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## Utilization of Family Labor in Broiler Production and Marketing in Ashley County Arkansas

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UTILIZATION OF FAMILY LABOR IN BROILER  
PRODUCTION AND MARKETING IN  
ASHLEY COUNTY ARKANSAS

A Thesis

Submitted to

The Faculty of the Graduate School  
Prairie View Agricultural and Mechanical College  
Prairie View, Texas

In Partial Fulfillment

of the Requirements for the Degree

MASTER OF SCIENCE

By

Willie Booker, Jr.

August 1970

APPROVED BY:



\_\_\_\_\_  
Advisor

\_\_\_\_\_  
Dean of School

\_\_\_\_\_  
Date

## A C K N O W L E D G E M E N T

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Thanks are expressed to Mr. Wilbert A. May, Chocit County Extension Service for his suggestions and assistance in locating research material for this study.

W. B.

## DEDICATION

This thesis is dedicated to my lovely wife, Reitha Jean Booker, my sons, Milton V., Roy L., Lawrence E., and Calvin E. Booker, for their encouragement, understanding, sacrifices and devotion. Without them, this stage in my education would not have been attained.

W. B.

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## CHAPTER I

### INTRODUCTION

#### Historical Development of the County

Ashley County Arkansas is located in the Southeast corner of Arkansas except for one county to the east that meanders with the Mississippi river. Ashley County is boundaried on the north by Drew County, South by the north of Louisiana State line, East by Chicot County and West by the Ouchita and Seline rivers.

#### Land Area

Ashley County consist of 597.120 acres of land area, of this area, 200.040 acres are in crop, and 397.080 acres are in forest land. The total numbers of farms in the County are 788. The average size of farms are 228.0 acres. There are many small farms located in the forest area of the County. There are 80 farms consisting of less than 10 acres and 149 farms with acreage between 10 and 49 acres. The writer is primarily interested in the small farm because this is the area where, for the most part, only one member of the family is employed. Broiler production can play a major role in utilizing family labor on small acreage, and supplement their income.

### Population of Ashley County

The county consists of a population of 25,000. Of this number, 34 per cent are non-white and 66 per cent are white.

The county is considered a rural county. It consists of ten towns ranging in population from 900 to 5,500. There are 2,200 non-farms, 650 part-time farms, and 900 full time farm families. The remaining families are unemployed or interchangeably employed between farm and industry.

### Educational levels

The average educational level of residents in Ashley county is 6 1/2 years according to the 1960 United States Census. The writer believes that this level has risen within the past ten years. There are 15 elementary schools and 9 secondary schools in the county.

The educational levels of people have a direct relationship with their income. The farm operator's educational levels are as follows: Eighty one (81) farm operators have education status from 0 to 4 years, 155 with 5 to 7 years, 156 with 8 years, 200 with from 1 to 3 years of high school education, 137 with 4 years of high school, 35 with 1 to 3 years of college training and 24 with 4 or more years of college training.

### Economic Levels of Farm Operators

The quantity and quality of products sold on the 788 farms are influenced by many factors. Some of the major factors

are: the size of the farm; the productivity of the farm; the educational level of the operator; finance not available, unavailable labor and levels of management. There are 196 farms in the county with annual sales of less than \$250.00, 83 with sales from \$250.00 to \$499.00, and 187 with sales from \$500.00 to \$2,500.00. These 466 farm operators are usually the family type farm. They make up the hard core poverty level. There are 183 farms with sales between \$2,500.00 and \$15,000.00, and 139 farms with annual sales from \$15,000.00 to over \$60,000.00.

#### Major Crops in the County

There are three major income crops in the county. These crops are: soybeans, cotton and rice.

Soybean productions accounts for the largest acreage planted in the county. There are 100,000 acres planted to soybeans. The average production of soybeans per acre in the county is 22.5 bushels. The average yield per acre is the third lowest of the soybean producing counties in Arkansas.

Cotton is the second major crop in the county. There are 16,000 acres planted to cotton. The average yield per acre is 805 pounds of lint. Ashley County is the highest per acre cotton producing county in the state of Arkansas.

Rice is the third major crop in the county. There are 8,000 acres planted to rice. The average yield of rice per acre is 4,539 pounds.

Other cash crops that are produced in the county are; tomatoes, broilers, beef cattle and feeder pigs. These crops are produced primarily on small farms as a supplementary income crops and also to utilize family labor.

Tomatoes are pink wraps, produced for the fresh market. The average annual acreage planted to tomatoes is 200 acres. The acreage per farm is from 1/2 to 3, depending on available labor.

Broiler production is very low in the county. This is usually due to the initial cost involved in production. There are 21 producers with an average capacity of 20,000 broilers. This means that a producer usually produces around 90,000 birds per year.

Beef cattle are produced on many farms. Production is very low because on large farms, pasture land has been converted to soybean production. Small farms do produce accordingly - depending on their available pastures. Feeder pigs are produced by small farmers and part-time farmers. The pigs are usually marketed at 8 to 12 weeks of age. They are seldom fed out to finish product because of the scarcity of feed produced on small farms and the cost of feed purchased. The Farmers Home Administration has made special effort to provide finances for production of feeder pigs in the county.

#### Farm to Market Roads

Good roads are essential to any production and marketing area.

With good accessible roads, the law of marginal transference fluctuates toward a desirable situation in transporting products to markets.

There are four types of roads systems in the county. They are U. S. Highway, State Highway, County and Georgia Pacific Corporation roads. There are two U. S. Highways through the county, U. S. 81 and U. S. 82. These two highways very closely dissect the county in four equal parts. U. S. 81 crosses the county from north to south. U. S. 82 crosses from east to west. There are two state highways in the county. They are Highway numbers 8 and 52. Both of these highways cross the county from east to west. They are accessible to farm to market transportation in the south east area of the county. There are sufficient county roads over the county. Most of the highways are graveled and kept in passible condition. An ample supply of gravel is available in the western two-thirds' of the county. Not many roads are hard surfaced. There is a net work of roads in the county provided by the Georgia Pacific Corporation to move their wood from all sections of the forest area to the processing plants. There is not a farm in this area more than 1/8 mile from a gravel road. The county usually provides lateral roads to the county section roads or to Georgia pacific roads. The Georgia Pacific Corporation roads are well maintained and bridges are constructed for loads in excess of those for farm products.

## PURPOSE OF THE STUDY

This study is being conducted and analyzed to determine the extent that family labor may be utilized to supplement family income. The study endeavors to give a step by step process that may be followed in investigating the possibility and feasibility of such projects being used to supplement income by the utilization of family labor.

To point out major problem areas in the production, management and marketing of broilers. To refer to sources of information and assistance available in the area of production, management and marketing. Finally to show where low income families have improved their standards of living by utilizing family labor effectively.

## DEFINITION OF TERMS USED

In making this study, the writer has used terms with many different definitions. For clarity to the readers, the following terms are defined:

The Producer - Refers to all members of the family engaged in the management of the broiler flock to the marketing stage.

The Manager - One who has the overall responsibility, directly or indirectly for the skillful use of all means to accomplish the purpose of producing a quality bird for the least possible cost.

The Processor - Refers to the persons responsible for the preparation of the birds to a desirable, usable form for the

consumer.

Marketing - For this study, marketing is the performance of all business activities involved in the flow of goods and services from the producer to the consumer.

Amortization - To extinguish a debt by means of making payments in conformity with a contract.

Mortgage - To grant as security for the performance of some conditions. In this study, we refer to securities for finances borrowed for establishing the business.

Chattle Mortgage - Any movable articles of personal property that is offered as security for financing.

Field Representative - The person hired by the processor to advise the producer in the management of the flock.

Vertical Intergration - The overall control by a single company of the making and selling of a product, to insure quality control and a steady supply. In the modern broiler industry, the farmer is paid to feed and house in their own buildings, chicks usually furnished or financed by feed companies or poultry processors who also market the birds.

#### SCOPE OF THE STUDY

This study is limited to low income families in Ashley County Arkansas, who are engaged in broiler production for the purpose of supplementing their income by utilizing family labor.

## CHAPTER II

### AN ANALYSIS OF DATA ON THE PREPARATION FOR UTILIZATION OF FAMILY LABOR

#### Initial Steps in Pursuing Action

The writer will endeavor to provide step by step information on the procedures that may be followed in investigating the broiler business and making decisions and conclusions as to its usefulness in utilizing family labor and supplementing its income.

The prospective producer should contact the processor and feed company on the company's need for additional producers. If the company is interested, they would need to know the location of the farm in relation to their facilities, such as processing plant and feed supply. This dialogue between the prospective producer and the company should be frank and factual. The producer should inquire about the stability and creditability of the company. The terms of the contract between the producer and company should be discussed in detail. Important factors about the contract such as the length of time involved, renewing the contracts, factors that would effect prices offered in the contract, long term outlook on factors effecting prices. The producers should know in detail both parties responsibilities in carrying out the contract.



### Visit With Other Agencies in the Community

Visits with other agencies in the community to discuss the situation and possibilities of the project can prove to be very helpful.

Your county agricultural extension agent is a good source of free information. His information is as reliable as the land grant university. Your other local agencies such as banks, business men, Farmers Home Administration, vocational agricultural teachers and others can give helpful information.

### Survey of Personal Resources

An investigation of personal resources should be made, a survey and consideration of all of the resources should be made. This survey should include both natural and physical resources. Some very necessary resources would be land, labor and capital. Family labor is a key resource in a farm operation. On many farms, there are timber lands that would provide building material for construction. There may be family skills that can be utilized in the construction of buildings and assembling equipment in the building.

A determination of the size of the operation may be considered at this point.

### The Size of the Operation

The size of the operation is determined by many factors that should be given thorough consideration. Some factors to consider

are:

1. The minimum size unit the processor is willing to service.
2. The amount of family labor available.
3. The amount of financing that can be obtained.
4. An economically feasible unit.

The processor has a major responsibility in providing the birds, the feed, and a fieldman to look out for the protection of their investment in a flock. For these and other reasons, the size of the unit would have to be sufficient in size to justify the feasibility of the services that have to be rendered by the processor.

The amount of available family labor is another factor that should be closely considered in determining the size of the operation. In this consideration it is important to know how much and what caliber of labor will be available at the start of the operation and how long it will last in the future.

The age of the family members should be considered, and with some degree of accuracy, a judgment can be made about future labor. Consideration should be made as to the hours per day family members could be available for work. Particularly, when children are in school. The health of the family should be considered.

The amount of financing that can be obtained will also

determine the size of the unit. If sufficient financing can not be obtained to provide for an economic unit, it may be better to seek more resources to increase borrowing power. Inadequate financing may be more harmful than no financing at all.

The size of the unit should be large enough to be economically feasible. The United States Department of Agriculture and the Arkansas Agricultural Poultry Research Service recommends a minimum of twelve thousand square feet of floor space in the unit. This area represents a capacity of twelve thousand birds in summer or warm seasons and fifteen thousand in winter or cool seasons. Research also shows that two full-time adults may take care of thirty to forty thousand birds and do a good job. However, management skills play a large role in the maximum number of birds two adults may properly care for. The kind of feeding equipment would also be a factor. The writer refers to manual feeding in this case. Any producer going into the business at the minimum capacity is encouraged to increase the capacity as he learns to manage the problems in production.

#### Plans for Construction and Equipment

Plans for construction of and equipping the broiler house should be secured.

Once the size of the operation is determined, then a plan can be secured or drawn up for construction. The county extension office can provide plans that are approved by processing companies

in the state. Farmers Home Administration Office will also instruct on where and how to secure USDA Plans. There may also be some private agencies with plans. These plans should be reviewed by the processing company for their approval. There are certain specifications in the construction of a building that are required by the company.

Once the plan is decided upon and have been approved, building contractors should be contacted. Competent contractors are usually the more economical. Several building contractors should have a chance to bid on the job. Where several bidders are involved, this will make the job competitive and will influence the price. Naturally, the lowest bidder will be employed. If there is skilled or unskilled family labor or other resources such as building materials that could be used, this should be included in the contract before it is closed. The same approach used in employing a building contractor should be used in purchasing and assembling equipment for the house. All major jobs to be done by contract or other hired labor, should be negotiated with more than one person and more than one firm. A plan on arrangement of equipment in the house may be found at the County Agricultural Office. These plans should be approved by the processor along with the type of equipment to be used.

#### Providing a Record

After the investigative stages are completed and the amount

of financing is determined, the next step is the provision of a documented record. This record should provide documented signed contracts from any firm or person agreeing to perform a service. The amount of financing should be thoroughly worked out to make sure that there is enough involved to do the job you have planned. A second loan may not be available or if it is available, the cost may be much higher than the first. The record should include building blueprints along with a description of equipment for the house, listed. All labor and purchases should be listed on the record. A summary of these records should be made and the total financing stated. The record should include all assets and liabilities of the family. A complete inventory should be made of all resources possessed by the family. This would include anything of value, such as land, equipment, home, cash, notes receiveable, equities, life insurances and any other assets one has. This record should also show any liabilities the family has such as mortgages, notes payable, installment payments, insurances, taxes, insurance premiums, and other liabilities. With a list of assets and liabilities, one can arrive at his net worth. This record should provide a family living plan and a list of family members along with age and sex of each member. To a lender, this type of record is necessary. When a borrower can present such records to a lender, it exhibits management ability on the part of the borrower. This can be a very important factor of consideration when a determination is being made as to whether or not the

loan can be made. This record should be presented to each financing agency contacted.

### Shopping for Credit

Credit can be one of the most expensive items in any business. Therefore, it is very important and economically sound to take the time to shop for credit. In most counties there are several agencies set up to provide agricultural financing for farm enterprises. Some of these agencies are; local banks, Farmers Home Administration, Production Credit Associations, Federal Land Bank, and local businesses. There are insurance companies in many areas that are in the loan business. There may be others in many areas. The writer should not fail to mention that character is a profound force in any type of credit.

### Local Banks

Many local banks are interested in making loans for farm production. There are advantages and disadvantages in borrowing from any loan agency, and the local bank is no exception. Usually a borrower is better acquainted with the bank. In many cases, he may have done business with the bank and have a good character and credit reference that is already established. These are some of the advantages. Some of the disadvantages are that bank loans are usually made for too short of terms. Amortization of bank loans are from three to five years. This is too short of time for payment on a project of this type. In many cases, the collateral

requirements are valued from fifty per cent of the loan and above. Bank interest rates are usually higher than federal, or federal connected loans. The writer feels that the disadvantages outweigh the advantages on bank loans.

### Local Business

Local business loans are characterized along with bank loans. They also will have higher interest, short term, and more collateral. Many times there are greater risk in foreclosure if notes should fall behind payment schedule.

### Production Credit Association

Production Credit Association, referred to as P. C. A., is in the business of making short term and intermediate loans. The length of P. C. A. loans are usually for one to seven years. They are set up primarily for annual production loans. Loans may be made with P. C. A. to purchase farm equipment, livestock and other commodities that can be paid for over a short period. In areas where broiler production has proven to be successful, many P. C. A. organizations have amended their policies to include longtime loans on production. This is not a standard policy of P. C. A. Production Credit Association loans are usually secured by annual crops and chattel mortgages. Interest rates are usually lower than a bank or a local business loan. This agency may or may not be favorable for the type of loan needed in this project. Their policies would have to be checked.

## Farmers Home Administration

Farmers Home Administration, commonly referred to as F. H. A. is a federal agency. The purpose of this agency is to make loans to farmers for any type farming or farm connected activity, including family homes. Beginning in 1966, its credit was extended to cover economic opportunity loans. These loans are made to low income families for use in any legal adventure that seems feasible in increasing their income. These loans are made on a promisory note and no mortgage is required. Amortization depends on the returns from the business. The maximum loan under this program is \$3,500.00 and is made to people living in rural areas. A rural area is defined as; rural farm, rural none farm or towns with a population not to exceed 5,500. They also make loans to rural communities for utilities, recreation and some other activities. These loans may be short term loans, intermediate or long term loans. They may be amortized from one year to forty years to individual families. They may exceed this time for incorporative organizations. The interest rates are usually lower than other federal conventional, insurance, or private rates. Collateral requirements are usually less demanding than other agencies. The U. S. Department of Agriculture is directing increasing interest and funds in development of rural areas. A person's honesty, industriousness, and character are always important in matters of financing. However, FHA relies heavily on these qualities as



security behind their loans. Farmers Home Administration Agency is a very desirable place to shop for credit.

### Federal Land Bank

The federal land bank is a federal connected agency in the business of financing. The purpose of this agency is to make loans to any one that owns land or has equity in land or equity to put into land. These loans may be made for any purpose as long as land is used for collateral. The loans are made on a percentage of the normal appraised value of the land. This percentage may be as high as seventy five percent of the normal appraised value. Normal value refers to non-inflation values. Usually, based on prices prior to World War II. There is a federal land bank located in each district in the State. Terms of land bank loans will vary from one to forty years. Arrangements may be made for extending beyond forty years. Production from the land used for collateral must be of sufficient amounts to make payments on the loan. The land is the basic collateral for the loan. Interest rates are comparable to FHA and PCA rates. There is an advantage in the Federal Land Bank interest plan. A borrower may receive the same interest rate on advance payment funds as he pays for the money borrowed. This interest may be applied to payment of principle. Federal land bank interest is not fixed. It may change as the interest on the money market changes. Only productive land may be used as collateral.

### Insurance Companies Financing

Insurance companies are the largest financing agencies in the United States. These agencies will make loans on a wide range of items of value as collateral. The interest rates are usually higher than Farmers Home Administration, Productive Credit Associations or Federal Land Banks. Their interest rates are more in line with conventional type loans. Insurance companies have various types of amortization plans. These plans are not of the floating type. They are stipulated in the initial contract. Interest rates may be a certain percentage for a stipulated number of years and change to a higher or lower rate at that point. In some cases, after a stipulated number of years, the balance of the loan may be due and payable. Insurance companies usually are interested in very large loans.

At this point, the job of shopping for credit should begin. This may be a slow process but, one should realize that there are many investigations and considerations that the financier must make. The borrower must also remember that the first conference with the financier may not seem very encouraging because, usually the financier cannot make any commitment at this point.

When finances are secured, then action on the plans should begin.

### Constructing and Equipping the Plant

Location and preparation of the site for the plant is very important. First the site for the plant should be on a well drained

parcel of land. Any excess moisture in the plant will cause problems. These problems will be discussed in the section under management. The site should be conveniently located where it may be observed from the home and be easily accessible to the family. If at all possible a shaded area is desirable. Protection from radiant afternoon sunlight is very helpful in controlling high temperatures.

#### Access Roads to the Plant

Access roads to the plant should be well planned, and have sound construction. Roads should be planned for the most convenient passage in relation to the plant. Special emphases should be placed on the road as it relates to the feed storage and loading out of the plant. Feed trucks carry loads in excess of twelve tons.

Trucks that transport the birds to the processing plants are usually very long base and carry tremendous weight. The road should be constructed to accommodate maneuvering of long trucks and reinforced to accommodate excessive weight. Weather conditions should be considered when constructing a road. Construction should not begin until plant location and roads are thoroughly planned.

#### Construction of the Plant

Construction of the plant is very important. The plant is the largest item of expense in the business. The plant should be constructed by the blueprint. Durability of the plant must be of

prime interest. The writer thinks in terms of twenty years as the normal life of a well constructed plant. Construction should be observed and inspected throughout the process. Quality materials and workmanship are a must. The financing agency is usually concerned with the quality of the plant. In many cases the agency will provide experienced personnel to assist with the inspection of the building. The processing company is also interested in the construction. They may provide assistance in seeing that all of the specifications of the plan are carried out properly.

The building contract may provide for payments to the contractor at several stages of construction. The contract should be studied closely to determine each of the construction stages that demand pay and how much is to be disbursed. The building should pass inspection at each stage before disbursement is made. At no time, and under no circumstances, should more than sixty per cent of the cost of construction be paid to the contractor before the job is completed. The final payment should be made only after approval of the building by the producer, processor and financier.

#### The Production Contract

This contract is a legal document consisting of the agreements made between the processor and the producer. This document is drawn up by the processor. It is discussed in detail with the producer and is signed by both parties. The length of the contract is binding on only one brood of birds. However, it also states

that the processor agrees to continue furnishing contracts to the producer as long as satisfactory production and management is apparent, based on production records. The contract does not require a production commitment from the producer. The contract spells out the responsibilities of the processor and the producer. The producer has the responsibility of furnishing the land, building, equipment, labor, utilities and management. The producer also agrees to accept the management practices provided by the processor's field representative. The processor has the responsibility of providing the birds, feed, medication, crating for marketing, transportation to the market, and the serviceman or field representative. The processor also has the responsibility of providing the financing for the activities they provide. If a percentage of this finance must be borrowed, the processor and producer signed a joint note with the lending agency. In this case, both processor and producer also gives the lender a first mortgage on the birds. This loan is paid when the birds are marketed. The processor also agrees to provides at least three and one half broods of birds per year. The average number of broods per year are four. When demand for broilers are great, there may be five broods per year. The producer agrees to produce as many broods per year as possible if requested by the processor.

## CHAPTER III

### MANAGEMENT OF THE FLOCK

Management of the flock is one of the most important aspects of the broiler production business. Close contact must be kept with the field representative.

The broilers must be kept at the proper temperature during the first months of brooding. The best guide to temperature control is the birds themselves. If they are spread out generally over the brooder area, the temperature is satisfactory. If there is a non-inhabited spot under the center of the brooder, they are too hot. If they are bunched together, they are too cold. The case of being too cold is a serious one. This condition usually causes the mortality to sky rocket. In most cases, the hatchery will provide two per cent extra birds. This two per cent or more can be lost the first two hours from cool temperatures under the brooder.

Feed and water should be made available to the birds within an hour after they are placed in the brooder. Both feed and water should be readily accessible to the birds. They have never experienced eating or drinking, for this reason, the feed and water must be close to all of the birds. Both feed and water should be checked carefully to be assured of freshness and purity. The types of feeders and waterers used may be optional as long as they serve the purpose properly. Whether automatic or manual, all waters are

automatic type after the first three to five days of brooding. Waters should always be properly adjusted to be easily accessible to the birds and to prevent water waste. Wet floors create unsanitary conditions and may cause the development of many diseases. Any unfavorable condition may cause stress on the flock and slow consumption of feed and water and contribute to retardation in growth.

### Feeding the Flock

Feed waste can be the most expensive item in the production process. Highly analyzed feed is expensive to produce. Any waste is costly to the producer of the flock and the processor. The manager of the flock should see that all feed weighed and charged out to him from the mill, reaches his feed storage bin. Many times, fine ground high fat content feed will catch and stick to the side of the bin on the truck. The feeder should always be sure that the feed comes from the storage bin to the trough without waste. The trough should be properly adjusted to assure convenience for the birds and prevent waste by the birds, at all times. This type of waste can run into the tons. Twelve to fifteen thousand birds constantly wasting grain can be costly. Feed waste is not only costly in pounds of feed or cost per pound of bird, but also in the feed conversion factor that is used in computing the producer share of the returns after the cost of feed is paid. This conversion factor will be discussed in a later chapter on marketing.

### Growth Rates and Feed Consumption

With improved breeding, nutrition and management, and feed conversion, the growth rate is constantly improving. Tremendous gains in production efficiencies have been realized in the past ten years. With narrow margins between production cost and selling prices, it becomes increasingly more important for the grower to pay strict attention to every step in the management program that will help improve production efficiencies.

Tables I, II, and III may be used as guides or for comparison of growth rates and feed conversion at different ages.

### Disease and Insect Control

Disease in poultry flocks can wipe out an entire business. The processor and the producer have the responsibility of maintaining a sound disease prevention program. The processor has the responsibility of providing medications and technical information on disease control. The objective of a preventative program is to stop the mechanical spread of disease organism. Security management is a method of disease control. The majority of diseases cannot occur without such disease-producing organisms as bacteria, viruses, and parasites. Their spread between and within forms must be prevented. As can be seen, a security management program is necessary because disease agents can enter a flock from many sources. Disease-producing organism can survive away from the bird for at least a few hours, possible for days or weeks. A well managed flock will have less possibilities of the invasion of protozoa, bacteria, fungi, viruses and parasitic worms. Protection against disease



TABLE I

ESTIMATED GROWTH AND FEED CONSUMPTION RATES<sup>1</sup>

Age in Weeks	Feed Consumption		Average gain in body weight per week	Average Weight per bird (lbs.)	Feed Conversion <sup>2</sup> (lbs. Meat per 100 lbs. feed)
	Pounds per week	Cumulative			
1	.21	.21	.16	.25	
2	.35	.56	.21	.46	
3	.60	1.16	.34	.80	
4	.79	1.95	.41	1.21	
5	.94	2.89	.47	1.68	
6	1.09	3.98	.52	2.20	55.3
7	1.27	5.25	.55	2.75	52.4
8	1.45	6.70	.57	3.32	49.5
9	1.66	8.36	.58	3.90	46.6

<sup>1</sup>For current research growth data, ask your county Extension agent for copies of the Random Sample Meat Performance Tests conducted at the University of Arkansas.

<sup>2</sup>Feed conversion-pounds of live chicken per 100 pounds of feed. Other poultry publications are available from your county Extension office.

TABLE II

FEED COST OF PRODUCING A POUND OF LIVE BROILER<sup>1</sup>

Feed conversion (pounds of feed per pound of live broiler) (a)	Cost of feed per pound of live broiler (c) at indicated cost of feed per 100 pounds (b)										
	\$5.50	\$5.25	\$5.00	\$4.75	\$4.50	\$4.25	\$4.00	\$3.75	\$3.50	\$3.25	\$3.00
2.8	15.40	14.70	14.00	13.30	12.60	11.90	11.20	10.50	9.80	9.10	8.40
2.7	14.85	14.18	13.50	12.83	12.15	11.48	10.80	10.13	9.45	8.78	8.10
2.6	14.30	13.65	13.00	12.35	11.70	11.05	10.40	9.75	9.10	8.45	7.80
2.5	13.75	13.13	12.50	11.88	11.25	10.63	10.00	9.38	8.75	8.13	7.50
2.4	13.20	12.60	12.00	11.40	10.80	10.20	9.60	9.00	8.40	7.80	7.20
2.3	12.65	12.08	11.50	10.93	10.35	9.78	9.20	8.63	8.05	7.48	6.90
2.2	12.10	11.55	11.00	10.45	9.90	9.35	8.80	8.25	7.70	7.15	6.60
2.1	11.55	11.03	10.50	9.98	9.45	8.93	8.40	7.88	7.35	6.83	6.30
2.0	11.00	10.50	10.00	9.50	9.00	8.50	8.00	7.50	7.00	6.50	6.00

<sup>1</sup>(a) X (b) = (c).

TABLE III  
EFFECT OF FEED CONVERSION ON INCOME

Feed conversion (pounds of feed per pound of live broiler)	Weight of broiler per 100 pounds of feed	Added weight of broiler per 100 pounds of feed	Value of extra broiler weight per 100 pounds of feed at indicated live-weight selling price per pound
	Pounds	Pounds	\$0.16 \$0.15 \$0.14 \$0.13 \$0.12 \$0.11 \$0.10
2.8	35.71	1.33	21.28 19.95 18.62 17.29 15.96 14.63 13.30
2.7	37.04	1.42	22.72 21.30 19.88 18.46 17.04 15.62 14.20
2.6	38.46	1.54	24.64 23.10 21.56 20.02 18.48 16.94 15.40
2.5	40.00	1.67	26.72 25.05 23.38 21.71 20.04 18.37 16.70
2.4	41.67	1.81	28.96 27.15 25.34 23.53 21.72 19.91 18.10
2.3	43.48	1.97	31.52 29.55 27.58 25.61 23.64 21.67 19.70
2.2	45.45	2.17	34.72 32.55 30.38 28.21 26.04 23.87 21.70
2.1	47.62	2.38	38.08 35.70 33.32 30.94 28.56 26.18 23.80
2.0	50.00		

organism by vaccination is cheap insurance against costly disease losses. The poultry company has a recommended vaccination program specifying the time to vaccinate and the type of vaccine to use. The producer should have facilities available for quick effective administration of vaccines. The producer can become very effective in identifying a disease problem in the flock and reporting promptly to the company. This effectiveness can come by close observance and discussion with the serviceman when he is engaged in identifying diseased birds and diagnosing diseases.

### Insects

Internal and external parasites can be a real threat to the broiler flock, however, neither is hard to control.

Internal parasites problems are taken care of in the company's regular medication program. If there is an internal parasite problem, it usually will be a worm infestation.

External parasites are very seldom a problem. The most common external parasites are lice, mites and ticks. Their presence will cause stress, like the loss of vigor and finally mortality. If they present a problem, control is fast and effective. Proper cleaning the house after each brood is marketed will virtually eliminate external parasites.

### Records

Record keeping is a major management practice and necessity. The record is a tool for detecting the success or failure in the

business as it progresses. The record will tell where management is effective and where changes need to be made. With a well kept record, one can determine to a satisfactory degree in which direction the business is headed. The record should be kept up to date and should contain actual, accurate, factual information. Charts are provided by the producer for most of the vital information that needs to be recorded. This provision of record chart is for the processor's and the producer's information. There is other information that the producer may need to keep. Provisions for additional records should be provided by the producer for his benefit. These records should be studied by the producer at the end of each marketing period. They may be used as a guide for future production.

The record should contain the following information: the date the brood was started, and the date they were picked up for marketing. The record should show a daily mortality count and a weekly mortality total. This is important in that the producer will know how many birds he is feeding at any given time. This record is also necessary in determining the feed being consumed per bird, and at weight period, a feed conversion determination can be made. Table number I estimated growth and feed consumption rates, and may be referred to for calculations. The mortality record will also provide information on any excessive loss of birds. Other sections of the record may point out the cause for

any excessive losses.

The feed record is important in that it will provide information on the pounds of feed used at a given time and is a necessary factor in computing feed conversion. Table II, showed feed cost for producing a pound of live broiler, may be referred to for this computation. The feed weights should be recorded and totaled at each delivery.

### Weight

Weight of the birds at any given time may be important in calculating feed efficiencies. A number of birds should be weighed individually and the average weight calculated. To implement the weighing of the birds, a penion flat top scale may be attached to a flat board and placed on the floor with the birds. The birds will constantly move on and off the scales. Each bird weight can be recorded. The age of the bird along with the weight and feed consumed will provide vital factors for determining progress and management information.

### Temperatures

Any adverse temperatures should be recorded. This information should provide the degrees of temperature, the date and the length of time this degree prevailed.

### Medication

Record should be kept on medications. This record should

provide the date medication was given, the kind of medication and for what purpose it was given. A normal preventative medication program is set up in the management plan for use by the processor. These dates and kinds of medications should be pasted on the chart in advance in order not to overlook them. Records of any stress periods should be kept. A stress may be defined as any abnormal condition in the environment such as extreme heat or cold, sudden darkness, or any prolonged fear, any of these conditions will have an effect on the eating and drinking habits of the flock.

Record keeping may also provide a source of training for family members, especially the children. This may provide incentives for careers in many areas, such as bookkeeping, clerks and even business adventures. Record keeping may be used as a project in 4H Clubs and Future Farmers of America programs. Record keeping is a vital economic factor in every day living.

#### Marketing: Prices

The price received from the processed product largely determines whether an operation is successful or not. Supply greatly affects prices. To try to anticipate the price one will need to consider such factors as number of broiler breeders tested, the number of breeder pullet replacement, number of eggs set, number of chicks placed, extent of government buying and competition of turkeys and other meat products. The number of breeders tested is

an indication of what may happen in twelve months; eggs set, three months; the pullet replacement six or seven months ahead; and chicks placed nine to ten weeks. The effects of the first two factors may be influenced if lots of pullets are brought in earlier than usual. The breeder hens are kept longer than usual and less floor space is allowed per breeder in the house.

The farm price use for setting the grower contract may be based on the quoted price for broilers from the Federal-State Market news Service for the particular area. In the case of the integrated operation, it may depend on what the processor gets when he sells. Price may not be considered in a contract. The trend is away from farm base calculation to ready-to-cook prices.

### Marketing Cycle

Normally, the demand is a third greater for broilers in June and July than in the Fall. The least demand is usually around Thanksgiving and Christmas, when turkeys, roasters, and capons are often preferred. The consumption tends toward smaller broilers in the summer and larger ones in the fall and winter. Most broiler operators recognize the seasonality of demand and plan accordingly. Consideration is being given to freezing some birds in the August-to-December period for sale during the January-to-June period, when prices have been as much as seven per cent higher. Two factors retard this trend, the higher cost of preparing frozen birds and the consumer's resistance to them. The consumer may buy a chilled



bird, take it home and freeze it, but he resists buying the frozen broilers when chilled, icepacked ones are available.

Processing, including evisceration, is done in the area where the broilers are produced. The ready-to-cook broiler-fryers are icepacked or dry chilled and shipped in fresh form in wholesale quantities by refrigerated trucks to market. The broiler cutting is being shifted from the retailer to the processor, where packs are sized to the specification of the buyer, marked as to weight, and, if desired, prepriced.

Arkansas broiler markets are located in Jacksonville, Miami, New Orleans, Dallas, Chicago, St. Louis, Omaha, Salt Lake City, Los Angeles, San Francisco, and Seattle.

### Income

There are many plans used to share the profits or losses between the producer and the processor. There are no provisions in the contract for price or income, because prices of the product at the time of sale determines the returns to the producer and processor. In most contracts, the producer is guaranteed a reasonable return for his land, building and equipment, if there is a loss. His labor may be loss along with the processor's loss on investments where a loss occurs.

Most Arkansas processors use the "Point Spread" or the "Production Efficiency" index to compute the net income from the sale. The net income is shared on a 50-50 per cent bases. The point spread system is usually the more satisfactory criterion of the

worth of a feed than feed cost per pound. The reason is that it takes rate of growth into consideration. Point Spread is the weight in pounds times 100 minus the feed conversion times 100. For example, if the average weight is 3.33 pounds, the weight factor is 333. If the feed conversion is 2.40, the feed conversion factor is 240, and the point spread is 333 minus 240, or 93. Its usefulness is limited because it becomes relatively greater as the broilers get older.

Income over feed cost per broiler is affected by quality of the bird, growth, and feed conversion. The income is obtained by multiplying the weight, 3.33 pounds, by the selling price. If it is assumed that the average weight is 3.33 pounds and the feed cost is \$4.50 per hundred pounds, the feed cost per broiler is obtained by multiplying the weight 3.33, by the feed conversion by the assumed feed cost of \$4.50. The difference is the income over feed cost. For example, at 13 cents per pound, the 3.33 pound broiler gives an income of 43.29 cents ( $3.33 \times 13$ ). If there is a 50 point spread, the feed conversion is 2.83, and 3.33 times 2.83 equals 9.42 pounds of feed per broiler. At \$4.50 per hundred weight, the feed cost per bird is 42.39 cents ( $9.42 \times 4.50$ ). The income over feed cost per broiler is 0.90 cent ( $43.29 - 42.39$ ). As would be expected, the income increases with the selling price - 3.33 cent per bird for each cent increase in selling price. Without contract payments, feed approximately 71 per cent of the total cost of the broiler.

With contract payments, the total cost per pound is approximately 1.6 ( $100 \div 62.4$ ) times the feed cost per pound, and the nonfeed per cent of the total cost is about 37.6. With a feed cost 9.9 cents per pound, the total cost becomes 15.84 cents and the nonfeed costs 5.95 cents, (37.6 per cent of 15.84) per pound. It is necessary to relate average body weight sold and feed conversion with the price paid for the feed.

In Table III, the effects of feed conversion on income can be observed.

The Ashley County Arkansas Agriculture Extension Service Farm Management Agent made a survey and study of ten poultry farms in the county. The purpose of the study was to determine the extent of proper records and what effects records would have on management income. This study also included the income received from production in 1969. The writer is interested in this record in order to further emphasize the income from broiler production. The ten families studied had production capacities from twelve thousand to thirty six thousand. They also were considered the average producers. Their experiences in broiler production ranged from two to eleven years. Each producer, produced four and one half broods in 1969. Their income ranged from 5.5 cents to 6.9 cent per bird. In most cases, the producers with longer production experience usually produced a better quality bird at less cost and received a higher net income.

### By-Product at the Farm

Poultry litter for pasture fertilizer. Chicken litter is a valuable by-product of broiler production. This is a product that the farmer has all of the control over. A news article from the Arkansas Poultry Producers Association Newsletter of January, 1968 made the following statement about value of chicken litter sold at the farm: "From a twelve thousand capacity house, one hundred and twenty tons of litter is produced in one year. Litter sold at the farm usually sells for \$4.00 per ton. One hundred twenty tons will bring cash receipts of \$480.00 per year."

Chicken litter is rated as one of the best sources of fertilizer for farm pastures. Four tons of chicken litter per acre every two years on well seeded pasture will raise the pasture production to the capacity of maintaining three animal units per acre. This means that small farmers producing broilers can utilize the litter to produce three head of cattle per acre instead of one. By utilizing very small acreage in manner, another profitable project can be added to the farm. This will also further utilize family labor and raise the supplement to the family income.

### Poultry Litter as a Feed Supplement for Cattle

Poultry litter, a by-product of the Arkansas poultry industry has also been shown to have value both as a source of roughage and protein for feeding beef cattle. In many areas of the state, litter has proven to be a very economical roughage source. Large

differences in value of chicken litter occurs however, due to the different kind of base materials used in broiler houses. Litter containing cane bagasse (serval), rice hulls and straw, seems to be the most desirable but many cattle producers have obtained good results feeding poultry litter containing wood shavings and sawdust.

Early Arkansas studies show that the nitrogen content of broiler litter can be used to supply protein needed in beef cattle rations. More recently, litter has been shown to also have feed value as a roughage. Litter has been used as the only roughage in finishing and in wintering rations for beef cattle. Feeding poultry litter to cattle has little appeal to many producers, however, rumen microorganisms convert this material into desirable nutrients which are well utilized by cattle. Possibly poultry litter will be used to an even greater extent in the future to produce beef more efficiently. Several Ashley county Arkansas broiler producers maintain their herds through the winter months on poultry litter as their protein supplement. Your county Agricultural Extension office will supply information on the use of litter as a feed supplement. The Univeristy of Arkansas Experiment Stations are presently making studies on ways to better utilize poultry litter in beef production

## CHAPTER IV

### SUMMARY, CONCLUSIONS, AND RECOMMENDATION

#### SUMMARY

Information for developing this paper was compiled through personal farm visits and interviews. From review of records in county government offices, chamber of commerce, census records, state and national review of previous studies made in the field. Review of literature in rural economics and sociology.

Ashley County is located in the southeast corner of Arkansas. The county consists of 597,120 acres of land area. Of this land area, one third is in crop land and two thirds is in forest land. There are 788 farmers in the county. The average size of farms are 228 acres. The county consists of 25,000 people of which 66 per cent is white and 34 per cent is nonwhite. The average educational level of the population is six and one half years. There are 466 farms with sales of products from the farm of less than \$2,500.00.

The major crops are soybeans, cotton and rice. Minor crops are pink wrap tomatoes for fresh market, broilers, beef cattle and feeder pigs. The minor crops are generally produced to supplement farm income and utilize family.

Utilization of family labor has proven to be a vital source of supplement for the family income.

In making an analysis of data for an enterprise that would utilize family labor and increase income, it was necessary to provide information on steps to follow.

A prospective broiler producer should make contact with the processor to determine the need for more production. He should check the credibility and stability of the processor. The terms of the company contract should be investigated. There are agencies in the county that will give assistance in making a thorough investigation into the possibilities of producing broilers. It is very necessary that one knows what resources he may own that are available to be used in the business. Some important resources are; land, family labor and capital.

The size of the operation should be large enough to be feasible and fully utilize the family labor. The operation should be large enough to meet the requirements of the processor, with regard to servicing the operation.

Future expansion should be planned. In planning for the future one should consider what the family labor force will be. Financing the operation will be a factor in determining the size of operation. An inadequate amount of finance may be more harmful than no financing at all. Additional finances will usually cost more than the first, that is, if it can be obtained.

The Arkansas poultry research service recommends a minimum capacity of 12,000, and plan for increasing later.

Plans for construction and equipping the unit should be

obtained. These plans should be approved by the processor. The processor has specifications on construction and equipment.

Once the plans are approved, contact should be made with building contractors. Several contractors should be contacted to make bids on construction. This will make competitive bargaining. All major services by contractors and other hired labor should be negotiated.

Financing the program is the next step. A prospective producer should know how much financing is necessary. A thorough record of all items involved should be made. The description and prices should be recorded. The producer's assets and liabilities should also be on the record. This type of record should be presented to the lending agency on first contact.

Some lending agencies available are local banks, local businesses, production credit associations, Federal Land Bank, Farmers Home Administration, and Insurance companies. Make a thorough study of each lending agency as to rate of interest and time of payment.

Location of the plant is important. The plant should be located in easy reach from the homestead. Roads should be planned for easy access to the plant. The construction of the unit should be for durability. The building should be inspected at several stages of construction. Not more than 60 per cent of the cost of construction should be paid before completion.

A production contract should be made with the processor. All



terms in the contract should be understood. The producer and processor should know the responsibility of both parties.

Management of the flock will determine the success or failure of the business. The processor's field representative is the best available source of information on managing the flock.

Brooding the flock is important from the first moment the birds are placed until they are crated for shipment.

Some important management factors in brooding are, feeding, disease and insect control, records and marketing.

It is essential to have a comfortable environment when the birds arrive. Feed and water should be available and accessible. The temperature should range from 95° at one day down to 75° F as they grow older. All surroundings should be kept clean, including the floor litter.

Feeding can be the most expensive item in the production process. Since returns from the business is based on a great degree on the conversion of feed to live weight, all feed must be consumed by the birds. Feed can be wasted to the extent of reducing returns without being noticed in the process. Unless the feeder of the flock is aware of this waste, great loss may occur between the feed bend and the feed trough. Troughs should be adjusted to prevent waste by the birds. Twelve to fifteen thousand birds can waste a ton or more of feed without the producer noticing the waste.

Disease can wipe out a flock. The processor, with great care,

will provide medication and a program of disease prevention. This program should be studied and followed carefully. Report to the field representative any suspicions of disease in the flock. Sanitation in the brooding unit is one of the best preventative measures a producer can practice.

Internal and external parasites can be a real problem. The processor usually provides a program of prevention for internal parasites. This program should be carried out along with other preventative practices. External parasites are less likely to be a problem. However, the flock should be checked weekly.

Record keeping is a major management practice in the business. Well kept records can reveal the status of the business at any given time. Analysis of records may reveal strong and weak points in the management of the flock. Records should be kept promptly and up to date. The record keeping responsibility may be delegated to one member of the family. Record keeping may also provide a source of training for children in the family. This record could be a 4H Club project.

Marketing is primarily a function of the processor. The processor crates and transports the birds to the processing plant. They are processed and sold at current market prices. Current prices may be obtained from the federal-state marketing news service, for the particular area. As with other products, supply and demand influence the prices.

There is no provision in the contract for price nor income. Some contracts may provide for a reasonable return to the producer for land, building and equipment if a loss occur.

Most Arkansas processors use the production efficiency index to compute net income from the sale. The net income is shared on a 50-50 bases. A survey of ten broiler farms was made in 1969 to determine the income from broiler production. Producers received income ranging from 5.5 cent to 6.9 cents per bird. The average income per farm based on a minimum unit of 12,000 square feet capacity was 6.2 cents per bird or \$4,092.00 for the year, 1969.

Broiler litter is a profitable by-product of the broiler farm. Litter can be sold commercially at the farm. Returns from litter sold on the minimum unit is around \$480.00 per year. If used on the farm as a pasture fertilizer, it can increase production by 300 per cent. Poultry litter is being fed to beef cattle as a protein supplement. This supplement is used for maintaining herds and feeding fat calves.

#### CONCLUSIONS

There is a growing need for more family income to support the family living expenses and to educate the children. In many cases, in the forestry area of the county, only the father works in the wood harvest or one of the wood processing plants. Usually these families are large which further complicates the problem. There are from one to as many as thirteen members of the family that are

not employed, because the forestry industry has no need for this type of labor. Unemployed family labor will work if work is available. As a result of this study, the writer is convinced that broiler production is a profitable way to utilize family labor. In this kind of project, any family member above the age of six years can contribute.

With the type of management advice provided by the processor to the producer, families with below average management abilities can produce broilers successfully. There is also an element of training for the family in the broiler business. The field representative makes weekly visits to the farm and takes as much time as necessary to advise on management practices. Both the producer and company have a large investment involved that must be protected. A successful producer can increase the family income to the extent of providing a college education for the children. If there is at least one acre of additional land in the farm, a small beef cattle project may be started. Poultry litter used on pasture as a fertilizer will usually increase grass production by three hundred per cent. Poultry producers feel that broilers are important to the beef cattle production.

The writer feels that there is a need for other projects with smaller initial cost that may be useful in utilizing family labor. Projects such as vegetable and feeder pigs for commercial sales have been a profitable labor utilizer.

## RECOMMENDATION

It has been proven by broiler producers in Ashley County that broiler production is a profitable way to utilize family labor and increase family income.

The writer recommends that the Agricultural Extension Service Vocational Agriculture, and other interested agencies make special effort to inform low income families of opportunities and services that are available to help them to help themselves. These people usually cannot be reached through normal channels. A planned approach is necessary.

The writer recommends that low income families with unproductive family labor, investigate the broiler business to see the possibility of becoming involved in it.

The low income family with small acreage and extremely limited resources other than labor, consider some low initial investment projects such as feeder pigs, small laying flocks and commercial vegetables on a small scale.

It is recommended that Agricultural Extension agents and local merchants contact produce buyers for contract growing of vegetable crops in the community.

There is a source of credit in Farmers Home Administration for low income families to assist them in increasing their income. This credit is available without collateral. F. H. A. is authorized by the Secretary of Agriculture, directory of 1966, to

make public this action. It is recommended that county F. H. A. officers make the necessary effort through local shows and radio to inform the public of this aid. Public service time in the news media is available for such announcements.

The writer recommends that every broiler producer with at least one acre of land in addition to the broiler unit, will seed and fertilize this acreage with chicken litter. To secure at least two beef cattle per acre or secure enough brood beef animals to grow at least two animals per acre.

The writer recommends that further study be made into the problem of utilization of family labor on small low productive farms.

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