An Economic Report to the Governor of the State of Tennessee:
Projections for the Agricultural Sector

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1998 was not a good year for agriculture. Tennessee crop farmers were hit with both reduced yields and low prices. By year-end, hog prices had plummeted to levels not experienced in over two decades. As a result, calendar year net farm income will be down significantly in 1998 and, because a large share of commodity sales occur in the following calendar year, state-level projections show a further decline in net income in calendar year 1999. Following is an overview of agriculture's performance in Tennessee in 1998 and expectations for 1999, based on analyses conducted using the Policy Analysis System (POLYSYS) national agricultural simulation model, the Tennessee Agricultural Model (TAM), and the AgFIRST (Agricultural and Financial Income Risk Simulator for Tennessee) models. Also included is a discussion of issues and concerns facing tobacco production in the state, as existing and proposed regulations and restrictions, excise tax increases, health issues, changing social attitudes towards tobacco use, litigation, and international competition have induced much uncertainty regarding the future of the tobacco program, tobacco farming, and many rural communities in Tennessee.

Agriculture in Tennessee: Outlook for 1999

Agriculture is one of Tennessee's largest industries. Production agriculture alone generates over two billion dollars in farm cash receipts, eighty to ninety percent of which is spent on off-farm production expenses. Yet, sales of farm commodities and input purchases measure only a portion of the impact that the agricultural sector has on the Tennessee economy. Food- and fiber-related processing and marketing, wholesale and retail trade, and indirect agribusiness goods and services are also part the broader agricultural industry. Viewed in this way, agriculture comprised over one fifth of the state's total jobs and 28 percent of all rural Tennessee employment in 1994 (USDA). In rural Tennessee, most of the agricultural industry employment is directly related to production agriculture while state-wide, the wholesale and retail trade account for more than half of the state's food and fiber employment. Nearly one half of the state's land area (11.8 million acres) is in the 80,000 farms in Tennessee. In 1997 (the most current data available), 56 percent of Tennessee's farm receipts was from crop sales with livestock sales contributing the remaining 44 percent (figure 1). The dominance of crops in agricultural income is a relatively recent phenomenon for the state. A decade ago, the percentages were reversed with livestock receipts above 50 percent. Projections suggest that crop receipts will again outdistance livestock receipts in 1998 and 1999, but the gap will close by a percentage point or two.

Livestock

Figure 2 presents the distribution of livestock receipts in the state in 1997. Amid dismal performance for most livestock commodities, dairy is expected to post significant gains in 1998. With record monthly prices and the 1998 average milk prices expected to exceed 16 dollars per hundred weight, dairy cash receipts are projected to increase by 70 percent and to account for 39 percent of livestock receipts in 1998. Dairy cash receipts are expected to decline somewhat in 1999 as milk prices drop slightly, but compared to a 22 percent share of livestock receipts in 1997, dairy remains a strong performer among Tennessee's livestock commodities. Realization of a 39 percent dairy share of livestock receipts in 1998 would place dairy ahead of broilers and cattle among livestock commodities in the state. However, projections for 1999 and beyond show the cattle industry regaining and then retaining the lead position among livestock commodities. Receipts from broiler marketings are expected to hold their own in 1998 and 1999, continuing to represent the same 24 percent of livestock receipts as in 1997.

Compared to 1997, the cattle and pork sectors are the biggest losers in the state's livestock industry. Cattle producers did not see the expected beginning of a cyclical upturn in prices in 1998 and may not see it next year either. Prices are expected to be relatively flat for a couple of years and then increase, but even then only moderately and not enough to return cattle receipts back to the 1997 level of $400 million by 2001. By far, the hog sector has been hardest hit in 1998, with recent hog prices dipping to levels not seen since the 1970s. After adjusting for

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inflation, reported spot prices for hogs in late-1998 were at Great Depression levels. Some price recovery is expected by late spring, but only to the mid- to upper-30 cents per pound range. Cheap corn prices have helped hold down production expenses, but with pork prices under 15 cents per pound, the relevant question is not whether pork production is profitable, but rather how much is being lost. Farrow to finish hog producers, on average, are losing over $50 per head and state-wide 1998 hog cash receipts could drop below half of the 1997 level.

Crops

Since 1992, soybeans, cotton, and tobacco have taken turns as the number one crop in Tennessee as measured by crop cash receipts. As shown in figure 3, soybeans led the crop commodities in cash receipts in 1997. Soybeans are projected to again lead crop cash receipts in 1998, but 1998 was not a good year for soybeans. 1998 was not a good year for cotton or grains in the state as well, with soybeans, corn, and wheat crops registering both lower yields and lower prices in 1998 compared to 1997. Soybean prices fell nearly 30 percent from 1997 to 1998 and are expected to remain soft in 1999, averaging lower than 1998. In fact, average annual prices for the next three years are expected to be more than 20 percent below 1997 levels. In addition to price declines, soybean yields in Tennessee fell nearly 12 percent in 1998, resulting in lower soybean cash receipts in 1998. Since most of the crop will be sold in 1999, soybean receipts are expected to be 25 percent lower in 1999 than in 1997. Corn and wheat followed the same general pattern. Corn and wheat prices in 1998 are expected to average nearly 25 percent below their 1997 levels. As in the case of soybeans, prices were much lower at harvest time. Prices well under $2.00 a bushel were common for both corn and wheat. Many corn farmers, plagued with aflotoxin fungus contamination, went home with less than a dollar per bushel. Compared to the last two years, wheat cash receipts are expected to be down by one-half and corn receipts down by 30 percent. While cotton prices did not fall as dramatically as other crop prices in 1998, a 10 percent drop in cotton yield seriously affected Tennessee's cotton farmers in 1998. As in the case of soybeans, most of the cash receipt impact will occur in calendar 1999. Cotton prices, which have averaged about 67 cents per pound over the last three years, are expected to be 3 to 4 cents per pound lower during 1999 and 2000. As in 1997, cotton is projected to be the third largest Tennessee cash receipt crop in 1998 and 1999.

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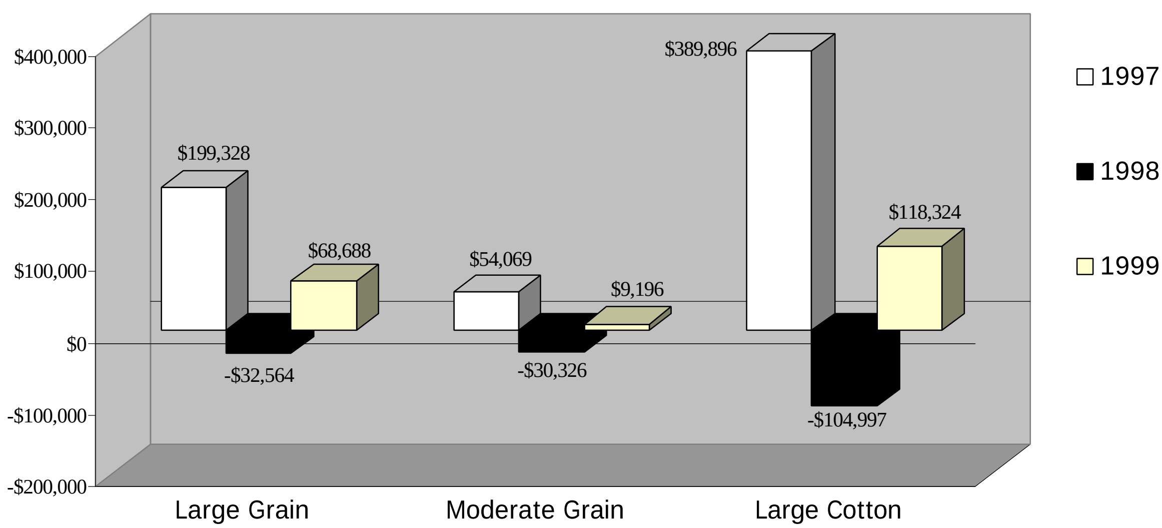
Just How Bad Was 1998?

To shed further light on the impact of 1998's prices and yields on Tennessee farms, a set of three representative farms – which are useful for performing financial and risk analyses of how policy decisions and general economic conditions affect individual farms – was used to simulate the expected bottom line. The Moderate Grain Farm is a 1,300 acre grain farm producing corn, wheat, and soybeans with a cow-calf operation. The Large Grain Farm is a 2,800 acre grain farm producing corn, wheat, and soybeans, and the Large Cotton Farm is a 3,800 acre cotton farm that also produces some soybeans, corn, and wheat. Farmer input and county level statistical data were used to determine the financial and management characteristics of each representative farm.

In this case, the representative farms are used to provide information about how this year's prices and yields will affect the bottom line on some Tennessee farms. For comparison, the bottom line expected this year (1998 Scenario) is compared to the level it would have been if the farms had experienced last year's prices and yields (1997 Scenario) or if they had experienced the prices predicted for next year along with 'average' yields (1999 Scenario). In each simulation, all of the financial and management characteristics applicable for 1998 remain unchanged; only the yield and price are simulated at their historical 1997 levels, their expected 1998 levels, or their predicted 1999 levels.

Net cash incomes for each farm under the three scenarios are reported below, where net cash income is defined as total cash receipts including government payments and insurance indemnity payments minus total cash production and interest expenses. As seen below, prices and yields experienced in 1998 lead to significant losses for each of the three farms in 1998. Both the Moderate and Large Grain Farms lose more than $30,000. Losses on the Large Cotton Farm are more than triple the losses on the Grain Farms. Much of the grain losses are due to low grain prices, while the majority of the cotton losses is attributable to low yields. If the much higher grain prices (near record levels in some cases) and decent yields of 1997 had replaced this year's yields and prices, then all farms would have shown a positive level of cash returns. The higher cotton yields, especially, would have led to returns that were more than half a million dollars above the actual 1998 level. Returns on the Large Grain Farm would have been nearly a quarter million dollars higher than the actual 1998 level with 1997's high grain prices. In the 1999 simulation, expected 1999 grain and cotton prices are projected to be slightly above 1998 levels. With relatively low prices and average yields for 1999, each of the three farms posts a positive gain, but the gain is considerably lower than it would have been with 1997's very high prices coupled with good yields.



Tobacco Production in Tennessee: An Uncertain Future

Tobacco has consistently been one of the state's highest valued cash crops, and is grown on more than one out of every four farms in Tennessee. A primary factor contributing to the structure and profitability of tobacco farming in Tennessee has been the federal tobacco program, which controls supply through a quota system and guarantees minimum farm-level prices. Characteristics of the tobacco program have been instrumental in maintaining tobacco production on a large number of small farms in the region, with high profit margins. But the tobacco program has been the subject of intense political debate in recent years. While the program has survived previous attacks, most expect the political debate over the program to resurface once again this year, with unprecedented fervor. Demand for domestic burley is expected to be significantly affected by the recently announced settlement of state Medicaid lawsuits reached by tobacco companies and states' attorneys general. With limited alternatives in agriculture that can provide the opportunity for a similar level of income on so few acres in rural Tennessee, pressures on tobacco production and the tobacco program threaten the economic vitality of many of Tennessee's rural communities that have been structured around tobacco.

Importance of Tobacco to the State

Nearly one of every five dollars the state generates from crop receipts comes from tobacco. Tobacco has consistently contributed about 20 percent to crop cash receipts over the past decade, sharing the position as the state's highest valued crop commodity with cotton and soybeans. Furthermore, tobacco has trailed only cotton as the Southern region's most important export commodity (Marchant and Ballenger). Tennessee follows Kentucky as the nation's largest producer of burley tobacco (one of two major types of tobacco common in domestic tobacco products) and ranks fourth in the nation in all tobacco production.

Over the period 1992–1997, tobacco receipts in Tennessee have averaged over $235 million annually. According to the USDA's 1992 Census of Agriculture, tobacco was produced on about 23,000 farms in Tennessee in 1992, with each farm averaging a little over three acres of tobacco and over 70 percent of tobacco farms growing less than five acres of tobacco. Contrast this with the average size of all farms in Tennessee – 174 acres – to realize that a very large percentage of Tennessee's crop cash receipts are produced on a very small percentage of the state's farmland. When measured on a per acre basis, tobacco is by far the state's highest valued major crop, netting $1,000 plus per acre. No other major crop has the potential to generate such a large margin per acre.

The Role of the Federal Tobacco Program

One of the primary reasons that tobacco has been so profitable in Tennessee is because of the federal tobacco program, which is a means to raise and stabilize tobacco prices and income. Under the program, tobacco farmers agree to restrict supply via marketing/acreage allotments (or quotas) in exchange for minimum price guarantees. The tobacco program essentially maintains price by shifting supply via the marketing quota.   Since a farmer must own or rent quota in order to legally sell tobacco, quota is an asset with its own rental and sales market.

The structure of the tobacco program has sustained a relatively large number of small family farms over the years in Tennessee and has been successful in creating a structure that further supports continuation of the program. By limiting supply and keeping prices relatively high, a large number of small farms have been able to competitively grow and market tobacco. Barriers to quota movement across state lines in Tennessee (and across county lines within a state in all other states) has inhibited the transfer of quota to the lowest cost of production regions. This has allowed communities to become more dependent upon tobacco than they may have been otherwise, further intensifying the role of the program in stabilizing tobacco prices.

Support for the existing tobacco program has also come from some unlikely sources, including some public health advocates and free market proponents. While the tobacco program does indeed accrue rents to producers, in some eyes, the 'cost' of the program – as measured by market inefficiencies – outweighs the 'cost' of program elimination, which would be lower input costs and higher manufacturer profits, which could then be passed on to consumers through lower tobacco product prices, leading to higher levels of tobacco product consumption. Many free market advocates have not pursued tobacco program elimination with the same fervor as other agricultural commodities. This may be due in part to their perception of a benefit to society from reduced consumption of tobacco products because program tobacco prices are higher than free market prices.

Mounting pressures on the tobacco program

Despite support of the program, by program design and policy changes, political pressure to modify or end the tobacco program has been gaining momentum over the past two decades. Some members of Congress and opponents of the tobacco program question how the federal government can support tobacco production while it simultaneously supports efforts to reduce tobacco consumption. While the price support program operates at no net cost to the federal government or taxpayers, program opponents argue that the existence of USDA administrative costs and crop insurance subsidies – estimated to be about $14 million and $48 million, respectively, in 1997 (Womach) – prevent the tobacco program from being a true no-net-cost program. In addition to political pressure from outside grower circles, the tobacco program does present some internal challenges and concerns for growers. First, while the program does provide price stability, it does not protect against quota instability. In fact, the program operates to stabilize price by destabilizing quota. While this is less a problem for small burley producers in Tennessee than it is for large flue-cured growers who invest in achieving a productive capacity that is then dependent upon being able to secure sufficient quota, quota owner referendums to continue the program must be voted on by all quota owners alike including both small burley and large flue-cured producers. Second, restricting quota transfer across states (and across county boundaries in all states except Tennessee) induces additional inefficiencies as it does not allow production to move to the lowest cost areas. Also, the program has provided a stable and high world tobacco price, under which foreign competition has developed. As a result, the program's effectiveness has diminished in recent years as production increases and quality improvements overseas have deteriorated U.S. tobacco price competitiveness and thus market share.

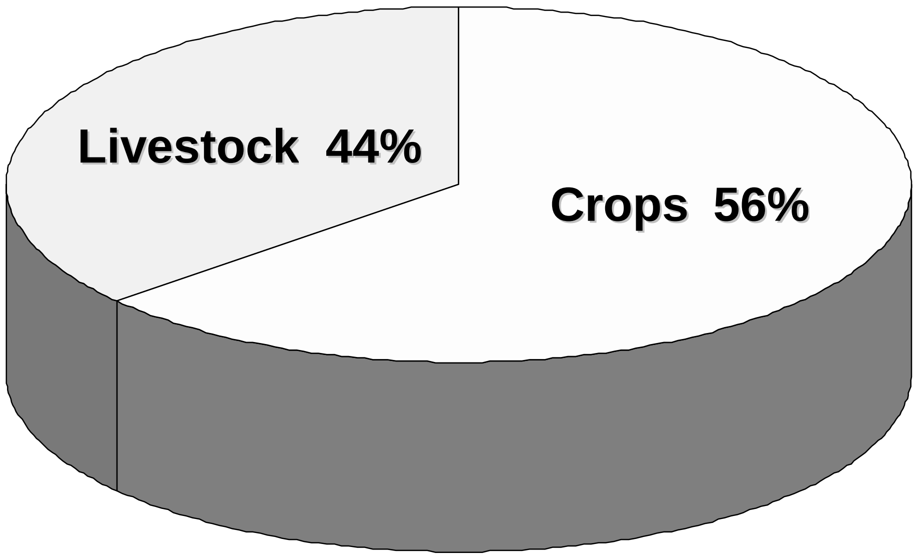
The Outlook for Tobacco Production in Tennessee

It is unclear how all of the forces influencing the future of tobacco production will play out. However, several of the pressures on tobacco production and the program are expected to negatively impact Tennessee's producers in the near future. As tobacco manufacturers have invested heavily in recent years in developing production capabilities outside the U.S., higher quality and quantity imports will affect demand for domestic burley tobacco. Some of the largest purchasers of U.S. export burley have been Asian countries recently affected by a variety of financial crises, which is reducing expectations for export growth in the near future. Demand for domestic burley is also expected to be significantly affected by the recently announced settlement reached by tobacco companies and states' attorneys general. The agreement settles existing state Medicaid lawsuits in exchange for tobacco industry agreement to change some of their marketing practices and payments in excess of $200 billion over 25 years. Tobacco companies have significantly increased the price of cigarettes in anticipation of settlement payments, which will reduce domestic demand for cigarettes, and thus the demand for raw tobacco. Burley purchase intentions and quotas will not be determined before publication of this report, but experts predict a double-digit quota cut for burley in 1999, following a quota cut of 9.5 percent in 1998 (Snell). Depending on announcement of burley purchase intentions, quota cuts could be as high as 30 percent (Snell). In anticipation of reduced demand for cigarettes, tobacco companies lowered their purchase intentions for flue-cured tobacco by nearly 30 percent this year, which contributed to a flue-cured quota cut of 17.5 percent for 1999, on the heels of an 18 percent quota cut in 1998.

Given the uncertainty facing the tobacco industry, most tobacco farmers are attempting to diversify their income base. However, few alternative agricultural enterprises can consistently rival the high net returns per acre of tobacco or support as many farms. In many cases, net returns from tobacco are utilized to finance diversification into other agricultural enterprises. Despite these diversification strategies, a large percentage of farms growing tobacco are still heavily dependent on returns from tobacco. Census data reveal that 74 percent of the state's 23,000 tobacco farms derive at least 50 percent of their total farm sales from tobacco. While tobacco remains a vital component of the enterprise mix on these farms, census data also reveal that over 60 percent of tobacco farm operators work off-farm with over 40 percent working off-farm full-time (Grise). With limited alternatives in agriculture that can provide the opportunity for a similar level of income on so few acres in rural East Tennessee, pressures on tobacco production and the tobacco program threaten the economic vitality of many of Tennessee's rural economies that have been structured around tobacco.

While the growers were not part of the tobacco settlement reached in late 1998, political leaders from tobacco producing states and tobacco company officials have been meeting to discuss concerns about potential consequences the settlement could impose on many rural communities in the South. To date, discussions have centered around development of "Phase II" of the settlement, anticipated to involve establishment of a company-supported farm-level trust fund to compensate tobacco farmers for reductions in quota and economic harm induced by "Phase I" of the settlement. Despite recent developments, the tobacco industry, tobacco farmers, and communities dependent on tobacco still face considerable political, legal, and economic uncertainty. Potential future changes in national tobacco policy (e.g., elimination of the federal tobacco program, increase in the federal excise tax on tobacco products, additional regulation) and litigation facing the industry will continue to affect the structure and location of tobacco farming, diversification strategies, and the distribution of farm income, agribusiness sales, and economic growth in tobacco-dependent regions including Tennessee.

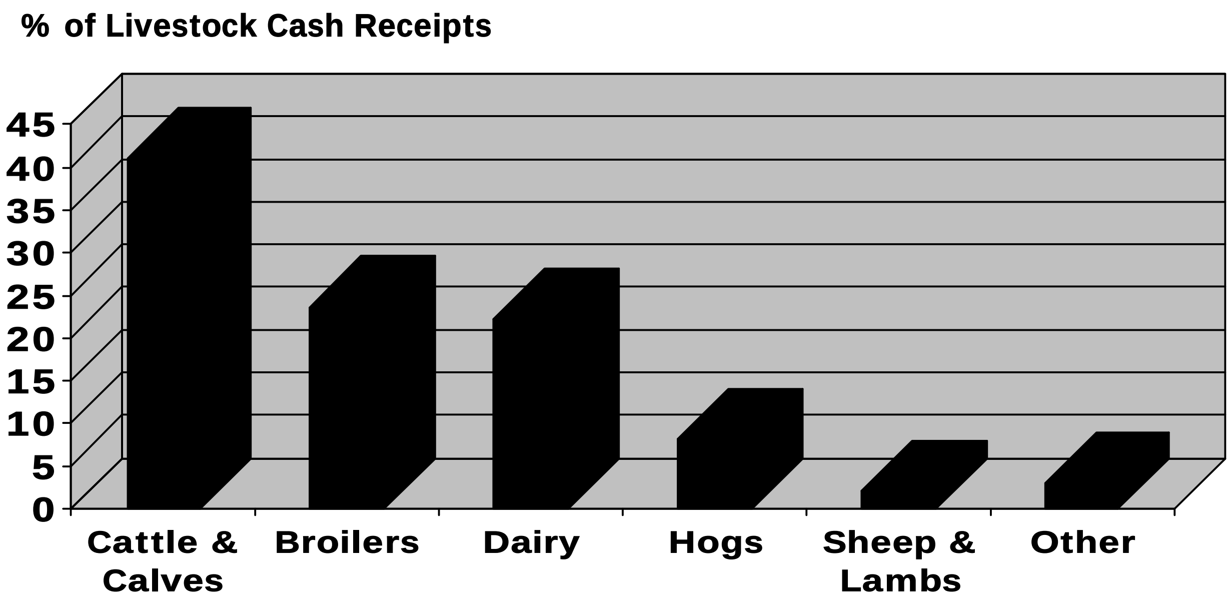
Figure 1. Share of Tennessee Agricultural Receipts, 1997



	$1,000	% of Receipts
Crops	1,286,707	56.1%
Livestock	1,004,965	43.9%

Source: Tennessee Ag Statistics, 1998.

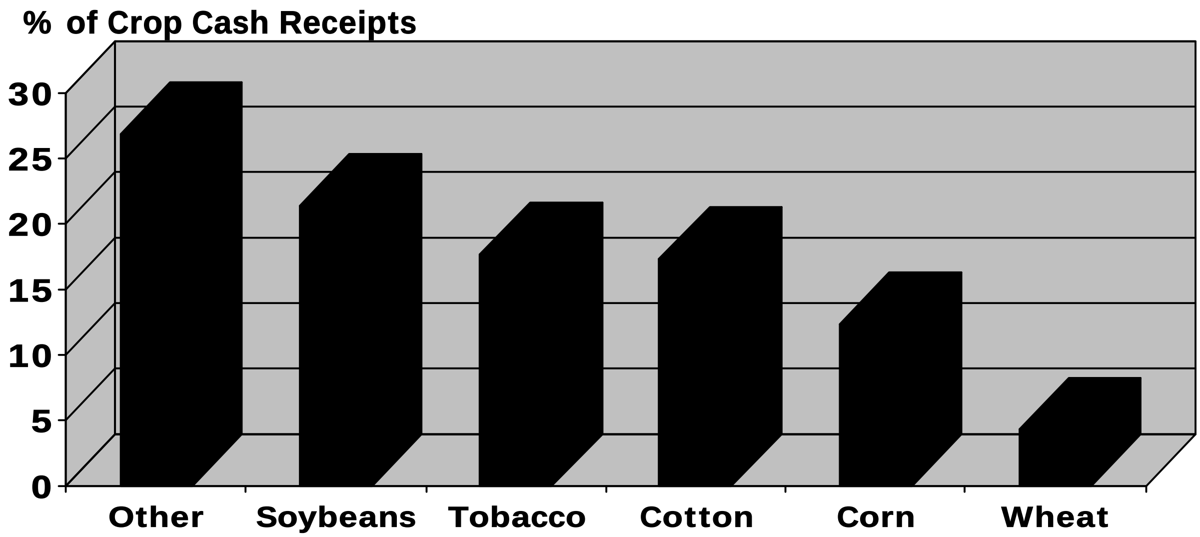
Figure 2. Share of Tennessee Livestock Receipts, 1997



	$1,000	% of Receipts
Cattle & Calves	412,981	41.1%
Broilers	237,006	23.6%
Dairy	223,485	22.2%
Hogs	81,351	8.1%
Sheep & Lambs	19,763	2.0%
Other	30,379	3.0%

Source: Tennessee Ag Statistics, 1998.

Figure 3. Share of Tennessee Crop Receipts, 1997



	$1,000	% of Receipts
Soybeans	275,017	21.4%
Tobacco	227,715	17.7%
Cotton	223,201	17.3%
Corn	158,697	12.3%
Wheat	55,492	4.3%
Other	346,585	26.9%

Source: Tennessee Ag Statistics, 1998.