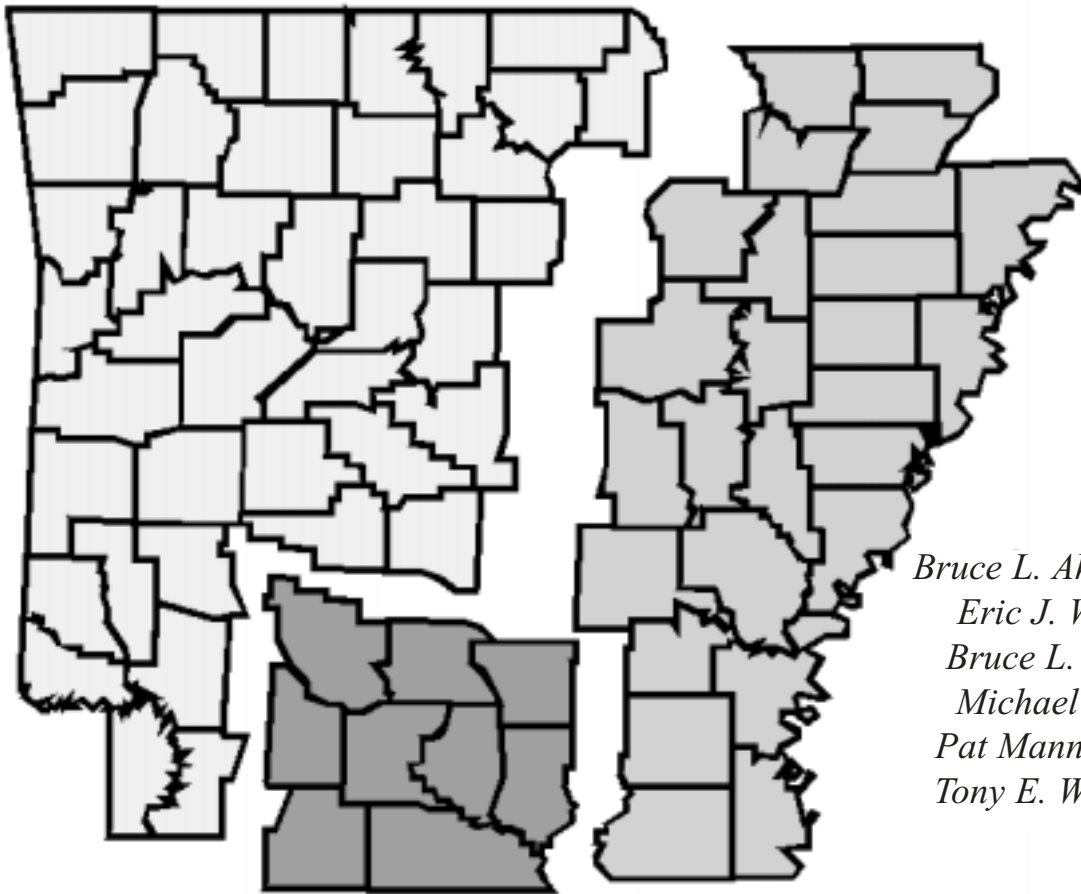


# ARKANSAS AGRICULTURE 2002

## SITUATION AND OUTLOOK



*Bruce L. Ahrendsen,  
Eric J. Wailes,  
Bruce L. Dixon,  
Michael Popp,  
Pat Manning, and  
Tony E. Windham*

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DIVISION OF AGRICULTURE

# ARKANSAS AGRICULTURE 2002 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 2002. The report emphasizes the production, price, income, policy, financial, farmland value, and interest rate outlook for Arkansas farmers and considers the impact of the macro economy on agriculture. In addition, a summary of commercial row-crop farm characteristics and production practices is presented.

**Key Words:** Crop, Livestock, Catfish, Poultry, and Horticulture Production, Price, Income, 2002 Farm Bill, Financial Situation, Farmland Value, Macro Economy, Interest Rate, Commercial Row-Crop Farm Characteristics and Production Practices

**Arkansas Agriculture 2002 Situation and Outlook**

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# ARKANSAS AGRICULTURE 2002 SITUATION AND OUTLOOK

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## EXECUTIVE SUMMARY<sup>1</sup>

□ Price prospects in 2002 for Arkansas crop agriculture are weak. For the major crops produced and marketed by Arkansas farmers—soybeans, rice, and cotton—market prices in 2002 are expected to be at or below loan rates, not unlike last year’s abysmal market returns. New crop futures prices facing farmers as of mid-February compared to the previous three years are:

Crop	Contract month	New crop futures prices			
		2002	2001	2000	1999
Soybeans (CBT)	September	\$4.48	\$4.56	\$5.33	\$4.75
Rice (CBT)	November	\$2.45	\$2.76	\$3.02	\$3.17
Cotton (NYBOT)	October	\$0.41	\$0.59	\$0.61	\$0.58
Wheat (CBT)	July	\$2.84	\$2.90	\$2.94	\$2.64
Corn (CBT)	September	\$2.25	\$2.36	\$2.47	\$2.26

□ Income prospects for Arkansas crop farmers in 2002 will be heavily influenced by a continuing bearish price outlook, loan deficiency payments (LDP) and other direct government payments under the 2002 Farm Bill. Based on normal yields and projected 2002 market prices and LDP, the projected net returns per acre to farmers for non-land assets and management are:

Crop	Net returns per acre	
	Projected 2002 net returns	Typical range
Soybeans, dryland	\$ - 4/acre	\$ 60 to 100/acre
Soybeans, irrigated	\$ 53/acre	\$ 80 to 120/acre
Rice	\$ 23/acre	\$ 40 to 90/acre
Cotton, dryland	\$ -66 to \$2/acre	\$ 20 to 80/acre
Cotton, irrigated	\$ -42 to \$31/acre	\$ 20 to 80/acre
Corn, irrigated	\$ -19/acre	\$ 50 to 110/acre
Sorghum, irrigated	\$ 2/acre	\$ 10 to 40/acre
Sorghum, dryland	\$ -20/acre	\$ 5 to 25/acre

□ The 2002 Farm Bill has reintroduced an income safety net through the target price-deficiency payment mechanism that was in place prior to the 1996 Farm Bill. The new farm bill retains the decoupled Agricultural Market Transition Assistance (AMTA) fixed payments along with the loan rates and loan deficiency payments. Loan deficiency payments and market loan gains are being heavily relied upon by Arkansas producers during the 2001 crop year totaling approximately \$500 million. Two other types of direct government payments are extremely important to Arkansas. Direct income assistance for the 2001 crop year amounted to approximately \$200 million each from Production Flexibility Contract payments and Market Loss Assistance.

□ The total market value or gross revenues of Arkansas agriculture in 2002 is projected to be \$5.1 billion, an increase of 1.1% compared to 2001. An improvement in the market value of crops, poultry, and horticulture is expected to more than offset a decline in livestock.

	Market value of Arkansas agriculture				
	1999 Million \$	2000 Million \$	2001P Million \$	2002F Million \$	2002/2001 % Change
Field Crops	1,720	1,558	1,520	1,546	1.7 %
Livestock	693	740	739	718	-2.8%
Poultry	2,728	2,482	2,673	2,723	1.9 %
Horticulture	79	78	81	81	0.0 %
Total	5,216	4,859	5,013	5,068	1.1 %

□ The net income and financial condition of Arkansas farmers, however, is forecast to decline in 2002 based on USDA January forecasts.

- Depressed market prices since 1997 have reduced Arkansas Net Farm Income without government support by nearly 60 percent. Government price and income supports have only partially sustained net incomes as total net farm incomes have declined by 22 percent since 1996.

<sup>1</sup> Estimates and forecasts for 2002 were made prior to the passage of the Farm Security and Rural Investment Act (Farm Bill) of 2002.

- The USDA forecasts U.S. net farm income to decrease 18% from \$49.3 billion in 2001 to \$40.6 billion in 2002 without the new farm bill and assuming no new emergency assistance in 2002.
- Direct government payments are forecast to be 43% and 26% of U.S. net farm income in 2001 and 2002 even without any new emergency assistance in 2002.
- Government payments since 1990 have been more important to Arkansas farmers than U.S. farmers on average.
- Arkansas crop cash receipts from 1996 to 2000 have fallen nearly a third.
- In three USDA production regions that cover portions of Arkansas, farm net cash income is forecast to decrease by 52%, 13%, and 16% from 2001 to 2002 without the 2002 Farm Bill and assuming no emergency supplemental assistance in 2002. The 52% decrease for the region that includes the eastern third of Arkansas is the largest decrease of any region in the United States.
- A comparison of the percent of farms with negative net cash incomes by region shows that farms in the Mississippi Portal, which includes eastern Arkansas crop farms, are most seriously affected. USDA forecasts that 48% of the farms in the region will have negative net cash income in 2002, more than any other region. Significant percentages of farms at 35% and 41% for the other two USDA regions represented in Arkansas are forecast by USDA to have negative net cash income in 2002.
- 22%, 14%, and 16% of farms in the three regions represented in Arkansas are forecast by USDA to have debt repayment difficulties in 2002. These farmers will likely need to renegotiate their repayment plans with creditors, and some may liquidate their operations.
- Arkansas agricultural loan officers' opinions regarding farm credit conditions are presented and discussed.
- Many loan officers from the eastern third of Arkansas indicated that credit conditions for production agriculture in their area had turned weaker. The rate of loan repayment had decreased, the number of loan renewals or extensions had jumped, additional collateral is being required, and more USDA Farm Service Agency loan guarantees are being sought.
- In general, lenders' credit standards had tightened across Arkansas. Lenders on average reported 11% of their farm loan borrowers had major repayment problems requiring more collateral and/or long-term workouts and 3% of their borrowers had severe repayment problems likely resulting in loan losses and/or forced sales of borrowers' assets.
- Lenders in the eastern third of Arkansas were generally more pessimistic regarding present and future farm credit conditions than were their counterparts in the rest of the state.
- The macro economy affects unemployment, interest rates, exchange rates, exports, production costs, and land values, which are important to agriculture.
- The U.S. economy fell into recession in 2001, breaking 10 years of continued growth.
- Unemployment increased in 2001. 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.
- Because of the slow U.S. economy, the Federal Reserve decreased the federal funds rate eleven times in 2001 from 6.5% to 1.75%, resulting in lower credit costs for farmers and others. Many expect interest rates to increase slightly in 2002.
- 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.
- A slight weakening of the U.S. dollar and strengthening economies of many trading partners of the United States was expected in 2001. However, until early 2002 the U.S. dollar continued to strengthen relative to trading partners, which has had a dampening effect on exports.
- 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.
- Fertilizer costs are expected to fall somewhat in 2002.
- Arkansas farm real estate values have trended upward like U.S. values.
- Although most agricultural loan officers surveyed expect farmland values will remain stable this year, a third of them from the eastern third of Arkansas expect values to decrease in 2002 and none of them expect an increase. Conversely, 27% of loan officers from the rest of the state expect values to increase this year and none of them expect a decrease.
- Arkansas Cooperative Extension Service agents from eastern and northeast Arkansas were surveyed about commercial row-crop farm characteristics and production practices in their areas.
- Nearly two-thirds of crop land is rented or leased for the typical commercial crop farm, with crop share leases domi-

nating cash rent and cost share arrangements.

- Reasons for farmers planting genetically modified organism crops are discussed.
- Factors for determining irrigation decisions, crop rotation, and crop selection are presented.

## PRODUCTION AND PRICE SITUATION AND OUTLOOK

Arkansas has an extremely diverse production agriculture. 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 have a 30% share of the market value of Arkansas agriculture in 2001 (Fig. 1)<sup>2</sup>. Livestock and catfish include feeder calves, milk, feeder pigs, and catfish and account for 15% of the market value of Arkansas agriculture. Poultry includes broilers, turkeys, and eggs and has a 53% share of market value. Finally, horticultural products included in this study are tomatoes, watermelons, pecans, apples, grapes, blueberries, and peaches. With the floriculture and nursery business, horticulture accounts for a 2% share of the market value of the Arkansas agricultural economy. Discussion of horticultural crops in this study does not include all products produced in Arkansas, since some products such as nursery and ornamental products are necessarily omitted because of a lack of published data.

### Field Crops

The price outlook for most of the 2001 Arkansas crops has not improved since last fall. Commodity futures prices for most field crops are at or below the commodity loan rates. Price supports through the loan deficiency payment (LDP) program have been important for cotton, rice, and soybeans. Cotton and rice have also benefitted from loan activity through the marketing loan gains.

Projected average net market returns for the 2002 Arkansas crops, based on current price projections and Arkansas Cooperative Extension Service cost of production estimates, are shown in Tables 1 and 2. Table 1 shows market returns to Arkansas producers at specified market prices for various 2002 yields. The net return estimates presented are calculated as the difference between revenue and variable costs of production and a return to land, based on a 25 percent 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. Table 2 reflects market risk by presenting the market returns to producers at a specified yield for alternative prices. The price situation for Arkansas crops remains bleak. As was the situation last year, a fairly

major weather-related problem elsewhere may need to occur to cause a significant reversal in crop prices during 2002.

The market value shares in 2001 of Arkansas field crops, excluding government payments, are presented in Figure 2. Rice leads the way with a 28% share of market value followed by soybeans (27%), cotton (20%), hay (11%), wheat (8%), corn (4%), and sorghum (2%).

**Soybeans.** Arkansas is the 9th leading soybean producing state. Arkansas soybean production in 2001 increased to 91.2 million bushels, more than ten percent higher than in 2000. Coupled with a low expected average farm price of \$4.40, the expected market value for the 2001 crop is only \$401.3 million. This is slightly below the 2000 crop value and 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). The lowest in many years, Arkansas harvested soybean acreage in 2001 was 2.85 million. The average yield in 2001 was 32 bu/acre, up 6 bushels from the previous year.

Soybean harvested acreage in Arkansas for 2002 is expected to decrease from 2.85 million acres in 2001 to 2.8 million acres (Table 3). Assuming normal yields, the baseline projections by the Food and Agricultural Policy Institute (FAPRI) and the USDA suggest slightly higher 2002/03 soybean market prices. An average Arkansas farm price for soybeans is projected to fall in the range of \$4.40 to \$4.60. Soybeans bring more than this amount as a result of the LDP. Depending on growing conditions resulting in yields of 15 to 35 bu/acre, non-irrigated soybeans at \$5.14/bu (market + LDP) can be expected to give a net return of \$-41 to \$33/acre (Table 1). For irrigated soybeans, net returns can be expected to fall between \$16 and \$90/acre depending on yields. The price range (market + LDP) used in Table 2 for soybeans is \$4.74 to \$5.54/bu. An assumed yield of 25 bu/acre for non-irrigated soybeans results in negative or slightly more than break even net returns between -\$11 and \$4 per acre. An assumed yield of 45 bu/acre for irrigated soybeans gives positive returns in the range of \$39 to \$66/acre.

**Rice.** Arkansas is the leading rice producing state, accounting for 48% of the value of all U.S. rice output in 2001. In 2001, Arkansas farmers harvested 1.621 million acres (Table 3), slightly lower than the record 1999 harvested area of 1.625 million. Yields averaged a record 139 bu/acre and total output was a new record of 225 million bushels. The average Arkansas rice price is projected by the Arkansas Global Rice Model (AGRM) to decline for the 2001 crop to \$1.87/bu compared to an average price of \$3.62/bu for the 1996-2000 marketing years. Therefore the market farm value of 2001 Arkansas rice production is anticipated to be approximately \$420 million, compared to an annual average of \$661 million over the previous five years, 1996-2000.

The outlook for the 2002 crop is strongly influenced by the low current and futures rice prices. However, alternative

<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 2001.**

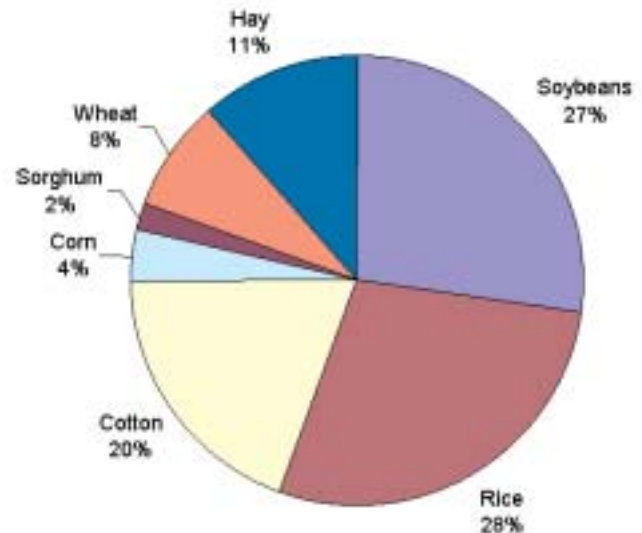
crops are also facing a depressed price outlook. As a result, AGRM projects Arkansas rice acreage to increase slightly to 1.63 million acres. Normal weather would place average yields at 139 bu/acre for a total 2002 crop estimate of 226.6 million bushels.

**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 acres 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 \$431 million for 1996-2000. Prices well below the loan rate over the past year have resulted in a projected farm market value for 2001 of only \$289 million.

The outlook for 2002 is similar to the 2001 marketing year. Market prices are expected to strengthen slightly. However, both FAPRI and USDA baseline projections indicate a decrease in U.S. cotton plantings for 2002. Arkansas area harvested is expected to decrease from 1.065 million acres in 2001 to 1.0 million for 2002. Projected market price of \$0.38/lb will result in market returns of \$285 million.

**Corn and Grain Sorghum.** Corn and grain sorghum have had average farm level values in Arkansas from 1996 to 2000 of \$47 million and \$24 million, respectively (Table 3). Corn harvested area peaked at 230 thousand acres in 1996 but fell to only 100 thousand acres in 1999. Corn acreage and yields increased in 2001. An expected 2001 season average market price of \$2.00/bu will result in a market value for Arkansas corn of \$53.7 million. Sorghum acreage and yields also increased in 2001. Production of 14.6 million bushels at an expected season average price of \$2.00/bu will generate a market value of \$29.2 million for the 2001 crop.

A significant increase in area planted to corn and sorghum is projected for Arkansas in 2001. Feed grain prices have stabilized in the new year. With normal yields, record feed grain production can be expected. The market price of corn and sorghum are expected to be slightly lower in 2002



**Fig. 2. Market value shares of Arkansas field crops in 2001.**

but the additional output will be valued at \$80.9 million for corn and \$36.9 million for sorghum.

**Wheat.** Arkansas produces soft-red winter wheat which has had an annual farm level value of \$162 million from 1996 to 2000 (Table 3). Area harvested in 2001 was 970 thousand acres, slightly less than in 2000. Production in 2001 was 50.4 million bushels valued at \$2.35/bu for a total market value of \$118.5 million.

USDA estimates that 1 million acres of winter wheat were planted in Arkansas for the 2002 crop. Heavy rainfall this spring has damaged large areas and only 900 thousand acres are expected to be harvested. Therefore, a smaller crop with slightly improved prices is projected to generate a market value of \$114.8 million in 2002.

### 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 and consequently, returns, especially to hog producers, remained negative throughout 1999. Lower pork production in 2000 and a slowdown in the poultry sector output growth resulted in positive returns to both pork and poultry sectors in 2000 and 2001. Beef cattle inventory nationwide is expected to continue to decline, and with fewer calves, feeder calf prices are expected to remain strong in 2002, providing expected positive returns to cow-calf operations. Milk prices increased dramatically in 2001 increasing net returns to dairy farmers. With continued low feed prices, returns to dairy farming are expected to remain positive in 2002 despite slightly lower milk prices. Due to large inventory and expansion of imported fish, catfish prices declined in 2001. Expanded production in 2001 also placed pressure on prices.

Table 1. Returns to Arkansas producers at specified market prices plus LDP for alternative yield levels.

Item	Returns at various yields				
<b>Soybeans - Dryland (\$5.14/bu)</b>					
Yield (bu/acre)	15	20	25	30	35
Specified operating costs	\$98.66	\$99.41	\$100.16	\$100.91	\$101.66
Returns above operating costs	\$-21.56	\$3.39	\$28.34	\$53.29	\$78.24
Returns above operating + 25% rent	\$-40.84	\$-22.31	\$-3.79	\$14.74	\$33.26
<b>Soybeans - Irrigated (\$5.14/bu)</b>					
Yield (bu/acre)	35	40	45	50	55
Specified operating costs	\$119.43	\$120.18	\$120.93	\$121.68	\$122.43
Returns above operating costs	\$60.47	\$85.42	\$110.37	\$135.32	\$160.27
Returns above operating + 25% rent	\$15.50	\$34.02	\$52.54	\$71.07	\$89.60
<b>Rice (\$3.00/bu)</b>					
Yield (bu/acre)	115	125	135	145	155
Specified operating costs	\$278.14	\$279.64	\$281.14	\$282.64	\$284.14
Returns above operating costs	\$66.86	\$95.36	\$123.86	\$152.36	\$180.86
Returns above operating + 25% rent	\$-19.39	\$1.61	\$22.61	\$43.61	\$64.61
<b>Corn (\$2.19/bu)</b>					
Yield (bu/acre)	130	140	150	160	170
Specified operating costs	\$258.48	\$261.68	\$264.88	\$268.08	\$271.28
Returns above operating costs	\$26.22	\$44.92	\$63.62	\$82.32	\$101.02
Returns Above Operating + 25% rent	\$-44.96	\$-31.73	\$-18.51	\$-5.28	\$7.94
<b>Grain Sorghum - Dryland (\$3.36/cwt)</b>					
Yield (cwt/acre)	20	30	40	50	60
Specified operating costs	\$115.62	\$118.32	\$121.02	\$123.72	\$126.42
Returns above operating costs	\$-48.42	\$-17.52	\$13.38	\$44.28	\$75.18
Returns above operating + 25% rent	\$-65.22	\$-42.72	\$-20.22	\$2.28	\$24.78
<b>Grain Sorghum - Irrigated (\$3.36/cwt)</b>					
Yield (cwt/acre)	40	50	60	70	80
Specified operating costs	\$143.73	\$146.43	\$149.13	\$151.83	\$154.53
Returns above operating costs	\$-9.33	\$21.57	\$52.47	\$83.37	\$114.27
Returns above operating + 25% rent	\$-42.93	\$-20.43	\$2.07	\$24.57	\$47.07
<b>Cotton Southeast BWE Zone - Dry (\$0.52/lb)</b>					
Yield (lb/acre)	400	500	600	700	800
Specified operating costs	\$300.11	\$300.11	\$300.11	\$300.11	\$300.11
Returns above operating costs	\$-92.11	\$-40.11	\$11.89	\$63.89	\$115.89
Returns Above Operating + 25 % Rent	\$-144.11	\$-105.11	\$-66.11	\$-27.11	\$11.89

Table 1. cont'd: Returns to Arkansas producers at specified market prices plus LDP for alternative yield levels.

Item	Returns at various yields				
<b>Cotton Southeast BWE Zone - Irrigated (\$0.52/lb)</b>					
Yield (lb/acre)	700	800	900	1000	1100
Specified operating costs	\$392.74	\$392.74	\$392.74	\$392.74	\$392.74
Returns above operating costs	\$-28.74	\$23.26	\$75.26	\$127.26	179.26
Returns above operating + 25% rent	\$-119.74	\$-80.74	\$-41.74	\$-2.74	\$36.26
<b>Cotton Central BWE Zone - Dry (\$0.52/lb)</b>					
Yield (lb/acre)	400	500	600	700	800
Specified operating costs	\$291.03	\$291.03	\$291.03	\$291.03	\$291.03
Returns above operating costs	\$-83.03	\$-31.03	\$20.97	\$72.97	\$124.97
Returns above operating + 25% rent	\$-135.03	\$-96.03	\$-57.03	\$-18.03	\$20.97
<b>Cotton Central BWE Zone - Irrigated (\$0.52/lb)</b>					
Yield (lb/acre)	700	800	900	1000	1100
Specified operating costs	\$384.61	\$384.61	\$384.61	\$384.61	\$384.61
Returns above operating costs	\$-20.61	\$31.39	\$83.39	\$135.39	\$187.39
Returns above operating + 25% rent	\$-111.61	\$-72.61	\$-33.61	\$5.39	\$44.39
<b>Cotton Ridge BWE Zone - Dry (\$0.52/lb)</b>					
Yield (lb/acre)	400	500	600	700	800
Specified operating costs	\$271.93	\$271.93	\$271.93	\$271.93	\$271.93
Returns above operating costs	\$-63.93	\$-11.93	\$40.07	\$92.07	\$144.07
Returns above operating + 25% rent	\$-115.93	\$-76.93	\$-37.93	\$1.07	\$40.07
<b>Cotton Ridge BWE Zone - Irrigated (\$0.52/lb)</b>					
Yield (lb/acre)	700	800	900	1000	1100
Specified operating costs	\$358.41	\$358.41	\$358.41	\$358.41	\$358.41
Returns above operating costs	\$5.59	\$57.59	\$109.59	\$161.59	\$213.59
Returns above operating + 25% rent	\$-85.41	\$-46.41	\$-7.41	\$31.59	\$70.59
<b>Cotton Northeast - Dry (\$0.52/lb)</b>					
Yield (lb/acre)	400	500	600	700	800
Specified operating costs	\$232.31	\$232.31	\$232.31	\$232.31	\$232.31
Returns above operating costs	\$-24.31	\$27.69	\$79.69	\$131.69	\$183.69
Returns above operating + 25% rent	\$-76.31	\$-37.31	\$1.69	\$40.69	\$79.69
<b>Cotton Northeast - Irrigated (\$0.52/lb)</b>					
Yield (lb/acre)	700	800	900	1000	1100
Specified operating costs	\$319.53	\$319.53	\$319.53	\$319.53	\$319.53
Returns above operating costs	\$44.47	\$96.47	\$148.47	\$200.47	\$252.47
Returns above operating + 25% rent	\$-46.53	\$-7.53	\$31.47	\$70.47	\$109.47

BWE = Boll Weevil Eradication.

Note: Estimated returns include LDPs but not AMTA payments and do not include ownership and overhead costs. Returns above operating plus 25% rent are return to non-land assets and management.

Source: Authors computations based on 2002 University of Arkansas Cooperative Extension Service budgets.

Table 2. Returns to Arkansas producers at specified yields for alternative market prices plus LDP.

Item	Returns at various prices				
<b>Soybeans - Dryland (25 bu/acre)</b>					
Price (\$/bu)	\$4.74	\$4.94	\$5.14	\$5.34	\$5.54
Specified operating costs	\$100.16	\$100.16	\$100.16	\$100.16	\$100.16
Returns above operating costs	\$18.34	\$23.34	\$28.34	\$33.34	\$38.34
Returns above operating + 25% rent	\$-11.29	\$-7.54	\$-3.79	\$-0.04	\$3.71
<b>Soybeans - Irrigated (45 bu/acre)</b>					
Price (\$/bu)	\$4.74	\$4.94	\$5.14	\$5.34	\$5.54
Specified operating costs	\$120.93	\$120.93	\$120.93	\$120.93	\$120.93
Returns above operating costs	\$92.37	\$101.37	\$110.37	\$119.37	\$128.37
Returns above operating + 25% rent	\$39.04	\$45.80	\$52.54	\$59.30	\$66.04
<b>Rice (135 bu/acre)</b>					
Price (\$/bu)	\$2.50	\$2.75	\$3.00	\$3.25	\$3.50
Specified operating costs	\$281.14	\$281.14	\$281.14	\$281.14	\$281.14
Returns above operating costs	\$56.36	\$90.11	\$123.86	\$157.61	\$191.36
Returns above operating + 25% rent	\$-28.02	\$-2.70	\$22.61	\$47.92	\$73.23
<b>Corn (150 bu/acre)</b>					
Price (\$/bu)	\$1.99	\$2.09	\$2.19	\$2.29	\$2.39
Specified operating costs	\$264.88	\$264.88	\$264.88	\$264.88	\$264.88
Returns above operating costs	\$33.62	\$48.62	\$63.62	\$78.62	\$93.62
Returns above operating + 25% rent	\$-41.01	\$-29.76	\$-18.51	\$-7.26	\$3.99
<b>Grain Sorghum - Dry (40 cwt/acre)</b>					
Price (\$/cwt)	\$2.96	\$3.16	\$3.36	\$3.56	\$3.76
Specified operating costs	\$121.02	\$121.02	\$121.02	\$121.02	\$121.02
Returns above operating costs	\$-2.62	\$5.38	\$13.38	\$21.38	\$29.38
Returns above operating + 25% rent	\$-32.22	\$-26.22	\$-20.22	\$-14.22	\$-8.22
<b>Grain Sorghum - Irrigated (60 cwt/acre)</b>					
Price (\$/cwt)	\$2.96	\$3.16	\$3.36	\$3.56	\$3.76
Specified operating costs	\$149.13	\$149.13	\$149.13	\$149.13	\$149.13
Returns above operating costs	\$28.47	\$40.47	\$52.47	\$64.47	\$76.47
Returns above operating + 25% rent	\$-15.93	\$-6.93	\$2.07	\$11.07	\$20.07
<b>Cotton Southeast BWE Zone - Dry (600 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$300.11	\$300.11	\$300.11	\$300.11	\$300.11
Returns above operating costs	\$-108.11	\$-48.11	\$11.89	\$71.89	\$131.89
Returns above operating + 25% rent	\$-156.11	\$-111.11	\$-66.11	\$-21.11	\$23.89

Table 2. cont'd: Returns to Arkansas producers at specified yields for alternative market prices plus LDP.

Item	Returns at various prices				
<b>Cotton Southeast BWE Zone - Irrigated (900 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$392.74	\$392.74	\$392.74	\$392.74	\$392.74
Returns above operating costs	\$-104.74	\$-14.74	\$75.26	\$165.26	\$255.26
Returns above operating + 25% rent	\$-176.74	\$-109.24	\$-41.74	\$25.76	\$93.26
<b>Cotton Central BWE Zone - Dry (600 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$291.03	\$291.03	\$291.03	\$291.03	\$291.03
Returns above operating costs	\$-99.03	\$-39.03	\$20.97	\$80.97	\$140.97
Returns above operating + 25% rent	\$-147.03	\$-102.03	\$-57.03	\$-12.03	\$32.97
<b>Cotton Central BWE Zone - Irrigated (900 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$384.61	\$384.61	\$384.61	\$384.61	\$384.61
Returns above operating costs	\$-96.61	\$-6.61	\$83.39	\$173.39	\$263.39
Returns above operating + 25% rent	\$-168.61	\$-101.11	\$-33.61	\$33.89	\$101.39
<b>Cotton Ridge BWE Zone - Dry (600 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$271.93	\$271.93	\$271.93	\$271.93	\$271.93
Returns above operating costs	\$-79.93	\$-19.93	\$40.07	\$100.07	\$160.07
Returns above operating + 25% rent	\$-127.93	\$-82.93	\$-37.93	\$7.07	\$52.07
<b>Cotton Ridge BWE Zone - Irrigated (900 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$358.41	\$358.41	\$358.41	\$358.41	\$358.41
Returns above operating costs	\$-70.41	\$19.59	\$109.59	\$199.59	\$289.59
Returns above operating + 25% rent	\$-142.41	\$-74.91	\$-7.41	\$60.09	\$127.59
<b>Cotton Northeast - Dry (600 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$232.31	\$232.31	\$232.31	\$232.31	\$232.31
Returns above operating costs	\$-40.31	\$19.69	\$79.69	\$139.69	\$199.69
Returns above operating + 25% rent	\$-88.31	\$-43.31	\$1.69	\$46.69	\$91.69
<b>Cotton Northeast - Irrigated (900 lb/acre)</b>					
Price (\$/lb)	\$0.32	\$0.42	\$0.52	\$0.62	\$0.72
Specified operating costs	\$319.53	\$319.53	\$319.53	\$319.53	\$319.53
Returns above operating costs	\$-31.53	\$58.47	\$148.47	\$238.47	\$328.47
Returns above operating + 25% rent	\$-103.53	\$-36.03	\$31.47	\$98.97	\$166.47

BWE = Boll Weevil Eradication.

Note: Estimated returns include LDPs but not AMTA payments and do not include ownership and overhead costs. Returns above operating plus 25% rent are return to non-land assets and management.

Source: Authors computations based on 2002 University of Arkansas Cooperative Extension Service budgets.



Table 3. Production, prices, and market value of Arkansas crops, 1991-2002.

Item	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02P	02/03F
<b>Soybeans</b>												
Acres harvested, thous	3,200	3,160	3,550	3,400	3,400	3,500	3,600	3,400	3,300	3,150	2,850	2,800
Yield, bu/acre	28	33	26	34	26	32	30.5	25	28	25.5	32	31
Production, thous bu	89,600	10,4280	92,300	115,600	88,400	112,000	109,800	85,000	92,400	80,325	91,200	86,800
Price, \$/bu	5.71	5.64	6.65	5.69	6.85	7.36	6.88	5.38	4.79	4.73	4.40	4.50
Market value, thous \$	511,616	588,139	613,795	657,764	605,540	824,320	755,424	457,300	442,596	407,680	401,280	390,600
<b>Rice</b>												
Acres harvested, thous	1,260	1,380	1,230	1,420	1,340	1,170	1,390	1,485	1,625	1,410	1,621	1,630
Yield, bu/acre	118	122	112	127	121	137	127	129	130	136	139	139
Production, thous bu	148,400	168,667	138,033	179,867	162,289	159,900	176,067	191,387	211,231	191,360	225,139	226,570
Price, \$/bu	3.46	2.67	3.59	2.93	4.11	4.59	4.44	3.99	2.57	2.52	1.87	1.90
Market value, thous \$	513,538	450,087	495,057	527,729	667,403	733,839	781,901	763,920	542,758	482,227	420,445	430,483
<b>Cotton</b>												
Acres harvested, thous	980	980	970	970	1,110	990	965	900	960	950	1,065	1,000
Yield, lb/acre	772	823	541	877	635	793	837	645	714	720	823	750
Production, thous bales	1,576	1,681	1,094	1,772	1,468	1,636	1,683	1,209	1,428	1,425	1,825	1,562
Price, \$/lb	0.571	0.557	0.572	0.677	0.734	0.707	0.657	0.635	0.472	0.549	0.330	0.380
Market value, thous \$	431,950	449,432	300,369	575,829	517,206	555,193	530,751	368,503	323,528	375,516	289,080	284,909
<b>Corn</b>												
Acres harvested, thous	80	95	90	90	85	230	185	215	100	175	185	300
Yield, bu/acre	100	130	91	120	115	125	125	100	130	130	145	142
Production, thous bu	8,000	12,350	8,190	10,800	9,775	28,750	23,125	21,500	13,000	22,750	26,825	42,600
Price, \$/bu	2.58	2.29	2.53	2.31	3.10	2.65	2.51	1.85	1.74	1.75	2.00	1.90
Market value, thous \$	20,640	28,282	20,721	24,948	30,303	76,188	58,044	39,755	22,620	39,813	53,650	80,940

Table 3. cont'd: Production, prices, and market value of Arkansas crops, 1991-2002.

Item	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02P	02/03F
<b>Sorghum</b>												
Acres harvested, thous	270	410	215	245	185	220	150	130	125	140	170	240
Yield, bu/acre	57	76	58	75	71	74	74	53	78	71	86	83
Production, thous bu	15,390	31,160	12,470	18,375	13,135	16,280	11,100	6,890	9,750	9,940	14,620	19,920
Price, \$/bu	2.40	2.14	2.31	2.03	2.91	2.95	2.57	1.88	1.69	1.64	2.00	1.85
Market value, thous \$	36,936	66,682	28,806	37,301	38,223	48,026	28,527	12,953	16,478	16,302	29,240	36,850
<b>Wheat</b>												
Acres harvested, thous	930	850	1,040	880	1,000	1,240	820	900	920	1,100	970	900
Yield, bu/acre	22	46	40	46	47	54	48	51	56	54	52	50
Production, thous bu	20,460	39,100	41,600	40,480	47,000	66,960	39,360	45,900	51,520	59,400	50,440	45,000
Price, \$/bu	2.77	3.51	2.86	3.20	3.61	4.38	3.49	2.73	2.24	2.35	2.35	2.55
Market value, thous \$	56,674	137,241	118,976	129,536	169,670	293,285	137,366	125,307	115,405	139,590	118,534	114,750
<b>Hay</b>												
Acres harvested, thous.	1,200	1,180	1,180	1,125	1,050	1,175	1,225	1,175	1,240	1,250	1,320	1,300
Yield, tons/acre	2.33	2.03	2.03	2.23	1.92	2.01	2.02	1.91	1.92	2.30	2.12	2.15
Production, thous tons	2,796	2,390	2,390	2,505	2,011	2,360	2,470	2,250	2,380	2,879	2,792	2,795
Price, \$/ton	55.50	60.00	60.00	59.00	61.50	64.00	59.00	61.00	60.00	58.50	65.00	60.00
Market value, thous \$	145,175	134,890	134,890	135,700	115,359	134,300	138,560	126,245	130,920	164,374	168,758	167,700

P = projected,

F = forecast.

Source: USDA, NASS for historical data. Projections for 2002/03 are estimated using baseline projections published by FAPRI and USDA and market reports.

The market value shares of Arkansas livestock and catfish in 2001 are presented in Fig. 3. The livestock categories include cattle and calves with a share of 61%, hogs and pigs at 20%, and milk at 10%. Catfish had a 9% share.

**Pork.** Arkansas producers rank sixteenth in hog and pig production in the United States. Since 1994, the Arkansas breeding herd inventory on December 1 remained constant at 110 thousand head, but declined to only 100 thousand head in 2001 (Table 4). Annual sow farrowings (December-November) declined to 214 thousand in 2001 with an average litter size that increased to 9.2 pigs. The pig crop in 2001 was 1.963 million head. Market hog inventory December 1, 2001 was 470 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, 2002. Slightly lower levels in both sow and market hog prices, however, will decrease the value of Arkansas total hog and pig gross income from \$143 million in 2001 to \$135 million in 2002. The outlook for 2002 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.

**Beef Cattle.** Beef cow and heifer inventory in Arkansas on January 1, 2002 was 927 thousand head, slightly above the previous year. Arkansas ranks seventeenth in cattle and calves in the United States. 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 strong prices for feeder calves 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 and 20 thousand head since 1993 (Table 4). Current cow and heifer inventory is expected to produce a calf crop of approximate-

ly 842 thousand head in 2002, depending on adequate pasture conditions throughout the year. The market value of the calf crop is projected to stay at about \$330 million in 2002. Lower marketings in 2001 resulted in a decrease in gross income to \$438 million from cattle and calves. Slightly weaker prices are expected to reduce gross income in 2002 to \$425 million.

**Dairy Cattle.** The Arkansas dairy industry continues to experience a decline in its average annual milk cow inventory (Table 4). The herd size throughout 2001 was 35 thousand head, averaging 12,343 pounds of milk per cow for total production of 432 million pounds. Higher milk prices in 2001 however did not reverse the decline in cow numbers which are expected to be 34 thousand in 2002. Slightly higher milk output per cow in 2002, at 12,580 pounds, will only partially offset the decline in cow numbers, with total production expected to fall to approximately 428 million pounds. The market value of milk production is projected to decrease slightly to \$63.4 million mostly due to lower milk prices in 2002.

### 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 interest rates have fueled the profitability in catfish production. Water surface acreage in Arkansas increased to 38 thousand on January 1, 2002, double the pond surface area in 1993 (Table 4). Sales in 2001 increased to 99 million pounds, but market value at \$65 million declined slightly as a result of lower prices. The value of Arkansas catfish sales in 2002 is expected to increase to \$68 million.

### Poultry

The market value shares of Arkansas poultry are presented in Fig. 4. Broilers dominate the poultry category with

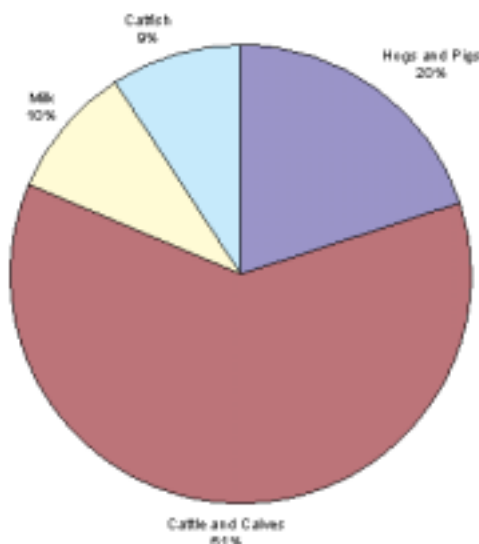


Fig. 3. Market value shares of Arkansas livestock and catfish sales in 2001.

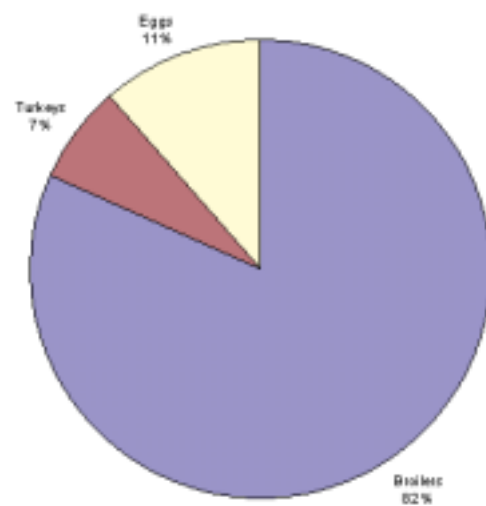


Fig. 4. Market value shares of Arkansas poultry sales in 2001.

Table 4. Production, prices, and market value of Arkansas livestock and catfish, 1993-2002.

Item	93	94	95	96	97	98	99	00	01P	02F
<b>Hogs and Pigs</b>										
Hog Inventory, December 1										
Breeding inventory, 000 head	120	110	110	110	110	110	110	110	110	100
Sows farrowed, 000 head	189	203	209	217	225	225	223	221	214	225
Pigs per litter	9.12	8.92	9.30	8.63	8.45	8.48	8.48	8.83	9.17	8.80
Pig crop, 000 head	1,723	1,810	1,944	1,872	1,901	1,907	1,891	1,951	1,963	1,980
Feeder pig price, \$/cwt	81.75	64.75	59.00	69.50	97.50	62.00	80.12	112.00	105.00	108.00
Market value of pig crop, mil.\$	56.34	46.88	45.88	52.04	74.14	47.29	60.60	88.44	83.16	85.54
Market inventory, 000 head	770	660	680	715	750	640	600	575	470	480
Value per head, \$	81	57	75	100	79	46	68	69	63	65
Total inventory value, mil.\$	72.09	43.89	59.25	82.50	67.94	34.50	48.28	47.27	35.91	44.85
Production, thous lb	398,052	368,455	358,328	307,077	254,014	281,086	266,244	282,047	286,249	288,000
Marketings, thous lb	388,117	388,271	357,171	296,454	260,945	296,330	281,002	292,708	310,819	305,000
Price, \$/cwt	42.00	38.00	40.00	50.00	48.00	30.00	28.60	39.10	40.70	40.00
Gross income, thous \$	156,854	153,418	148,447	156,090	148,951	109,612	98,860	130,206	142,703	135,000
<b>Cattle and Calves</b>										
Cow inventory, Jan 1, 000 head	824	928	969	952	956	919	928	928	923	927
Cow value, \$/cwt	39.10	43.30	37.20	28.30	33.70	31.90	32.20	34.50	40.20	37.00
Cattle on feed, Jan 1, 000 head	17	10	13	18	19	10	15	11	11	15
Calf crop, 000 head	790	850	860	870	830	840	850	840	820	842
Calf value, \$/cwt	72.00	79.80	58.40	51.40	78.80	77.80	84.20	96.00	101.00	98.00
Market value of calf crop, mil.\$	227.52	271.32	200.90	178.87	261.62	261.41	286.28	323.33	331.28	330.06
Production, thous lb	607,748	603,830	563,335	534,035	550,522	537,659	567,543	565,659	558,414	555,000
Marketings, thous lb	526,400	599,000	639,600	607,100	680,600	573,250	620,200	655,800	592,140	602,000
Cattle price, \$/cwt	64.20	58.20	49.20	42.10	53.90	53.00	56.40	66.00	68.30	65.00
Gross income, thous \$	365,989	370,933	325,367	265,730	392,094	328,114	378,624	459,873	437,969	425,000
<b>Dairy Cattle</b>										
Ave. inventory, Jan. 1, 000 head	63	61	60	56	53	45	42	39	35	34
Ave. value per cow, \$	1,100	1,120	1,090	1,000	1,010	1,010	1,200	1,270	1,400	1,450
Total value, mil. \$	69.3	68.3	65.4	56.0	53.5	45.5	50.4	53.34	49.00	49.30
Milk per cow, lb	12,206	12,344	12,150	12,054	11,981	12,000	12,381	12,436	12,343	12,580
Production, mil. lb	769	753	729	675	635	540	520	485	432	428
Price/cwt	13.21	13.51	13.48	15.64	14.18	15.22	14.81	13.24	15.62	14.70
Gross income, mil. \$	102.5	102.7	98.9	106.4	90.6	82.7	77.8	64.6	67.9	63.4
<b>Catfish</b>										
Water surface acres	19,700	19,000	19,500	23,000	28,500	25,000	31,000	33,000	36,000	38,000
Sales, 000 lb	47,823	47,754	51,137	63,417	76,113	72,450	90,920	85,260	98,965	105,000
Price per lb	0.71	0.77	0.80	0.82	0.73	0.78	0.78	0.77	0.66	0.65
Market value, mil. \$	34.04	36.81	41.03	52.21	55.51	56.26	70.59	65.74	65.31	68.25

P = projected, F = forecast.

Source: USDA, NASS for historical data. Projections for 2002 are estimated using baseline projections by FAPRI and USDA and market reports.

2001 sales of \$2.178 billion and an 82% share of Arkansas poultry revenue. Eggs (11% share) and turkeys (7% share) had market values in 2001 of \$303 million and \$189 million, respectively.

**Broilers.** Arkansas broiler production continues to expand as both domestic and export markets grow, although the Russian stoppage of broiler imports from the United States earlier in 2002 dampened the growth in U.S. exports. Production in 2001 was down slightly at 5.74 billion pounds (Table 5). Despite weaker broiler prices in 1999 and 2000, low feed prices helped to maintain profitability in the industry. Higher prices in 2001 resulted in slightly higher returns. Hatchery egg sets in early 2002 suggest that an expansion in production is likely in 2002. Slightly weaker prices are projected and market value in 2002 is estimated to be \$2.2 billion.

**Turkeys.** Arkansas producers reduced production in 2001 (Table 5). Prices are also weakened and market value of Arkansas turkey production therefore declined to \$189 million, well below the 2000 revenue. Production in 2002 is expected to increase slightly, however prices are likely to remain at 2001 levels, resulting in only a slight increase in the market value of Arkansas turkeys in 2002.

**Eggs.** Approximately 60 percent of the Arkansas egg production is for hatching rather than table use. As a result, the average price received for Arkansas eggs is typically much higher than the average table egg price in the United States. 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 2002 will require a small increase in Arkansas hatch egg production, reaching 2.25 billion eggs (Table 5). Table egg production is expected to remain at 1.3 billion. Average prices are expected to strengthen by one cent to \$1.07 per dozen and the market value of the Arkansas egg industry is projected to reach \$316 million in 2002.

### Horticultural Crops

In 2001, Arkansas total horticultural sales (floriculture, nurseries, fruits, vegetables, and nuts) had a market value of \$81 million. 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. Tomatoes and watermelons accounted for \$13.3 million of the commercial vegetable sales (Table 6)<sup>3</sup>. Acreage in horticultural crops in general has declined over the past decade by approximately 10 percent. Leading the decline in area production are grapes, watermelons, blueberries, and apples. Tomatoes and peaches have experienced expanded acreage over the past decade and have 13% and 5% shares of market value, respectively (Figure 5). Following tomatoes and peaches in terms of market value shares in 2001 are watermelons (3%), pecans (2%), grapes

(2%), blueberries (1%), and apples (1%). Floriculture, turf farms and nursery businesses however are dominant in the horticulture industry in Arkansas. These business activities account for 73% of the horticulture sector sales.

**Apples.** Arkansas has a bearing acreage of 900 acres out of the total 462 thousand acres in U.S. apple production and ranks 32nd in value of apple production in the United States. Yields in Arkansas in 2001 were 6.1 thousand pounds per acre, 24% lower than the previous year (Table 6). Total utilized production in 2001 was 4.3 million pounds. Average market value was \$0.25 per pound for total market sales of \$1.076 million. The production outlook for 2002 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 2002.

**Grapes.** Arkansas vineyards have declined in area from 2,200 acres in 1993 to 1,400 in 1999 and 2000. Area increased in 2001 to 1,500 acres. Yields have fluctuated between 3 and 5.6 tons per acre (Table 6). However in 2001, average yield was sharply lower at 1.8 tons per acre. Total utilized production was 2,500 tons. The average Arkansas market price was \$541/ton, well above the U.S. average, for a total market value of \$1.35 million. The 2002 outlook is based on an area of 1,500 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 2002 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 2001. Yields have fluctuated from a low of 1,670 lbs per acre in 1996 to a high of 3,000 lbs in 1997. Total production utilized in 2001 was 810 thousand pounds. All Arkansas blueberries were marketed into the fresh market. The average price for Arkansas blueberries averaged \$1.45/lb. Projections for 2002 are based on an acreage of 400, with a resulting utilized production of 1.04 million lbs 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 2001 (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 nine years has been as low as 440 lb/acre to a high of 9,600lb/acre. Average yields in 2001 were 4000 lb/acre for a total utilized production of 10.3 million pounds. Arkansas peach producers enjoyed their highest price over the past nine years in 2001 at \$0.41/lb, well above the U.S. average. The 2002 outlook for peaches is uncertain due to some areas that experienced killing frost. 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 2002 Arkansas peach crop based on a price of \$0.40 is \$4 million.

<sup>3</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.

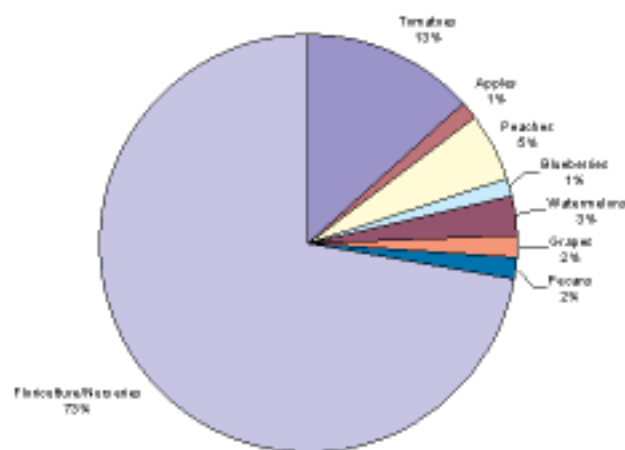


Fig. 5. Market value shares of Arkansas horticultural sales in 2001.

Table 5. Arkansas poultry production, prices, and market value, 1994-2002.

Item	94	95	96	97	98	99	00	01P	02F
<b>Broilers</b>									
Production, mil. lb	4,854	4,983	5,660	5,599	5,619	5,861	5,839	5,737	5,825
Price, ¢/lb	37.5	35.5	37.5	37.5	38.0	37.0	33.0	39.0	38.0
Market value, mil. \$	1,820	1,769	2,122	2,096	2,135	2,191	2,158	2,178	2,213
<b>Turkeys</b>									
Production, mil. lb	510	536	526	525	496	491	498	472	485
Price, ¢/lb	44.0	45.0	44.0	41.0	40.0	0.44	0.44	0.40	0.40
Market value, mil. \$	224	241	232	215	198	216	219	189	194
<b>Eggs</b>									
Production, mil.	3,803	3,608	3,433	3,215	3,233	3,458	3,559	3,427	3,550
Table eggs, mil.	1,774	1,481	1,311	1,071	1,116	1,238	1,352	1,305	1,300
Hatch eggs, mil.	2,029	2,127	2,122	2,144	2,117	2,220	2,207	2,122	2,250
Price, cents/dozen	104.0	97.9	105.0	103.0	114	111	106	106	107
Market value, mil. \$	330	294	300	276	307	320	314	303	316

P = projected

F = forecast.

Source: USDA, NASS for historical data. Projections for 2002 are estimated using baseline projections by FAPRI, USDA, and market reports.

Table 6. Production, prices, and market value of Arkansas horticultural crops, 1993-2002.

Item	93	94	95	96	97	98	99	00	01P	02F
<b>Apples</b>										
Area harvested, acre	1,000	1,000	900	900	900	900	900	900	900	900
Yield, lb/acre	12,000	8,000	10,000	7,000	8,000	5,000	6,000	8,000	6,110	7,000
Production,* 000 lb	11,000	7,500	9,500	5,800	7,100	3,600	4,200	3,400	4,300	5,000
Price, \$/lb	0.164	0.164	0.143	0.178	0.289	0.227	0.238	0.252	0.25	0.25
Market value, 000 \$	1,809	1,228	1,357	1,031	2,053	816	1,001	856	1,076	1,250
<b>Grapes</b>										
Area harvested, acre	2,200	2,000	2,000	1,600	1,400	1,300	1,400	1,400	1,500	1,500
Yield, tons/acre	3.64	3.00	4.00	5.63	4.64	3.50	3.50	3.00	1.80	3.50
Production, tons	5,500	5,500	7,000	8,000	5,500	4,430	4,800	3,900	2,500	4,800
Price, \$/ton	493	476	634	629	586	497	473	560	541	550
Market value, 000 \$	2,710	2,619	4,438	5,035	3,225	2,202	2,268	2,185	1,353	2,640
<b>Blueberries</b>										
Area harvested, acre	700	700	700	600	550	500	450	400	400	400
Yield, lb/acre	2,860	2,430	2,430	1,670	3,000	1,800	2,510	2,650	2,030	2,600
Production, 000 lb	2,000	1,700	1,700	1,000	1,650	900	1,130	1,060	810	1,040
Price, \$/lb	0.964	0.972	1.060	1.480	0.998	1.000	1.050	1.190	1.450	1.200
Market value, 000 \$	1,928	1,652	1,800	1,480	1,646	902	1,182	1,262	1,171	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	3,000
Yield, lb/acre	9,600	2,960	7,410	440	5,300	4,460	4,290	6,000	4,000	4,000
Production, 000 lb	22,000	8,000	18,000	1,100	14,300	11,100	10,500	15,700	10,300	10,000
Price, \$/lb	0.140	0.245	0.177	0.155	0.290	0.328	0.340	0.370	0.410	0.400
Market value, 000 \$	3,069	1,960	3,189	171	4,142	3,639	3,575	5,811	4,193	4,000
<b>Tomatoes</b>										
Area harvested, acre	790	1,100	1,000	1,000	1,100	1,400	1,500	1,500	1,350	1,300
Yield, cwt/acre	300	290	260	130	210	240	225	100	230	230
Production, 000 cwt	237	319	260	130	231	336	338	150	311	276
Price, \$/cwt	23.00	31.00	42.00	38.00	34.00	34.50	41.80	26.00	35.00	35.00
Market value, 000 \$	5,451	9,889	10,920	4,940	7,854	11,592	14,128	3,900	10,885	9,660
<b>Watermelons</b>										
Area harvested, acre	3,400	3,000	2,400	2,600	2,700	2,200	2,400	2,700	2,900	2,900
Yield, cwt/acre	180	180	100	110	150	145	115	150	170	155
Production, 000 cwt	612	540	240	286	405	319	276	405	493	450
Price, \$/cwt	4.90	4.70	8.00	6.00	5.00	6.50	7.50	4.20	4.90	5.00
Market value, 000 \$	2,999	2,538	1,920	1,716	2,025	2,074	2,070	1,701	2,416	2,250

Table 6. cont'd: Production, prices, and market value of Arkansas horticultural crops, 1993-2002.

Item	93	94	95	96	97	98	99	00	01P	02F
<b>Pecans</b>										
Production, 000 lb	1,500	1,500	1,600	1,200	3,500	550	3,800	900	2,600	1,500
Price, \$/lb	0.660	0.960	1.140	0.900	0.671	1.030	0.590	0.930	0.550	0.70
Market value, 000 \$	990	1,440	1,820	1,080	2,349	565	2,241	1,445	1,430	1,050

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 market reports.

**Tomatoes.** Arkansas producers in 2001 experienced a strong recovery from disastrous yields in 2000. However, area harvested declined to 1,350 acres (Table 6). Over the past nine years, yields have ranged between 100 and 300 cwt/acre. In 2001 yields were 230 cwt/acre. Total 2001 production was 311 thousand cwt, over 100% above the previous year. The crop was valued at an average market price of \$35/cwt. Total value of the crop in 2001 was \$10.9 million. The outlook for 2002 Arkansas tomatoes is based on an expected reduced harvested area of 1,300 acres, yields of 230 cwt/acre for a total output of 276 thousand cwt. Total projected value of Arkansas tomato production in 2002 based on a price of \$35/cwt is \$9.7 million.

**Watermelons.** Area harvested of watermelons has declined from 3,400 acres in 1993 to only 2,200 acres in 1998 but increased to 2,900 in 2001. Yields have ranged between 100 and 180 cwt/acre over the past nine 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 2001 crop was \$2.4 million based on an average yield of 170 cwt/acre and total production of 493 thousand cwt. Production in 2002 is projected to be 450 thousand cwt based on acreage of 2,900 and an average yield of 155 cwt/acre. Priced at an average market value of \$5.00/cwt the total projected value of Arkansas watermelons in 2002 is \$2.25 million.

**Pecans.** Production of pecans in Arkansas was 2.6 million pounds in 2001, nearly three times the 2000 production level. Producers in Arkansas received \$0.55/lb for a total crop value of \$1.43 million. Production in nuts typically declines markedly following a year of high output and then increases in the subsequent year. Therefore, the 2002 outlook for Arkansas pecan production is based on a projection of 1.5 million pounds. This production pattern is expected nationwide for pecan output and therefore higher prices are expected. With a projected price of \$0.70/lb, the value of the Arkansas pecan crop in 2002 is \$1.05 million.

## FARM INCOME AND FINANCIAL SITUATION AND OUTLOOK

USDA does not provide net farm income forecasts for individual states. However, USDA has published Arkansas'

net farm income through 2000 (Fig. 6). Arkansas net farm income has gone from \$2.021 billion in 1996 to \$1.578 billion in 2000, a 22% decline. The decline in Arkansas net farm income would have been much more severe if it had not been for government payments. Without government payments, Arkansas net farm income would have fallen from \$1.659 billion in 1996 to \$677 million in 2000, a 60% drop. Much of this decline has been the result of depressed prices for program crops. Direct government payments have been extremely important to Arkansas farmers the last several years, particularly crop farmers. Arkansas farmers received 44% of their net farm income from direct government payments during 1998 through 2000 including 57% in year 2000. However, these government payments are primarily received by crop farmers producing rice, cotton, soybean, wheat, corn, and sorghum in the eastern part of Arkansas. Loan officers from that portion of the state have indicated that government payments have accounted for about 100% of net farm income. Thus, these farmers would have had no farm income without government payments.

U.S. net farm income has increased from \$42.9 billion in 1998 to \$49.3 billion in 2001 (Fig. 7). The primary reason the USDA is forecasting a decline in U.S. net farm income to \$40.6 billion for 2002 is because of a lower direct government payments as of its January forecast. The USDA's forecast for 2002 government payments includes only the payments authorized by the 1996 FAIR Act and supplemental emergency assistance authorized in 2001 of which some funds will be received by farmers in 2002. However, the USDA assumes no new emergency supplemental assistance will be authorized by Congress in 2002 when making its 2002 forecast. Congress has authorized assistance the last four years and will probably do so again this year if a new farm bill is not passed and implemented during first part of the year.

As was mentioned earlier, the problem with discussing Arkansas net farm income when considering the impact of government payments is that net farm income includes income from livestock, poultry, program crops, and other crops. To get a better handle of the effect of direct government payments on Arkansas program crop farms, only program crop cash receipts (rice, cotton, wheat, soybeans, grain



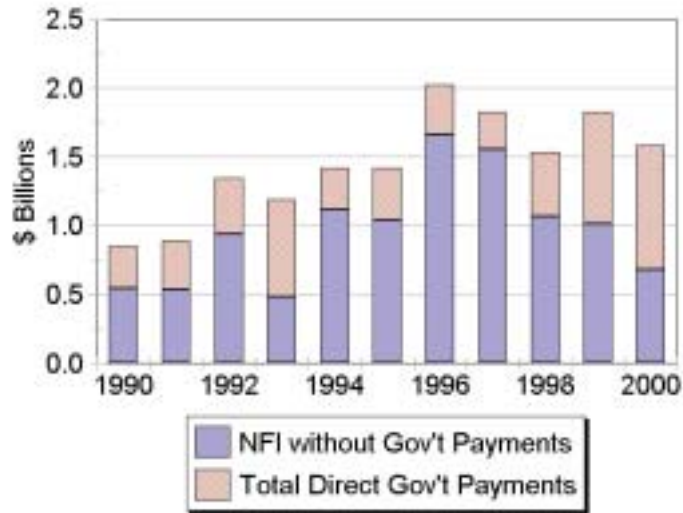


Fig. 6. Arkansas net farm income.

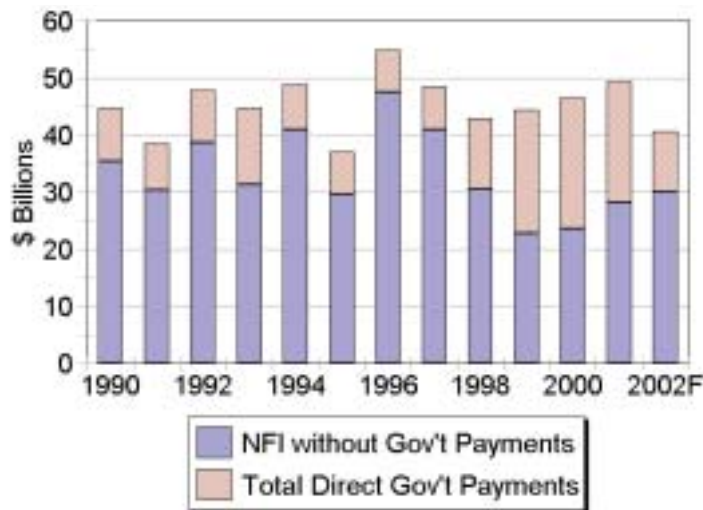


Fig. 7. U.S. net farm income.

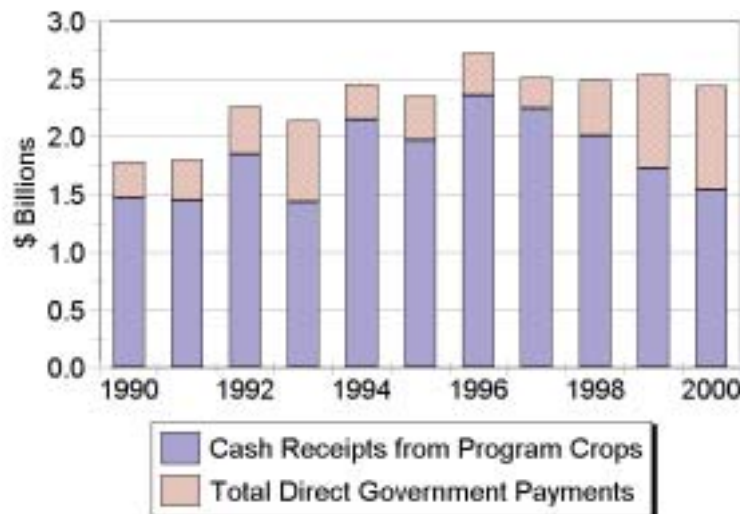


Fig. 8. Arkansas program crop receipts.

sorghum, corn, and oats) are considered.<sup>4</sup> Since 1996, program crop cash receipts for Arkansas have fallen nearly a third from \$2.484 billion in 1996 to \$1.639 billion in 2000 (Fig. 8). Although increases in government payments have softened the fall in total cash receipts, expenses have undoubtedly increased over the period resulting in falling net farm income from producing program crops.

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. 9 and 10).

The Mississippi Portal region is perhaps the best region for grouping farms with similar production specialities. The region is dominated by crop farms producing rice, cotton, and soybeans. The Mississippi Portal region also happens to be the smallest geographical region in the United States (Fig. 9). The Mississippi Portal includes the eastern third of Arkansas (Fig. 10), which corresponds to Arkansas statistical reporting districts 3, 6, and 9.

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. 9). The Eastern Uplands includes the western third and much of central Arkansas (Fig. 10), 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.

The smallest area of Arkansas is represented in the Southern Seaboard region. The Southern Seaboard includes the south central portion of Arkansas (Fig. 10), which corresponds to Arkansas statistical reporting district 8. The Southern Seaboard region is a large and diverse area (Fig. 9) 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.

The USDA forecasts farm business net cash income for farms located in the Mississippi Portal, Eastern Uplands, and Southern Seaboard with the exclusion of rural residence farms—limited resource, retirement, and residential/lifestyle farms. All U.S. farm businesses are forecast to average \$31,700 of net cash income in 2002, a 23% decrease from \$38,800 per farm in 2001 (Table 7). The Mississippi Portal and Eastern Uplands regions are the two regions of the United States forecast to have the least income per farm for 2001 and 2002 and include most of Arkansas. The Mississippi Portal is forecast to decrease from \$26,100 per farm business in 2001 to \$12,500 in 2002, a 52% decline, which is the largest decline for any region in the nation. However, the decline would likely be much less severe if Congress authorizes an emergency supplemental payment similar to what has been done the last four years or passes a

new farm bill. The Eastern Uplands is the region with the least farm business income the past several years. The region is forecast to have \$13,600 per farm business in 2001 and only \$11,800 in 2002. The Southern Seaboard is also forecast to have a fall in farm business net cash income going from \$29,600 in 2001 to \$25,000 in 2002, a 16% decline.

On average, U.S. hog, poultry, dairy, and other livestock farm businesses had higher net cash incomes in 2001 than in 2000. Farms that had a worse year in 2001 than in 2000 included cotton, tobacco, and peanut, wheat, mixed grain (rice), soybeans, corn, other crops, beef cattle, and speciality crop farms such as vegetable, fruit, nursery, and greenhouse farms. A list of U.S. farm types that are forecast by the USDA to have a better year in 2002 than 2001 is quite short: beef cattle and speciality crops. All other farms by commodity specialization are forecast to have a worse year in 2002 than 2001. These include wheat, soybean, mixed grain, corn, other crops, speciality crop, hog, beef cattle, poultry, dairy, other livestock, and cotton, tobacco, and peanut farms, where cotton, tobacco and peanut farms are reported as a group. Again, the situation may not be quite so dire for farms producing program crops if Congress and the President authorize an emergency supplemental payment in 2002 or pass and implement a new farm bill.

Fig. 11 shows the percentages of farm businesses with negative net cash income for various regions of the United States that have significant program crop production. It is interesting to compare these regions considering all the discussion that surrounded the Dorgan-Grassley payment limitation amendment that was passed as part of Senate farm bill S.1731. Although all regions of the United States are forecast by USDA to have large percentages of farms with negative net cash income, no region has as high of a percentage as the Mississippi Portal. Nearly one out of every two farm businesses (48%) in the Mississippi Portal are forecast to have negative net cash income in 2002. It should be noted that no supplemental government assistance or no new farm bill are assumed for the 2002 forecasts. However, even with the supplemental government assistance received in 2000 and 2001, 40% and 44% of farm businesses in the region had negative net cash income, more than any other region in Fig. 11.

The Eastern Uplands and Southern Seaboard regions are forecast to have only slight increases in the percentages of farm businesses with negative cash income (Table 7). The Eastern Uplands percentage stays essentially the same at 35% and the Southern Seaboard increases from 39% of its farm businesses with negative net cash income in 2001 to 41% in 2002. For the United States, 39% of farms are forecast to have negative net cash income in 2002, up from 36% in 2001.

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

<sup>4</sup> USDA does not publish estimates of expenses that are directly associated with program crops at the state level.



Fig. 9. USDA farm resource regions.



Fig. 10. USDA farm resource regions in Arkansas.

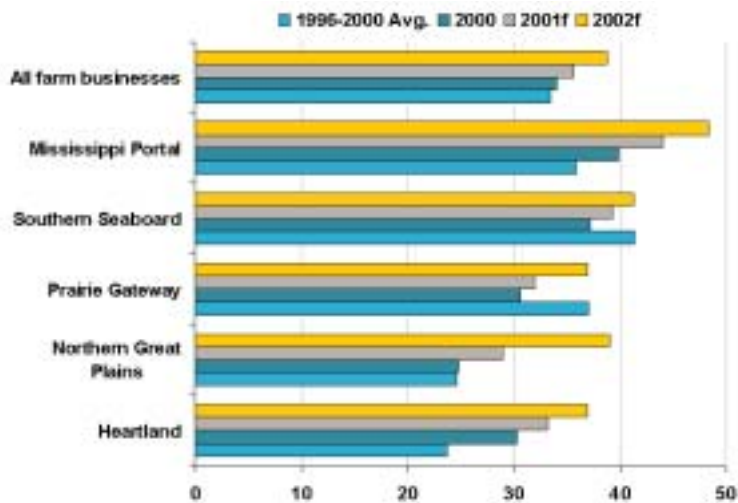


Fig. 11. Distribution of farm businesses with negative cash income, by resource region.

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

Farm Regions	Average 1996-2000	2000	2001F	2002F
<i>Net cash income per farm in \$1,000s</i>				
Farms <sup>1</sup> in:				
United States	41.4	38.8	38.8	31.7
Mississippi Portal	47.8	34.3	26.1	12.5
Eastern Uplands	14.0	13.3	13.6	11.8
Southern Seaboard	27.5	30.5	29.6	25.0
<i>Percent of farms with negative net cash income</i>				
United States	33	34	36	39
Mississippi Portal	36	40	44	48
Eastern Uplands	39	34	35	35
Southern Seaboard	41	37	39	41
<i>Percent of farms with debt repayment problems</i>				
United States	17	17	18	21
Mississippi Portal	14	14	15	22
Eastern Uplands	15	10	12	14
Southern Seaboard	15	14	15	16

Source: USDA, Economic Research Service internet website and personal communication with USDA economist Mitch Morehart, February 13, 2002.

<sup>1</sup> Farm businesses excluding rural residence farms (limited resource, retirement, and residential/lifestyle farms).

F = forecast.

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 2002 than 2001. 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 2002 are 22%, 14%, and 16% (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.

### Credit Conditions Survey

Informal survey responses from 30 Arkansas agricultur-

al loan officers at commercial banks and Farm Credit Services offices were collected by telephone during mid-March 2002, prior to the passage of a new farm bill. They were contacted to ask their opinions regarding farm credit conditions. Many lenders had very strong opinions, particularly in eastern Arkansas. The loan officer responses were divided into two regions to see if there are any regional or crop/livestock differences. One region corresponded to the Mississippi Portal region of eastern Arkansas where crop agriculture dominates and the other region corresponded to the Eastern Uplands and Southern Seaboard regions of the rest of Arkansas.

Credit conditions for eastern Arkansas production agriculture turned weaker in the past year according to loan officers located in that part of the state, while loans officers in the rest of Arkansas primarily indicated stable credit conditions. Although loan demand across the state has mostly stayed stable in the past year, except for a slight increase in western Arkansas, the rate of loan repayment had decreased and the number of loan renewals or extensions had jumped in eastern Arkansas. Two-thirds of eastern Arkansas lenders indicated the rate of loan repayment had deteriorated and 47% of them indicated loan renewals or extensions had increased in the past year. Another sign of concern on the part of lenders in eastern Arkansas is the additional collateral

being required and more USDA Farm Service Agency (FSA) loan guarantees being sought when making loans. Nearly half of the lenders in eastern Arkansas, 47%, indicated collateral requirements had tighten and none of them had indicated collateral requirements had eased. Over half of eastern Arkansas lenders at 54% said they plan to see higher FSA loan guarantee volume this year and only 8% of them expect less FSA loan guarantee loan volume.

In addition to increased collateral requirements, lenders reported a tightening in credit standards for approving agricultural loans. Of the lenders surveyed across the state, 37% indicated tighter credit standards and none reported an easing of standards. Lenders reported that 11% of their farm loan borrowers had major repayment problems requiring more collateral and/or long-term workouts. Also, they reported that about 3% of their borrowers had severe repayment problems which will likely result in loan losses and/or require forced sales of borrowers' assets. In addition, about 3% of their borrowers receiving operating credit last year are not likely to qualify for new loans this year.

The outlook for credit conditions looking forward points to differences in trends between the western and eastern parts of the state. Fifty-three percent of western Arkansas lenders expect an increase in the demand to acquire farmland by non-farm investors, with only 7% percent of them expecting a decrease in the demand. The significant result from eastern Arkansas lenders is that 53% of them expect a decrease in the demand by farmers to acquire farmland, with only 7% percent expecting an increase in demand by farmers. In general, eastern Arkansas lenders expect an increase in the volume of farmland transfers, with half expecting an increase and 7% expecting a decrease in volume.

Lenders were asked about what trends they see for forced and voluntary sales or liquidation of farm assets during the next year. A forced sale or liquidation is presumably the result of farm financial stress. A voluntary sale or liquidation is for any other reason such as retirement, career change, divorce, medical expenses, etc. There were more lenders in both western and eastern Arkansas that expect an increase in forced and voluntary sales than expect a decrease, but the difference between more or less sales was much more striking for eastern Arkansas lenders. Sixty percent and 64% of eastern Arkansas lenders think there will be an increase in forced and voluntary sales in the next year, respectively, with only 7% and none of them thinking there will be a decrease in sales. This contrasts with lenders from western Arkansas where 20% and 27% of them think there will be an increase in forced and voluntary sales, respectively, and only 7% and none of them thinking there will be a decrease in sales.

Much of the difference between the responses of lenders located in eastern and western Arkansas is undoubtedly the result of the difference in the type of agriculture that dominates each area. Program crop production dominates eastern Arkansas and livestock and poultry production dominates western Arkansas. Lenders' outlooks for net cash farm earnings, including government payments, for crop farmers and livestock and poultry farmers are consistent with their

responses concerning credit conditions. Three out of every five lenders contacted expect a lower net cash earnings this year compared to last year for crop farmers, with lenders in eastern Arkansas being more pessimistic than lenders in western Arkansas. Only 8% of the lenders think crop farmers will have higher net cash earnings this year compared to last year. The responses regarding the fortunes for livestock and poultry farmers are almost the complete opposite. Fifty-seven percent of the lenders expect net cash earnings for livestock and poultry farmers to be better this year than last year, with western Arkansas lenders generally being more optimistic than eastern Arkansas lenders. Only 4% of the lenders think livestock and poultry farmers will have lower net cash earnings this year compared to last year.

### Summary

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. Without the direct government payments paid in 1998 through 2001, many more farms would be having negative net cash income and be experiencing debt repayment problems. Although direct government payments have remained high the last several years, the proportion of those payments that are of a fixed nature, such as agricultural market transition assistance (AMTA) and market loss assistance (MLA), have declined while those payments designed to make up the difference between loan rates and market prices, such as loan deficiency payments (LDPs), have increased. The net result is that program crop farmers have received lower revenues from the combination of crop sales and government payments. If crop prices and yields improve and emergency supplemental assistance payments are again authorized or a new farm bill is passed in 2002, fewer farms will have financial difficulties. However, if crop prices remain depressed, crop yields remain the same or decline, and emergency supplemental assistance payments or other governmental assistance do not materialize, many crop farmers may have difficulty continuing farming. Of course this is why the agricultural policy debate in Congress is closely watched by farmers, lenders, and others who have a vested interest in agriculture.

### MACROECONOMIC IMPACTS ON AGRICULTURE

The news on the macroeconomic front for agriculture is both good and bad. In calendar year 2001 real growth in third quarter gross domestic product (GDP) was -1.3% according to Bureau of Economic Analysis (BEA) data. Growth in the second quarter was also anemic at 0.2% and it was during the second quarter that negative growth began. The National Bureau of Economic Research (NBER) is the recognized arbiter of recessions. They announced the beginning of the recession as March 2001 and have not reversed that designation yet although preliminary data suggest the recession may be over. In any event, we have now witnessed

the end of the longest expansion in the NBER records from March 1991 to March 2001, exactly 10 years.

The good news is that the economy may be turning around. A major sign that the economy may be in an expansion mode is the BEA reporting a positive, preliminary estimate of 1.4% growth for the fourth quarter of 2001. Overall, the BEA estimates real GDP growth at 1.2% for calendar 2001. This rate compares poorly with the 4.1% real growth rates in 1999 and 2000. The factors leading to positive growth in the fourth quarter of 2001 are increases in consumer spending and government expenditures. Investment activity and international trade were both down with both exports and imports decreasing. Typically, imports are expected to decline in a recession as income decreases and causes lower industry and consumer import demand.

### Unemployment and Interest Rates

In a recession the most compelling feature is a rise in the unemployment rate. The Bureau of Labor Statistics reports the February 2002 national unemployment rate at 5.5% compared with 5.8% in December 2001. The unemployment rate was 4.2% in January 2001 and generally increased throughout the year, peaking in December 2001. The February 2002 rate of 5.5% (January 2002 was 5.6%) indicates the rate has peaked but this is not a guarantee that the rate will continue to fall in the near term. In Arkansas total non-farm employment decreased from 1.169 million in January of 2001 to a preliminary estimate of 1.165 million in December 2001. The unemployment rate in Arkansas began the year at 4.8% and increased steadily to close in December at 5.5%. Preliminary figures for January 2002 indicate a 4.8% unemployment rate for Arkansas.

For agriculture the biggest factors coming from the domestic macro economy are interest rates and exchange rates. Current interest rates are low. The federal funds rate, which the Federal Reserve targets in determining the money supply, is currently at 1.75%. This rate was set on December 11, 2001. The federal funds rate began 2001 at 6.5%. There were eleven reductions varying in magnitude from 0.5% to 0.25%. Other short-term interest rates have fallen accordingly. Data in the February 2002 Economic Report of the President indicate that the prime rate had a high-low spread of 9.5% to 9% in January 2001. The spread fell to 5%-4.75% in December 2001. Longer term rates did not decline nearly as much in 2001. Ten-year U.S. securities adjusted for constant maturities started the year at 5.16% and ended the year at 5.09%. USDA's Economic Research Service (ERS) in their Agricultural Outlook expects favorable interest rates for credit worthy farm operators.

It is difficult to imagine that the Fed will cut interest rates much more. The federal funds rate is lowered by the Fed buying bonds and that means increases in the money supply. Those increases may lead to increased inflation. So far inflation does not appear to be a problem with the annual inflation rate for the consumer price index being 2.8% in 2001. But preliminary estimates in the President's Report indicate the

three money supply aggregates for 2001 are up between 8.3% and 12.8% for the year. This is obviously in considerable excess of the growth rate for GDP so inflation down the road is a concern. The bottom line for production agriculture is that interest rates should remain steady and at comparative lows for the next several months.

Arkansas agricultural interest rate changes mirrored those for the economy as a whole. In mid-March 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, 30 offices were contacted throughout the state with 15 from the eastern part of the state and 15 from the western and central sections. Respondents were asked to state their current rates and what they thought these rates would be next year.

Rates were fairly uniform across the state. For operating loans, current rates ranged from 5.95% to 9%, indicating that there are some price differences. The average rate was 6.81%, and this did not differ significantly when comparing the east with the rest of the state. The average rate is much lower than the 9.48% reported in a similar survey in 2001. This is consistent with reductions that were made by the Federal Reserve in 2001 in an effort to head off, or at least minimize, a recession. The average operating loan interest rate projected by the lenders for next year was 7.34%. This increase is also consistent with the expectations of many economists that the Federal Reserve will increase short term interest rates if the mild recession of 2001 is indeed over and the economy begins to heat up.

In March 2002, farm real estate loans ranged from 6.45% to 9% according to the loan officers. Some of this variation can likely be attributed to different types of arrangements such as length of the loan. The mean rate for the 30 institutions was 7.18% with a projection of 7.61% next year. As with the operating loans, there was no noticeable association with rate levels and geographical location.

### Exchange Rates and Exports

In times of low national interest rates exchange rates are expected to fall. Foreign (and some domestic) capital would seek higher returns in other currencies resulting in a weak domestic currency. This certainly was not the case for the United States in 2001. The broad index of the U.S. dollar against foreign currencies indicated a strengthening of the dollar by 8.6% in 2001 although the dollar has weakened during the first part of 2002. In the ERS Agricultural Outlook, the exchange rate index for all agricultural trade increased from December 2000 to December 2001 by 9.6%. In addition, East Asian economies slowed. As reported in the Agricultural Outlook, high oil prices and the lessening U.S. demand for computer and telecommunication equipment hurt the East Asian economies.

Nonetheless, agricultural exports for fiscal 2001 were \$52.8 billion. ERS forecasts a rise in agricultural exports to

\$54.5 billion in fiscal 2002 with agricultural imports increasing less. This is encouraging since the rest of the world seems to be mirroring the U.S. economic slump. In addition, the prospects for vigorous worldwide economic growth do not seem strong. The three biggest economies are the U.S., Japan and Germany. While the U.S. might be emerging from its recession, the same cannot be said for Japan while growth for Germany is likely to be weak.

### Production Costs and Land Values

Costs of production agriculture should be generally favorable. Fertilizer prices have moderated over the year. The fertilizer price index declined from 135 in January 2001 to 102 in January 2002. Fuel prices went from an index of 137 to 75 over the same period. Wage rates have decreased some going from an index of 150 in January 2001 to 148 in January 2002. Torgerson argues that the decline in manufacturing output due to the recession has hit rural areas more strongly than urban areas. So labor markets will be weaker and wages will tend to hold steady. Thus, the availability and cost of agricultural labor should favor rural employers.

Finally, land values in agriculture continue to rise. Nationally, the January 1, 2000 farm real estate values were \$1,080 per acre and increased to \$1,130 as of January 2001. In Arkansas the value of farm real estate, including all land and buildings, went from \$1,250 in 2000 to \$1,300 in 2001, a 4% increase (Fig. 12). So the value of production agriculture's primary asset is not decreasing and has even increased very slightly in real value when deflated by the consumer price index. However, the changes in cropland and pasture values are different. Arkansas cropland went from \$1,080 per acre in 2000 to \$1,140 in 2001, a 5.6% increase. Irrigated

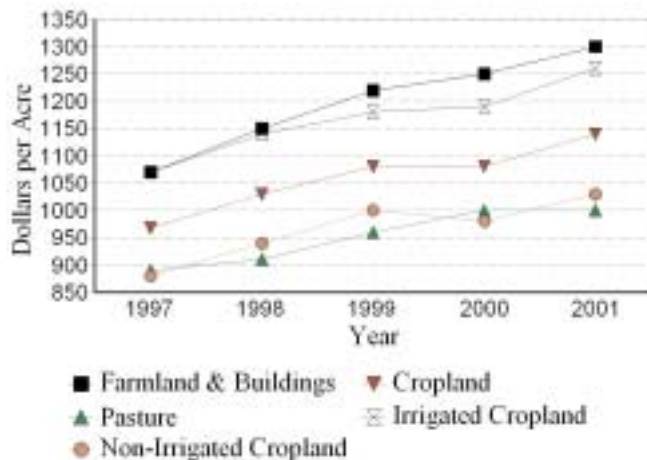


Fig. 12. Arkansas farmland values.

cropland increased at a higher rate of 5.9% (\$1,190 to \$1,260) than did non-irrigated cropland at 5.1% (\$980 to \$1,030). According to National Agricultural Statistics Service estimates, Arkansas pasture values did not increase or decrease, but remained flat at \$1,000 per acre. No change

in pasture values is surprising given the continued pressure from non-agricultural development on many rural areas of Arkansas where pasture land dominates.

Real estate markets often vary considerably depending on where the real estate is located and what income is available to support it. This is certainly apparent when viewing the responses from the Arkansas agricultural loan officers informally surveyed in mid-March 2002 about farmland values and credit conditions. Of the loan officers that responded from the eastern third of Arkansas, none of them expected an upward trend in farmland values for the next year and one third of them expect a downward trend. This is in sharp contrast to the responses from the rest of the state, where they were more optimistic. In the western-central two-thirds of Arkansas, none of the loan officers expected a downward trend in farmland values for the next year and 27% of them expected an upward trend. Comments made by the loan officers indicated the uncertainty regarding crop prices, the farm bill, and payment limitations were of primary concern in eastern Arkansas. In the rest of the state, one of the primary reasons to think farmland values would increase was the continued pressure on farmland from urban sprawl and for recreational uses.

### Summary

The overall impacts of the current slow economy are likely to be minor for agriculture overall. The low interest rates, low wage costs, and slightly elevated unemployment rates are likely to be positive. However, the unemployment increase can be selectively disastrous for those particular individuals who lose jobs or communities that have experienced large layoffs. This is important to agriculture because most farm household income is not from the farm but from off-farm work. Consumer spending continues to grow and, with a weaker dollar, agricultural exports should increase from 2001. But as is always the case for agriculture, major supply shortfalls somewhere are necessary for a really big jump in agricultural prices and income for those not experiencing the shortfall.

### SPECIAL ARTICLE: A BRIEF SUMMARY OF COMMERCIAL ROW-CROP FARM CHARACTERISTICS

A survey on agricultural production and marketing practices was conducted in the spring of 2001. It was intended to elicit production and marketing practices of 'typical' crop producers in eastern Arkansas that grow rice, cotton, soybeans, wheat and corn. One of the main goals was to provide a benchmark of these production practices as of 2001, as such information is typically not easily available from other sources (i.e. it is difficult to determine typical production practices from aggregated data published by Arkansas Agricultural Statistic Service (AASS), National Agricultural Statistics Service (NASS) and other public sources). Since the array of topics covered in the survey was quite broad, the

information was collected using a focus group session with Arkansas Cooperative Extension Service (CES) agents. The individual participants in the survey were selected based on their knowledge of crop production in their respective districts of Clay, Lee, Mississippi, Prairie, and St. Francis counties in Northeast, East, and Central Arkansas. Corn, cotton, rice, soybean, and wheat are grown in this region and some of the surveyed counties are among Arkansas' top producing counties in terms of crop acreage (AASS, 2001). Some results of this survey are reported below.

### Farm Size and Type

Average farm size varies widely in Arkansas due to part-time farms, hobby farms, and full-time farms being grouped into the same category in the summary reports publicly available by AASS. The goal of this survey was to determine the production characteristics of full-time commercial farms in Arkansas. Given this definition, county agents were asked to describe a typical farm in their county in terms of principal crops grown, soil series encountered, planted acreage, extent of diversification of the operation and number of personnel engaged in farming. This information is summarized in Table 8.

It is evident from Table 8 that the information may be categorized into two broad categories: rice/soybean farms (primarily on clay soils) and cotton/soybean farms (primarily on silt loam soils). From hereon, some information may be reported on the basis of these two basic operation types: 1) rice farms—operations that emphasize rice production and also grow soybeans, wheat or corn either in rotation or on non-irrigated acreage; and 2) cotton farms—operations that focus on cotton production and may also grow soybeans, wheat, corn or sorghum, again in irrigated or non-irrigated production.

### Land Rental Arrangements

Overall nearly two thirds of land in production is rented or leased rather than owned (Table 9). This makes capital investment decisions on irrigation and other land improve-

ments more difficult as both a landlord and the producer are involved. The crop share rental arrangement is markedly the most common for all types of farms and crops while the cost share arrangement is least common. In general, land suited for the most profitable crops, rice and cotton, commands higher cash rental rates than land not suited to their production. Land rented for wheat production tends to cost producers less than land rented for other crops. In a follow-up question, producers were asked to rank what factors most impact their decision to rent or lease land. The two most important factors were the availability of labor and management and the availability of operating capital.

### Use of GMO Seed Cultivars

Agents were asked several questions regarding the production of GMO (genetically modified organism) crops in 2000 and their expectations of 2001 plantings. For 2000, agents stated that 83% of cotton, 76% of soybeans, and 10% of corn acreage was GMO. The planting of GMO crops were expected to increase in 2001 for cotton and soybeans, and possibly decrease for corn. Agents were asked to rank the reasons that producers plant GMO varieties. The results are summarized in Table 10.

### Irrigation Practices

**Sources.** Irrigation is one of the most important aspects of crop production in Arkansas. Hot, dry growing seasons produce a need for irrigation for most crops. The most used irrigation method is the underground well or aquifer. It is the most used on both rice and cotton farm types. The least used irrigation source is rivers. The use of manmade surface storage or reservoirs is becoming more popular, especially in rice production regions. Land leveling efforts also continue. The use of drain ditches and tail water recovery by some respondents also indicated producer interest in conserving water or looking for alternatives sources to well/aquifer water. At the time of the survey, less than 10% of irrigation water was reclaimed and less than 50% of producers were using an irrigation scheduler program.

Table 8. Principal survey farm characteristics.

Item	Eastern Clay Co.	Western Clay Co.	Lee Co.	Mississippi Co.	Prairie Co.	St. Francis Co.
Principal Crops <sup>1</sup>	R, C, Ct, S	R, C, S, W	R, C, Ct, S, W	R, C, Ct, S, W	R, C, Ct, S, W, GS	R, S, W
Dominant Soil Series <sup>2</sup>	SSL	SL, SC, TL	TL, MC	SL, SC, TL, MC	SL, TL, MC, CL	SSL, MC
Crop Acres	1,600	2,000	3,000	5,000	1,800	2,200
Number of personnel engaged in farming	6	4	4	9	3	5

<sup>1</sup> R= Rice, C= Corn, Ct = Cotton, S= Soybean, W= Wheat, GS= Grain Sorghum.

<sup>2</sup> SSL= Sandy silt loams, SL= Sandy Loam, SC= Sharkey Clay, TL= Silt loam, MC= Mixed Clay, CL= Clay loam.



Table 9. Average survey responses on rental and leasing arrangements by crop.

Crop	Crop land rented or leased relative to total cropland	Percent of rented/leased land by arrangement			
		Cash rent	Fee <sup>1</sup> (\$ per acre)	Crop share	Cost share
Rice	67 %	13 %	\$95	85 %	3 %
Soybean	64 %	11 %	\$65	87 %	2 %
Wheat	53 %	12 %	\$54	86 %	3 %
Cotton	77 %	10 %	\$100	90 %	0 %
Corn	65 %	8 %	\$65	90 %	3 %

<sup>1</sup> If cash rented, the average cost per acre.

Table 10. Reasons that farmers plant GMO varieties.

Factor	Average ranking <sup>1</sup>		
	Rice farms <sup>2</sup>	Cotton farms <sup>3</sup>	All respondents
Weed control for crop planted	4.0	4.0	4.0
Weed control for subsequent crop (i.e. red rice control when using Roundup Ready® beans the year before)	4.0	3.7	3.9
Ease of management	3.8	3.7	3.7
Visual appeal of clean field	3.0	2.3	2.7
Makes coordination of planting and field prep. easier	2.5	2.7	2.6
Allows farming of more acreage with same equipment	2.0	2.0	2.0

<sup>1</sup> The following numerical values correspond to various levels of importance: 4 = Very Important, 3 = Important, 2 = Somewhat Important, 1 = Not Important.

<sup>2</sup> Rice farms are the response group from Clay (western), Mississippi, Prairie and St. Francis counties.

<sup>3</sup> Cotton farms are the response group from Clay (eastern), Lee and Mississippi counties.

Table 11. Factors determining the crop rotation used.

Factor	Average ranking <sup>1</sup>		
	Rice farms <sup>2</sup>	Cotton farms <sup>3</sup>	All respondents
Changes in crop prices	3.5	4.0	3.7
Availability of irrigation	3.3	4.0	3.6
Agreement with landowners	3.3	3.7	3.4
Weed pressure	4.0	2.3	3.3
Soil type	3.0	3.3	3.1
Changes in production costs	3.0	3.3	3.1
Disease pressure	2.8	3.0	2.9
Capital constraints	2.3	3.0	2.6
Changes in soil fertility	2.3	1.7	2.0
Requirements of government programs (CRP, etc)	1.5	2.3	1.9

<sup>1</sup> The following numerical values correspond to various levels of importance: 4 = Very Important, 3 = Important, 2 = Somewhat Important, 1 = Not Important.

<sup>2</sup> Rice farms are the response group from Clay (western), Mississippi, Prairie and St. Francis counties.

<sup>3</sup> Cotton farms are the response group from Clay (eastern), Lee and Mississippi counties.

**Factors in Irrigation Decisions.** Agents were asked to rank factors important to the decision on whether or not to irrigate. An important factor for both rice and cotton farms was that rental agreements may not allow for irrigation investment. Some landowners are not willing to cost share expenses regarding installation of wells, etc. Nearly two-thirds of the crop land is rented and therefore rental/ leasing arrangements play a large role in irrigation decisions. Surprisingly, crop prices and irrigation costs were not considered important for this decision.

### Crop Rotation Practices/Crop Selection

Crop rotation to improve weed control and disease pressure is a very important part of farm management. Typical rotations vary between farm type, soil type, and across operations. Rice farms typically choose a rotation involving rice and soybeans. In addition, some operations will double crop the land with a winter wheat crop. Some farmers may plant grain sorghum or corn in addition to rice, soybeans, and wheat. Cotton farms on the other hand typically rotate cotton with soybeans or corn. Some of the rotations were quite complex and involved up to five crops.

Agents were also asked to rank the importance of different decision criteria used by farmers in determining their crop rotations (Table 11). The importance of these factors differs somewhat across farm types. Rice farms ranked weed pressure and crop prices to be the most important. Cotton farms on the other hand felt that crop prices and irrigation availability are the most important. Overall, crop prices appear to be the most important factor regardless of farm type.

### Summary of Other Production Practices:

□ **Government Conservation Programs.** Very few farms in the surveyed area have land enrolled in conservation programs such as Conservation Reserve Program and Wetland Reserve Program.

□ **Conservation Tillage.** Agents indicated that reduced tillage and to a lesser extent, no-tillage programs are being used extensively in their counties. The additional cost of conservation tillage equipment was given as a reason for non-adoption.

□ **Soil Characterization.** Agents were asked how producers group their soils into different production categories. Drainage, water holding capacity, texture, and fertility are equally important in differentiating soil types. Agents stated that usually about three to four soil types could be found on a particular farm.

□ **Insurance and Risk Preference.** Higher valued and non-irrigated crops are more frequently insured than crops of lower value or those that are irrigated. Farmers chose not to purchase crop insurance because of high insurance premiums and insignificant reduction of risk.

□ **Marketing.** Use of cooperatives for collective marketing of crops is more pronounced for rice and cotton than other commodities. Forward contracting is quite common for wheat. Use of futures and options for hedging is the least used marketing strategy. Government programs are relied upon to provide a price floor.

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