

Chapter 1

The Arkansas Soybean Industry

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More than 6,800 Arkansas soybean farmers produce about 110 million bushels and receive cash receipts of \$747,098,000. This accounts for 13.4 percent of the total cash receipts from marketing of all commodities in Arkansas (Table 1.1) and 37 percent of the total cash receipts for crops.

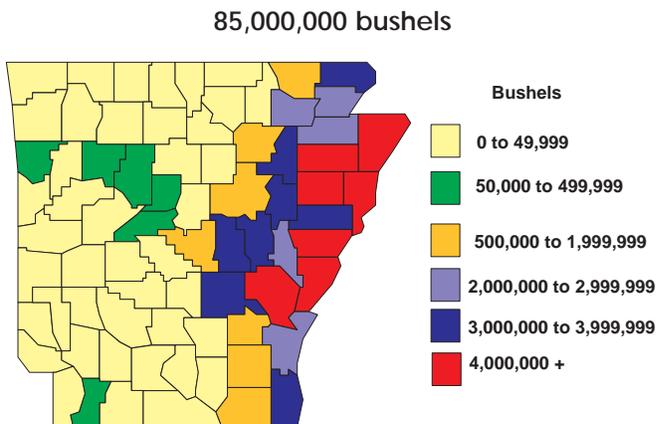
The top five Arkansas agricultural exports for 1997, ranked starting with largest value, are soybeans, poultry, rice, wheat and cotton (Table 1.2). In 1997, Arkansas soybean exports totaled \$435 million compared to poultry.

Figure 1.1 shows 1998 Arkansas county soybean production locations. Mississippi, Poinsett, Cross, Crittenden, Lee, Phillips and Arkansas counties each produce 4 million plus bushels. Soybeans comprise the single largest acreage of any Arkansas row crop. Typically, 3.5 million acres of soybeans are planted with approximately 100,000 acres devoted to seed production.

Arkansas ranks 8th nationally in total receipts with \$747,098,000 (see Table 1.3 on the next page). Of the three Delta states (Arkansas, Mississippi and Louisiana), Arkansas ranks first, followed by Mississippi and Louisiana. Cash receipts from Mississippi soybeans equal 59 percent of Arkansas' cash receipts, and Louisiana's receipts are 36 percent.

Approximately 33 percent of the annual production is processed in-state into raw components of oil and protein meal and other value-added products, leaving the remaining noncrushed beans to be shipped to port areas. A 60-pound bushel of soybeans yields about 11 pounds of oil and 48 pounds of protein-rich meal or 39 pounds of defatted soy flour or 20 pounds of concentrate or 12 pounds of isolate.

Figure 1.1. 1998 Soybean Production.



Three companies in Arkansas process soybean grain into oil, meal and other value-added products. A considerable portion of the meal is used as a

Table 1.1.
Top Five Arkansas Agricultural Commodities,
FY 1997

Rank	Commodity	% of State Total Farm Receipts	% of U.S. Total Value
1	Broilers	35.7	14.8
2	Soybeans	13.4	4.3
3	Rice	12.2	43.2
4	Cotton	9.5	8.6
5	Cattle and Calves	6.6	1.0

Table 1.2.
Top Five Arkansas Agricultural Exports,
Estimates, FY 1997

Rank	Commodity	Rank Among States	Value Million \$
1	Soybeans and Products	8	435
2	Poultry and Products	1	413
3	Rice	1	411
4	Wheat and Products	4	238
5	Cotton and Linters	5	208
	Overall	8	1,918

**Table 1.3.
Soybeans: Top 15 State Rankings
for Cash Receipts**

Rank	State	Value of Commodity Group Receipts (\$000)	Percent of Commodity Group Total
1	Iowa	3,095,040	17.5
2	Illinois	2,802,418	15.8
3	Minnesota	1,646,190	9.3
4	Indiana	1,556,280	8.8
5	Ohio	1,274,262	7.2
6	Missouri	1,124,109	6.4
7	Nebraska	905,280	5.1
8	Arkansas	747,098	4.2
9	S. Dakota	730,538	4.1
10	Kansas	572,760	3.2
11	Michigan	476,611	2.7
12	Mississippi	442,773	2.5
13	Kentucky	302,496	1.7
14	Tennessee	302,464	1.7
15	Louisiana	272,093	1.5

Numbers may not add due to rounding.

protein source for the state's livestock industry (cattle, swine, poultry and aquaculture). Several grain companies export grain primarily by barge along major rivers of the state.

More soybeans are grown in the United States than anywhere else in the world. Recent harvests have yielded about 2.5 billion bushels of soybeans each year. More than half the total value of the U.S. soybean crop is exported as whole soybeans, soybean meal and soybean oil. Major export markets include the European Community, Japan, Mexico, Taiwan, China, the Republic of Korea and others.

Since export markets are important to producer profitability, the American Soybean Association, with headquarters in St. Louis, Missouri, has created a worldwide web network of international offices in Austria, Germany, Belgium, Russia, Cyprus, Japan, Korea, Singapore, Taiwan, China, India, Mexico, Venezuela and Turkey. The expansion of international markets for U.S. soybeans and products is made possible by producer checkoff dollars invested by the United Soybean Board and

various State Soybean Councils, as well as cost-share funding provided by the U.S. Department of Agriculture.

The domestic and export market for soybeans is derived from the many uses of soybeans as oil products, whole soybean products and soybean protein products. The eight essential amino acids in soybeans are necessary for human nutrition and are not produced naturally in the body. The soybean is a natural source of dietary fiber. Soy hulls are processed into high-fiber breads, cereal and snacks.

Soybean oil finds its way into such products as margarine, salad and cooking oils. The dry portion of the soybean is used to produce soy flour and grits, which are used in the commercial baking industry. These products aid in dough-conditioning and bleaching. Their moisture-holding qualities help keep products from going stale.

In recent years, nonedible products derived from soybeans have been developed and include "soy ink," building materials and soyoil products used as "bio diesel" and in the cosmetic industry.

Acreage

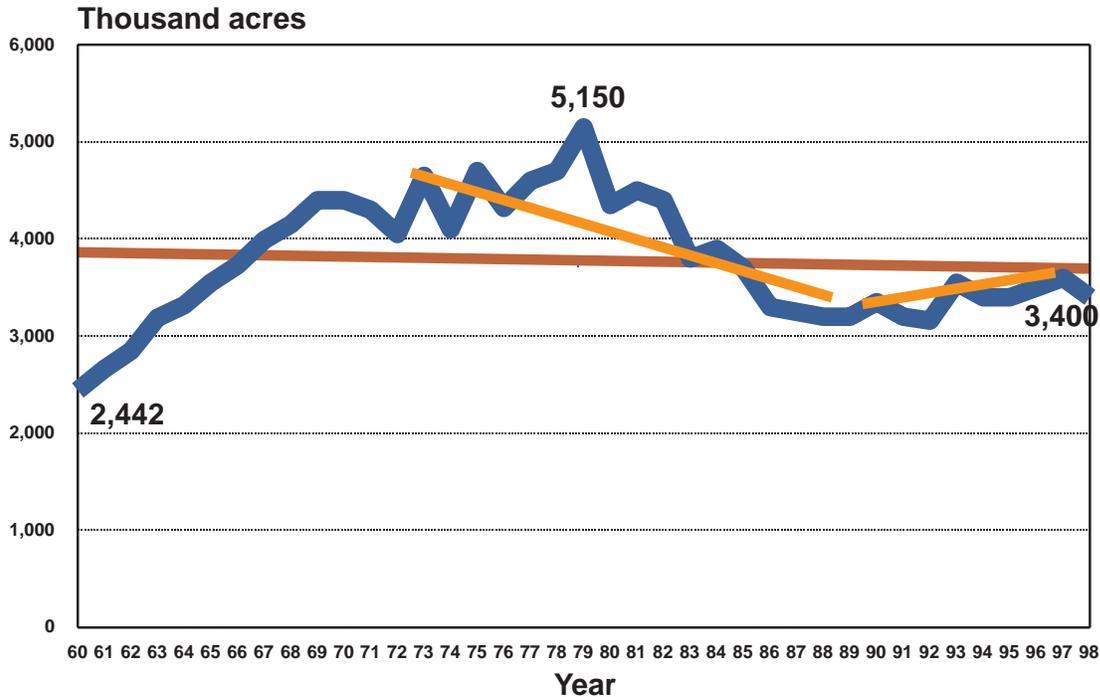
Figure 1.2 shows the historical rise of soybeans as a major row crop for the state. As indicated, Arkansas soybean producers harvested 2,442,000 acres in 1960 and 3,400,000 acres in 1998. The trend line for this period is slightly negative because of South American competition. Arkansas soybean producers harvested a record 5,150,000 acres of soybeans in 1979.

Notice the harvested acreage trend line for years 1973 to 1989 has a negative slope. Soybean acreage in 1973 was 4.65 million acres with a high of 5.15 million in 1979 and a low of 3.2 million acres in 1989.

During the 1980s, demand weakened and soybean acreage returned to a more normal long-run equilibrium level.

During the 1990s, Arkansas soybean harvested acreage stabilized and is showing a positive trend line. Improved varieties and the adoption of technological advances are contributing to the acreage increase.

Figure 1.2. Arkansas Soybean Harvested Acreage – 1960-1998.



The top five soybean-producing counties ranked by total harvested acreage are shown in Figure 1.3. In 1998, Mississippi County ranked No. 1 with 200,000 acres and Phillips County ranked No. 2 with 195,000 acres.

Figure 1.4 shows the top five irrigated soybean-producing counties ranked by total acreage. Arkansas County soybean producers irrigated 163,500 acres of soybeans, followed by Cross, Lonoke, Poinsett and Prairie counties.

Of the top five irrigated soybean-producing counties, when ranked by percent irrigated, Arkansas County had 87 percent of its soybean acreage irrigated, while Lonoke County, the third largest irrigated soybean acreage, had 80 percent of the county acreage irrigated, followed by Cross (76 percent), Prairie (71 percent) and Poinsett (69 percent).

Figure 1.3. Top Five Soybean Counties, Ranked by Harvested Acreage, Arkansas, 1998.

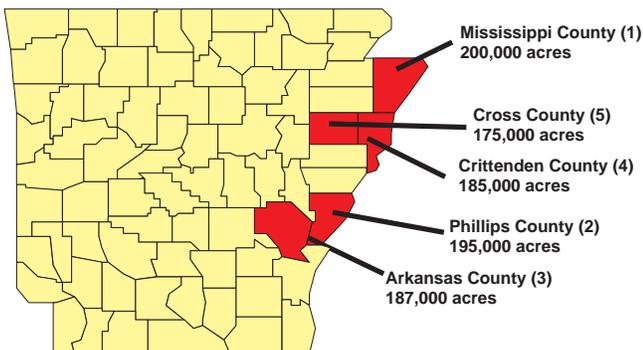


Figure 1.4. Top Five Soybean Counties, Ranked by Irrigated Harvested Acreage, Arkansas, 1998.

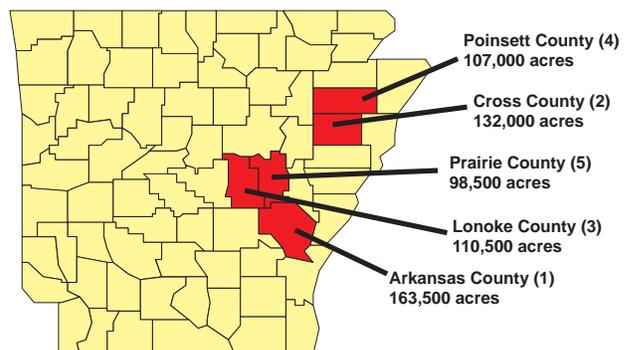
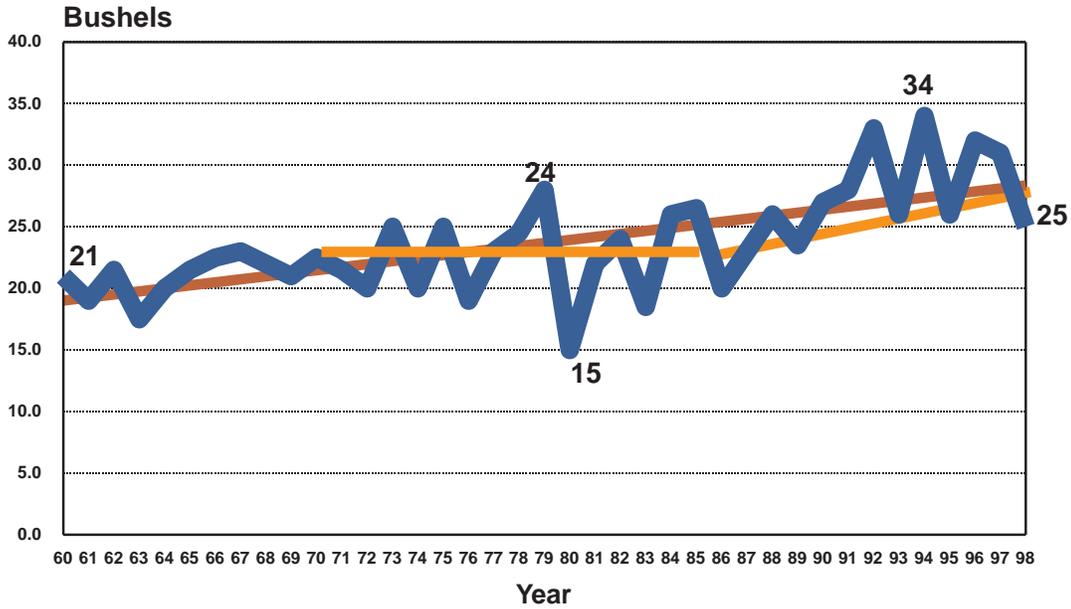


Figure 1.5. Arkansas Soybean Yield, 1960-1998.



Yield

Figure 1.5 shows average state yields for 1960 through 1998. As indicated, Arkansas soybean producers had an average yield of 21 bushels in 1960, a yield low of 15 bushels in 1980 and a yield high of 34 bushels per acre in 1994. The trend line for soybean yields for years 1986-1998 is significantly more positive than the trend line for years 1960-1998. This is a good indicator that Arkansas soybean producers are placing increased emphasis on improving agronomic production practices. Improved yields are highly correlated with checkoff monies provided by the Arkansas farmer for research and Extension educational programs.

The top five soybean-producing counties ranked by yield are shown in Figure 1.6. Arkansas and Cross counties ranked 1st with 30 bushels per acre, followed by Poinsett, Prairie and Lincoln counties with 28 bushels.

Figure 1.7 shows the top five irrigated soybean-producing counties ranked by yield per acre. Randolph County ranked No. 1 with an average yield of 37 bushels. Next were Cross and St. Francis counties with 34 bushels per acre, followed by Arkansas, Prairie, Independence, Poinsett and Chicot, each averaging 33 bushels per acre.

Figure 1.6. Top Five Soybean Counties, Ranked by Yield/Acre, Arkansas, 1998.

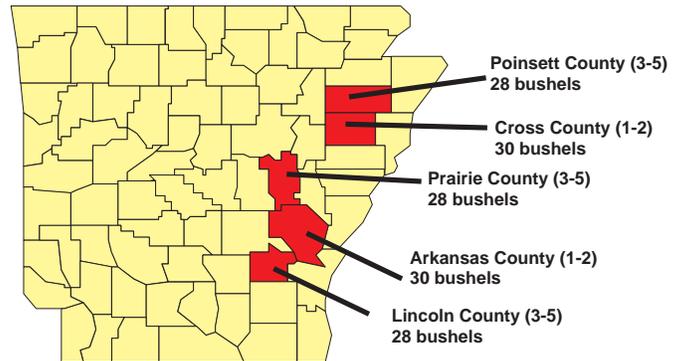


Figure 1.7. Top Irrigated Soybean Counties, Ranked by Yield/Acre, Arkansas, 1998.

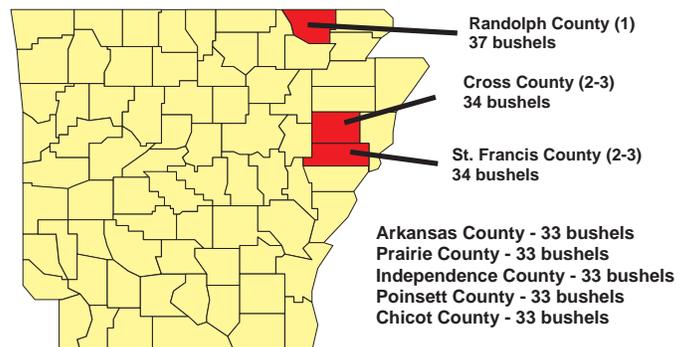
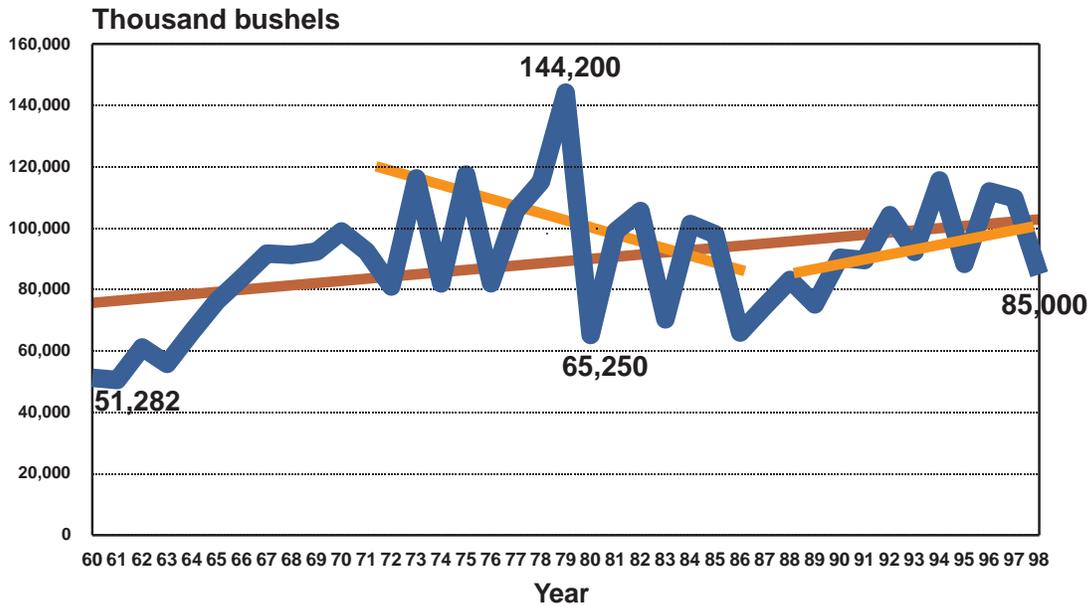


Figure 1.8. Arkansas Soybean Production, 1960-1998.



Production

Arkansas soybean production in 1960 was 51.3 million bushels. Figure 1.8 shows a negative production trend for 1973 to 1986. In 1979 Arkansas soybean producers produced their largest statewide production, 144.2 million bushels. For years 1997 and 1998, total production was 110 and 85 million bushels, respectively. The trend line for the past decade shows significant improvement over preceding years.

The top five soybean-producing counties ranked by production, listed first to last, were Arkansas, Cross, Mississippi, Lee and Poinsett (Figure 1.9). The No. 1 irrigated soybean-producing county was Arkansas with 5,314,000 bushels being produced under irrigation (Figure 1.10).

Figure 1.9. Top Five Soybean Counties, Ranked by Production, Arkansas, 1998.

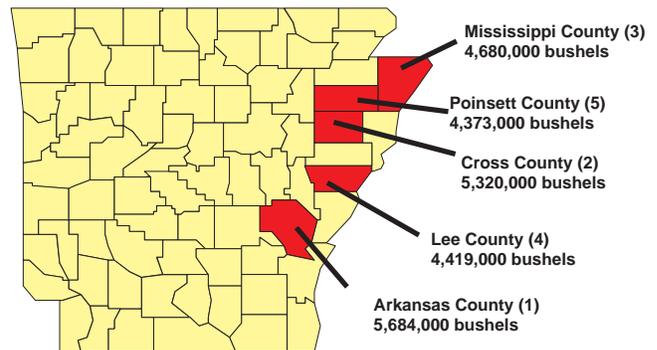
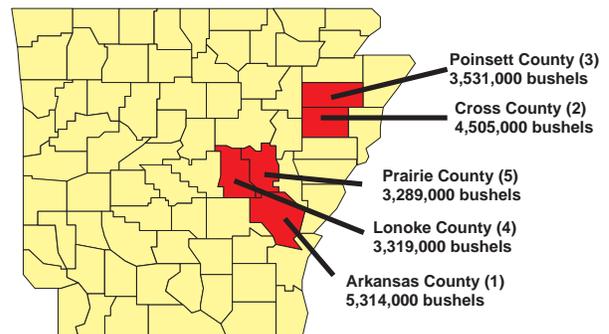


Figure 1.10. Top Five Irrigated Soybean Counties, Ranked by Production, Arkansas, 1998.



Summary

Arkansas farmers provide \$2.5 to \$3 million annually for research, education and market development in support of this important industry to the overall agricultural economy. One-half, or about \$1.25 to \$1.5 million, remains in Arkansas and funds in-state research and Extension efforts. This in-state effort is administered by the Arkansas Soybean Promotion Board. The composition of the board is as follows:

- Nine soybean producers representing the Arkansas Agriculture Council (2)
- Arkansas Farm Bureau (3)
- Arkansas Soybean Association (2) and
- Riceland Foods (2)

The Arkansas Soybean Promotion Board funds sound projects in the following three areas – improving soybean profitability, base programs (requiring long-term continuous research) and new innovations.

The remaining \$1.25 to \$1.5 million is sent to the United Soybean Board. Arkansas has three representatives on the 58-member United Soybean Board in St. Louis. The United Soybean Board provides funding for improvement and development related to both international and domestic marketing, production, new uses and producer communication. These efforts are designed to strengthen the U.S. soybean industry.

The Arkansas Soybean Promotion Board is providing significant funds for the development and printing of this handbook. The Board and the authors of this handbook hope you find this publication both informative and profitable.