APPLICATION OF TYPICAL FARM ANALYSIS AS

A TOOL FOR POLICY AND ECONOMIC

EVALUATION OF AGRICULTURE IN

SOUTHWESTERN OKLAHOMA

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CHAPTER I

INTRODUCTION

Farmers, depending on farm size, resource mix, and attitudes about risk and change, react differently to the external stimuli affecting their operations. However, as changes occur, it is helpful to communities, regions and the state to have an idea of how changes in governmental farm policy or changes in technology might impact their jurisdictions. Agricultural policy makers, money lenders, regional planners, etc. need information on how policy changes, price changes, and technology changes affect the financial condition of the farms and communities in which they work. Determining the impacts of change on the farm sector requires identifying the variables that influence the economic environment in which farmers operate. The same information used to evaluate changes in prices and farm policies is also important for monitoring the economic performance of individual farms.

One way to provide assistance to those needing information is by using typical farms for doing comparative analyses and for preparing descriptive reports. If properly specified, the use of typical farms can save research resources by permitting inductive research on a relatively small group of farms with the results attributed to a large number of farms. A typical farm is not necessarily the mean or modal farm, but is a model farm representing a group of farms in a region. Hopefully, the typical farms will provide close approximations to the relevant characteristics of a great number of actual farms.

A set of typical farms, properly formed, can incorporate:

1. The typical farm sizes in a region.

2. The most common mixes of enterprises.

3. Common combinations of capital items required for production.

4. Common sets of financial statistics for measuring the economic well-being of farm firms.

Agricultural researchers can employ typical farms for determining the impact of alternative programs and changes in technology on specific types of farms. In addition, where there is knowledge of the financial situation of farmers in a region, typical farm analysis can be used to study the financial changes in farms and, if the results are aggregated, in regions. Results of typical farm analysis are also valuable to those wanting estimates of future farm income. Agricultural investors and financial institutions who make investment and lending decisions, need accurate and timely information. Any need for understanding and explaining how farms react to changes in policy, prices, and technology, can effectively use typical farm analysis.

Most agricultural policies are designed to reduce income instability in the farm sector and/or reduce food price and quantity instability to the population. Typical farms can be used to determine whether the policy goals for the agricultural sector are being met.

Problem Statement

Farmers, policy makers, planners, agricultural lenders and professionals are interested in how farmers of different sizes should react to external stimuli such as policy, prices, and technology. Across Southwest Oklahoma, there are different sizes of farms organized with different combinations of enterprises.

This study of the typical farm in Southwest Oklahoma provides a framework for evaluating the performance of farms having varying sizes facing changing conditions. Of concern to the state of Oklahoma is how the changing economic environment of agriculture will ultimately affect cities, the region, and the state as a whole.

Objectives of the Study

The major purpose of this study is to demonstrate the use of typical farms for evaluating individual farm performance and then aggregating the farm level results to the Southwest Oklahoma region. The specific objectives of the study are

- to determine machinery complement combinations for large, medium, and small farms assuming typical enterprises, mixes of labor, wage rates, interest rates, prices, taxes and insurance.

- to determine the government deficiency payments for the typical farms given the selected set of enterprises, using the appropriate target prices, market prices, loan rates and other farm program information.

- to determine the costs and returns for each typical farm using enterprise budgets generated for each production enterprise.

- to aggregate the results of the typical farms to regional totals, thereby demonstrating how the typical farm approach can be implemented in other regions of the state.

The Study Area

The study area is the Southwest region of Oklahoma that includes 10 counties and assumed to have similar soil, climate, crop and crop yield. Included are the ten counties (Roger Mills, Beckham, Washita, Kiowa, Greer, Harmon, Jackson, Tillman, Comanche, and Cotton) shown in Figure 1.1.

An average of 2,077,742 acres of the five principal crops (wheat, alfalfa, cotton, peanuts, and grain sorghum) were grown per year in Southwest Oklahoma between 1987 and 1992. In 1992, farmers in southwest Oklahoma planted 1,685,000 acres of wheat which was 22.7 percent of the wheat acres in Oklahoma. About .55 percent of the wheat acreage was irrigated and the region produced 21 percent of the state's irrigated wheat production. The 72,500 acres of alfalfa was 18 percent of the alfalfa acres in Oklahoma. Cotton plantings of 384,200 acres (30 percent irrigated) included over 66 percent of land producing cotton in Oklahoma in 1992. Sorghum was planted on 40,000 acres (8 percent irrigated) which was 9 percent of sorghum acreage in Oklahoma. The 8,800 acres (92 percent irrigated) of peanuts were 8 percent in Oklahoma's peanut acres (Oklahoma Agricultural Statistics, 1992)*.

Among the ten counties in the southwest region, three are among the leading agricultural income producing counties in Oklahoma. Southwest Oklahoma ranks second in wheat production, first in cotton production, first in peanut production and third in alfalfa production among the eight Oklahoma regions. The average annual sales of agricultural products in the ten counties is over $3 billion. According to the 1987 Census, the study area has 5,950 farmers which is about 8.5 percent of the total number of farmers in Oklahoma.
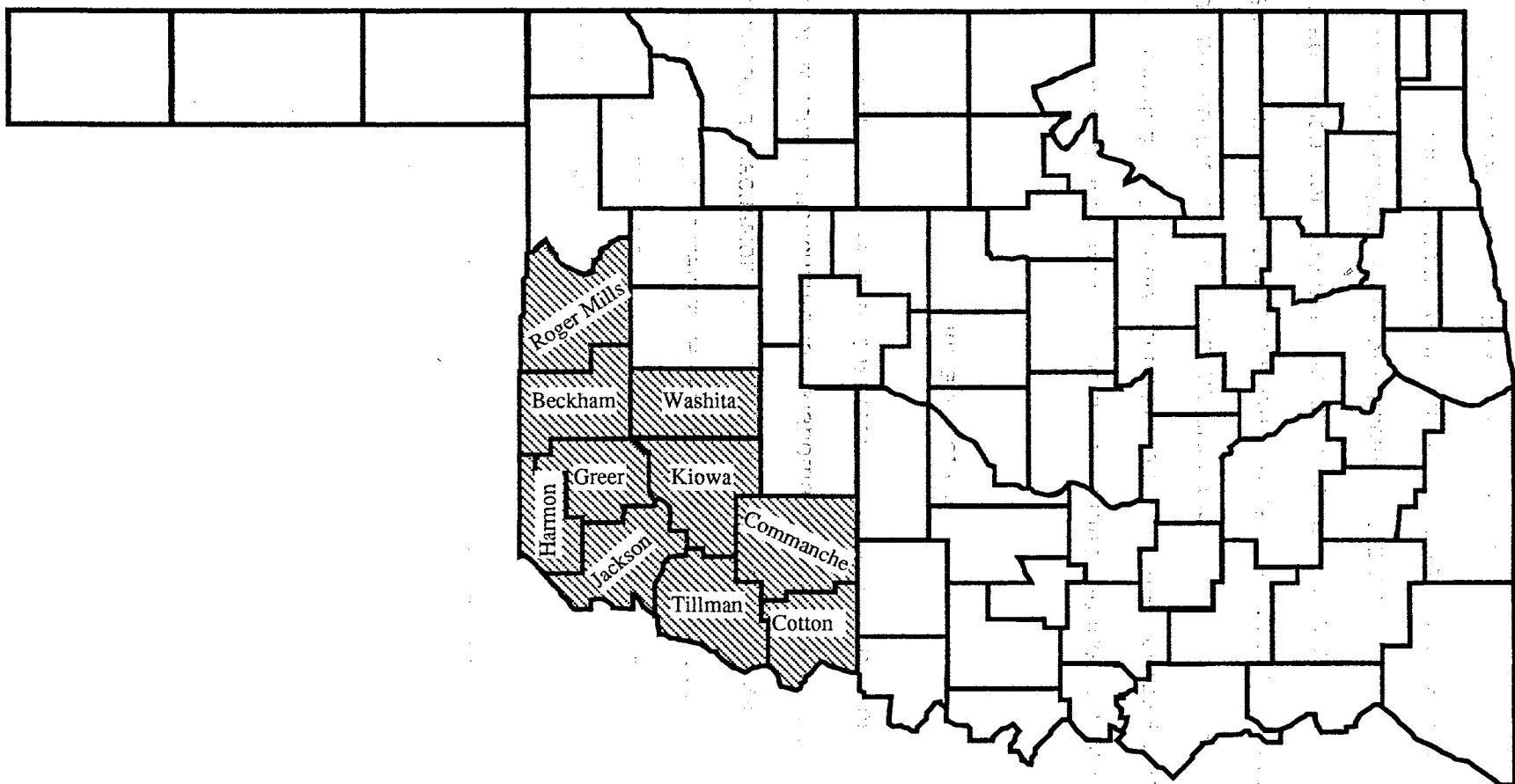
Figure 1.1. Map of Oklahoma with Study Area Outlined.

The land under production in Southwest Oklahoma is 8.3 percent of the land under production in the state.

Southwest Oklahoma agricultural land is used mostly for the production of wheat and cotton. The other principal crops, peanuts, alfalfa, grain sorghum and corn are important in several counties of the region. Livestock production is important in the region. The native pasture is used for cow-calf and stocker operations. In addition, wheat grazed during the winter provides provides substantial grazing. Irrigated cropland is important in several counties of the study area and is used primarily for cotton and peanuts. The major sources of irrigation water are lakes, some rivers and underground aquifers. Ditch and center pivot systems are the most popular distribution systems.

Soils in the region are characterized as a mix of rolling red plains, reddish prairies, and granitic soils (Warmann, 1984). Rainfall in the region ranges between 21 and 40 inches per year for the period of 1984 - 1992 with an average of 35 inches per year. The average annual temperature was 61.9 degrees Fahrenheit between 1984 and 1992 (Table 1.3).

The importance of the five crops under consideration relative to the rest of Oklahoma and the rest of the United States is shown in Tables 1.1 and 1.2.

Data Procedure

This study uses a large amount of data coming from a wide variety of sources. The farm sizes are taken from county census data. Crop acreages and yields are determined from the Oklahoma Crop and Livestock Reporting Service county level data. Oklahoma State University Extension costs and returns budgets are used to identify the machinery operations required and MACHSEL (a program for selecting machinery complements) is used to select

TABLE 1.1

RANK OF OKLAHOMA REGIONS IN THE PRODUCTION
OF THE FIVE CROPS

	Wheat	Cotton	Alfalfa	Peanuts	Grain Sorghum
Panhandle	4	-	7	-	1
West-Central	3	2	5	5	5
South-West	2	1	3	1	3
North-Central	1	-	2	-	4
Central	5	3	1	3	6
South-Central	7	4	4	2	7
North-East	6	-	6	-	2
East-Central	8	-	8	3	8
South-East	9	-	9	-	9

Source: Oklahoma Agricultural Statistics, 1992.

TABLE 1.2

RANK OF OKLAHOMA FOR SELECTED CROPS
PRODUCED IN THE UNITED STATES

Crop	Number of States	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Wheat	42	3	5	3	4	3	4	2	3	3	4	3
Cotton	17	9	9	11	10	9	9	11	11	9	13	12
Peanuts	9	6	6	7	7	7	6	7	7	6	7	6
Alfalfa	42	5	22	24	21	20	23	19	17	22	22	22

Source: Oklahoma Agricultural Statistics, 1992.

TABLE 1.3

RAINFALL AND TEMPERATURE OF
SOUTHWESTERN OKLAHOMA

Year	1984	1985	1986	1987	1988	1989	1990	1991	1992	Average
Rainfall	21	38	40	37	24	30	35	40	34	35.2
Temperature	62	61	63	61	61	61	62	62	62	61.9

Source: National Oceanic and Atmospheric Administration: Climatological
          data annual summary, Oklahoma 1984-92, Page 2-9.

Note   :   Temperature is recorded in degree Fahrenheit.
       :   Rainfall is measured in inches.

feasible complements of machinery for each typical farm. The enterprise cost and returns budgets are used to estimate per acre income and expenses for the individual crops. Government program alternatives are evaluated using the 1993 Government Program worksheet developed in the Agricultural Economics department of Oklahoma State University. Finally, the whole farm financial analysis for each farm was performed using IFFS, a program used to prepare whole farm financial statements developed in the Agricultural Economics department.

This study uses three farm sizes, small (88 acres), medium (493 acres) and large (1907 acres). For each size of farm there are two organizations, one that has some irrigated cropland and one having all dryland cropland.

Various criteria could have been used to identify the the typical farm organizations. For example, total acreage of land, acreage of specific crops, amount of labor available, types of machinery and tractors on hand, could have been used. Also, total output and gross sales could be used. But for the purposes of this study, the farms were organized based on size and then divided into two groups, one with dry cropland only and another that included irrigated cropland. Machinery complements were then prepared for each farm based on the farm size and the field operations required for producing each crop.

Organization of Chapters

This study includes eight chapters. Chapter II discusses how southwest Oklahoma relates to agriculture in Oklahoma and the rest of the United States. This includes a discussion of some policy issues. Chapter III presents the theoretical basis and literature review for the study. Chapter IV presents the model structure and reports how the data was generated for evaluating and demonstrating the typical farm analysis. Chapter V, VI, and VII demonstrate the use of the typical farm analysis procedure at farm level with aggregation to a regional levels. The summary, conclusion, and suggestions for additional research are presented in Chapter VIII.

CHAPTER II

AGRICULTURE IN THE UNITED STATES OF AMERICA, OKLAHOMA AND SOUTHWEST OKLAHOMA

Southwest Oklahoma is a part of Oklahoma and Oklahoma is a part of the United States. Southwest Oklahoma does not exist by itself and it is important that any study of southwest Oklahoma be within the context of southwest Oklahoma being part of the United States. Towards that end, this chapter begins with a discussion of United States and Oklahoma agriculture. This chapter concludes with a discussion of the dominant crops in southwest Oklahoma. Of particular importance is how southwest Oklahoma compares with the rest of Oklahoma and the United States in producing those crops.

United States Economy and International Situations

The regional economies in Oklahoma are the building blocks of the state economy while the national economy is an aggregation of the economies of the different states. Thus, the regional study performed in this research is inseparable from the national economy. In the last few decades macro economic variables and other sectors of the economy have greatly influenced the agricultural situation and vice-versa. The world agricultural situation, trade agreements, exchange rates, inflation, and political relations all have either direct or indirect effects on the farm situation of the nation and individual regions like southwest Oklahoma.

The trends in inflation rates and interest rates are shown in Figures 2.1 and 2.2 respectively. Interest rates play an important role in the macro economy by influencing the level of saving and investment. Interest also affects agriculture in many different ways, as a cost for the use of capital, as input for making investment decisions, and as a determinate of land prices and commodity storage costs. Inflation is also an important variable when dealing with a farm business. Both inflation and interest rates were very high in 1980. Interest rates approached 18.1 percent at that time, but have been decreasing between 1981 through the beginning of 1994. Since 1987, interest rates has fluctuated between 9 and 12-percent. The inflation rate also began declining in 1981 with the lowest rate occurring in 1985. Since 1985 the inflation rate has been below 6 percent (Presidential Report 1992).
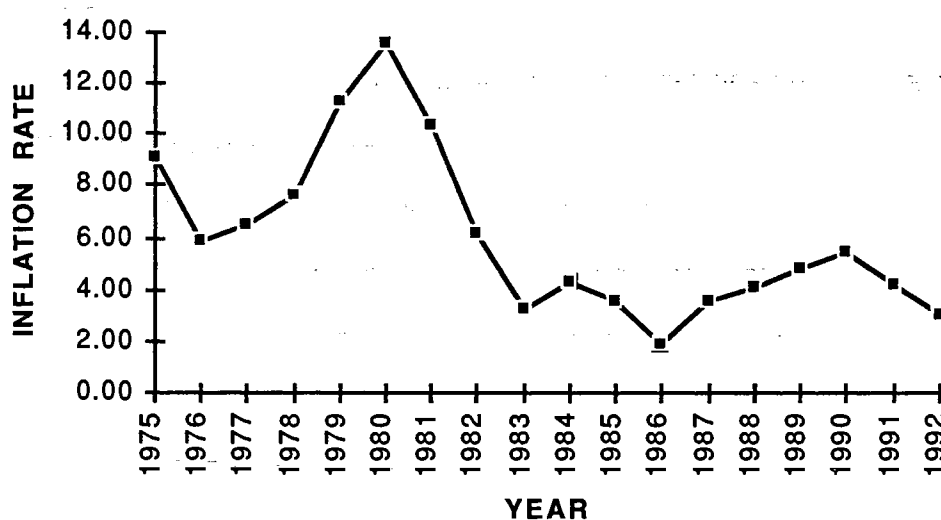
Statistical Abstracts of U.S.A. (1992)

Figure 2.1. Annual Inflation Rate (1975-1992)
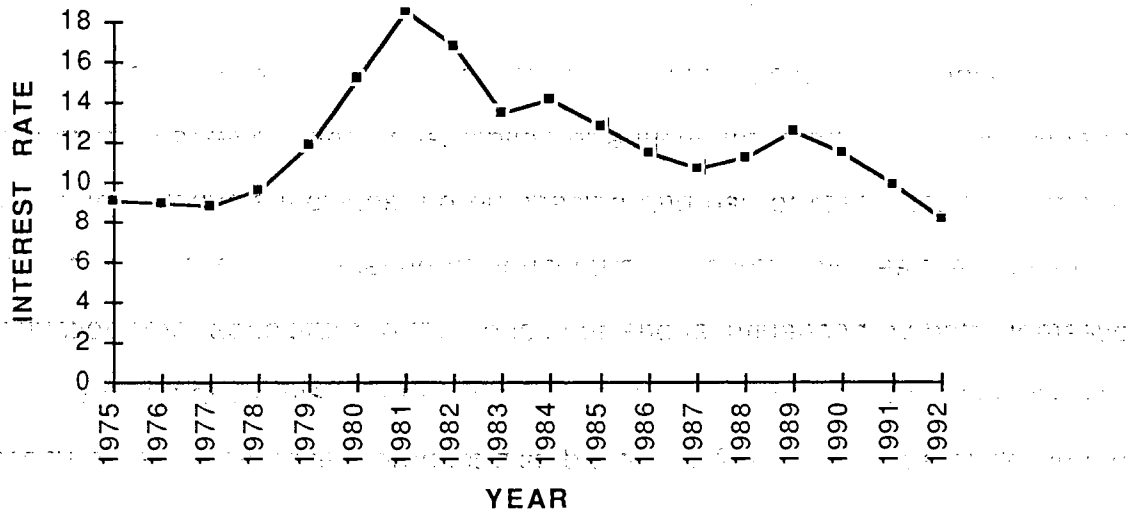
Statistical Abstract of U.S.A (1992).

Figure 2.2. Interest Rate (1975-92)

Inflation affects farming in many different ways. It may be difficult for farmers to finance their operation. A rising inflation rate increases borrowing expense by making the interest rate higher. Inflation creates a cash flow barrier to acquiring assets required in the production process. The lower inflation rate since 1988 is favorable to farmer's investment positions.

An increasing wage rate may decrease the use of capital relative to labor inducing the farmers to purchase larger machinery. Also, as general wages rise, the part time labor often needed by farmers becomes less available, further pushing the farm manager to purchase larger machinery so that he can be less dependent on hired part time labor. The trend in wage rates is depicted in Figure 2.3.
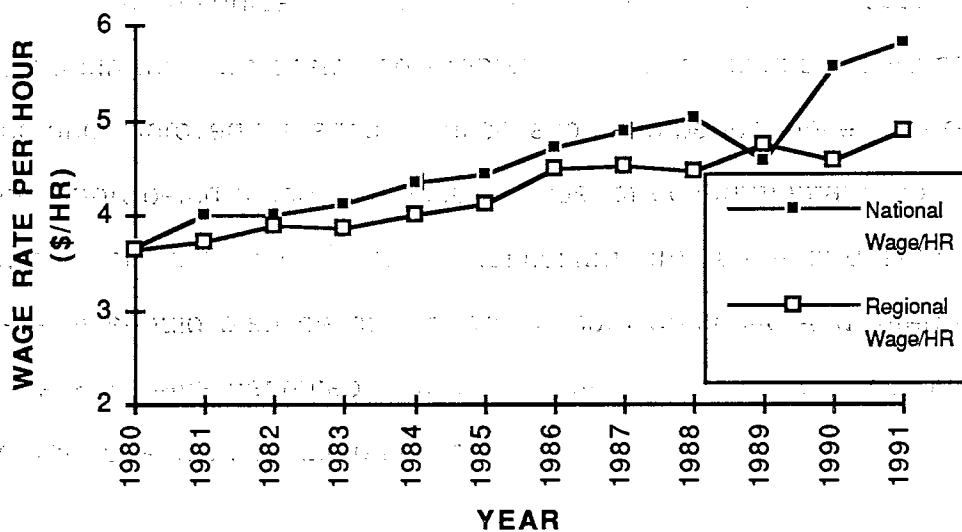
Statistical Abstracts of the United States (1992).

Figure 2.3. National and Regional Agricultural Wage Rate/hr ($/hr.)
(1980-1991)

Typical commodity and input prices are used for enterprises in this study. For affected agricultural production, government programs are a source of supplemental farm income. Thus, for any study of farm financial situations, it is important to consider prices in connection with government programs.

International Events

In the early 1970's many countries in the world had adverse weather conditions. The adverse conditions were dominated by drought which made US agricultural exports increase over earlier periods. In 1972, US exports to the Soviet Union and elsewhere absorbed surplus agricultural production,

especially grains and oil seeds. In 1979, the US grain embargo against the Soviet Union decreased total US exports. Despite interest and efforts towards expanding US agricultural exports, the increased agricultural production of many importing countries caused US exports to decline after 1987. As should have been expected, a strong US dollar also restricted the expansion of exports. As a result of the strong US dollar and the grain embargo on the Soviet Union, US agricultural exports declined during the early 1980's. As a result, domestic prices also declined (Figures 2.4 and 2.6). Towards the end of the 1980's, the US began regaining previously lost export quantities because of a decline in the value of the dollar. When the dollar is weak relative to other currencies, it is less expensive for others to purchase US products.

Another related international event was the 1973 Arab oil embargo and the increase in oil prices engineered by OPEC. This raised the cost of producing agricultural products because many agricultural inputs are derived from petroleum. In addition, oil revenues in the OPEC countries grew faster than they could be consumed, These dollars were deposited in western banks and used to make loans to developing countries who imported agricultural products. Later, as the importing countries increased agricultural production, they imported fewer agricultural products from the US. The dollar decrease in US exports in the early 1980's was caused by both a decrease in quantities and a decrease in prices of agricultural products placed in the world market. These international events had an important affect on the agricultural situation in Oklahoma, in general, and on southwest Oklahoma in particular since southwest Oklahoma is one of the top three wheat and cotton producing regions in Oklahoma (see Table 1.2). The price fluctuations resulting from international events had a profound impact on farmers in southwest Oklahoma as well as the rest of the country.

Agricultural Policy and Farm Programs

United States agricultural policy is economic policy that deals with the production, marketing, and consumption of agricultural products. Production of agricultural products includes the purchasing and use of resources used in the production process. Marketing of agricultural products involves the transfer of production from agriculture to the consumer and is influenced by both domestic and international events. Consumption is the use of agricultural products and encompasses retail prices, product distribution, and other aspects of delivering agricultural products to consumers. A number of policy measures undertaken by the United State Government have been designed to stimulate the agricultural sector by implementing various policy measures directly and indirectly impacting the production, marketing, and consumption of agricultural products.

The Food and Agricultural Act of 1977 was designed to raise both target prices and loan levels to help farmers. At the same time, the US administration was equally anxious to hold down government program cost. The result was a compromise which modestly raised target and loan rates thus keeping the loan rate close to world market price. There were also changes in the 1977 legislation affecting wheat, feed grains, and cotton payment limitations. Payment limitations were raised from $20,000 per farmer to $40,000 per farmer in 1978, to $45,000 per farmer in 1979, and $50,000 per farmer in 1980.

The farm price and income situation deteriorated in 1977 as farmers were affected by stagnant product prices and rapidly increasing input prices Ray (1990). As a result of agriculture's problems, an act was passed in 1978 to raise the target prices of wheat, feed grains, and cotton. With the intent of

increasing exports to the highest possible level, the Commodity Credit Corporation (CCC) was developed in 1982. In 1983, a new program, Payment In Kind (PIK) was developed. The program successfully prevented carry-over surpluses by removing land from production. However, despite the goal of decreasing the government's involvement in farm programs, the PIK and related programs caused an increase of 28 to 30 billion dollars in government agricultural expenditures. Prior to 1970, agricultural policy supported farm prices and income. However, after 1973, farm prices and farm income supports were openly separated. Price supports were provided by conventional CCC loans while income support was provided by direct payments to farmers.

Throughout the 1970's and 1980's, the direct payments increased in size, causing like increases in government's cost of agricultural programs. As a result, a new policy was introduced as part of the late 1980's farm bill. The concept of deficiency payments was developed to make payments to farmers "who participated in the feed grain, wheat, rice, and upland cotton programs" (USDA 1990). The payment rate is per bushel, pound, or hundred weight, based on the difference between a target price and the market price or loan rate, whichever difference is less. Target price is the level of returns per unit of commodity guaranteed to farmers who participate in the government farm programs.

Even with all the changes in government programs, government price and income support programs are believed to have stabilized and even increased farm income compared to what farmers would have received without these programs (Richardson, 1989). A consensus of most agricultural economists is that farm income would have declined had the support programs not been in place. Also, government programs and policies have reduced the risk inherent in farming for most years. Production planning has been easier

and the required flow of capital to farming through the use of new scientific findings and technologically improved large equipment has occurred. In general, though they are costly, government price and income programs have supported and improved the agricultural situation and performance. There is an increasing effort being made to reduce the cost of governmental programs for agriculture. While the future of the US agricultural program is of direct concern to farmers, it should also be of concern to both domestic and international consumers who have benefited from the relatively low cost of food and fiber resulting from past US agricultural policy.

Structure of Agriculture

The structure of agriculture refers to the number of farms, size of farms, who owns and controls the farm resources, the use of technology, and the capital requirements for farms. For the purposes of this study, the important structural characteristics are the number of farms, the sizes of farms, the level of technology, and farm capital requirements.

The number of farms in the US has consistently declined, leading to a growing concentration of production of agriculture in the hands of fewer and fewer farmers. The number of farms in the US declined from 3.7 million in 1960 to 2.7 million in 1970 to 2.4 million in 1980, and to 2.1 million in 1990. (USDA, 1993). In 1978, 64,000 farmers had sales of more than $200,000 accounting for 39 percent of total farm sales. By 1990, the number of farmers having $200,000 in sales totaled one million. The number of farmers in the US declined from 7.9 million in 1970 to 4.5 million in 1990. The number of farmers is greater than the number of farms because some farms require more than one farmer and in some cases farm operations have been legally divided into two or

three separate farms to keep the $50,000 government farm program limit from being a constraint. The structure of agriculture in Oklahoma has followed the same trends as the rest of the United States. Table 2.1 illustrates the changes in population, farm population, percent of farmers, number of farms, and average farm sizes for the United States.

TABLE 2.1

GENERAL TREND OF AGRICULTURE IN THE US

	1960	1970	1980	1990
Population (000)	180,007	204,335	227,020	246,081
Farm Population (000)	15,635	9,712	6,051	4,591
% of Farmers	8.3	4.6	3.4	2.6
Numb.of Farms (000)	3,711	2,780	2,439	2,143
Average Acre.	303	390	426	461

Source: Statistical Abstract of the U. S. Department of Commerce Economics and Statistical Administration (1991).

Agriculture in the United State is one of the most mechanized in the world. For the last four to five decades, the level of mechanization has dictated the direction of changes in US agriculture. A number of studies have shown the importance of agricultural mechanization and improved agricultural technology in the continuously changing U.S economic environment (Craig (1976), Francis (1981)). The structure of agriculture at national, state, and regional levels is treated as a system interlinked to the process of agricultural

production. Agricultural mechanization is connected to this study because it involves machinery size, machine numbers, machine values, machine horsepower, and productivity. Part of this study formulates the micro-macro linkage of the typical farm framework with aggregations for examining the regional impact of changing a governmental policy or part of the farm environment.

Enterprise of the Study

Wheat is a major U. S. crop with 70 to 80 million acres producing nearly 2.5 billion bushels (Salassi 1990). U.S. wheat acreage and production accounts for about 20 percent of the total world wheat acreage and production. The characteristics of the wheat grown and the quantity produced vary from one part of the country to another due to differences in soils, climate, and topography. More than 200 different varieties of wheat are grown in the United States (Salassi 1987).

Oklahoma is considered one of the major wheat producing states in the United States. Among 42 wheat producing states, Oklahoma ranked 3rd or 4th in production between 1982 and 1992. Southwest Oklahoma, one of eight regions in Oklahoma, typically ranks third in wheat production. In 1991, southwest Oklahoma contributed 19.5 percent of the state's wheat production. Table 2.2 shows the shares of acreage under wheat production in southwest Oklahoma. All ten counties in southwest Oklahoma produce wheat with Washita, Jackson, and Kiowa counties having the greatest number of acres. Wheat price trends are shown in Figure 2.4.
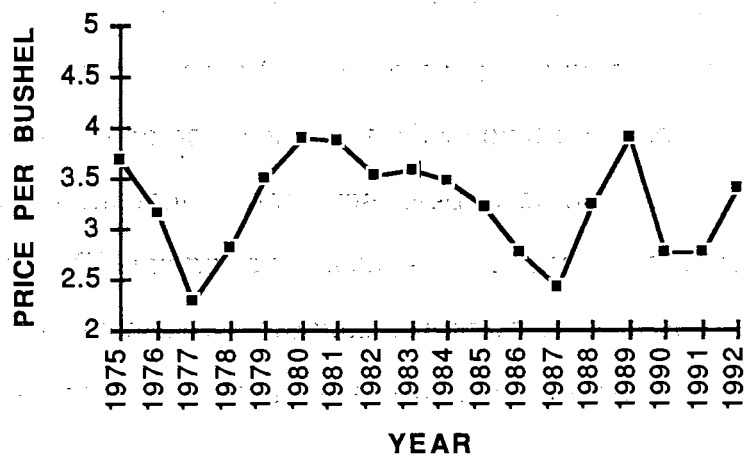
Figure 2.4 Wheat Market Price (1975-92)

TABLE 2.2

WHEAT ACREAGE, PRODUCTION AND VALUE IN
OKLAHOMA (1987-92) AND SHARE OF
SOUTHWEST OKLAHOMA

Year	Oklahoma Planted acres (000)	Oklahoma Production (000 bush)	Oklahoma Value of product (000 dollars)	Percent Acreage in Southwest Oklahoma
1987	7,200	129,600	318,816	22
1988	7,000	172,800	616,896	22
1989	7,300	153,900	583,281	22
1990	7,500	201,600	518,112	23
1991	7,400	140,000	399,000	23
1992	7,400	171,100	547,520	22

Source: Oklahoma Agricultural Statistics (1987-1992).

Cotton is an important United States crop that is produced both for domestic and export purposes. United States cotton imports are small relative to the quantity exported. In 1987, a typical year, the United States produced 14 percent of the total world cotton supply and provided 29 percent of the cotton found in world trade (Kutsianis).

Cotton is the third leading cash crop in Oklahoma, following wheat and all hay in value terms. Since 1975, the annual value of production has averaged over $70 million. Table 2.3 shows that the average planted acres for the period of 1970 to 1991 is over 400,000 acres. Oklahoma is one of the largest ten cotton growing states in the United States. Oklahoma cotton production is concentrated primarily in the southwest one-quarter of the state. Cotton grows best in the subhumid to semiarid environment found in southwest Oklahoma (J.C Banks et al. 1992). Dry cotton accounts for about 70 percent of the total production with the remaining part being produced under irrigation. Cotton is the most irrigated crop in Oklahoma (Oklahoma Agricultural Statistics 1991). Since 1975, the value of cotton production ranks 6th and 7th among all agricultural products in the state of Oklahoma (Oklahoma Agricultural Statistics, 1979, 1984, 1989 and 1992).

Southwest Oklahoma is Oklahoma's largest cotton producing region ranking first between 1987 and 1992. Within Oklahoma, the counties producing the greatest number of cotton acres are located in the Southwest region. Table 2.3 shows the area under cotton production, total production and value of production, in Oklahoma. The table also shows that southwest Oklahoma produces over 85 percent of the state's cotton production. As shown in Figure 2.5, cotton prices have fluctuated between 50 and 70 cents per pound.

TABLE 2.3

COTTON ACREAGE, PRODUCTION AND VALUE IN
OKLAHOMA AND SHARE OF SOUTHWEST
OKLAHOMA

Year	Oklahoma Acres Planted (000 acres)	Oklahoma Total Product (000 bales)	Oklahoma Value of Product (000 dollars)	Percent acrege in Southwest Oklahoma
1987	400	346	96,991	91
1988	460	303	68,066	88
1989	370	173	47,333	86
1990	380	382	115,700	87
1991	440	240	56,448	87
1992	370	210	46,771	88

Source: Oklahoma agricultural statistics (1987-1992).
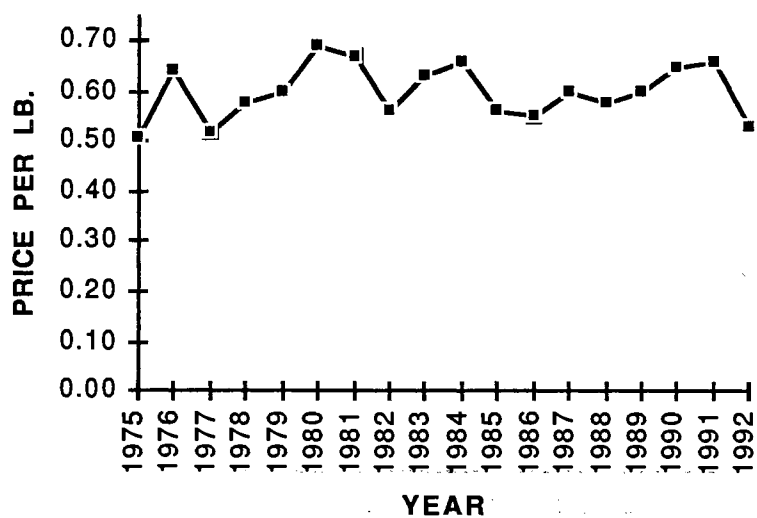
Figure 2.5. U.S. Cotton Market Price (1975-91)

During the years 1987 and 1992, grain sorghum was one of eight most widely grown crops in Oklahoma. Grain sorghum is produced on both irrigated and non-irrigated land. Of the 360,000 grain sorghum acres produced in 1992, 60,000 acres were irrigated. Southwest Oklahoma produces sorghum on about 13 percent of the Oklahoma land area used to produce grain sorghum. As a state, since 1985 Oklahoma ranks sixth and seventh among sorghum growing states. The total area under production and value of production is shown in Table 2.4. Grain sorghum prices are shown in Figure 2.6.

TABLE 2.4

GRAIN SORGHUM ACREAGE AND VALUE OF PRODUCTION
IN OKLAHOMA AND SHARE OF SOUTHWEST
OKLAHOMA

Year	Oklahoma Production (000, acres)	Oklahoma Product (000, dollars)	Percent Acreage in Southwest Oklahoma
1987	450	32,062	11
1988	410	39,204	14
1989	400	36,868	12
1990	380	35,039	11
1991	350	32,430	9
1992	360	33,231	10

Source: Oklahoma Agricultural Statistics (1987-92).
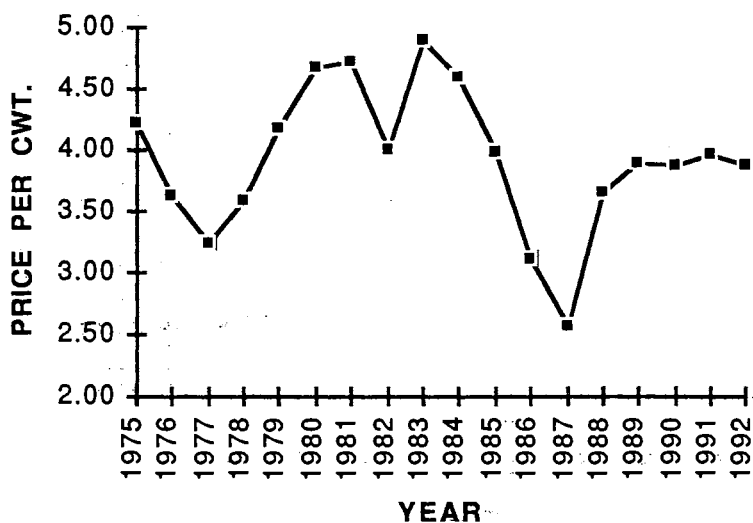
Figure 2.6. Sorghum Market Price (1975-91)

Peanuts rank sixth in value of production among crops grown in Oklahoma for the period of 1984 - 1992 (Oklahoma Agricultural Statistics, 1992). Peanuts are grown on about 100,000 acres annually with about 72,000 acres being irrigated. About 6 percent of the state's acreage devoted to peanuts is in southwest Oklahoma. Of the ten Oklahoma counties producing over 250,000 pounds a year, three are found in southwest Oklahoma. Table 2.5 shows the total peanut acreage and value of production in Oklahoma while Figure 2.7 shows recent prices for peanuts.

TABLE 2.5

PEANUT ACREAGE AND VALUE FOR OK (1987-1992)
AND SHARE OF SOUTHWEST OKLAHOMA

Year	Oklahoma Production (000 acres)	Oklahoma Value of Product (dollars 000)	Percent Acreage in Southwest Oklahoma
1987	100	57,470	5
1988	99	61,661	6
1989	99	60,682	6
1990	107	99,070	7
1991	110	69,483	8
1992	100	76,522	6

Source: Oklahoma Agricultural Statistics 1987-1992.
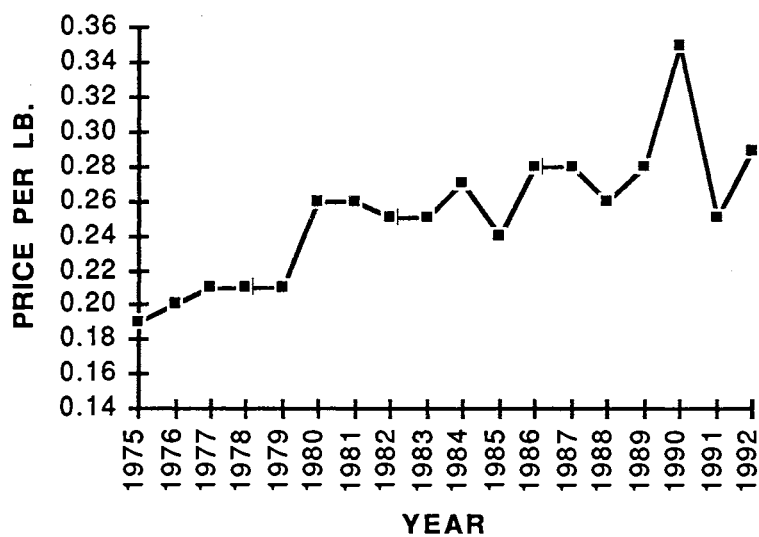
Figure 2.7. Peanut Market Price (1975-92)

Alfalfa is one of the major hay crops in Oklahoma. The total Oklahoma acres devoted to hay, including alfalfa, was over 2.2 million acres a year between 1987 and 1992. About 400,000 acres, or 18 percent of the state's hay acres, were planted to alfalfa. Southwest Oklahoma includes about 17 percent of the total alfalfa acreage in Oklahoma (Table 2.6). Recent prices for alfalfa are shown in Figure 2.8

TABLE 2.6

ALFALFA ACREAGE AND TOTAL PRODUCT
(1987-1992) IN OKLAHOMA AND SHARE
OF SOUTHWEST OKLAHOMA

Year	Oklahoma Acres (000)	Oklahoma Production (000 ton)	Percent Acreage in Southwest Oklahoma
1987	410	4,428	18
1988	410	1,050	17
1989	450	1,560	17
1990	430	1,353	18
1991	400	1,320	18
1992	350	1,330	16

Source: Oklahoma Agricultural statistics. 1987-1992

Note: Production is in tons.
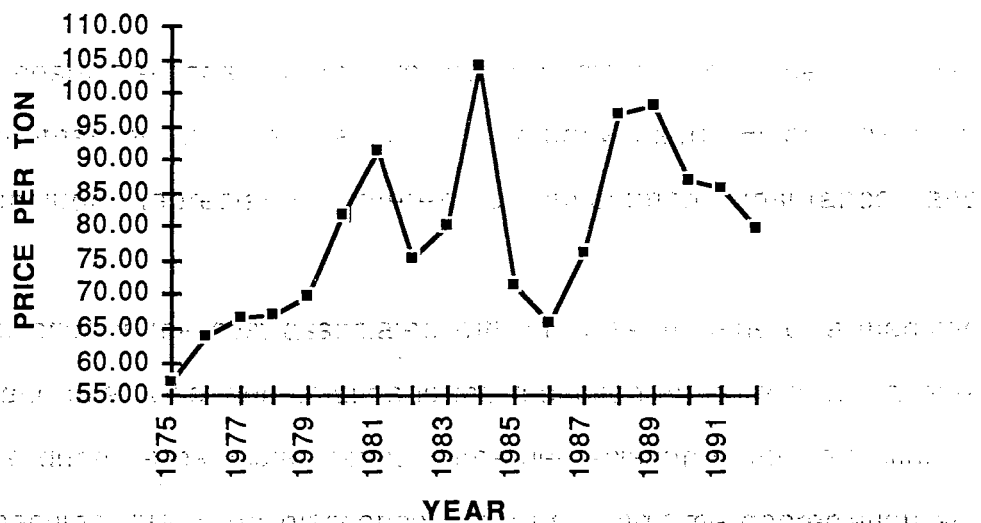
Figure 2.8. Alfalfa Market Price (1975-92)

CHAPTER III

ECONOMIC THEORY AND REVIEW OF LITERATURE

The use of typical farms for evaluating the performance of farm operations and how they might respond to various stimuli has been a common research approach for many years. In the review of literature found later in this chapter, references are made to F. W. Taussing (1916) who discussed the concept in 1916. The use of typical farms is not new. What is new, is the combining of several available tools and information sources making it possible to update the typical farms relatively quickly and accurately. The first part of this chapter presents economic theory relative to combining resources. This is followed by a discussion of many of the concepts essential to developing the typical farms. The chapter concludes with a review of typical farm literature.

Variable inputs can be combined in a number of ways in the process of agricultural production. For instance, labor and capital can be combined in a number of ways with fixed quantities of other inputs to produce a given quantity of an output. In Figure 3.1, a small amount of capital might be used with a large amount of labor to produce the amount of output, Y_1, illustrated by point K_1, L_3. A large amount of capital or machinery, say K_3, could also be combined with small amount of labor, L_1, to produce same amount of output, Y_1. If L_2 amount of labor could be used along with K_3 capital, a larger amount of output, Y_2, could be produced, ceteris paribus. The non-intersecting isoquant curves illustrate the impossible situation of two output levels being produced with the

28
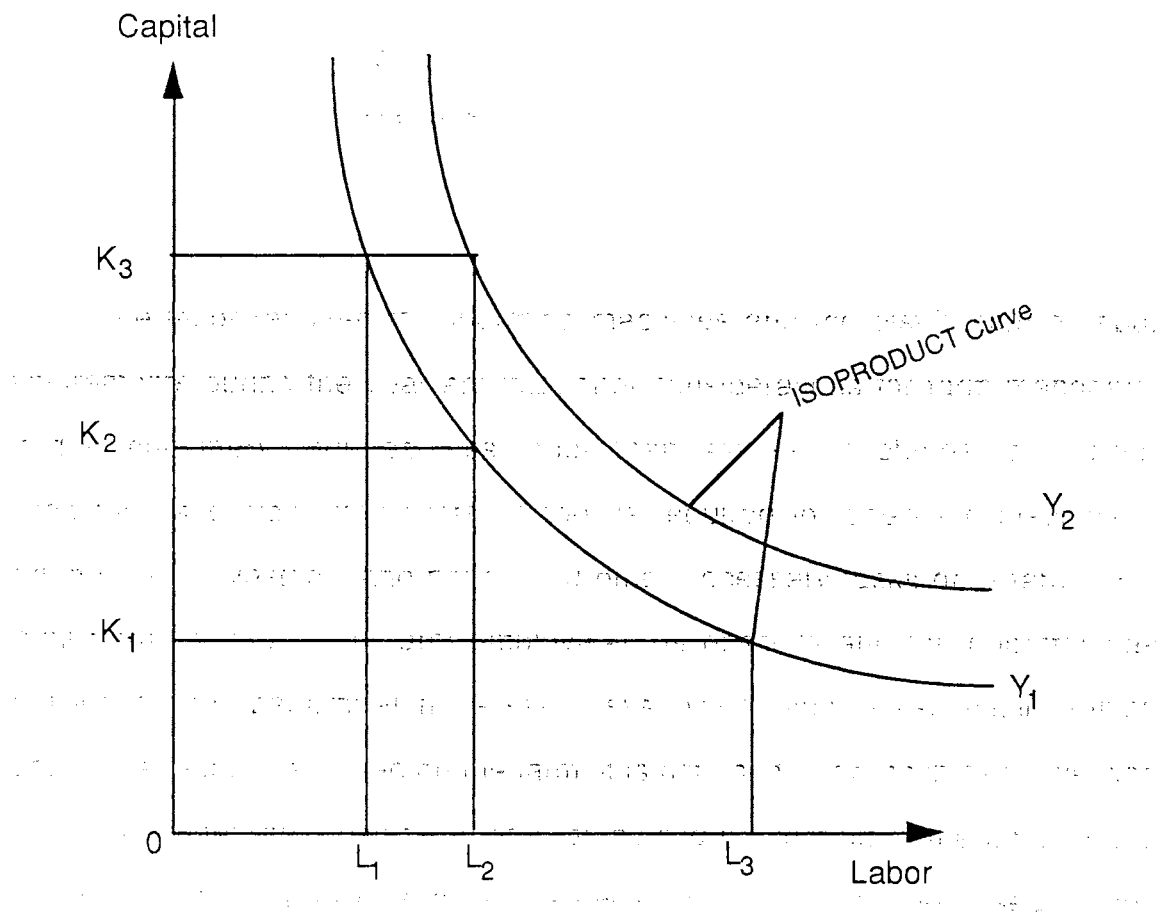
Figure 3.1. Input Combination and Technological Changes.

same input combination assuming efficient resource combination. The negative slope of the isoquant is the result of the technical substitution of one input for another. At a given production level, using more of one input must be compensated for by using less of the other. Farm machinery and farm labor illustrate this concept very well. As more (larger) farm machinery is being used, less farm labor is required to produce the same level of output. Or, if the same amount of farm labor is available, as more (larger) farm machinery is acquired,

the farm will have the capacity to produce more output with the same amount of labor resource. The isoquants are convex to the origin indicating that although inputs (machinery and labor) are substitutes for each other, they are not perfect substitutes. The convex shape reflects a declining marginal rate of substitution (Leftwich, pp 118-119).

Labor and capital or machinery are important inputs when studying farm size and profitability. A farm operation may be very capital intensive, very labor intensive, or may use any combination of labor and capital between the two extremes and still produce about the same output. However, when wage rates increase and there is a shortage of skilled labor available for agricultural work, increasing the use of capital (machinery) becomes necessary to maintain output. The substitution of capital for labor comes about by changing from small, low capacity to large, high capacity machinery. When skilled labor becomes scarce, the cost of labor increases which also causes agricultural producers to change to larger machinery.

Machinery and Production

A least-cost machinery complement is the set of machinery which can complete necessary field operations within an acceptable time period for the lowest total annual cost. The complement with the lowest total per acre cost is obtained by examining the cost of alternative machinery complements while holding wage rates and other costs constant. The two inputs of concern in this part of the study are labor and farm machinery or capital. Following is a brief review of cost theory relevant to agricultural machinery.

Fixed Costs

Fixed costs are those which are incurred after a machine has been acquired, whether or not the machine is actually used. Fixed costs for machinery include depreciation, interest on investment, insurance, and housing.

Depreciation is the cost associated with the loss in value of a machine due to time and use. 'Use' depreciation is the reduction in value of a machine due to its use during a particular period. Time depreciation is the reduction in value of a machine due to obsolescence. Both use and time depreciation are expressed in dollars on an annual basis (Bishop and Taussaint p 146).

Interest on investment is the cost of having capital tied up in owning machinery. If it is necessary to borrow money to purchase machinery, the actual interest paid is an appropriate charge to make. If the farmer has sufficient capital to purchase the machinery outright, the interest charge should be the amounts that the farmer could earn from the best alternative investment (Hedges pp. 111-118).

Housing charges are made whether or not a machine is provided shelter. When machines are housed, the housing charge reflects the cost of providing shelter. When no shelter is provided, the housing charge reflects the increased wear and weathering of the machine. Boehlje (1980) concluded that if no shelter is provided for machinery, the decrease in value can reflect the reduced life of the machine due to exposure to the elements.

Insurance is a charge for the risk of loss associated with owning farm machinery. Coverage usually includes natural disasters, theft and personal liability. For farmers who invest large amounts of capital in machinery, the

insurance charge is appropriate. If a farmer is without insurance for his investment on machinery, insurance rates must be considered since farmers bearing the risk of losing their property (Hedges, pp (583 - 586). Insurance premiums will vary depending upon the type of coverage and the insurance company, .6 percent of average investment is used in this study.

The sum of annual charges for depreciation, interest, housing and insurance is the total annual ownership cost or total annual fixed cost. Procedures for estimating annual fixed machinery costs are presented in the appendix. Costs accruing as field operations are being performed are operating costs. Operating or variable costs are a function of machine use. If machines are not used, there are no operating costs.

Operating Costs

Operating costs include fuel, lubricants, repairs, maintenance, and labor. While labor is an operating cost, it can have attributes that, at times, cause it to be treated more like a fixed cost than operating cost.

Machine operating costs can be presented as:

$$OC_i = \frac{CA}{SWe}\left[(rM_i + O_i + f_i)W + L_i\right]$$

where
OC_i = annual operating cost of an implement ($/year)

C = Constant

A = Area covered (acre)

S = Speed of operation (MPH)

e = Field efficiency (%)

W = Width of machine (ft)

rM = Repair and maintenance cost ($/hr)

O   = Oil Cost ($/hr)

f   = Fuel cost ($/hr) and

L   = Labor cost ($/hr)

Labor Cost

The labor required for operating machines and the distribution of labor requirements during the year are important considerations for farm managers. Larger machinery requires less labor than smaller machines, but larger machines have high fixed costs. Labor is required for operating machinery, taking care of livestock, and performing other necessary tasks on a farm. For small farms where no off-farm employment is possible and the operator has sufficient time to perform all necessary tasks, owner labor is essentially a fixed cost. If the labor is not used on the farm, it is not used. For machinery selection purposes, owner labor can be treated as having no cost up to the point where the owner's labor is fully used. Once owner labor is completely used, hourly hired labor is treated as an operating cost that varies directly with machine use. If the farm is of sufficient size that the owner has no time for machinery operation, then all hourly hired labor is an operating cost.

On large farms, one or more full time workers may be employed. All hours they have available for machinery operation can be considered free when selecting the machinery complement. (An exception would be if purchasing larger machinery might eliminate the need for one or more of the full time employees.) Only hourly labor above that provided by the owner and permanent employees should be treated as an operating cost when selecting machinery. The machinery complement selection procedure used in this study

permits specifying both paid and non-paid labor. Hired labor in this study includes all labor paid on an hourly basis.

Machinery Selection

Machinery is a major capital input in most farm businesses. In the corn belt, the share of crop production costs for machinery is exceeded only by the cost of land rental or land investment (Ozkan 1984). Machinery costs considered are the costs of owning and operating the machinery, labor costs, and timeliness costs.

The United States agricultural revolution resulted in increases in production partially because larger and improved farm machinery was being used (Craig, 1976). Craig (1976) in his conclusion about economics of machinery, stated that the use of larger and more sophisticated equipment has led to a general increase in agricultural productivity and has facilitated intensive farming. As farms rely on more and larger machinery, the selection of the machinery complement becomes an increasing part of management's responsibility. By correctly specifying the mix of capital and labor, manager's can reduce the per unit cost of product and increase net farm income.

Machinery selection includes choosing the right number of tractors and associated implements so that costs are as low as possible while performing the required field operations in a timely manner. Conceptually, the lowest machinery costs are achieved with a small tractor and associated implements used continually 24 hours per day. However, weather constraints, wage rates, etc., usually dictate that a larger tractor(s) be chosen so that work can be completed in a more timely fashion. Properly selecting machinery complements

involves making complex decisions using information about parameters involved in modern agricultural production.

When selecting machinery complements, the first goal is to make them feasible, that is, capable of performing the required field operations in the available time. After assuring feasibility, the goal is to select the feasible complement which performs the field operations for the least cost. Using non-feasible complements may cause the farmer to incur high timeliness costs (machinery too small) while using larger than necessary machinery may cause fixed costs to be excessively high. If machinery replacement policies are non-optimal, the farmer suffers high fixed cost (machinery replaced too early) or high maintenance and repair costs (machinery replaced too late). These concepts generally lead to different complements for farms of different sizes.

Review of Machinery Selection

Farm machinery selection complement is a complex problem involving large capital investment and significant operating costs. Research in this area has frequently used system analysis for determining preferred equipment complements. Hughes and Holtman (1976) developed a model which selected machinery capable of performing desired operations within specified time constraints. Edwards and Boehlje (1980) used a model simulating the completion of field operations and determining net after tax machinery cost. Witson et al. (1981) utilized a linear programming approach for selecting machinery complements where there were time constraints.

Rots et al. (1983) developed a machinery selection algorithm to determine machinery complements for a variety of crop rotations in Michigan. Rots used constraints on time available for selected time periods which required

knowledge of the suitable field days available and the power requirements required for each operation. Rots also included a cost analysis for selecting machinery complements that provide minimum cost per unit for alternative crop rotations.

Selecting machinery for crop production is one of the important and difficult decisions facing farm managers. Edwards and Boehlje (1980) state that acquiring a new component in an equipment set affects the performance of the entire system and that the associated costs are difficult to measure. They also state that determining the time of field operation completion for different equipment sets is complicated by environmental factors such as rainfall, temperature, and insects. In addition to selecting which field operations must be performed, the size and number of tractors and each implement type must be determined using cost per acre as the decision criteria. Larger equipment with larger capacities can improve the yields expected for a farm by enabling the producer to complete field operations on the most desirable days. The associated investment costs of larger equipment, however, may outweigh the benefits from increases in yield.

Inadequate equipment capacity can extend land preparation and planting time to the point that crop maturity may be delayed thereby postponing harvesting and delaying the subsequent tillage. These intertemporal effects related to machinery selection are more pronounced in double cropping systems where the first crop must be harvested at the optimum time for the second crop to be planted on time. Selecting feasible, low cost complements for these dynamic time sensitive situations is critical for maximizing net returns to the farming operation.

A number of works have been completed on selection methodology and the importance of proper machinery selection. A 1977 Oklahoma study by

Kletke and Griffin examined the effect of alternative wage rates on optimal machinery complements. A mixed integer linear programming model was used to determine optimum machinery complements for North Central Oklahoma wheat farms. Three types of data were used for the model, (1) the hours available for field work in each critical time period, (2) the acres covered by each field operation in each time period, and (3) the cost and computational parameters for all machines from which the optimal complement was chosen.

Farmers were surveyed to obtain their estimates of the amount of field work time lost by various rainfall amounts. This information was used in a rainfall simulation model to develop distributions of the number of field work days available in each time period during the year. Days available for a selected percent of the time were identified for each machine (Reinschmidt, 1974).

In the farm situation analyzed, 24 possible time period were used. Field operations took place in specified two week time periods and the least cost machinery complement was chosen from a set of 27 machines. Kletke and Griffin found that as labor costs increased relative to machinery cost, farmers should substitute larger implements and tractors for labor. As farm size increased, the impact of higher wage rates on the optimal complement was substantial. Higher labor wage rates may also be interpreted to imply a scarcity of available labor. Labor scarcity (and the resulting higher wage rates) should result in farmers purchasing larger implements to reduce the need for labor.

A 1973 study by Boisvert and Jansen in Minnesota incorporated data on field work time available and yield loss data due to untimely field operations into a farm planning model for Southern Minnesota corn and soybean farms. The objective of the study was to determine how labor availability, machinery capacity, and willingness of a farmer to assume risk, affected farm size, crop

enterprise mix, and field operation scheduling. Eight hypothetical farm situations based on size of machinery, availability of hired labor, and method of applying anhydrous ammonia were investigated.

In 1971 Osborn and Barrick developed a model for selecting equipment for farms in the Texas High Plains. They determined least cost equipment combinations for three typical farm sizes and evaluated the effect of alternative wage rates on the least cost systems. The input data used included equipment prices, tractor and implement operating characteristics, and field operations to be performed. The model selected equipment combinations on the basis of technical feasibility, time requirements, and annual costs (both fixed and variable). Osborn and Barrick found that the size of equipment had little effect on annual cost. They also concluded that the relative availability of short term capital verses long term capital was important in selecting machinery systems.

A 1969 study by Eidsuing and Olson in North Dakota presented machinery cost and capacity information. Fixed, variable and total cost were calculated and expressed on an average per acre basis for selected acreages using a wide selection of sizes and types of implements. Time requirements for covering selected acreages with the various sizes of equipment were also calculated. Eidsuing and Olson concluded that selecting the complement having the lowest cost per acre only may not be best since using the lowest cost complement may result in lower net income because of reduced yields resulting from untimely field operations.

Most, if not all, studies determining optimum machinery complement combinations require four data items: (1) time available for field work in specified given time periods, (2) the operations to be performed in each period, (3) machinery capacity and cost information, and (4) several parameters such as wage rates, interest rates, etc. Like most earlier studies, this study requires

the above information for machinery complement selection and cost estimation. A unique machinery complement is specified for each farm depending on its size and whether it is a dry land or irrigated farm.

Typical Farms Literature Review

Using typical farms or, more generally, representative farm firms, for doing economic analysis is a long standing practice. Alfred Marshall (1925) and F.W Taussing (1916) both used the concept in their text books on principles of economics. Alfred Marshall defined representative farms as farms having had a fairly long life, and fair success, managed with normal ability, and having normal access to the external and internal economies, which belong to the aggregate volume of production account being taken of the class of goods produced, the condition of marketing them, and the economic environment generally. Taussing paraphrases Marshall's notion of the representative firm as "one not far in the lead, not equipped with the very latest and best plant and machinery, but well equipped, well led, and able to maintain itself permanently with substantive profit." Marshall's idea of a representative firm might be thought of as the average of a class of firms which has normal access to external economies. Both Marshall and Taussing used the concept of a representative firm in an abstract or conceptual sense to explain the economic phenomena of supply and business profit rather than as an empirical tool either to guide management decisions or quantify aggregated functions.

Elliot (1928) used the concept of a typical firm for doing agricultural economics research. He worked on the historical background of representative farms and on representative farm formulation and usefulness. His study was mainly on size and types of primary enterprises. He defined a typical farm as "a

modal farm in the frequency distribution of farms from the same universe or representative of what a group of farmers are doing, who are doing essentially the same thing." According to this definition, a representative farm is one that is typical of the group of farms and is representative as to type, in size, in organization, in method, in practice and size or area from which more specific recommendations can be made and applied to farms in the group. According to Elliot, representative farms are not necessarily the mean of all the farms in the group being represented, but are more of a modal concept. Elliot, Tapp, Williard (1928) and others researchers generally agreed that much better recommendations could be given to farmers using the concept of typical farms as defined above than by making general and more aggregated recommendations applying to average farms which cannot be made sufficiently specific.

Thompson (1958) carried out research using the idea of typical farms. In his study, he pointed out that typical farm studies allow for detailed examination and insight in to the individual farm while economizing on the resource required for the study. Like Elliot, Thompson emphasized the point that typical farms should represent a modal concept and not be based on an average. He also suggested that developing a synthetic typical farm may be more appropriate than using any particular actual farm to represent a group of farms. Day (1963) concluded the same idea about typical farms in his work of using the representative farm concept in the field of production economics. He used size, quality of land, family labor supply, age of operator and tenure as a basis for classifying his farms.

In the 1960's the idea of representative farms as a typical or modal farm concept was replaced by the idea of a representative farm being a weighted average of all the farms in a group. Plaxico and Tweeten (1963) conceived

representative farm in several different ways. They thought of representative farms as a statistical concept having an associated mean and variance. In addition, they discussed using representative farms as a tool for evaluating the administration of existing and proposed governmental policies for agriculture. Much of their research was on aggregate policy impacts and they recognized that representative or typical farms provided a framework for analyzing public policy impacts on different sizes of farms.

The Economic Research Service of USDA considers typical farms as being modal, having modal complements of machinery, and modal enterprise sizes. They stressed that typical farms are not representative of the farms in the region. Hatch et al. (1982) used census data to create a set of 20 typical farms for the United States to be used for evaluating agricultural policy at the farm level. Their work with census data for developing typical farms and their enterprises was a more quantitative method of defining the farms than had been used in many previous studies. Hatch (1982) organized typical farms as farms of appropriate sizes in different regions, having common mixes of enterprises, combinations of capital items required, and fitting financial measures.

The principle of typical farms and the ideas of similar nature have been widely used by a number of researchers in the field of agricultural economics. Richardson and Nixon (1981) developed the Farm Level Income and Policy Simulation Model (FLIPSIM) to conduct farm level research in Texas. They also used the idea of representative farms to evaluate many government programs and policies including the evaluation of the impact of alternative public rangeland grazing fee formulas on public land ranches. Murray, Prior and Staton (1989) used the idea of typical farms in work they did on New York dairy farms. Batte, Farr and Lee (1989) also used a case farm, or typical farm, approach for simulating the effects of various credit programs on farm financial

survival. Salassi (1990) developed United States wheat and corn representative farms using size and region as the basis for specifying the representative farms. He classified farms into three size classes on the basis of total farm sales where small farms had total farm sales between $40,000 and $99,999; medium size farms had sales between $100,000 and $249,999; while large farms had total farm sales between $250,000 and $499,999.

CHAPTER IV

FARM DEVELOPMENT AND MODELING PROCEDURES

The process of assembling typical farms, putting together machinery complements for those farms, and processing and analyzing information on those farms is a complicated chore. It is even more difficult to develop a process that is repeatable for the remaining regions of Oklahoma. Many typical farm studies in the past have concentrated on carefully putting together the farm and its descriptive characteristics. Then, after numerous 'what if' scenarios are analyzed and results are reported, the typical farms are forgotten. This study, with its typical farms for southwest Oklahoma, is designed to be prototype of a system of typical farms for Oklahoma. Each farm in the system will ultimately represent a number of other similar farms in its region. If fully implemented the system will cover the whole state and be capable of being used to study how changes in government policy, prices, and technology might impact the state of Oklahoma.

This chapter has several objectives. The first is to present how the typical farms are developed and organized. Following this will be a discussion of the other models and analytical tools used to assemble and evaluate the typical farms.

Typical Farms for Oklahoma

The typical farms used in this study were formulated by Darrel Kletke (1987). The first step in developing a system of farms which collectively would represent the whole state required dividing the state into regions. Counties were used as the building blocks for regions. Every attempt was made for a region to have similar soils, similar climatic conditions, similar crops, and similar crop yields. Using these criteria, Oklahoma was divided into eight regions.

County United States Census information provides information on farm sizes and the number of farms that exist of each size. This information was aggregated across counties to provide similar information for each region. An arbitrary decision was made to have three farm sizes in each region. The small farm included all the smallest farms comprising as close as possible to 5 percent of the farm acreage in the region. Over the 8 regions in the state, the range in the percentage of each region's land included in the small farms varied from 5 to 8.6% because of the discrete data provided in the Census. The remaining two farm sizes each include about one-half of the acres not included in the small farms.

As a result of organizing the farms in this way, each typical farm represents a specified number of actual farms. The number of farms times the size of each farm aggregated over the three sizes equals the total acres farmed in the region. Similarly, if regional results are aggregated, the total farmed acres in the state would result.

The Census also provides information of how many farms of each size have how many irrigated acres and how many farms have all pasture. As a result, three farms of each size are identified. The first group included farms

having all pasture, the second includes farms having a mix of dry cropland and pasture but no irrigated land, and the third includes farms having a mix of dry cropland, irrigated cropland, and pasture. Table 4.1 identifies the farms specified for the southwest Oklahoma region.

According to the United States Census there are 7,070 farms in the ten counties comprising the southwest region and these farms include 4,565,409 acres. The medium and large farms include 95% of the total land under production but include only 65.8% (45.2% + 20.6%) of the farms. The small farms make up 34.2% of the farm numbers but occupy only 5% of the land area.

Selecting the typical crop mix is the next step in developing the typical farms. The Census provides a snapshot of the mix of crops found every five years. However, the Oklahoma Crop and Livestock Reporting Service annually prepares a county summary of crop production (acreages and yields). Averages of the county data for the years 1987 through 1992 were used to specify the average acres of each crop on each typical farm. As with farm acres, the acreages of each crop on each farm size times the number of farms of that size aggregated over farm sizes equals the total number of acres of each crop in the region. Table 4.2 shows the acres of each crop for the typical farms for Southwest Oklahoma. Two farms are identified for each farm size. The first farm has all dryland cropland. The second farm is identified as irrigated and has a mixture of dryland and irrigated cropland.

After the farms were specified in terms of size and crops being produced, the next step in the analysis was to describe each farm in sufficient detail so that costs and returns could be estimated. One major part of describing a farm is identifying a machinery complement for each farm. The following section describes the process of identifying the machinery complement.

TABLE 4.1

FARM RESOURCE MIX FOR SOUTHWEST OKLAHOMA TYPICAL FARMS

	Number of Farms	Acres	Total Acres
Small farms			
Pasture only	1,104	88	97,152
Dry cropland and pasture	1,202		
Dry cropland		81	97,446
Pasture		_7	8,330
		88	
Irrigated, dry cropland, and pasture	111		
Irrigated cropland		48	5,282
Dry cropland		33	3,717
Pasture		_7	769
		88	
Medium size farms			
Pasture only	506	493	249,458
Dry cropland and pasture	2,435		
Dry cropland		293	713,743
Pasture		200	486,712
		493	
Irrigated, dry cropland, and pasture	256		
Irrigated cropland		153	39,141
Dry cropland		140	35,897
Pasture		200	51,17
		493	
Large size farms			
Pasture only	99	1,907	188,793
Dry cropland and pasture	1,146		
Dry cropland		1,024	1,173,502
Pasture		883	1,011,920
		1,907	
Irrigated, dry cropland, and pasture	211		
Irrigated cropland		327	68,954
Dry cropland		697	147,110
Pasture		883	186,313
		1,907	
Region totals	7,070		4,565,409

TABLE 4.2

ORGANIZATION OF ALTERNATIVE TYPICAL FARMS IN SOUTHWEST OKLAHOMA

Size Crop	Large Dry	Large Irrigated Dry	Large Irrigated Irrigated	Medium Dry	Medium Irrigated Dry	Medium Irrigated Irrigated	Small Dry	Small Irrigated Dry	Small Irrigated Irrigated
Wheat	764	520	42	219	105	22	60	25	7
Cotton	129	88	252	37	18	118	10	6	37
Sorghum	20	14	7	6	3	3	2	1	1
Peanuts	-	0	15	-	-	7	-	-	2
Alfalfa	35	24	-	10	5	-	3	1	-
Total crop land	948	646	321	272	131	150	75	33	47
Total land	1,024	1,024		293	293		81	81	

Source: Oklahoma typical farm regions, 1987.

Selecting Machinery Complements

Machinery complements are determined for the typical farms using a computer spreadsheet template called MACHSEL (Sestak 1990). MACHSEL is used to determine average machinery cost per acre for each of the typical farms. Different complements are identified for farms with irrigation. Parameters considered when selecting the complements are owner time available, wage rates, field operations to perform, constraints on time available for field work, and machinery complements with machines of varying sizes. An optimal machinery complement is the one resulting in the lowest annual cost capable of performing all field operations satisfactorily. MACHSEL is not an

optimizing program. It allows users to change parameters, including the machinery complement, until costs are the lowest possible. It is not optimal because it does not include a algorithm for minimizing costs. Because the user must identify the complements being considered, it is likely that the resulting complement will be feasible as far as the user is concerned.

Available alternative complements are identified based on tractor size. The assumption is that complements will consist of a tractor(s) and associated implements matched to that tractor. In its base configuration, MACHSEL includes complements matched to nine different tractor sizes.

One example of using MACHSEL is determining the impact of a wage rate increase. It is expected that as wage rates increase, farms would use less machinery labor because capital (larger machines) would replace labor in the production process. In a stable economy, MACHSEL could be used to help farmers make choices designed to accommodate future farm expansion or contraction.

Figure 4.1 shows data requirements and expected output for MACHSEL. Machinery costs per acre for each crop being produced on the farm can be used to define costs and returns for each acre of each crop being produced. This information is used as input to complete the whole farm analysis.

In the selection process, users can select from the following nine tractor sizes based on PTO horsepower; 95, 105, 125, 140, 155, 175, 200, 250, and 300. Each tractor has an associated set of machines which can be used with that tractor. If the set of production enterprises does not require an available implement, the cost of that implement is not included when calculating annual costs.

Some farms may require two tractors. It is possible to have two tractors of the same or different sizes.

MACHSEL TEMPLATE FOR FARM MACHINERY
COMPLEMENT SELECTION

- CROP ACREAGE
  (SMALL, MEDIUM, LARGE)
  WHEAT, COTTON, SORGHUM, PEANUTS
  ALFALFA

- TRACTOR SIZE

- FIELD ALLOCATION BETWEEN TRACTORS

- HOURS OF FIELD TIME AVAILABLE

- PARAMETERS

STORED DATA

- FIELD OPERATION BY MONTH
  FOR 5 CROPS

- MATCHED MACHINERY COMPLEMENT
  FOR 9 TRACTORS

USER CHANGES TO
STORED DATA

TEMPLATE
CALCULATION

NO: MAKE NEEDED
REVISIONS

IS COMPLEMENT
SATISFACTORY?

YES: MODEL
EXECUTION
COMPLETE

TRACTOR HOURS/MONTH

LABOR USE SUMMARY

COST BREAKDOWN FOR THE COMPLEMENT

ACRES & HOURS/USE MONTH FOR EACH
MACHINE

ANNUAL COST BREAKDOWN FOR EACH MACHINE

COST PER ACRE FOR EACH CROP

Figure 4.1. MACHSEL Template

Government Programs Determination

There are many objectives and goals of government programs. Many of them are designed to influence the production of crops in the United States. The main goal of policy is to reduce income instability and uncertainty in supplies that affect producers and consumers.

The programs are mainly aimed at raising income or maintaining stability of farm prices and incomes. Some programs are designed to create a more favorable trading environment for U.S. farm products while others are designed to improve the position of farmers in domestic and foreign markets. Some programs are also designed to assure agriculture an adequate supply of capital at a reasonable rate.

Two current government programs affect enterprises in this study. Target prices and deficiency payment considerations affect wheat, cotton and sorghum. Marketing quota policy affects peanut production.

Target price and deficiency payments were initiated to raise and stabilize farm income to the level of the non-farm population while, at the same time, allowing farm prices to be competitive in the export market.

Deficiency payments are government payments made to farmers who participate in the feed grain, wheat, and upland cotton programs. The payment rate is per bushel, pound, or hundredweight based on the difference between target prices and market prices or the loan rate, whichever difference is less. Payments are made for production on a base acreage using historical yield data. The loan rate is the rate at which the government provides loans to farmers to enable them to hold their crop for sale at a later date.

The other important government program is marketing quotas, the program under which peanut production is connected to government involvement in the production process. A marketing quota is a mandatory procedure for determining the quantity of a commodity that can be marketed. The national quota is based on expected national demand and expected exports. Each producer is given a part of the national quota with an agreed upon price and quantity limit. Each farmer is assigned a quantity based on historical production. Producers operating under the quota system are losers when the market price is above the agreed upon quota price, but will be ahead when the market price is below the quota price set by the government. The primary objective of marketing quotas is controlling over-production by limiting the quantities farmers are allowed to market.

For wheat, grain sorghum, and cotton, deficiency payments are determined using spreadsheets designed to compare government program alternatives and estimate the payment for each alternative Anderson and Sanders (1993). Table 4.3 shows the government deficiency payment analysis worksheet used for determining wheat, cotton, and sorghum deficiency payments.

The upper half of Table 4.3 permits users to enter data describing the farm situation. The lower half of the table summarizes the financial characteristics of the opportunities being considered for the crop. Users of the spreadsheet can evaluate the alternatives and select the one most appropriate for their situation.

Table 4.4 shows target prices and market prices for different enterprises of interest. Figures 4.2, 4.3 and 4.4 shows the target prices for wheat, cotton and sorghum respectively.

TABLE 4.3

GOVERNMENT PAYMENT GRAIN PROGRAM
ANALYSIS WORKSHEET

Input Table

Item	Value	Units
Program - - ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN WHEAT, CORNC GS, OATS, BARLEY, COTTON		RENTER'S SHARE 100%
% OPTIONAL FLEX ACRES 0 to 10 %	0%	
% OPTIONAL FLEX ON 0/92? 0 TO 10 %	0%	
Total Cropland in Crop	0	acres
Program Base Acres	0	acres
ASCS Program Yield	0.0	bushels (cotton in lbs)/a
Expected Yield	0.0	$/bu. - - cotton in lbs
For 0/92: % Base Acres Harvested	0.00%	0 MAXIMUM 0.00%
County Loan Rate	$0.00	
Expected Cash Price Received	$0.00	$/bu. - - cotton in lbs
June 92 - October 92 Average Price	$0.00	$/bu. - - cotton in lbs
June 92 - May 93 Average Price	$0.00	$/bu. - - cotton in lbs
Cost Per Harvested Acre	$0.00	$/acre
Cost Per Non-Harvested Acre	$0.00	$/acre
Storage Cost	0.00	$/bushel/month
Income/ac from non-harvested acres	$0.00	

Output Table - - 1992 Wheat Program Analysis

Item	Non-Part.	N F A	N F A	0/92
Regular Deficiency Payment		$0	$0	$0
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$0	$0	$0
Crop Return From Payment Acres	$0		$0	
Non Crop Return		0	0	0
Total Returns	$0	$0	$0	$0
Total Crop Costs	$0	$0	$0	$0
Expected Net Return	$0	$0	$0	$0
Expected Net Return/Acre	$0.00	$0.00	$0.00	$0.00
Break-even Net Return/Acre Requirements		$0		$0
Acres Harvested	0	0	0	0

Source: Government Grain Program Analysis Worksheet.   Oklahoma
Cooperative Extension Services, Oklahoma State University (1993).

TABLE 4.4

TARGET PRICES FOR WHEAT, COTTON AND SORGHUM

Year	Target Price (Per/bushel) Wheat	Market Price	Target Price (per/lb) Cotton	Market Price/lb	Target Price (per/cwt) Sorghum	Market Price
1987	4.38	2.43	0.79	0.60	4.77	2.56
1988	4.23	3.24	0.76	0.58	4.61	3.66
1989	4.10	3.90	0.73	0.60	4.48	3.00
1990	4.00	2.75	0.73	0.63	4.33	3.87
1991	4.00	2.75	0.73	0.66	4.33	3.96
1992	4.00	3.40	0.73	0.53	4.33	3.82

The IFFS Model

The Integrated Farm Financial Statements (IFFS) (Love, et al. (1988)) model is a whole farm financial planning template designed to facilitate the financial analysis of farm firms. It operates around three independent worksheet files: CLBUD, AI and MULTSTAT. A Crop and Livestock Budget Management (CLBUD) and Additional Information (AI) file can be used to build cash flow statements from enterprise budgets. The Multiple Years Integrated Statements (MULTSTAT) file can be used to generate a cash flow statement, net worth statement, debt worksheet, income statement and a set of financial
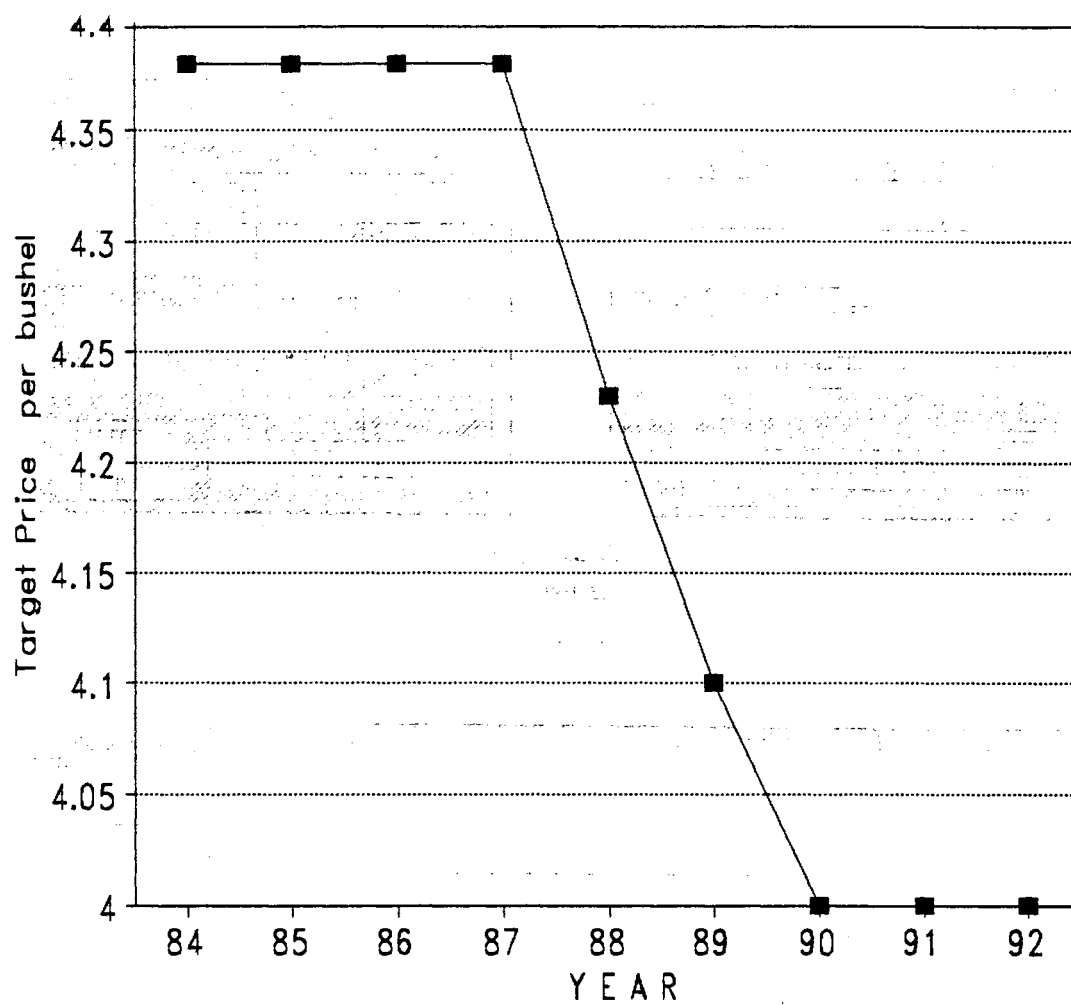
* 88 - First year in which target price decreases since the inception (1974).

* 1990 - 1995 - Minimum target price frozen for the life of 1990. Farm bill from 1991-95.

Figure 4.2. Target Price for U.S. Wheat ($/Bushel)
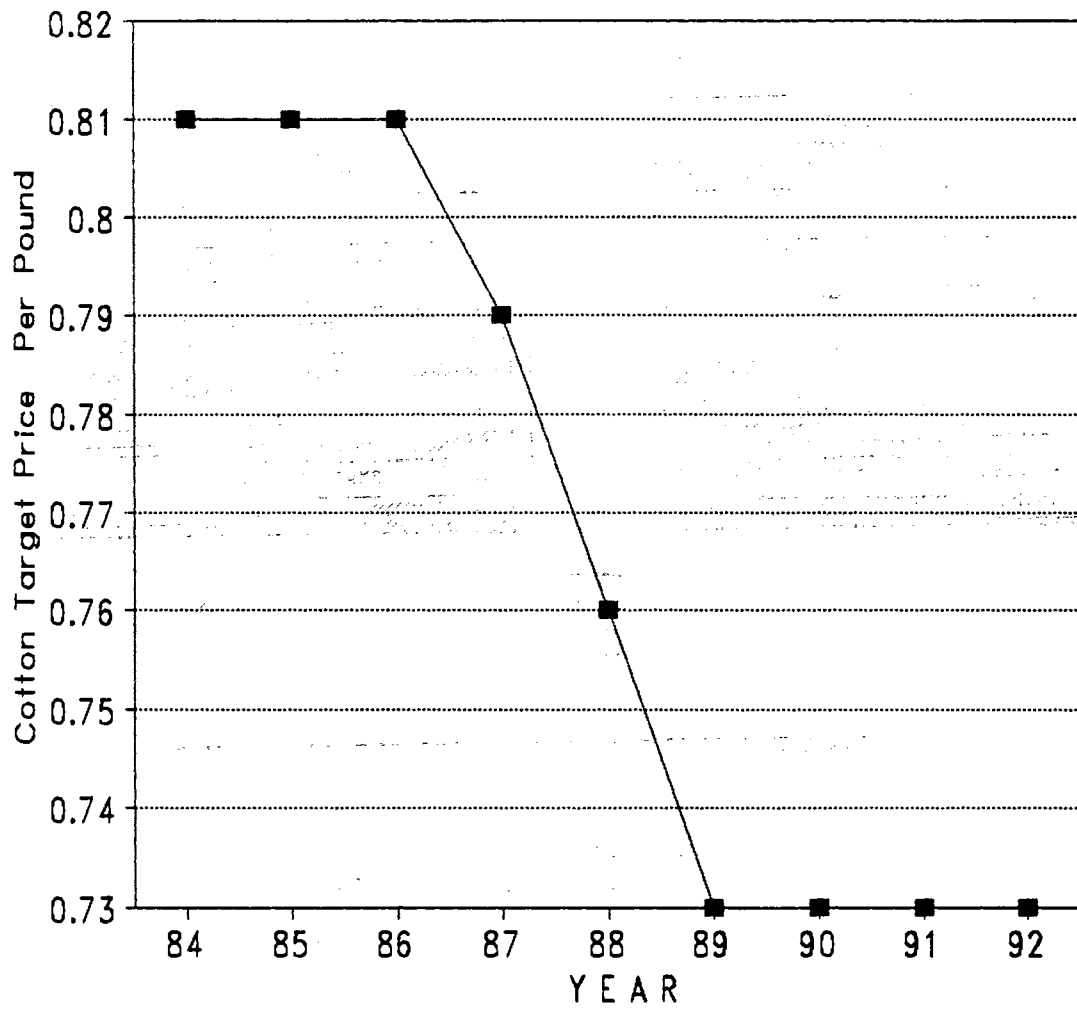
Figure 4.3. Target Price for U.S. Cotton ($/LB)
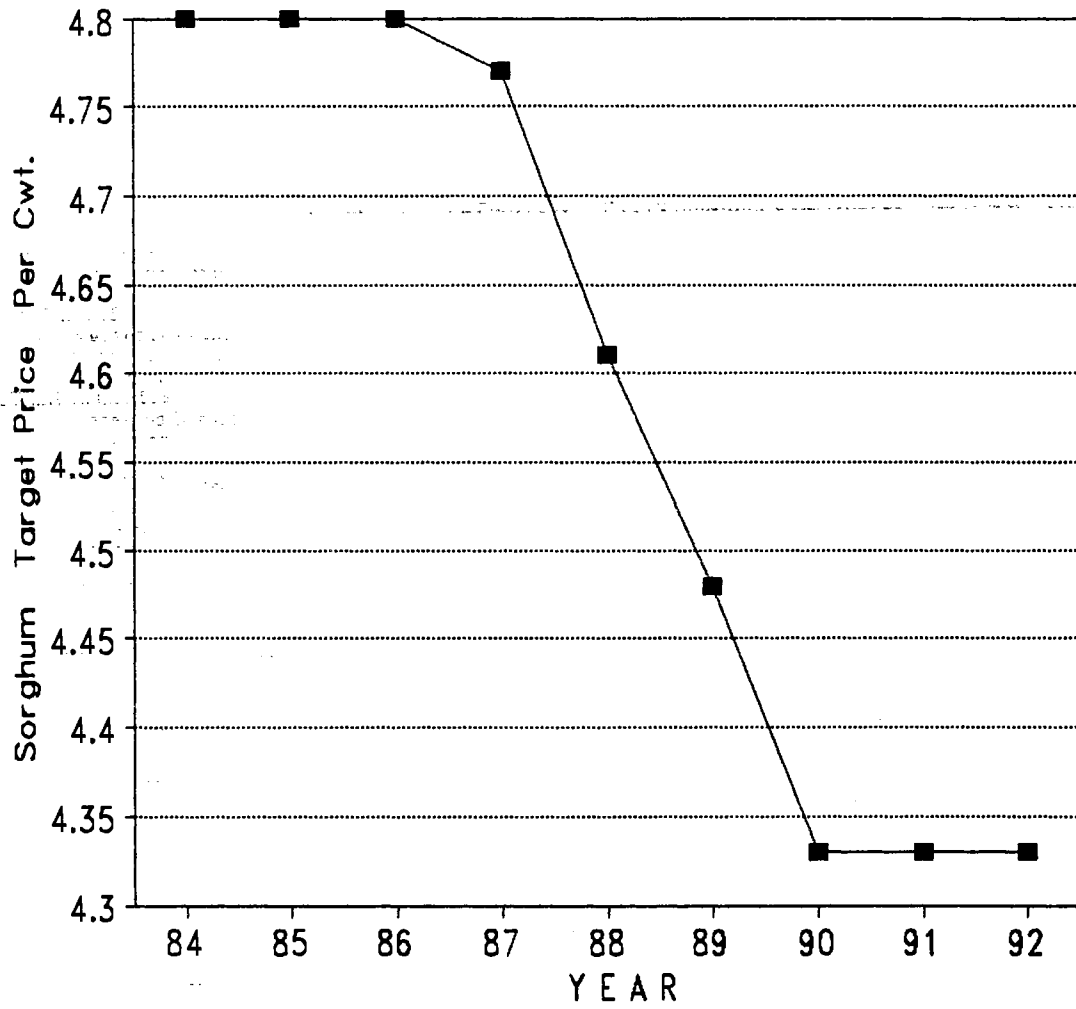
Figure 4.4. Target Price for U.S. Sorghum ($/cwt)

ratio's. These financial statements are constructed by a combination of direct keyboard entries of data and transfer of data from other worksheets within IFFS. Figure 4.5 shows the operational relationship between the different components of IFFS. The flow direction of information between different components of IFFS is shown by arrows. In the flow diagram rectangles are where direct keyboard entry is made while the ovals represent the computer processing the data. A manual for using IFFS is available (Oklahoma State University, Department of Agricultural Economics).

CLBUD is a crop and livestock budget building and maintenance worksheet that uses menus to guide users providing data and macros to perform various functions such as loading, saving, and printing budgets. CLBUD manages all of the enterprise budgets provided as input by the user for use in the study. Enterprise budgets require knowing the type of units, revenue by month, and expenses by month so that a cash flow statement can be prepared. In general, CLBUD is used to construct individual enterprise budgets which will be included in a cash flow statement. Figure 4.6 shows the basic input screen for providing enterprise costs and returns.

The Additional Information (AI) worksheet is used to provide information for the cash flow and financial statements that are not part of the enterprise budgets provided using CLBUD. The AI worksheet provides information on farm and non-farm revenues and expenses related to farm operation. Included are items such as non-farm income, family expenses, capital purchases and sales. These revenues and expenses are entered into the cash flow statement through the AI worksheet. The components and structure of the AI worksheet are shown in Figure 4.7.

The Multiple Year Integrated Statements (MULTSTAT) worksheet includes the cash flow statement, net worth statement, income statement, debt
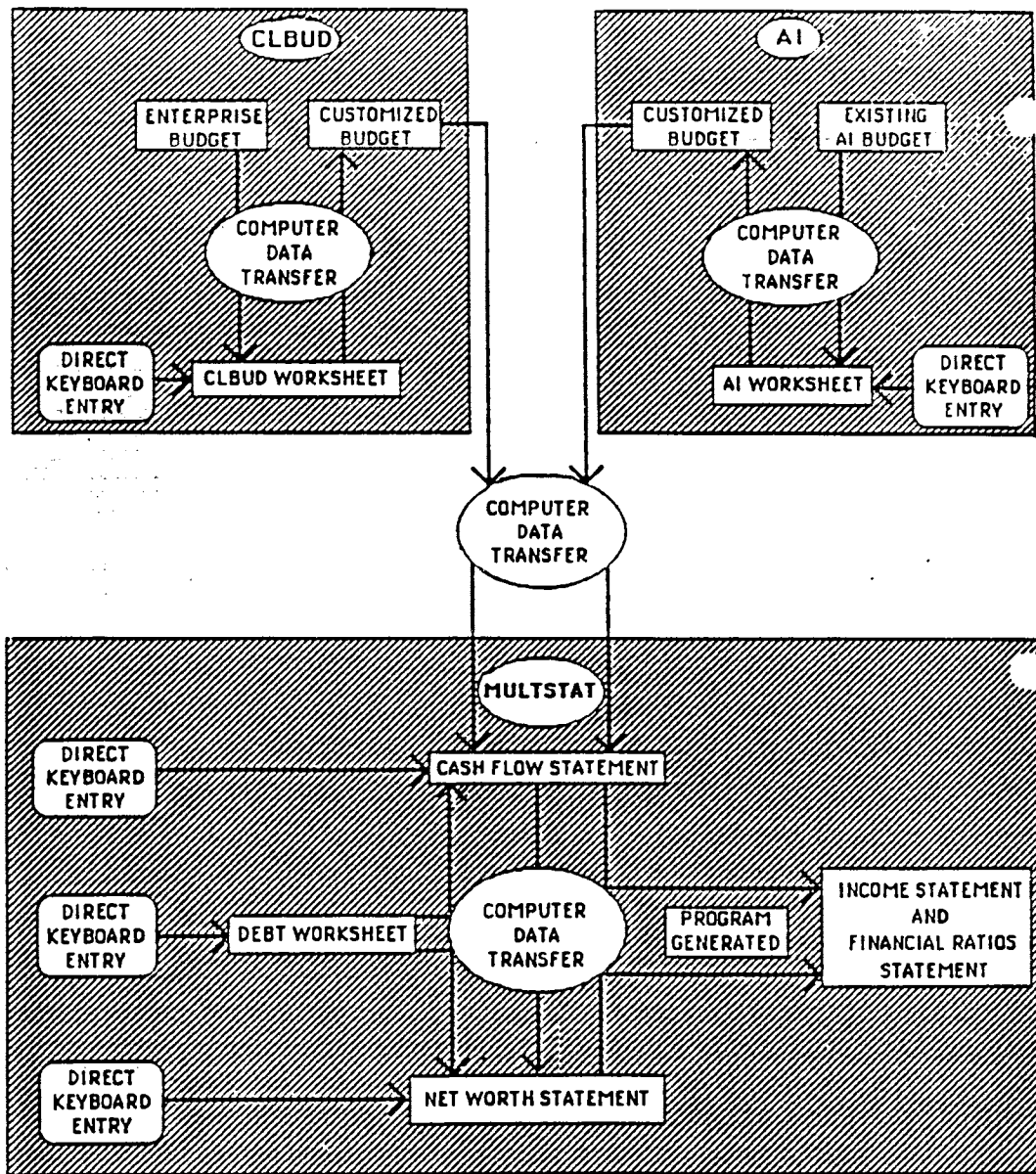
Figure 4.5. Components of the Integrated Farm Financial Statements (IFFS)

```
((ENTERPRISE BUDGET WORKSHEET))  NAME:                DATE:          FIELD:                File:
      Enterprise:

Number of acres:     0.0     Quantity stored:    0 bu.
Acres Harvested      0.0
Yield: per acre     0.00 bu/ac
Price: $/bushel    $ 0.00 /bu.                                              Percent change in costs   0.00 %
Operator's share     0.0 %
Gov't Pymt       $     0     Interest rate    0.00 %                        Error Check         0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	0.00	0		0							0			
Freight, Trucking	0.00	0												
Fuel, Lubricants	0.00	0		0				0	0	0	0			
Insurance	0.00	0												
Labor Hired	0.00	0		0				0	0	0	0			
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0		0				0	0	0	0			
Seeds, Plants	0.00	0									0			
Storage, Warehousing	0.00	0												
Supplies	0.00	0												
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous	0.00	0												
	0.00	0												
	0.00	0												
TOTAL CASH OPERATING EXPENSES	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
NET OPERATING (Rec - Exp)	0.00	0	0	0	0	0	0		0	0	0	0	0	0
===========================														
Operating interest expense	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 4.6 Enterprise Budget Worksheet

CASHFLOW OF ADDITIONAL INFORMATION   NAME: DATE: Error check   0

	TOTALS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<<OPERATING RECEIPTS>>													
7. Other Farm Income	0												
8.													
<<CAPITAL SALES>>													
10. Breeding Livestock	0												
11. Mach., Equip., Vehicles	0												
12. Buildings & Land	0												
<<OTHER INFLOWS>>													
13. Wages and Salaries		0	0	0	0	0	0	0	0	0	0	0	0
14. Investments	0												
15.	0												
<<OPERATING EXPENSES>>													
17. Hired Labor	0												
28. Taxes-R.E.	0												
29. Insurance	0												
30. Utilities	0												
31. Cash Rents & Leases	0												
33. Miscellaneous	0												
34.	0												
<<CAPITAL EXPENSES.. (Total Cost)													
37. Breeding Livestock	0												
38. Mach., Equip., Vehicles	0												
39. Buildings & Land	0												
<<OTHER OUTFLOWS>>													
40. Family Living		0	0	0	0	0	0	0	0	0	0	0	0
41. Income Tax	0												
42. Investments	0												
43.	0												
<<NEW BORROWING-INTERMEDIATE>>													
49. Int rt. 0.00	0												
49a. Int rt. 0.00	0												
<<NEW BORROWING-LONG TERM>>													
50. Int rt. 0.00	0												
50a. Int rt. 0.00	0												
<<PAYMENTS NEW BORROWING-INT>>													
44. Interest for loan 49	0												
45. Principal for loan 49	0												
44a. Interest for loan 49a	0												
45a. Principal for loan 49a	0												
<<PAYMENTS NEW BORROWING-LT>>													
46. Interest for loan 50	0												
47. Principal for loan 50	0												
46a. Interest for loan 50a	0												
47a. Principal for loan 50a	0												
ANNUAL PAYMENT FOR NEW LOAN ON LINE	49=)		49a=)		50=)		50a=)						

Figure 4.7. Input Screen for Additional Information (AI) Worksheet

worksheet and a financial ratio section. One of the outputs from MULTSTAT is the Cash Flow Statement as shown in Figure 4.8. For the typical farms, it is expected that the cash flow statements will show farm cash inflows and outflows. Users of IFFS can provide as much detail about the farm being analyzed as desired. Cash flow statements also show capital sales and purchases, farm wages and salaries, living expenses, and debt payments.

The Net Worth Statement is another component of MULTSTAT. Users must specify beginning and ending values of the assets to make the Net Worth Statement accurate. Examining a farm's net worth over several years helps users determine whether or not the farm is being managed successfully. Figure 4.9 shows the components of the net worth statement. For typical farm purposes, the net worth statement may or may not be a critical element. If it is to be an important element of the study, the typical farm must be described with sufficient detail so that the net worth statement is meaningful. It may be that for some studies, the net worth statement may not be a critical component and users may decide to forego providing the detailed input required for meaningful net worth statements.

An Income Statement shows the revenues and expenses associated with the farming operation. The farm net income is determined by subtracting expenses from receipts. An example of an Income Statement is shown in Figure 4.10. Typical farm studies may use varying proportions of IFFS's income statement capabilities. For studies involving farm viability which, in addition to farm information, may take into account off farm income and expenses, complete information describing each farm must be provided. However, if the study is primarily oriented towards determining what happens to farm income, then only the farm related income and expenses may be needed.

WHOLEFARM CASHFLOW STATEMENT   NAME: DATE:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
<<OPERATING RECEIPTS>>													
1. Livestock Sales:	0	0	0	0	0	0	0	0	0	0	0	0	0
2. Sale of Livestock Products	0	0	0	0	0	0	0	0	0	0	0	0	0
3.	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Crop Sales:	0	0	0	0	0	0	0	0	0	0	0	0	0
5.													
6. Government Payments	0	0	0	0	0	0	0	0	0	0	0	0	0
7. Other farm income:	0	0	0	0	0	0	0	0	0	0	0	0	0
8.													
9. TOTAL CASH RECEIPTS	0	0	0	0	0	0	0	0	0	0	0	0	0
<<CAPITAL SALES>>													
10. Breeding Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0
11. Machinery, Equipment, Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
12. Buildings, Land	0	0	0	0	0	0	0	0	0	0	0	0	0
<<OTHER INFLOWS>>													
13. Wages and Salaries	0	0	0	0	0	0	0	0	0	0	0	0	0
14. Investments	0	0	0	0	0	0	0	0	0	0	0	0	0
15.													
16. TOTAL CASH INFLOW	0	0	0	0	0	0	0	0	0	0	0	0	0
<<OPERATING EXPENSES>>													
17. Hired Labor	0	0	0	0	0	0	0	0	0	0	0	0	0
18. Repairs: Mach. & Equip.	0	0	0	0	0	0	0	0	0	0	0	0	0
19. Buildings & Fences	0	0	0	0	0	0	0	0	0	0	0	0	0
20. Feed Purchased	0	0	0	0	0	0	0	0	0	0	0	0	0
21. Seeds, Plants	0	0	0	0	0	0	0	0	0	0	0	0	0
22. Fertilizer, Lime, Chem.	0	0	0	0	0	0	0	0	0	0	0	0	0
23. Machine Hire	0	0	0	0	0	0	0	0	0	0	0	0	0
24. Supplies	0	0	0	0	0	0	0	0	0	0	0	0	0
25. Vet., Medicine, Breeding Fees	0	0	0	0	0	0	0	0	0	0	0	0	0
26. Fuel, Oil, Lubricants	0	0	0	0	0	0	0	0	0	0	0	0	0
27. Storage, Warehousing	0	0	0	0	0	0	0	0	0	0	0	0	0
28. Taxes.E & Pers. Prop	0	0	0	0	0	0	0	0	0	0	0	0	0
29. Insurance	0	0	0	0	0	0	0	0	0	0	0	0	0
30. Utilities	0	0	0	0	0	0	0	0	0	0	0	0	0
31. Cash Rents & Leases	0	0	0	0	0	0	0	0	0	0	0	0	0
32. Freight, Trucking	0	0	0	0	0	0	0	0	0	0	0	0	0
33. Miscellaneous	0	0	0	0	0	0	0	0	0	0	0	0	0
34.	0	0	0	0	0	0	0	0	0	0	0	0	0
35. Livestock Purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
36. TOTAL CASH EXPENSES	0	0	0	0	0	0	0	0	0	0	0	0	0
<<CAPITAL EXPENSES (total cost)>>													
37. Breeding Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0
38. Machinery, Equipment, Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
39. Buildings, Land	0	0	0	0	0	0	0	0	0	0	0	0	0
<<OTHER OUTFLOWS>>													
40. Family Living	0	0	0	0	0	0	0	0	0	0	0	0	0
41. Income Tax	0	0	0	0	0	0	0	0	0	0	0	0	0
42. Investments	0	0	0	0	0	0	0	0	0	0	0	0	0
43.													

Figure 4.8. Cash Flow Statement

NET WORTH STATEMENT	Beginning Balance	Ending Balance	Net Change		NAME:	DATE:	Beginning Balance	Ending Balance	Net Change
---------CURRENT ASSETS---------					---------CURRENT LIABILITIES---------				
1. Cash & Checking	0	0	0		29.	Accounts Payable			0
2. Savings & Time Certificates			0		30.	Notes Payable	0	0	0
3. Marketable Bonds & Securities			0		31.	Interest Due: Current	0	0	0
4. Accounts Receivable			0		32.	Intermediate	0	0	0
5. Cash Value Life Insurance			0		33.	Long Term	0	0	0
Market Livestock & Products:						Taxes Due:			
6. Raised Livestock			0		34.	Real Estate & Personal Prop.			0
7. Purchased Livestock			0		35.	Employee Payroll Withholding			0
8. Stored Crops, Feed, Supplies			0		36.	Personal & Self-Employment			0
9. Cash Investment Growing Crops			0		37.	Other Accrued Expenses			0
10. Prepaid Expenses			0		38.	Contingent Tax Liability			0
11. Other Current Assets			0			Principal Due in 12 months:			
12. TOTAL CURRENT ASSETS	0	0	0		39.	Intermediate Liabilities	0	0	0
---------INTERMEDIATE ASSETS---------					40.	Long Term Liabilities	0	0	0
13. Notes Receivable			0		41.	Other Current Liabilities			0
Breeding Livestock:					42.				0
14. Raised Livestock			0		43.	TOTAL CURRENT LIABILITIES	0	0	0
15. Purchased Livestock			0		---------INTERMEDIATE LIABILITIES---------				
16. Vehicles			0		44.	Notes Payable	0	0	0
17. Machinery & Equipment			0		45.	Contingent Tax Liability			0
18. Securities Not Readily Mktable.			0		46.	Other Intermediate Liabilities			0
19. Other Intermediate Assets			0		47.				0
20. TOTAL INTERMED. ASSETS	0	0	0		48.	TTL INTERMED. LIABILITIES	0	0	0
---------FIXED ASSETS---------					---------LONG TERM LIABILITIES---------				
21. Contracts & Notes Rec.			0		49.	Mortgages & Notes Payable	0	0	0
22. Buildings & Improvements			0		50.	Contingent Tax Liability			0
23. Cropland			0		51.	Other Long Term Liabilities			0
24. Pasture			0		52.				0
25.			0		53.	TOTAL LONG TERM LIAB.	0	0	0
26. Other Long Term Assets			0		54.	TOTAL LIABILITIES	0	0	0
27. TOTAL FIXED ASSETS	0	0	0		55.	NET WORTH	0	0	0
28. TOTAL ASSETS	0	0	0		56.	TOTAL LIAB. & NET WORTH	0	0	0

Figure 4.9. Net Worth Statement

INCOME STATEMENT   NAME: DATE:

A   OPERATING RECEIPTS   **B.   CASH FARM EXPENSES**

Hired Labor	0
Mach. & Equip. Repairs	0
Building & Fence Repairs	0
Cash Interest	0
Feed Purchased	0
Seed, Plants	0
Fertilizer, Lime, Chemicals	0
Machinery Hire	0
Supplies	0
Vet, Medicine, Breeding Fee	0
Gas, Fuel, Oil, Lubricants	0
Storage, Warehousing	0
Taxes: Real Est. & Pers. Prop	0
Insurance	0
Utilities (farm share)	0
Cash Rent & Leases	0
Freight, Trucking	0
Miscellaneous Expenses	0
	0
Lvstk. purchased for resale	0

Livestock Sales & Products:
  Livestock sales   0
  Livestock products   0

Other livestock sales   0

                        Subtotal: 0

Crop Sales: 0
                                           0

                        Subtotal: 0

Other Farm Income:
  Government payments   0
  Custom Work, Cash Rent, Other   0
  Dividends, Refunds, Other   0

                        Subtotal   0

GROSS RECEIPTS FROM FARMING   0   **TOTAL CASH EXPENSES**   0

                                               C.   NET CASH INCOME FROM OPERATIONS   0

D. ADJUSTMENTS FOR ACCRUED ITEMS AND INVENTORY CHANGES:

1. Accounts & Notes Receivable:

	Accounts	Notes	Other		
Ending Inventory	0	0	0		
Beginning Inventory	0	0	0	Change in	
Change	0	0	0	Accounts & Notes Receivable	0

2. Accounts Payable & Accrued Expenses:

	Accounts	Taxes	Interest	Other		
Beginning Inventory	0	0	0	0		
Ending Inventory	0	0	0	0	Change in	
Change	0	0	0	0	Accounts Payable & Accrued Expenses	0

3. Prepaid Expenses:

	Ending Inventory		Beginning Inventory			
	0	-	0	=	Change in Prepaid Expenses	0

4. Inventories:

	Mkt. Livestock & Products	Stored Crops, Feed & Supplies	Growing Crops		
Ending Inventory	0	0	0		
Beginning Inventory	0	0	0		
Change	0	0	0	Change in Inventories	0

E. ADJUSTMENTS FOR CAPITAL ITEMS:

	Breeding Lvstk.	Mach, Equip vehicles	Bldgs & Land	Other		
Ending Inventory	0	0	0	0		
Sales	0	0	0			
Subtotal:	0	0	0	0		
Beginning Inventory	0	0	0	0		
Purchases	0	0	0			
Subtotal:	0	0	0	0		
Change	0	0	0	0	Change in Capital Items	0

F. VALUE OF FARM PRODUCTS USED IN THE HOME   0
G. NET FARM INCOME   0

Figure 4.10. Income Statement

Financial ratios are calculated from the information in the financial statements. Ratios can be used for a number of purposes, most dealing with profitability and credit worthiness. Financial ratios also measure cash available for debt payment and new investments. Figure 4.11 shows the available financial ratios. Again, typical farm studies may not use all the capability of the financial ratios that are available. For most of the ratios to be useful, all of the farm and non-farm components of the cash flow information must be provided by the user. When typical farm studies are limited to the farm portion of the operation, only a few of the ratios are relevant and users should be careful to interpret them appropriately.

The IFFS system is designed for multiple year analysis. Once a plan is designed for one year, output from one year can be used as a starting point for the succeeding year. One key to using IFFS and the other models discussed in this chapter is that quality input begets quality results. With the typical farm system discussed in this chapter, it may be that only partial data may be provided to IFFS. If this is the case, output from IFFS must be interpreted accordingly.

The simplified flow diagram in Figure 4.12 illustrates the flows of information in this study. Enterprise budget information, the basic parameters, and labor information are used as input to MACHSEL to determine machinery complements. The enterprise budget information, machinery cost results from MACHSEL, and Government program inputs all provide input to IFFS. Output from IFFS (Income statement, balance sheet, etc.) is used to evaluate and describe the typical farms. The final step is aggregating the IFFS results for the typical farms into some general statements for the region.

FINANCIAL RATIOS   NAME: Beginning   Ending BENCHMARK

Current Ratio	=	$\dfrac{\text{Current Assets}}{\text{Current Liabilities}}$	=	0.000	0.000
Working Asset Ratio	=	$\dfrac{\text{Current + Int. Assets}}{\text{Current + Int. Liabilities}}$	=	0.000	0.000
Leverage Ratio	=	$\dfrac{\text{Total Liabilities}}{\text{Net Worth}}$	=	0.000	0.000
Debt to Asset Ratio	=	$\dfrac{\text{Total Liabilities}}{\text{Total Assets}}$	=	0.000	0.000
Percent Equity	=	$\dfrac{\text{Net worth} * 100}{\text{Total Assets}}$	=	0.00%	0.00%

A.	Cash Farm Receipts (total cash receipts + capital sales)	= 0
B.	Total Cash Expenses	= 0
C.	Nonfarm Expenses (Family Living = 0)	= 0
D.	Nonfarm Income	= 0
E.	Cash Available for Debt Service	= 0
F.	Scheduled Interest & Principal Payments	= 0
G.	New Borrowing (Except Operating Note)	= 0
H.	Projected (Actual) Interest Pay. Operating Note	= 0
I.	Projected Cash for New Investment and Risk	= 0
J.	Projected Capital Expenditures	= 0
K.	Net Cash Flow	= 0

Operating Note Summary

Begin. Balance	End. Balance	Change
0	0	0

Maximum Projected Balance	Minimum Projected Balance
0	0

Cash Flow Sensitivity

Net Cash Flow as a % of Cash Farm Receipts	0.00%
Net Cash Flow as a % of Cash Op. Expenses	0.00%
Interest Paid as a % of Cash Farm Receipts	0.00%

Rate of Return on Equity =

$$\frac{\text{Net Farm Income - Oppor. Return to Labor \& Mg't} * 100\%}{\text{Beginning Equity (Net Worth)}} = 0.00\%$$

INPUT DATA

Opportunity Return to
Labor and Management
0

Rate of Return on Investment =

$$\frac{\text{Net Farm Inc + Int Pd - Oppor. Ret'n to Labor \& Mg't} * 100\%}{\text{Beginning Total Assets}} = 0.00\%$$

Average Interest Rate on Debt =

$$\frac{\text{Interest Paid + Change in Interest Due} * 100\%}{\text{Average Total Debt Outstanding}} = 0.00\%$$

Figure 4.11. Financial Ratios
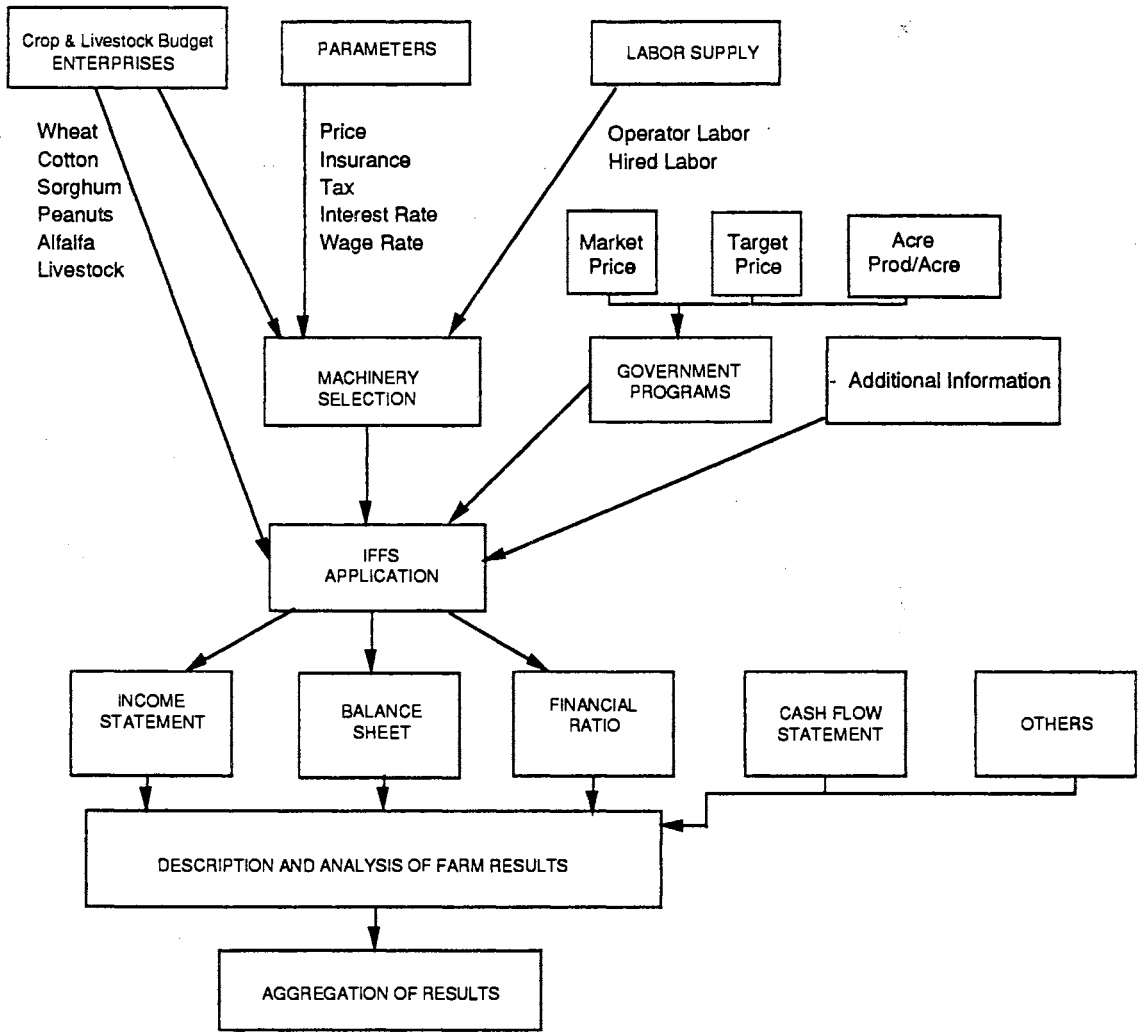
Figure 4.12. Simplified Flow Diagram of the Analysis

Typical Farm Assumptions

A number of assumptions are being made to expediate developing typical farms for southwest Oklahoma. Family labor of eighty hours a month is assumed available throughout the year. In this study, it is assumed that machinery is used only for the production of the five principal crops grown. Since there are several other crops being grown in the region, it is likely that the typical farms underestimate average machinery costs.

No attempt is made in this study to divide land between owner and tenant operated. Likewise, no debt assumptions are made. The five crops and livestock are considered as enterprises on all typical farms. There are other enterprises, very important on a small number of farms, that are insignificant in the aggregate.

CHAPTER V

APPLYING THE TYPICAL FARM SYSTEM

Five different farms are analyzed in this study. These include the small dry cropland only farm, the medium size dry cropland only farm, the medium size farm having a mix of dryland and irrigated cropland, the large farm having dry cropland only, and the large farm having a mix of dry and irrigated cropland. This chapter illustrates the operation of the typical farm analysis model by using the large farm having all dry cropland as an example. This farm is representative of 1,146 farms (16.2 percent of the farms) in southwest Oklahoma covering 2,185,422 acres (47.9 percent of farm acres).

This chapter contains a detailed discussion of the process of machinery selection, estimating government program payments, and developing the financial statements using the Integrated Farm Financial System (IFFS). For each of the primary components (MACHSEL, government payment calculations, and IFFS), the major data inputs required and output received will be discussed.

Machinery Complements Selection

Due to the competitive nature of farming in the United States, individual farms have little or no control over the prices they receive for their products. Thus the best way for individual farmers to increase net income from farming is to reduce operating costs. The cost-price squeeze forces farms to constantly

reevaluate their operations in order to reduce expense wherever possible. One of the best ways for farms to reduce production cost is to select proper combinations of machinery.

The two sources of farm labor used in this study are the farm operator's own labor and hired labor. The basic assumption is that farm operators can spend 80 hours per month operating farm machinery. Hired labor is paid $6.00 per hour.

This section of the chapter summarizes the data required for selecting the machinery complement for the large southwest Oklahoma dryland farm. Also presented are the results obtained that are useful to this typical farms study. The machinery complement chosen is based on size of farm, field operations performed, and the operator and hired labor available each month throughout the year. MACHSEL is used to select a low-cost feasible complement that would be expected to meet with the operator's approval. Table 5.1 summarizes the farm organization and field operations for the large dry cropland farm.

The following parameters and cost estimation factors are used to estimate machinery costs within MACHSEL.

Parameter

Fuel price	$0.80 per gallon
Interest rate	9.0 percent
Tax rate	1.0 percent of purchase price
Insurance rate	6.0 percent of average value
Hired wage rate	$6.00 per hour

Factors

Tractor hours	1.1 times implement hours
Labor hours	1.1 time tractor hours

TABLE 5.1

FARM ORGANIZATION AND FIELD OPERATIONS
PERFORMED ON LARGE DRY FARM IN
SOUTHWEST OKLAHOMA

CROP and Activities		Acres
Wheat		764
- Offset	- June and August	
- Chisel	- July	
- Sweep Conditioner	- August	
- Spring tooth	- September and October	
- Drill	- October	
Cotton		129
- Offset	- January and May	
- Plow	- December	
- Spring tooth	- May	
- Planting	- May	
- Cultivation	- June and July	
- Rotary Hoe	- May	
- Sprayer	- May	
Sorghum		20
- Offset	- February, April, May	
- Chisel	- February	
- Spring tooth	- May	
- Drill	- May	
- Planter	- May	
- Cultivator	- June and July	
Alfalfa		35
- Drill	- March	
- Cultivator	- March	
- Sprayer	- March, April	
- Wind Rower	- April, June, July, August	
- Baler	- April, June, July, August	
Peanuts		0.6
- Offset	- April and May	
- Plow	- March	
- Springtooth	- May	
- Cultivator	- June and July	
- Spray	- May	

Two alternative assumptions are made about the hours available from the owner-operator. The base alternative stipulates that the owner-operator will provide 80 hours of tractor time each month. The other alternative has the owner-operator providing up to 150 hours of tractor time each month. The two alternatives were considered to determine how the machinery complement and resulting machinery costs might be altered.

Using MACHSEL is an iterative process that allows users to systematically make changes in machinery complements to develop a relatively low cost feasible complement. Because it is interactive, it is likely that not all users will choose the same complement as "best". For the large dryland farm, only one tractor is necessary. Table 5.2 summarizes the results. When the owner is supplying 80 hours per month (first two lines), the cost of using a 140 horsepower tractor and related complement is $37.03 per acre. This includes both fixed and operating costs. The cost of using a 125 horsepower tractor is slightly higher, $37.30 per acre. MACHSEL could be used to estimate the costs of using alternative one, two, and three tractor complements.

If the owner-operator is willing to work 150 hours per month, the low cost alternative becomes the 125 horsepower tractor. The cost per acre is $38.16 which is only three cents less than the 140 horsepower tractor. Many farmers would choose the 140 horsepower tractor, even though the cost is slightly higher, just to have the extra capacity available when needed. The reason the small tractor becomes preferred when the owner-operator supplies more labor is that, in effect, the owner-operator's time is free and costs can be minimized by using smaller equipment and more of the free labor resource.

MACHSEL allows users to eliminate infeasible complements. For example, if a 105 horsepower tractor were evaluated, MACHSEL would provide information that not all field operations could be performed within the prescribed

TABLE 5.2

TRACTOR COMPLEMENT COST PER ACRE
FOR LARGE DRY TYPICAL FARM AT
DIFFERENT LEVELS OF
OWNER LABOR

Typical Farm	Tractors HP	Cost Per Acre	Labor Supply
Large Dryland Farm	140	37.03	L
	140	35.33	H
	125	37.30	L
	125	35.49	H

*   L - Low labor supply by the owners: 80 hours/month.

*   H - High labor supply by the owner: 150 hours/month.

time. While it is up to the user to make the changes, MACHSEL provides the necessary information on feasibility and cost so that users can make intelligent decisions.

Government Program Calculations
for Large Dry Typical Farm

One important aspect of evaluating typical farms is government programs. If government programs are ignored, any evaluation of typical farm performance will be incomplete. As presented in the previous chapter,

government program calculations are made using a spreadsheet template Anderson (1993).

The information required to determine the expected impacts from government programs is given in Table 5.3. In the table, information about the acres of wheat and crop yields come from the farm descriptions. The expected market price is an average of yearly prices which is reported by the USDA National Agricultural Statistics Service for Oklahoma. The target price is specified as part of the program, and the cost per harvested and non-harvested acre is obtained from the enterprise budgets. The cost per acre calculations include the machinery cost per acre calculated in the previous section.

TABLE 5.3

PARAMETERS AND VARIABLES USED IN THE
DETERMINATION OF GOVERNMENT
DEFICIENCY PAYMENT FOR LARGE
DRY TYPICAL FARMS AT TARGET
AND MARKET PRICE OF 1992

	WHEAT	COTTON	SORGHUM
Total Crop Land	764 acres	129 acres	20 acres
Program Base Acre	764 acres	129 acre	20 acres
ASCS Program Yield	27.4 (bushel/acre)	400 lb/acre	39.3 (bu)
Expected Yield	27.4 (bushel/acre)	400 lb/acre	39.3 (bu)
Expected Market Price	$3.40	$0.53/lb	2.32
Target Price	$4.00	$0.73/lb	$2.59
Cost Per Harvested Acre	$93.43	$126	98.55
Cost per non harvested acre	$84.77	- -	- -

Output from the spreadsheet template that is used for evaluating the typical farm performance is presented in Table 5.4. The total government payments will now be used as input for IFFS where the financial statements for the farm will be developed. The government program worksheets for the large dryland farm are shown in Appendix Tables C7 and C8. The total government payments for this farm are $18,835. The split between wheat, cotton and grain sorghum is shown in Table 5.4, while share of total return is shown in Table 5.5.

TABLE 5.4

DEFICIENCY PAYMENT FROM GOVERNMENT PROGRAM
FOR LARGE DRY TYPICAL FARMS FOR CROP UNDER
PRODUCTION AND UNDER THE PROGRAM

Crop	Acres Production	Total Government Payment
	(acres)	(dol.)
Wheat	764	10,676
Cotton	129	7,977
Sorghum	20	182
Total Government Program Income		18,835

TABLE 5.5

SHARE OF GOVERNMENT PROGRAM FROM TOTAL
ENTERPRISE RETURN FOR LARGE DRY
TYPICAL FARMS IN SOUTHWESTERN
OKLAHOMA

Crop	Dry Farm		
	Net Returns	Government Program	Percent
Wheat	17,009	10,678	62
Cotton	13,014	7,977	61
Sorghum	1,841	182	9
Total	31,864	18,837	

IFFS for Large Dry Typical Farm

After choosing the machinery complement and estimating costs for that complement and after determining the expected government program payments, information is provided to IFFS to determine the financial statements for the large dry farm.

The first major component of IFFS relates to the enterprise budgets entered using the spreadsheet CLBUD. Appendix A contains the enterprise budgets for the large dry farm. Machinery cost information from MACHSEL is combined with government program income along with other cost and returns information for each crop and livestock activity being produced.

Appendix Table A-1 shows that the net returns per acre of planted wheat is $22.26 and $17,009 for all wheat. The $17,009 includes the $10,676

government payment calculated in the previous section. The operating costs associated with machinery operation for the chosen complement were estimated using MACHSEL and are included in the appropriate entries for the wheat budget. Appendix Tables A-2 through A-7 show the costs and returns for the cotton, sorghum, alfalfa, cow-calf, November-May stockers, and November-March stockers, respectively.

The large dryland-typical farm has a total of 1,907 acres of crop and pasture land. Table 5.6 summarizes calculations for determining the net farm income over operating costs.

TABLE 5.6

SUMMARY OF COST AND RETURNS OF
LARGE DRY TYPICAL FARM

Crop	Planted (Acre)	Unit	Percent Harvested	Unit	Cost Per Unit	Net Return Per Unit	Total Returns
Wheat	764	Acre	70	531	56.46	22.26	17,009
Cotton	129	"	90	116	176.75	100.65	13,014
Sorghum	20	"	95	19	64.13	92.52	1,841
Peanuts	0.6	"	100	0.6	344.22	559.78	333
Alfalfa	35	"	100	35	68.86	193.88	6,786
Cow Calf	-	Head	-	71	199	150	10,629
Stocker heifer	-	"	-	75	433	87	6,562
Stocker Steer	-	"	-	97	491	81	7,843
Other	-	"	-	-	-	-	3,810
Total							67,800

Appendix tables A-8, A-9, and A-10 show the balance sheet, income statement, and selected financial ratios for the large dry cropland farm. Care must be taken in interpreting the financial statement output. Users concerned

about farm income only, may not provide all information necessary to accurately prepare the financial statements. How much information is provided in the financial statements is a function what the preparer is attempting to do in the typical farm analysis.

In the balance sheet, Appendix Table A-8, the average value of the machinery complement is included under non-current assets. Land is priced using an average value for southwest Oklahoma. No assumptions are made about the amount of debt (land or operating) existing on the typical farm. Therefore, the rations associated with debt and equity are not valid for the typical farm unless the farm has no debt.

If the purpose of the typical farm study were to tract net worth through time, additional effort could be used to develop a representative starting net worth. This study is more concerned with annual farm income and so little time was spent developing a typical balance sheet.

The income statement, Appendix Table A-9, shows net income to the operation. This study deals primarily with farm income and no attempt has been made to have the income statement represent all aspects of the farm and non-farm operation associated with the farm unit. Most of the information shown comes from the enterprise budgets. This farm has a net income of $55,136, from which any capital purchases and family living expenses must be deducted.

Relatively few of the financial ratios shown in Appendix Table A-10 are based on adequate information to be meaningful. Users attempting to track a particular ratio through time should provide the information necessary to make the ratio meaningful. The "Cash flow/Operating debt analysis" shows that the farm has $43,101 available for debt service after an $18,000 family living expense is charged.

Summary

This chapter illustrates the process of typical farm analysis using the large dry cropland farm as an example. The goal of this chapter is to follow the flow of information through the various programs used in the analysis. This study involves using the system for five typical farms. If the typical farm system were expanded beyond the southwest Oklahoma region, the same process would be completed for each typical farm identified in each of the other seven regions.

The large dryland farm has an annual net cash flow of $42,185 after the $18,000 family living charge. Clearly, whether or not the farm is progressing financially depends on how much debt the farm has. $42,185 is sufficient to repay $359,145 over 20 years at 10 percent interest. The $359,145, when split between machinery, livestock, and land, is a relatively low level of debt for this size farm. The balance sheet shows a beginning total assets of $1,004,984 for the farm. A debt of $359,145 implies that the farm could support a maximum debt/equity ratio of 36 percent. If debt were any higher, the farm would not have a cash flow adequate for debt service.

CHAPTER VI

TYPICAL FARM COMPARISONS

This chapter summarizes the results for the five typical farms developed for southwest Oklahoma. The process is discussed in detail in the preceding two chapters using the large dryland crop farm as an example. This chapter reports primarily the results for the remaining farms. Information for the large dryland crop farm is included for comparison purposes.

Machinery Complement Selection

Technological progress has essentially required that individual farms replace labor with capital to reduce the per-unit cost of production. The increased fixed cost associated with machinery and equipment may cause the per-unit cost of production to increase if the the operator is unable to spread the fixed costs over a sufficient number of acres.

Generally, resource efficiency conditions are satisfied when the marginal productivities of the resources are equal within and between firms, areas, and subsectors. This efficiency concept implies technical efficiency, such that output is maximum for a given level of input, or conversely, that input is minimum for a given level of output. For farms in a competitive environment, knowing the relationship between input costs and output returns is very important. This is particularly important for machinery, because, in crop production, machinery costs are second in size, next to land charges.

MACHSEL is used to determine the machinery complements for each size farm. MACHSEL can be used to keep machinery costs per unit as low as possible and still maintain a feasible complement, one that is able to perform all needed tasks within a specified time period. Because machinery costs are so important in the production process it is important that the machinery complement be carefully chosen for each of the five typical farms.

Table 6.1 summarizes the machinery complements for the five farms. It is assumed that the same field operations will be performed no matter what size of farm is being considered. Only the large farm with some irrigation requires two tractors. The lowest cost combination includes two 95 horsepower tractors. When 80 hours of labor is provided by the owner-operator, the average cost over all cropland acres is $56.42 per acre. This is 34¢ per acre less than having one of the tractors being a 105 horsepower tractor. Many farmers would opt for having the larger tractor to have the increased capacity available when needed.

The machinery complement cost for the large irrigated farm is larger than for the large dryland farm because of the more intensive use. Note that as the farm size decreases, the cost of machinery per acre increases dramatically. This is because the fixed cost is spread over significantly fewer acres. While the life assumptions for machinery on the medium and small farms were not revised in this study, it is quite likely that tractors and implements would be kept for a longer period. This would reduce the annual fixed cost for the medium and small farms, but the cost would still be significantly greater than for the large farm complements. If the complement costs are as presented in Table 6.1, it is important that machinery costs be appropriately estimated when comparing farms of differing sizes.

TABLE 6.1

TRACTOR COMPLEMENT COST PER ACRE FOR DIFFERENT
TYPICAL FARMS AT DIFFERENT LEVELS OF LABOR
AVAILABLE FROM THE OWNER

Typical Farm	Tractor(s) HP	Cost per acre		
Large	140	37.03	L	
Dry	125	37.30	L	
	125	35.40	H	
	140	35.33	H	
Large	95	50.21	L	
Irrigated	95			
	95	47.66	H	
	95			
Medium	95	80.03	H	high fixed cost makes
Dry		80.07	L	cost/acre higher than the larger farms.
Medium	95	79.60	H	Cost per acre is larger
Irrigated		79.97	L	than the cost for large farms under irrigated conditions.
Small	95	255.97	H	The smaller the farms
Dry		295.99	L	are the higher the costs per acre no matter how the variable cost is low.

*   L - Low labor supply by the owner: 80 hrs/month
*   H - High labor supply by the owner: 150 hrs/month

*   For large dry farms, the hours of tractor time required exceeds the time available in June, July and October with tractor size of 105 HP. Thus the smallest acceptable tractor size is 125 HP.

-   Irrigated large farms can not be handled with one 140 HP tractor since there are more hours required than available in May.

Part of the MACHSEL output for the large dryland crop farm Land is presented in Appendix tables C-1 and C-2. The cost calculations and complement are specified for the large farm with irrigated land in Appendix tables C-3 and C-4. Finally, the complement costs for the medium size farm with a mix of irrigated and dryland is shown in Appendix tables C-5 and C-6. Cost summaries for the remaining typical farms are not shown since the complement does not change. As farm size decreases, cost per acre increases because the fixed cost is being spread over fewer acres.

Part of the MACHSEL output available is an estimate of per acre costs for each crop being produced. The variable or operating cost per acre is inserted as data for estimating the costs and returns for each acre of each crop being produced. Also used from MACHSEL is the average machinery investment. This information is inserted directly into the balance sheet.

Government Program Calculations

A spreadsheet is used to perform the calculations for identifying proceeds from government programs for each crop. Appendix tables C-7, C-8, and C-9 show the input and calculation results for wheat on the large dry, large irrigated, and medium dry farms respectively. Appendix tables C-10, C-11, and C-12 show the input and calculation results for cotton on the same three farms. For any size of farm, the total farm payment is greatest for wheat. However, on a per acre basis, cotton has the largest payment.

Tables 6.2, 6.3, and 6.4 summarize the government program payments to the typical farms. Table 6.2, wheat government program payments, show that payments are greatest for the large dryland farm. This is because of the relatively large wheat acreage on that farm.

TABLE 6.2

GOVERNMENT PROGRAM INCOME FOR WHEAT

Typical Farms	Acres Wheat	Total Payment
Large - Dry	764	10,626
Large - Irrigated	567	8,241
Medium - Dry	219	3,060
Medium - Irrigated	127	1,846
Small - Dry	60	838
Small - Irrigated	32	465

TABLE 6.3

GOVERNMENT PROGRAM INCOME FOR COTTON

Typical Farms	Acres Cotton	Total Payment
Large - Dry	129	7,977
Large - Irrigated	340	30,675
Medium - Dry	37	2,283
Medium - Irrigated	135	12,941
Small - Dry	10	617
Small - Irrigated	41	3,956

TABLE 6.4

GOVERNMENT PROGRAM INCOME FOR SORGHUM

Typical Farms	Acres Sorghum	Total Payment
Large - Dry	20	182
Large - Irrigated	21	237
Medium - Dry	6	55
Medium - Irrigated	6	74
Small - Dry	2	18
Small - Irrigated	2	18

The information in Tables 6.2, 6.3, and 6.4 are used as input to CLBUD part of IFFS. In CLBUD, the government program information is combined with other information to determine the costs and returns of producing crops on the farm. After development of the enterprise cost and returns budgets, the information is combined with other income and balance sheet information to prepare a set of financial statements for the farm.

Whole Farm Summaries

After completing the machinery selection and government program calculations, whole farm information is prepared using IFFS. Table 5.6 is a summary of the net returns for the large dryland farm. Income from the farm components of the operation are $67,800. This compares to the $110,502 which is an equivalent number for the large farm with some cropland irrigated (Table 6.5).

The costs and returns in Table 6.5 and similar tables in Chapter 6 where there are both dry and irrigated crops on the same farm are based on a weighted average of irrigated and dryland acres. In Table 6.5, for example, the returns per unit for wheat, $18.89 is a weighted average of the net returns for irrigated wheat and dryland wheat produced on the farm.

The organization of the small and medium farms is shown on Table 6.6. Both the medium and small farms have all dryland farms and farms having both dryland and irrigated crops.

Tables 6.7, 6.8, 6.9, and 6.10 show the farm income expected for each of the two medium size farms and the two small size farms. As expected the net returns per acre decreases directly with decreases in farm size.

TABLE 6.5

SUMMARY OF COST AND RETURNS OF
LARGE IRRIGATED TYPICAL FARMS

Crop	Dry	Irrigated	Total Unit	Unit	Cost/ Unit	Returns/ Unit	Total Returns
					(dol.)	(dol.)	(dol.)
Wheat	520	47	567	Acre	64.62	18.89	10,708
Cotton	88	252	340	Acre	245.20	179.05	60,817
Sorghum	14	7	21	Acre	84.86	78.68	1,652
Peanuts	0	15	15	Acre	372	251.21	3,268
Alfalfa	24	0	24	Acre	69.80	193.88	4,653
Cow Calf	-	-	71	Head	199.7	149.70	10,629
Stocker Steer	-	97		-	491	80	7,843
Stocker heifer	-	75		-	433	87	6,562
Other farming	-	-		-	-	-	3,810
Total							110,502

TABLE 6.6

CROP ACREAGES FOR MEDIUM AND SMALL
SOUTHWEST OKLAHOMA TYPICAL FARMS

Crop	Medium Typical Farm			Small Typical Farms		
	Dry	Irrigated Farm		Dry	Irrigated Farm	
		Dry	Irrigated		Dry	Irrigated
Wheat	219	105	22	60	27	7
Cotton	37	18	118	10	4	37
Sorghum	6	3	3	2	1	1
Alfalfa	10	5	-	2	1	-
Peanuts	-	-	7	-	-	2

TABLE 6.7

SUMMARY OF COST AND RETURNS OF
MEDIUM DRY TYPICAL FARM

Item	Number of Units	Unit	Cost/ Unit	Return/ Unit	Total Return
Wheat	219	Acre	56.61	23.30	5,102
Cotton	37	Acre	176.75	106.23	3,930
Sorghum	6	Acre	64.13	74.04	444
Alfalfa	10	Acre	69.86	193.88	1,939
Stocker Heifer	28	Head	432.69	87.49	1,925
Stocker Steer	5	Head	491.11	80.86	2,021
Cow Calf	16	Head	199.29	140.00	2,241
Other Farm Income					856
Total					18,458

TABLE 6.8

SUMMARY OF COST AND RETURN OF
MEDIUM IRRIGATED TYPICAL FARM

Item	Number of Units	Units	Cost/ Unit	Return/ Unit	Total Return
Wheat	127	Acre	56.95	17.05	2,162
Cotton	136	Acre	250.31	196.20	26,683
Sorghum	6	Ace	81.12	31.35	188
Peanuts	7	Acre	373	251	1,758
Stocker Heifer	22	Head	432.69	87.49	1,925
Stocker Steer	25	Head	491.11	80.86	2,021
Cow Calf	16	Head	199.29	140.00	2,241
Other Farm Income					856
Total					38,803

TABLE 6.9

SUMMARY OF COST AND RETURN
OF SMALL DRY TYPICAL FARM

Item	Acre or Head	Units	Cost/ Unit	Return/ Unit	Total Return
Wheat	60	Acre	56.72	54.01	3,241
Cotton	10	Acre	176.75	101.67	1,017
Sorghum	2	Ace	64.13	99.67	199
Alfalfa	3	Acre	69.80	193.88	582
Stocker Steer	5	Head	491.11	92.53	463
Stocker Heifer	5	Head	452.69	87.49	432
Total					5,939

TABLE 6.10

SUMMARY OF COST AND RETURN OF
SMALL IRRIGATED TYPICAL FARM

Item	Acre or Head	Unit	Cost/ Unit	Return/ Unit	Total Return
Wheat	32	Acre	76.07	25.57	818
Cotton	41	Acre	269.02	271.16	11,118
Sorghum	2	Ace	84.12	48.64	92
Peanuts	2	Acre	372.87	251.21	502
Stocker Steer	5	Head	491.11	92.53	463
Stocker Heifer	5	Head	432.69	27.49	437
Total					13,435

Financial Statements

The financial statements obtained from IFFS for each of the farms can be used to evaluate their individual performance and to compare the farms with each other. The financial statements for all the farms are located in the appendix tables. Use the following chart to find the table you wish to see.

	All Dryland	Mixed Dry and Irrigated
Large Farms	A-8, A-9, A-10	A-16, A-17, A-18
Medium Farms	B-4, B-5	B-7, B-8, B-9
Small Farms	B-10, B-11	B-13, B-14

(The first table is the balance sheet, the second the income statement and the third (if present) the financial ratios.)

Medium and small size farms are often operated by farmers having off-farm employment. When this occurs, it is likely that a combination of enterprises will be chosen which will make use of the farmer's available time most efficiently. This may result in proportionately more livestock being grown on small farms. Because the farms in this study are developed using census information, the farm organizations are averages of what is occurring.

In estimating the income available to the farm operator it is assumed that medium size farms have off-farm income of $9,000 per year and that small farms have off-farm income totaling $18,000 per year. With these assumptions, all three farm sizes have annual incomes above $20,000 per year. If family living is assumed to be $18,000 per year for each farm, the residual could conceivably be used for debt service. Table 6.12 provides the calculations with the maximum debt service being calculated over 20 years at 10 percent interest.

The final column gives the percent equity required for each farm to be able to service its debt each year.

TABLE 6.11

SUMMARY OF FARM INCOMES AND DEBT SERVICE CAPABILITY

	Net Farm Income	Assumed Off-farm Earnings	Net After Living Expenses	Debt Service Capability	Required Equity Ratio
Large dry	$55,136	$0	$37,136	$316,160	68%
Large irrigated	$95,481	$0	$77,481	$679,639	33%
Medium dry	$14,541	$9,000	$5,541	$47,174	88%
Medium irrigated	$34,844	$9,000	$25,844	$220,024	50%
Small dry	$4,710	$18,000	$4,710	$40,099	67%
Small irrigated	$12,217	$18,000	$12,217	$104,010	15%

Summary

The process of doing a typical farm analysis is presented in chapter 4 and Chapter 5 illustrates the process using the large dry cropland farm as an example. This chapter summarizes the results for all typical farms in southwest Oklahoma. For each farm a machinery complement is chosen using MACHSEL. Government program income estimates are made and the resulting information is entered into the IFFS program for developing farm financial statements. Results show that farm income varies directly with farm size and that irrigated farms tend to be more profitable than dryland farms.

CHAPTER VII

AGGREGATION OF INDIVIDUAL TYPICAL FARMS
TO REGIONAL TOTALS

This chapter demonstrates aggregating individual typical farm results to regional totals. Many variables could be aggregated, beginning with the kinds and types of machinery likely to be used in the region and ending with regional summaries of farm income, equity, and other output provided by the IFFS output.

Whether or not the results can be appropriately aggregated depends on the quality of information used to describe the farms. The ability to aggregate further depends on whether the diversity of farms actually used to develop each average farm can be represented by the average farm. Or, another way of saying this, is the sum of each value for each characteristic describing all the actual farms equal to the number of farms of that size times the average value for each characteristic?

As originally configured, the total farm acres in the region are equal to the number of farms times the size of each typical farm. Likewise, the total acres of each crop on a farm times the number of farms of that size aggregated over all farm sizes equals the average number of acres of each crop grown in the southwest region.

Table 7.1 gives the number of farms associated with each typical farm. The table also illustrates that two farm sizes, the large dryland farm and the

medium dry farm, account for 83% of the farm acres in southwest Oklahoma. Most farms have no irrigation. Of the 5362 farms having cropland, 4784 have no irrigation. Only 578 farms have some irrigation. So while irrigation may be profitable to those farmers who can irrigate, it only occurs on 10.8% of the farms in southwest Oklahoma.

TABLE 7.1

TOTAL NUMBER OF DIFFERENT TYPICAL FARMS
IN SOUTHWESTERN OKLAHOMA

Farm	Number of Typical Farms	Percent of Land Under Each Typical Farm
Large dry Farm	1,146	54
Large Irrigated Farm	211	9
Medium Dry Farm	2,436	29
Medium Irrigated Farm	256	3
Small Dry Farm	1,202	3
Small Irrigated Farm	111	2

Regional Aggregation

Table 7.2 aggregates the costs and net income results for the southwest Oklahoma region. The number of typical farms is part of the basic descriptive

information for the typical farms. The cost per farm and net income per farm are taken directly from the IFFS income statements.

Any variables of relevance and significance could be taken from the IFFS output for aggregation. If care were taken to make sure each farm is typical with respect to owner equity, the aggregated results should be representative of the region.

TABLE 7.2

REGIONAL COST AND RETURNS AGGREGATED
FROM TYPICAL FARMS TOTAL
COST AND RETURNS

Farm	Number of Typical Farms	Cost/ Typical Farm	Net Income/ Typical Farm	Regional Total Cost (000)	Regional Total Return (000)
Large Dry	1,146	175,540	78,378	201,168	89,821
Large Irrigated	211	235,481	117,757	49,686	24,846
Medium Dry	2,435	48,665	23,541	118,490	57,322
Medium Irrigated	256	74,984	43,844	19,196	11,224
Small Dry	1,202	11,347	22,719	13,639	27,308
Small Irrigated	111	20,216	30,212	2,244	3,354
Total				404,432	213,875

One use of the typical farm system might be to evaluate changes in government policy. Table 7.3 gives the aggregate government program proceeds. This table assumes that all farms participate in the government

program uniformly. It would be possible to make several assumptions about how farmers participate based on size of farm, etc., and then aggregate the results to prepare tables similar to Table 7.3. Similarly, alternative government programs could be analyzed with the impacts on the southwest region determined using tables similar to Table 7.3.

TABLE 7.3

REGIONAL GOVERNMENT PAYMENT DETERMINED
FROM TYPICAL FARMS IN THE REGION AT
1992 MARKET AND TARGET PRICES

Farm	Number of Typical Farms	Government Program/ Typical Farm	Total Regional Government Payment (000)
Large Dry	1,146	18,835	21,584
Large Irrigated	211	39,153	8,261
Medium Dry	2,435	5,398	13,144
Medium Irrigated	256	14,361	3,804
Small Dry	1,202	1,473	1,770
Small Irrigated	111	4,439	492
Total			49,058

Impact of Target Price Reductions

Target prices for wheat, cotton, and grain sorghum decreased between 1987 and 1992. Through the use of typical farms, it is possible to evaluate the

impact that the change in government programs has on individual farm income and regional farm income. If the total production of each crop is the same for 1987 and 1992, then the change in farm income is the amount of loss in government programs. Where typical farms can be helpful is determining the starting level of farm income. Between 1987 and 1992, the market price was never higher than the target price and in 1987 the returns to the typical farms were higher for each crop.

Table 7.4 shows a summary of regional income and the changes in regional income between 1987 and 1992 that result from a change in target price. The dryland crop farms were impacted more severely than farms with irrigation because the irrigated farms grow more cotton and the cotton target price was not decreased as much as wheat and grain sorghum. Dryland farms lost about one-third of their farm income while irrigated farms lost around one-quarter of their farm income. For the region as a whole, the farm income loss was 32 percent because there are many more dryland than irrigated farms.

The regional income changed from $71,851,000 to $49,058,000, a loss of $22,796,000. While this loss is devastating to the farmers who directly suffered the loss, it is also devastating to the economy of the region. Most of the $22,796,000 would have been spent in the region and when the multiplier effect is considered, the regional impact is much larger than the direct loss.

Also apparent from Table 7.4 is the importance of the large and medium size dryland farms. In 1992, those two groups had a total regional farm income of $34,733,000 or 72.3 percent of the farm income of the region. The small farms and irrigated farms provide only 29.3 percent of the farm income for the region. When studying the agricultural future of the southwest Oklahoma region, the large and medium size farms are most critical.

TABLE 7.4

REGIONAL GOVERNMENT PAYMENT DETERMINED
FROM TYPICAL FARMS IN THE REGION AT 1987
TARGET PRICE AND 1992 TARGET PRICE

Type	Number of Farms	Farm Income 1987 Target Prices	Regional Farm Income 1987 Target Prices	Regional Farm Income 1992 Target Prices	Percent Income Reductions
			(000)	(000)	
Large Dry	1,146	28,193	32,309	21,584	33
Large Irrigated	211	54,004	11,395	8,261	27
Medium Dry	2,435	8,082	19,679	13,144	33
Medium Irrigated	256	20,061	5,136	3,804	25
Small Dry	1,202	2,221	2,540	1,770	34
Small Irrigated	111	5,962	662	492	25
Total		71,851	49,058		32

It is expected that there will be additional limitations on dollars spent on supporting agriculture through government programs. The impacts on individual farms and the resulting impacts on communities may be drastic.

When farm operators start responding to the gradual elimination of government programs, a typical farm system such as the one described in this study may be useful. If farm operators start expanding in size, look for new and creative ways to obtain capital, the typical farms will change. If, as appears likely, the number of farms continues to decrease, typical farm aggregation may be one way of determining the problems that may confront rural communities with regard to declining populations and lower gross farm incomes.

Summary

This chapter illustrates how data for typical farms can be aggregated to regional totals. While there are numerous enterprises in the region that are not of sufficient size to be incorporated in a typical farm analysis, it is likely that for the foreseeable future, the principal crops will be the ones that, in the aggregate, impact the region most critically. Any changes in the environment in which the crops and livestock are grown may have a significant impact on the community in which they exist.

The important function of this study is to illustrate the process of developing and analyzing typical farms and then demonstrating that they can be used to study aggregate impacts on the future of the region. Further, if similarly designed typical farms were available for other regions of the state, state wide totals would be available.

The dominant farms in the southwest region are the medium and large dryland crop farms. They control over half the farm acres and more than 70 percent of the farm income. As the target price for wheat, grain sorghum, and cotton have declined, all farms using the government program have lost somewhere between one-quarter and one-third of the farm income.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

The primary purpose of this study was to develop a prototype typical farm analysis tool which can be used on a series of farms covering all regions of Oklahoma. The typical farms used in the study are designed to represent a specified number of farms in the region. Further, when the number of farms of each farm size is multiplied by the typical farm acreages, the total acreage will equal the farm acres in the region. As a starting point for each farm, the average crop acres and average crop yields are developed so that when aggregated, the total crop acreage and total crop production is equal to what occurred in the region during the period between 1987 to 1992.

The typical farm system consists of four principal components. The first is the set of farms having the characteristics described in the above paragraph. These farms are obtained from unpublished results of research completed by Darrel Kletke. The second major component is describing the set of machinery for each farm. The spreadsheet template MACHSEL is used for determining the machinery complements. The third major component is interpreting the impacts of government programs on each of the typical farms. A spreadsheet template developed by Kim Anderson is used for estimating government payments and evaluating program alternatives. The final tool used in the typical farm system is the Integrated Farm Financial Statements (IFFS) develop by Love and others in the Agricultural Economics Department at Oklahoma State University. The

financial statements and cash flows available from IFFS permit study of almost any financial characteristic of the typical farms. One caveat, all information required for the financial statements desired must be complete. A complete set of financial statements requires considerably more data than is provided in this study.

After the analysis of each typical farm is complete, it is possible to aggregate the results to regional totals. A comparison of regional totals under different assumptions about the characteristics of the farms can provide information to decision makers about the merits of policy alternatives, about the expected impact of technological changes, and about possible changes in the structure of agriculture that might occur in a region.

Machinery Complement Selection

Machinery complements are selected using MACHSEL. Each farm is described by specifying the acres of each crop, the field operations to be performed, time available for work in each half month period, and sets of machinery matched to several different tractor sizes. MACHSEL is used to choose machinery and estimate the cost of complements which can perform the work within the available time. Users can evaluate several alternative complements and select the least cost acceptable alternative. Using a spreadsheet template like MACHSEL, permits finding realistic complements for the typical farms under alternative assumptions about wage rates, 'free' owner-operator time available, field time available in each time period, etc.

The only typical farm requiring two tractors was the large irrigated farm which required two relatively small tractors. The large dryland farm required one 125 horsepower tractor. This may be smaller than would be found on most

large dryland crop farms indicating that farmers place a premium on having excess capacity. MACHSEL could be used to estimate the cost of having the excess capacity available.

Important results from MACHSEL used in the typical farm analysis are fixed cost for the farm, operating costs per acre, and labor required per acre. MACHSEL also permits identifying the machinery costs associated with each enterprise being grown on the farm. Using the correctly specified cost per acre for wheat rather than the acreage cost per acre for all crops, may help those working with the typical farms to accurately specify what might happen to farm profitability if the mix of crops grown were to change.

Government Programs

A constant in the farm program for United States agriculture is change. Every few years the structure of the program changes and when the program doesn't change, the parameters for estimating the program benefits change. Each year farm operators must make decisions about whether or not to participate in the program and if the decision is to participate, then the decision is in what parts of the program and at what levels should participation occur. The spreadsheet program used to evaluate government programs in this study is such a program. The one difficulty with using a typical farm is that the diversity of farms that causes the various program alternatives to be used does not exist. For a typical farm a single program alternative will always be best.

As new government program alternatives are being considered, the typical farms could be used as an evaluation tool. It may be possible to aggregate the results and for the state to have an opinion about which government program would be best for the state.

Whole Farm Financial Statements

In the typical farm analysis, whole farm financial statements are prepared using IFFS. In addition to the government program information and the machinery cost information discussed above, it is necessary to provide some amount of whole farm information for the financial statement results to be meaningful. The wide variety of information required to have a complete set of financial statements should be assembled only if it is necessary to obtain needed results.

Input to IFFS is provided using enterprise costs and returns budgets and a spreadsheet requiring input of all additional information. If only the enterprise budget information and farm related information is entered into the additional information (AI) spreadsheet, the income statement generated will provide estimates of farm income. The balance sheet, cash flow statement, and financial ratios will be meaningful only to the extent that information is provided. Care should be taken to interpret output in terms of the data used to obtain that output.

Some Limitations

Since the size of each typical farm is an arbitrarily selected size, there can be some deviation in size from some actual farms with an acceptable level of deviation in values estimated. The other limitation of this study is that the numerical values from the result are not tested for statistical significance since the primary goal of the study is to demonstrate the process of using typical farms as a tool in policy and economic analysis of agriculture in southwest Oklahoma.

The study area grows some other crops that are not considered in this study and thus the study may have some limitations by not including all the enterprises that are grown in southwest Oklahoma.

The Results

For southwest Oklahoma, the typical farms generate farm incomes ranging from the small dryland crop farm income of $4,710 to the large farm with irrigation having a farm income of $95,481. Most small farms are operated by farmers who have off-farm jobs. The farm income supplements income received from other sources. Large farms having considerable irrigated land are large enough and profitable enough that off-farm employment is not essential to make them viable. For the large dryland farms, it is necessary for the operator to have 68 percent equity in his property or the cash available after family living is subtracted is insufficient to make the annual payments.

Chapter VII presents procedures for aggregating individual typical farm results to regional totals. Using the procedures presented in this study, it is possible to evaluate how changes in government programs might impact farms and the communities in which they exist. The example presented in Table 7.4 shows that while the target price changes from 1987 to 1992 do not seem excessive, income for southwest Oklahoma will be lowered from $71,859,000 to $49,063,000 a reduction of 32 percent.

In this study, the numerical results are not as important as the process described. It is the process that can be used again and again for the other regions in the state.

Suggestions for Future Research

A first and obvious suggestion is setting up the typical farm analysis system for the remaining regions of Oklahoma. For this analysis, Oklahoma is divided into eight regions. After completion of the other regions, statewide, as well as regional totals could be prepared.

The typical farm system could be used to evaluate the impact of government program alternatives. Having a little knowledge of how many farms there are of each typical farm may make it easier to evaluate program alternatives.

As time passes and farm income becomes less dependent on government programs, farms will likely reorganize. New sources of capital may be tapped, farm sizes may increase, operators may own less land and rent more, and different crops and livestock activities may be considered. Using typical farms to study this environment requires incorporation of an optimizing tool. Linear programming may be an alternative which could be used to identify strategies that may be profitable to farm operators. It would probably not be possible to aggregate the linear programming results and expect the totals be meaningful. First, not all changes would be adopted by all operators immediately, and second, there would be price changes due to increases and decreases in the supply of the crops produced.

The typical farm system could be used to evaluate expected impacts of changes in resources such as labor. If the price of labor were to increase substantially, farm operators would substitute farm machinery for labor. For regions as a whole, the decreasing amount of labor used on farms could cause

a loss of population in rural communities and make it even more difficult for those communities to survive.

Conclusions

This study has focused on the process of developing a system of typical farms. The objective of having such a system is to be able to evaluate alternatives about which a choice can be made or to anticipate the impacts of changes that are expected to occur. These evaluations are important at the farm level and at the regional or state level. The process of developing and using a system of typical farms as presented in this study makes these evaluations possible.

The data required for doing typical farm studies is large. By using several available tools, MACHSEL, a government program evaluation worksheet, and IFFS; the focus can be on the data and not the procedures used to analyze the data. Much of the required information is available in enterprise costs and returns budgets. The described systems allow specifying feasible machinery costs for each farm, representative expectations for government programs, along with other information describing each farm to come up with a standardized set of financial statements describing the performance of the farm.

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APPENDICES

APPENDIX A

LARGE TYPICAL FARMS

TABLE A-1

LARGE DRY TYPICAL FARM WHEAT
ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB,11,94    FIELD: SWOK              File: WHTLD
        Enterprise: Wheat - Dryland - Custom Harvest

Number of acres:   764.0      Quantity stored:   0 bu.
Acres Harvested    531.0
Yield: per acre    27.40 bu/ac
Price: $/bushel    $ 3.40 /bu.                                            Percent change in costs   0.00 %
Operator's share   100.0 %
Gov't Pymts        $10676     Interest rate    9.25 %                     Error Check              0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Wheat bu 3.40 27	64.75	49468						49468						
	0.00	0												
Government payments (totals)	13.97	10676			4270									6406
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	78.72	60144	0	0	4270	0	0	49468	0	0	0	0	0	6406
((OPERATING EXPENSES))														
Custom Hire (machine work)	8.40	6418						6418						
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	10.50	8022		3530							4492			
Freight, Trucking	4.16	3178						3178						
Fuel, Lubricants	20.27	15486		774				4181	2013	2013	6504			
Insurance	0.00	0												
Labor Hired	5.88	4492						1393	539	539	2022			
Rents, Leases	2.25	1719										1719		
Repairs, Maintenance	0.00	0		0				0	0	0	0			
Seeds, Plants	5.00	3820									3820			
Storage, Warehousing	0.00	0												
Supplies	0.00	0												
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous	0.00	0												
	0.00	0												
	0.00	0												
TOTAL CASH OPERATING EXPENSES	56.46	43135	0	4304	0	0	0	15170	2552	2552	16838	1719	0	0
NET OPERATING (Rec - Exp)	22.26	17009	0	-4304	4270	0	0	34298	-2552	-2552	-16838	-1719	0	6406
Operating interest expense	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	22.26	17009	0	-4304	4270	0	0	34298	-2552	-2552	-16838	-1719	0	6406

TABLE A-2

LARGE DRY TYPICAL FARM COTTON ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94   FIELD: COTLD              File: COTLD
        Enterprise: Cotton - Dryland, Custom Harvest
                  (lint)      (seed)
Number of acres:    129         129      Qty. lint stored:     0 lb.
Acres Harvested     116         116      Qty. seed stored:     0 cwt.
Yield:          400 lb/ac    7.20 cwt/ac
Price:        $ 0.53 /lb  $  4.00 /cwt                                        Percent change in costs  0.00 %
Operator's share   100 %        100 %
Gov't Pymts      $ 7977    Interest rate    9.25 %                            Error Check       0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Cotton lint lb 0.53 400	189.87	24550												24550
Cottonseed cwt 4.00 7	25.90	3341												3341
Government payments (totals)	61.69	7977		7977										
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	277.46	35867	0	7977	0	0	0	0	0	0	0	0	0	27890
((OPERATING EXPENSES))														
Custom Hire (machine work)	33.60	4344									4344			
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	46.50	6012		2946							3066			
Freight, Trucking	0.00	0												
Fuel, Lubricants	29.76	3848						1462	1000	539	847			
Insurance	0.00	0							0					
Labor Hired	14.09	1822						692	437	346	346			
Rents, Leases	2.00	259					259							
Repairs, Maintenance	0.00	0												
Seeds, Plants	10.80	1396					42			1396				
Storage, Warehousing	40.00	5172										5172		
Supplies	0.00	0							0					
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0										0		
Veterinary, Medicine	0.00	0												
Miscellaneous (Store and Proces	0.00	0												
	0.00	0												
	0.00	0												
TOTAL CASH OPERATING EXPENSES	176.75	22854	0	2946	0	0	259	2155	1438	2281	4259	9516	0	0
NET OPERATING (Rec - Exp)	100.65	13014	0	5031	0	0	-259	-2155	-1438	-2281	-4259	-9516	0	27890
Operating interest expense	2.16	279	0	0	0	0	0	0	0	8	41	115	115	0
Net Operating After Interest	98.49	12734	0	5031	0	0	-259	-2155	-1438	-2290	-4300	-9631	-115	27890

TABLE A-3

LARGE DRY TYPICAL FARM SORGHUM
ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK        DATE: FEB,11,94              File: SGLD
     Enterprise: Grain Sorghum - Dryland, Custom Harvest

Number of acres:      20   Quantity stored:    0 cwt.
Acres harvested:      19
Yield: per acre    40.00 cwt/ac
Price: per cwt:    $ 3.87 /cwt                                    Percent change in costs   0.00 %
Operator's share: 100.0 %
Gov't Pymts:       $ 182    Interest rate    9.25 %                          Error Check        0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Gr. Sorghum cwt 3.87 40	147.06	2941										2941		
	0.00	0												
Government payments (totals)	9.10	182										182		
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	156.16	3123	0	0	0	0	0	0	0	0	0	3123	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	11.69	234										234		
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	16.30	326					326							
Freight, Trucking	5.20	104											104	
Fuel, Lubricants	17.37	347						139	139	69				
Insurance	0.00	0					0							
Labor Hired	8.37	167					59	59	25	25				
Rents, Leases	2.00	40					40							
Repairs, Maintenance	0.00	0			0			0	0					
Seeds, Plants	3.20	64					64							
Storage, Warehousing	0.00	0												
Supplies	0.00	0					0	0	0	0	0	0		
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0										0		
Veterinary, Medicine	0.00	0												
Miscellaneous	0.00	0												
	0.00	0												
	0.00	0												
TOTAL CASH OPERATING EXPENSES	64.13	1283	0	0	0	0	489	198	164	95	0	234	104	0
NET OPERATING (Rec - Exp)	92.03	1841	0	0	0	0	-489	-198	-164	-95	0	2889	-104	0
Operating interest expense	1.51	30	0	0	0	0	4	5	7	7	7	0	0	0
Net Operating After Interest	90.52	1810	0	0	0	0	-492	-203	-171	-102	-7	2889	-104	0

TABLE A-4

LARGE DRY TYPICAL FARM ALFALFA
ENTERPRISE BUDGET

((ENTERPRISE BUDGET WORKSHEET)) NAME: SWOK   DATE: FEB,11,94   FIELD: SWOK   File: ALFLD
         Enterprise: Alfalfa Hay - Dryland, Custom Harvest, Conventional Bale

Number of acres: 35   Quantity stored: 0 tons
Acres harvested   35
Yield: tons/acre   3.30 tons
Price: per ton $79.92 /ton   Percent change in costs   0.00 %
Operator's share   100.0 %
                               Interest rate   9.25 %   Error Check   0

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Alfalfa Hay ton 79.92 3.30	263.74	9231						2400	2308	2308	2215			
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	263.74	9231	0	0	0	0	0	2400	2308	2308	2215	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0						0	0	0	0			
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	16.00	560			308	252								
Freight, Trucking	0.00	0												
Fuel, Lubricants	16.96	594			594									
Insurance	0.00	0												
Labor Hired	8.10	284			284									
Rents, Leases	2.00	70	18	53										
Repairs, Maintenance	0.00	0			0									
Seeds, Plants	16.80	588					588							
Storage, Warehousing	0.00	0												
Supplies	10.00	350					140	123				88		
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous	0.00	0					0	0				0		
	0.00	0												
	0.00	0												
TOTAL CASH OPERATING EXPENSES	69.86	2445	18	53	1185	252	728	123	0	0	0	88	0	0
NET OPERATING (Rec - Exp)	193.88	6786	-18	-53	-1185	-252	-728	2277	2308	2308	2215	-88	0	0
Operating interest expense	1.10	39	0	0	10	11	17	0	0	0	0	0	0	0
Net Operating After Interest	192.78	6747	-18	-53	-1195	-263	-745	2277	2308	2308	2215	-88	0	0

TABLE A-5

LARGE DRY TYPICAL FARM COW-CALF
ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB,11,94                        File: CCLD
    - Enterprise: Cow-calf - Spring Calving, Warm Season Pasture, Non-Legume Hay

Number of cows:       71     Steer selling weight     4.37 cwt
Calving percentage 95.00 %   Steer calf sale price: $ 98.00 /cwt
Percent steers     50.00 %   Heifer selling weight    4.22 cwt
Percent heifers    50.00 %   Heifer calf sale price:$ 88.00 /cwt            Percent change in costs   0.00 %
Calf death loss     2.00 %   Replacement heifers        7 hd
                             Interest rate     9.25 %                       Error Check          0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Steers cwt 98.00 4.28	199.36	14154			14154									
Heifers cwt 88.00 4.14	136.26	9674			9674									
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	13.38	950							950					
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	348.99	24778	0	0	23828	0	0	0	950	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	70.57	5010	1670										1670	1670
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	1.51	107										54	54	
Fuel, Lubricants	32.30	2293	229	229	229	229	161	115	115	115	183	229	229	229
Insurance	0.00	0										0		
Labor Hired	51.57	3661	1282										1282	1098
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0									0			
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	13.20	937			937									
Taxes - Ad Valorem	5.28	375		375										
Utilities	0.00	0												
Veterinary, Medicine	17.43	1238					743					495		
Miscellaneous	0.00	0	0	0								0	0	0
Marketing Charge	7.43	528					79		237			211	0	
	0.00	0												
TOTAL CASH OPERATING EXPENSES	199.29	14150	3181	604	1167	229	982	115	352	115	183	989	3235	2998
NET OPERATING (Rec - Exp)	149.70	10629	-3181	-604	22662	-229	-982	-115	598	-115	-183	-989	-3235	-2998
Operating interest expense	4.81	342	88	93	0	2	9	10	6	6	8	16	40	64
Net Operating After Interest	144.89	10287	-3269	-697	22662	-231	-992	-125	592	-121	-191	-1004	-3275	-3062

TABLE A-6

LARGE DRY TYPICAL FARM STOCKER-HEIFER ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94                          File: STHLD
         Enterprise: Stocker heifers - Buy Nov. 1, Sell MMARCH 30
                                    - - - - - - - - - - - - - - - -
Number of head:      75    : OPTIONAL: Sell Weight Calculation :
Purchase weight:   4.22 cwt : Days on feed              150    :
Purchase price: $88.00 /cwt: Avg. daily gain (lbs/hd) 1.61    :
Selling weight:    6.33 cwt :)Calculated sell weight= 6.64 cwt:         Percent change in costs  0.00 %
Selling price:  $80.00 /cwt - - - - - - - - - - - - - - - - -
Death loss:      2.00 %    Interest rate    9.25 %                                     Error check        0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Stockers cwt 80.00 6.50	520.18	39014					39014							
	0.00	0												
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	520.18	39014	0	0	0	0	39014	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	12.10	908	136	136	136	9	9						345	136
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	3.71	278			111								167	
Fuel, Lubricants	9.72	729	102	102	102	102	102						117	102
Insurance	0.00	0												
Labor Hired	13.73	1030	144	144	144	144						103	206	144
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0	0	0	0	0	0						0	0
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	0.00	0											0	
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0	0	0	0								0	0
Veterinary, Medicine	11.08	831											831	
Miscellaneous (2% Shrink)	0.00	0					0							
Marketing Charge	10.99	824					824							
	0.00	0												
Livestock purchased for resale														
Description unit price quan.														
Stocker cwt 88.00 4.22	371.36	27852										27852		
	0.00	0												
TOTAL CASH OPERATING EXPENSES	432.69	32452	382	382	494	255	935	0	0	0	0	27955	1665	382
NET OPERATING (Rec - Exp)	87.49	6562	-382	-382	-494	-255	38078	0	0	0	0	-27955	-1665	-382
Operating interest expense	0.25	18	0	3	7	9	0	0	0	0	0	0	0	0
Net Operating After Interest	87.25	6544	-382	-385	-500	-264	38078	0	0	0	0	-27955	-1665	-382

TABLE A-7

LARGE DRY TYPICAL FARM STOCKER-STEER ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94                      File: STSLD
          Enterprise: Stockers - Buy Oct 15, Sell Mar 1 - 400 lb. in, 600 lb out - Wheat Pasture
                      - - - - - - - - - - - - - - - -
Number of head:      97     : OPTIONAL: Sell Weight Calculation :
Purchase weight:    4.37 cwt : Days on feed              135   :
Purchase price:   $98.00 /cwt: Avg. daily gain (lbs/hd) 1.79   :
Selling weight:    6.78 cwt : )Calculated sell weight= 6.79 cwt:          Percent change in costs   0.00 %
Selling price:    $86.00 /cwt - - - - - - - - - - - - - - - -
Death loss:        2.00 %    Interest rate    9.25 %                                       Error check      0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Stockers cwt 86.00 6.65	571.97	55481			55481									
	0.00	0												
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	571.97	55481	0	0	55481	0	0	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	12.70	1232	25	25								1133	25	25
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	3.91	379			228							152		
Fuel, Lubricants	9.75	946	189	189								189	189	189
Insurance	0.00	0												
Labor Hired	13.73	1332	240	240	133							240	240	240
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0	0	0								0	0	0
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	0.00	0										0		
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0	0	0								0	0	0
Veterinary, Medicine	11.08	1075										860	215	
Miscellaneous	11.68	1133			1133									
	0.00	0												
	0.00	0												
Livestock purchased for resale														
Description unit price quan.														
Stocker cwt 98.00 4.37	428.26	41541										41541		
	0.00	0												
TOTAL CASH OPERATING EXPENSES	491.11	47638	454	454	1494	0	0	0	0	0	0	44115	668	454
NET OPERATING (Rec - Exp)	80.86	7843	-454	-454	53987	0	0	0	0	0	0	-44115	-668	-454
Operating interest expense	0.04	3	0	3	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	80.82	7840	-454	-457	53987	0	0	0	0	0	0	-44115	-668	-454

TABLE A-8

LARGE DRY TYPICAL FARM BALANCE SHEET

INTEGRATED FARM FINANCIAL STATEMENTS (IFFS)
Software Developed By
OKLAHOMA STATE UNIVERSITY
COOPERATIVE EXTENSION SERVICE

NAME: SWLD
                                                                        04/12/94   11:17

BALANCE SHEET

	Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change		Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change
--------CURRENT ASSETS--------				--------CURRENT LIABILITIES--------			
1. Cash & Checking	0	42185	42185	30. Accounts Payable	0	0	0
2. Marketable Securities	0	0	0	31. Notes Payable	0	0	0
3. Accounts Receivable	0	0	0	32. Current Portion of Term Debt	0	0	0
4. Prepaid Expenses	0	0	0	33. Accrued Interest	0	0	0
5. Cash Investment, Growing Crops	0	0	0	Taxes Payable:			
Inventories:				34. Ad Valorem	0	0	0
6. Marketable Livestock	0	0	0	35. Employee Payroll Witholding	0	0	0
7. Stored Crops and Feed	0	0	0	36. Income Taxes	0	0	0
8. Purchased Feed	7706	3052	-4654	37. Deferred Taxes	3478	1378	-2100
9. Supplies	0	0	0	38. Other Accrued Expenses	0	0	0
10. Other Current Assets	0	0	0	39. Other Current Liabilities	0	0	0
11. TOTAL CURRENT FARM ASSETS	7706	45237	37531	40. TOTAL CURRENT FARM LIABILITIES	3478	1378	-2100
Non-Farm Assets:				Non-Farm Liabilities:			
12. Savings	0	0	0	41. Non-Farm Notes & Interest	0	0	0
13. Other Non-Farm Assets	0	0	0	42. Other Non-Farm Liabilities	0	0	0
14. TOTAL CURRENT ASSETS	7706	45237	37531	43. TOTAL CURRENT LIABILITIES	3478	1378	-2100
--------NON-CURRENT ASSETS--------				--------NON-CURRENT LIABILITIES--------			
15. Breeding Livestock	38880	35283	-3597	44. Notes Payable, Non-Real Estate	0	0	0
16. Machinery, Equipment	119768	112127	-7641	45. Notes Payable Real Estate	0	0	0
17. Vehicles	27000	24802	-2198	46. Deferred Taxes	12982	9046	-3936
18. Investment in Capital Leases	0	0	0	47. Other Non-Current Liabilities	0	0	0
19. Contracts & Notes Receivable	0	0	0	48. TOTAL NON-CURRENT FARM LIAB'TY	12982	9046	-3936
20. Investment in Cooperatives	0	0	0	Non-Farm Liabilities:			
21. Real Estate, Land	786630	786630	0	49. Non-Farm Notes	0	0	0
22. Buildings & Improvements	25000	23750	-1250	50. Other Non-Farm Liabilities	0	0	0
23. Other Non-Current Assets	0	0	0	51. TOTAL NON-CURRENT LIABILITIES	12982	9046	-3936
24. TOTAL NON-CURRENT FARM ASSETS	997278	982592	-14686	52. TOTAL LIABILITIES	16459	10423	-6036
Non-Farm Assets:							
25. Cash Value, Life Insurance	0	0	0	--------OWNER EQUITY--------			
26. Investment in Other Entities	0	0	0	53. Contributed Capital	0	0	0
27. Other Non-Farm Assets	0	0	0	54. Retained Earnings	985668	1022804	37136
28. TOTAL NON-CURRENT ASSETS	997278	982592	-14686	55. Total Valuation Equity	2856	-5398	-8254
				56. TOTAL EQUITY	988525	1017406	28881
29. TOTAL ASSETS	1004984	1027829	22845	57. TOTAL LIABILITIES & EQUITY	1004984	1027829	22845

TABLE A-9

LARGE DRY TYPICAL FARM INCOME STATEMENT

NAME: SWLD

INCOME STATEMENT   For the Period   Jan-92   Thru   Dec-92
=================

Market Livestock Sales   118323
Livestock Product Sales   0
Change in Market Livestock Inventories   0
    GROSS REVENUES FROM MARKET LIVESTOCK/PRODUCTS   --------- 118323

Crop Sales   90070
Change in Stored Crop and Feed Inventories   0
    GROSS REVENUES FROM CROPS   --------- 90070

Government Program Payments   18835
Raised Livestock Transferred to Breeding Stock   0
Gain/Loss from Sale of Culled Breeding Stock   398
Change in Accounts Receivable   0
Other Farm Income   950

       GROSS REVENUES   228576

Purchased Market Livestock   69393
Purchased Feed/Grain   7150
Change in Purchased Feed Inventories   4654
Other Cash Operating Expenses   94343
Other Accrual Adjustments   0
Change in Supplies and Cash Investment in Growing Crops   0
Depreciation Expense   0
    OPERATING EXPENSES   --------- 175540

Cash Interest Paid   0
Change in Interest Payable   0
    INTEREST EXPENSE   ---------   0

      TOTAL EXPENSES   175540

      NET FARM INCOME FROM OPERATIONS   53035

Gain/Loss on Sale of Farm Capital Assets & Marketable Securities   0

        NET FARM INCOME   53035

Wages   0
Gain/Loss on Sale of Non-Farm Capital Assets   0
Non-Farm Accrual Adjustments and Interest Paid   0
Other Non-Farm Income   0
    TOTAL NON-FARM INCOME   ---------   0

    INCOME BEFORE TAXES AND EXTRAORDINARY ITEMS   53035
Cash Income Tax Expense   0
Change in Income Tax Accruals   0
Change in Current Portion of Deferred Taxes   -2100
    TOTAL INCOME TAX EXPENSE   ---------   -2100

    INCOME BEFORE EXTRAORDINARY ITEMS   55136
Extraordinary Items (Net of Tax)   0

       NET INCOME   55136
                                                                =========

TABLE A-10

LARGE DRY TYPICAL FARM FINANCIAL RATIOS

NAME: For the period: Jan-92   thru: Dec-92   SWLD

FINANCIAL RATIOS	Beginning	Ending	CASH FLOW / OPERATING DEBT ANALYSIS		
LIQUIDITY:			Total Cash Operating Receipts	228178	
Current Ratio:	2.22	32.84	Total Cash, Sale of Farm Capital Assets	3810	
Working Capital:	$4,228	$43,860	Total Non-Farm Cash Receipts	0	
SOLVENCY:			Total Cash Inflows:		231988
Debt/Equity Ratio: (farm)	0.017	0.010	Cash Farm Expenses	170886	
Debt/Asset Ratio: (farm)	1.64%	1.01%	Cash Withdrawals, Family Living Expenses	18000	
Debt/Asset Ratio: (total)	1.64%	1.01%	Other Non-Farm Cash Outflows	0	
Equity/Asset Ratio: (farm)	98.36%	98.99%	Cash Available for Debt Service		43101
			Scheduled Payments (except operating notes)	0	
Equity/Asset Ratio: (total)	98.36%	98.99%	New Borrowing (except operating notes)	0	
			Interest Payments on Operating Notes	0	
PROFITABILITY:			Cash Available for New Investment and Risk		43101
Rate of Return on Farm Assets:		3.45%	Total Purchases of Farm Capital Assets	916	
Rate of Return on Equity:		3.49%	Cash Generated to pay Operating Notes		42185
Operating Profit Margin Ratio:		15.33%	Change in Balance, Short Term Notes	0	
Net Farm Income:		$53,035	Net Cash Generated to pay LOC Notes		42185
Value of Labor and Management:		$18,000	Change in Balance, Line of Credit Notes	0	
REPAYMENT CAPACITY:					
Term Debt & Capital Lease Coverage Ratio:		n/a	Net Cash Flow		42185
Capital Replacement & Term Debt Repayment Capacity:		$37,136	CASH FLOW SENSITIVITY		
Capital Replacement & Term Debt Repayment Margin:		$37,136	Cash Generated to pay Operating Notes as a Percentage of Total Cash Inflows:	18.18%	
FINANCIAL EFFICIENCY:			Cash Generated to pay Operating Notes		
Asset Turnover Ratio		0.22	as a Percentage of Total Expenses:	22.33%	
OPERATIONAL RATIOS:					
Operating Expense Ratio:		76.80%	LINE OF CREDIT NOTE SUMMARY		
Depreciation Expense Ratio:		0.00%	Beginning Balance		0
			Minimum Balance	0	
Interest Expense Ratio:		0.00%	Average Balance	1149	
			Maximum Balance	8602	
Net Farm Income from Operations Ratio:		23.20%	Ending Balance		0
			Change		0

TABLE A-11

LARGE IRRIGATED TYPICAL FARM WHEAT
ENTERPRISE BUDGET

((ENTERPRISE BUDGET WORKSHEET)) NAME: SWOK   DATE: FEB, 11,94   FIELD: SWOK   File: WHTLIR
        Enterprise: Wheat - Irrigated, 18" Water, Surface System - Custom Harvest

Number of acres: 567.0   Quantity stored: 0 bu.
Acres Harvested   405.0
Yield: per acre   28.40 bu/ac
Price: $/bushel $ 3.40 /bu.   Percent change in costs   0.00 %
Operator's share   100.0 %
Gov't Pymts $ 8241   Interest rate   9.25 %   Error Check   0

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Wheat bu 3.40 28	68.97	39107						39107						
	0.00	0												
Government payments (totals)	14.53	8241			3296							4945		
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	83.51	47348	0	0	3296	0	0	39107	0	0	0	4945	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	8.64	4899						4899						
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	8.64	4899	196	196						4507				
Freight, Trucking	9.60	5443						2722	2722					
Fuel, Lubricants	20.36	11544	346	577				1616	1270	1270	6465			
Insurance	0.00	0												
Labor Hired	6.39	3623	36	72		435	833	145	109	109	1304		580	
Rents, Leases	4.50	2552								2552				
Repairs, Maintenance	0.00	0												
Seeds, Plants	5.10	2892									2892			
Storage, Warehousing	0.00	0												
Supplies	0.00	0												
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous	0.00	0												
	0.00	0												
Irrigation fuel, lube, repairs	1.39	788	87	87	87	87				95	87	87	87	87
TOTAL CASH OPERATING EXPENSES	64.62	36640	665	932	87	521	833	9382	4100	8532	10747	87	666	87
NET OPERATING (Rec - Exp)	18.89	10708	-665	-932	3210	-521	-833	29725	-4100	-8532	-10747	4858	-666	-87
Operating interest expense	0.01	7	0	7	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	18.87	10701	-665	-940	3210	-521	-833	29725	-4100	-8532	-10747	4858	-666	-87

TABLE A-12

LARGE IRRIGATED TYPICAL FARM COTTON
ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94   FIELD: SWOK              File: cotlir
        Enterprise: Cotton - Flood, Well Source, Custom Harvest
                    (lint)        (seed)
Number of acres:    340           340        Qty. lint stored:      0 lb.
Acres Harvested    324 lb/ac      324        Qty. seed stored:      0 cwt.
Yield:             585 lb/ac      10.40 cwt/ac
Price:           $ 0.53 /lb  $    3.90 /cwt                                     Percent change in costs   0.00 %
Operator's share   100 %          100 %
Govt pymts        $30675          Interest rate   9.25 %                        Error Check              0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Cotton lint lb 0.53 585	295.46	100456											100456	
Cottonseed cwt 3.90 10	38.65	13141											13141	
Government payments (totals)	90.22	30675											30675	
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	424.33	144273	0	0	0	0	0	0	0	0	0	0	144273	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	76.24	25922											25922	
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	58.66	19944	5385						4787	7379	2393			
Freight, Trucking	0.00	0												
Fuel, Lubricants	30.66	10424	1981	2189	2293	1355	521	521	1042	521				
Insurance	0.00	0												
Labor Hired	0.00	0	0	0	0	0	0	0	0	0				
Rents, Leases	2.00	680		680										
Repairs, Maintenance	0.00	0												
Seeds, Plants	10.93	3716					3716							
Storage, Warehousing	50.49	17167											17167	
Supplies	0.00	0												
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous (Processing)	0.00	0												
	0.00	0												
Irrig. fuel, lube, repairs	16.30	5542							3104	2438				
TOTAL CASH OPERATING EXPENSES	245.28	83395	7366	2869	2293	1355	4237	521	8933	10339	2393	0	43088	0
NET OPERATING (Rec - Exp)	179.05	60877	-7366	-2869	-2293	-1355	-4237	-521	-8933	-10339	-2393	0	101184	0
Operating interest expense	3.47	1181	0	22	40	50	83	87	156	235	254	254	0	0
Net Operating After Interest	175.58	59696	-7366	-2891	-2333	-1405	-4320	-608	-9088	-10575	-2647	-254	101184	0

TABLE A-13

LARGE IRRIGATED TYPICAL FARM COW-CALF ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: CCLIR              DATE: FEB,11,94                      File: CCLIR
          Enterprise: Cow-calf - Spring Calving, Warm Season Pasture, Non-Legume Hay
```

Number of cows:	71	Steer selling weight	4.37 cwt
Calving percentage	95.00 %	Steer calf sale price: $ 98.00 /cwt
Percent steers	50.00 %	Heifer selling weight	4.22 cwt
Percent heifers	50.00 %	Heifer calf sale price:$ 88.00 /cwt	Percent change in costs	0.00 %
Calf death loss	2.00 %	Replacement heifers	7 hd
		Interest rate	9.25 %	Error Check	0

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Steers cwt 98.00 4.28	199.36	14154			14154									
Heifers cwt 88.00 4.14	136.26	9674			9674									
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	13.38	950							950					
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	348.99	24778	0	0	23828	0	0	0	950	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	70.57	5010	1670										1670	1670
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	1.51	107										54	54	
Fuel, Lubricants	32.30	2293	229	229	229	229	161	115	115	115	183	229	229	229
Insurance	0.00	0										0		
Labor Hired	51.57	3661	1282										1282	1098
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0									0			
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	13.20	937			937									
Taxes - Ad Valorem	5.28	375		375										
Utilities	0.00	0												
Veterinary, Medicine	17.43	1238					743					495		
Miscellaneous	0.00	0	0	0								0	0	0
Marketing Charge	7.43	528					79		237			211	0	
	0.00	0												
TOTAL CASH OPERATING EXPENSES	199.29	14150	3181	604	1167	229	982	115	352	115	183	989	3235	2998
NET OPERATING (Rec - Exp)	149.70	10629	-3181	-604	22662	-229	-982	-115	598	-115	-183	-989	-3235	-2998
Operating interest expense	4.81	342	88	93	0	2	9	10	6	6	8	16	40	64
Net Operating After Interest	144.89	10287	-3269	-697	22662	-231	-992	-125	592	-121	-191	-1004	-3275	-3062

TABLE A-14

LARGE IRRIGATED TYPICAL FARM STOCKER-HEIFER ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: STHLIR              DATE: FEB, 11,94                      File: STHLIR
          Enterprise: Stocker heifers - Buy Nov. 1, Sell MMARCH 30
                      - - - - - - - - - - - - - - - -
Number of head:      75   : OPTIONAL: Sell Weight Calculation :
Purchase weight:   4.22 cwt : Days on feed            150    :
Purchase price:  $88.00 /cwt: Avg. daily gain (lbs/hd) 1.61   :
Selling weight:    6.33 cwt : )Calculated sell weight= 6.64 cwt:              Percent change in costs  0.00 %
Selling price:   $80.00 /cwt - - - - - - - - - - - - - - - -
Death loss:        2.00 %   Interest rate    9.25 %                                             Error check    0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Stockers cwt 80.00 6.50	520.18	39014					39014							
	0.00	0												
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	520.18	39014	0	0	0	0	39014	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	12.10	908	136	136	136	9	9						345	136
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	3.71	278			111								167	
Fuel, Lubricants	9.72	729	102	102	102	102	102						117	102
Insurance	0.00	0												
Labor Hired	13.73	1030	144	144	144	144						103	206	144
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0	0	0	0	0	0						0	0
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	0.00	0											0	
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0	0	0	0								0	0
Veterinary, Medicine	11.08	831											831	
Miscellaneous (2% Shrink)	0.00	0					0							
Marketing Charge	10.99	824					824							
	0.00	0												
Livestock purchased for resale														
Description unit price quan.														
Stocker cwt 88.00 4.22	371.36	27852										27852		
	0.00	0												
TOTAL CASH OPERATING EXPENSES	432.69	32452	382	382	494	255	935	0	0	0	0	27955	1665	382
NET OPERATING (Rec - Exp)	87.49	6562	-382	-382	-494	-255	38078	0	0	0	0	-27955	-1665	-382
Operating interest expense	0.25	18	0	3	7	9	0	0	0	0	0	0	0	0
Net Operating After Interest	87.25	6544	-382	-385	-500	-264	38078	0	0	0	0	-27955	-1665	-382

TABLE A-15

LARGE IRRIGATED TYPICAL FARM STOCKER-STEER ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: STSLIR              DATE: FEB, 11,94                      File: STSLIR
        Enterprise: Stockers - Buy Oct 15, Sell Mar 1 - 400 lb. in, 600 lb out - Wheat Pasture
                    - - - - - - - - - - - - - - - -
Number of head:      97    : OPTIONAL: Sell Weight Calculation :
Purchase weight:   4.37 cwt : Days on feed                 135   :
Purchase price: $98.00 /cwt: Avg. daily gain (lbs/hd) 1.79    :
Selling weight:    6.78 cwt : )Calculated sell weight= 6.79 cwt:              Percent change in costs  0.00 %
Selling price:  $86.00 /cwt - - - - - - - - - - - - - - - - -
Death loss:      2.00 %    Interest rate    9.25 %                                    Error check      0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Stockers cwt 86.00 6.65	571.97	55481			55481									
	0.00	0												
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
- - - - - - - (totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	571.97	55481	0	0	55481	0	0	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	12.70	1232	25	25								1133	25	25
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	3.91	379			228							152		
Fuel, Lubricants	9.75	946	189	189								189	189	189
Insurance	0.00	0												
Labor Hired	13.73	1332	240	240	133							240	240	240
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0												
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	0.00	0										0		
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	11.08	1075										860	215	
Miscellaneous	11.68	1133			1133									
	0.00	0												
	0.00	0												
Livestock purchased for resale														
Description unit price quan.														
Stocker cwt 98.00 4.37	428.26	41541										41541		
	0.00	0												
TOTAL CASH OPERATING EXPENSES	491.11	47638	454	454	1494	0	0	0	0	0	0	44115	668	454
NET OPERATING (Rec - Exp)	80.86	7843	-454	-454	53987	0	0	0	0	0	0	-44115	-668	-454
Operating interest expense	0.04	3	0	3	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	80.82	7840	-454	-457	53987	0	0	0	0	0	0	-44115	-668	-454

TABLE A-16

LARGE IRRIGATED TYPICAL FARM BALANCE SHEET

INTEGRATED FARM FINANCIAL STATEMENTS (IFFS)
Software Developed By
OKLAHOMA STATE UNIVERSITY
COOPERATIVE EXTENSION SERVICE

NAME:

SWLIR
04/12/94   11:33

BALANCE SHEET
=============

	Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change		Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change
--------CURRENT ASSETS--------				--------CURRENT LIABILITIES--------			
1. Cash & Checking	0	84863	84863	30. Accounts Payable	0	0	0
2. Marketable Securities	0	0	0	31. Notes Payable	0	0	0
3. Accounts Receivable	0	0	0	32. Current Portion of Term Debt	0	0	0
4. Prepaid Expenses	0	0	0	33. Accrued Interest	0	0	0
5. Cash Investment, Growing Crops	0	0	0	Taxes Payable:			
Inventories:				34. Ad Valorem	0	0	0
6. Marketable Livestock	0	0	0	35. Employee Payroll Witholding	0	0	0
7. Stored Crops and Feed	0	0	0	36. Income Taxes	0	0	0
8. Purchased Feed	7706	3083	-4624	37. Deferred Taxes	3478	1391	-2087
9. Supplies	0	0	0	38. Other Accrued Expenses	0	0	0
10. Other Current Assets	0	0	0	39. Other Current Liabilities	0	0	0
11. TOTAL CURRENT FARM ASSETS	7706	87946	80239	40. TOTAL CURRENT FARM LIABILITIES	3478	1391	-2087
Non-Farm Assets:				Non-Farm Liabilities:			
12. Savings	0	0	0	41. Non-Farm Notes & Interest	0	0	0
13. Other Non-Farm Assets	0	0	0	42. Other Non-Farm Liabilities	0	0	0
14. TOTAL CURRENT ASSETS	7706	87946	80239	43. TOTAL CURRENT LIABILITIES	3478	1391	-2087
--------NON-CURRENT ASSETS--------				--------NON-CURRENT LIABILITIES--------			
15. Breeding Livestock	38929	35731	-3198	44. Notes Payable, Non-Real Estate	0	0	0
16. Machinery, Equipment	107095	100178	-6917	45. Notes Payable Real Estate	0	0	0
17. Vehicles	27000	24802	-2198	46. Deferred Taxes	79413	2800	-76613
18. Investment in Capital Leases	0	0	0	47. Other Non-Current Liabilities	0	0	0
19. Contracts & Notes Receivable	0	0	0	48. TOTAL NON-CURRENT FARM LIAB'TY	79413	2800	-76613
20. Investment in Cooperatives	0	0	0	Non-Farm Liabilities:			
21. Real Estate, Land	860936	860936	0	49. Non-Farm Notes	0	0	0
22. Buildings & Improvements	25000	23750	-1250	50. Other Non-Farm Liabilities	0	0	0
23. Other Non-Current Assets	0	0	0	51. TOTAL NON-CURRENT LIABILITIES	79413	2800	-76613
24. TOTAL NON-CURRENT FARM ASSETS	1058960	1045397	-13563	52. TOTAL LIABILITIES	82890	4191	-78700
Non-Farm Assets:							
25. Cash Value, Life Insurance	0	0	0	--------OWNER EQUITY--------			
26. Investment in Other Entities	0	0	0	53. Contributed Capital	0	0	0
27. Other Non-Farm Assets	0	0	0	54. Retained Earnings	1048036	1125518	77481
28. TOTAL NON-CURRENT ASSETS	1058960	1045397	-13563	55. Total Valuation Equity	-64261	3634	67895
				56. TOTAL EQUITY	983776	1129152	145376
29. TOTAL ASSETS	1066666	1133343	66676	57. TOTAL LIABILITIES & EQUITY	1066666	1133343	66676

TABLE A-17

LARGE IRRIGATED TYPICAL FARM INCOME STATEMENT

```
NAME:                                                                          SWLIR

INCOME STATEMENT                    For the Period   Jan-92   Thru   Dec-92
=================

Market Livestock Sales                                      118323
Livestock Product Sales                                          0
Change in Market Livestock Inventories                           0
        GROSS REVENUES FROM MARKET LIVESTOCK/PRODUCTS     ---------  118323

Crop Sales                                                  171593
Change in Stored Crop and Feed Inventories                       0
        GROSS REVENUES FROM CROPS                         ---------  171593

Government Program Payments                                   39153
Raised Livestock Transferred to Breeding Stock                   0
Gain/Loss from Sale of Culled Breeding Stock                   398
Change in Accounts Receivable                                    0
Other Farm Income                                              950
                                                          ---------
              GROSS REVENUES                                 330417

Purchased Market Livestock                         69393
Purchased Feed/Grain                                7150
Change in Purchased Feed Inventories                4624
Other Cash Operating Expenses                     153506
Other Accrual Adjustments                              0
Change in Supplies and Cash Investment in Growing Crops  0
Depreciation Expense                                2349
        OPERATING EXPENSES                         --------- 237022

Cash Interest Paid                                     0
Change in Interest Payable                             0
        INTEREST EXPENSE                           ---------       0
                                                            ---------
              TOTAL EXPENSES                                 237022
                                                            ---------
              NET FARM INCOME FROM OPERATIONS                 93394

Gain/Loss on Sale of Farm Capital Assets & Marketable Securities    0
                                                                 ---------
              NET FARM INCOME                                 93394

Wages                                                            0
Gain/Loss on Sale of Non-Farm Capital Assets                     0
Non-Farm Accrual Adjustments and Interest Paid                   0
Other Non-Farm Income                                            0
        TOTAL NON-FARM INCOME                             ---------       0
                                                                 ---------
              INCOME BEFORE TAXES AND EXTRAORDINARY ITEMS      93394
Cash Income Tax Expense                                          0
Change in Income Tax Accruals                                    0
Change in Current Portion of Deferred Taxes                  -2087
        TOTAL INCOME TAX EXPENSE                          --------- -2087
                                                                 ---------
              INCOME BEFORE EXTRAORDINARY ITEMS               95481
Extraordinary Items (Net of Tax)                                 0
                                                                 ---------
              NET INCOME                                      95481
                                                            =========
```

TABLE A-18

LARGE IRRIGATED TYPICAL FARM FINANCIAL RATIOS

NAME: For the period: Jan-92   thru: Dec-92   SWLIR

FINANCIAL RATIOS	Beginning	Ending	CASH FLOW / OPERATING DEBT ANALYSIS	
LIQUIDITY:			Total Cash Operating Receipts	330019
Current Ratio:	2.22	63.22		
			Total Cash, Sale of Farm Capital Assets	3810
Working Capital:	$4,228	$86,555		
			Total Non-Farm Cash Receipts	0
SOLVENCY:				
Debt/Equity Ratio:	0.084	0.004	Total Cash Inflows:	333829
(farm)				
			Cash Farm Expenses	230050
Debt/Asset Ratio:	7.77%	0.37%		
(farm)			Cash Withdrawals, Family Living Expenses	18000
Debt/Asset Ratio:	7.77%	0.37%	Other Non-Farm Cash Outflows	0
(total)				
			Cash Available for Debt Service	85779
Equity/Asset Ratio:	92.23%	99.63%		
(farm)			Scheduled Payments (except operating notes)	0
Equity/Asset Ratio:	92.23%	99.63%	New Borrowing (except operating notes)	0
(total)				
			Interest Payments on Operating Notes	0

PROFITABILITY:			Cash Available for New Investment and Risk	85779
Rate of Return on Farm Assets:		6.85%		
			Total Purchases of Farm Capital Assets	916
Rate of Return on Equity:		7.14%		
			Cash Generated to pay Operating Notes	84863
Operating Profit Margin Ratio:		22.82%		
			Change in Balance, Short Term Notes	0
Net Farm Income:		$93,394		
			Net Cash Generated to pay LOC Notes	84863
Value of Labor and Management:		$18,000		
			Change in Balance, Line of Credit Notes	0
REPAYMENT CAPACITY:				
Term Debt & Capital Lease Coverage Ratio:		n/a	Net Cash Flow	84863
Capital Replacement & Term Debt				
Repayment Capacity:		$79,830	**CASH FLOW SENSITIVITY**	
Capital Replacement & Term Debt			Cash Generated to pay Operating Notes	
Repayment Margin:		$79,830	as a Percentage of Total Cash Inflows:	25.42%
FINANCIAL EFFICIENCY:			Cash Generated to pay Operating Notes	
Asset Turnover Ratio		0.30	as a Percentage of Total Expenses:	34.21%
OPERATIONAL RATIOS:				
Operating Expense Ratio:		71.02%	**LINE OF CREDIT NOTE SUMMARY**	
Depreciation Expense Ratio:		0.71%	Beginning Balance	0
			Minimum Balance	0
Interest Expense Ratio:		0.00%	Average Balance	2940
			Maximum Balance	21233
Net Farm Income from Operations Ratio:		28.27%	Ending Balance	0
			Change	0

Appendix B

MEDIUM TYPICAL FARMS

TABLE B-1

MEDIUM DRY TYPICAL FARM COTTON ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: COTMD           DATE: FEB, 11,94   FIELD: SWOK              File: COTMD
        Enterprise: Cotton - Dryland, Custom Harvest
              (lint)      (seed)
Number of acres:    37          37       Qty. lint stored:      0 lb.
Acres Harvested     34          34       Qty. seed stored:      0 cwt.
Yield:          400 lb/ac   7.20 cwt/ac
Price:        $ 0.53 /lb  $  4.00 /cwt                                   Percent change in costs   0.00 %
Operator's share   100 %       100 %
Gov't Pymts     $ 2283      Interest rate    9.25 %                                      Error Check      0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Cotton lint lb 0.53 400	194.81	7208												7208
Cottonseed cwt 4.00 7	26.46	979												979
Government payments (totals)	61.70	2283		2283										
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	282.98	10470	0	2283	0	0	0	0	0	0	0	0	0	8187
((OPERATING EXPENSES))														
Custom Hire (machine work)	33.60	1243										1243		
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	46.50	1721		843							877			
Freight, Trucking	0.00	0												
Fuel, Lubricants	29.76	1101						418	286	154	242			
Insurance	0.00	0							0					
Labor Hired	14.09	521						198	125	99	99			
Rents, Leases	2.00	74					74							
Repairs, Maintenance	0.00	0												
Seeds, Plants	10.80	400				42				400				
Storage, Warehousing	40.00	1480										1480		
Supplies	0.00	0								0				
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0										0		
Veterinary, Medicine	0.00	0												
Miscellaneous (Store and Proces	0.00	0												
	0.00	0												
	0.00	0												
TOTAL CASH OPERATING EXPENSES	176.75	6540	0	843	0	0	74	617	411	653	1219	2723	0	0
NET OPERATING (Rec - Exp)	106.23	3930	0	1440	0	0	-74	-617	-411	-653	-1219	-2723	0	8187
Operating interest expense	2.16	80	0	0	0	0	0	0	0	2	12	33	33	0
Net Operating After Interest	104.07	3851	0	1440	0	0	-74	-617	-411	-655	-1231	-2756	-33	8187

TABLE B-2

MEDIUM DRY TYPICAL FARM STOCKER-HEIFER ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94                         File: STHMD
        Enterprise: Stocker heifers - Buy Nov. 1, Sell MMARCH 30
                               - - - - - - - - - - - - - - - - - -
Number of head:      22    : OPTIONAL: Sell Weight Calculation :
Purchase weight:  4.22 cwt : Days on feed                  150  :
Purchase price:  $88.00 /cwt: Avg. daily gain (lbs/hd) 1.61    :
Selling weight:   6.33 cwt : )Calculated sell weight=  6.64 cwt:        Percent change in costs  0.00 %
Selling price:   $80.00 /cwt - - - - - - - - - - - - - - - -
Death loss:       2.00 %    Interest rate    9.25 %                                Error check          0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Stockers cwt 80.00 6.50	520.18	11444					11444							
	0.00	0												
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	520.18	11444	0	0	0	0	11444	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	12.10	266	40	40	40	3	3						101	40
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	3.71	82			33								49	
Fuel, Lubricants	9.72	214	30	30	30	30	30						34	30
Insurance	0.00	0												
Labor Hired	13.73	302	42	42	42	42						30	60	42
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0	0	0	0	0	0						0	0
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	0.00	0											0	
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0	0	0	0								0	0
Veterinary, Medicine	11.08	244											244	
Miscellaneous (2% Shrink)	0.00	0					0							
Marketing Charge	10.99	242					242							
	0.00	0												
Livestock purchased for resale														
Description unit price quan.														
Stocker cwt 88.00 4.22	371.36	8170										8170		
	0.00	0												
TOTAL CASH OPERATING EXPENSES	432.69	9519	112	112	145	75	274	0	0	0	0	8200	489	112
NET OPERATING (Rec - Exp)	87.49	1925	-112	-112	-145	-75	11170	0	0	0	0	-8200	-489	-112
Operating interest expense	0.25	5	0	1	2	3	0	0	0	0	0	0	0	0
Net Operating After Interest	87.25	1919	-112	-113	-147	-77	11170	0	0	0	0	-8200	-489	-112

TABLE B-3

MEDIUM DRY TYPICAL FARM STOCKER-STEER ENTERPRISE BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94                    File: STSMD
      Enterprise: Stockers - Buy Oct 15, Sell Mar 1 - 400 lb. in, 600 lb out - Wheat Pasture
                                 - - - - - - - - - - - - - - - - -
Number of head:       25    : OPTIONAL: Sell Weight Calculation :
Purchase weight:    4.37 cwt : Days on feed              135    :
Purchase price:  $98.00 /cwt: Avg. daily gain (lbs/hd)  1.79    :
Selling weight:    6.78 cwt : )Calculated sell weight=  6.79 cwt:        Percent change in costs  0.00 %
Selling price:   $86.00 /cwt  - - - - - - - - - - - - - - - - -
Death loss:       2.00 %     Interest rate    9.25 %                             Error check      0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Livestock sales:														
Description unit price quan.														
Stockers cwt 86.00 6.65	571.97	14299			14299									
	0.00	0												
	0.00	0												
	0.00	0												
Government payments (totals)	0.00	0												
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	571.97	14299	0	0	14299	0	0	0	0	0	0	0	0	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	0.00	0												
Feed Purchased	12.70	318	6	6								292	6	6
Fertilizer, Lime, Chemicals	0.00	0												
Freight, Trucking	3.91	98			59							39		
Fuel, Lubricants	9.75	244	49	49								49	49	49
Insurance	0.00	0												
Labor Hired	13.73	343	62	62	34							62	62	62
Rents, Leases	0.00	0												
Repairs, Maintenance	0.00	0	0	0								0	0	0
Seeds, Plants	0.00	0												
Storage, Warehousing	0.00	0												
Supplies	0.00	0										0		
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0	0	0								0	0	0
Veterinary, Medicine	11.08	277										222	55	
Miscellaneous	11.68	292			292									
	0.00	0												
	0.00	0												
Livestock purchased for resale														
Description unit price quan.														
Stocker cwt 98.00 4.37	428.26	10707										10707		
	0.00	0												
TOTAL CASH OPERATING EXPENSES	491.11	12278	117	117	385	0	0	0	0	0	0	11370	172	117
NET OPERATING (Rec - Exp)	80.86	2021	-117	-117	13914	0	0	0	0	0	0	-11370	-172	-117
Operating interest expense	0.04	1	0	1	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	80.82	2021	-117	-118	13914	0	0	0	0	0	0	-11370	-172	-117

TABLE B-4

MEDIUM DRY TYPICAL FARM BALANCE SHEET

INTEGRATED FARM FINANCIAL STATEMENTS (IFFS)
Software Developed By
OKLAHOMA STATE UNIVERSITY
COOPERATIVE EXTENSION SERVICE

NAME:

SWMD

04/12/94   11:39

BALANCE SHEET

	Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change		Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change
CURRENT ASSETS				**CURRENT LIABILITIES**			
1. Cash & Checking	0	6869	6869	30. Accounts Payable	0	0	0
2. Marketable Securities	0	0	0	31. Notes Payable	0	0	0
3. Accounts Receivable	0	0	0	32. Current Portion of Term Debt	0	0	0
4. Prepaid Expenses	0	0	0	33. Accrued Interest	0	0	0
5. Cash Investment, Growing Crops	0	0	0	Taxes Payable:			
Inventories:				34. Ad Valorem	0	0	0
6. Marketable Livestock	0	0	0	35. Employee Payroll Witholding	0	0	0
7. Stored Crops and Feed	0	0	0	36. Income Taxes	0	0	0
8. Purchased Feed	1781	713	-1069	37. Deferred Taxes	804	322	-482
9. Supplies	0	0	0	38. Other Accrued Expenses	0	0	0
10. Other Current Assets	0	0	0	39. Other Current Liabilities	0	0	0
11. TOTAL CURRENT FARM ASSETS	1781	7582	5800	40. TOTAL CURRENT FARM LIABILITIES	804	322	-482
Non-Farm Assets:				Non-Farm Liabilities:			
12. Savings	0	0	0	41. Non-Farm Notes & Interest	0	0	0
13. Other Non-Farm Assets	0	0	0	42. Other Non-Farm Liabilities	0	0	0
14. TOTAL CURRENT ASSETS	1781	7582	5800	43. TOTAL CURRENT LIABILITIES	804	322	-482
NON-CURRENT ASSETS				**NON-CURRENT LIABILITIES**			
15. Breeding Livestock	8533	7677	-856	44. Notes Payable, Non-Real Estate	0	0	0
16. Machinery, Equipment	74300	69226	-5074	45. Notes Payable Real Estate	0	0	0
17. Vehicles	13500	12401	-1099	46. Deferred Taxes	2702	517	-2185
18. Investment in Capital Leases	0	0	0	47. Other Non-Current Liabilities	0	0	0
19. Contracts & Notes Receivable	0	0	0	48. TOTAL NON-CURRENT FARM LIAB'TY	2702	517	-2185
20. Investment in Cooperatives	0	0	0	Non-Farm Liabilities:			
21. Real Estate, Land	297500	297500	0	49. Non-Farm Notes	0	0	0
22. Buildings & Improvements	10000	9000	-1000	50. Other Non-Farm Liabilities	0	0	0
23. Other Non-Current Assets	0	0	0	51. TOTAL NON-CURRENT LIABILITIES	2702	517	-2185
24. TOTAL NON-CURRENT FARM ASSETS	403833	395804	-8029	52. TOTAL LIABILITIES	3506	839	-2667
Non-Farm Assets:							
25. Cash Value, Life Insurance	0	0	0	**OWNER EQUITY**			
26. Investment in Other Entities	0	0	0	53. Contributed Capital	0	0	0
27. Other Non-Farm Assets	0	0	0	54. Retained Earnings	395845	401386	5541
28. TOTAL NON-CURRENT ASSETS	403833	395804	-8029	55. Total Valuation Equity	6263	1161	-5102
				56. TOTAL EQUITY	402109	402547	438
29. TOTAL ASSETS	405614	403386	-2229	57. TOTAL LIABILITIES & EQUITY	405614	403386	-2229

TABLE B-5

MEDIUM DRY TYPICAL FARM INCOME STATEMENT

```
NAME:                                                                        SWMD

INCOME STATEMENT                        For the Period    Jan-92    Thru    Dec-92
================

Market Livestock Sales                                              30956
Livestock Product Sales                                                0
Change in Market Livestock Inventories                                 0
        GROSS REVENUES FROM MARKET LIVESTOCK/PRODUCTS              ---------    30956

Crop Sales                                                         26038
Change in Stored Crop and Feed Inventories                             0
        GROSS REVENUES FROM CROPS                                 ---------    26038

Government Program Payments                                                     5398
Raised Livestock Transferred to Breeding Stock                                    0
Gain/Loss from Sale of Culled Breeding Stock                                    114
Change in Accounts Receivable                                                     0
Other Farm Income                                                               217
                                                                           ---------
              GROSS REVENUES                                                   62723

Purchased Market Livestock                              18876
Purchased Feed/Grain                                    1713
Change in Purchased Feed Inventories                    1069
Other Cash Operating Expenses                          27007
Other Accrual Adjustments                                  0
Change in Supplies and Cash Investment in Growing Crops    0
Depreciation Expense                                       0
        OPERATING EXPENSES                             ---------    48665

Cash Interest Paid                                         0
Change in Interest Payable                                 0
        INTEREST EXPENSE                               ---------       0
                                                                   ---------
              TOTAL EXPENSES                                                   48665
                                                                           ---------
              NET FARM INCOME FROM OPERATIONS                                  14058

Gain/Loss on Sale of Farm Capital Assets & Marketable Securities                  0
                                                                           ---------
              NET FARM INCOME                                                  14058

Wages                                                   9000
Gain/Loss on Sale of Non-Farm Capital Assets               0
Non-Farm Accrual Adjustments and Interest Paid             0
Other Non-Farm Income                                      0
        TOTAL NON-FARM INCOME                         ---------     9000
                                                                   ---------
              INCOME BEFORE TAXES AND EXTRAORDINARY ITEMS                      23058
Cash Income Tax Expense                                    0
Change in Income Tax Accruals                              0
Change in Current Portion of Deferred Taxes             -482
        TOTAL INCOME TAX EXPENSE                      ---------     -482
                                                                   ---------
              INCOME BEFORE EXTRAORDINARY ITEMS                                23541
Extraordinary Items (Net of Tax)                                                  0
                                                                   ---------
              NET INCOME                                                       23541
                                                                   =========
```

TABLE B-6

MEDIUM IRRIGATED TYPICAL FARM WHEAT ENTERPRISE BUDGET

```
<<ENTERPRISE BUDGET WORKSHEET>>  NAME: SWOK              OATE: FEB, 11,94   FIELD: SWOK              File: WHTMIR
              Enterprise: Wheat - Irrigated, 18" Water, Surface System - Custom Harvest
```

Number of acres: 127.0   Quantity stored: 0 bu.
Acres Harvested   90.0
Yield: per acre   29.65 bu/ac
Price: $/bushel $ 3.40 /bu.   Percent change in costs   0.00 %
Operator's share 100.0 %
Gov't Pymts $ 1846   Interest rate   9.25 %   Error Check   0

Description	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
<< OPERATING RECEIPTS >>														
Crop sales:														
Description unit price quan.														
Wheat bu 3.40 30	71.44	9073						9073						
	0.00	0												
Government payments (totals)	14.54	1846			738							1108		
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	85.98	10919	0	0	738	0	0	9073	0	0	0	1108	0	0
<< OPERATING EXPENSES >>														
Custom Hire (machine work)	8.57	1088						1088						
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	10.77	1368	55	55						1258				
Freight, Trucking	9.60	1219						610	610					
Fuel, Lubricants	20.47	2600	78	130				364	286	286	1456			
Insurance	0.00	0												
Labor Hired	6.94	881	9	18		106	203	35	26	26	317		141	
Rents, Leases	4.50	572								572				
Repairs, Maintenance	0.00	0												
Seeds, Plants	5.20	660									660			
Storage, Warehousing	0.00	0												
Supplies	0.00	0												
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous	0.00	0												
	0.00	0												
Irrigation fuel, lube, repairs	2.90	368	41	41	41	41				44	41	41	41	41
TOTAL CASH OPERATING EXPENSES	68.95	8757	182	243	41	146	203	2097	922	2186	2474	41	182	41
NET OPERATING (Rec - Exp)	17.03	2162	-182	-243	698	-146	-203	6976	-922	-2186	-2474	1067	-182	-41
Operating interest expense	0.01	2	0	2	0	0	0	0	0	0	0	0	0	0
Net Operating After Interest	17.01	2160	-182	-245	698	-146	-203	6976	-922	-2186	-2474	1067	-182	-41

TABLE B-7

MEDIUM IRRIGATED TYPICAL BALANCE SHEET
ENTERPRISE BUDGET

INTEGRATED FARM FINANCIAL STATEMENTS (IFFS)
Software Developed By
OKLAHOMA STATE UNIVERSITY
COOPERATIVE EXTENSION SERVICE

NAME: SWMIR
                                                                  04/12/94 11:43

BALANCE SHEET
=============

	Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change		Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change
--------CURRENT ASSETS--------				--------CURRENT LIABILITIES--------			
1. Cash & Checking	0	27215	27215	30. Accounts Payable	0	0	0
2. Marketable Securities	0	0	0	31. Notes Payable	0	0	0
3. Accounts Receivable	0	0	0	32. Current Portion of Term Debt	0	0	0
4. Prepaid Expenses	0	0	0	33. Accrued Interest	0	0	0
5. Cash Investment, Growing Crops	0	0	0	Taxes Payable:			
Inventories:				34. Ad Valorem	0	0	0
6. Marketable Livestock	0	0	0	35. Employee Payroll Withholding	0	0	0
7. Stored Crops and Feed	0	0	0	36. Income Taxes	0	0	0
8. Purchased Feed	1910	764	-1146	37. Deferred Taxes	862	345	-517
9. Supplies	0	0	0	38. Other Accrued Expenses	0	0	0
10. Other Current Assets	0	0	0	39. Other Current Liabilities	0	0	0
11. TOTAL CURRENT FARM ASSETS	1910	27978	26069	40. TOTAL CURRENT FARM LIABILITIES	862	345	-517
Non-Farm Assets:				Non-Farm Liabilities:			
12. Savings	0	0	0	41. Non-Farm Notes & Interest	0	0	0
13. Other Non-Farm Assets	0	0	0	42. Other Non-Farm Liabilities	0	0	0
14. TOTAL CURRENT ASSETS	1910	27978	26069	43. TOTAL CURRENT LIABILITIES	862	345	-517
--------NON-CURRENT ASSETS--------				--------NON-CURRENT LIABILITIES--------			
15. Breeding Livestock	7764	7677	-87	44. Notes Payable, Non-Real Estate	0	0	0
16. Machinery, Equipment	74300	69226	-5074	45. Notes Payable Real Estate	0	0	0
17. Vehicles	13500	12401	-1099	46. Deferred Taxes	484	517	33
18. Investment in Capital Leases	0	0	0	47. Other Non-Current Liabilities	0	0	0
19. Contracts & Notes Receivable	0	0	0	48. TOTAL NON-CURRENT FARM LIAB'TY	484	517	33
20. Investment in Cooperatives	0	0	0	Non-Farm Liabilities:			
21. Real Estate, Land	332450	332450	0	49. Non-Farm Notes	0	0	0
22. Buildings & Improvements	10000	9500	-500	50. Other Non-Farm Liabilities	0	0	0
23. Other Non-Current Assets	0	0	0	51. TOTAL NON-CURRENT LIABILITIES	484	517	33
24. TOTAL NON-CURRENT FARM ASSETS	438014	431254	-6760	52. TOTAL LIABILITIES	1346	862	-484
Non-Farm Assets:							
25. Cash Value, Life Insurance	0	0	0	--------OWNER EQUITY--------			
26. Investment in Other Entities	0	0	0	53. Contributed Capital	0	0	0
27. Other Non-Farm Assets	0	0	0	54. Retained Earnings	431376	457220	25844
28. TOTAL NON-CURRENT ASSETS	438014	431254	-6760	55. Total Valuation Equity	7202	1151	-6051
				56. TOTAL EQUITY	438578	458371	19793
29. TOTAL ASSETS	439924	459232	19309	57. TOTAL LIABILITIES & EQUITY	439924	459232	19309

TABLE B-8

MEDIUM IRRIGATED TYPICAL FARM INCOME STATEMENT

NAME: SWHIR

INCOME STATEMENT   For the Period   Jan-92   Thru   Dec-92
================

Market Livestock Sales   30956
Livestock Product Sales   0
Change in Market Livestock Inventories   0
    GROSS REVENUES FROM MARKET LIVESTOCK/PRODUCTS   ---------   30956

Crop Sales   63163
Change in Stored Crop and Feed Inventories   0
    GROSS REVENUES FROM CROPS   ---------   63163

Government Program Payments   14861
Raised Livestock Transferred to Breeding Stock   0
Gain/Loss from Sale of Culled Breeding Stock   114
Change in Accounts Receivable   0
Other Farm Income   217

        GROSS REVENUES   109311

Purchased Market Livestock   18876
Purchased Feed/Grain   1713
Change in Purchased Feed Inventories   1146
Other Cash Operating Expenses   53249
Other Accrual Adjustments   0
Change in Supplies and Cash Investment in Growing Crops   0
Depreciation Expense   0
        OPERATING EXPENSES   ---------   74984

Cash Interest Paid   0
Change in Interest Payable   0
        INTEREST EXPENSE   ---------   0

            TOTAL EXPENSES   74984

        NET FARM INCOME FROM OPERATIONS   34327

Gain/Loss on Sale of Farm Capital Assets & Marketable Securities   0

            NET FARM INCOME   34327

Wages   9000
Gain/Loss on Sale of Non-Farm Capital Assets   0
Non-Farm Accrual Adjustments and Interest Paid   0
Other Non-Farm Income   0
        TOTAL NON-FARM INCOME   ---------   9000

        INCOME BEFORE TAXES AND EXTRAORDINARY ITEMS   43327
Cash Income Tax Expense   0
Change in Income Tax Accruals   0
Change in Current Portion of Deferred Taxes   -517
        TOTAL INCOME TAX EXPENSE   ---------   -517

        INCOME BEFORE EXTRAORDINARY ITEMS   43844
Extraordinary Items (Net of Tax)   0

            NET INCOME   43844
                                                                  =========

TABLE B-9

MEDIUM IRRIGATED TYPICAL FARM FINANCIAL RATIOS

NAME:			For the period: Jan-92 thru: Dec-92		SWMIR

FINANCIAL RATIOS	Beginning	Ending	CASH FLOW / OPERATING DEBT ANALYSIS		
LIQUIDITY:			Total Cash Operating Receipts	109197	
Current Ratio:	2.22	81.16			
			Total Cash, Sale of Farm Capital Assets	856	
Working Capital:	$1,048	$27,634			
			Total Non-Farm Cash Receipts	9000	
SOLVENCY:					
Debt/Equity Ratio: (farm)	0.003	0.002	Total Cash Inflows:		119053
			Cash Farm Expenses	73838	
Debt/Asset Ratio: (farm)	0.31%	0.19%	Cash Withdrawals, Family Living Expenses	18000	
Debt/Asset Ratio: (total)	0.31%	0.19%	Other Non-Farm Cash Outflows	0	
			Cash Available for Debt Service		27215
Equity/Asset Ratio: (farm)	99.69%	99.81%	Scheduled Payments (except operating notes)	0	
Equity/Asset Ratio: (total)	99.69%	99.81%	New Borrowing (except operating notes)	0	
			Interest Payments on Operating Notes	0	
PROFITABILITY:			Cash Available for New Investment and Risk		27215
Rate of Return on Farm Assets:		3.63%			
			Total Purchases of Farm Capital Assets	0	
Rate of Return on Equity:		3.64%			
			Cash Generated to pay Operating Notes		27215
Operating Profit Margin Ratio:		14.94%			
			Change in Balance, Short Term Notes	0	
Net Farm Income:		$34,327			
			Net Cash Generated to pay LOC Notes		27215
Value of Labor and Management:		$18,000			
			Change in Balance, Line of Credit Notes	0	
REPAYMENT CAPACITY:					
Term Debt & Capital Lease Coverage Ratio:		n/a	Net Cash Flow		27215
Capital Replacement & Term Debt Repayment Capacity:		$25,844	CASH FLOW SENSITIVITY		
Capital Replacement & Term Debt Repayment Margin:		$25,844	Cash Generated to pay Operating Notes as a Percentage of Total Cash Inflows:	22.86%	
FINANCIAL EFFICIENCY:			Cash Generated to pay Operating Notes		
Asset Turnover Ratio		0.24	as a Percentage of Total Expenses:	29.63%	
OPERATIONAL RATIOS:					
Operating Expense Ratio:		68.60%	LINE OF CREDIT NOTE SUMMARY		
Depreciation Expense Ratio:		0.00%	Beginning Balance		0
			Minimum Balance	0	
Interest Expense Ratio:		0.00%	Average Balance	1906	
			Maximum Balance	11303	
Net Farm Income from Operations Ratio:		31.40%	Ending Balance		0
			Change		0

TABLE B-10

SMALL DRY TYPICAL FARM BALANCE SHEET

INTEGRATED FARM FINANCIAL STATEMENTS (IFFS)
Software Developed By
OKLAHOMA STATE UNIVERSITY
COOPERATIVE EXTENSION SERVICE

NAME:

SWSD
04/12/94   11:50

BALANCE SHEET

	Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change		Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change
--------CURRENT ASSETS--------				**--------CURRENT LIABILITIES--------**			
1. Cash & Checking	0	4719	4719	30. Accounts Payable	0	0	0
2. Marketable Securities	0	0	0	31. Notes Payable	0	0	0
3. Accounts Receivable	0	0	0	32. Current Portion of Term Debt	0	0	0
4. Prepaid Expenses	0	0	0	33. Accrued Interest	0	0	0
5. Cash Investment, Growing Crops	0	0	0	Taxes Payable:			
Inventories:				34. Ad Valorem	0	0	0
6. Marketable Livestock	0	0	0	35. Employee Payroll Witholding	0	0	0
7. Stored Crops and Feed	0	0	0	36. Income Taxes	0	0	0
8. Purchased Feed	0	0	0	37. Deferred Taxes	0	0	0
9. Supplies	0	0	0	38. Other Accrued Expenses	0	0	0
10. Other Current Assets	0	0	0	39. Other Current Liabilities	0	0	0
11. TOTAL CURRENT FARM ASSETS	0	4719	4719	40. TOTAL CURRENT FARM LIABILITIES	0	0	0
Non-Farm Assets:				Non-Farm Liabilities:			
12. Savings	0	0	0	41. Non-Farm Notes & Interest	0	0	0
13. Other Non-Farm Assets	0	0	0	42. Other Non-Farm Liabilities	0	0	0
14. TOTAL CURRENT ASSETS	0	4719	4719	43. TOTAL CURRENT LIABILITIES	0	0	0
--------NON-CURRENT ASSETS--------				**--------NON-CURRENT LIABILITIES--------**			
15. Breeding Livestock	0	0	0	44. Notes Payable, Non-Real Estate	0	0	0
16. Machinery, Equipment	38687	36119	-2568	45. Notes Payable Real Estate	0	0	0
17. Vehicles	11000	8800	-2200	46. Deferred Taxes	-159	-672	-513
18. Investment in Capital Leases	0	0	0	47. Other Non-Current Liabilities	0	0	0
19. Contracts & Notes Receivable	0	0	0	48. TOTAL NON-CURRENT FARM LIAB'TY	-159	-672	-513
20. Investment in Cooperatives	0	0	0	Non-Farm Liabilities:			
21. Real Estate, Land	70400	70400	0	49. Non-Farm Notes	0	0	0
22. Buildings & Improvements	3000	2850	-150	50. Other Non-Farm Liabilities	0	0	0
23. Other Non-Current Assets	0	0	0	51. TOTAL NON-CURRENT LIABILITIES	-159	-672	-513
24. TOTAL NON-CURRENT FARM ASSETS	123087	118169	-4918	52. TOTAL LIABILITIES	-159	-672	-513
Non-Farm Assets:							
25. Cash Value, Life Insurance	0	0	0	**--------OWNER EQUITY--------**			
26. Investment in Other Entities	0	0	0	53. Contributed Capital	0	0	0
27. Other Non-Farm Assets	0	0	0	54. Retained Earnings	118670	123389	4719
28. TOTAL NON-CURRENT ASSETS	123087	118169	-4918	55. Total Valuation Equity	4576	171	-4405
				56. TOTAL EQUITY	123246	123560	314
29. TOTAL ASSETS	123087	122888	-199	57. TOTAL LIABILITIES & EQUITY	123087	122888	-199

TABLE B-11

SMALL DRY TYPICAL FARM INCOME STATEMENT

```
NAME:                                                                      SWSO

INCOME STATEMENT                        For the Period   Jan-92   Thru   Dec-92
================

Market Livestock Sales                                    5519
Livestock Product Sales                                      0
Change in Market Livestock Inventories                       0
        GROSS REVENUES FROM MARKET LIVESTOCK/PRODUCTS    ---------   5519

Crop Sales                                               7274
Change in Stored Crop and Feed Inventories                   0
        GROSS REVENUES FROM CROPS                        ---------   7274

Government Program Payments                                       1473
Raised Livestock Transferred to Breeding Stock                      0
Gain/Loss from Sale of Culled Breeding Stock                        0
Change in Accounts Receivable                                       0
Other Farm Income                                                1800
                                                              ---------
        GROSS REVENUES                                          16066

Purchased Market Livestock              3998
Purchased Feed/Grain                     124
Change in Purchased Feed Inventories       0
Other Cash Operating Expenses           7224
Other Accrual Adjustments                  0
Change in Supplies and Cash Investment in Growing Crops   0
Depreciation Expense                       0
        OPERATING EXPENSES              ---------   11347

Cash Interest Paid                         0
Change in Interest Payable                 0
        INTEREST EXPENSE                ---------      0
                                                   ---------
        TOTAL EXPENSES                                  11347
                                                     ---------
        NET FARM INCOME FROM OPERATIONS                  4719

Gain/Loss on Sale of Farm Capital Assets & Marketable Securities    0
                                                                ---------
        NET FARM INCOME                                          4719

Wages                                   18000
Gain/Loss on Sale of Non-Farm Capital Assets                0
Non-Farm Accrual Adjustments and Interest Paid              0
Other Non-Farm Income                                       0
        TOTAL NON-FARM INCOME           ---------   18000
                                                   ---------
        INCOME BEFORE TAXES AND EXTRAORDINARY ITEMS      22719
Cash Income Tax Expense                             0
Change in Income Tax Accruals                       0
Change in Current Portion of Deferred Taxes         0
        TOTAL INCOME TAX EXPENSE        ---------      0
                                                   ---------
        INCOME BEFORE EXTRAORDINARY ITEMS               22719
Extraordinary Items (Net of Tax)                            0
                                                   ---------
        NET INCOME                                      22719
                                                   =========
```

TABLE B-12

SMALL IRRIGATED TYPICAL FARM COTTON BUDGET

```
((ENTERPRISE BUDGET WORKSHEET))  NAME: SWOK              DATE: FEB, 11,94   FIELD: SWOK              File: COTSIR
        Enterprise: Cotton - Flood, Well Source, Custom Harvest
                    (lint)      (seed)
Number of acres:      41         136      Qty. lint stored:      0 lb.
Acres Harvested    39 lb/ac      130      Qty. seed stored:      0 cwt.
Yield:            625 lb/ac   10.40 cwt/ac
Price:         $ 0.53 /lb  $   3.90 /cwt                                    Percent change in costs   0.00 %
Operator's share   100 %        100 %
Govt pymts        $ 3956      Interest rate    9.25 %                               Error Check         0
```

	PER UNIT	TOTAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
((OPERATING RECEIPTS))														
Crop sales:														
Description unit price quan.														
Cotton lint lb 0.53 625	315.09	12919											12919	
Cottonseed cwt 3.90 10	38.77	5273											5273	
Government payments (totals)	96.49	3956											3956	
Other farm income (totals)	0.00	0												
(totals)	0.00	0												
TOTAL CASH OPERATING RECEIPTS	450.35	22148	0	0	0	0	0	0	0	0	0	0	22148	0
((OPERATING EXPENSES))														
Custom Hire (machine work)	72.08	2955											2955	
Feed Purchased	0.00	0												
Fertilizer, Lime, Chemicals	61.30	2513	679						603	930	302			
Freight, Trucking	0.00	0												
Fuel, Lubricants	30.85	1265	240	266	278	164	63	63	126	63				
Insurance	0.00	0												
Labor Hired	21.49	881	62	53	53	44	18	229	238	185				
Rents, Leases	2.00	82		82										
Repairs, Maintenance	0.00	0												
Seeds, Plants	10.96	449					449							
Storage, Warehousing	50.49	2070											2070	
Supplies	0.00	0												
Taxes - Ad Valorem	0.00	0												
Utilities	0.00	0												
Veterinary, Medicine	0.00	0												
Miscellaneous (Processing)	0.00	0												
	0.00	0												
Irrig. fuel, lube, repairs	19.85	814							456	358				
TOTAL CASH OPERATING EXPENSES	269.02	11030	981	400	331	208	530	292	1423	1536	302	0	5025	0
NET OPERATING (Rec - Exp)	271.16	11118	-981	-400	-331	-208	-530	-292	-1423	-1536	-302	0	17122	0
Operating interest expense	4.37	179	0	3	6	7	11	14	25	36	39	39	0	0
Net Operating After Interest	266.79	10938	-981	-404	-337	-216	-542	-306	-1448	-1573	-340	-39	17122	0

TABLE B-13

SMALL IRRIGATED TYPICAL FARM BALANCE SHEET

```
                    INTEGRATED FARM FINANCIAL STATEMENTS (IFFS)
                              Software Developed By
                            OKLAHOMA STATE UNIVERSITY
                           COOPERATIVE EXTENSION SERVICE
```

NAME: SWSIR

04/12/94 11:54

BALANCE SHEET

	Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change		Jan-92 Beginning Balance	Dec-92 Ending Balance	Net Change
---------CURRENT ASSETS---------				---------CURRENT LIABILITIES---------			
1. Cash & Checking	0	12217	12217	30. Accounts Payable	0	0	0
2. Marketable Securities	0	0	0	31. Notes Payable	0	0	0
3. Accounts Receivable	0	0	0	32. Current Portion of Term Debt	0	0	0
4. Prepaid Expenses	0	0	0	33. Accrued Interest	0	0	0
5. Cash Investment, Growing Crops	0	0	0	Taxes Payable:			
Inventories:				34. Ad Valorem	0	0	0
6. Marketable Livestock	0	0	0	35. Employee Payroll Withholding	0	0	0
7. Stored Crops and Feed	0	0	0	36. Income Taxes	0	0	0
8. Purchased Feed	0	0	0	37. Deferred Taxes	0	0	0
9. Supplies	0	0	0	38. Other Accrued Expenses	0	0	0
10. Other Current Assets	0	0	0	39. Other Current Liabilities	0	0	0
11. TOTAL CURRENT FARM ASSETS	0	12217	12217	40. TOTAL CURRENT FARM LIABILITIES	0	0	0
Non-Farm Assets:				Non-Farm Liabilities:			
12. Savings	0	0	0	41. Non-Farm Notes & Interest	0	0	0
13. Other Non-Farm Assets	0	0	0	42. Other Non-Farm Liabilities	0	0	0
14. TOTAL CURRENT ASSETS	0	12217	12217	43. TOTAL CURRENT LIABILITIES	0	0	0
---------NON-CURRENT ASSETS---------				---------NON-CURRENT LIABILITIES---------			
15. Breeding Livestock	0	0	0	44. Notes Payable, Non-Real Estate	0	0	0
16. Machinery, Equipment	38687	36119	-2568	45. Notes Payable Real Estate	0	0	0
17. Vehicles	11000	8800	-2200	46. Deferred Taxes	-159	-672	-513
18. Investment in Capital Leases	0	0	0	47. Other Non-Current Liabilities	0	0	0
19. Contracts & Notes Receivable	0	0	0	48. TOTAL NON-CURRENT FARM LIAB'TY	-159	-672	-513
20. Investment in Cooperatives	0	0	0	Non-Farm Liabilities:			
21. Real Estate, Land	70400	70400	0	49. Non-Farm Notes	0	0	0
22. Buildings & Improvements	3000	2850	-150	50. Other Non-Farm Liabilities	0	0	0
23. Other Non-Current Assets	0	0	0	51. TOTAL NON-CURRENT LIABILITIES	-159	-672	-513
24. TOTAL NON-CURRENT FARM ASSETS	123087	118169	-4918	52. TOTAL LIABILITIES	-159	-672	-513
Non-Farm Assets:							
25. Cash Value, Life Insurance	0	0	0	---------OWNER EQUITY---------			
26. Investment in Other Entities	0	0	0	53. Contributed Capital	0	0	0
27. Other Non-Farm Assets	0	0	0	54. Retained Earnings	118670	130887	12217
28. TOTAL NON-CURRENT ASSETS	123087	118169	-4918	55. Total Valuation Equity	4576	171	-4405
				56. TOTAL EQUITY	123246	131058	7812
29. TOTAL ASSETS	123087	130386	7299	57. TOTAL LIABILITIES & EQUITY	123087	130386	7299

TABLE B-14

SMALL IRRIGATED TYPICAL FARM INCOME STATEMENT

```
NAME:                                                                           SWSIR

INCOME STATEMENT                      For the Period   Jan-92   Thru   Dec-92
=================

Market Livestock Sales                                          5519
Livestock Product Sales                                            0
Change in Market Livestock Inventories                             0
        GROSS REVENUES FROM MARKET LIVESTOCK/PRODUCTS          --------- 5519

Crop Sales                                                     22155
Change in Stored Crop and Feed Inventories                         0
        GROSS REVENUES FROM CROPS                              --------- 22155

Government Program Payments                                      4439
Raised Livestock Transferred to Breeding Stock                     0
Gain/Loss from Sale of Culled Breeding Stock                       0
Change in Accounts Receivable                                      0
Other Farm Income                                                320
                                                              ---------
            GROSS REVENUES                                       32433

Purchased Market Livestock                          3998
Purchased Feed/Grain                                 124
Change in Purchased Feed Inventories                   0
Other Cash Operating Expenses                      16094
Other Accrual Adjustments                              0
Change in Supplies and Cash Investment in Growing Crops  0
Depreciation Expense                                   0
        OPERATING EXPENSES                          --------- 20216

Cash Interest Paid                                     0
Change in Interest Payable                             0
        INTEREST EXPENSE                            ---------      0
                                                    ---------
            TOTAL EXPENSES                                       20216
                                                              ---------
            NET FARM INCOME FROM OPERATIONS                      12217
                                                              ---------
Gain/Loss on Sale of Farm Capital Assets & Marketable Securities    0
                                                              ---------
            NET FARM INCOME                                      12217

Wages                                               18000
Gain/Loss on Sale of Non-Farm Capital Assets            0
Non-Farm Accrual Adjustments and Interest Paid          0
Other Non-Farm Income                                   0
        TOTAL NON-FARM INCOME                       --------- 18000
                                                              ---------
            INCOME BEFORE TAXES AND EXTRAORDINARY ITEMS          30217
Cash Income Tax Expense                                 0
Change in Income Tax Accruals                           0
Change in Current Portion of Deferred Taxes             0
        TOTAL INCOME TAX EXPENSE                    ---------      0
                                                              ---------
            INCOME BEFORE EXTRAORDINARY ITEMS                   30217
Extraordinary Items (Net of Tax)                                   0
                                                              ---------
            NET INCOME                                          30217
                                                              =========
```

APPENDIX C

MACHINERY AND COMPLEMENT SELECTION FOR LARGE AND MEDIUM TYPICAL FARMS AND GOVERNMENT DEFICIENCY PAYMENT DETERMINED FOR LARGE, MEDIUM AND SMALL TYPICAL FARMS

TABLE C-1

MACHINERY COMPLEMENT SELECTION FOR LARGE DRY TYPICAL FARMS

TRACTOR HORSEPOWER SELECTION CROP ACTIVITIE	ACRES	ONE budget to estimate costs	TRACTOR SIZES (IN PTO HP)			Bud Loc CROP #	3 1	
Wheat	764	1	95			6	3	1
Alfalfa	35	0	105			36	33	2
G. Sorghum	20	0	125			66	63	3
Corn	0	0	140			96	93	4
Peanuts	0.6	0	155			126	123	5
Soybeans	0	0	175			156	153	6
Cotton	129	0	200			186	183	7
Sudan Hay	0	0	250			216	213	8
			300			246	243	

	#1	#2	#3
TRACTOR HP	125	0	0

PARAMETER SPECIFICATION

MACHINE OPERATION	SPECIFIED TRACTOR USAGE		
OFFSET	100%	0%	0%
CHISEL	100%	0%	0%
LAND PLANE	0%	0%	0%
SWEEP PLOW	0%	0%	0%
M.B. PLOW	100%	0%	0%
SWEEP COND.	0%	0%	0%
CULTIPACKER	0%	0%	0%
TANDEM DISK	0%	0%	0%
SPRINGTOOTH	100%	0%	0%
S.HARROW	0%	0%	0%
DRILL	100%	0%	0%
PLANTER	100%	0%	0%
CULTIVATOR	100%	0%	0%
ROTARY HOE	0%	0%	0%
SPRAYER	100%	0%	0%
S.SHREADER	0%	0%	0%
ROT.MOWER	0%	0%	0%
WINDROWER	100%	0%	0%
BALER	100%	0%	0%

FUEL PRICE	$0.800 per gallon
INTEREST	$0.090 per $ borrowed
TAXES	0.010 of purchase price
INSURANCE	0.006 of average value
HIRED WAGE RATE	$6.00 per hour

FACTORS

TRACTOR TIME	1.10 X implement time
LABOR HOURS	1.10 X tractor time

OWNER-OPERATOR MONTHLY LABOR	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HOURS AVAILABLE	80	80	80	80	80	80	80	80	80	80	80	80
MAXIMUM TRACTOR HOURS PER TIME PERIOD	200	230	190	188	133	180	225	230	173	150	164	196

TABLE C-2

MACHINERY AND COMPLEMENT HOURS REQUIRED
AND COST FOR LARGE DRY TYPICAL FARMS

```
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
)))))))))))   MACHINERY COMPLEMENT SELECTION RESULTS       (((((((((((((((((((((((((((((((((((((((((((((((((((((((((((((
///////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
```

TOTAL TRACTOR HOURS	HP	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRACTOR #1	125	0.00	7.89	11.30	22.80	79.11	174.84	210.86	149.52	73.71	133.89	0.00	45.38
TRACTOR #2	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRACTOR #3	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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```
NOTE: IF NA (NOT AVAILABLE) IS RELAYED IN THE RESULTS ROW,
CHECK HORSEPOWER REQUIREMENTS FOR PTO DRIVEN EQUIPMENT.
TRACTORS USED WITH 540 PTO EQUIPMENT CANNOT EXCEED 140 HORSEPOWER.
IN ADDITION, S.HARROW IS NOT OFFERED FOR TRACTORS EXCEEDING 155 HP.
```
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```

TRACTOR HOUR REQUIREMENT SUMMARY	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAXIMUM TRACTOR HOURS PER MONT (HP)	200	230	190	188	133	180	225	230	173	150	164	196

```
------------------------------------------------------------------------------------------------------------------------
```

EXCESS CAPACITY													
TRACTOR #1	125	200	222	179	165	54	5	14	80	99	16	164	151
TRACTOR #2	0	0	0	0	0	0	0	0	0	0	0	0	0
TRACTOR #3	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTE:IF NEGATIVE NUMBERS APPEAR IN THE TRACTOR HOUR REQUIREMENT SUMMARY
ADJUSTMENTS MAY BE NEEDED TO COMPLETE FIELD OPERATIONS.
```
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```

LABOR SUMMARY	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
OWNER LABOR PROVIDED	80	80	80	80	80	80	80	80	80	80	80	80
TOTAL HOURS REQUIRED	0.00	8.68	12.43	25.08	87.02	192.32	231.94	164.48	81.08	147.28	0.00	49.91

```
------------------------------------------------------------------------------------------------------------------------
```

HIRED LABOR	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HOURS REQUIRED	0.00	0.00	0.00	0.00	7.02	112.32	151.94	84.48	1.08	67.28	0.00	0.00
COST OF HIRED LABOR	0.00	0.00	0.00	0.00	42.10	673.94	911.65	506.85	6.48	403.70	0.00	0.00

```
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```

COMPLEMENT COSTS	DEPREC.	INT.	INS.	TAXES	T.F.C.	REPAIR	LUB.	FUEL	T.V.C.	T.O.C./TRACTOR
TRACTOR #1	10273.38	8153.49	543.57	1519.77	20490.20	7200.31	670.82	4472.15	12343.28	32833.48
TRACTOR #2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRACTOR #3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
-----------------------------------------------------------------------------------------------------------------
            TOTAL FIXED COSTS        20490.20    TOTAL VARIABLE COSTS       12343.28
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
TOTAL OPERATING COST INCLUDING HIRED LABOR        35378.20    COST PER ACRE       37.30 (((((((((
)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
ACRES/HOUR
```

TABLE C-3

MACHINERY COMPLEMENT SELECTION FOR LARGE IRRIGATED TYPICAL FARMS

```
Enter (Alt M) for Menu          Enter 1 beside
TRACTOR HORSEPOWER SELECTION     ONE budget to    TRACTOR SIZES                                    Bud Loc    3
CROP ACTIVITIE      ACRES        estimate         (IN PTO HP)                                      CROP #     1
------------------------------costs                ------------------
Wheat               567          1                    95                                               6     3     1
Alfalfa              24          0                   105                                              36    33     2
G. Sorghum           21          0                   125                                              66    63     3
Corn                  0          0                   140                                              96    93     4
Peanuts              15          0                   155                                             126   123     5
Soybeans              0          0                   175                                             156   153     6
Cotton              340          0                   200                                             186   183     7
Sudan Hay             0          0                   250                                             216   213     8
                                                     300                                             246   243

                    #1     #2     #3
      TRACTOR HP    95     95      0                          PARAMETER SPECIFICATION
================================================      ====================================
     MACHINE           SPECIFIED                      FUEL PRICE           $1.170 per gallon
     OPERATION        TRACTOR USAGE                   INTEREST             $0.097 per $ borrowed
-----------------------------------------             TAXES                0.010 of purchase price
OFFSET           50%     50%      0%                  INSURANCE            0.006 of average value
CHISEL            0%    100%      0%                  HIRED WAGE RATE      $6.00 per hour
LAND PLANE        0%      0%      0%
SWEEP PLOW        0%      0%      0%                  FACTORS
M.B. PLOW       100%      0%      0%                  TRACTOR TIME         1.10 X implement time
SWEEP COND.       0%      0%      0%                  LABOR HOURS          1.10 X tractor time
CULTIPACKER       0%      0%      0%
TANDEM DISK       0%      0%      0%
SPRINGTOOTH      50%     50%      0%
S.HARROW          0%      0%      0%
DRILL            50%     50%      0%
PLANTER          50%     50%      0%
CULTIVATOR       50%     50%      0%
ROTARY HOE        0%      0%      0%
SPRAYER           0%    100%      0%
S.SHREADER        0%      0%      0%
ROT.MOWER         0%      0%      0%
WINDROWER         0%    100%      0%
BALER           100%      0%      0%
```

```
OWNER-OPERATOR
MONTHLY LABOR           JAN    FEB    MAR   APRIL    MAY   JUNE   JULY    AUG   SEPT    OCT    NOV    DEC
================================================================================================================
HOURS AVAILABLE          80     80     80     80      80     80     80     80     80     80     80     80
----------------------------------------------------------------------------------------------------------------
MAXIMUM TRACTOR HOURS
PER TIME PERIOD         200    230    190    188     133    180    225    230    173    150    164    196
================================================================================================================
```

TABLE C-4

MACHINERY AND COMPLEMENT HOURS REQUIRED AND COST FOR LARGE IRRIGATED TYPICAL FARMS

```
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
))))))))))   MACHINERY COMPLEMENT SELECTION RESULTS   (((((((((((((((((((((((((((((((((((((((((((((((((((((((
///////////////////////////////////////////////////////////////////////////////////////////////////////////
```

TOTAL TRACTOR HOURS	HP	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRACTOR #1	95	0.00	2.40	10.15	11.85	102.47	104.35	39.56	72.53	35.99	63.91	0.00	157.36
TRACTOR #2	95	38.85	8.50	4.86	9.55	126.88	100.40	200.37	68.59	35.99	63.91	0.00	0.00
TRACTOR #3	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
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```

NOTE: IF NA (NOT AVAILABLE) IS RELAYED IN THE RESULTS ROW,
CHECK HORSEPOWER REQUIREMENTS FOR PTO DRIVEN EQUIPMENT.
TRACTORS USED WITH 540 PTO EQUIPMENT CANNOT EXCEED 140 HORSEPOWER.
IN ADDITION, S.HARROW IS NOT OFFERED FOR TRACTORS EXCEEDING 155 HP.

```
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```

TRACTOR HOUR REQUIREMENT SUMMARY	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAXIMUM TRACTOR HOURS PER MONT (HP)	200	230	190	188	133	180	225	230	173	150	164	196

EXCESS CAPACITY

	HP	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRACTOR #1	95	200	228	180	176	31	76	185	157	137	86	164	39
TRACTOR #2	95	161	221	185	178	6	80	25	161	137	86	164	196
TRACTOR #3	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTE:IF NEGATIVE NUMBERS APPEAR IN THE TRACTOR HOUR REQUIREMENT SUMMARY
ADJUSTMENTS MAY BE NEEDED TO COMPLETE FIELD OPERATIONS.

```
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```

LABOR SUMMARY	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
OWNER LABOR PROVIDED	80	80	80	80	80	80	80	80	80	80	80	80
TOTAL HOURS REQUIRED	42.74	11.99	16.52	23.55	252.29	225.23	263.91	155.23	79.18	140.60	0.00	173.10

HIRED LABOR

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HOURS REQUIRED	0.00	0.00	0.00	0.00	172.29	145.23	183.91	75.23	0.00	60.60	0.00	93.10
COST OF HIRED LABOR	0.00	0.00	0.00	0.00	1033.74	871.36	1103.48	451.40	0.00	363.61	0.00	558.57

```
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```

COMPLEMENT COSTS	DEPREC.	INT.	INS.	TAXES	T.F.C.	REPAIR	LUB.	FUEL	T.V.C.	T.O.C./TRACTOR
TRACTOR #1	6959.39	6087.44	376.54	1042.41	14465.78	3307.45	511.73	3411.51	7230.69	21696.47
TRACTOR #2	7552.19	6304.77	389.99	1071.05	15317.99	3120.41	526.51	3510.05	7156.97	22474.96
TRACTOR #3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
-------------------------------------------------------------------------------------------------------------
```

TOTAL FIXED COSTS   29783.78   TOTAL VARIABLE COSTS   14387.65

```
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```

TOTAL OPERATING COST INCLUDING HIRED LABOR   48553.58   COST PER ACRE   50.21 (((((((((

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)))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
```

TABLE C-5

MACHINERY COMPLEMENT SELECTION FOR IRRIGATED MEDIUM TYPICAL FARMS

```
Enter (Alt M) for Menu          Enter 1 beside
TRACTOR HORSEPOWER SELECTION    ONE budget to      TRACTOR SIZES                                        Bud Loc    3
CROP ACTIVITIE        ACRES     estimate           (IN PTO HP)                                          CROP #     1
----------------------------------costs            --------------------
Wheat                 127       .1                      95                                        6        3      1
Alfalfa               5         0                      105                                       36       33      2
G. Sorghum            6         0                      125                                       66       63      3
Corn                  0         0                      140                                       96       93      4
Peanuts               7         0                      155                                      126      123      5
Soybeans              0         0                      175                                      156      153      6
Cotton                136       0                      200                                      186      183      7
Sudan Hay             0         0                      250                                      216      213      8
                                                       300                                      246      243

                      #1    #2    #3
        TRACTOR HP    95    0     0                      PARAMETER SPECIFICATION
==========================================          =======================================
      MACHINE          SPECIFIED                     FUEL PRICE          $0.800 per gallon
     OPERATION      TRACTOR USAGE                    INTEREST            $0.090 per $ borrowed
-----------------------------------------           TAXES               0.010 of purchase price
OFFSET          100%    0%    0%                     INSURANCE           0.006 of average value
CHISEL          100%    0%    0%                     HIRED WAGE RATE     $6.00 per hour
LAND PLANE      0%      0%    0%
SWEEP PLOW      0%      0%    0%                     FACTORS
M.B. PLOW       100%    0%    0%                     TRACTOR TIME        1.10 X implement time
SWEEP COND.     0%      0%    0%                     LABOR HOURS         1.10 X tractor time
CULTIPACKER     0%      0%    0%
TANDEM DISK     0%      0%    0%
SPRINGTOOTH     100%    0%    0%
S.HARROW        0%      0%    0%
DRILL           100%    0%    0%
PLANTER         100%    0%    0%
CULTIVATOR      100%    0%    0%
ROTARY HOE      0%      0%    0%
SPRAYER         100%    0%    0%
S.SHREADER      0%      0%    0%
ROT.MOWER       0%      0%    0%
WINDROWER       100%    0%    0%
BALER           100%    0%    0%
```

```
OWNER-OPERATOR
MONTHLY LABOR       JAN   FEB   MAR   APRIL   MAY   JUNE   JULY   AUG   SEPT   OCT   NOV   DEC
====================================================================================================
HOURS AVAILABLE     80    80    80    80      80    80     80     80    80     80    80    80
----------------------------------------------------------------------------------------------------
MAXIMUM TRACTOR HOURS
PER TIME PERIOD     200   230   190   188     133   180    225    230   173    150   164   196
====================================================================================================
```

TABLE C-6

MACHINERY AND COMPLEMENT HOURS REQUIRED AND COST FOR MEDIUM IRRIGATED TYPICAL FARMS

```
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
)))))))))))   MACHINERY COMPLEMENT SELECTION RESULTS      (((((((((((((((((((((((((((((((((((((((((((((((((((((((
////////////////////////////////////////////////////////////////////////////////////////////////////////////
```

TOTAL TRACTOR HOURS	HP	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TRACTOR #1	95	0.00	3.11	4.92	5.72	90.69	56.64	64.52	31.43	16.12	28.63	0.00	62.94
TRACTOR #2	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRACTOR #3	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
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```
    NOTE: IF NA (NOT AVAILABLE) IS RELAYED IN THE RESULTS ROW,
    CHECK HORSEPOWER REQUIREMENTS FOR PTO DRIVEN EQUIPMENT.
    TRACTORS USED WITH 540 PTO EQUIPMENT CANNOT EXCEED 140 HORSEPOWER.
    IN ADDITION, S.HARROW IS NOT OFFERED FOR TRACTORS EXCEEDING 155 HP.
```
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```

TRACTOR HOUR REQUIREMENT SUMMARY		JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAXIMUM TRACTOR HOURS PER MONT (HP)		200	230	190	188	133	180	225	230	173	150	164	196
EXCESS CAPACITY													
TRACTOR #1	95	200	227	185	182	42	123	160	199	157	121	164	133
TRACTOR #2	0	0	0	0	0	0	0	0	0	0	0	0	0
TRACTOR #3	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTE:IF NEGATIVE NUMBERS APPEAR IN THE TRACTOR HOUR REQUIREMENT SUMMARY
ADJUSTMENTS MAY BE NEEDED TO COMPLETE FIELD OPERATIONS.
```
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```

LABOR SUMMARY		JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
OWNER LABOR PROVIDED		80	80	80	80	80	80	80	80	80	80	80	80
TOTAL HOURS REQUIRED		0.00	3.43	5.41	6.29	99.76	62.31	70.97	34.57	17.73	31.49	0.00	69.24
HIRED LABOR HOURS REQUIRED		0.00	0.00	0.00	0.00	19.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COST OF HIRED LABOR		0.00	0.00	0.00	0.00	118.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
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```

COMPLEMENT COSTS	DEPREC.	INT.	INS.	TAXES	T.F.C.	REPAIR	LUB.	FUEL	T.V.C.	T.O.C./TRACTOR
TRACTOR #1	8991.98	7130.22	475.35	1336.05	17933.60	1428.28	216.59	1443.94	3088.81	21022.41
TRACTOR #2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRACTOR #3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
              TOTAL FIXED COSTS       17933.60    TOTAL VARIABLE COSTS      3088.81
))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
TOTAL OPERATING COST INCLUDING HIRED LABOR       21140.96    COST PER ACRE      75.23 (((((((((
))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))))
ACRES/HOUR
```

TABLE C-7

GOVERNMENT WHEAT PROGRAM ANDLYSIS FOR LARGE DRY TYPICAL FARMS

Input Table

```
----------------------------------------------------------------
Item                              Value         Units
----------------------------------------------------------------
Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN    RENTER'S
   WHEAT,CORN,GS,OATS,BARLEY,COTTON WHEAT                  SHARE
                                                           100%
% OPTIONAL FLEX ACRES? 0 TO 10%       0%
% OPTIONAL FLEX ON 0/92? 0 TO 10%     0%
Total Cropland in Crop              764   acres
Program Base Acres                  764   acres
ASCS Program Yield                  27.4  bushels (cotton in lbs)/a
Expected Yield                      27.4  $/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested    0.00%           MAXIMUM  78.20%
County Loan Rate                    $0.01
Expected Cash Price Received        $3.40  $/bu. -- cotton in lbs
June 92 - October 92 Average Price  $3.40  $/bu. -- cotton in lbs
June 92 - May 93 Average Price      $3.40  $/bu. -- cotton in lbs
Cost Per Harvested Acre            $93.43  $/acre
Cost Per Non-Harvested Acre        $84.77  $/acre
Storage Cost                        0.025  $/bushel/month
Income/ac from non-harvested acres    $0
----------------------------------------------------------------
```

Output Table -- 1992 Wheat Program Analysis:

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92
Regular Deficiency Payment		$10,676	$10,676	$9,822
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$60,498	$60,498	$0
Crop Return From Non-Pay Acres	$71,174		$10,676	
Non Crop Return		0	0	0
Total Returns	$71,174	$71,174	$81,850	$9,822
Total Crop Costs	$71,381	$70,388	$71,381	$64,764
Expected Net Return	($206)	$786	$10,470	($54,942)
Expected Net Return/Acre	($0.27)	$1	$14	($71.91)
Break-even Net Return/Acre Requirements		$84		$86
Acres Harvested	764	649.4	764	0

TABLE C-8

GOVERNMENT WHEAT PROGRAM ANALYSIS
FOR LARGE IRRIGATED TYPICAL FARMS

Input Table

Item	Value	Units
Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN WHEAT,CORN,GS,OATS,BARLEY,COTTON WHEAT		RENTER'S SHARE 100%
% OPTIONAL FLEX ACRES? 0 TO 10%	0%	
% OPTIONAL FLEX ON 0/92? 0 TO 10%	0%	
Total Cropland in Crop	567	acres
Program Base Acres	567	acres
ASCS Program Yield	28.5	bushels (cotton in lbs)/a
Expected Yield	28.5	$/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested	0.00%	MAXIMUM 78.20%
County Loan Rate	$0.01	
Expected Cash Price Received	$3.40	$/bu. -- cotton in lbs
June 92 - October 92 Average Price	$3.40	$/bu. -- cotton in lbs
June 92 - May 93 Average Price	$3.40	$/bu. -- cotton in lbs
Cost Per Harvested Acre	$93.43	$/acre
Cost Per Non-Harvested Acre	$84.77	$/acre
Storage Cost	0.025	$/bushel/month
Income/ac from non-harvested acres	$0	

Output Table -- 1992 Wheat Program Analysis:

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92
Regular Deficiency Payment		$8,241	$8,241	$7,582
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$46,701	$46,701	$0
Crop Return From Non-Pay Acres	$54,942		$8,241	
Non Crop Return		0	0	0
Total Returns	$54,942	$54,942	$63,184	$7,582
Total Crop Costs	$52,975	$52,238	$52,975	$48,065
Expected Net Return	$1,967	$2,704	$10,209	($40,483)
Expected Net Return/Acre	$3.47	$5	$18	($71.40)
Break-even Net Return/Acre Requirements		$88		$89
Acres Harvested	567	481.95	567	0

TABLE C-9

GOVERNMENT WHEAT PROGRAM ANALYSIS
FOR MEDIUM DRY TYPICAL FARMS

Input Table

Item	Value	Units

Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN   RENTER'S
  WHEAT,CORN,GS,OATS,BARLEY,COTTON WHEAT   SHARE
                                                            100%

Item	Value	Units
% OPTIONAL FLEX ACRES? 0 TO 10%	0%	
% OPTIONAL FLEX ON 0/92? 0 TO 10%	0%	
Total Cropland in Crop	219	acres
Program Base Acres	219	acres
ASCS Program Yield	27.4	bushels (cotton in lbs)/a
Expected Yield	27.4	$/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested	0.00%	MAXIMUM 78.20%
County Loan Rate	$0.01	
Expected Cash Price Received	$3.40	$/bu. -- cotton in lbs
June 92 - October 92 Average Price	$3.40	$/bu. -- cotton in lbs
June 92 - May 93 Average Price	$3.40	$/bu. -- cotton in lbs
Cost Per Harvested Acre	$93.43	$/acre
Cost Per Non-Harvested Acre	$84.77	$/acre
Storage Cost	0.025	$/bushel/month
Income/ac from non-harvested acres	$0	

Output Table -- 1992 Wheat Program Analysis:

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92
Regular Deficiency Payment		$3,060	$3,060	$2,815
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$17,342	$17,342	$0
Crop Return From Non-Pay Acres	$20,402		$3,060	
Non Crop Return		0	0	0
Total Returns	$20,402	$20,402	$23,462	$2,815
Total Crop Costs	$20,461	$20,177	$20,461	$18,565
Expected Net Return	($59)	$225	$3,001	($15,749)
Expected Net Return/Acre	($0.27)	$1	$14	($71.91)
Break-even Net Return/Acre Requirements		$85		$86

| Acres Harvested | 219 | 186.15 | 219 | 0 |

TABLE C-10

GOVERNMENT COTTON PROGRAM ANALYSIS
FOR LARGE DRY TYPICAL FARMS

Input Table

Item	Value	Units
Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN WHEAT,CORN,GS,OATS,BARLEY,COTTON COTTON		RENTER'S SHARE 100%
% OPTIONAL FLEX ACRES? 0 TO 10%	0%	
% OPTIONAL FLEX ON 0/92? 0 TO 10%	0%	
Total Cropland in Crop	129.3	acres
Program Base Acres	129.3	acres
ASCS Program Yield	400.0	bushels (cotton in lbs)/a
Expected Yield	400.0	$/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested	0.00%	0 MAXIMUM 0.00%
County Loan Rate	$0.01	
Expected Cash Price Received	$0.53	$/bu. -- cotton in lbs
June 92 - October 92 Average Price	$0.53	$/bu. -- cotton in lbs
June 92 - May 93 Average Price	$0.53	$/bu. -- cotton in lbs
Cost Per Harvested Acre	$176.00	$/acre
Cost Per Non-Harvested Acre	$0.00	$/acre
Storage Cost	0.025	$/bushel/month
Income/ac from non-harvested acres	$0	

Output Table -- 1992 Cotton Program Analysis

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92
Regular Deficiency Payment		$7,977	$7,977	$0
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$21,244	$21,244	$0
Crop Return From Non-Pay Acres	$27,412		$4,112	
Non Crop Return		0	0	0
Total Returns	$27,412	$29,221	$33,332	$0
Total Crop Costs	$22,757	$17,637	$21,050	$0
Expected Net Return	$4,655	$11,584	$12,262	$0
Expected Net Return/Acre	$0.00	$0	$0	$0.00
Break-even Net Return/Acre Requirements		$36		$0
Acres Harvested	129.3	100.2075	119.6025	0

TABLE C-11

GOVERNMENT COTTON PROGRAM ANALYSIS
FOR LARGE IRRIGATED TYPICAL FARMS

Input Table
```
-------------------------------------------------------------------
Item                                  value          Units
-------------------------------------------------------------------
Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN      RENTER'S
   WHEAT,CORN,GS,OATS,BARLEY,COTTON COTTON                   SHARE
                                                               100%

% OPTIONAL FLEX ACRES? 0 TO 10%          0%
% OPTIONAL FLEX ON 0/92? 0 TO 10%        0%
Total Cropland in Crop                 340    acres
Program Base Acres                     340    acres
ASCS Program Yield                     585.0  bushels (cotton in lbs)/a
Expected Yield                         585.0  $/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested       0.00%      0    MAXIMUM    0.00%
County Loan Rate                       $0.01
Expected Cash Price Received           $0.53  $/bu. -- cotton in lbs
June 92 - October 92 Average Price     $0.53  $/bu. -- cotton in lbs
June 92 - May 93 Average Price         $0.53  $/bu. -- cotton in lbs
Cost Per Harvested Acre              $245.00   $/acre
Cost Per Non-Harvested Acre            $0.00   $/acre
Storage Cost                           0.025   $/bushel/month
Income/ac from non-harvested acres      $0
-------------------------------------------------------------------
```

Output Table -- 1992 Cotton Program Analysis

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92
Regular Deficiency Payment		$30,675	$30,675	$0
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$81,698	$81,698	$0
Crop Return From Non-Pay Acres	$105,417		$15,813	
Non Crop Return		0	0	0
Total Returns	$105,417	$112,374	$128,186	$0
Total Crop Costs	$83,300	$64,558	$77,053	$0
Expected Net Return	$22,117	$47,816	$51,134	$0
Expected Net Return/Acre	$0.00	$0	$0	$0.00
Break-even Net Return/Acre Requirements		$65		$0
Acres Harvested	340	263.5	314.5	0

TABLE C-12

GOVERNMENT COTTON PROGRAM ANALYSIS
FOR MEDIUM IRRIGATED TYPICAL FARMS

Input Table

Item	Value	Units

Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN		RENTER'S
WHEAT,CORN,GS,OATS,BARLEY,COTTON COTTON		SHARE
		100%
% OPTIONAL FLEX ACRES? 0 TO 10%	0%	
% OPTIONAL FLEX ON 0/92? 0 TO 10%	0%	
Total Cropland in Crop	136	acres
Program Base Acres	136	acres
ASCS Program Yield	617.0	bushels (cotton in lbs)/a
Expected Yield	617.0	$/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested	0.00%	0 MAXIMUM 0.00%
County Loan Rate	$0.01	
Expected Cash Price Received	$0.53	$/bu. -- cotton in lbs
June 92 - October 92 Average Price	$0.53	$/bu. -- cotton in lbs
June 92 - May 93 Average Price	$0.53	$/bu. -- cotton in lbs
Cost Per Harvested Acre	$250.00	$/acre
Cost Per Non-Harvested Acre	$0.00	$/acre
Storage Cost	0.025	$/bushel/month
Income/ac from non-harvested acres	$0	

Output Table -- 1992 Cotton Program Analysis

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92

Regular Deficiency Payment		$12,941	$12,941	$0
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$34,467	$34,467	$0
Crop Return From Non-Pay Acres	$44,473		$6,671	
Non Crop Return		0	0	0
Total Returns	$44,473	$47,408	$54,079	$0
Total Crop Costs	$34,000	$26,350	$31,450	$0
Expected Net Return	$10,473	$21,058	$22,629	$0
Expected Net Return/Acre	$0.00	$0	$0	$0.00
Break-even Net Return/Acre Requirements		$77		$0

| Acres Harvested | 136 | 105.4 | 125.6 | 0 |

TABLE C-13

GOVERNMENT COTTON PROGRAM ANALYSIS
FOR SMALL IRRIGATED TYPICAL FARMS

Input Table

```
-----------------------------------------------------------------
Item                                Value           Units
-----------------------------------------------------------------
Program -- ENTER COMMODITY NAME IN B26 EXACTLY AS SHOWN     RENTER'S
   WHEAT,CORN,GS,OATS,BARLEY,COTTON COTTON                  SHARE
                                                            100%

% OPTIONAL FLEX ACRES? 0 TO 10%         0%
% OPTIONAL FLEX ON 0/92? 0 TO 10%       0%
Total Cropland in Crop                 41       acres
Program Base Acres                     41       acres
ASCS Program Yield                    625.6     bushels (cotton in lbs)/a
Expected Yield                        625.6     $/bu. -- cotton in lbs
For 0/92: % Base Acres Harvested      0.00%        0    MAXIMUM    0.00%
County Loan Rate                      $0.01
Expected Cash Price Received          $0.53     $/bu. -- cotton in lbs
June 92 - October 92 Average Price    $0.53     $/bu. -- cotton in lbs
June 92 - May 93 Average Price        $0.53     $/bu. -- cotton in lbs
Cost Per Harvested Acre              $269.02    $/acre
Cost Per Non-Harvested Acre           $0.00     $/acre
Storage Cost                          0.025     $/bushel/month
Income/ac from non-harvested acres     $0
-----------------------------------------------------------------
```

Output Table -- 1992 Cotton Program Analysis

Item	Non-Part.	NOT-HARV N F A	HARVEST N F A	0/92
Regular Deficiency Payment		$3,956	$3,956	$0
Final Deficiency Payment		$0	$0	$0
Crop Return From Payment Acres		$10,536	$10,536	$0
Crop Return From Non-Pay Acres	$13,594		$2,039	
Non Crop Return		0	0	0
Total Returns	$13,594	$14,491	$16,531	$0
Total Crop Costs	$11,030	$8,548	$10,203	$0
Expected Net Return	$2,564	$5,943	$6,328	$0
Expected Net Return/Acre	$0.00	$0	$0	$0.00
Break-even Net Return/Acre Requirements		$63		$0
Acres Harvested	41	31.775	37.925	0

$\bigcap_{\mathcal{V}}$

VITA

Gashu Habte

Candidate for the Degree of

Doctor of Philosophy

Thesis: APPLICATION OF TYPICAL FARM ANALYSIS AS A TOOL FOR POLICY AND ECONOMIC EVALUATION OF AGRICULTURE IN SOUTHWESTERN OKLAHOMA

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Education: Graduated from Ras Darsie secondary school Assela, Arsi in 1972. Received Diploma in General Agriculture from Jimma Agricultural College, Jimma in 1974. Completed Bachelor of Science degree in Agricultural Economics from Addis Ababa University, 1979. Completed requirements for the Master of Science degree at Addis Ababa University in 1985 and completed Ph.D. in Agricultural Economics from Oklahoma State University July 1994.

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