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## Arkansas Agriculture Situation and Outlook 2001

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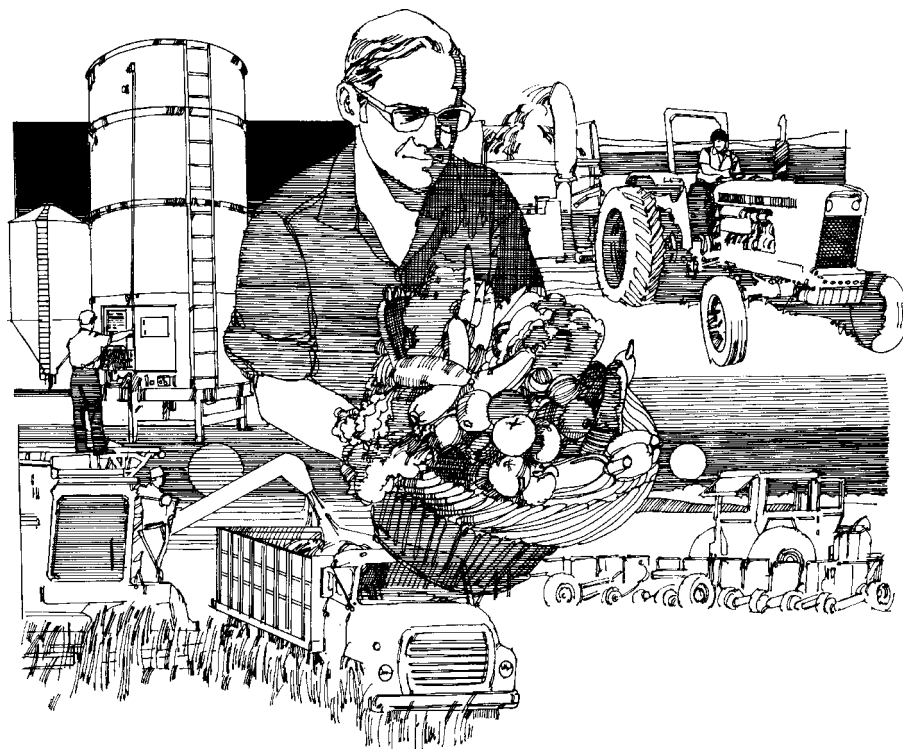
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# ARKANSAS AGRICULTURE SITUATION AND OUTLOOK 2001



*Bruce L. Ahrendsen, Eric J. Wailes  
Bruce L. Dixon, Andrew McKenzie, Tony E. Windham*

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DIVISION OF AGRICULTURE

# ARKANSAS AGRICULTURE 2001 SITUATION AND OUTLOOK

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## SUMMARY

Many farmers in Arkansas and other parts of the United States are experiencing financial stress. The purpose of this special report is to highlight the situation of Arkansas farmers and to offer an outlook for 2001. The report emphasizes the production, price, income, financial, farmland value, and interest rate outlook for Arkansas farmers and considers the impact of the macro economy on agriculture. In addition, price risk management and pre-harvest marketing strategies for farmers are presented.

**Key Words:** Crop, Livestock, Catfish, Poultry, and Horticulture Production, Price, Income, Financial Situation, Farmland Value, Macro Economy, Interest Rate, Price Risk Management, Marketing Strategy  
**Arkansas Agriculture 2001 Situation and Outlook**

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# ARKANSAS AGRICULTURE

## 2001 SITUATION AND OUTLOOK

*Bruce L. Ahrendsen, Eric J. Wailes, Bruce L. Dixon,  
Andrew McKenzie, and Tony E. Windham<sup>1</sup>*

### EXECUTIVE SUMMARY

□ Price prospects in 2001 for Arkansas crop agriculture are weak. For the major crops produced and marketed by Arkansas farmers—soybeans, rice, and cotton—market prices in 2001 are expected to be at or below loan rates, not unlike last year’s abysmal market returns. New crop futures prices in the Chicago Board of Trade (CBT) and New York Board of Trade (NYBOT) as of mid-February compared to the futures prices for the same months the previous two years were:

Crop futures prices

Crop	Contract month	2001	2000	1999
Soybeans (CBT)	September	\$4.56	\$5.33	\$4.75
Rice (CBT)	November	\$2.76	\$3.02	\$3.17
Cotton (NYBOT)	October	\$0.59	\$0.61	\$0.58
Wheat (CBT)	July	\$2.90	\$2.94	\$2.64

□ Income prospects for Arkansas crop farmers in 2001 are heavily influenced by the bearish price outlook, loan deficiency payments (LDP), and other direct government payments. Based on normal yields, projected 2001 market prices and LDP, and costs of production, the net returns per acre to farmers for non-land assets and management are as follows:

Net returns per acre

Crop	Projected 2001 net returns	Typical range past 10 years
Soybeans, dryland	\$ -7/acre	\$ 60 to 100/acre
Soybeans, irrigated	\$ 58/acre	\$ 80 to 120/acre
Rice	\$ -13/acre	\$ 40 to 90/acre
Cotton, dryland	\$ -13/acre	\$ 20 to 80/acre
Cotton, irrigated	\$ 25/acre	\$ 20 to 80/acre
Corn, irrigated	\$ 7/acre	\$ 50 to 110/acre
Sorghum, irrigated	\$ -4/acre	\$ 10 to 40/acre

□ The 1996 Farm Bill increased price and income risks for farmers by decoupling payments from production decisions, leaving only loan rates as price protection for many crop farmers. Approximately \$400 million in loan deficiency payments and market loan gains were heavily relied upon by Arkansas producers during the 2000 crop year. Two other types of direct government payments were extremely important to Arkansas. Direct income assistance for the 2000 crop year amounted to approximately \$216 million from Production Flexibility Contract payments. The amount of market loss assistance has yet to be determined by the U.S. Congress.

□ The total market value of Arkansas agriculture in 2001 is projected to be \$4.9 billion, an increase of 3.1 % compared to 2000. An improvement in the market value of crops, poultry, and horticulture is expected to more than offset a slight decline in livestock.

Market value of Arkansas agriculture

	1999 Million \$	2000P Million \$	2001F Million \$	2001/2000 % Change
Field Crops	1,533.7	1,478.4	1,603.1	8.4%
Livestock	493.3	547.6	546.3	-0.2%
Poultry	2,678.0	2,711.0	2,731.0	0.7%
Horticulture	27.1	17.2	22.0	28.3%
Total	4,732.1	4,754.2	4,902.4	3.1%

□ The net income and financial condition of Arkansas farmers, however, are forecast to decline in 2001.

- U.S. net farm income is forecast to decrease 9% from \$45.4 billion in 2000 to \$41.3 billion in 2001 assuming no new emergency assistance in 2001.
- Direct government payments are forecast to be 49% and 34% of U.S. net farm income in 2000 and 2001 even without any new emergency assistance in 2001.
- Government payments in the 1990s have been more important to Arkansas farmers than U.S. farmers on average.
- Arkansas agricultural loan officers’ opinions and USDA forecasts of cash income and debt repayment difficulties are presented and discussed.
- Loan officers from the eastern third and the rest of the

<sup>1</sup> Drs. Ahrendsen, Wailes, Dixon, and McKenzie are associate professor, professor, professor, and assistant professor in the Department of Agricultural Economics and Agribusiness, University of Arkansas and Dr. Windham is section leader - agricultural economics and extension economist - management, Cooperative Extension Service, University of Arkansas. Drs. Ahrendsen and Dixon are principals of the Center for Farm and Rural Business Finance, which is jointly sponsored by the University of Arkansas and University of Illinois. Dr. Wailes is a principal in the Arkansas Global Rice Policy project, jointly funded with the Food and Agricultural Policy Research Institute-University of Missouri. The authors gratefully acknowledge the research assistance of Mr. Zhaolin Shi and Ms. Julie Many.



state expect 21% and 8% of their farm borrowers, respectively, to have cash flow problems. When asked about what percent of farm borrowers will require some type of debt reorganization, loan officers from the eastern third of Arkansas indicated 15% and loan officers from the rest of the state indicated 25%.

- In three USDA production regions that cover portions of Arkansas, farm net cash income is forecast to decrease by 9% and increase by 2% and 6% from 2000 to 2001. The decrease is the second largest for any region in the United States. The two increases are for the only two regions in the United States forecast to increase, although the increases are likely overstated for Arkansas farm businesses.
- Significant percentages of farms in the three regions represented in Arkansas are forecast by USDA to have negative net cash income in 2001: 31%, 17%, and 18%.
- Some 26%, 19%, and 21% of farms in the three regions represented in Arkansas are forecast by USDA to have debt repayment difficulties in 2001. These farmers will likely need to renegotiate their repayment plans with creditors, and some may liquidate their operations.

□ Farm real estate values are important to Arkansas farmers.

- Nearly three-quarters of the value of Arkansas total farm assets is farm real estate.
- Arkansas farm real estate values have trended upward like U.S. values.
- Although most agricultural loan officers thought farm real estate value were stable last year and expect values to remain stable this year, some of them reported positive changes. As a result, loan officers on average from the eastern third of Arkansas thought farm real estate values were stable in 2000 and expect values to increase 2% in 2001. Loan officers on average from the rest of the state thought farm real estate values increased 4% in 2000 and expect them to increase about 5% in 2001.

□ The macro economy and interest rates are important to agriculture. The U.S. economy slowed during the latter half of 2000. Many farm households, particularly those with small farms, rely on off-farm income. Thus, if these households fall into the unemployment ranks, their ability to meet farm expenses will be greatly diminished.

- Arkansas agriculture is more dependent on exports, which results in more price variability and exposure to exchange rate risk and economic growth in the rest of the world. The annual value of Arkansas farm exports ranges between \$2.5 and \$3.0 billion. The leading exports are rice, soybeans, cotton, wheat, and poultry.
- A slight weakening of the U.S. dollar and strengthening economies of many trading partners of the United States should expand agricultural exports.

- The U.S. economy slowed in the last half of 2000 but continued to grow, and unemployment is low, resulting in strong domestic demand for agricultural products. Equity prices decreased in 2000 and early 2001, particularly technology stocks.
- Because of the slow growth of the U.S. economy, the Federal Reserve decreased interest rates by a full percentage point in January and half percentage points in March and April and may decrease interest rates again in 2001 resulting in lower credit costs.
- Agricultural loans may be offered at a variety of rates, but banks and Farm Credit Services are continuing to compete for agricultural loans.
- Marginal borrowers might have more difficulty in obtaining loans.
- Energy and fertilizer costs have risen dramatically.

□ Price risk is of particular concern to farmers who are at the mercy of competitive markets both at home and abroad. Farmers continually face the prospect of lower than desired output prices while simultaneously having to accept higher input prices. It is important to redirect attention away from price prediction and instead focus attention on how to construct a good marketing plan and achieve a consistent level of profitability.

- The use of hedging or other forward pricing strategies allows the farmer the opportunity to both set and meet specific pricing target objectives, resulting in consistent profit levels.
- Target pricing removes all emotion from the marketing decision and avoids the potential pitfalls associated with allowing market changes to dictate one's selling habits.
- Two types of contracts, target contract and minimum price contract, are particularly suited to establishing a target price prior to harvest.

## PRODUCTION AND PRICE SITUATION AND OUTLOOK

Arkansas has an extremely diverse production agriculture sector. This section of the study discusses the production and price situation and outlook for four categories of agricultural production in Arkansas: field crops, livestock and catfish, poultry, and horticultural crops. Field crops include soybeans, rice, cotton, wheat, corn, and grain sorghum and had a 34% share of the market value of Arkansas agriculture in 2000 (Fig. 1).<sup>2</sup> Livestock and catfish include feeder calves, milk, feeder pigs, and catfish and account for 11% of the market value of Arkansas agriculture. Poultry includes broilers, turkeys, and eggs and has a 54% share of market value. Finally, horticultural products included in this study are tomatoes, watermelons, pecans, apples, grapes, blueberries, and peaches. They account for 1% of the market value of Arkansas agricultural commodities. Horticultural crops in this study do not include all of the horticultural products produced in Arkansas, since some products such as nursery and ornamental products are necessarily omitted because of a lack of published data.

<sup>2</sup> It should be noted that market value is determined by multiplying market price by production and government payments are excluded. The share for field crops relative to others would increase substantially if government payments were included.

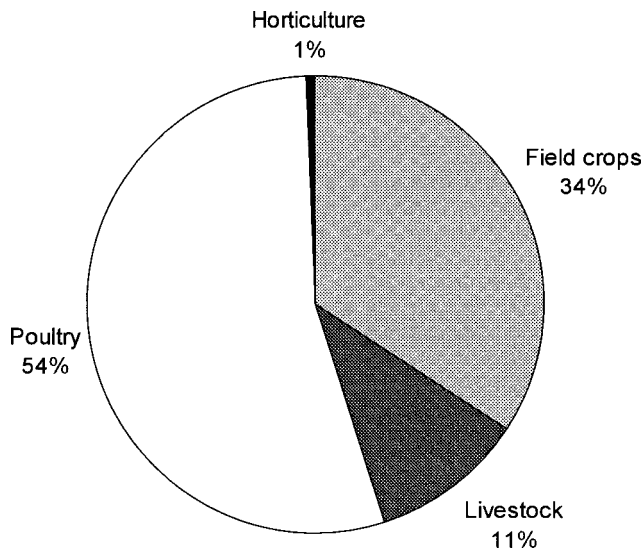


Fig. 1. Market value shares of Arkansas agriculture in 2000.

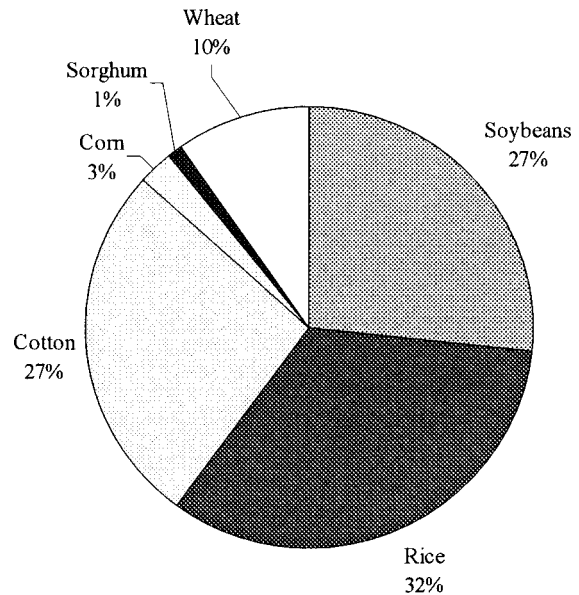


Fig. 2. Market value shares of Arkansas field crops in 2000.

### Field Crops

The price outlook for the 2000 Arkansas crops has not improved since last fall. Commodity futures prices for most field crops are at or below the commodity loan rates. Only corn and wheat futures have improved to levels above the loan rate. Price supports through the loan deficiency payment (LDP) program have been important for cotton, rice, soybeans, and wheat. Cotton and rice have also benefitted from loan activity through the marketing loan gains. As of March 2001, Arkansas producers had received more than \$400 million in LDP and marketing loan gains for the 2000 crop year. Other government income support targeted to Arkansas crop producers includes Production Flexibility Contract (PFC)<sup>3</sup> payments of \$216 million.

Projected returns for the 2001 Arkansas crops, based on current price projections, LDPs, and University of Arkansas Cooperative Extension Service cost of production estimates, are shown in Tables 1 and 2. The net return estimates in Table 1 are calculated as the difference between revenue and variable costs of production and a return to land, based on a 25% crop share rent. Net returns above operating costs and rent reflect payment for non-land assets (including tractors and equipment) as well as payment for management and other fixed costs such as taxes. The midpoint price for soybeans, rice, and cotton is close to the anticipated market price plus loan deficiency payments. The midpoint price for corn and grain sorghum is the anticipated market price. Table 2 reflects production risk by presenting the market returns to producers at a specified price for alternative yield levels. The price situation for Arkansas crops remains bleak. As was the situation last year, a major weather-related problem elsewhere may be required to cause a significant improvement in crop prices during 2001.

Market value shares of Arkansas field crops in 2000, excluding government payments, are presented in Fig. 2. Rice had the greatest share at 32%, followed by soybeans (27%), cotton (27%), wheat (10%), corn (3%), and sorghum (1%).

**Soybeans.** Arkansas is the ninth leading soybean producing state, accounting for 3% of the value of U.S. production. Arkansas soybean production in 2000 declined to only 83.5 million bushels, the lowest level in more than ten years. Coupled with a low expected average farm price of \$4.75, the expected market value for the 2000 crop is only \$395.2 million. This compares with the average market values of farm production of \$450 million for 1998 and 1999, and of \$790 million for 1996 and 1997 (Table 3). Harvested soybean acreage in 2000 was 3.2 million, of which 1.9 million were irrigated. The average yield in 2000 was 26 bu/acre, down two bushels from the previous year. Total production was 83.5 million bushels. As of March 28, 2001, loan deficiency payments (LDP) of \$55.6 million were received by Arkansas soybean producers on 62.9 million bushels for an average LDP of \$0.88/bu.<sup>4</sup> An additional 7 million bushels were redeemed for \$5.9 million at the loan repayment rate, receiving market loan gains of \$0.83/bu.

Soybean harvested acreage in Arkansas for 2001 is expected to decrease from 3.2 million acres in 1999 to 3.15 million acres (Table 3). Expected returns prior to planting in 2000 favored irrigated soybeans relative to rice. In 2001, there has been little change in the relative expected net returns to irrigated soybeans and rice (Table 1). Assuming normal yields and a loan rate for soybeans at \$5.26/bu, the baseline projections by the Food and Agricultural Policy Institute (FAPRI) and the USDA suggest slightly lower 2001/02 soybean market prices, as a result of higher

<sup>3</sup> PFC payments are also known as Agricultural Market Transition Assistance (AMTA) payments.

<sup>4</sup> Soybean LDP is based on the difference between the applicable county loan rate and the announced loan repayment rate established at the applicable county FSA office based on the previous day's market price.

**Table 1. Returns to Arkansas producers at specified yields for the anticipated 2001 price plus LDP ranges.**

Item	Returns at various prices				
<b>Soybeans - Dryland (25 bu/acre)</b>					
Price \$/bu	\$5.00	\$5.20	\$5.40	\$5.60	\$5.80
Specified operating costs	\$108.04	\$108.04	\$108.04	\$108.04	\$108.04
Returns above operating costs	\$16.96	\$21.96	\$26.96	\$31.96	\$36.96
Returns above operating costs + 25% rent*	-\$14.29	-\$10.54	-\$6.79	-\$3.04	\$0.71
<b>Soybeans - Irrigated (45 bu/acre)</b>					
Price \$/bu	\$5.00	\$5.20	\$5.40	\$5.60	\$5.80
Specified operating costs	\$123.97	\$123.97	\$123.97	\$123.97	\$123.97
Returns above operating costs	\$101.03	\$110.03	\$119.03	\$128.03	\$137.03
Returns above operating costs + 25% rent	\$44.78	\$51.53	\$58.28	\$65.03	\$71.78
<b>Rice (130 bu/acre)</b>					
Price \$/bu	\$2.50	\$2.75	\$3.00	\$3.25	\$3.50
Specified operating costs	\$305.40	\$305.40	\$305.40	\$305.40	\$305.40
Returns above operating costs	\$19.60	\$52.10	\$84.60	\$117.10	\$149.60
Returns above operating costs + 25% rent	-\$61.65	-\$37.28	-\$12.90	\$11.48	\$35.85
<b>Cotton-Non-Irrigated (600 lb/acre)</b>					
Price \$/lb	\$0.52	\$0.56	\$0.60	\$0.64	\$0.68
Specified operating costs	\$282.72	\$282.72	\$282.72	\$282.72	\$282.72
Returns above operating costs	\$29.28	\$53.28	\$77.28	\$101.28	\$125.28
Returns above operating costs + 25% rent	-\$48.72	-\$30.72	-\$12.72	\$5.28	\$23.28
<b>Cotton - Irrigated (900 lb/acre)</b>					
Price \$/lb	\$0.52	\$0.56	\$0.60	\$0.64	\$0.68
Specified operating costs	\$380.05	\$380.05	\$380.05	\$380.05	\$380.05
Returns above operating costs	\$87.95	\$123.95	\$159.95	\$195.95	\$231.95
Returns above operating costs + 25% rent	-\$29.05	-\$2.05	\$24.95	\$51.95	\$78.95
<b>Corn - Irrigated (150 bu/acre)</b>					
Price \$/bu	\$2.00	\$2.25	\$2.50	\$2.75	\$3.00
Specified operating costs	\$274.13	\$274.13	\$274.13	\$274.13	\$274.13
Returns above operating costs	\$25.87	\$63.37	\$100.87	\$138.37	\$175.87
Returns above operating costs + 25% rent	-\$49.13	-\$21.01	\$7.12	\$35.25	\$63.37
<b>Grain Sorghum - Irrigated (60 cwt/acre)</b>					
Price \$/cwt	\$3.25	\$3.50	\$3.75	\$4.00	\$4.25
Specified operating costs	\$172.27	\$172.27	\$172.27	\$172.27	\$172.27
Returns above operating costs	\$22.73	\$37.73	\$52.73	\$67.73	\$82.73
Returns above operating costs + 25% rent	-\$26.02	-\$14.77	-\$3.52	\$7.73	\$18.98

\* Returns above operating plus 25% rent are returns to non-land assets and management.

Source: Authors' computations based on University of Arkansas, Division of Agriculture, Cooperative Extension Service budgets.

**Table 2. Returns to Arkansas producers at specified prices plus LDP for alternative yield levels.**

Item	Returns at various yields				
<b>Soybeans - Dryland (\$5.40/bu)</b>					
Yield bu/ac	15	20	25	30	35
Specified operating costs	\$108.04	\$108.04	\$108.04	\$108.04	\$108.04
Returns above operating costs	-\$27.04	-\$0.04	\$26.96	\$53.96	\$80.96
Returns above operating costs + 25% rent*	-\$47.29	-\$27.04	-\$6.79	\$13.46	\$33.71
<b>Soybeans - Irrigated (\$5.40/bu)</b>					
Yield bu/ac	35	40	45	50	55
Specified operating costs	\$123.97	\$123.97	\$123.97	\$123.97	\$123.97
Returns above operating costs	\$65.03	\$92.03	\$119.03	\$146.03	\$173.03
Returns above operating costs + 25% rent	\$17.78	\$38.03	\$58.28	\$78.53	\$98.78
<b>Rice (\$3.00/bu)</b>					
Yield bu/ac	110	120	130	140	150
Specified operating costs	\$305.40	\$305.40	\$305.40	\$305.40	\$305.40
Returns above operating costs	\$24.60	\$54.60	\$84.60	\$114.60	\$144.60
Returns above operating costs + 25% rent	-\$57.90	-\$35.40	-\$12.90	\$9.60	\$32.10
<b>Cotton-Non-Irrigated (\$0.63/lb)</b>					
Yield lb/ac	400	500	600	700	800
Specified operating costs	\$282.72	\$282.72	\$282.72	\$282.72	\$282.72
Returns above operating costs	-\$30.72	\$32.28	\$95.28	\$158.28	\$221.28
Returns above operating costs + 25% rent	-\$93.72	-\$46.47	\$0.78	\$48.03	\$95.28
<b>Cotton - Irrigated (\$0.63/lb)</b>					
Yield lb/ac	700	800	900	1000	1100
Specified operating costs	\$380.05	\$380.05	\$380.05	\$380.05	\$380.05
Returns above operating costs	\$60.95	\$123.95	\$186.95	\$249.95	\$312.95
Returns above operating costs + 25% rent	-\$49.30	-\$2.05	\$45.20	\$92.45	\$139.70
<b>Corn - Irrigated (\$2.50/bu)</b>					
Yield bu/ac	130	140	150	160	170
Specified operating costs	\$274.13	\$274.13	\$274.13	\$274.13	\$274.13
Returns above operating costs	\$50.87	\$75.87	\$100.87	\$125.87	\$150.87
Returns above operating costs + 25% rent	-\$30.38	-\$11.63	\$7.12	\$25.87	\$44.62
<b>Grain Sorghum - Irrigated (\$3.75/cwt)</b>					
Yield cwt/ac	40	50	60	70	80
Specified operating costs	\$172.27	\$172.27	\$172.27	\$172.27	\$172.27
Returns above operating costs	-\$22.27	\$15.23	\$52.73	\$90.23	\$127.73
Returns above operating costs + 25% rent	-\$59.77	-\$31.65	-\$3.52	\$24.61	\$52.73

\* Returns above operating plus 25% rent are returns to non-land assets and management.

Source: Authors' computations based on University of Arkansas, Division of Agriculture, Cooperative Extension Service budgets.

Table 3. Production, prices, and market value of Arkansas crops, 1990-2001.

Item	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01P	01/02F
<b>Soybeans</b>												
Acres harvested, thous	3,350	3,200	3,160	3,550	3,400	3,400	3,500	3,600	3,400	3,300	3,200	3,150
Yield, bushels	27	28	33	26	34	26	32	30.5	25	28	26	28
Production, thous bu	90,450	89,600	10,4280	92,300	115,600	88,400	112,000	109,800	85,000	92,400	83,500	88,200
Price, \$/bu	5.91	5.71	5.64	6.65	5.69	6.85	7.36	6.88	5.38	4.79	4.75	4.70
Market value, thous \$	534,560	511,616	588,139	613,795	657,764	605,540	824,320	755,424	457,300	442,596	395,200	414,540
<b>Rice</b>												
Acres harvested, thous	1,200	1,260	1,380	1,230	1,420	1,340	1,170	1,390	1,485	1,625	1,410	1,430
Yield, bushels	111	118	122	112	127	121	137	127	129	130	136	138
Production, thous bu	133,333	148,400	168,667	138,033	179,867	162,289	159,900	176,067	191,387	211,231	191,120	197,340
Price, \$/bu	3.04	3.46	2.67	3.59	2.93	4.11	4.59	4.44	3.99	2.57	2.57	2.75
Market value, thous \$	405,000	513,538	450,087	495,057	527,729	667,403	733,839	781,901	763,920	541,808	490,223	542,685
<b>Cotton</b>												
Acres harvested, thous	750	980	980	970	970	1,110	990	965	900	960	950	1,020
Yield, pounds	692	772	823	541	877	635	793	837	645	714	733	750
Production, thous bales	1,081	1,576	1,681	1,094	1,772	1,468	1,636	1,683	1,209	1,428	1,450	1,663
Price, \$/lb	0.657	0.571	0.557	0.572	0.677	0.734	0.707	0.657	0.635	0.472	0.568	0.555
Market value, thous \$	340,904	431,950	449,432	300,369	575,829	517,206	555,193	530,751	368,503	323,528	395,328	424,575

continued

Table 3. Continued

Item	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01P	01/02F
<b>Corn</b>												
Acres harvested, thous	73	80	95	90	90	85	230	185	215	100	175	180
Yield, bushels	95	100	130	91	120	115	125	125	100	130	130	132
Production, thous bu	6,935	8,000	12,350	8,190	10,800	9,775	28,750	23,125	21,500	13,000	22,750	23,760
Price, \$/bu	2.62	2.58	2.29	2.53	2.31	3.10	2.65	2.51	1.85	1.74	1.70	1.85
Market value, thous \$	18,170	20,640	28,282	20,721	24,948	30,303	76,188	58,044	39,755	22,620	38,675	43,956
<b>Sorghum</b>												
Acres harvested, thous	275	270	410	215	245	185	220	150	130	125	140	150
Yield, bushels	66	57	76	58	75	71	74	74	53	78	71	75
Production, thous bu	18,150	15,390	31,160	12,470	18,375	13,135	16,280	11,100	6,890	9,750	9,940	11,250
Price, \$/bu	2.25	2.40	2.14	2.31	2.03	2.91	2.95	2.57	1.88	1.69	1.65	1.80
Market value, thous \$	40,838	36,936	66,682	28,806	37,301	38,223	48,026	28,527	12,953	16,478	16,401	20,250
<b>Wheat</b>												
Acres harvested, thous	1,400	930	850	1,040	880	1,000	1,240	820	900	920	1,100	1,100
Yield, bushels	35	22	46	40	46	47	54	48	51	56	54	56
Production, thous bu	49,000	20,460	39,100	41,600	40,480	47,000	66,960	39,360	45,900	51,520	59,400	61,600
Price, \$/bu	3.12	2.77	3.51	2.86	3.20	3.61	4.38	3.49	2.73	2.24	2.40	2.55
Market value, thous \$	152,880	56,674	137,241	118,976	129,536	169,670	293,285	137,366	125,307	115,405	142,560	157,080

P = projected.

F = forecast.

Source: USDA, NASS for historical data. Projections for 2001/02 are estimated using baseline projections published by FAPRI and USDA and current market reports.

expected soybean acreage and higher ending stocks. FAPRI projects national average soybean prices to decline from \$4.75 in 2000 to \$4.53 in 2001 while USDA sees prices declining from \$4.90 to \$4.55. This translates into an average Arkansas farm price for soybeans in the range of \$4.70 to \$4.80. Soybeans, nevertheless, remain profitable as a result of the LDP, which may be expected to range between \$0.70 and \$1.00/bu. The price range (market + LDP) used in Table 1 for soybeans is \$5.00 to 5.80/bu. An assumed yield of 25 bu/acre for non-irrigated soybeans results in negative or break-even net returns in the range of -\$14 to \$1 per acre. With timely rainfall, non-irrigated soybeans with yields of 35 bushels at \$5.40/bu can be expected to give a net return of \$34/acre (Table 2). An assumed yield of 45 bu/acre for irrigated soybeans gives positive returns in the range of \$45 to \$72/acre.

**Rice.** Arkansas is the leading rice producing state, accounting for 46% of the value of all U.S. rice output in 2000, 54% of long grain and 25% of medium/short grain. In 2000, Arkansas farmers harvested 1.41 million acres, substantially lower than the record 1999 harvested area of 1.625 million. Yields averaged a record 136 bu/acre and total output was 191 million bushels, well below the 1999 level of 211 million bushels. Arkansas produced 152 million bushels of long grain rice based on an average yield of 135 bu/acre on 1.13 million acres. Medium/short grain production was 39 million bushels from 282 thousand acres with an average yield of 140 bu/acre. The reduced 2000 rice production, not only for Arkansas but for the U.S. as a whole, has not resulted in higher prices as large exportable crops in Asia have competed aggressively for export markets. The average Arkansas rice price is projected by the Arkansas Global Rice Model (AGRM) to decline for the 2000 crop to \$2.57/bu compared to an average price of \$4.34/bu for the 1996-98 marketing years. Therefore, the market farm value of 2000 Arkansas rice production is anticipated to be approximately \$490 million, compared to an annual average of \$700 million over the previous five years, 1995-1999.

Price support for the 2000 crop is available through the LDP and market loan gain payments.<sup>5</sup> Additional income support is provided by the PFC payment of \$0.95/bu. As of March 28, 2001, price support payments for rice, averaging \$1.36/bu from the LDP, were \$104.3 million on 76.8 million bushels. Marketing loan gains, averaging \$1.38/bu, on a loan repayment quantity of 76.7 million bushels were \$105.9 million. An additional 47 million bushels currently remain under loan and are eligible for marketing loan gains, subject to payment limitations and other program requirements.

The outlook for the 2001 crop is strongly influenced by the low current and futures rice prices. However, alternative crops are also facing a depressed price outlook. As a result, AGRM projects Arkansas rice acreage to increase slightly to 1.43 million acres. An increase in long grain acreage and a large decrease in medium grain are expected in 2001. Normal weather would place average yields at 138 bu/acre for a total 2001 crop estimate of 197.3 million bushels. The AGRM model projects

some strengthening in long grain prices and an overall average price increase for Arkansas producers to \$2.75/bu. The projected price range used in Table 1 is \$2.50 to \$3.50/bu. The price range results in net returns in the range of -\$62 to \$36/acre.

**Cotton.** Arkansas typically ranks fifth among states in value of cotton production. Cotton acreage harvested has been variable since the 1991 crop year, ranging from a low of 900 thousand in 1998 to a high of 1.110 million acres in 1995 (Table 3). The annual value of the crop at the farm level has averaged \$459 million for 1995-99. Prices near the loan rate over the past year have resulted in a projected farm market value for 2000 of only \$395 million. The LDP payments to Arkansas cotton producers in 2000 have averaged \$0.05/lb for a total payment of \$10.6 million. Nearly 460 million pounds were placed into the loan program and market loan gain payments have averaged \$0.04/lb for a total market gain amount of \$13.7 million as of March 28, 2001.

The outlook for 2001 is similar to the 2000 marketing year. Market prices are not expected to strengthen. Both FAPRI and USDA baseline projections indicate a modest increase in U.S. cotton plantings for 2001. Arkansas area harvested is expected to increase from 950 thousand acres in 2000 to 1.02 million for 2001. Projected market price of \$0.555/lb will result in market returns of \$425 million. With average prices slightly above the loan rate, LDP plus market price could generate an assumed price range of \$0.52 to \$0.68/lb (Table 1). At these prices, net returns are expected in the range of -\$49 to \$23 per acre for dryland cotton and -\$29 to \$79 per acre for irrigated cotton in 2001.

**Corn and Grain Sorghum.** Corn and grain sorghum have had average farm level values in Arkansas from 1995 to 1999 of \$45 million and \$29 million, respectively (Table 3). Corn harvested area peaked at 230,000 acres in 1996 but fell to only 100,000 acres in 1999. An expected 2000 season average market price of \$1.70/bu will result in a market value for Arkansas corn of \$38.7 million. Sorghum acreage has also declined since 1996. In 2000, harvested acres were 140,000. Production of 9.94 million bushels at an expected season average price of \$1.65/bu will generate a market value of \$16.4 million for the 2000 crop. LDP payments supported Arkansas feed grain producers with an average LDP for corn of \$0.45/bu on 17 million bushels and an average LDP for sorghum of \$0.31/bu on 7.8 million bushels.

A slight increase in area planted to corn and sorghum is projected for Arkansas in 2001. Feed grain prices have strengthened in the new year. Market crop futures prices for 2001 have moved well above the loan rate. At the specified price of \$2.50/bu the range of net returns to corn in Arkansas at various yields are -\$30 to \$45 per acre (Table 2). Grain sorghum returns are expected to fall in the range of -\$60 to \$53 per acre at various yields when the price is \$3.75/cwt.

**Wheat.** Arkansas produces soft-red winter wheat, which has had an annual farm level value of \$168 million from 1995 to 1999 (Table 3). Since 1996, Arkansas wheat area harvested has

<sup>5</sup> The LDP for rice is based on the difference between the loan rate (varies by state and rice type) and the announced world rice price, which is calculated weekly by the USDA.

fallen below one million acres. Area harvested in 2000 increased to 1.1 million acres. Production in 2000 was 59.4 million bushels valued at \$2.40/bu for a total market value of \$142.6 million. LDP payments averaged \$0.40/bu on 51.4 million bushels for a total price support payment of \$20.5 million to Arkansas wheat producers in 2000.

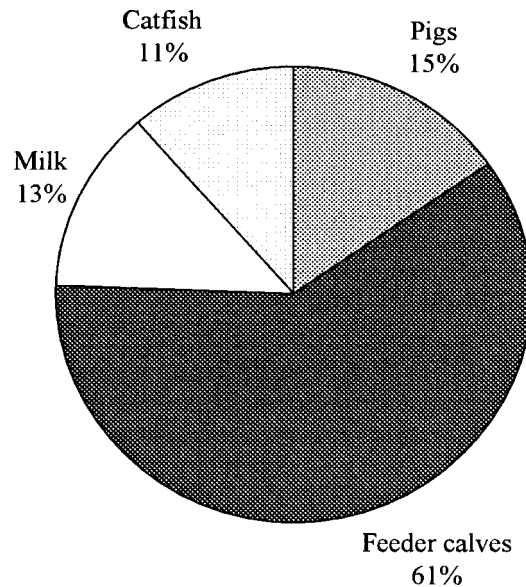
USDA estimates that 1.15 million acres of winter wheat were planted in Arkansas for the 2001 crop. Wheat futures in mid-March traded in the upper \$2.90/bu range. Therefore, a slightly larger crop with improved prices is projected to generate a market value of \$157 million in 2001.

### Livestock

The livestock and poultry sector outlook is being driven by the anticipated continuation of low grain and soybean meal prices. Expanded poultry and pork production in response to the cheaper feed costs beginning in 1997 resulted in downward poultry and pork price pressures in 1998 and 1999. Consequently, returns, especially to hog producers, remained negative throughout 1999. Lower pork production and a slowdown in the poultry sector output growth resulted in positive returns to both pork and poultry sectors in 2000. Beef cattle inventory nationwide is expected to continue to decline, and with fewer calves, feeder calf prices are expected to remain strong in 2001, providing expected positive returns to cow-calf operations. Milk prices declined dramatically in 2000, reducing net returns to dairy farmers. With continued low feed prices, returns to dairy farming are expected to improve in 2001 with slightly higher milk prices. Due to large inventory, catfish prices declined in 2000. Inventory adjustments early in 2001 are expected to improve prices, however, sales of catfish are expected to decline.

The market value shares of Arkansas livestock and catfish in 2000 are presented in Fig. 3. The livestock categories are limited to feeder calves with a share of 61%, feeder pigs at 15%, and milk at 13%. Catfish had an 11% share. Categories omitted include finished cattle, bait fish, and speciality livestock such as rabbits and others.

**Pork.** Arkansas producers account for approximately 1.6 percent of U.S. hog breeding inventory. Since 1994, the Arkansas breeding herd inventory on December 1 has remained constant at 110 thousand head (Table 4). Annual sow farrowings (December-November) have averaged 224 thousand over the past four years with an average litter size of 8.6 pigs. Total annual pig crop averaged 1.918 million head. Market hog inventory December 1, 2000 was 575 thousand head, the lowest level in more than ten years. Based on national projections by FAPRI and USDA, almost no changes are expected in the Arkansas breeding and market hog inventories for December 1, 2001. Slightly lower levels in both sow and market hog prices, however, will decrease the value of Arkansas total breeding and market hog inventory from \$47 million in 2000 to \$45 million in 2001. The outlook for 2001 is approximately 225 thousand sow farrowings. With an average litter size of 8.8 pigs, total expected pig crop for Arkansas will be 1.98 million pigs. The continued reduction in 2000 of the national breeding herd inventory will result in a lower total U.S. pig crop, keeping feeder pig prices strong throughout 2001. The market value of the



**Fig. 3. Market value shares of Arkansas livestock and catfish sales in 2000.**

Arkansas pig crop is projected to be \$83 million in 2001 compared to \$88 million in 2000.

**Beef Cattle.** Beef cow and heifer inventory in Arkansas on January 1, 2001, was 929 thousand head, slightly above the previous year. Arkansas ranks twelfth in beef cow inventory, with approximately 2.7 percent of the national herd. FAPRI and USDA projections indicate a further contraction in the national beef cow inventory until 2004. With declining cow numbers, fewer cattle on feed are expected to provide stronger prices for feeder calves throughout 2001 and into 2002. Positive returns in the range of \$20 to \$30 per cow are expected for the next three to four years. Arkansas cattle producers market most of their calf crop out of state. Cattle on feed inventory on January 1 has ranged between 10,000 and 20,000 head since 1993. Current cow and heifer inventory is expected to produce a calf crop of approximately 842,000 head in 2001, depending on adequate pasture conditions throughout the year. The market value of the calf crop is projected to increase to \$330 million in 2001.

**Dairy Cattle.** The Arkansas dairy industry continues to experience a decline in average annual milk cow inventory (Table 4). The herd size throughout 2000 was 42,000 head, averaging 12,476 pounds of milk per cow for total production of 524 million pounds. Lower milk prices in 2000 pressured milk cow numbers even lower to 41,000. Higher milk output per cow in 2001, at 12,580 pounds, will only partially offset the decline in cow numbers, with total production expected to fall to approximately 516 million pounds. The market value of milk production is projected to increase slightly due to higher milk prices in 2001 reaching \$71 million.

### Catfish

The Arkansas catfish industry has been one of the fastest growing sectors of the Arkansas agricultural economy. Relatively low feed prices, strong domestic demand, and low inter-



Table 4. Production, prices, and market value of Arkansas livestock and catfish, 1993-2001.

Item	93	94	95	96	97	98	99	00P	01F
<b>Hogs</b>									
Hog Inventory, December 1									
Breeding inventory, 000 head	120	110	110	110	110	110	110	110	110
Sows farrowed, 000 head	189	203	209	217	225	225	223	222	225
Pigs per litter	9.12	8.92	9.30	8.63	8.45	8.48	8.48	8.89	8.80
Pig crop, 000 head	1,723	1,810	1,944	1,872	1,901	1,907	1,891	1,974	1,980
Feeder pig price, \$/cwt	81.75	64.75	59.00	69.50	97.50	62.00	80.12	112.00	105.00
Market value of pig crop, mil. \$	56.34	46.88	45.88	52.04	74.14	47.29	60.60	88.44	83.16
Market inventory, 000 head	770	660	680	715	750	640	600	575	580
Value per head, \$	81	57	75	100	79	46	68	69	65
Total inventory value, mil. \$	72.09	43.89	59.25	82.50	67.94	34.50	48.28	47.27	44.85
<b>Cattle</b>									
Cow inventory, Jan 1, 000 head	824	928	969	952	956	919	928	928	929
Cow value, \$/cwt	39.10	43.30	37.20	28.30	33.70	31.90	32.20	34.50	37.00
Cattle on feed, Jan 1, 000 head	17	10	13	18	19	10	15	11	11
Calf crop, 000 head	790	850	860	870	830	840	850	840	842
Calf value, \$/cwt	72.00	79.80	58.40	51.40	78.80	77.80	84.20	96.00	98.00
Market value of calf crop, mil. \$	227.52	271.32	200.90	178.87	261.62	261.41	286.28	323.33	330.06
<b>Dairy Cattle</b>									
Ave. inventory, Jan. 1, 000 head	63	61	60	56	53	45	42	42	41
Ave. value per cow, \$	1,100	1,120	1,090	1,000	1,010	1,010	1,200	1,270	1,250
Total value, mil. \$	69.3	68.3	65.4	56.0	53.5	45.5	50.4	53.34	51.25
Milk per cow, lb	12,206	12,344	12,150	12,054	11,981	12,000	12,381	12,476	12,580
Production, mil. lb	769	753	729	675	635	540	520	524	516
Price/cwt	13.60	13.90	13.80	16.00	14.50	15.60	15.40	13.40	13.70
Production value, mil. \$	104.6	104.7	100.6	108.0	92.1	84.2	80.1	70.1	70.7
<b>Catfish</b>									
Water surface acres	19,700	19,000	19,500	23,000	28,500	25,000	31,000	33,000	30,500
Sales, 000 lb	47,823	47,754	51,137	63,417	76,113	72,450	90,920	85,260	80,000
Price per lb	0.71	0.77	0.80	0.82	0.73	0.78	0.78	0.77	0.78
Market value, mil. \$	34.04	36.81	41.03	52.21	55.51	56.26	70.59	65.74	62.40

P = projected.

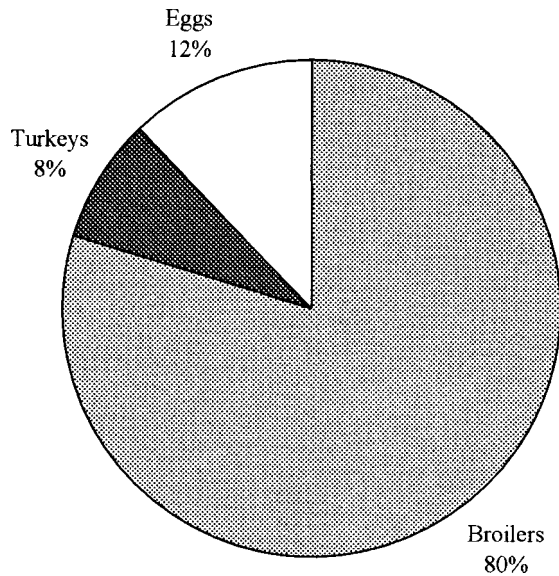
F = forecast.

Source: USDA, NASS for historical data. Projections for 2001 are estimated using baseline projections by FAPRI and USDA and current market reports.

est rates have fueled the profitability in catfish production. Water surface acreage in Arkansas increased to 33,000 on January 1, 2000, nearly double the pond surface area in 1993 (Table 4). Sales in 2000 were 85 million pounds. USDA projects national catfish sales poundage to increase by 4 percent in 2001 while farm prices are expected to increase slightly to \$0.78/lb. The value of Arkansas catfish sales is expected to be \$62 million.

### Poultry

The market value shares of Arkansas poultry are presented in Fig. 4. Broilers dominate the poultry category with 2000 sales of \$2.2 billion and an 80% share of Arkansas poultry revenue. Eggs (12% share) and turkeys (8% share) had market values in 2000 of \$329 million and \$219 million, respectively.



**Fig. 4. Market value shares of Arkansas poultry sales in 2000.**

**Broilers.** Arkansas broiler production continues to expand as both domestic and export markets grow. Production in 2000 was 5.98 billion pounds (Table 5). Despite weaker broiler prices in 1999 and 2000, low feed prices helped to maintain profitability in the industry. Hatchery egg sets in early 2001 suggest that a 3% expansion in production is likely in 2001. Based on USDA and FAPRI projections for total U.S. broiler production and Arkansas' share of that production at approximately 14.5%, Arkansas production is projected to reach 6.2 billion pounds in 2000. Slightly weaker prices are projected and market value in 2001 is estimated to be \$2.2 billion.

**Turkeys.** While total U.S. turkey production is projected by USDA and FAPRI to increase in 2001, Arkansas producers have indicated in the USDA intentions survey that they will not expand and will produce at the same level as 2000 (Table 5). Prices are also expected to weaken slightly and market value of Arkansas turkey production is therefore projected at \$219 million, slightly below the 2000 revenue.

**Eggs.** Approximately two-thirds of the Arkansas egg production is for hatching rather than table use. As a result, average price received for Arkansas eggs is typically much higher than the average table egg price in the U.S. Arkansas layers account for approximately 20% of U.S. hatchery eggs but less than 2% of U.S. table egg output, for an overall share of U.S. total egg production of 4.5%. Expansion in the broiler industry in 2001 will require an increase in Arkansas hatch egg production, reaching 2.3 billion eggs. An increase in table eggs from 1.26 to 1.28 million eggs results in a total increase in Arkansas egg production of 3%. Average prices are expected to weaken by one cent to \$1.11 per dozen, and the market value of the Arkansas egg industry is projected to reach \$334 million in 2001.

### Horticultural Crops

In 2000, Arkansas' total horticultural sales (fruits, vegetables, and nuts) had a market value of \$27.8 million (0.1% of national production). Apples, blueberries, grapes, peaches, pecans, and strawberries account for nearly all of the fruit and nut market sales in Arkansas. Commercial vegetables generated a market value of \$16.2 million (0.2% of national production). Tomatoes and watermelons accounted for \$10.4 million of the commercial vegetable sales (Table 6).<sup>6</sup> Acreage in horticultural crops in general has declined over the past decade by approximately 10%. Leading the decline in area production are grapes, watermelons, blueberries, and apples. Peaches and tomatoes have experienced expanded acreage and have become the highest value Arkansas horticultural crops with 21% and 14% shares, respectively (Fig. 5). Following tomatoes and peaches in terms of market value shares in 2000 are grapes (8%), watermelons (6%), blueberries (5%), pecans (5%), and apples (3%).

**Apples.** Arkansas has a bearing acreage of 900 acres out of the total 462 thousand acres in U.S. apple production and ranks 34<sup>th</sup> in value of apple production in the U.S.. Yields in Arkansas in 2000 were 8 thousand pounds per acre, 25% higher than the previous year (Table 6). Total production in 2000 was 7.2 million pounds, of which only 3.4 million were utilized. Average market value was \$0.252 per pound for total market sales of \$856 thousand. The production outlook for 2001 is highly dependent upon weather conditions. Assuming 900 acres and yields of 7,000 pounds per acre, utilized production is projected to be 5.0 million pounds. At \$0.25/lb, total market value is projected at \$1.25 million for 2001.

**Grapes.** Arkansas vineyards have declined in area from 2,200 in 1993 to 1,400 in 1999 and 2000. Yields have fluctuated between 3 and 5.6 tons per acre (Table 6). In 2000, average yield was 3.0 tons per acre. Total production was 4,200 tons while utilized production was 3,900 tons. Average Arkansas market price was \$560/ton, well above the U.S. average of \$419, for a total market value of \$2.2 million. Only 20% of the 2000 crop was sold in the fresh table market compared to 35% in 1997, 24% in 1998, and 17% in 1999. The 2000 average market price of fresh grapes in Arkansas was \$600/ton compared to the aver-

<sup>6</sup> The only horticultural crops included in this study are crops with available data. For example, nursery crops and turf grass are not included because data are not available.

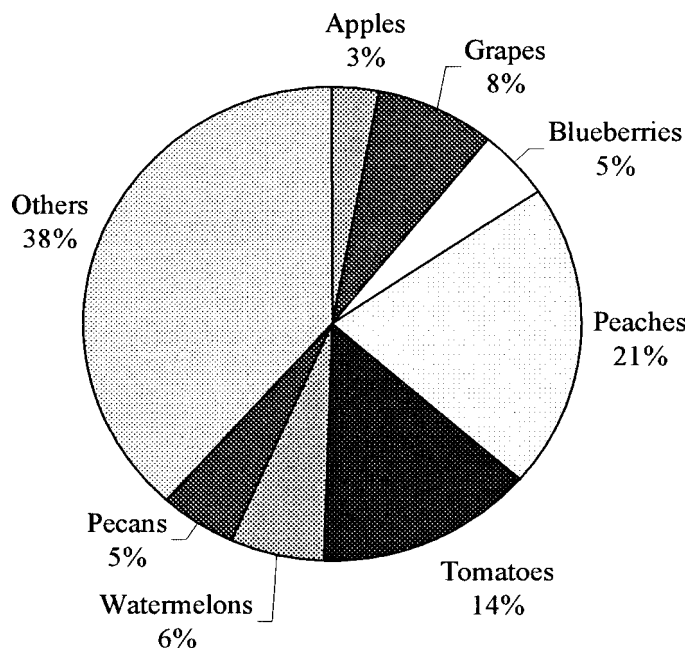


Fig. 5. Market value shares of Arkansas horticultural sales in 2000.

Table 5. Arkansas poultry production, prices, and market value, 1994-2001.

Item	94	95	96	97	98	99P	00P	01F
<b>Broilers</b>								
Production, mil. lb	4,854	4,983	5,660	5,599	5,619	5,921	5,978	6,157
Price, ¢/lb	37.5	35.5	37.5	37.5	38.0	37.0	36.1	35.4
Market value, mil. \$	1,820	1,769	2,122	2,096	2,135	2,191	2,158	2,178
<b>Turkeys</b>								
Production, mil. lb	510	536	526	525	496	491	509	509
Price, ¢/lb	44.0	45.0	44.0	41.0	40.0	0.44	0.44	0.43
Market value, mil. \$	224	241	232	215	198	216	224	219
<b>Eggs</b>								
Production, mil.	3,803	3,608	3,433	3,215	3,233	3,458	3,527	3,614
Table eggs, mil.	1,774	1,481	1,311	1,071	1,116	1,238	1,263	1,282
Hatch eggs, mil.	2,029	2,127	2,122	2,144	2,117	2,220	2,264	2,332
Price, cents/dozen	104.0	97.9	105.0	103.0	114	111	112	111
Market value, mil. \$	330	294	300	276	307	320	329	334

P = projected.

F = forecast.

Source: USDA, NASS for historical data. Projections for 2001 are estimated using baseline projections by FAPRI, USDA, and current market reports.

Table 6. Production, prices, and market value of Arkansas horticultural crops, 1993-2001.

Item	93	94	95	96	97	98	99	00P	01F
<b>Apples</b>									
Area harvested, acre	1,000	1,000	900	900	900	900	900	900	900
Yield, lbs/acre	12,000	8,000	10,000	7,000	8,000	5,000	6,000	8,000	7,000
Production, '000 lb	11,000	7,500	9,500	5,800	7,100	3,600	4,200	3,400	5,000
Price, \$/lb	0.164	0.164	0.143	0.178	0.289	0.227	0.238	0.252	0.25
Market value, 000 \$	1,809	1,228	1,357	1,031	2,053	816	1,001	856	1,250
<b>Grapes</b>									
Area harvested, acre	2,200	2,000	2,000	1,600	1,400	1,300	1,400	1,400	1,400
Yield, tons/acre	3.64	3.00	4.00	5.63	4.64	3.50	3.50	3.00	3.50
Production, tons	5,500	5,500	7,000	8,000	5,500	4,430	4,800	3,900	4,800
Price, \$/ton	493	476	634	629	586	497	473	560	550
Market value, 000 \$	2,710	2,619	4,438	5,035	3,225	2,202	2,268	2,185	2,640
<b>Blueberries</b>									
Area harvested, acre	700	700	700	600	550	500	450	400	400
Yield, lbs/acre	2,860	2,430	2,430	1,670	3,000	1,800	2,510	2,650	2,600
Production, 000 lb	2,000	1,700	1,700	1,000	1,650	900	1,130	1,060	1,040
Price, \$/lb	0.964	0.972	1.060	1.480	0.998	1.000	1.050	1.190	1.200
Market value, 000 \$	1,928	1,652	1,800	1,480	1,646	902	1,182	1,262	1,248
<b>Peaches</b>									
Area harvested, acre	2,500	2,700	2,700	2,700	2,700	2,800	2,800	3,000	3,000
Yield, lbs/acre	9,600	2,960	7,410	440	5,300	4,460	4,290	6,000	4,000
Production, 000 lb	22,000	8,000	18,000	1,100	14,300	11,100	10,500	15,700	10,000
Price, \$/lb	0.140	0.245	0.177	0.155	0.290	0.328	0.340	0.370	0.400
Market value, 000 \$	3,069	1,960	3,189	171	4,142	3,639	3,575	5,811	4,000
<b>Tomatoes</b>									
Area harvested, acre	790	1,100	1,000	1,000	1,100	1,400	1,500	1,500	1,200
Yield, cwt/acre	300	290	260	130	210	240	225	100	230
Production, 000 cwt	237	319	260	130	231	336	338	150	276
Price, \$/cwt	23.00	31.00	42.00	38.00	34.00	34.50	41.80	26.00	30.00
Market value, 000 \$	5,451	9,889	10,920	4,940	7,854	11,592	14,128	3,900	8,280
<b>Watermelons</b>									
Area harvested, acre	3,400	3,000	2,400	2,600	2,700	2,200	2,400	2,700	2,700
Yield, cwt/acre	180	180	100	110	150	145	115	150	145
Production, 000 cwt	612	540	240	286	405	319	276	405	392
Price, \$/cwt	4.90	4.70	8.00	6.00	5.00	6.50	7.50	4.20	5.50
Market value, 000 \$	2,999	2,538	1,920	1,716	2,025	2,074	2,070	1,701	2,156

continued

Table 6. Continued.

Item	93	94	95	96	97	98	99	00P	01F
<b>Pecans</b>									
Production, 000 lb	1,500	1,500	1,600	1,200	3,500	550	3,800	1,300	3,500
Price, \$/lb	0.660	0.960	1.140	0.900	0.671	1.030	0.590	1.10	0.70
Market value, 000 \$	990	1,440	1,820	1,080	2,349	565	2,241	1,445	2,450

P = projected.

F = forecast.

Note: The only horticultural crops listed are crops that have data available. For example, nursery crops are not listed because data are unavailable.

Production reported in this table is the output utilized, i.e., the amount sold plus the quantities used at home or held in storage. It excludes unharvested production and quantities harvested but not sold, used at home, or in storage.

Source: USDA, NASS. Projections are based on USDA and FAPRI baseline study and current market reports.

age processor market (wine and juice) price of \$550/ton. The 2001 outlook is based on an area of 1,400 acres with a projected yield of 3.5 tons/acre and utilized production of 4,800 tons. At \$550/ton, the average market value for the Arkansas grape crop in 2001 is projected to be \$2.64 million.

**Blueberries.** Production area of blueberries in Arkansas has declined from a level of 700 acres in 1995 to only 400 in 2000. Yields have fluctuated from a low of 1,670 lb/acre in 1996 to a high of 3,000 pounds in 1997. Total production in 2000 was 1.32 million pounds, with 1.06 million pounds utilized. All of the Arkansas blueberries were marketed into the fresh market. The average price for Arkansas blueberries averaged \$1.19/lb compared to the national average of \$1.30/lb for fresh market and \$0.97/lb for all blueberries. Projections for 2001 are based on an acreage of 400, with a resulting utilized production of 1.04 million pounds and market value of \$1.25 million.

**Peaches.** Bearing acreage of peaches in Arkansas has increased from 2,500 in 1993 to 3,000 in 2000 (Table 6). Yields of peaches are highly variable in Arkansas primarily as result of the randomness of freezing temperatures during or after the flowering period. The yield range over the past seven years has been as low as 440 lb/acre to a high of 9,600 lb/acre. Average yields in 2000 were 6,000 lb/acre for a total production of 18 million pounds and utilized production of 15.7 million pounds. Arkansas peach producers enjoyed their highest price over the past eight years in 2000 at \$0.37/lb, well above the U.S. average for peaches of \$0.196/lb. The 2001 outlook for peaches is good with no killing freeze to date. Assuming peach orchard acreage of 3,000 and a yield of 4,000 lb/acre, projected utilized production is 10 million pounds. The projected value of the Arkansas peach crop in 2001 based on a price of \$0.40 is \$4 million.

**Tomatoes.** Arkansas producers experienced a serious drop in production in 2000 due to disease. Area expanded in 1999 and 2000 to 1,600 planted acres and 1,500 harvested acres (Table

6). Over the past seven years, yields have ranged between 130 and 300 cwt/acre. In 2000, yields declined to only 100 cwt/acre. Total 2000 production was 150,000 cwt, more than 50% below the previous two years. The crop was valued at an average market price of \$26/cwt, substantially below the previous two years and below the national average of \$31.40/cwt. Total value of the crop in 2000 was \$3.9 million, less than a third of the previous year. The outlook for 2001 Arkansas tomatoes is based on an expected reduced harvested area of 1,200 acres, yields of 230 cwt/acre for a total output of 276 thousand cwt. Total projected value of Arkansas tomato production in 2001 based on a price of \$30/cwt is \$8.3 million.

**Watermelons.** Area harvested of watermelons has declined from 3,400 acres in 1993 to only 2,200 acres in 1998 but increased to 2,700 in 2000. Yields have ranged between 100 and 180 cwt/acre over the past eight years. A high average price in 1999 of \$7.50/cwt was followed in 2000 by a decline to \$4.20/cwt. Total market value of the 2000 crop was \$1.7 million based on an average yield of 150 cwt/acre and total production of 405,000 cwt. Production in 2001 is projected to be 392,000 cwt based on acreage of 2,700 and an average yield of 145 cwt/acre. Priced at an average market value of \$5.50/cwt the total projected value of Arkansas watermelons in 2001 is \$2.16 million.

**Pecans.** Production of pecans in Arkansas was 1.3 million pounds in 2000, a third of the 1999 production level. Producers in Arkansas received \$1.10/lb for a total crop value of \$1.45 million. Production in nuts typically declines markedly following a year of high output and then increases in the subsequent year. Therefore, the 2001 outlook for Arkansas pecan production is based on a projection of 3.5 million pounds. This production pattern is expected nationwide for pecan output and therefore lower prices are expected. With a projected price of \$0.70/lb, the value of the Arkansas pecan crop in 2001 is \$2.45 million.

## FARM INCOME AND FINANCIAL SITUATION AND OUTLOOK

Before considering the financial situation and outlook for Arkansas farmers it is worthwhile to consider the financial situation and outlook for all U.S. farmers. The USDA forecasts that U.S. net farm income for 2001 will be \$41.3 billion, which is 9% less than the \$45.4 billion in 2000. Most of this decrease in the forecast is the result of the USDA including lower direct government payments and assuming no new emergency assistance to farmers will be authorized by Congress in 2001.<sup>7</sup> As of April 2001, USDA forecasts \$14.1 billion in direct government payments to farmers in 2001, down from a record level of \$22.1 billion in 2000 and \$20.6 billion in 1999. The USDA also made the same assumption of no new emergency assistance to farmers last year. Later in 2000, Congress did authorize emergency assistance. Emergency assistance ended up contributing \$8.9 billion in 2000. Government payments to farmers are a critical component of net farm income. Direct government payments were 47% and 49% of net farm income in 1999 and 2000 and are forecast to be 34% (\$14.1 billion) in 2001 even without new emergency assistance being authorized. If farmers receive the same amount of emergency assistance in 2001 as they received in 2000, \$8.9 billion, instead of the \$3.6 billion currently being projected for 2001, net farm income would approach \$46.6 billion with 42% coming from direct government payments.

Income forecasts are not available for Arkansas, but direct government payments have historically been even more important to Arkansas farmers than U.S. farmers on average, particularly crop farmers. Arkansas farmers received 30% of their net farm income from direct government payments during 1990 through 1999 compared to 23% for U.S. farmers. A February 2001 survey of commercial bank and Farm Credit System loan officers from the eastern third of Arkansas indicated that government payments were extremely important to their farm borrowers. In fact, some loan officers indicated that government payments were about 100% of net farm income in 2000. Thus, these farmers would have had no farm income without government payments in 2000. Loan officers from the rest of the state indicated that government payments were much less important to their farm borrowers in general. However, government payments were important to certain rice, cotton, soybean, wheat, corn, and sorghum producers in other areas of the state such as southwest Arkansas and the Arkansas River Valley.

Although the USDA has not provided an income forecast for Arkansas, it has provided income forecasts for regions of the United States that include portions of Arkansas. The USDA constructed a set of regions depicting geographic specialization in production of U.S. farm commodities. Arkansas farms fall into three regions: Mississippi Portal, Eastern Uplands, and Southern Seaboard (Fig. 6 and 7).

The Mississippi Portal region is perhaps the best region for grouping farms with similar production specialities. This region also happens to be the smallest geographical region in the United

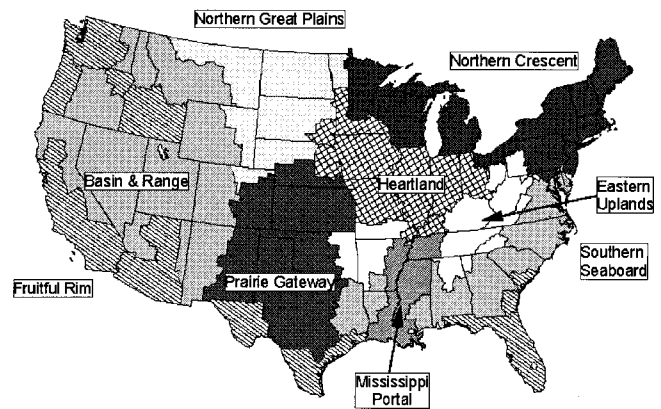


Fig. 6. USDA Farm Resource Regions

States (Fig. 6). The Mississippi Portal includes the eastern third of Arkansas (Fig. 7), which corresponds to Arkansas statistical reporting districts 3, 6, and 9. The Mississippi Portal region is dominated by crop farms producing cotton, rice, and soybeans.

The largest area of Arkansas is represented in the Eastern Uplands region, which includes the mountainous areas of the United States east of the Rocky Mountains (Fig. 6). The Eastern Uplands includes the western third and much of central Arkansas (Fig. 7) which corresponds to Arkansas statistical reporting districts 1, 2, 4, 5, and 7. Typical farms in this region produce cattle, poultry, and burley tobacco. Although there is little tobacco production in Arkansas, there is plenty of cattle and poultry production.

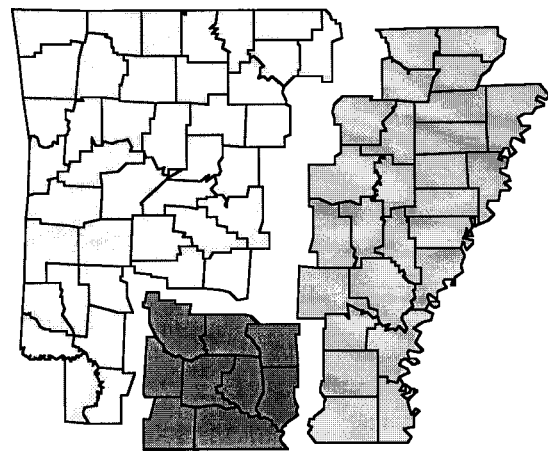


Fig. 7. USDA Farm Resource Regions in Arkansas

The smallest area of Arkansas is represented in the Southern Seaboard region. The Southern Seaboard includes the south central portion of Arkansas (Fig. 7) which corresponds to Arkansas statistical reporting district 8. The Southern Seaboard region is a large and diverse area (Fig. 6) and is said by USDA to include cattle, poultry, and general field crop farms, which is a fair description of production agriculture in south-central Arkansas.

<sup>7</sup> In 2000, Congress authorized emergency assistance payments to farmers. Most of the payments were made to farmers during 2000, however, \$3.6 billion will be distributed during 2001.

The USDA forecasts of farm business net cash income for farms located in the Mississippi Portal, Eastern Uplands, and Southern Seaboard and with gross sales of \$50,000 or more are presented in Table 7. All U.S. farm businesses are forecast to average \$61,900 of net cash income in 2001, a 9% decrease from \$68,000 per farm in 2000. The region with the second largest percent decrease in net cash income is forecast to occur in the Mississippi Portal region. Farm business net cash income in this region is forecast to fall from \$66,000 in 2000 to \$54,100 in 2001, an 18% decrease. Increases in market receipts are not enough to compensate for the lower government payments that are forecast as of April 2001.

Farmers in the Eastern Uplands and Southern Seaboard regions are actually forecast to have a slight increase in net cash income in 2001. These are the only regions in the United States that are forecast to have increasing net cash incomes, which is partially due to better prospects in 2001 for cotton, tobacco, and peanut farmers as a group<sup>8</sup> in the United States. Tobacco and

peanut farms are representative of some farms in other areas of the Eastern Uplands and Southern Seaboard regions, but they are hardly representative of farms in Arkansas. Also, the Southern Seaboard is expected to recover from severe weather problems that plagued much of the region the last two years to a greater extent than southern Arkansas; therefore, forecasts of increases in net cash income for Arkansas farm businesses in these two regions are likely overstated. Farm businesses in the Eastern Uplands, the region with by far the least net cash income per farm, are forecast by the USDA to increase 2% from \$36,600 in 2000 to \$37,300 in 2001. Southern Seaboard farm business net cash income per farm is forecast to experience a 6% increase from \$50,800 in 2000 to \$53,600 in 2001.

U.S. hog, beef cattle, soybean, corn, and mixed grain farms had a better year in 2000 than in 1999 with hog farms experiencing the largest increase in net cash income at 43%. Farms that had a worse year in 2000 than in 1999 included cotton, tobacco, and peanut, wheat, other crop (rice), poultry, dairy, other live-

**Table 7. Farm business average net cash income and percent of farms with debt repayment problems.**

<i>Farm Regions</i>	Average 1995-99	1998	1999	2000F	2001F
<i>Net cash income per farm in \$1,000's</i>					
Farms <sup>1</sup> in:					
United States	66.3	78.6	70.4	68.0	61.9
Mississippi Portal	79.9	78.5	70.3	66.0	54.1
Eastern Uplands	37.7	42.1	40.6	36.6	37.3
Southern Seaboard	59.3	80.6	43.1	50.8	53.6
<i>Percent of farms with negative net cash income</i>					
United States	NA	18	16	18	20
Mississippi Portal	NA	23	25	27	31
Eastern Uplands	NA	19	14	15	17
Southern Seaboard	NA	18	21	19	18
<i>Percent of farms with debt repayment problems</i>					
United States	NA	22	19	20	24
Mississippi Portal	NA	28	20	21	26
Eastern Uplands	NA	26	16	19	19
Southern Seaboard	NA	18	18	17	21

F = forecast.

<sup>1</sup> Farm businesses with gross sales of \$50,000 or more.

Source: USDA, Economic Research Service internet website, February 6, 2001.

<sup>8</sup> USDA does not provide separate forecasts of farm business net cash income for cotton, tobacco, and peanut farms, but instead, it forecasts farm business net cash income for these farms as a group.

stock, and speciality crop farms such as vegetable, fruit, nursery, and greenhouse farms. A list of U.S. farm types that are forecast to have a better year in 2001 than 2000 is quite short: cotton, tobacco, and peanut farms, where these farms are reported as one group. Farms that are forecast to have a worse year include wheat, soybean, mixed grain, corn, other crop (rice), speciality crop, hog, beef cattle, poultry, and other livestock farms, while dairy farms are expected to have a similar year in 2001 as they did in 2000.

Every region in the United States except for the Southern Seaboard is forecast to have greater percentages of farms with negative net cash income in 2001 than 2000 (Table 7). Nearly 31% of farms in the Mississippi Portal are forecast to have negative net cash income in 2001, the largest percentage of any region in the United States, and this is up from 27% of farms in 2000. The Eastern Uplands and Southern Seaboard regions are forecast to have 17% and 18% of their farms with negative net cash income in 2001 compared to 15% and 19% in 2000. For the United States, 20% of farms are forecast to have negative net cash income in 2001, up from 18% in 2000.

Survey responses from 26 Arkansas agricultural loan officers collected during the week of late January and early February 2001 indicate that some farmers will have difficulty cash flowing their operations in 2001 and thus meeting financial obligations in a timely manner. Loan officers in Arkansas corresponding to the Mississippi Portal region indicate that 21% of their borrowers will have cash flow problems in 2001, up from 14% in 2000. In contrast, loan officers in the Eastern Uplands and Southern Seaboard regions of Arkansas said that 8% of their borrowers would have cash flow problems in 2001, which is similar to the 7% they indicated in 2000.

Many farmers with a relatively small and/or temporary shortage of net cash farm income can often continue to operate by relying on non-farm income, by making minor adjustments to the farm operation, or by drawing on working capital to maintain the liquidity of the business. However, if a farmer experiences a relatively large shortage of net cash farm income and/or if the shortage persists over a long period of time, the situation usually requires negotiating with creditors and somewhat dramatic restructuring of assets and liabilities.

Significant percentages of farms in each region of the United States are experiencing debt repayment difficulties as a result of low income and/or high debt. In fact, every region of the United States is forecast to have greater percentages of farms with debt repayment difficulties in 2001 than 2000. For the regions that include Arkansas farmers—the Mississippi Portal, Eastern Uplands, and Southern Seaboard—the percentages of farms forecast to have debt repayment difficulties in 2001 are 26%, 19%, and 21% (Table 7). Farms expected to have debt repayment difficulties are farms with high debt repayment obligations relative to the amount of farm income available to service those obligations. Farmers having debt repayment difficulties will not necessarily be forced to liquidate their farming operations and quit farming, although some may. It does mean, however, that these farmers will likely need to renegotiate their repayment plans with creditors.

How do these USDA forecasts of percentages of farms expected to have debt repayment difficulties compare with Arkan-

sas loan officers' forecasts? Agricultural loan officers surveyed in the Mississippi Portal region of Arkansas expect to have 15% of their farm borrowers need some type of debt reorganization such as rescheduling payments and refinancing debt. These same lenders also indicate that 21% of their farm borrowers will be required to have Farm Service Agency loan guarantees and 3% will be denied credit. Corresponding percentages from a similar survey a year earlier were 24%, 11%, and 2%. If these numbers are a reliable indication of financial problems in eastern Arkansas, fewer farmers this year than last year are expected to reorganize their finances, more farmers will be required to have guarantees associated with their loans, and almost the same number of farmers will need to seek credit elsewhere.

Loan officers in the Eastern Uplands and Southern Seaboard regions of Arkansas indicate that 25% of their farm borrowers will require debt reorganization, 7% of their borrowers will need Farm Service Agency loan guarantees, and 6% will be denied credit in 2001. Farm Service Agency guaranteed loans in the western part of the state are most often associated with real estate secured loans such as broiler houses. In contrast, guaranteed loans in row crop production areas, which dominate the eastern third of the state, are frequently used in conjunction with operating loans for purchasing crop inputs such as seed, fertilizer, and fuel.

Undoubtedly, direct government payments are extremely important to many U.S. and Arkansas farms during this period of low prices, particularly crop farms in the Mississippi Portal region, although some dairy and hog farms have also received payments as a result of emergency assistance in the past several years. Without the direct government payments paid in 1998, 1999, and 2000 and those previously authorized to be paid in 2001, many more farms would be having negative net cash income and be experiencing debt repayment problems. Of course, if emergency assistance payments are again authorized in 2001 at the same level as they were in 2000, fewer farms will have financial difficulties. Many farmers and lenders may have already built into their forecasts additional emergency payments for 2001 since Congress has passed emergency spending bills for agriculture the last three years. But what about future years? The current farm bill runs through 2002. What will happen then? Will emergency government payments continue? The agricultural policy debate in Congress over the next two years will be closely watched by farmers and others who have a vested interest in agriculture.

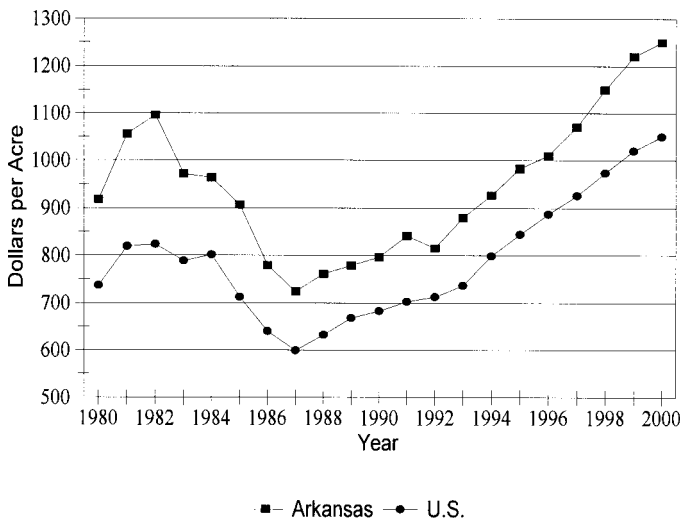
## FARM REAL ESTATE VALUES

Farm real estate is a significant share of farm assets in Arkansas and the United States. In 1999, farm real estate contributed 74% of the value of all farm assets for Arkansas and 78% for the United States. Therefore, changes in the value of farm real estate say a great deal about changes in the value of all farm assets and the solvency of many farm businesses. Farm real estate serves as collateral for much of the credit extended to farm businesses. Of course the total assets of farms that rely heavily on leased farmland will be less affected by changing real estate values than farms that own most of their farmland.

Arkansas farm real estate values have been following an upward trend from January 1, 1987, when farmland was \$724/acre, to



\$1,250/acre as of January 1, 2000 (Fig. 8). The United States also experienced an upward trend in farm real estate values over this same period, increasing from \$599/acre to \$1,050/acre. The rate of growth in farm real estate values for Arkansas has been similar to that of the United States over this period.



**Fig. 8. Farm real estate values: land and buildings**

Arkansas agricultural loan officers at commercial banks and Farm Credit Services were contacted by telephone during the week of late January and early February 2001 to ask their opinions on changes in farmland values. Real estate markets often vary considerably depending on where the real estate is located. Real estate agents will often say the three most important things a person needs to know about real estate are location, location, and location. Location also seems to be important when considering the changes in farmland values, according to the responses from the agricultural loan officers. Although many loan officers responded that farmland values were stable in 2000 and were anticipated to remain that way in 2001, other loan officers indicated significant increases or decreases in values. So there can be much variability in farmland values depending on location.

Loan officers from the eastern third of Arkansas on average thought that farmland values were stable in 2000 and expected farmland values to increase 2% in 2001. Loan officers from the rest of the state were more optimistic. They thought that farmland values had increased 4% in 2000 and would increase 5% in 2001. Although the differences in percent changes between eastern Arkansas and the rest of the state are not statistically significant, these results are consistent with the conventional assumption that farmland used to produce field crops such as cotton, rice, soybeans, and wheat in the eastern third of the state is not fairing as well as farmland used to produce cattle and poultry in the rest of the state. However, these results are also consistent with the assumption that there may be less development potential and recreational uses on average for eastern Arkansas farmland than for the rest of the state.

## MACROECONOMIC IMPACTS ON AGRICULTURE

For the first time in almost a decade the U.S. economy is faced with the prospect of a recession. The year 2000 was tumultuous for the macro economy by about any standard. Using Bureau of Economic Analysis statistics, Gross Domestic Product (GDP) grew by 5.2% in the first half of 2000 and then lost steam precipitously with a third quarter growth rate of 2.2% and 1.4% in the fourth quarter of 2000. By comparison, the fourth quarter of 1999 had an 8.35% growth rate.

There is no uniform opinion on whether growth in 2001 will be positive or negative, or whether the U.S. will have a recession (two consecutive quarters of negative real growth in GDP). What is clear is that the Federal Reserve recognizes that the economy is headed into undesirable territory. The full percentage point cut in the federal funds rate in January 2001 followed by half percentage point cuts in March and April indicate the Fed's concern about the economy. Unemployment was at 3.9% as recently as October 2000 and is estimated by the Bureau of Labor Statistics at 4.2% for January 2001, the most recent data. Thus, there is slight easing in employment, but 4.2% is still well below the 5% mark that economists not long ago thought was the full employment level.

The question is what all this means for agriculture, particularly in Arkansas. The significant macro forces that affect agriculture can be divided into demand and supply factors. The demand factors have to do with personal income and exchange rates. Consumer increases in overall spending have slowed, but expenditures are still growing over time. This will likely continue despite an evaporation of the wealth effect in 2000 and early 2001 with the reduction in equity prices and the crash in technology stock values. Thus, we would not anticipate much lowering of the demand for food, although some shifting in expenditures could occur if energy prices remain high or continue to rise. This is unlikely since the oil price increases to date have not begun to approach those of 1973 and 1979 in terms of percentage changes. In their Agricultural Outlook, the USDA Economic Research Service (ERS) assumes domestic demand for agricultural products will remain strong (Torgerson).

Of greater concern is export demand. World GDP grew briskly in 2000 at about a 4% rate. This was aided by almost double that growth rate in Asia, showing that the financial troubles of the late nineties in Asia are a thing of the past. Economic growth in the two NAFTA partners of the U.S.—Canada and Mexico—was also strong. It cannot be anticipated that this rate of growth will continue, particularly in Asia. The Organization of Petroleum Exporting Countries (OPEC) will likely react to easing in world economic activity with lowered oil exports. This would indicate that oil and energy prices will remain high but it is unlikely that they will increase even more. ERS is anticipating some weakening in the dollar, and this could lead to improved exports. However, ERS sees the weakened dollar favoring manufacturing output more than agricultural products. Nonetheless, the weakening of the dollar is a positive sign for overall demand for agricultural products. ERS projects agricultural exports increasing by \$2.1 billion to \$53 billion in fiscal 2001 over 2000.

The supply factors affecting agriculture are energy costs, interest rates, and labor costs. Costs of fuels in agriculture were low in 1999 with an index value of 93 (1990-92 = 100) and by November 2000 this index had risen to 155, an increase of about 67% in one year. Since there are not likely to be further substantial increases in oil prices, there should not be more large surges in fuel prices. However, 2001 prices in spring and early summer compared with prices a year earlier will be up so that overall fuel expenses in 2001 will be noticeably higher than in 2000. Some of the effect of higher energy prices is also likely to show up in fertilizer. The respective fertilizer price indexes for February 2001 and February 2000 were 153 and 106, respectively.

There is no question that short term interest rates are decreasing in the overall macro economy, and there is little reason to predict the Fed will reverse its interest rate cutting trend in the next few months. Despite this general downward trend in interest rates in the economy, it is not clear that this will be immediately reflected in lower interest expenses for agricultural borrowers. In January 2001 the Fed undid the full percentage point increase in the federal funds rate that was imposed in 2000, but some farmers are still paying on loans that were made at the higher 2000 rates. Interest rates on existing loans generally lag current interest rates. In general, ERS projects that trends in the latter half of 2000 that indicated a tight credit market will extend into the first half of 2001. Since the agricultural sector is experiencing low commodity prices, marginal borrowers might have more difficulty in obtaining loans. However, financially sound agricultural borrowers might be able to obtain lower cost credit.

Even though the unemployment rate is edging away from its historic lows, the impact on the availability of agricultural labor is likely to be minimal. Seasonally adjusted wage rates increased by 6% last year according to ERS data on prices paid by farmers. Unless there is a major drop in employment numbers, there is not likely to be an easing of the agricultural labor market.

The unemployment rate may have more of an impact on how it affects farm household income. In 1999, average U.S. farm household income was \$64,347, but only \$6,359 was from the farm and the rest was from off-farm sources, primarily off-farm employment. Therefore, most farm families, particularly those with small farms, rely on off-farm income. In fact, many of these farms may have negative farm income and count on off-farm income to support living expenses and cover some farm expenses. Therefore, if unemployment hits these farm families, they will have difficulty meeting living expenses as well as their farm expenses.

In summary, the macro factors are generally favorable, although they are not optimal. Thus, the general economic setting does not pose any clear hazards to net farm income. However, these factors do not presage any boom in agricultural income; that will have to come primarily from factors causing sudden shifts in supply, most likely weather driven. One other positive macro factor is the continuing long-term forecast of Federal government budget surpluses. Until the baby-boomers start to retire in 2012 and beyond and begin to draw down Social Security reserves, the existence of the surpluses makes legislating additional financial support to agriculture easier than when deficits ruled.

## ARKANSAS AGRICULTURAL INTEREST RATES

The cost of credit is an important input for production agriculture. During the week of late January and early February a number of loan officers at commercial banks and Farm Credit Service branches were informally surveyed about their current interest rates on agricultural loans. Loans were divided into two categories: operating loans and farm real estate loans. In total, 26 offices were contacted throughout the state with 13 from the eastern part of the state and 13 from the western and central sections. Respondents were asked to state their current rates and what they thought these rates would be in June. A major interest rate event occurred in the middle of the week when agricultural loan officers were being contacted. On January 31, the Federal Reserve announced that it was cutting the federal funds rate target by one-half of a percentage point to 5.50%. Since the announcement was made during the week that loan officers were contacted, some of them responded with this information available to them while others did not, although the cut was widely anticipated in the media.

Rates were fairly uniform across the state. For operating loans, current rates ranged from 8.75% to 10.50%, indicating that there are some price differences. The average rate was 9.48%, and this did not differ significantly when comparing the east with the rest of the state. The low and high ends of the responses as well as the average rate are a quarter of a percentage point higher than reported in a similar survey in 2000. The projected rate for June of this year was 9.19%. This decrease is consistent with indications in the media at the time that the Federal Reserve would continue to lower rates the first half of 2001.

In February 2001, farm real estate loans ranged from 7.75% to 10%. Some of this variation can likely be attributed to different types of arrangements such as length of the loan. The mean rate for the 26 institutions was 9.35% with a projection to 9.11% in June. As with the operating loans, there was no noticeable association with rate levels and geographical location.

## SPECIAL ARTICLE: PRICE RISK MANAGEMENT AND PRE-HARVEST MARKETING STRATEGIES

We live in a world of risk and uncertainty. Price risk is of particular concern to farmers who are at the mercy of competitive markets both at home and abroad. Farmers continually face the prospect of lower than desired output prices while simultaneously having to accept higher input prices. In recent years, historically low output prices have meant grain farmers have had to rely on government support such as Loan Deficiency Payments (LDPs).

Aside from the perennial problem of low output prices, the modern day farmer must also contend with the issue of when and how to market or price his output. This decision making process is the central cornerstone of any good marketing plan. The objective of this section is to redirect attention away from price prediction and instead focus attention on how to construct a good marketing plan and achieve a consistent level of profitability. The prudent use of futures and options contracts within a hedging program, operated either directly by the farmer or indirectly through a country elevator, provides the opportunity to

achieve the goal of consistent profitability in a volatile commodity market.<sup>9</sup> The use of hedging or other forward pricing strategies allows the farmer the opportunity to both set and meet specific pricing target objectives.

In order to remove subjective judgment as to the future movement of prices during a marketing year, farmers should set a target price at which they are willing to sell their output. As a guideline to setting a specific target price, realistic costs of production should first be estimated. The target price can then be set at some level above these costs, which will return a consistent and attainable profit level. Once the target level has been decided upon, the farmer should attempt to turn his grain or livestock into money at that target price as soon as possible. Target pricing removes all emotion from the marketing decision and avoids the potential pitfalls associated with allowing market changes to dictate one's selling habits.

A vast array of marketing tools and strategies are available to producers to enable target prices to be both set and met. Farmers who wish to take sole responsibility for marketing their output can rely on hedging strategies using futures or options contracts. In the case of grain farmers, a selling or target price may be established at any point in time prior to harvest by either selling an appropriate number of futures contracts or buying an appropriate number of put option contracts to cover an expected amount of future production. Selling futures contracts at the current market price allows the farmer to lock into an effective selling price subject to local basis risk. Alternatively, buying put option contracts sets a minimum price floor, once again subject to local basis risk, which may be reached by the farmer. In both cases, the farmer should have formed a target price based on expected costs of production, and should then enter into the futures or options markets to achieve this target price.

Target prices may also be set through contractual marketing agreements made with local country elevators for example. In this scenario the farmer still takes responsibility for setting an appropriate target price, which is then legally established through some forward contracting arrangement. Many forward contracting arrangements are offered by country elevators. Two types of contracts, which are particularly suited to establishing a target price for commodities prior to harvest, are (1) a target contract and (2) a minimum price contract.

Under the provisions of a target contract the farmer agrees to sell the elevator a specific number of bushels for a specific delivery period at a specific price. In this case the farmer sets the specific price to be equal to an estimated target price. The contract ensures that the farmer's crop will be sold automatically if the local cash market reaches his target price. In other words, once the target is hit the target contract becomes a forward or flat price contract.

The target contract offers the producer three distinct advantages over simply selling in the cash market at harvest or attempting to speculate on future price movements. Firstly, it gives farmers a time advantage and allows them to benefit from favor-

able price movements, as opposed to immediately locking into a forward selling price. However, this time advantage can also work against the farmer if prices move unfavorably. Secondly, it enforces a disciplined marketing strategy on the farmer. If market prices rise to the target price, he is forced to sell as opposed to trying to wait for a few cents more, which more often than not can turn into a few cents less. Finally, it allows the farmer to have a constant market presence without having to continually monitor what prices are doing.

However, two words of caution are in order when entering a target contract. Firstly, if the farmer is too optimistic and sets the target price at an unrealistically high level the market will never reach that level and the contract will become obsolete. Secondly, there always exists the possibility of non-production or not having the grain to deliver. This potential problem is associated with any type of forward contracting agreement and can be expensive if grain must be bought in the cash market to cover the obligations imposed by the forward contract. This particular problem may be circumvented by supplementing a forward contract with a minimum price contract. A special feature of a minimum price contract is that it allows the farmer to cancel his obligation for a pre-specified percentage of bushels under the terms of a forward contract if unable to deliver.

Under the terms of a minimum price contract the farmer is obligated to sell at a guaranteed minimum floor price but may receive a higher price if futures market prices upon which the contract is based also go up prior to the specified delivery time. Thus, when used in conjunction with a forward contract, the minimum price contract would set a price floor at the established forward price, while allowing the farmer to benefit from higher prices and avoid having to deliver bushels not actually harvested. Needless to say, this marketing tool is expensive to implement and may reduce profitability. However, a reasonably effective pre-harvest marketing strategy would be to initially enter into a target contract, wait for the target contract to become a forward contract and then supplement a percentage of the bushels specified in the forward contract with minimum price protection.

The key to forming a successful pre harvest marketing plan is to take control of your situation. This may be achieved through either a privately organized hedging program using futures and options contracts, or by forward contracting with country elevators using target and minimum price contracts. These strategies cannot control the market but they can control your marketing and enable you to earn a consistent and profitable return.

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<sup>9</sup> Futures and options contracts may be used for a variety of commodities such as grain, oil seed, cotton, livestock, gold, treasury bills, and many others (Lorton and White).

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