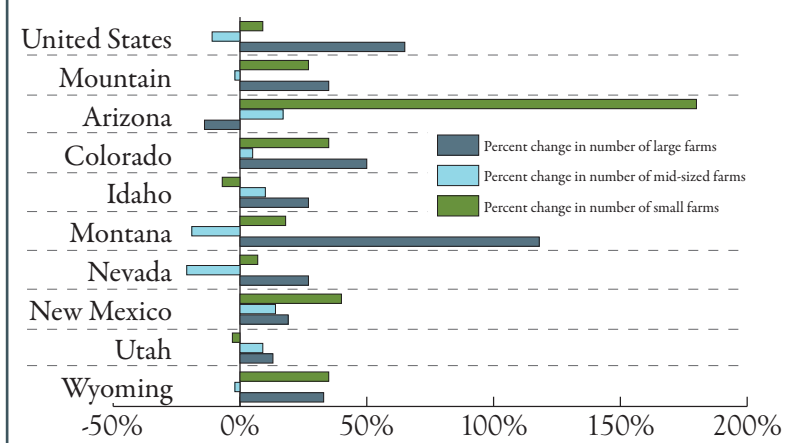
Figure 6: Average Farm Net Cash Income, 2007



Source: 2007 Census of Agriculture, National Agriculture Statistics Service, U. S. Department of Agriculture

Figure 7: Change in Farm Size by Percent, 2002 - 2007

Source: USDA Census of Agriculture, 2007



Income and Finance Outlook.” Economic Research Service, USDA, 2008. p. 19-21.

<sup>22</sup> Harris, Michael J., Kenneth Erickson, John Dillard, et al. “Agricultural Income and Finance Outlook.” Economic Research Service, USDA, 2008. p. 19-21.

<sup>23</sup> See Case Study: “Subsidies in the Rockies Region,” p. 103.

<sup>24</sup> United States Department of Agriculture. *2007 Census of Agriculture*. Table 1, 2009.

<sup>25</sup> United States Department of Agriculture. *2007 Census of Agriculture*. Table 5, 2009.

<sup>26</sup> Lunning, Ernest. “Greely Bank Failure Strains Farm, Dairy Loans After Old-Fashioned Bank Run.” *The Colorado Independent* (April 2009), <http://coloradoindependent.com/27102/greely-bank-failure-strains-farm-dairy-loans-after-old-fashioned-bank-run> (accessed July 17, 2009).

<sup>27</sup> Trujillo, Tara. “Congress Heeds Request by Udall, Bennet, Approves Greater Help for Farmers in Emergency Appropriations Bill.” Press Release of Senator Udall (June 19, 2009), <http://markudall.senate.gov/record.cfm?id=314903> (accessed July 17, 2009).

<sup>28</sup> Peters, May, Suchada Langley, and Paul Westcott, 2009.

<sup>29</sup> Wilson, Jeff. “Wall Street Grain Hoarding Brings Farmers, Consumers Near Ruin.” *Bloomberg* (April 28, 2009), <http://www.bloomberg.com/apps/news?pid=20601087&sid=aDZej7GJjpm&refer=home> (accessed July 17, 2009).

<sup>30</sup> *Ibid.*

<sup>31</sup> Barrionuevo, Alexei and Jenny Anderson, “Wall Street Is Betting on the Farm.” *New York Times* (January 19, 2007) [http://www.nytimes.com/2007/01/19/business/19futures.html?pagewanted=1&\\_r=1](http://www.nytimes.com/2007/01/19/business/19futures.html?pagewanted=1&_r=1) (accessed December 12, 2009).

<sup>32</sup> Post, Jon. Interview by author, Marana, Arizona. July 10, 2009.

<sup>33</sup> Wilson, Jeff. 2009.

<sup>34</sup> United States Department of Agriculture. *2007 Census of Agriculture*. 2009.

<sup>35</sup> Kirschenmann, Frederick. “Why Worry About Agriculture of the Middle?: A White Paper for the Agriculture of the Middle Project.” *Agriculture of the Middle*. 2004. <http://www.agofthemiddle.org> (accessed January 4, 2010).

<sup>36</sup> *Ibid.*

<sup>37</sup> Post, Jon. Interview by author, Marana, AZ. July 10, 2009.

<sup>38</sup> Kirschenmann, Frederick. 2004.

which do not produce major subsidized crops such as corn or wheat. Aside from production, growing concerns for the environmental impact of farming have prompted the United States Department of Agriculture (USDA) to enact conservation subsidies which provide payments to farmers to retire and restore the land. With its focus on livestock production, the Rockies region receives less agricultural subsidy assistance from the government than other divisions in the U.S.

American agricultural income support policies were established in the 1930’s to help farmers in a period of drought and the Great Depression.<sup>2</sup> Since then, income support policies have never ceased to exist. Analysis by the Environmental Working Group, summarized in Table 8, shows that between 1995 and 2006, \$177.6 billion were spent on agricultural subsidies in the U.S., of which almost \$8 billion were appropriated to the Rockies region. According to a publication of the USDA Economic Research Service (ERS), farm income is more variable than the income from other sectors in the U.S. economy. Thus, one of the major goals of subsidies is to provide income stability for farmers.

Total subsidies represent around three percent of gross farm income in the U.S. (Figure 8). In seven of the eight Rockies states, the contribution of subsidies to gross income is even smaller. The amount of subsidies that farms receive is most likely insufficient to cushion major shocks to the agricultural economy, but subsidies do provide benefits to farmers. Farm households which received subsidies in 2001 consumed more than households which did not receive payments.<sup>3</sup> Among the lowest income farm households, recipients’ median consumption expenditures exceeded non-recipients’ by roughly \$2,500. For medium income households, the difference was larger, at around \$9,000, while for farms in the highest income category there was no difference in household consumption. Government payments also have a positive effect on farm business survival, especially for large farms.<sup>4</sup> This effect of farm subsidies was reported to be small but statistically significant.<sup>5</sup>

Total agricultural subsidies are divided into three main categories: commodity subsidies, conservation payments, and disaster payments (Table 8). Commodity subsidies represent the largest portion of agricultural subsidies in the U.S. Such subsidies are targeted at farmers

## Case Study: Planting Subsidies - Impact of U.S. Government Policies on Farmers’ Decisions

By Emil Dimantchev

### Introduction

Farm subsidy policy is among the most hotly debated issues on Capitol Hill and in diners across America. Critics argue that subsidies concentrate on a few crops such as corn, wheat, and cotton and negatively impact food production and diversity. Author of “Omnivore’s Dilemma,” Michael Pollan, states that subsidies artificially drive food prices down for chosen crops like corn, impact people’s diets, and even cause obesity.<sup>1</sup> Recent developments in farm policy have decreased subsidies’ impacts on food production and prices but perhaps have not eliminated them altogether. The distribution of subsidies affects the competitiveness of small and beginning farms as well as farms

**Table 8:**  
Distribution of Subsidy Payments by Major Type, 1995 - 2006

	United States	Rockies
Total Subsidies (\$) 1995-2006	\$177.6 billion	\$7.9 billion
Commodity Programs (percent of total)	79%	61%
Conservation Programs (percent of total)	13%	24%
Disaster Payments (percent of total)	9%	14%

Source: Environmental Working Group, 2009

Note: Some totals may not equal 100% due to rounding

who produce specific agricultural products or commodities. Commodity payments are meant to ensure a high price for farmer's products, directly support farm income through lump sum payments, and give American farmers an edge in international competition. By assisting domestic farmers, subsidies provide a degree of food independency and security. The preservation of rural landscapes and traditional American farming lifestyles are other benefits that these subsidies are meant to provide the public.

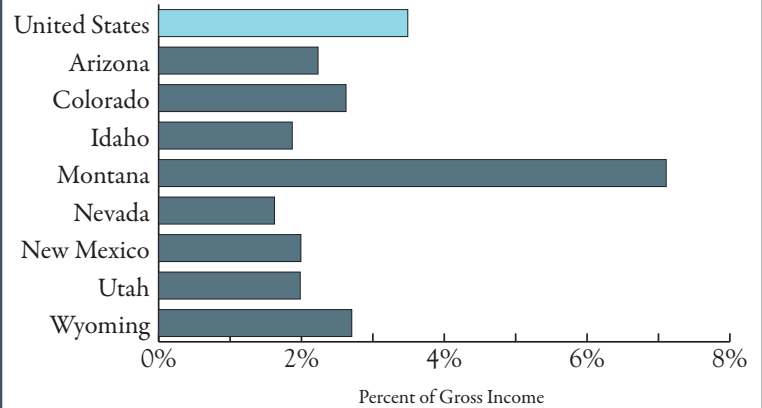
Additional data from the Environmental Working Group, presented in Table 9, show the major types of commodity subsidy programs by the amounts spent on each between 1995 and 2006. Fixed payments represent the largest portion of commodity payments in the U.S. and the Rockies region. These payments represent direct annual subsidies to producers of specific crops. The eligible commodities are barley, corn, grain sorghum, oats, other oilseeds, peanuts, rice, soybeans, upland cotton, and wheat. Fixed subsidies are based on the acreage and past yield. Thus, they are not based on current production, which is a way to decrease the impact of subsidies on farmers' production decisions. The counter-cyclical program provides payments to farmers whenever commodity prices fall below a predetermined level. Eligibility is based on historical production as it is for fixed payments. Counter-cyclical subsidies cover wheat, corn, grain sorghum, barley, oats, upland cotton, long- and medium-grain rice, soybeans, other oilseeds, dry peas, lentils, small and large chickpeas, and peanuts.<sup>6</sup>

The marketing loan assistance program is the second largest subsidy program in the U.S. Enrollment in this program allows farmers to take a loan while pledging their harvest as collateral. The loan amount is based on a loan rate defined in the legislation and the amount of commodity pledged. Before taking the loan, farmers have the option to take a loan deficiency direct payment instead, if current commodity prices are lower than the loan rate. When the loan is due, if food prices are below the loan rate for the commodity pledged, the producer has the option of repaying the loan by handing over the commodity, thus realizing a loan gain. The loan rates are determined according to current production unlike direct and counter-cyclical payments. This program covers wheat, corn, grain sorghum, barley, oats, upland cotton, extra-long staple (ELS) cotton, long- and medium-grain rice, soybeans, other oilseeds, peanuts, wool, mohair, honey, dry peas, lentils, and small and large chickpeas.<sup>7</sup>

The dairy program includes fixed and counter-cyclical payments for dairy producers. The graze-out payment program is the only commodity subsidy for livestock producers. Under this program, producers can receive a payment for grazing their cattle on wheat, barley, oats, or triticale instead of harvesting the crop. Dairy and livestock subsidies represent a small portion of total subsidies both in the U.S. and the Rockies. The significance of crops in commodity subsidy programs is not a positive

**Figure 8:**  
Percent of Farm Gross Income from Subsidies, 2007

Source: Economic Research Service, 2009



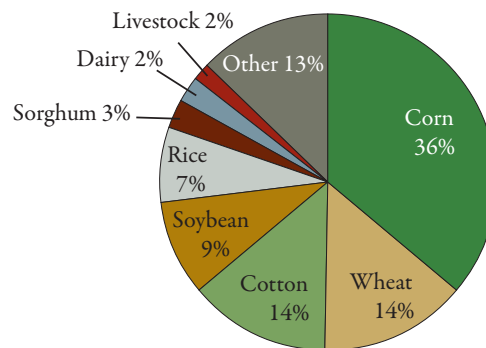
**Table 9:**  
Distribution of Subsidy Payments by Type, 1995 - 2006

	Total commodity payments (millions of dollars)	Fixed payments	Counter-cyclical payments	Marketing loan assistance	Dairy program	Graze-out payment program	Other payments
United States	\$140,219	41%	8%	29%	2%	< 0.1%	19%
Rockies	\$6,908	53%	6%	16%	2%	< 0.1%	22%
Arizona	\$907	47%	26%	9%	1%	< 0.1%	16%
Colorado	\$1,781	52%	5%	21%	1%	< 0.1%	22%
Idaho	\$1,354	52%	2%	18%	4%	< 0.1%	25%
Montana	\$2,062	62%	1%	14%	0%	< 0.1%	23%
Nevada	\$22	44%	2%	7%	14%	< 0.1%	33%
New Mexico	\$435	46%	12%	15%	5%	< 0.1%	23%
Utah	\$178	42%	2%	13%	13%	< 0.1%	30%
Wyoming	\$167	46%	2%	16%	1%	< 0.1%	35%

Source: Environmental Working Group, 2009

**Figure 9:**  
Subsidy Distribution, United States, by Commodity, 1995 - 2008

Source: Environmental Working Group, 2009



Note: "Other" includes: apricot, cane sugar, cotton seed, crambe, peach, pear, poultry, rice, rye, sesame, tobacco, tomato, triticale, mustard seed, flax, tree, rapeseed, safflower, soybean, honey, mohair, canola, apple, oat, potato, sunflower, sheep meat, peanut, and wool subsidies

aspect for livestock producers in the Rockies who produce two thirds of the total agricultural products of the Rockies region.<sup>8</sup>

### Public Criticism of Agricultural Subsidies

Subsidy programs in the U.S. have been most highly criticized for distorting agricultural markets by altering the flow of information upon which producers and consumers make decisions. Producers decide to grow crops based on the amount of subsidies rather than expected market demand or production efficiency. According to standard economic theory, subsidies also encourage farmers to grow higher quantities than the market demands and, thus, lead to overproduction as well as fluctuating food prices. By increasing production for crops which are included in the program, subsidies encourage farmers to grow only specific crops. Therefore, prices for certain food products fall and draw consumers toward them. Other agricultural products are produced less domestically and increase the need for imports, which might raise their prices.

The Federal Agriculture Improvement and Reform (FAIR) Act of 1996<sup>9</sup> addressed these issues by “decoupling” subsidies, or basing them on historical production. Examples of such subsidies are fixed and counter-cyclical payments. The Organization for Economic Cooperation and Development (OECD) defines fully decoupled subsidies as

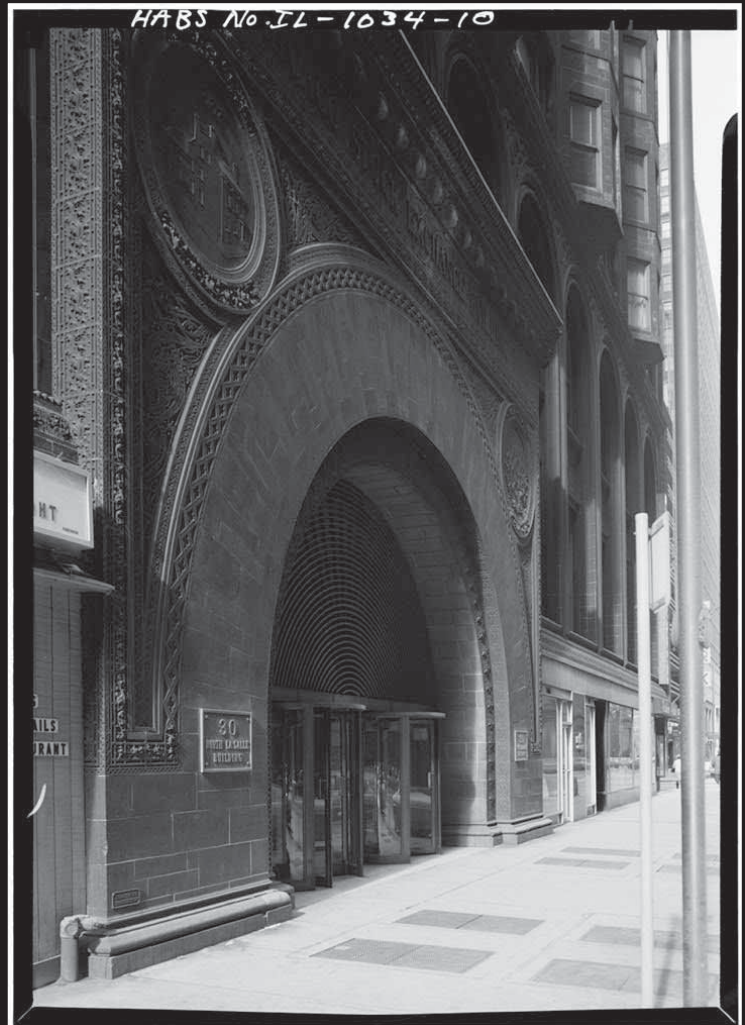
payments that do not influence the production decisions of farmers who receive them. If farmers’ production decisions are not influenced, prices and the diets of consumers are also not going to change. Some scholars, however, argue decoupled payments influence farmers indirectly, by reducing or eliminating economic risk.<sup>10</sup> One study estimated that by reducing a farmer’s risk, every dollar in decoupled payments increases corn acreage by 0.012 acres.<sup>11</sup> Another study estimated the cumulative effect of decoupled payments on production through risk aversion, credit constraints, and wealth effect. Corn, soybean, and wheat production increase by 0.034, 0.024, and 0.033 acres, respectively, with each dollar given out as decoupled subsidies.<sup>12</sup> The study also found that each dollar in fixed payments reduces land retirement by 0.33 acres. Another study,<sup>13</sup> however, focused on the risk attitude of farmers and the effects of decoupled fixed payments and reported that the effects are very small in magnitude and statistically insignificant. Another paper also reported no impact, arguing that such subsidies, which represent 50 percent of all subsidies in the U.S., most likely have little or no impact on farmers’ production decisions and, thus, do not distort the market and do not provide false incentives for consumers.<sup>14</sup>

Another major source of subsidies, marketing assistance loans, remains linked to current production. These subsidies encourage farmers to grow more and increase

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Photo by Cervin Robinson, 1963



Above: The Chicago Mercantile Exchange today, the site of commodities trading.  
Right: The original Chicago Stock Exchange Building at 30 N. La Salle St., 1963.  
Below: The grand crossing of railroads in Chicago, 1902.



supply.<sup>15</sup> Between 1999 and 2001 the program increased acreage for eight major field crops including corn, soybeans, rice, wheat, and upland cotton by two to four million acres.<sup>16</sup> By increasing production, the marketing assistance program also lowers the price of the food products it covers. To make space for increased field crops, crops which receive low or no marketing benefits see reduced acreage, lowering domestic use and exports while raising the prices of these products.<sup>17</sup> These effects occur mostly when food prices are below the program's loan rate because then farmers receive

direct loan deficiency payments. The marketing assistance program accounted for almost 30 percent of all commodity subsidies in the U.S. for the period from 1995 to 2006. In the Rockies, money given out to farmers through this program amounted to 16 percent of all subsidies.

### Land Values

Subsidies affect land values as they are reflected in the future expectations for returns from the land. A report on decoupled payments estimated that such subsidies account for an eight percent increase in land values.<sup>18</sup> Such an increase in land prices poses challenges to beginning farmers as well as smaller operations trying to expand.

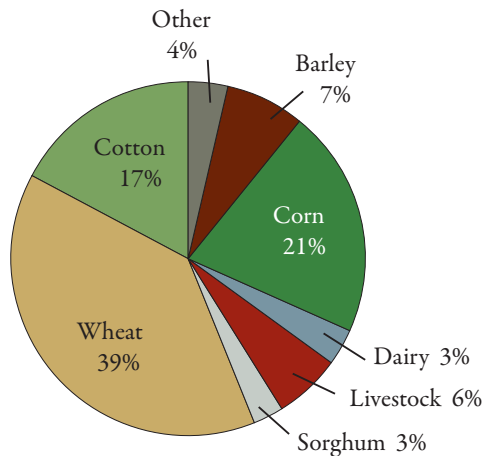
### Consolidation – Larger Farms

Concerns about the economic competition of farms are also raised because of the distribution of subsidy payments to the largest farms. In the U.S. 10 percent of all farms received 74 percent of all subsidies given out between 1995 and 2006. The top 10 percent of recipients received \$130 billion in total or roughly \$400,000 per farm.<sup>19</sup> In 2007, 56 percent of all government subsidies, excluding those oriented toward conservation programs, went to the category of largest farms (those with annual sales of more than \$250,000). These farms represented nine percent of all farms which received these subsidies in 2007.<sup>20</sup> In comparison, farms with sales less than \$5,000 represented 60 percent of all recipients

and received around 10 percent of the subsidies. While the 1996 FAIR act sought to address this issue by placing limits on the subsidies that an individual may receive per farm and per property, some observers argue that loopholes in the legislation have allowed large farms to continue receiving the largest portion of the subsidies.<sup>21</sup> Farm owners have taken advantage of legislative weaknesses by dividing their farms into separate properties and having their employees gather subsidies for each separate property. Such concentration of subsidies in larger farms might prompt concentration of production as well. The Economic Research Service reported that higher subsidies in 1987 were associated with the higher concentration of crops in larger farms between 1987 and 2002.<sup>22</sup> An association does not demonstrate causality, however, and the ERS was uncertain as to whether

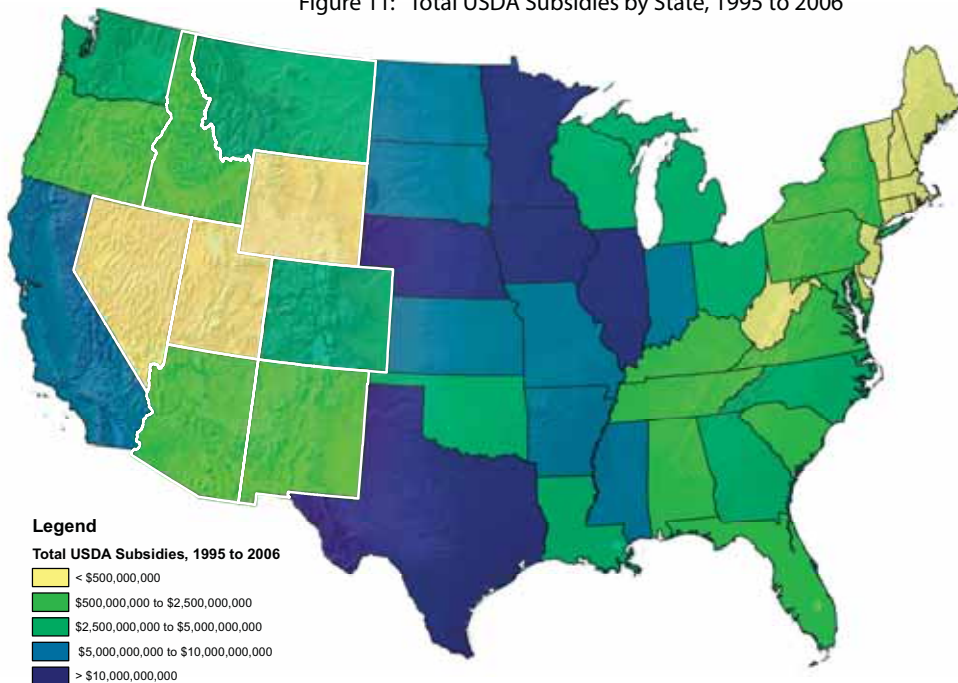
**Figure 10:**  
Subsidy Distribution, Rockies Region, by Commodity, 1995 - 2008

Source: Environmental Working Group, 2009



Note: "Other" includes: apple, canola, flax, honey, mohair, mustard seed, oat, peanut, potato, rapeseed, safflower, sheep meat, soybean, sunflower, triticale, and wool subsidies. The following commodities were eligible for subsidies, but did not receive payments during 1995 - 2008: apricot, cane sugar, cotton seed, crambe seed, peach, pear, poultry, rice, rye, sesame, tobacco, and tomato.

**Figure 11:** Total USDA Subsidies by State, 1995 to 2006



Source: Environmental Working Group, 2009

subsidies caused the concentration of food production in larger farms.

### *A Subsidy Diet*

Commodity subsidies are not only concentrated in larger farms but also in certain crops according to research by the Environmental Working Group (Figure 9). In the U.S. corn producers have been the major recipients of commodity subsidies, receiving \$56 million between 1995 and 2006. Other major categories in the U.S. include wheat and cotton. In the Rockies, as shown in Figure 10, the picture is not much different. Wheat, corn, and cotton producers are the major recipients of subsidies. Agriculture in the Rockies, however, is different than agriculture in other regions of the U.S., with its focus on livestock as well as vegetables. The subsidies for these products are eclipsed by the amount of subsidy that goes toward other crops. Although wheat is among the top five commodities in sales in the Rockies, the states of Arizona, Nevada, New Mexico, Utah and Wyoming rely mostly on other agricultural products.<sup>23</sup> Farms specializing in livestock, hay, and vegetables are economically important to these states, but might be facing more challenges compared to farms producing major subsidized crops such as wheat. Corn is among the top five commodities in sales only in Colorado but represents the second largest subsidized commodity in the region (See Figure 10). If marketing assistance loans encourage farmers to produce the products that receive the highest amount of subsidies, the current agricultural model of the Rockies might be threatened, transforming agricultural activity into a model based on national production trends. Federal agricultural subsidies are a “blunt” tool when assessed at the regional and state levels, often sending conflicting and contradictory signals which work against the best interests of the land and financial conditions of farm operation. In addition, as production moves towards commodities under the marketing assistance loan program, it makes them cheaper. All other products will have to be imported to satisfy domestic demand and will, thus, have higher prices. Such changes might affect consumer choice.

### **Total Subsidies in the U.S.**

States in the Rockies region on average receive lower levels of subsidies compared to other divisions (Figure 11). Reasons include the fact that the Rockies region produces less of the major subsidized crops such as corn and wheat. An interesting differential pattern becomes clear when the top five types of agricultural subsidy programs from 1995 through 2008 are arrayed for the U.S. and each of the eight Rockies States (Table 10). The primary recipients of USDA crop subsidies are states in the Corn Belt as corn

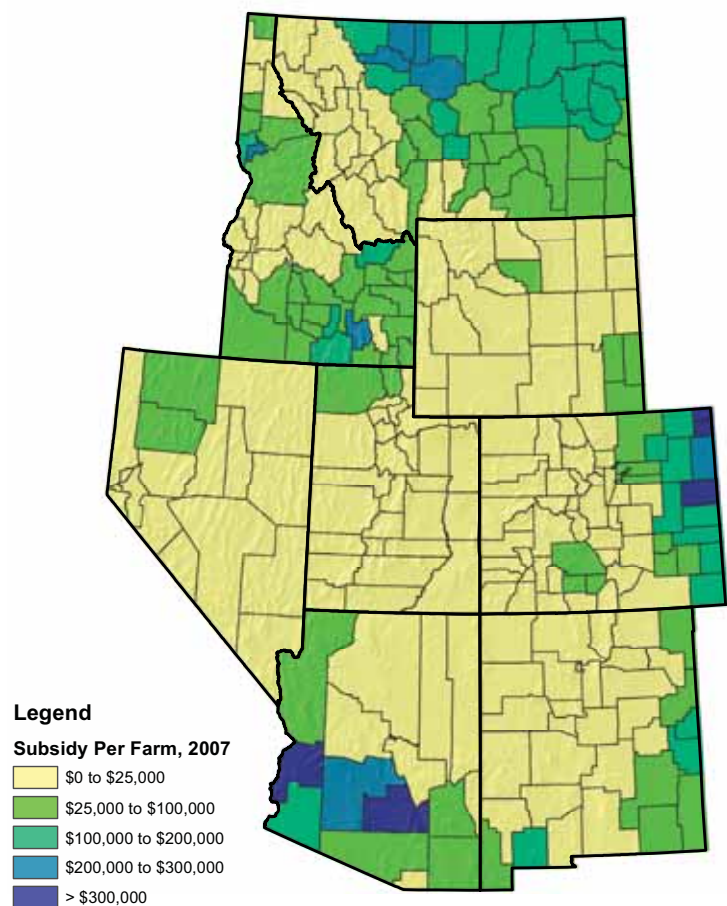
**Table 10:**  
**Top Five Subsidy Programs by Amount of Payments, 1995 - 2008**

	1	2	3	4	5
United States	Corn Subsidies	Wheat Subsidies	Cotton Subsidies	CRP	Disaster Payments
Arizona	Cotton Subsidies	Wheat Subsidies	Disaster Payments	Corn Subsidies	Livestock Subsidies
Colorado	CRP	Wheat Subsidies	Corn Subsidies	Disaster Payments	Livestock Subsidies
Idaho	Wheat Subsidies	CRP	Barley Subsidies	Disaster Payments	Corn Subsidies
Montana	Wheat Subsidies	CRP	Disaster Payments	Barley Subsidies	Livestock Subsidies
Nevada	Disaster Payments	Wheat Subsidies	Livestock Subsidies	EQIP	Dairy Subsidies
New Mexico	CRP	Disaster Payments	Wheat Subsidies	Cotton Subsidies	Corn Subsidies
Utah	Disaster Payments	CRP	Wheat Subsidies	Livestock Subsidies	Dairy Subsidies
Wyoming	Disaster Payments	CRP	Wheat Subsidies	Livestock Subsidies	Corn Subsidies

Source: Environmental Working Group, 2009

Note: CRP: Conservation Reserve Program; EQIP: Environmental Quality Incentives Program

**Figure 12: Total Farming Subsidies Per Farm by County, 2007**



Source: Environmental Working Group, 2009

subsidies rank first in all agricultural payments in the U.S. Other main recipients are Texas and California for cotton subsidies. Focusing on the Rockies states a different pattern emerges. Disaster payments, Conservation Reserve Program payments, and wheat and corn subsidies rank first in one or more of the region's states. Several forces are at work in driving the types of subsidies ranking high in the various states. In the Rockies region, the largest subsidies were appropriated to Colorado and Montana between 1995 and 2006. Colorado and Montana had the largest numbers of

farms in 2007 with 37,000 and 30,000 farms, respectively. Average wheat bushels produced per farm in Colorado and Montana were the largest by state in the region with around 2,300 and 4,000 bushels harvested per farm, respectively.

### Total Commodity Payments per Farm in the Rockies

Analysis of agricultural subsidies among the 281 counties in the Rockies reveals an interesting pattern (Figure 12). Average commodity payments per farm were largest in northern Montana, the eastern plains of Colorado, southern Arizona, and eastern New Mexico. These regions contain a large number of agriculture-dependent counties. Counties are considered to be agriculture dependent if 15 percent or more of proprietors' annual receipts come from farming. Agriculture-dependent counties have larger farms than other counties. Of all farms in agriculture-dependent counties, 35 percent have 1,000 acres or more, compared to 17 percent of all farms in the Rockies region. Average net farm income in these counties is around \$65,000, compared to the \$30,000 average in the Rockies, and most counties in the eastern Rockies and Montana have 75 or more percent of their land in farmland.<sup>24</sup>

### Conservation and Disaster

The Conservation Reserve Program (CRP) was established in 1985 to combat soil erosion on highly erodible land. Previous land retirement policies had been mainly based on concerns for productivity and supply

Figure 14: Total Disaster Subsidies Per Farm by County, 2007

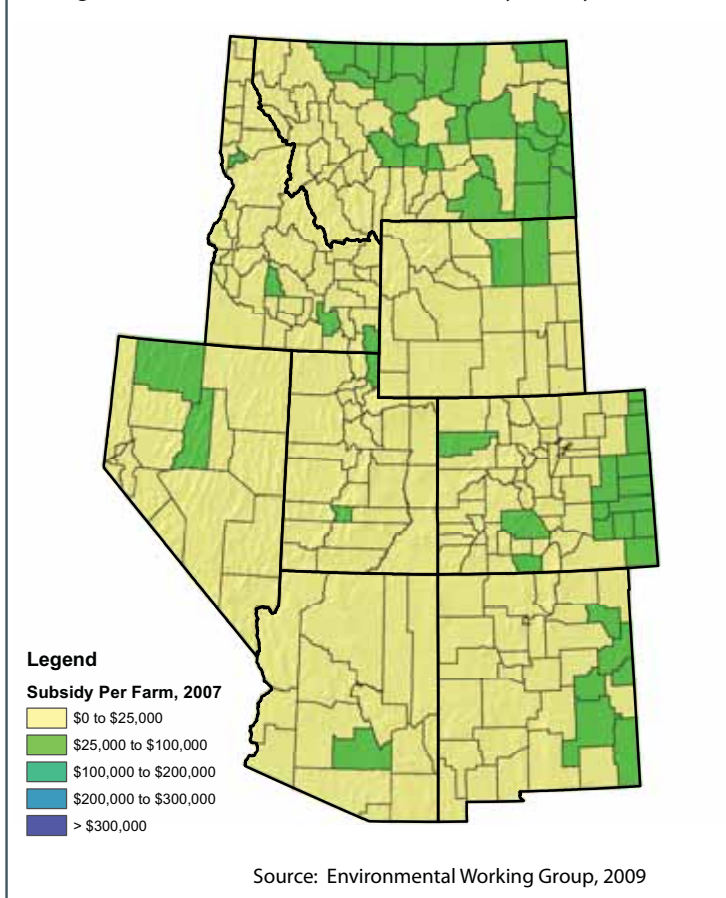
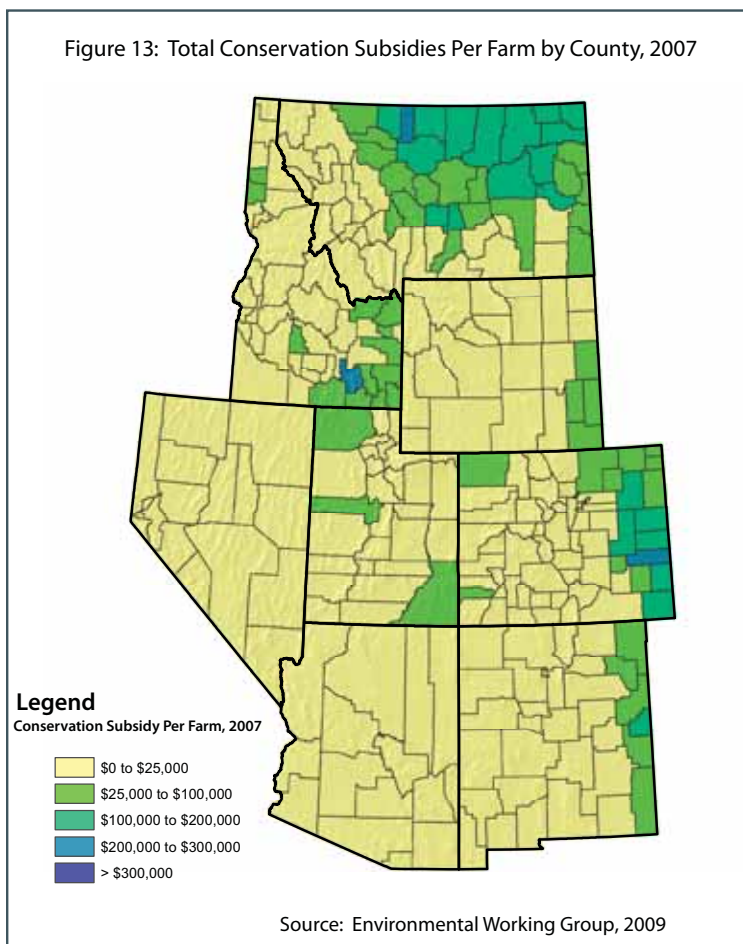


Figure 13: Total Conservation Subsidies Per Farm by County, 2007



management.<sup>25</sup> Today concerns for water and air quality, soil erosion's impact on river ecosystems, and wildlife habitat and open space preservation drive conservation programs. Through the CRP, farmers are paid to retire land and receive assistance of up to 50 percent of the cost incurred to establish conservation practices such as converting the land to native grasses, wild plants, and trees. Conservation payments have turned into an alternative source of income for farmers. In addition, open land preservation creates opportunities for farm tourism. Wildlife numbers were reported to have increased on CRP land, primarily for upland bird, waterfowl, and big game, which create further opportunities for hunting and additional farm income. The CRP program also reduces the loss of agricultural land to development projects by 50 percent.<sup>26</sup> Apart from these positive impacts on rural economies, a USDA report<sup>27</sup> suggested that land forgone for conservation and reduced agricultural production could have negative impacts on farm input suppliers and food processors. The same report also indicated that high enrollment in CRP was associated with net losses of jobs between 1986 and 1992 in some counties. These findings are inconclusive, however, as businesses involved in agriculture continued to contract throughout the 1990's and the trend of job losses did not persist after 1992, as noted in the report. The pattern of average CRP subsidies per farm in the Rockies counties is mapped in Figure 13. Conservation payments per farm have been largest in eastern plains counties in Colorado and New Mexico, as well as northern areas of Montana, all with high

concentrations of agriculture-dependent counties. These counties have 75 percent or more of their land in farms and, thus, can most likely have significant environmental impacts.

### Disaster Payments

Disaster programs assist farmers who encounter natural disasters from drought, flood, freeze, tornadoes, and other natural calamities. Livestock producers receive government assistance mostly through disaster payments. Under the Livestock Indemnity Program, the USDA appropriates payments to livestock producers in cases of livestock deaths due to adverse weather events. The Livestock Compensation Program compensates livestock producers who suffer from feed losses or incur additional feed costs due to adverse weather. *The Washington Post* reported that the USDA encourages disaster declarations for counties which have not had disasters.<sup>28</sup> According to the article, livestock disaster payments were given out without assessment of actual damages but only based on the number of livestock owned by the farmer. When sweet potatoes became eligible for crop insurance, planting quadrupled, and crop failures surged. Farmers were said to be purposely growing sweet potato crops on unsuited land and skimping on all crop production costs simply to collect generous crop insurance and disaster aid, a practice referred to as “farming your insurance.”<sup>29</sup> In the Rockies average disaster payments are concentrated in eastern Colorado, eastern New Mexico, and Montana, where, as noted above, most counties are dependent on agriculture and have 75 percent of their land in farms (Figure 14). Eastern Colorado, eastern New Mexico, and southern Arizona are prone to wildfires, while blizzards and severe winter storms in Montana are a threat to livestock and crop producers.

### Conclusion

Subsidies are among the most controversial topics of political discussion today. The federal deficit is increasing by unprecedented rates and in such times each element of government spending should be examined and scrutinized even more closely to eliminate inefficiencies. While agricultural subsidies positively impact a farm’s wealth and consumption, they can distort agricultural markets and encourage farmers to produce more of what is being subsidized and less of other agricultural products. But farm policy is always changing. Most notably, in 1996 most agricultural subsidies were redefined to be based on historical production, and in February 2009 President Obama called for an end to payments to the largest and wealthiest farms.<sup>30</sup> The Rockies are not immune from the “political” influence of agricultural subsidies and should come together to identify a logical set of government payments that promote agriculture appropriate to the region’s land and environment, while assisting small and medium-size farms to continue an essential aspect of the region’s uniqueness: healthy rural land and communities.

<sup>1</sup> Pollan, Michael. *Omnivore’s Dilemma: A Natural History of Four Meals*. New York: The Penguin Press, 2006. p. 243.

<sup>2</sup> Pasour Jr., E.C., and Randal R. Rucker. *Plowshares & Pork Barrels: The Political Economy of Agriculture*. Oakland, The Independent Institute, 2005. p. 86-87.

<sup>3</sup> Burfisher, Mary E., and Jeffrey Hopkins, “Decoupled Payments Increase Households’ Well-Being, Not Production.” *Amber Waves* (February 2003).

<sup>4</sup> Key, Nigel, and Michael J. Roberts. “Do Government Payments Influence Farm Business Survival?” *American Agricultural Economics Association* (2005).

<sup>5</sup> *Ibid.*

<sup>6</sup> United States Department of Agriculture, Economic Research Service. “Farm and Commodity Policy: Program Provisions: Counter-Cyclical Payments.” <http://www.ers.usda.gov/Briefing/FarmPolicy/countercyclicalpay.htm> (accessed August 10, 2009).

<sup>7</sup> United States Department of Agriculture, Economic Research Service. “Farm and Commodity Policy: Program Provisions: Marketing Assistance Loans and Loan Deficiency Payments.” <http://www.ers.usda.gov/briefing/farmpolicy/malpl.htm> (accessed August 10, 2009).

<sup>8</sup> Refer to the Financial Overview of the *2010 State of the Rockies Report Card*, p. 94.

<sup>9</sup> Nelson, Frederick J., and Lyle P. Schertz. “Provisions of the Federal Agriculture Improvement and Reform Act of 1996.” *USDA Economic Research Service*. 1996.

<sup>10</sup> Hennessy, David. “The Production Effects of Agricultural Income Support Policies Under Uncertainty.” *American Journal of Agricultural Economics*. Vol. 80, No. 1 (1998). 46-57. and Goodwin, B. and A. Mishra. “Are “Decoupled” Farm Program Payments Really Decoupled?: An Empirical Evaluation.” *American Journal of Agricultural Economics*. Vol 88, No. 1 (2006). 73-89.

<sup>11</sup> Hennessy, 1998.

<sup>12</sup> Goodwin and Mishra, 2006.

<sup>13</sup> Kim, Tae-Hun, “Effect of Decoupled Payments on U.S. Agricultural Production,” *Journal of Rural Development/Nongchon-Gyeongje, Korea Rural Economic Institute*. Vol. 31, Issue 5 (November 2008).

<sup>14</sup> Babcock, Bruce. “Money for Nothing: Acreage and Price Impacts of U.S. Commodity Policy for Corn, Soybeans, Wheat, Cotton, and Rice.” *American Enterprise Institute, The 2007 Farm Bill and Beyond* (Washington, D.C.: AEI Press, 2007), p. 41-45.

<sup>15</sup> Westcott, Paul C. and J. Michael Price. “Analysis of the U.S. Commodity Loan Program with Marketing Loan Provisions.” *USDA Economic Research Service*, 2001.

<sup>16</sup> *Ibid.*

<sup>17</sup> *Ibid.*

<sup>18</sup> Burfisher and Hopkins, 2003.

<sup>19</sup> Environmental Working Group, 2006. <http://www.ewg.org> (accessed January 4, 2010).

<sup>20</sup> United States Department of Agriculture. *2007 Census of Agriculture*. Geographic Area Series. Table 5. 2009.

<sup>21</sup> Riedl, Brian M. “How Farm Subsidies Became America’s Largest Corporate Welfare Program.” *The Heritage Foundation* (February 2002). <http://www.heritage.org/research/budget/bg1520.cfm> (accessed August 9, 2009).

<sup>22</sup> Key, Nigel and Michael J. Roberts. “Cropland Concentrating Faster Where Payments are Higher.” *USDA ERS, Amber Waves* (November 2007). <http://www.ers.usda.gov/AmberWaves/November07/Features/Cropland.htm> (accessed January 4, 2010).

<sup>23</sup> Refer to the Production Overview in the *2010 State of the Rockies Report Card*, p. 16.

<sup>24</sup> United States Department of Agriculture. *2007 Census of Agriculture*. Geographic Area Series. Table 5. 2009.

<sup>25</sup> Effland, Anne B.W. “U.S. Farm Policy: The First 200 Years.” *USDA Economic Research Service* (2009).

<sup>26</sup> Johnson, Jerry and Bruce Maxwell, “The role of the Conservation Reserve Program in Controlling Rural Residential Development.” *Journal of Rural Studies*. Vol. 17, Issue 3 (July 2001). p. 323-332.

<sup>27</sup> Sullivan, Patrick, Daniel Hellerstein, Leroy Hansen, et al. “The Conservation Reserve Program: Economic Implications for Rural America.” *USDA Economic Research Service* (2004).

<sup>28</sup> Gaul, Gilbert, Dan Morgan, and Sarah Cohen, “No Drought Required for Federal Drought Aid,” *The Washington Post*, (July 18, 2006).

<sup>29</sup> Riedl, 2002.

<sup>30</sup> Abbott, Charles. “Obama Says Subsidies Wasteful to Large U.S. Farms.” *Thomson Reuters* (February, 2009). <http://www.reuters.com/article/topNews/idUSTRE51008A20090225> (accessed August 8, 2009).