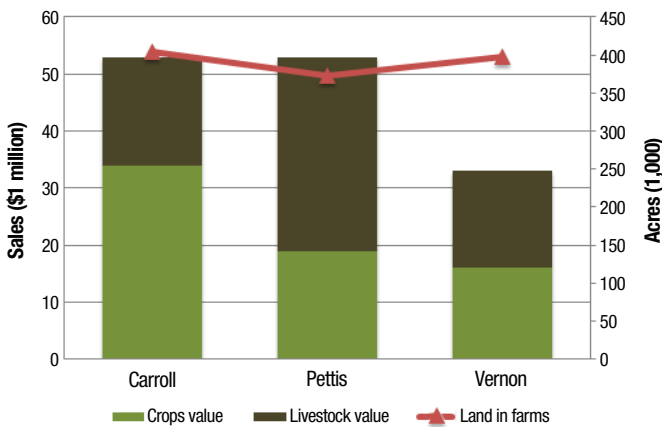


# The Impact of Livestock Production: A Case Study of Three Missouri Counties

Missouri is experiencing two seemingly contradictory economic developments. The number of cropland acres harvested is declining while the total value of agricultural products sold is increasing. This increase in value can be seen in both crop and livestock sales, with the largest increase being in livestock sales. For example, almost twice as many hogs and almost seven times as many chickens were sold in Missouri in 2002 as in 1982.

This guide compares three Missouri counties, two of which have experienced a dramatic change in agricultural commodities produced. In 1987, Carroll, Pettis and Vernon counties each had between 1,000 and 1,325 farms on 375,000 to 405,000 acres (see Table 1). Each county produced a relatively diverse set of agricultural products, including crops and livestock. Figure 1 shows the similarities in land farmed and market value of agricultural products sold in each county in 1987.



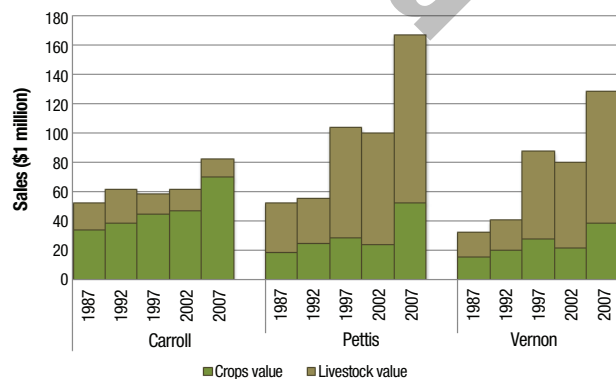
**Figure 1. Market value of crops and livestock sold and acres of farmland in 1987. (Source: Census of Agriculture)**

In 2007, Pettis County sold twice as many chickens as in 1997 and Vernon County sold 16 times as many hogs as in 1992. With the increase of animal agriculture in Pettis and Vernon counties, the number of acres of cropland harvested increased slightly in Pettis County and declined in Vernon County from 1987 to 2007. During the same period, the total number of farms in each of the three counties

increased, with the number of farms in Carroll County increasing 18 percent, in Pettis County 6 percent and in Vernon County 10 percent.

The number of head of livestock sold in the three counties changed significantly from 1987 to 2007. The number of cattle sold increased almost 18 percent in Pettis County and 39 percent in Vernon County and decreased 11 percent in Carroll County. The number of hogs sold decreased 91 percent in Carroll County and 16 percent in Pettis County but increased almost 3,500 percent in Vernon County. Only about 34,000 hogs were sold in Vernon County in 1987; in 2007, over 1.2 million were sold. Pettis County had a similar situation with chicken production. In 1987, none of these three counties reported chicken production. Then in 2007, Carroll and Vernon counties had insignificant chicken sales, but Pettis County sold over 29 million birds.

The most apparent change besides the total number of animals sold was in the market value of agricultural products sold, as shown in Figure 2. In Carroll County, the market value of crops increased at a relatively steady pace while the value of livestock sold declined. In Pettis and Vernon counties, the value of crops sold remained relatively stable from 1987 to 2002 and increased only slightly in 2007, but the value of livestock sold rose markedly. In Pettis County, the value of livestock sold more than tripled; and in Vernon County, in 2007 it was five times what it had been in 1987. The total value of agricultural products sold in these two counties increased considerably due primarily to increases in livestock production.



**Figure 2. Market value of agricultural products sold 1987-2007. (Source: Census of Agriculture)**

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**Table 1. Comparison of agricultural industries in three Missouri counties, 1987–2007.**

	Carroll County					Pettis County					Vernon County				
	1987	1992	1997	2002	2007	1987	1992	1997	2002	2007	1987	1992	1997	2002	2007
Number of farms	1,013	919	952	1,081	1,199	1,323	1,225	1,249	1,278	1,398	1,251	1,249	1,265	1,399	1,383
Acres of land in farms	404,480	377,000	395,657	417,080	401,536	372,442	359,434	366,132	402,390	408,932	396,638	402,202	388,549	426,450	455,844
Average size of farm in acres	399	410	416	386	335	281	293	293	315	293	317	322	307	305	330
Total acres of harvested cropland	237,149	228,553	241,641	246,396	218,136	173,820	182,868	184,121	207,902	223,380	166,752	177,555	176,589	196,422	192,636
Market value of agricultural products sold (\$1,000)	52,637	62,039	58,965	61,824	83,516	52,789	56,042	104,015	101,875	166,338	33,310	41,392	87,731	80,323	129,353
Market values of crops sold (\$1,000)	33,871	39,243	44,512	47,082	70,245	19,029	24,666	29,268	24,350	52,648	16,304	20,228	27,607	22,385	39,281
Market value of livestock sold (\$1,000)	18,766	22,795	14,453	14,742	13,271	33,760	31,376	74,746	77,525	113,690	17,006	21,164	60,124	57,938	90,072
Percent of operators with principal occupation farming <sup>1</sup>	66	64	56	58	36	52	52	50	61	46	54	52	47	56	44
Percent of operators working 200 or more days off farm	25	29	33	37	40	38	37	39	40	36	36	36	41	46	40
<b>Livestock (numbers)</b>															
Cattle and calves sold	19,526	19,030	18,151	22,694	17,325	31,211	30,059	31,176	33,616	36,913	27,504	29,557	27,718	30,050	38,215
Hogs and pigs sold	90,892	123,009	60,596	51,648	8,072	134,311	126,399	163,085	169,634	113,493	33,716	77,414	1,003,187	1,212,491	1,210,191
Broilers and other meat-type chickens sold	(D)	—	(D)	(D)	220	—	(D)	15,897,357	19,256,520	29,963,362	—	(D)	(D)	1,097	(D)
<b>Crops</b>															
Corn for grain or seed (bushels)	6,226,712	7,693,352	6,478,651	9,508,574	7,921,834	2,742,149	3,878,278	3,247,695	4,209,461	7,242,306	1,506,339	2,323,022	2,560,549	3,098,914	5,667,114
Wheat for grain (bushels)	395,591	1,814,232	1,561,622	446,863	586,422	276,614	1,369,864	1,221,463	903,124	1,079,761	238,021	1,599,069	1,133,616	896,070	677,938
Soybeans for beans (bushels)	4,691,483	4,138,565	4,033,032	4,862,286	4,822,651	2,558,477	2,381,858	2,525,963	2,244,053	2,574,370	1,886,722	1,588,709	2,158,997	1,365,267	1,870,491
Local sales tax collection <sup>2</sup>		788,000	896,000	1,093,000	1,212,000		5,186,000	7,144,000	8,374,000	10,137,000		1,987,000	2,517,000	2,837,000	3,267,000

**Data source:** Census of Agriculture except where noted.

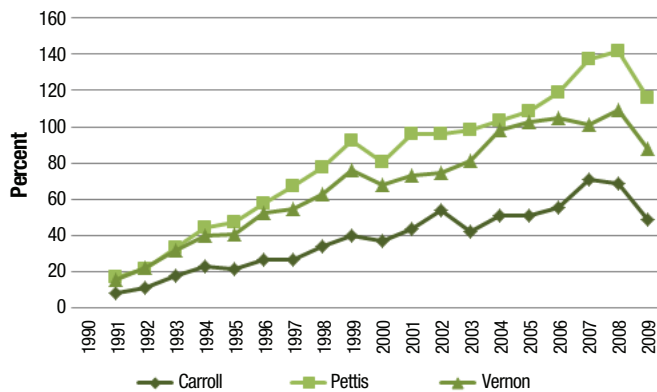
**Notes:**

<sup>1</sup> The principal occupation of the operators(s) is the occupation at which an operator spent the majority of his or her time.

<sup>2</sup> Sales tax receipts per 1 percent source: Economic and Policy Analysis Research Center, University of Missouri-Columbia.  
(D) Withheld to avoid disclosing data for individual farms.

## Sales tax collection

Increases in agricultural production impact the local economy. This impact can be seen in local sales tax collections. Sales tax receipts change due to changes in tax rates or in volume of products and services sold. To observe increases in economic activity (products and services sold), tax receipts assuming a 1 percent sales tax are used. Figure 3 shows changes in local sales tax receipts assuming a sales tax of 1 percent. All three counties reached peak changes in local sales taxes — by 69 percent in Carroll, 142 percent in Pettis and 109 percent in Vernon — in 2008 before experiencing a decrease of about 20 percent in 2009. The impact on tax receipts may also be understated due to current sales tax exemptions on livestock sales, purchase of animal feeds and medicines and use of farm machinery.



**Figure 3. Percent change in local sales tax receipts, assuming a sales tax rate of 1 percent. (Source: Economic and Policy Research Center, University of Missouri-Columbia)**

## Conclusion

Within a finite land base, increases in crop production will occur from technological advances. Such increases have been occurring at a steady yet measured pace. Producers looking for options to add additional income and value to production so as to generate more income will likely find that animal production offers the greatest opportunities.

Animal agriculture has added a considerable amount of value to agricultural products sold in Pettis and Vernon counties. The difference in market value of agricultural products sold is significant between those two counties, with their increases in confined animal operations, and Carroll County, which had no increase in animal agriculture. The value of crop production is increasing in all three counties, but the value of livestock production is increasing only in Pettis and Vernon counties.

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