Changes in New Mexico Agriculture 1996

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PREFACE

Changes in New Mexico Agriculture provides an annual accounting in constant units of changes that occurred in cash receipts and value of production between the preceding year and the title year. It is a companion for publications such as *New Mexico Agricultural Statistics* and *Agricultural Statistics*, which publish extensive statistics related to agriculture; however, the monetary values reported in those publications are measured in nominal dollars. As a consequence, a comparison between years does not allow a determination of the real changes that have occurred. *Changes in New Mexico Agriculture* remedies this problem. Changes in cash receipts are calculated for all commodities. In addition, a top-10 county disaggregation is made for the 10 commodities accounting for the highest percentage of cash receipts in New Mexico for the period covered in the report. Long-term trends and changes in cash receipts and value of production are reported in *Trends in New Mexico Agriculture*.

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Wilmer M. Harper and Jacob Way*

INTRODUCTION

This report is a baseline reference for New Mexico's agricultural sector with respect to cash receipts, value of production, and major commodities. Annual cash receipts and value of production are converted from nominal monetary values to constant-dollar values.[1] Inflation in the general price level produces nominal price changes that do not reflect changes in the real value of goods and services in the economy. To remove changes associated with inflation, the value of the commodities covered in this report are adjusted to a common base period (1990) using the Consumer Price Index[2] (CPI) (appendix A). Adjusting cash receipts to a common base period removes variation in cash receipts between time periods that may be due to price differences associated with changes in the nominal value of the dollar. Adjusted values allow the identification of monetary values that have increased or decreased in real terms. Although conversion to a common base period does not take into account changes in production due to technology, a comparison of the constant-dollar values between the two periods provides a measure of whether producers' real incomes have increased or decreased. For commodities with decreases in production, there also may be a decrease in the cost of production. In these cases, cost decreases could partially offset decreases in profits associated with lower quantities.

This report should not be interpreted as measuring the impact of agriculture upon the state's economy; the data are cash receipts and values of production. Cash receipts understate total value in some cases and overstate total value in others. However, cash receipts are the values used in publications such as *New Mexico Agricultural Statistics*. Cash receipts do not account for intrafarm transfers of commodities such as hay, pasture, livestock, and grain. The value of production for final products, such as calves and yearlings, may include the value of hay and grain that were produced on the farm or ranch. In these cases, cash receipts and value of production for the final product do not record the production of intermediate goods used in the final product. The general result is that cash receipts data overstate the importance of livestock operations where one animal may appear in cash receipts more than once in a given year and the value of nonmarketed feed is attributed to the animal not the crop. Value added would be a preferable concept, but the data are not available. In addition, cash receipts and value of production leave unmeasured the multiplier effect that accompanies agricultural production. This unmeasured impact includes such important components as agriculture's impact on the input and service industries associated with the production process, the processing of agricultural products, and the impact of the multiplier effect upon cash receipts as they cycle through the economy. The value of the multiplier for New Mexico's agricultural sector is 2.4472. This means every $1 change in output that occurs in the agricultural sector results in a $2.4472 change in New Mexico's aggregate economy (U.S. Department of Commerce, 1992, p. 34).

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[1]Throughout this report, changes between periods reported in 1990 constant-dollar values will be referred to as changes in real values measured in constant units.

[2]Adjustments to a constant value are most meaningful when the adjustment mechanism is familiar to those who will use the adjusted values. No single price index is appropriate for making adjustments to the values of all goods and services; however, the Consumer Price Index (CPI) is frequently used to measure inflationary changes in the economy. Because the CPI is familiar to most readers, it is used in this report to adjust the nominal dollar values.

Agriculture in New Mexico

The 1997 Census of Agriculture classifies 45.8 million acres of New Mexico's land area as farmland. The U.S. Department of Agriculture definition does not distinguish between cropland and rangeland. There were 14,094 farms, 0.7 % of the U.S. total.[3] Units of 2,000 acres or more accounted for 18.84 % of the total farm classification, and units in the 1-50 acre range constituted 36.98 % of the total.[4] By sales class, 81.40 % of the units had sales less than $50,000, and 3.44 % had sales greater than $500,000. The average operator age was 56.5 years, and 51.1 % of the operators reported farming as their principal occupation. With respect to tenure, individual or family operations were the predominant types, comprising 83.60 % of total operators (1997 Census of Agriculture, State and County Data, N.M., pp. 10-11).

In 1996, New Mexico ranked 34 among the 50 states with respect to total farm marketings and produced 0.84 % of total U.S. farm marketings. New Mexico ranked 37 with respect to total farm marketings from crops, producing 0.47 % of the U.S. total, and it ranked 27 with respect to total farm marketings from livestock, producing 1.29 % of the US total (USDA, Agricultural Statistics 1998, p. IX-39). Farm income[5] was 1.09 % of New Mexico's total personal income generated from all industries. Farm income increased from $336.5 million in 1995 to $352 million in 1996 (U.S. Dept. of Commerce, REIS). Cash receipts from all commodities were $1.71 billion in 1996, a nominal increase of 17.20 % from 1995. In constant dollars, total cash receipts increased 13.84 % from 1995 to 1996 (table 1).

From 1995 to 1996, the nominal value of cash receipts increased for 17 commodities, decreased for eight commodities, and remained constant for four commodities. However, when valued in constant dollars, 14 commodities showed an increase in cash receipts and, 15 commodities showed a decrease. The rank of the commodities also showed substantial change from 1995 to 1996. Of the 29 commodities reported, seven commodities maintained the same rank, 14 increased in rank, and eight decreased in rank (table 1). When compared to the 1993-95 average, constant-dollar cash receipts, the 1996 value of constant-dollar cash receipts was greater than the 1993-95 average for 10 commodities and less for 18 commodities (table 2). Onecommodity, Christmas trees, has not been reported separately long enough to calculate the multiple year average. The state's constant-dollar total cash receipts was greater than the 1993-95 constant-dollar average. Of the top 10 commodities in 1996, nine were in the top 10 for the 1993-95 constant-dollar average. Five of the top 10 commodities had 1996 constant-dollar cash receipts that exceeded their 1993-95 constant-dollar average. Wheat was in the top 10 in 1996, but did not rank in the top 10 for the 1993-95 constant-dollar average. Pecans ranked in the top 10 for the 1993-95 constant-dollar average, but did not rank in the top 10 in 1996.

Constant-dollar value of cash receipts increased 13.84 % from 1995 to 1996. The balance sheet for New Mexico's farm sector (table 3) shows a real increase in the value of farm assets. The value of farm debt increased 4.54 % in real terms. Although total farm debt increased in both real and nominal terms, the debt-to-equity and debt-to-asset ratios decreased from 1995 to 1996, due to the increase in total farm assets. The value of real estate and crops increased, while livestock, machinery and vehicles, purchased inputs, and financial assets decreased in value.

The Major Commodities

In 1996, the top 10 commodities accounted for 91.14 % of the 1996 total value of cash receipts for New Mexico. These commodities were taken as the major commodities for New Mexico in 1996. An important part of the detailed analysis which follows is the disaggregation of the change in the value of production into its component parts- change due to the difference in commodity price, change due to the difference in the quantity of commodity produced, and the interaction of difference in price and difference in quantity.

With respect to cash receipts, the top 10 (of 33 total) counties account for 85.01 % of New Mexico's total cash receipts (table 4), up 9.21 % from 1995. The top two counties, Chavesand Doña Ana, account for 30.69 % of total value of cash receipts in New Mexico, down 1.51% from 1995. Both Chaves and Doña Ana counties rank in the top 10 for six of the top 10 commodities.

Where possible, the county-level analysis uses cash receipts; however, this is not possible for all commodities. At the county level, some commodity data are reported only in value of production. Differences in cash receipts and value of production arise for various reasons. In the case of commodities used in the produc-

[3]The USDA classifies as a farm any agricultural production unit that had $1,000 of sales in the census year or that was capable of $1,000 sales in the census year.

[4]Since USDA does not distinguish between cropland and rangeland, the high percentage of units with more than 2,000 acres should not be taken to imply an equal weighting of irrigated units in this category. Only 1.76 % of land classified as _land in farms_ is classified as irrigated land.

[5]Farm income consists of the proprietor's net farm income, the wages of hired farm labor, the payment-in-kind of hired farm labor, and the salaries of officers for corporate farms.

Table. 1 Cash receipts, all New Mexico commodities, 1995-96.

	1996					1995			Percent change cash receipts 1995 - 1996	
Commodity	Rank[c]	Cash[a] receipts ($1000)	Percent agricultural cash receipts	Cumulative percent of agricultural cash receipts	Cash[b] receipts ($1000) (1990 = 100)	Rank	Cash[a] Receipts ($1000)	Cash[b] receipts ($1000) (1990 = 100)	Nominal dollars	Constant dollars
Cattle and calves	1	628,219	36.76%	36.76%	526,519	1	483,140	416,883	30.03%	26.30%
Milk wholesale	2	509,358	29.80%	66.56%	426,900	2	417,222	360,005	22.08%	18.58%
Hay	3	154,745	9.05%	75.62%	129,694	3	130,484	112,590	18.59%	15.19%
Chile	**4**	65,460	3.83%	79.45%	54,863	6	44,840	38,691	45.99%	41.80%
Onions	*5*	44,744	2.62%	82.06%	37,501	5	52,826	45,581	-15.30%	-17.73%
Greenhouse nursery	**6**	39,358	2.30%	84.37%	32,986	7	39,062	33,705	0.76%	-2.13%
Cotton lint	**7**	38,929	2.28%	86.65%	32,627	8	30,979	26,731	25.66%	22.06%
Corn	**8**	38,673	2.26%	88.91%	32,412	9	28,214	24,345	37.07%	33.14%
Potatoes	**9**	19,903	1.16%	90.07%	16,681	10	24,045	20,747	-17.23%	-19.60%
Wheat	**10**	18,195	1.06%	91.14%	15,249	12	14,919	12,873	21.96%	18.46%
Eggs	**11**	17,213	1.01%	92.14%	14,426	16	13,383	11,548	28.62%	24.93%
Pecans	*12*	16,280	0.95%	93.10%	13,644	4	55,800	48,148	-70.82%	-71.66%
Misc. vegetables	*13*	16,250	0.95%	94.05%	13,619	11	16,250	14,021	0.00%	-2.87%
Sorgum grain	**14**	15,077	0.88%	94.93%	12,636	17	12,251	10,571	23.07%	19.54%
Milk retail	*15*	13,921	0.81%	95.74%	11,667	14	13,581	11,719	2.50%	-0.44%
Other livestock	*16*	13,586	0.79%	96.54%	11,387	15	13,525	11,670	0.45%	-2.43%
Other field crops	**17**	12,043	0.70%	97.24%	10,093	19	11,427	9,860	5.39%	2.37%
Sheep and lambs	*18*	10,902	0.64%	97.88%	9,137	18	12,186	10,515	-10.54%	-13.10%
Peanuts	*19*	9,954	0.58%	98.46%	8,343	13	14,190	12,244	-29.85%	-31.86%
Dry beans	**20**	7,029	0.41%	98.88%	5,891	21	6,340	5,471	10.87%	7.69%
Lettuce	*21*	5,654	0.33%	99.21%	4,739	20	8,493	7,328	-33.43%	-35.34%
Cottonseed	**22**	4,529	0.27%	99.47%	3,796	24	3,406	2,939	32.97%	29.16%
Wool and mohair	*23*	2,855	0.17%	99.64%	2,393	22	4,074	3,515	-29.92%	-31.93%
Christmas trees	**24**	1,674	0.10%	99.74%	1,403	25	1,674	1,444	0.00%	-2.87%
Other fruits and nuts	**25**	1,540	0.09%	99.83%	1,291	26	1,540	1,329	0.00%	-2.87%
Apples	**26**	1,530	0.09%	99.92%	1,282	27	894	771	71.14%	66.23%
Hogs and pigs	*27*	1,374	0.08%	100.00%	1,152	23	3,429	2,959	-59.93%	-61.08%
Other poultry	28	40	0.00%	100.00%	34	28	40	35	0.00%	-2.87%
Farm chickens	29	21	0.00%	100.00%	18	29	16	14	31.25%	27.49%
Total		1,709,056			1,432,383		1,458,230	1,258,250	17.20%	13.84%

[a]Source: New Mexico Agricultural Statistics - 1996, p. 16. Data for 1994 have been revised from those reported in 1995.
[b]The Consumer Price Index with base year 1990 = 100 was calculated to be 115.8935 for 1995, and 119.3156 for 1996.
[c]Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.

Table. 2 Cash receipts, all New Mexico commodities, 1993-96.

Commodity	1996 Rank	1996 Cash[a] Receipts ($1000)	1996 Cash[b] receipts ($1000) (1990 = 100)	1995 Rank	1995 Cash[c] receipts ($1000)	1995 Cash[b] receipts ($1000) (1990 = 100)	1994 Rank	1994 Cash[d] receipts ($1000)	1994 Cash[b] receipts ($1000) (1990 = 100)	1993 Rank	1993 Cash[d] receipts ($1000)	1993 Cash[b] receipts ($1000) (1990 = 100)	1993-95 Average Rank	1993-95 Average Cash receipts ($1000)	1993-95 Average Cash receipts ($1000) (1990 = 100)	Cash receipts 1996 > 1993-95 average (1990 = 100)
Cattle and calves	1[e]	628,219	526,519	1	483,140	416,883	1	664,389	589,522	1	763,886	695,163	1	637,138	567,189	NO
Milk wholesale	2	509,358	426,900	2	417,222	360,005	2	382,356	339,270	2	300,339	273,319	2	366,639	324,198	YES
Hay	3	154,745	129,694	3	130,484	112,590	3	137,705	122,188	3	73,421	66,816	3	113,870	100,531	YES
Chile	4	65,460	54,863	6	44,840	38,691	4	55,868	49,572	4	56,077	51,032	4	52,262	46,432	YES
Onions	5	44,744	37,501	5	52,826	45,581	7	32,052	28,440	5	43,999	40,041	5	42,959	38,021	NO
Greenhouse nursery	6	39,358	32,986	7	39,062	33,705	5	41,232	36,586	6	37,181	33,836	6	39,158	34,709	NO
Cotton lint	**7**	38,929	32,627	8	30,979	26,731	6	33,239	29,493	7	33,014	30,044	8	32,411	28,756	YES
Corn	**8**	38,673	32,412	9	28,214	24,345	9	26,679	23,673	8	23,462	21,351	9	26,118	23,123	YES
Potatoes	**9**	19,903	16,681	10	24,045	20,747	10	22,491	19,957	12	19,010	17,300	10	21,849	19,335	NO
Wheat	**10**	18,195	15,249	12	14,919	12,873	11	18,308	16,245	11	21,588	19,646	11	18,272	16,255	NO
Eggs	**11**	17,213	14,426	16	13,383	11,548	15	15,000	13,310	14	16,693	15,191	15	15,025	13,350	YES
Pecans	*12*	16,280	13,644	4	55,800	48,148	8	30,960	27,471	10	21,600	19,657	7	36,120	31,759	NO
Misc. vegetables	**13**	16,250	13,619	11	16,250	14,021	14	16,250	14,419	15	16,250	14,788	14	16,250	14,409	NO
Sorgum grain	*14*	15,077	12,636	17	12,251	10,571	12	16,962	15,051	9	21,613	19,669	12	16,942	15,097	NO
Milk retail	**15**	13,921	11,667	14	13,581	11,719	18	11,526	10,227	19	10,428	9,490	17	11,845	10,479	YES
Other livestock	*16*	13,586	11,387	15	13,525	11,670	16	12,572	11,155	16	13,533	12,315	16	13,210	11,714	NO
Other field crops	**17**	12,043	10,093	19	11,427	9,860	17	11,698	10,380	18	10,976	9,989	18	11,367	10,076	YES
Sheep and lambs	**18**	10,902	9,137	18	12,186	10,515	19	8,493	7,536	17	11,017	10,026	19	10,565	9,359	NO
Peanuts	*19*	9,954	8,343	13	14,190	12,244	13	16,376	14,531	13	18,988	17,280	13	16,518	14,685	NO
Dry beans	**20**	7,029	5,891	21	6,340	5,471	21	6,653	5,903	21	6,713	6,109	21	6,569	5,828	YES
Lettuce	*21*	5,654	4,739	20	8,493	7,328	20	7,182	6,373	20	7,088	6,450	20	7,588	6,717	NO
Cottonseed	**22**	4,529	3,796	24	3,406	2,939	24	3,241	2,876	24	3,785	3,444	23	3,477	3,086	YES
Wool and mohair	**23**	2,855	2,393	22	4,074	3,515	23	3,354	2,976	25	2,463	2,241	24	3,297	2,911	NO
Christmas trees	*24*	1,674	1,403	25	1,674	1,444	26	1,674	1,485	(f)	(f)	(f)	(f)	(f)	(f)	(f)
Other fruits and nuts	25	1,540	1,291	26	1,540	1,329	27	1,540	1,366	27	1,540.00	1,401	25	1,540	1,366	NO
Apples	26	1,530	1,282	27	894	771	25	1,752	1,555	26	1,757	1,599	26	1,468	1,308	NO
Hogs and pigs	*27*	1,374	1,152	23	3,429	2,959	22	3,727	3,307	23	4,894	4,454	22	4,017	3,573	NO
Other poultry	28	40	34	28	40	35	29	40	35	28	40	36	28	40	35	NO
Farm chickens	*29*	21	18	29	16	14	28	87	77	29	36	33	27	46	41	NO
Total		1,709,056	1,432,383		1,458,230	1,258,250		1,583,406	1,404,979		1,541,391	1,402,719		1,526,560	1,354,339	YES

[a]Source: New Mexico Agricultural Statistics - 1996, p. 16.
[b]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, 112.6996 for 1994, 109.8859 for 1993, and 106.6920 for 1992.
[c]Source: New Mexico Agricultural Statistics - 1995, p. 16.
[d]Source: New Mexico Agricultural Statistics - 1994, p. 16.
[e]Bold numbers indicate a higher nominal rank in 1996 than the 1993-95 nominal rank; italic numbers indicate a lower nominal rank in 1996 than the 1993-95 nominal rank.
[f]Prior to 1994 christmas trees were included in forest products. Forest products ranked 22 in 1992-93 with $5,000,000 in cash receipts reported in each of these years.

Table. 3 Change in balance sheet of New Mexico's farm sector, 1995-96.[a]

	Number		Percent change
	1996	1995	1995-96
Farms	13,500	13,500	0.00%

	1996		1995		Percent change 1995-1996	
	Millions dollars	Millions[b] dollars (1990=100)	Millions dollars	Millions[b] dollars (1990=100)	Nominal dollars	Constant dollars (1990=100)
Assets						
Real estate	11,387.1	9,543.7	10,540.6	9,095.1	8.03%	4.93%
Livestock and poultry[c]	842.5	706.1	843.2	727.6	-0.08%	-2.95%
Machinery and motor vehicles[d]	427.9	358.6	431.8	372.6	-0.90%	-3.75%
Crops[e]	100.2	84.0	85.5	73.8	17.19%	13.83%
Purchased inputs	14.0	11.7	15.3	13.2	-8.50%	-11.12%
Financial	439.0	367.9	474.1	409.1	-7.40%	-10.06%
Total farm assets	13,210.7[f]	11,072.1[f]	12,390.5[f]	10,691.3[f]	6.62%	3.56%
Farm debt						
Real estate	692.6	580.5	643.6	555.3	7.61%	4.53%
Non-real estate[g]	579.0	485.3	537.9	464.1	7.64%	4.55%
Total farm debt	1,271.6[f]	1,065.7[f]	1,181.5[f]	1,019.5[f]	7.63%	4.54%
Equity	11,939.1	10,006.3	11,209.0	9,671.8	6.51%	3.46%
Ratios						
Debt/equity	10.65		10.54			
Debt/assets	9.63		9.54			

[a]Source: USDA, Economic Research Service:http://USDA.MANNLIB.CORNELL.EDU/CGI-USDA/AGENCY.CGI.ERS. Data are for farms with annual sales of $1,000 or more and include operator households.
[b]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 119.3156 for 1996.
[c]Excludes horses, mules, and broilers.
[d]Includes only farm share value of trucks and autos.
[e]All non-Commodity Credit Corporation (CCC) crops held on farms plus the value above loan rate for crops held under CCC.
[f]Due to rounding, parts will not sum to total.
[g]Excludes debt for nonfarm purposes.

Table 4. Cash receipts for the top 10 New Mexico counties and county rank for the top 10 commodities, 1996.

County	Rank 1996[d]	Rank 1995	Value (1000)	Percent of total value of N.M production	Cattle and calves	County rank for commodity in 1996: Milk wholesale	Hay	Chile	Onions	Greenhouse nursery	Cotton lint	Corn	Potatoes	Wheat
Chaves	1	1	286,611	16.82%	3	1	1	4	NR[b]	NA[c]	3	11	NR	9
Doña Ana	2	2	236,351	13.87%	11	2	4	2	2	NA	1	NA	NR	6
Curry	3	3	152,696	8.96%	2	4	10	NR	NR	NA	8	1	2.00	1
Roosevelt	4	4	131,670	7.73%	8	3	7	NR	NR	NA	6	3	3.00	4
Eddy	5	5	102,964	6.04%	4	5[e]	2	5	NA	NA	4	14	NR	4
Union	6	6	83,152	4.88%	1	NR	12	NR	NR	NA	NR	2	NR	2
Lea	**7**	9	73,620	4.32%	5	5[e]	8	7	NA	NA	NA	4	1.00	7
Luna	8	8	69,843	4.10%	16	NR	21	1	1	NA	5	15	NR	5
San Juan	*9*	7	61,955	3.64%	17	11	3	11	NA	NA	2	NA	NR	3
Socorro	10	10	40,773	2.39%	13	8	6	8	NA	NA	NA	8	NR	NR
Total			1,239,635	85.01										

[a]Source: New Mexico Agricultural Statistics, 1997, p. 18.
[b]NR indicates that county-level data is not kept that would allow the determination of the rank for the listed county.
[c]N/A indicates that county-level data are not available.
[d] Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.
[e]Eddy and Lea counties were both ranked 5th for milk.

tion of another commodity (i.e., feed for livestock), sales do not account for the product consumed on the farm. In other cases, marketing issues, such as grading and product damage, result in final cash receipts lower than the value of production estimated at the county level. The cash receipts value represents the final reporting of the actual monetary value received by the producer from the product's sale.

Cattle and Calves

Cattle and calves were the number one commodity in 1996, with cash receipts of $628.2 million. Cash receipts from the top 10 counties in this sector comprised 74.01 % of New Mexico's total cash receipts from cattle and calves (table 5). For the top 10 counties, nominal cash receipts increased 22.21 % from 1995 to 1996. Constant-dollar cash receipts decreased 22.21 % from 1995. Eight of the top 10 counties had an increase in cash receipts valued in constant dollars. Grant County had the largest increase (53.13 %), while Eddy County had the smallest (6.13 %). In 1996, average sale price was $45.90 per hundredweight (cwt.) for cattle and $52.80 per cwt. for calves (N.M. Ag. Statistics, 1996, p. 34).

New Mexico cattle and calves totaled 1.52 million head as of January 1, 1996. This inventory represented a 1.33 % increase from 1995. The top 10 counties had a 3.41 % increase in the number of cattle and calves (table 5).

Milk

Wholesale milk ranked second with respect to cash receipts in 1996. County-level statistics include cash receipts from all milk sales; therefore, comparison of county cash receipts for milk uses the receipts for all milk. Total milk production was 3,753 million pounds in 1996, resulting in cash receipts totaling $524.0 million[6] for a 21.63 % increase from 1995. Cash receipts for the top 10 milk-producing counties constituted 98.73 % of New Mexico's total cash receipts from milk. Chaves County led the state in cash receipts from milk with 35.53 % of the state's total. Within the top 10 milk-producing counties, Doña Ana County experienced the greatest change in constant-dollar cash receipts with an increase of 26.79 %. from $68.5 million in 1995 to $86.6 million in 1996. Valencia County had the smallest increase (8.91 %) in constant-dollar cash receipts. Constant-dollar cash receipts for the top 10 counties in the aggregate increased 17.98 % in 1996. Average nominal price received for wholesale milk in 1996 was $13.80 per cwt., up 17.95 % from 1995 (table 6).

The number of dairy cows in New Mexico was reported at 190,000 animals in 1996, an 11.76 % increase over 1995, and a record high for the state. Replacement heifers numbered 45,000 (N.M. Ag. Statistics, 1996, p. 33).

Hay

Hay cash receipts ranked third in 1996 cash receipts. Total production for all hay was 1,577,000 tons in 1996, with a value of production of $193.0 million. Harvested acreage for 1996 was reported at 355,000 acres, 5,000 acres more than in 1995. Chaves County led in value of production from hay with 20.14 % of the state total. Hay production in the top 10 counties comprised 74.46 % of New Mexico's total. Statewide average yield per acre was reported at 4.44tons, with an average price of $123.00 per ton. This represented an increase of 0.11 tons per acre and an increase of $9.00 per ton in price. Two of the top 10 counties reported a decline in constant-dollar value of production. Quay County reported the largest change with an increase of 29.55 %, while Lea County had the largest decrease (16.79 %). The overall value of production for the top 10 counties increased 10.52 % in constant dollars (table 7).

Chile

Chile ranked fourth in cash receipts during 1996. Total chile production in 1996 was 109,720 processed tons: 78,400 tons of green[7] and 31,320 tons of red[8] (N.M. Ag. Statistics, 1996, p.70). The harvested acreage in the top 10 counties comprised 97.56 % of the state's total for chile. Luna County led in harvested acreage for chile with 32.75 % of the state's total. Harvested acreage decreased in one and increased in nine of the top 10 counties with an overall increase of 26.93 % from 1995 to 1996. Eddy and Socorro counties experienced the greatest change in harvested acreage with an increase of 100 % (table 8).

Harvested acreage in 1996 was 28,700, an increase of 28.13 % from 22,400 in 1995 (N.M. Ag. Statistics, 1996, p.70). This increase is the first increase since harvested acreage started to decline in 1993.

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[6]The sum of the categories milk wholesale and milk retail from table 1.

[7]Green chile: long medium, long hot, bell pepper/pimento and jalapeño. Jalapeño includes both green and red varieties.

[8]Red chile: long medium, long hot, paprika, and cayenne.

Table 5. Cash receipts for cattle and calves and number on farms in the top 10 New Mexico counties, 1996.

	Cash receipts								Animal numbers			
	1996				1995				1996		1995	
County	Rank[e]	Value[a] ($1000)	Percent of total cash Cattle and calves receipts	Value[b] ($1000) (1990 = 100)	Rank	Value[a] ($1000)	Value[b] ($1000) (1990=100)	Percent change in constant dollar value 1995-1996	Rank	Number on farm	Rank	Number on farm
Union	1	63,308	10.08%	53,059	*1*	67,178	57,965	-8.46%	3	107,000[c]	*3*	111,000[d]
Curry	2	62,983	10.03%	52,787	*2*	61,389	52,970	-0.35%	2	116,000	*2*	116,000
Chaves	**3**	52,280	8.32%	43,817	*4*	38,287	33,036	32.63%	**1**	133,000	*4*	70,000
Eddy	*4*	39,656	6.31%	33,236	*3*	36,293	31,316	6.13%	*6*	61,000	*1*	130,000
Lea	**5**	24,765	3.94%	20,756	*7*	15,984	13,792	50.49%	*8*	59,000	*6*	64,000
Colfax	*6*	24,396	3.88%	20,447	*5*	15,745	13,586	50.50%	5	66,000	*5*	65,000
Grant	**7**	23,287	3.71%	19,517	*11*	14,771	12,745	53.13%	**6**	61,000	*20*	28,000
Roosevelt	**8**	22,917	3.65%	19,207	*9*	14,552	12,556	52.97%	8	59,000	*8*	57,000
Quay	9	22,547	3.59%	18,897	*9*	14,314	12,351	53.00%	**4**	67,000	*7*	58,000
San Miguel	*10*	21,439	3.41%	17,968	*6*	14,075	12,145	47.95%	*7*	60,000	*6*	64,000
Total	(f)	357,578	74.01	299,691		292,588	252,463	18.71		789,000		763,000

[a]Source: New Mexico Agricultural Statistics, 1997, p. 20.
[b]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995 and 119.3156 for 1996.
[c]Source: New Mexico Agricultural Statistics, 1996, p. 35.
[d]Source: New Mexico Agricultural Statistics, 1996, p. 37.
[e]Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.
[f]Due to rounding, some cloumns may not sum to the total.

Table 6. Cash receipts for milk in the top 10 New Mexico counties, 1996.[a]

County	1996 Rank	1996 Value[b] ($1000)	1996 Percent of total milk cash receipts	1996 Value[c] ($1000) (1990 = 100)	1995 Rank	1995 Value[b] ($1000)	1995 Value[c] ($1000) (1900=100)	Percent change in constant dollar value 1995-1996
Chaves	1	185,937	35.53%	155,836	1	156,450	134,995	15.44%
Doña Ana	2	103,593	19.80%	86,823	2	79,358	68,475	26.79%
Roosevelt	3	71,718	13.71%	60,108	3	56,685	48,911	22.89%
Curry	4	42,500	8.12%	35,620	4	36,278	31,303	13.79%
Eddy	5	29,219	5.58%	24,489	5	24,941	21,521	13.79%
Lea	6	29,219	5.58%	24,489	6	24,941	21,521	13.79%
Valencia	7	17,797	3.40%	14,916	7	15,872	13,695	8.91%
Bernalillo	8	15,937	3.05%	13,357	8	13,604	11,738	13.79%
Socorro	9	13,281	2.54%	11,131	9	11,337	9,782	13.79%
Sierra	10	7,437	1.42%	6,233	10	5,895	5,087	22.54%
Total[e]		516,638[d]	98.73%	433,001[d]		425,361[d]	367,027	17.98

[a]County-level wholesale milk receipts are not reported; therefore receipts for all milk are used for the county ranking.
[b]Source: New Mexico Agricultural Statistics, 1996, p. 20.
[c]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 119.3156 for 1996.
[d]Total milk production in New Mexico was 3,623 million pounds in 1995, and 3,753 million pounds in 1996. The wholesale price of milk was $11.70 per 100 pounds in 1995 and $13.80 per 100 pounds in 1996. Source: New Mexico Agricultural Statistics, 1997, p. 37.
[e]Due to rounding, some columns may not sum to the total.

Table 7. Value of production and production of hay in the top 10 New Mexico counties, 1996.

	1996					1995					
County	Rank[e]	Production[a] tons	Value[b] ($1000)	Percent of total value of N.M. production	Value[c] ($1000) (1990 = 100)	Rank	Production[d] tons	Value[b] ($1000)	Value[c] ($1000) (1990 = 100)	Percent change in production 1995-1996	Percent change in constant dollar value 1995-1996
Chaves	1	317,600	39,065	20.14%	32,741	1	290,280	33,092	28,554	9.41%	14.66%
Eddy	2	214,150	26,340	13.58%	22,076	2	199,500	22,743	19,624	7.34%	12.50%
San Juan	3	131,400	16,162	8.33%	13,546	3	138,410	15,779	13,615	-5.06%	-0.51%
Doña Ana	4	112,600	13,850	7.14%	11,608	4	110,500	12,597	10,869	1.90%	6.79%
Quay	**5**	97,260	11,963	6.17%	10,026	6	78,680	8,970	7,739	23.61%	29.55%
Socorro	*6*	83,080	10,219	5.27%	8,565	5[d]	80,980	9,232	7,966	2.59%	7.52%
Roosevelt	**7**	71,530	8,798	4.54%	7,374	8	60,390	6,884	5,940	18.45%	24.13%
Lea	*8*	55,330	6,806	3.51%	5,704	7	69,690	7,945	6,855	-20.61%	-16.79%
Valencia	9	48,060	5,911	3.05%	4,954	9	45,380	5,173	4,464	5.91%	10.99%
Curry	**10**	43,160	5,309	2.74%	4,449	12	39,640	4,519	3,899	8.88%	14.11%
Total[f]		1,174,170[g]	144,423	74.46%	121,043		1,113,450	126,933	109,526	5.45%	10.52%

[a]Source: New Mexico Agricultural Statistics, 1996, p. 51.

[b]Value = production x price per ton. Price per ton = $123.00 in 1996, and $114.00 in 1995. Source: New Mexico Agricultural Statistics, 1996, p. 51.

[c]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 112.6996 for 1994.

[d]Source: New Mexico Agricultural Statistics, 1996, p. 51.

[e]Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.

[f]Due to rounding, some columns may not sum to the total.

[g]The 1995 production for all hay was 1,515,000 tons with a value of production of $171,275,000. The 1996 production was 1,577,000 tons with a value of production of $193,002,000. The harvested acreage was 350,000 in 1995 with an average yield per acre of 4.33 tons. In 1996, the harvested acreage was 355,000 with an average yield per acre of 4.44. Source: New Mexico Agricultural Statistics, 1996, p. 51.

Table 8. Chile acreage in the top 10 New Mexico counties, 1996.

County	1996 Rank[c]	1996 Harvested[a] acreage	1996 Percent of N.M. harvested acreage	1995 Rank	1995 Harvested[b] acreage	1995 Percent of N.M. harvested acreage	Percent change in harvested acreage 1995-1996
Luna	1	9,400	32.75%	1	8,200	36.61%	14.63%
Doña Ana	2	6,900	24.04%	2	6,000	26.79%	15.00%
Hidalgo	3	3,100	10.80%	3	2,200	9.82%	40.91%
Chaves	4	2,200	7.67%	4	1,400	6.25%	57.14%
Eddy	**5**	2,000	6.97%	6	1,000	4.46%	100.00%
Sierra	**6**	1,500	5.23%	7	1,000	4.46%	50.00%
Lea	*7*	1,000	3.48%	5	1,100	4.91%	-9.09%
Socorro	**8**	600	2.09%	9	300	1.34%	100.00%
All Other	*9*	500	1.74%	8	360.00	1.61%	38.89%
Sandoval	10	400	1.39%	10	250	1.12%	60.00%
Bernalillo	10	400	1.39%	10	250	1.12%	60.00%
TOTAL[d]		28,000	97.56%		22,060	98.48%	26.93%

[a]Source: New Mexico Agricultural Statistics, 1996, p. 70.

[a]Source: New Mexico Agricultural Statistics, 1996, p. 70.

[c]Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.

[d]Due to rounding, some columns may not sum to the total.

Onions

In 1996, onions ranked fifth with respect to cash receipts. Total onion production was 3.3 million cwt.[9] in 1996. Cash receipts for onions were $44.7 million. Production decreased 20.24 % from 1995. In constant value dollars, cash receipts decreased 17.73 %. Luna and Doña Ana counties accounted for 90.3 % of New Mexico's total value of production for onions. Doña Ana County experienced the largest change in constant-dollar cash receipts with a decrease of 23.01 % (table 9).

Acreage planted in onions decreased from 9,100 in 1995 to 7,200 in 1996. Acreage harvested decreased from 9,100 in 1995 to 7,100 in 1996. The nominal price per cwt. increased from $12.90 in 1995 to $13.70 in 1996.

Greenhouse Nursery

At $39 million, greenhouse nursery cash receipts ranked sixth in 1996. In nominal dollars, this represents an increase of 0.76 %. In constant dollars, the cash receipts for greenhouse nursery decreased 2.13 % (table 1). Records of county-level cash receipts for greenhouse nursery products are not available from the New Mexico Crop and Livestock Reporting Service. Cash receipts include sales of plants grown and finished entirely in New Mexico, sales of plants imported into New Mexico and finished in New Mexico, and sales of plants imported into New Mexico as finished products.

Cotton Lint

Cotton lint ranked seventh with respect to cash receipts in 1996. In constant-dollar value, cash receipts for cotton lint decreased 15.72 % from 1995. Cotton production in New Mexico is concentrated in the state's southern and southeastern areas. Cotton production in New Mexico is divided between Upland and American-Pima. Upland cotton accounted for 77.65 % of the 1996 total value of production for cotton. Acreage planted to Upland was 59,000 in 1996 and 61,000 in 1995. Acreage harvested was 55,000 in 1996 and 56,000 in 1995. The price per pound for Upland was $0.743 ($356.64 per 480-pound bale) in 1996, a decrease of $0.074 per pound from 1995. American-Pima planted acreage was 14,000, up from 15,000 in 1995. Acreage harvesteddecreased from 15,000 to 14,000. The 1996 price-per-pound for American-Pima was $1.09 ($523.20 per 480-pound bale), a decrease of $0.09 from 1995 (table 10).

In constant-dollar value, Roosevelt County had the largest (45.42 %) increase in Upland value of production, and Hidalgo County had the largest decrease (37.06 %). The value of production in constant dollars for Upland decreased of 10.48 %. Doña Ana County accounted for 92.89 % of New Mexico's value of production for American-Pima. Doña Ana's production decreased 26.93 %, and the constant-dollar value of production for New Mexico decreased 22.17 %.

Corn

Corn ranked eighth in cash receipts in 1996 with $38.67 million. Cash receipts for corn harvested for grain in the top 10 counties accounted for 98.07 % of New Mexico's total. For the top 10 counties, production increased 26.03 % from 1995 to 1996, and constant-dollar cash receipts increased 36.17 %. Only Santa Fe County experienced a decrease in production. Luna County had the largest increase (2,042.86%) in production from 14,000 bushels in 1995 to 300,000 bushels in 1996 (table 11).

The price per bushel of corn increased 8.47 % from $2.95 in 1995 to $3.20 in 1996. Corn acreage planted to all purposes increased from 123,000 in 1995 to 130,000 in 1996. Acreage harvested for grain was 84,000, up from 73,000 in 1995. (N.M. Ag. Statistics, 1995, p. 55).

Potatoes

Potatoes ranked ninth in cash receipts in 1996, generating $19.90 million in cash receipts. Total production was 3,964 cwt.. Three counties (San Juan, Curry, and Roosevelt) produced 99.22 % of New Mexico's total production of potatoes. Total production for the stateincreased 6.02 %, but the constant-dollar value of production decreased 23.50 % (table 12). Given the increase in production, the decrease in the value of production was due to the $1.80 per cwt. Decrease in market price.

Acreage planted to potatoes increased from 10,500 in 1995 to 10,600 in 1996. The acreage harvested decreased from 10,500 to 10,300.

Wheat

Wheat ranked 10th in cash receipts in 1996 and generated $18.20 million in cash receipts. Value of production of wheat harvested for grain in the top 10 counties accounted for 83.63 % of total New Mexico

[9] Production figures are in cwt., the reporting unit used by USDA. The industry reporting unit is the 50-pound sack.

Table 9. Value of production and production of onions in New Mexico, 1996.

	1996					1995					
County	Rank[e]	Production[a] CWT (1000)	Value[b] ($1000)	Percent of Total Value of N.M production	Value[c] ($1000) (1990 = 100)	Rank	Production[d] CWT (1000)	Value[b] ($1000)	Value[c] ($1000) (1990 = 100)	Percent change in production 1995-1996	Percent change in constant dollar value 1995-1996
Luna	**1**	1,610	22,057	49.30%	18,486	2	1,729	22,304	19,245	-6.88	-3.94
Doña Ana	*2*	1,339	18,344	41.00%	15,375	1	1,794	23,143	19,969	-25.36	-23.01
Sierra	3	151	2,069	4.62%	1,734	3	182	2,348	2,026	-17.03	-14.41
Other Counties	4	166	2,274	5.08%	1,906	4	390	5,031	4,341	-57.44	-56.09
Total[f]		3,266[g]	44,744	100%	37,501		4,095[g]	52,826	45,581	-20.24	-17.73

[a]Source: New Mexico Agricultural Statistics, 1996, p. 68.
[b]Value = production x price per CWT. Price per CWT = $13.70 in 1996 and $12.90 in 1995. Source: New Mexico Agricultural Statistics, 1996, p. 68.
[c]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 112.6996 for 1994.
[d]Source: New Mexico Agricultural Statistics, 1996, p. 67.
[e]Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.
[f]May not sum due to rounding.
[g]In 1995, 9,100 acres of onions were planted and 9,100 were harvested, with an average yield of 450 cwt per acre.
In 1996, 7,200 acres of onions were planted and 7,100 were harvested, with an average yield of 460 cwt per acre
Source: New Mexico Agricultural Statistics, 1996, p. 68.

Table 10. Value of production and production of cotton in New Mexico, 1995.

		1996					1995					
	County	Rank[e]	Production[a] 480 lb net bales	Value[b] ($1000)	Percent of total value of N.M. production	Value[c] ($1000) (1990 = 100)	Rank	Production[d] 480 lb net bales	Value[b] ($1000)	Value[c] ($1000) (1990 = 100)	Percent change in production 1995-1996	Percent change in constant dollar value 1995-1996
Upland												
	Doña Ana	1	17,300	6,170	20.60%	5,171	1	13,800	5,412	4,536	25.36	-4.45
	Eddy	**2**	16,000	5,706	19.05%	4,782	4	11,700	4,588	3,845	36.75	4.23
	Chaves	3	13,000	4,636	15.48%	3,886	3	12,500	4,902	4,108	4.00	-20.73
	Lea	*4*	12,400	4,422	14.76%	3,706	2	12,700	4,980	4,174	-2.36	-25.58
	Luna	5	8,000	2,853	9.52%	2,391	5	7,900	3,098	2,597	1.27	-22.82
	Roosevelt	6	7,250	2,586	8.63%	2,167	6	3,800	1,490	1,249	90.79	45.42
	Curry	7	4,050	1,444	4.82%	1,211	7	3,500	1,373	1,150	15.71	-11.80
	Hidalgo	8	2,890	1,031	3.44%	864	8	3,500	1,373	1,150	-17.43	-37.06
	Quay	9	1,600	571	1.90%	478	9	1,600	627	526	0.00	-23.78
	Otero	10[f]	900	321	1.07%	269	-					
	Total[g]		83,390	29,740	99.27%	24,926		71,000	27,843	23,336	17.45	-10.48
Pima												
	Doña Ana	1	17,650	9,234	92.89%	7,740	1	18,700	10,592	8,877	-5.61	-26.93
	Eddy	**2**	390	204	2.05%	171	3					
	Otero	**3**	320	167	1.68%	140	4					
	All Other	*4*[h]	640	335	3.37%	281	2	200	113	95	220.00	147.74
	Total[g]		19,000	9,941	100.00%	8,332		18,900	10,705	8,972	0.53	-22.17
Total all cotton[g]			102,390[i]	39,681		33,257		89,900[i]	38,548	32,308	13.89	-13.73

[a]Source: New Mexico Agricultural Statistics, 1996, p. 57 for Upland cotton and p. 59 for Pima cotton.
[b]Value = production x price per pound. Price per pound = $0.743 in 1996 and $0.817 in 1995 for Upland cotton. Source: New Mexico Agricultural Statistics, 1997, p. 57.
Price per pound = $1.09 in 1996 and $1.18 in 1995 for Pima cotton. Source: New Mexico Agricultural Statistics, 1997, p. 59.
[c]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 119.3156 for 1996.
[d]Source: New Mexico Agricultural Statistics, 1997, p. 57 for Upland cotton and p. 59 for Pima cotton.
[e]Bold numbers indicate a higher nominal rank in 1996 than in 1995; italic numbers indicate a lower nominal rank in 1996 than in 1995.
[f]Upland cotton: Includes Grant, and Sierra counties.
[g]Due to rounding, some columns may not sum to the total.
[h]In 1995, Pima cotton: Includes Eddy, Hidalgo, Sierra, and Luna counties
In 1996, Pima Cotton: Includes Chaves, Hidalgo, Lea, and Sierra counties.
[i]In 1995, 61,000 acres of Upland cotton were planted and 56,000 acres were harvested, with an average yield of 609 lb. per acre.
In 1996, 59,000 acres of Upland cotton were planted and 55,000 acres were harvested, with an average yield of 733 lb. per acre.
In 1995, 15,000 acres of Pima cotton were planted and 15,000 acres were harvested, with an average yield of 605 lb per acre.
In 1996, 14,000 acres of Pima cotton were planted and 14,000 acres were harvested, with an average yield of 651 lb. per acre.
Source: New Mexico Agricultural Statistics, 1996, pp. 57-59.

Table 11. Value of production and production of corn harvested for grain in the 10 New Mexico counties, 1996.

	1996					1995					
County	Rank[e]	Production[a] bushels	Value[b] (dollars)	Percent of total value of N.M. production	Value[c] (dollars) (1990 = 100)	Rank	Production[d] Bushels	Value[b] (dollars)	Value[c] (dollars) (1990 = 100)	Percent change in production 1995-1996	Percent change in value constant dollars 1995-1996
Curry	1	5,106,000	16,339,200	34.73%	13,694,103	1	4,324,800	12,758,160	11,008,517	18.06	24.40
Union	2	4,504,600	14,414,720	30.64%	12,081,171	2	3,587,800	10,584,010	9,132,528	25.55	32.29
Roosevelt	3	2,347,200	7,511,040	15.97%	6,295,104	3	1,780,800	5,253,360	4,532,919	31.81	38.88
San Juan	4	1,148,000	3,673,600	7.81%	3,078,894	4	854,000	2,519,300	2,173,805	34.43	41.64
Torrance	**5**	458,800	1,468,160	3.12%	1,230,485	6	312,400	921,580	795,195	46.86	54.74
Luna	**6**	300,000	960,000	2.04%	804,589	15	14,000	41,300	35,636	2042.86	2157.79
Santa Fe	*7*	244,800	783,360	1.67%	656,545	5	317,100	935,445	807,159	-22.80	-18.66
Hidalgo	*8*	176,000	563,200	1.20%	472,025	7	192,000	566,400	488,724	-8.33	-3.42
Chaves	**9**	105,000	336,000	0.71%	281,606	11	30,000	88,500	76,363	250.00	268.77
Socorro	*10*	100,000	320,000	0.68%	268,196	8	84,600	249,570	215,344	18.20	24.54
Total[f]		14,490,400	46,369,280	98.57%	40,010,238		11,497,500	33,917,625	29,266,192	26.03	36.71

[a]Source: New Mexico Agricultural Statistics, 1996, p. 56.
[b]Value = production x price per bu. Price per bu. = $2.95 in 1995 and $3.20 in 1996; source New Mexico Agricultural Statistics, 1996, p. 55.
[c]The Consumer Price Index, with the base year 1990 = 100, was calculated to be 115.8935 in for 1995, and 119.3156 for 1996.
[d]Source: New Mexico Agricultural Statistics, 1996, p. 55.
[e]Bold numbers indicate a higher nominal dollar rank in 1996 than in 1995; italic number s indicate a lower nominal dollar rank in 1996 than in 1995.
[f]Due to rounding, some columns may not sum to the total.

Table 12. Value of production and production of Irish potatoes in New Mexico, 1996.

	1996					1995					
County	Rank	Production[a] Cwt. (1000)	Value[b] ($1000)	Percent of total value of N.M. production	Value[c] ($1000) (1990 = 100)	Rank	Production[a] Cwt. (1000)	Value[b] ($1000)	Value[c] ($1000) (1990 = 100)	Percent change in production 1994-1995	Percent change in value constant dollars 1994-1995
San Juan[d]	1	2,614	13,593	65.94	11,392	1	2,394	16,758	14,460	9.19	-21.21
Curry	2	905	4,706	22.83	3,944	2	752	5,264	4,542	20.35	-13.16
Roosevelt	3	414	2,153	10.44	1,804	3	533	3,731	3,219	-22.33	-43.95
Other Counties	4	31	161	0.78	135	4	60	420	362	-48.33	-62.72
Total		3,964	20,613	100.00	17,276		3,739	26,173	22,584	6.02	-23.50

[a]Source: New Mexico Agricultural Statistics, 1996, p. 60.
[b]Value = Production x Price per cwt. Price per cwt. = $7.00 in 1995 and $6.05 in 1994; Source: New Mexico Agricultural Statistics, 1996, p. 60.
[c]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 119.3156 for 1996.
[d]San Juan County fall potatoes; remaining counties summer potatoes.

cash receipts from wheat. Nominal value of production for the top 10 counties increased 22.25 % from 1995 to 1996, and constant-dollar value of production increased 18.74 %. Two of the 10 counties (San Juan and Quay) experienced decreases in constant-dollar value of production. Within the top 10 wheat-producing counties, Chaves had the greatest change in constant-dollar value of production, with an increase of 2,834.31 % (table 13).

The price per bushel of wheat increased from $4.50 in 1995 to $5.20 in 1996, an increase of 15.56 %. Acreage planted to wheat planted for all purposes was 470,000 acres, up 10,000 acres (2.17 %) from 1995. Acreage harvested for grain was 110,000 acres, down 40,000 (26.67 %) from 1995 (N.M. Ag. Statistics, 1996 and 1997, p. 50).

ANALYSIS

Rank Order

The rank order of four of the top 10 commodities (cattle and calves, milk-wholesale, hay, and onions) remained unchanged from 1995 to 1996. Of the remaining six commodities in the top 10, all (chile, greenhouse nursery, cotton lint, corn, potatoes, and wheat) moved up in rank. Nine of the top 10 also were in the top 10 in 1995. The top 10 commodities accounted for91.14 % of New Mexico's total cash receipts generated by agriculture. Cattle and calves ranked first and accounted for 36.76 % of all agricultural cash receipts up, from 33.13 % in 1995. Milk - wholesale ranked second and accounted for 29.80 % of cash receipts, up from 28.61 % in 1995 (table 1).

Of New Mexico's top 10 commodities in 1996, four (cattle and calves, milk wholesale, onions, and potatoes) ranked in the upper half of the states reporting for the respective commodi-ties (table 14). Although New Mexico ranked only seventh out of 16 in total national onion production, New Mexico is the largest U.S. producer of summer, non-storage onions (USDA, Ag. Stat. 1998, p. IV-19). New Mexico's chile production ranks high at the national level, but national production statistics for chile are not reported separately from all peppers.

Changes 1995 to 1996

New Mexico experienced a 13.84 % increase in agricultural cash receipts from 1995 to 1996 in constant dollars. Of the 29 commodities reported, 14 had an increase in constant-dollar cash receipts. The increases ranged from 66.23 % (apples) to 2.37 % (other field crops). The decreases in constant-dollar cash receipts ranged from 71.66 % (pecans) to 0.44 % (milk-retail). Cash receipts were used to determine the top 10 commodities; however, where the data were not available, value of production figures were used to estimate the county-level production of the commodity.

Components of Change in Value of Production

Analysis of the change in the value of production (VOP) requires that the change be separated into components (appendix B). From an economic point of view, the change in VOP (ΔVOP) has three components. The first component, a quantity effect ($\Delta Q * P$), results from the change in quantity (ΔQ) multiplied by the original price (P). The second component, aprice effect ($\Delta P * Q$) , results from the change in price (ΔP) multiplied by the original quantity (Q). The third component, an interaction effect ($\Delta Q * \Delta P$), results from the change in quantity (ΔQ) multiplied by the change in price (ΔP). Since changes in price or quantity may partially offset or cancel one another, identifying the component parts of the change in VOP is necessary to determine the relative impacts of price and quantity.

Nominal Dollar Comparisons

The relative impacts of price and quantity changes in nominal dollars are shown in table 15. For five of the eight commodities[10] analyzed, ΔVOP in nominal dollars is positive. For four of the eight commodities, the change in VOP produced by the price effect was greater in absolute terms than the change resulting from the quantity effect. During the 1995-96 period, the price effect and the quantity effect were the dominant effects for an equal number of commodities.

The relative changes and signs for ΔVOP and its components in nominal dollars are shown in figure 1. In nominal terms, the quantity effect was positive for seven of the eight commodities; only onions had a negative quantity effect. The price effect was positive for five (milk-wholesale, hay, onions, corn, and wheat) of the eight commodities. The interaction effect was negative for four of the eight commodities (onions, Upland cotton, Pima cotton, and potatoes). In the four

[10]Available price and quantity data did not permit this analysis for cattle and calves, chile, and greenhouse nursery. For this analysis, cotton was divided into Upland and Pima. This results in eight commodities for analysis.

Table 13. Value of production and production of wheat in the top 10 New Mexico counties, 1996.

	1996					1995					Percent change in constant dollar value 1995-1996
County	Rank[e]	Production[a] Bushels (1000)	Value[b] ($1000)	Percent of total value of N.M. production	Value[c] ($1000) (1990 = 100)	Rank	Production[d] bushels (1000)	Value[b] ($1000)	Value[c] ($1000) (1990 = 100)	Percent change in production 1995-1996	
Curry	1	1888.00	9,818	46.39%	8,228	1	1,188.60	5,349	4,615	58.84	78.29
Union	***2***	562.00	2,922	13.81%	2,449	3	563.10	2,534	2,186	-0.20	12.02
San Juan	*3*	553.00	2,876	13.59%	2,410	2	738.00	3,321	2,866	-25.07	-15.90
Roosevelt	***4***	400.80	2,084	9.85%	1,747	5[e]	135.60	610	527	195.58	231.76
Luna	*5*	211.20	1,098	5.19%	920	4	231.80	1,043	900	-8.89	2.27
Doña Ana	6	126.00	655	3.10%	549	6	130.00	585	505	-3.08	8.79
Lea	***7***	96.00	499	2.36%	418	8	78.40	353	304	22.45	37.44
Quay	*8*	55.50	289	1.36%	242	7	126.00	567	489	-55.95	-50.56
Chaves	***9***	54.90	285	1.35%	239	15	2.10	9	8	2514.29	2834.31
Santa Fe	*10*	42.00	218	1.03%	183	9	24.00	108	93	75.00	96.42
Total		3,404[f]	17,700	83.63%	14,834		2,625.30[f]	14,479	12,494	29.65	18.74

[a]Source: New Mexico Agricultural Statistics, 1996, p. 49.
[b]Value = production x price per bushel. Price per bushel = $4.50 in 1995, and $5.20 in 1996. Source New Mexico Agricultural Statistics, 1996, p. 49.
[c]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995, and 119.3156 for 1996.
[d]Source: New Mexico Agricultural Statistics, 1996, p. 50.
[e]Bold numbers indicate a higher nominal dollar rank in 1996 than in 1995; italic numbers indicate a lower nominal dollar rank in 1996 than in 1995.
[f]May not sum due to rounding.

Table 14. Production of the top 10 New Mexico agricultural commodities by cash receipts in relation to total U.S. production, 1996.

Rank	Commodity	Dollars[a] (1000)	Percent of N.M. Ag. cash receipts	Total U.S.[b] production	Units	New Mexico production as percent of U.S. total	New Mexico rank in total U.S. production 1,996.00	1,995.00
1	Cattle and calves	628,219	36.76%	103,487,200	Head	1.47	25/50[c]	24/50
2	Milk wholesale	509,358	29.80%	154,331,000,000[d]	Pounds	2.43	12/50	12/50
3	Hay	154,745	9.05%	149,457,000	Tons	1.06	32/48	30/48
4	Chile	65,460	3.83%	N/A	-----	-----	-----	-----
5	Onions	44,744	2.62%	61,369,000	CWT	5.32	7/16	7/16
6	Greenhouse nursery	39,358	2.30%	N/A	-----	-----	-----	-----
7	Cotton lint	38,929	2.28%	17,899,800	Bales	0.54	16/17	16/17
8	Corn	38,673	2.26%	9,293,435,000.0	Bushels	0.16	32/41	31/41
9	Potatoes	19,903	1.16%	498,633,000	CWT	0.08	14/33	13/44
10	Wheat	18,195	1.06%	2,285,133,000	Bushels	0.18	36/42	35/42
	Total	1,557,584	91.14%					

[a]Source: New Mexico Agricultural Statistics - 1996, p. 16.

[b]Source: Agricultural Statistics, USDA 1998, www.usda.gov/nass/pubs/agstats.htm.

1. Table 7-3. All cattle and calves: Number and value, by States, Jan. 1, 1996-97, VII-2, 97_ch7.PDF, p. 2.
2. Table 8-13. Milk and milk fat production: Number of milk cows, production per cow, and total quantity produced, by States, 1996 (preliminary), VIII-8, 98_ch8.PDF, p.8.
3. Table 6-5. Hay, all: Area, yield, and production, by States, 1995-97, VI-4, 98_ch6.PDF, p. 4.
4. N/A. USDA does not report chile production as a separate commodity.
5. Table 4-40. Onions, commercial crop: Area, production, shrinkage and loss, and value per hundredweight, by States, 1995-97, IV-19, 98_ch4.PDF, p. 19.
6. N/A. USDA does not report greenhouse nursery as a separate category.
7. Table 2-3. Cotton: Production, Marketing Year average price per pound, and value, by states, 1995-97, II-2, 98_ch2.PDF, p. 2.
8. Table 1-40. Corn: Area, yield, and production, by states, 1995-97, I-26, 98_ch1.PDF, p. 26.
9. Table 4-46. Potatoes: Area, production, and marketing year price per hundredweight received by farmers, by states, 1995-97 - Continues, IV-22, 98_ch4.PDF, p. 22.
10. Table 1-7. Wheat: Area, yield, and production, by states, 1995-97, I-5, 98_ch1.PDF, p. 5.

[c] Numbers indicates New Mexico's rank in the total number of states reported.

[d] USDA figure reported is for milk production.

Table 15. Relative impacts of price and quantity changes on value of production for New Mexico's top 10 commodities in nominal dollars, 1995-1996.

	1996			1995								
Crop (Unit)	Price[a] per unit (dollars)	Quantity[a]	Value of production ($1000)	Price[a] per unit (dollars)	Quantity[a]	Value of production ($1000)	Δ Price 1995-1996 (dollars)	Δ Quantity 1995-1996	Δ VOP 1995-1996 ($1000)	Δ Quantity * price ($1000)	Δ Price * quantity ($1000)	Δ Quantity * Δ price ($1000)
Cattle & calves[b]												
Milk - wholesale (CWT)	13.80	36,960,000	510,048	11.70	35,660,000	417,222	2.10	1,300,000	92,826	15,210	74,886	2,730
Hay (ton)	128.00	1,577,000	201,856	114.00	1,515,000	172,710	14.00[e]	62,000	29,146	7,068	21,210	868
Chile (ton)[c]												
Onions (CWT)	13.70	3,266,000	44,744	12.90	4,095,000	52,826	0.80	-829,000	-8,081	-10,694	3,276	-663
Greenhouse nursery[d]												
Cotton lint												
Upland (480 lb bale)	356.64	84,000	29,958	392.16	71,000	27,843	-35.52	13,000	2,114	5,098	-2,522	-462
Pima (480 lb bale)	523.20	19,000	9,941	566.40	18,900	10,705	-43.20	100	-764	57	-816	-4
Corn (bushel)	3.10	14,700,000	45,570	2.95	11,680,000	34,456	0.15	3,020,000	11,114	8,909	1,752	453
Potatoes (CWT)	5.15	3,964,000	20,415	7.00	3,738,000	26,166	-1.85	226,000	-5,751	1,582	-6,915	-418
Wheat (bushel)	5.10	4,070,000	20,757	4.50	3,300,000	14,850	0.60	770,000	5,907	3,465	1,980	462

[a]Sources for price and quantity data:
Milk - Wholesale, New Mexico Agricultural Statistics, 1997, p. 37.
Hay, New Mexico Agricultural Statistics, 1996, p. 51.
Onions, New Mexico Agricultural Statistics, 1996, p. 68.
Cotton, New Mexico Agricultural Statistics, 1997, pp. 57-59.
Corn, New Mexico Agricultural Statistics, 1997, p. 55.
Potatoes, New Mexico Agricultural Statistics, 1997, p. 60.
Wheat, New Mexico Agricultural Statistics, 1997, p. 49.

[b]The category includes different prices for different types of cattle. The different prices and price movements preclude the determination of one value for the category.

[c]Chile includes six different types. The different prices and price movements preclude the determination of one value for the cataegory.

[d]Greenhouse Nursery data are not reported for units; therefore, these calculations are not possible.

[e]Numbers in parentheses are negative numbers.

Table 16. Relative impacts of price and quantity changes on value of production for New Mexico's top 10 commodities in constant dollars (1990 = 100), 1995-1996.[a]

Crop (Unit)	1996 Price per unit (dollars) (1990-=100)	1996 Quantity[b]	1996 Value of production ($1000) (1990=100)	1995 Price[b] per unit (dollars) (1990=100)	1995 Quantity[b]	1995 Value of production ($1000) (1990=100)	Δ Price 1995-1996 (dollars) (1990=100)	Δ Quantity 1995-1996	Δ VOP 1995-1996 ($1000) (1990=100)	Δ Quantity * price ($1000) (1990=100)	Δ Price * quantity ($1000) (1990=100)	Δ Quantity Δ price ($1000) (1990=100)
Cattle & calves[c]												
Milk - wholesale (CWT)	11.57	36,960,000	427,478	10.10	35,660,000	360,005	1.47[e]	1,300,000	67,474	13,124	52,438	1,912
Hay (ton)	107.28	1,577,000	169,178	98.37	1,515,000	149,025	8.91	62,000	20,154	6,099	13,502	553
Chile (ton)[d]												
Onions (CWT)	11.48	3,266,000	37,501	11.13	4,095,000	45,581	0.35	-829,000	-8,080	-9,228	1,438	-291
Greenhouse nursery[e]												
Cotton lint												
Upland (480 lb bale)	298.90	84,000	25,108	338.38	71,000	24,025	-39.47	13,000	1,083	4,399	-2,803	-513
Pima (480 lb bale)	438.50	19,000	8,332	488.72	18,900	9,237	-50.22	100	-905	49	-949	-5
Corn (bushel)	2.60	14,700,000	38,193	2.55	11,680,000	29,731	0.05	3,020,000	8,462	7,687	616	159
Potatoes (CWT)	4.32	3,964,000	17,110	6.04	3,738,000	22,578	-1.72	226,000	-5,468	1,365	-6,443	-390
Wheat (bushel)	4.27	4,070,000	17,397	3.88	3,300,000	12,813	0.39	770,000	4,583	2,990	1,292	301

[a]The Consumer Price Index, with base year 1990 = 100, was calculated to be 115.8935 for 1995 , and 119.3156 for 1996.

[b]Sources for price and quantity data:
Milk - Wholesale, New Mexico Agricultural Statistics, 1997, p. 37.
Hay, New Mexico Agricultural Statistics, 1996, p. 51.
Onions, New Mexico Agricultural Statistics, 1996, p. 68.
Cotton, New Mexico Agricultural Statistics, 1997, pp. 57-59.
Corn, New Mexico Agricultural Statistics, 1997, p. 55.
Potatoes, New Mexico Agricultural Statistics, 1997, p. 60.
Wheat, New Mexico Agricultural Statistics, 1997, p. 49.

[c]The category includes different prices for different types of cattle. The different prices and price movements preclude the determination of one value for the category.

[d]Chile includes six different types. The different prices and price movements preclude the determination of one value for the category.

[e]Greenhouse Nursery data are not reported for units; therefore, these calculations are not possible.

[f]Numbers in parentheses are negative numbers.

cases where either the quantity or price effect is negative (onions, Upland cotton, Pima cotton, and potatoes), the negative effect is offset by the opposite positive effect in only one case (Upland cotton). In the remaining three cases, the negative effect results in lower cash receipts for 1996. The change in VOP from the interaction effect is the smallest of the three change components for all eight commodities. The interaction effect is negative in four cases (onions, Upland cotton, Pima cotton, and potatoes) and positive in four cases (milk - wholesale, hay, corn, and wheat).

Constant-dollar Comparisons

The relative impacts of price and quantity changes on VOP in constant dollars are shown in table 16. For five of the eight commodities analyzed, ΔVOP in constant dollars is positive. The change in VOP produced by the quantity effect was greater in absolute terms than the change resulting from the price effect for four (onions, Upland cotton, corn, and wheat) of the eight commodities, The price effect was greater for four (milk-wholesale, hay, Pima cotton, and potatoes) commodities. The change to constant-dollar values did not change the equal split of price and quantity changes in the determination of ΔVOP.

The relative changes and signs for ΔVOP and its components in constant dollars are shown in figure 2. In constant value terms, the quantity effect was positive for seven of the eight commodities; onions had a negative quantity effect. The price effect was positive for five (milk - wholesale, hay, onions, corn, and wheat) of the eight commodities. The interaction effect was positive for four (milk - wholesale, hay, corn, and wheat) of the eight commodities. In constant value terms, none of the commodities had negative values for both the quantity and price effects. In the four cases with either a negative quantity or price effect, the negative effect is offset by a positive quantity for the other effect in only one case (Upland cotton). For all the commodities, the interaction effect is the smallest of the three change components, and it was positive only for onions.

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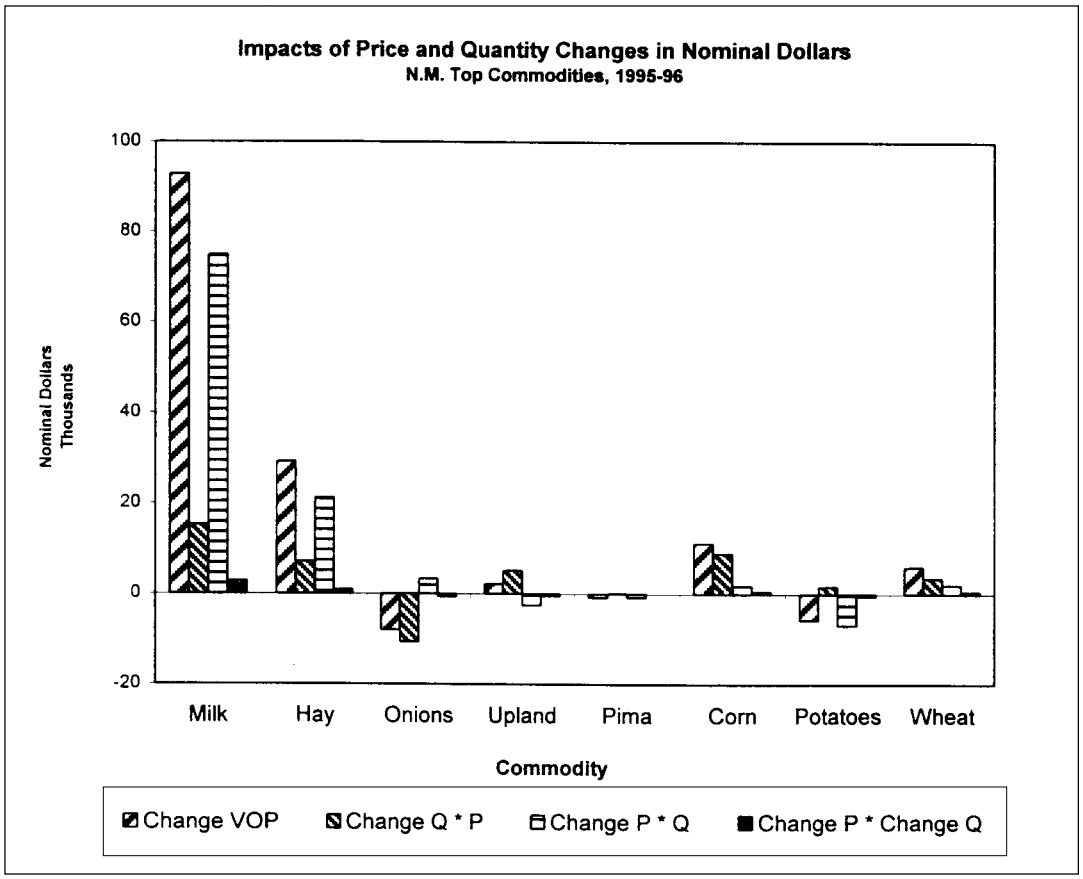
Figure 1

Data and graphical presentation of price and quantity changes in nominal dollars, for New Mexico top commodities, 1995-96.*

Crop (Unit)	Δ Price 1995-1996 (dollars)[a]	Δ Quantity 1995-1996	Δ VOP 1995-1996 ($1000)	Δ Quantity price ($1000)	Δ Price * Quantity ($1000)	Δ Quantity * Δ price ($1000)
Milk - wholesale (CWT)	2.10	1,300,000	92,826	15,210	74,886	2,730
Hay (ton)	14.00	62,000	29,146	7,068	21,210	868
Onions (CWT)	0.80	-829,000	-8,081	-10,694	3,276	-663
Cotton lint - Upland (480 lb bale)	-35.52	13,000	2,114	5,098	-2,522	-462
Cotton lint - Pima (480 lb bale)	-43.20	100	-764	57	-816	-4
Corn (bushel)	0.15	3,020,000	11,114	8,909	1,752	453
Potatoes (CWT)	-1.85	226,000	-5,751	1,582	-6,915	-418
Wheat (bushel)	0.60	770,000	5,907	3,465	1,980	462

[a]Values in parentheses are negative numbers.



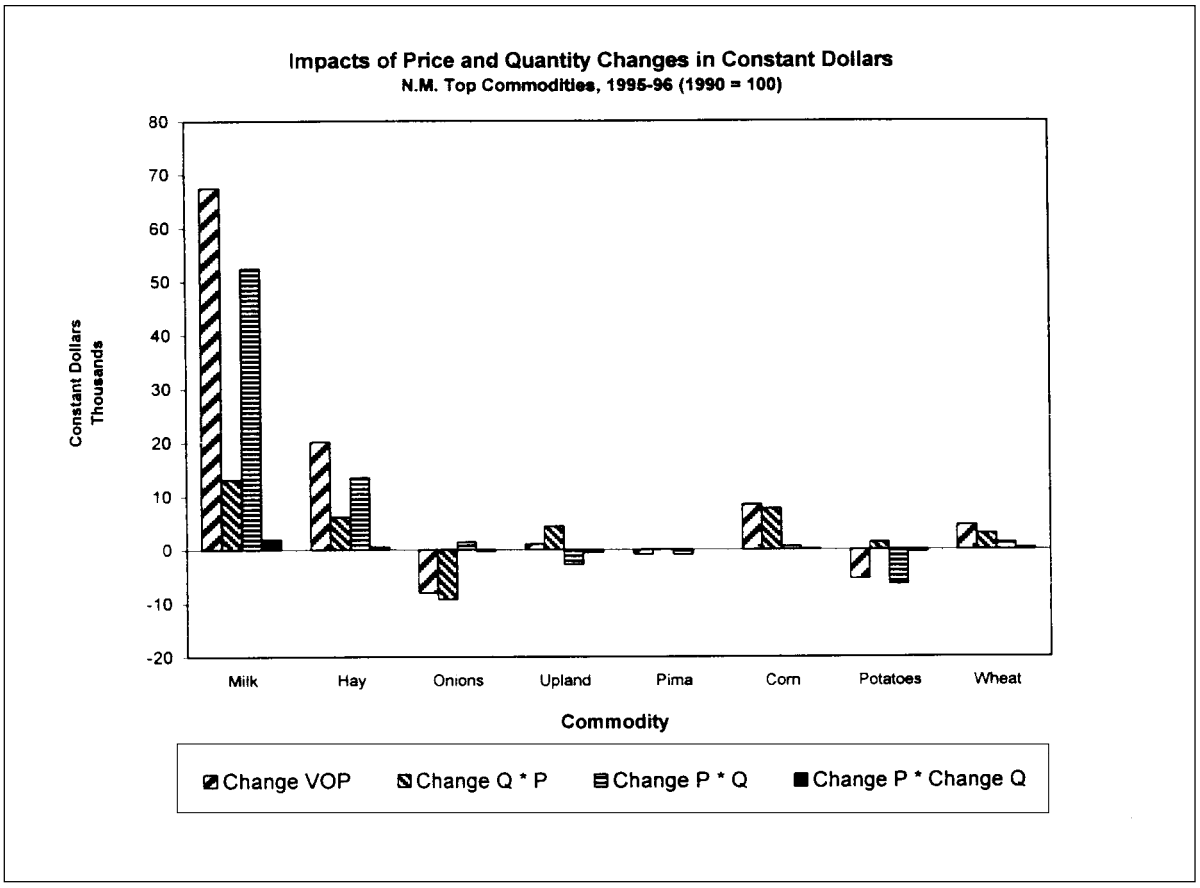
* Data and graphical presentation are for seven of the top 10 commodities. The category cattle includes prices for different types of cattle; different prices and price movements preclude the determination of one value for the category. Chile includes six different types. The different prices and price movements preclude the determination of one value for the category. Although greenhouse nursery ranks in the top 10, greenhouse nursery is a category, not a commodity. Therefore, meaningful price and quantity data are not available.

Figure 2

Data and graphical presentation of price and quantity changes in constant dollars (1990 = 100), for New Mexico top commodities, 1995-96. *

CROP (Unit)	Δ Price 1995-1996 (dollars)[a] (1990 = 100)	Δ Quantity 1995-1996	Δ VOP 1995-1996 ($1000) (1990 = 100)	Δ Quantity * PRICE ($1000) (1990 = 100)	Δ Price * Quantity ($1000) (1990 = 100)	Δ Quantity* Δ PRICE ($1000) (1990 = 100)
Milk - Wholesale (CWT)	1.47	1,300,000	67,474	13,124	52,438	1,912
Hay (ton)	8.91	62,000	20,154	6,099	13,502	553
Onions (CWT)	0.35	-829,000	-8,080	-9,228	1,438	-291
Cotton Lint - Upland (480 lb bale)	-39.47	13,000	1,083	4,399	-2,803	-513
Cotton Lint - Pima (480 lb bale)	-50.22	100	-905	49	-949	-5
Corn (bushel)	0.05	3,020,000	8,462	7,68	616	159
Potatoes (CWT)	-1.72	226,000	-5,468	1,365	-6,443	-390
Wheat (bushel)	0.39	770,000	4,583	2,990	1,292	301

[a]Values in parentheses are negative numbers.



* Data and graphical presentation are for seven of the top ten commodities. The category cattle includes prices for different types of cattle; different prices and price movements preclude the determination of one value for the category. Chile includes six different types. The different prices and price movements preclude the determination of one value for the category. Although greenhouse nursery ranks in the top 10, greenhouse nursery is a category, not a commodity. Therefore, meaningful price and quantity data are not available.

APPENDIX A

INDEX NUMBERS AND THE CONVERSION OF NOMINAL DOLLAR VALUES

Most economic and financial statistics recorded in the United States are reported in nominal dollars. These statistics measure value in the monetary value of the dollar of the given year. When these figures are used, comparisons between years include changes in the value of the dollar. To obtain meaningful comparisons between years, the values must have the effects of inflationary or deflationary price changes removed. One method of removing inflationary effects is to divide a given year's values by a price index. This procedure expresses product value in the given year as the dollar amount it would be if the value of the dollar had remained the same as in the base year.

No single price index is appropriate for making adjustments to the values of all goods and services. However, the Consumer Price Index (CPI) is frequently used to measure inflationary changes in the economy. Changes in the CPI indicate that consumer prices have changed by the amount of the change in the CPI, and these changes are taken to mean that the purchasing power of a dollar has changed by an equivalent amount. Cash receipts and value of production represent purchasing power of the New Mexico farm and ranch community. While other indices could be used to adjust the value of production or cash receipts, the CPI is an accepted method of adjusting nominal dollar values to arrive at a value in constant terms. The adjusted values provide a more accurate measure of real changes in the income of the farm and ranch community than do nominal dollars. This study will use the CPI to adjust nominal (yearly) values to constant-dollar values.

The current CPI statistics maintained by the US Department of Commerce take the period 1982-84 as the base year (1982-84 = 100). This study will use 1990 as the base year (1990 = 100). As a consequence, the Department of Commerce CPI figures have been adjusted as follows:

1982-84 = 100 [11]	1990 = 100
1983 = 99.0	1983 = 75.2825
1984 = 104.6	1984 = 78.7833
1985 = 108.0	1985 = 82.1293
1986 = 110.5	1986 = 84.0304
1987 = 114.3	1987 = 86.9202
1988 = 119.0	1988 = 90.4943
1989 = 124.6	1989 = 94.7529
1990 = 131.5	1990 = 100.0000
1991 = 137.5	1991 = 104.5627
1992 = 140.3	1992 = 106.6920
1993 = 144.5	1993 = 109.8859
1994 = 148.2	1994 = 112.6996
1982-84 = 100	1990 = 100
1995 = 152.4	1995 = 115.8935
1996 = 156.9	1996 = 119.3156

Using the adjusted index number, conversion of the 1996 nominal dollar values uses the following equation:

$$_{96}D_{1990} = (D1996 * 100)/119.3156$$

where: $_{96}D_{1990}$ = the 1996 dollar value expressed in 1990 dollars, and

D_{1996} = the 1996 nominal dollar value.

For example, total farm assets in 1996 were valued at $13,210.7 million in 1996 nominal dollars. To obtain the value in 1990 dollars:

$$_{96}D_{1990} = (D_{1996} * 100)/119.3156$$

$$_{96}D_{1990} = (\$13,210.7 * 100)/119.3156$$

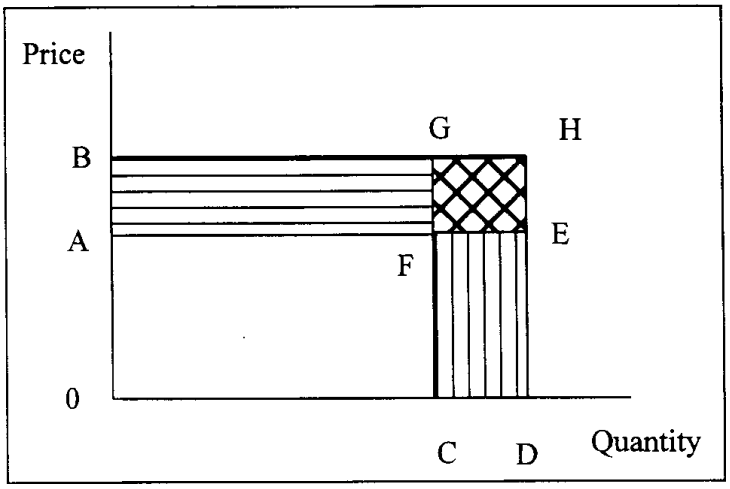
$$_{96}D_{1990} = \$11,072.1$$

Therefore, the total value of farm assets in 1996, when valued in 1990 dollars, is $11,072.1 million. This method is used to calculate the adjustments in 1995 and 1996 values throughout the report.

[11] CPI figures used in the series of this report are for all items, Western region of the United States. Source: Statistical Abstract of the United States, published annually by the U.S. Department of Commerce, Bureau of the Census, U.S. Government Printing Office, Washington, D.C

APPENDIX B

IMPACTS OF PRICE AND QUANTITY CHANGES ON CASH RECEIPTS AND VALUE OF PRODUCTION



Changes in price (P) and quantity (Q) have direct impacts on the cash receipts received by producers and the value of production (VOP)[1]. Four possible combinations of changes[2] are considered:

1. Case 1 - an increase in price ($\uparrow P$ * an increase in quantity ($\uparrow Q$;
2. Case 2 - ($\uparrow P$) * a decrease in quantity ($\downarrow Q$;
3. Case 3 - a decrease in price ($\downarrow P$ * ($\uparrow Q$; and
4. Case 4 - ($\downarrow P$ * ($\downarrow Q$.

The impacts of price and quantity changes on VOP can be illustrated using the figure shown above. The change in VOP (ΔVOP) is represented by three rectangles: ABGF, CFED, and FGHE. Area ABGF represents the part of ΔVOP that results from selling the original quantity at a new price[3]. Area CFED represents the part of ΔVOP that results from selling a new quantity at the original price[4]. Area FGHE represents the part of ΔVOP that results from selling the new quantity and the new price[5]. The relative sizes of ABGF and CFED will depend upon the relative sizes of the changes in price and quantity. In all cases, FGHE will be the smallest of the three areas[6]. The three areas may be thought of as a price effect, a quantity effect, and an interacti on effect, respectively. The use of discrete values (the original price and quantity values), rather than incremental

[1]Throughout this appendix, value of production will be used in the discussion rather than the phrase cash receipts and value of production.

[2]Four other combinations of change are possible: an increase or decrease in P when Q remains constant; and an increase or decrease in Q, when P remains constant. When P or Q for the individual is exactly the same as the previous year, results in two portions of the change in VOP are zero. When P does not change, there is no increase or decrease associated with P and no interaction of P with Q. If the change in Q is zero, the only change in VOP is represented by the rectangle ABGF. When Q does not change, there is no increase or decrease associated with Q and no interaction of Q with P. If the change in P is zero, the only change in VOP is represented by the rectangle CFED. Because these cases of no change from the previous year are less likely to occur for the individual producer, they are not considered in the discussion.

[3]When P increases, ABGF is positive (represents an addition to VOP). When P decreases, ABGF is negative (represents a reduction in VOP).

[4]When Q increases, CFED is positive (represents an addition to VOP). When Q decreases, CFED is negative (represents a reduction in VOP).

[5]FGHE depends on the direction of change in both P and Q. When P and Q both increase or decrease, the change in VOP represented by FGHE is positive. When the change in either P or Q is a decrease, the change in VOP represented by FGHE is negative.

[6]In some analyses, the value of FGHE is omitted due to the small impact on the total value of ΔVOP.

changes in price and quantity in the calculations of the price and quantity effect, result in slight mis-specifications of the price and quantity effect. The interaction term represents the adjustment that is necessary to arrive at the true value of ΔVOP.

Case 1

In Case 1, the price for the previous year is represented by OA and quantity for the previous year is OC. The previous year's VOP is represented by OAFC. In the current year, price increases to OB, quantity increases to OD, and VOP is represented by OBHD. In Case 1, all three ΔVOP components (ABGF, CFED , and FGHE) are positive.

Case 2

In Case 2, the price for the previous year is represented by OA, and the quantity for the previous year is OD. The previous year's VOP is represented by OAFD. In the current year, price increases to OB, quantity decreases to OC, and VOP is represented by OBGC. In Case 2, the price effect component (ABGF) of ΔVOP is positive, and the quantity (CFED) and interaction effect (FGHE) components are negative.

Case 3

In Case 3, the price for the previous year is represented by OB, and the quantity for the previous year is OC. The previous year's VOP is represented by OBGC. In the current year, price decreases to OA, quantity increases to OD, and VOP is represented by OAED. In Case 3, the price effect (ABGF) and interaction effect (FGHE) components are negative, and the quantity effect component (CFED) is positive.

Case 4

In Case 4, the price for the previous year is represented by OB, and the quantity for the previous year is OD. The previous year's VOP is represented by OBHD. In the current year, price decreases to OA, quantity decreases to OC, and VOP is represented by OAFC. In Case 4, the price (ABGF) and quantity (CFED) effect components are negative, but the interaction effect component (FGHE) is positive.

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