National Agricultural, Research, Extension, Education and Economics Advisory Board
Southern Regional Listening Session

Small and Family Farms: Challenges and Needs
Alcorn State University, Alcorn, Mississippi

AFPC Policy Issues Paper 99-1

August 1999

Agricultural and Food Policy Center
Department of Agricultural Economics
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Southern Region Representative Crop Farms Structure and Profitability

The Agricultural and Food Policy Center's (AFPC) primary purpose is to analyze the economic and financial impacts of alternative government policies on U.S. farming and ranching operations. This is accomplished through the maintenance of data necessary to simulate the economic and financial activities of more than 80 representative crop and livestock farms chosen from major production areas across the United States. Twenty of the 41 crop farms are located in the Southern region. A brief description of these crop farms and their location is summarized in Appendix A. The economic and financial observations reported in this paper are based on AFPC's experience with the crop farms in the Southern region.

The paper is organized into four sections. The first section summarizes the process used to develop the representative farms. The second section presents the crop farms in terms of total crop cash receipts and economic efficiency as measured by the ratio of total cash costs to receipts. The third section reports the economic and financial conclusions inferred by AFPC's experience with these crop farms. The final section addresses research, education and policy implications drawn from the analysis.

Representative Panel Process

The location of the farming operations reported in this paper is primarily the result of discussions with staffers for the House and Senate Agriculture Committees. The structural information reported in this paper was obtained from panels of producers using a consensus building interview process.

The producers were primarily identified by land grant faculty (county agents, farm management specialist and others) familiar with agricultural production in the region. The local faculty were asked to identify producers that were dependent on farming for their economic livelihood and represented the majority of commercial operations in the region. Once the panel representatives of moderate scale commercial operations were identified, a second panel of producers was developed that represented operations two to three times larger than the moderate scale farm.

The data obtained from the farm panels are analyzed in a whole farm simulation model (FLIPSIM) developed by AFPC. The panel members are provided pro forma financial statements for the farm and asked to verify the accuracy of the simulated results. Each panel must approve of the model's ability to reasonably reflect the economic activity on their representative farm prior to its inclusion in AFPC analyses.

Farm Size and Profitability

The twelve moderate scale farms in the Southern region range in size from $205,000 in gross receipts for the Texas Rolling Plains cotton farm (TXRPC2500) to $624,000 for the Arkansas rice (ARR2645) operation (Table 1). The average gross receipts over the twelve farms is approximately $396,000.

Projected cash expenses per dollar of revenue averages 84 percent for the twelve operations ranging from a low of 68 percent for the Arkansas rice farm (ARR2645) to 101 percent for the Texas Coastal Bend cotton farm (TXCBC1700). On average 16 cents out of every dollar of gross receipts is available to cover principal payments, depreciation, family living expenses and taxes.

Table 1. Farm Size and Cash Expenditures Per Dollar of Revenue for Moderate Scale Crop Farms in the Southern Region.

LOCATION *	Gross Receipts **	Total Cash Expenditures/ $ Revenue ***
TXNPG1600	$319,000	76.2%
TNG900	$268,000	89.8%
SCG1500	$502,000	82.3%
TXSPC1682	$511,000	76.9%
TXRPC2500	$205,000	91.5%
TXBLC1400	$235,000	71.4%
TXCBC1700	$348,000	100.6%
TNC1675	$492,000	96.9%
TXR2118	$411,000	73.4%
MOR1900	$559,000	98.7%
ARR2645	$624,000	67.7%
LAR1100	$274,000	86.3%
AVERAGE	$395,667	84.3%

* The first two letters denote the state. If five letters, the 3&4th define a region. The last letter defines the primary commodity produced: G-feed grains, C-cotton, and R-rice. The numbers represent the acres farmed.

** The gross receipts is the sum of cash receipts from all sources including marketings, government payments, insurance indemnities, and other farm related income.

*** Percentage of gross receipts consumed by cash expenses that include variable costs, interest costs, and fixed cash costs. Not included are principal payments, depreciation, income taxes and family living expenses.

The average gross receipts for eight large scale farms exceeds a million dollars annually (Table 2). The farms range from $678,000 for the Tennessee feed grain farm (TNG2400) to $1,635,000 for the large Missouri rice farm (MOR4000).

The Arkansas rice farm (ARR3400) spends 58 cents of every dollar received on cash expenses while the Tennessee cotton (TNC3800) spends 95 cents per dollar of revenue. The large farms on average are projected to spend approximately 78 cents of every dollar earned.

Relative Profitability

In seven of the eight areas in the South where AFPC maintains both a moderate and large scale operation, the larger farm has a lower cash expense to receipts ratio. The Texas rice farms are the only exception.

The eight large farms average over 5 cents less cash expenditures per dollar of receipts relative to the smaller scale farms. This favorable expense to receipts ratio for the large farms translates into approximately $58,000 annually or a 30 percent higher return to family living, depreciation, principal payments, taxes and risk as compared to the moderate scale counterpart.

Research Education and Policy Implication

The USDA report "A Time to Act" quotes research that states "small family and part-time farms are at least as efficient as larger commercial operations. In fact, there is evidence of diseconomies of scale as farm size increases." AFPC's research has not come to the same conclusion. In general:

- Larger operations tend to experience technical and pecuniary economies of scale as compared to small and moderate farms. As a result, economic production and market forces are likely behind the increasing concentration of production agriculture and agribusiness.

Table 2. Farm Size and Cash Expenditures Per Dollar of Revenue for Large Scale Crop Farms in the Southern Region.

LOCATION *	Gross Receipts **	Total Cash Expenditures/ $ Revenue ***
TXNPG5500	$1,204,000	70.5%
TNG2400	$678,000	79.6%
SCG3500	$1,329,000	70.8%
TXSPC3697	$984,000	72.8%
TNC3800	$1,205,000	95.3%
TXR3750	$1,193,000	83.5%
MOR4000	$1,635,000	90.0%
ARR3400	$835,000	58.3%
AVERAGE	$1,132,875	77.6%

* The first two letters denote the state. If five letters, the 3&4th define a region. The last letter defines the primary commodity produced: G-feed grains, C-cotton, and R-rice. The numbers represent the acres farmed.

** The gross receipts is the sum of cash receipts from all sources including marketings, government payments, insurance indemnities, and other farm related income.

*** Percentage of gross receipts consumed by cash expenses that include variable costs, interest costs, and fixed cash costs. Not included are principal payments, depreciation, income taxes and family living expenses

- AFPC research indicates that the smaller, moderate scale commercial farms have received proportionally greater benefit from government programs in terms of reducing the risk of economic failure. Therefore, past government programs most likely slowed the move to a concentrated agriculture sector.
- Larger farms tend to be better able to manage the production and marketing risk associated with contemporary agriculture when compared to the smaller scale commercial counterparts.

In a market-oriented economy that is globally dependent, it is unlikely that government policy can significantly alter the economic forces which have contributed to increasing concentration in agriculture. These trends tend to suggest the need for a research, extension and policy agenda that:

- Develops a research and education delivery system where producers at all levels can effectively quantify the risk associated with their farming and ranching operations in both an operative and strategic context.
- Allows producers, regardless of scale, to effectively understand and utilize the risk management alternatives available to them.
- Aids the formation of group efforts, such as cooperatives, so producers can pool their economic strength to improve their collective economic welfare.
- Provides a publically available information system that is freely available to all agricultural producers and agribusiness.
- Encourages the public sector to do a better job of targeting research and education resources to a diverse agriculture.
- Provides U.S. agriculture the means to remain as competitive as possible in a global marketplace while recognizing that governments will always intervene on behalf of their parochial interest.

APPENDIX A:

Location and Characteristics
of Southern Region Representative
Crop Farms

Figure 1. Southern Region Representative Crop Farms

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1999 CHARACTERISTICS OF SOUTHERN REGION PANEL FARMS PRODUCING FEED GRAINS

TXNPG1600 A 1,600-acre Northern High Plains of Texas (Moore County) moderate size, 100 percent irrigated, grain farm with 642 acres of wheat, 280 acres of sorghum, 470 acres of corn, and 208 acres fallow. The farm generates 70 percent of its total receipts from feed grains.

TXNPG5500 A 5,500-acre Northern High Plains of Texas (Moore County) large, 85 percent irrigated, grain farm with 1,675 acres of irrigated wheat, 800 acres of dryland wheat in the corners of all pivot irrigated fields, 275 acres of irrigated sorghum, 2,200 acres of irrigated corn, and 550 acres fallow. The farm generates about 74 percent of its receipts from feed grains.

TNG900 A 900-acre Western Tennessee (Henry County) grain and soybean farm with 400 acres of corn, 500 acres of soybeans, 200 acres of wheat, and 250 acres of hay. The farm generates about 77 percent of its receipts from corn and soybeans.

TNG2400 A 2,400-acre Western Tennessee (Henry County) grain and soybean farm with 1,200 acres of corn, 1,200 acres of soybeans, and 600 acres of wheat. The farm generates about 87 percent of its receipts from corn and soybeans.

SCG1500 A 1,500-acre South Carolina (Clarendon County) moderate size grain farm with 750 acres of double cropped wheat and soybeans, 600 acres of corn, and 150 acres of full season soybeans. The farm generates about 64 percent of its total receipts from corn and soybeans. This farm enjoys high returns on double cropped acreage but timing will not allow more than 750 acres.

SCG3500 A 3,500-acre South Carolina (Clarendon County) large grain farm with 2,020 acres of double crop wheat and soybeans, 350 acres of cotton, and 1,130 acres of corn. This farm enjoys high returns on double cropped acreage but timing is a limiting factor. The farm generates 57 percent of its receipts from corn and soybeans.

1999 CHARACTERISTICS OF SOUTHERN REGION PANEL FARMS PRODUCING COTTON

TXSPC1682 A 1,682-acre Texas Southern High Plains (Dawson County) moderate size cotton farm, updated December 1998. The farm plants 1,185 acres of cotton (886 dryland and 319 irrigated), 196 acres of peanuts, and has 183 acres in CRP. This farm is just now starting to adopt the irrigation practices of its larger counterpart. The farm generates 62 percent of its receipts from cotton.

TXSPC3697 A 3,697-acre Texas Southern High Plains (Dawson County) large cotton farm, updated December 1998. The farm plants 2,665 acres of cotton (2,095 dryland and 570 irrigated), 285 acres of peanuts, and has 214 acres in CRP. Cotton generates 74 percent of this farms receipts.

TXRPC2500 A 2,500-acre Texas Rolling Plains (Jones County) cotton farm that plants 1,240 acres of cotton, and 825 acres of wheat. The farm also has 25 breeding cows and uses the wheat acreage to graze the cattle in the winter. About 74 percent of this farms receipts are derived from cotton. This farm represents the consolidation of two previous representative farms.

TXBLC1400 A 1,400-acre Texas Blacklands (Williamson County) moderate size cotton and grain farm, updated February 1999, the farm has 350 acres of cotton, 400 acres of sorghum, 550 acres of corn, and 100 acres of wheat. This farm also has 50 breeding cows which are pastured on rented land that cannot be cropped. Cotton generates 38 percent of the farms receipts.

TXCBC1700 A 1,700-acre Texas Coastal Bend (San Patricio County) cotton farm, updated January 1999. The farm has 765 acres of cotton, and 935 acres of grain sorghum. Severe disease problems force this farm to plant at a minimum 50 percent of the land to grain sorghum. About 67 percent of this farm's receipts are cotton receipts.

TNC1675 A 1,675-acre Southwest Tennessee (Fayette County) cotton farm, developed in 1998, with 838 acres of cotton, 670 acres of soybeans, and 168 acres of corn. The farm generates about 68 percent of its cash receipts from cotton.

TNC3800 A 3,800-acre Southwest Tennessee (Haywood County) cotton farm, developed in 1998, with 2,508 acres of cotton, 760 acres of soybeans, 300 acres of wheat, and 532 acres of corn. The farm generates about 77 percent of its cash receipts from cotton.

1999 CHARACTERISTICS OF SOUTHERN REGION PANEL FARMS PRODUCING RICE

TXR2118 A 2,118-acre West of Houston, Texas (Wharton County) moderate size rice farm that harvests 600 acres of first crop rice, and 510 acres of ratoon rice. The farm receives 98 percent of its gross receipts from rice.

TXR3750 A 3,750-acre West of Houston, Texas (Wharton County) large rice farm that harvests 1,500 acres of first-crop rice, 1,275 acres of ratoon rice, and 200 acres of hay. The farm also has 200 breeding cows. About 95 percent of the farm's gross receipts are from rice.

MOR1900 A 1,900-acre Southeastern Missouri (Butler County) moderate size rice farm with 616 acres of rice, 650 acres of soybeans, and 633 acres of corn. Rice accounts for 52 percent of this farms receipts.

MOR4000 A 4,000-acre Southeastern Missouri (Butler County) large rice farm with 1,710 acres of rice, 800 acre soybeans, 1,250 acres of corn, and 240 acres of cotton. About 59 percent of this farm's receipts are generated from rice.

ARR2645 A 2,645-acre Arkansas (Arkansas County) moderate size rice farm with 175 acres of medium grain rice, 512 acres of long grain rice, 958 acres of soybeans, 230 acres of corn, and 450 acres of wheat. About 54 percent of the farms receipts come from rice.

ARR3400 A 3,400-acre Arkansas (Arkansas County) moderate size rice farm with 325 acres of medium grain rice, 975 acres of long grain rice, 1,700 acres of soybeans, and 500 acres of wheat. About 65 percent of the farms receipts come from rice.

LAR1100 A 1,100-acre Louisiana (Jefferson Davis, Acadia, and Vermilion Parishes) moderate size rice farm harvesting 189 acres of medium grain rice, 351 acres of long grain rice, 362 acres of soybeans, and 198 acres of fallow. About 85 percent of this farm's receipts are generated by rice.

A policy issue paper is an attempt to verbalize an emerging policy issue. Conclusions drawn are tentative and based on industry observations and economic theory. It does not report final research results, although it may include some quantitative information to support particular positions taken in the paper. AFPC welcomes comments and discussions of these results and their implications. Address such comments to the author(s) at:

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