AN ECONOMIC EVALUATION OF ALTERNATIVE SHEEP PRODUCTION SYSTEMS IN OKLAHOMA

By

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CHAPTER I

THE RESEARCH PROBLEM

Problem Statement

Farm managers face an ever-changing multi-faceted decision making environment. Choices are made which resolve conflicts among goals and preferences subject to resource limitations, personal restrictions, and information availability. Agricultural producers are better able to make sound economic plans in their uncertain world when they consider and evaluate a variety of production alternatives. Although agricultural operations statewide are diverse, the predominant enterprises in Oklahoma are wheat and cattle, causing farm incomes to be highly dependent on wheat and cattle prices. Economic analyses of other enterprises might point out profitable alternatives and a need to break from traditional activities when cattle and wheat are earning low returns.

Nationally, increasing gross returns and favorable incomes have renewed interest in sheep production. In 1979, cash receipts from sales of sheep, lambs, mutton, and lamb plus the value of sheep and lambs slaughtered for home consumption were estimated at 495 million dollars, up 24 percent from 1977 (U.S. Department of Agriculture, 1980a). The number of sheep and lambs in the U.S. had been decreasing by almost one million head per year since 1960 until 1978 when the trend slowed. Preliminary statistics in the U.S. for 1980 indicated the first increase in total sheep and lamb inventories in almost

20 years. Stock sheep numbers increased 2.3 percent from 1979 to 1980 reversing another apparent trend. The number of sheep and lambs shorn was up though the pounds of wool per fleece continued to drop.

Sheep and lamb values per head have generally risen since 1965 causing total values of sheep production to increase even as the number of head produced declined. The value per head of U.S. sheep and lambs was $16.00 in 1965 and $77.90 in 1980. Sheep prices increased more from 1978 to 1979 than did lamb prices, perhaps reflecting the increase in demand for stock sheep as flocks were expanded. Wool prices (average price per pound received by farmers) have not shown an upward trend, but at 86.3 cents per pound were at the highest level ever in 1979. The government wool price support level has risen over time to $1.30 per pound.

Costs of producing sheep have also increased. National average production costs in 1979 were up 15 percent above 1978 costs (U.S. Department of Agriculture, 1981h). Production costs vary significantly from farm to farm due to differences in systems and intensity of production, sizes of operations, and managerial skills of individuals. Commercial sheep production in the western states is very different from that found in Oklahoma. Questions concerning the feasibility of alternative breeding systems, flock sizes, and management schemes given Oklahoma conditions are raised.

Some Oklahoma wheat producers have found ewe lambs and winter wheat a profitable combination and many farmers raise sheep on a part-time basis. Oklahoma farm managers need information about sheep production resource requirements, returns, risks, and uncertainty so that the income potential of commercial sheep production can be

evaluated. Improved systems of sheep production and management might increase returns to the sheep enterprise and enhance its competitiveness with other enterprises. Extension personnel need this same economic information to present to interested sheepmen and livestock producer groups.

Background of Study

Sheep Production in Oklahoma

Sheep and wool production has not been a major enterprise on farms in Oklahoma. Sheep and wool has ranked sixthteenth in value of production of crops and livestock within Oklahoma for the past several years (Oklahoma Crop and Livestock Reporting Service, 1981). In 1980, sheep and wool production was assessed at approximately three million dollars. Oklahoma Agricultural Statistics 1980 indicated 2,100 of Oklahoma's 66,000 farms as having sheep and lambs; thus, 3 of every 100 farms produce sheep and lambs. According to the 1974 Census of Agriculture, approximately one-half of the farms with sheep had flocks of 1 to 24 head but these small flocks accounted for only five percent of the total sheep inventory. The 53 farms (five percent of the farms with sheep) reporting inventories of more than 300 head per farm had more than half of the reported sheep.

Oklahoma ranks twenty-seventh among the states in sheep inventory (Oklahoma Crop and Livestock Reporting Service, 1981). Sheep numbers on farms and ranches in Oklahoma declined from 1971-77 and after the low of 72,000 head in 1977 increased to 95,000 head in January, 1981. Stock sheep one year old and older have increased since 1977 from 49,000 head to 64,000 head in 1981. Oklahoma's lamb crop as a percent of

ewes one year old and older is higher than the national average lamb crop at 109 percent (U.S. Department of Agriculture, 1980a). Eighty-nine thousand Oklahoma sheep were shorn in 1980. Their fleeces averaged 7.2 pounds, 0.8 pounds less than the national average. Wool produced in Oklahoma during 1980 totaled 645,000 pounds.

Sheep Marketing in Oklahoma

Oklahoma sheep marketings were highest in 1976 at 20,000 head and had dropped to 10,000 head by 1980. Lamb marketings decreased from 103,000 head in 1971 to 44,000 in 1977 then increased to 47,000 in 1980. Sheep and lambs on feed have increased to 15,000 head in 1981. Marketings of all sheep and lambs have been near 5.9 million pounds for several years. Because of the relatively low volume of sheep production and sales in Oklahoma, there are few in-state markets. Most commercial sheep are sold for slaughter or resale in either Texas or Kansas.

Receipts from sheep and lamb marketings and from sales of farm slaughter totaled $3.1 million in 1980. The average value of sheep and lambs was highest in 1980 at $73.50 per head. Sheep prices were $15.00 per cwt and lamb prices were $62.00 per cwt, both down from highs in 1979. Sheep prices in Oklahoma have generally been lower than national average prices as have lamb prices (except in 1979) and wool prices. The state average wool price remained the same for 1980 ($0.75 per lb).

Purpose of Study

The intent of this study is to investigate the economics of

commercial sheep production in Oklahoma. Specifically, the objectives are:

1. Calculate the costs and returns of alternative breeding systems, lambing times, and flock sizes.
2. Compare the profitability of sheep production activities with other conventional activities on a representative Oklahoma farm.
3. Examine income sensitivity to changes in resource prices and percent lamb crop.
4. Determine the effect of sheep enterprises on labor and capital utilization.
5. Assess the value of sheep production on a diversified farming operation.

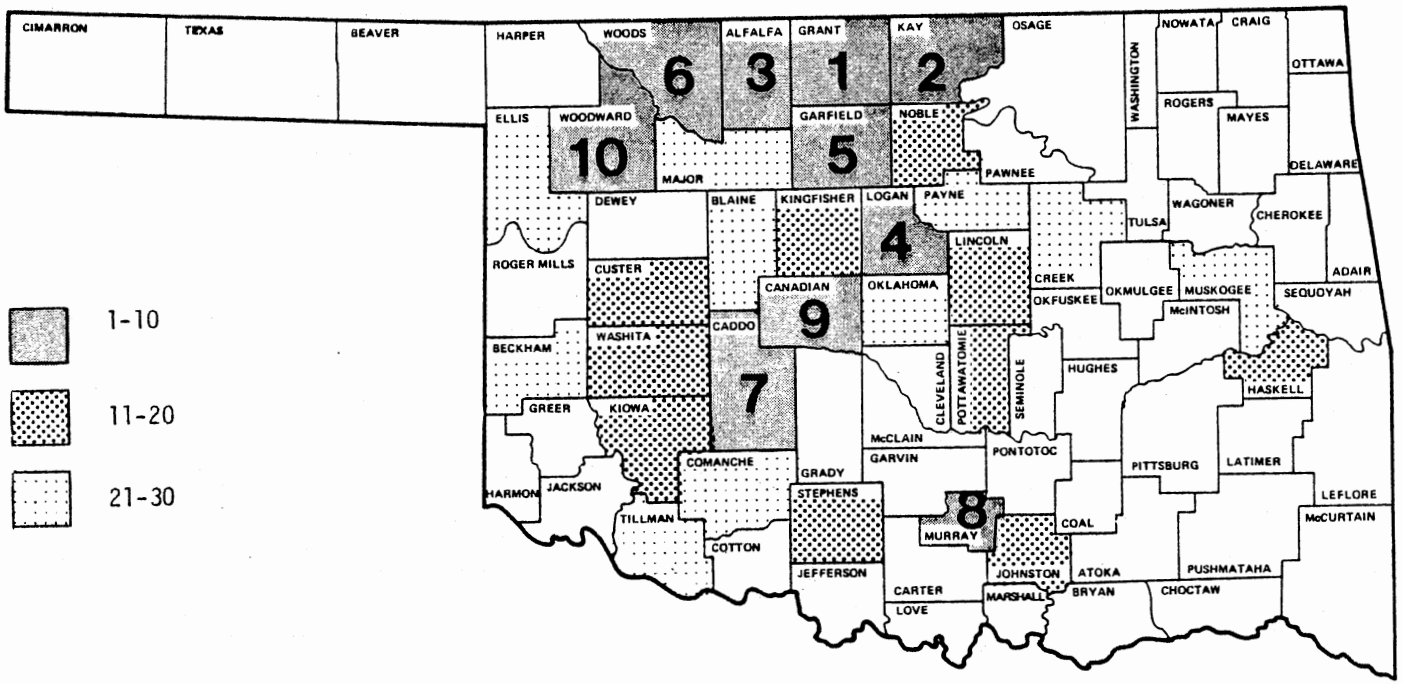
Limitations

Area of Study

Oklahoma's sheep and lambs are concentrated in much the same area as wheat production, the north central district of Oklahoma (Woods, Woodward, Major, Alfalfa, Grant, Kay, Garfield, and Noble counties). It contains the top six counties ranked by sheep and lamb inventory numbers, and all eight counties in the district are ranked in the top 30 (Figure 1). The north central district likewise contains five of the top six wheat producing counties and all eight counties in the district are ranked in the top 30 (Figure 2). This study focuses on the economics of commercial sheep production in the north central district of Oklahoma.

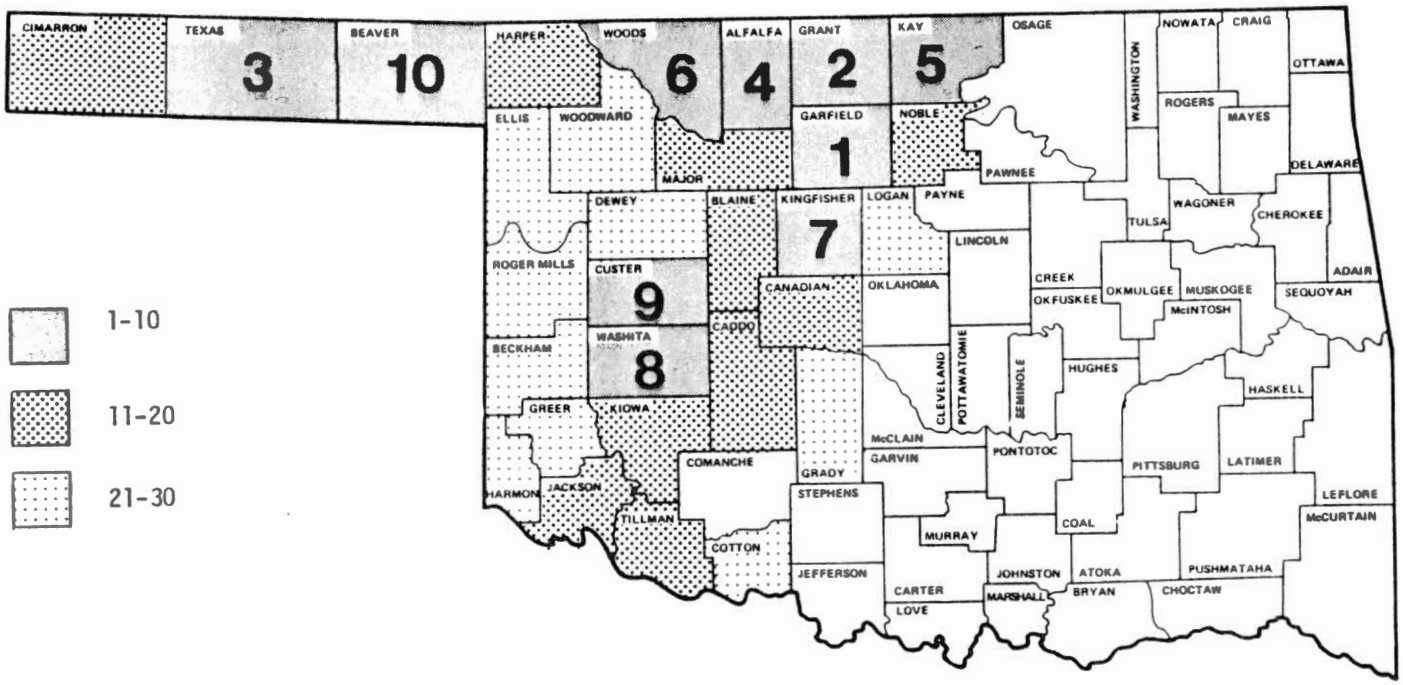
Budget Specification

Eighteen budgets incorporating three different flock sizes, three lambing times, and two management systems will be developed.



Source: Oklahoma Crop and Livestock Reporting Service, Oklahoma Agricultural Statistics 1980.

Figure 1. Sheep and Lambs in Oklahoma, January 1, 1981--County Standings Ranked by Inventory Number with Top Ten Shown by Number Within County.



Source: Oklahoma Crop and Livestock Reporting Service, Oklahoma Agricultural Statistics 1980.

Figure 2. Wheat Production in Oklahoma (1980)--County Standings Ranked by Production with Top Ten Shown by Number Within County.

These budgets for Dorset/Rambouillet ewes and Hampshire/Suffolk rams are:

1. 500 ewe system, fall lambing, easy care management (FLEC)
2. 500 ewe system, fall lambing, intensive management (FLIC)
3. 500 ewe system, winter lambing, easy care management (WLEC)
4. 500 ewe system, winter lambing, intensive management (WLIC)
5. 500 ewe system, summer lambing, easy care management (SLEC)
6. 500 ewe system, summer lambing, intensive management (SLIC)
7. 150 ewe system, FLEC
8. 150 ewe system, FLIC
9. 150 ewe system, WLEC
10. 150 ewe system, WLIC
11. 150 ewe system, SLEC
12. 150 ewe system, SLIC
13. 25 ewe system, FLEC
14. 25 ewe system, FLIC
15. 25 ewe system, WLEC
16. 25 ewe system, WLIC
17. 25 ewe system, SLEC
18. 25 ewe system, SLIC

The three flock sizes were chosen so that economies of size or diseconomies of size might become apparent and so the feasibility of full and part-time sheep operations could be compared. Three lambing times were used to demonstrate differences in returns due to seasonal variations in physical potential and economic conditions. Differences in returns among seasons result from differences in ovulation, conception, and death rates as well as differences in lamb and sheep

prices and feed costs.

Since productivity is primarily affected by the genetic potential of the breeding stock and the care of the flock, management plays a critical role. Easy care management is defined as the traditional method of raising sheep on pasture with limited facilities and little close supervision. Intensive management systems (IC) achieve greater sheep production per ewe through larger investments in labor, feed, and facilities. The IC system assumes that operators specifically select for higher reproduction and performance traits by keeping production records and purchasing quality replacements. Death losses are lessened with closer supervision, predator control, and practices such as penning the flock at night. Sheds and lambing pens are standard equipment in IC budgets to facilitate close supervision when needed, as when lambing.

No attempt is made to develop budgets for accelerated lambing programs, i.e., twice-a-year lambing, since it has not proven practical in agricultural experiment station tests (Whiteman, 1981b; Dzakuma, 1980). No extremely "innovative techniques--including inducing estrus multiple ovulations, daytime or early parturition or early puberty; hand mating; artificial insemination; fertility testing--were built into the budgets since they have not been widely adapted. Most of those "innovative" practices are costly and require special skills and much more labor. Needed hormones, equipment, information, and other essentials are not readily available.

Procedures

With the assistance of Oklahoma State University animal scientists,

extension personnel, and experienced producers, enterprise budgets will be developed to show costs and returns of alternative breeding systems, lambing times, and flock sizes. Separate budgets for a labor intensive breeding system and an easy care production system as well as for fall, winter, and summer lambing will be produced so that the profitability of each can be determined. Budgets will be altered to compare several flock sizes between 25 and 500 ewes. Data on production, operating inputs, and machinery, equipment and labor requirements relevant to the sheep enterprise on Oklahoma farms will be incorporated into the budgets.

These budgets will be used with existing Oklahoma State University budgets for other farming enterprises to build a linear programming (LP) model of a representative north central Oklahoma farm. The model will be used to generate optimal activity combinations given alternative revenue ratios or resource combinations. Output from the model will indicate conditions under which sheep enterprises compete favorably with conventional activities on Oklahoma farms. Price and net revenue ranges listed in the LP output will be interpreted to determine the solution's sensitivity to changes in input or product prices.

The LP model will be expanded to achieve the remaining objectives. Different levels of labor and capital will be used as inputs to demonstrate the effect of resource availability on enterprise selection. Parametric programming will be used to find the range for inputs over which the shadow price for the resource will hold and the range over which prices of outputs may vary without changing the optimal solution.

CHAPTER II

ECONOMIC THEORY AND LITERATURE REVIEW

The basis for this analysis of commercial sheep production in Oklahoma is production economics, a subset of microeconomic theory. Budgeting and LP are mathematical tools used in applying theory to economic problems. A brief discussion of economic theory and the principles underlying budgeting and LP points out the usefulness and limitations of the tools in "real world" applications.

Theory

Henderson and Quandt (1980) define economics as a social science which covers the actions of individuals and groups of individuals involved in producing, exchanging, and consuming goods and services. Resources and techniques are means for achieving societal goals: welfare maximization, growth, efficiency, or equity (Leftwich, 1979). Production economics integrates the study of values and technical efficiency, normative and positive aspects of production, at the firm level. Theory is used to determine the quantities of inputs purchased and output sold where the prices of goods bought and sold are given parameters and individuals earn their incomes by selling factors of production, or outputs.

Economic Problems

Theoretic economic problems (factor-product, factor-factor, product-product) are generally solved in a static context. The system is made static by fixing the production and utility functions, specifying the institutional setup, and assuming instantaneous decisions. Random elements are eliminated by assuming producers and consumers are rational and possess perfect knowledge. Consumers are motivated to maximize satisfaction while producers seek to maximize profits. Both technical and price information are needed to enumerate production problems.

Production functions show the technical relationship between inputs and outputs per unit of time assuming optimal use of the inputs:

$$Y = f(X_1 | X_2 \ . \ . \ . \ X_n) \tag{2.1}$$

where Y is output, X_1 is a variable input, and X_2 through X_n are fixed inputs in the production process. Resource use is technically rational when resources cannot be rearranged in any way to give a greater product for the same set of resources (i.e. the producer is on the production function) and resources cannot be rearranged in any way to give the same product with a smaller outlay of any input (Heady, 1952). Technically irrational production may occur when resources are non-divisible or limited or when imperfect knowledge exists.

Prices of resources and products, along with the production function, determine the profitability of production:

$$\pi = P_y * Y - (Px_1 * X_1 + Px_2 * X_2 + \ . \ . \ . \ Px_n * X_n) \tag{2.2}$$

where π is profits, P_y is the output price, Y is output, Px_i is the input price associated with input i at level X_i. The product price multiplied by the output level gives total revenue. The sum of the

input prices times the input level is total costs (variable costs plus fixed costs). The profit function can be rewritten as:

$$\pi = TR - TC \tag{2.3}$$

where π is profit, TR is total revenue, and TC is total costs. Producers will operate in the short run if variable costs can be recovered and will continue operating in the long run if both variable and fixed costs can be recovered.

Factor-product problems concern the allocation of one input among two or more alternative uses. Input supply is constrained so the input will be used in producing output yielding the highest returns, an economic principle related to opportunity costs. The efficient combination of resources is least-cost and occurs when the law of diminishing returns is operating for each resource.[1] Inputs will be added so long as the value of the resulting output or additional returns is greater than the added costs, that is, up to the point where marginal value product (MVP) is equal to marginal cost (MC). In mathematical notation:

$$\frac{\partial Y_j}{\partial X_i} = \frac{P_{xi}}{P_{yj}} \tag{2.4}$$

where $\partial Y_j / \partial X_i$ is the partial derivative of the production function for Y_j with respect to the variable input X_i, Px_i is the input price, and Py_j is the output price. The marginal physical product (MPP) of the i^{th} factor in producing the j^{th} product is diminishing.

Factor-factor problems are resolved by finding least-cost resource combinations for production of one output. One input is substituted for another as long as the cost of the added input is less than the cost of the input which is replaced while the output level is maintained.

In equilibrium:

$$\frac{\partial X_{ij}}{\partial X_{kj}} = \frac{Px_k}{Px_i} \tag{2.5}$$

where $\partial X_{ij} / \partial X_{kj}$ is the marginal rate of substitution (MRS), of input X_i for input X_k in the production of output j, Px_k is the price of input X_k, and Px_i is the price of input X_i. The equilibrium condition requires that the MRS of X_k for X_i be decreasing. Ratios of the MVP of input X_i in the production of j to the price of X_i and the MVP of input X_k in the production of j to the price of X_k are equal.

In product-product problems, no input prices are involved in choosing which of two products to produce with given resources. One product is substituted for another as long as the value of the added output is greater than the value of the output which is replaced and costs are constant. Mathematically, the equilibrium condition states:

$$\frac{\partial Y_{ij}}{\partial Y_{in}} = \frac{Py_n}{Py_j} \tag{2.6}$$

where $\partial Yij / \partial Yin$ shows the rate of product transformation (RPT) between products j and n using resource base i, and Py_n and Py_j are prices of the two outputs, n and j.

Generalized Production Equilibrium Conditions

Producers seeking to maximize profits are confronted with problems more complex than the single factor-product, factor-factor, or product-product cases. Generalized equilibrium conditions for the multiple factor-multiple product case with all factors variable are:

$$1.\quad \frac{\partial Y_j}{\partial X_i} = \frac{Px_i}{Py_j} \qquad \text{for all i and j,}$$

$$2.\quad \frac{\partial X_{ij}}{\partial X_{kj}} = \frac{Px_k}{Px_i} \qquad \text{for all } i \neq k,$$

$$3.\quad \frac{\partial Y_{ij}}{\partial Y_{in}} = \frac{Py_n}{Py_j} \qquad \text{for all j and n.}$$

When resources are limited, or not variable, they are used in production where they will give the greatest return. In equilibrium, the MVP of variable resources will equal the resource price while the MVP of fixed resources will equal the opportunity cost, or shadow price, of the resource. When problems involve different time periods and elements of risk, values used in comparison must be discounted.

Application to Farm Management

Farm operators, like other decision makers, must allocate resources, some fixed and some variable, to a manageable number of activities. A great variety of production alternatives exists and possible resource combinations approach infinity. Mathematical solutions to equilibrium conditions quickly become unwieldy and extremely complicated when more than a few enterprises are included. Agricultural economists use budgeting and linear programming techniques to facilitate economic problem solving. Continuous production functions (Eq. 2.1) are approximated by different production processes in several enterprise budgets. LP can then be used to select the enterprise combination which maximizes profits (Eq. 2.2). The LP process, a procedure analogous to calculus applied to continuous data, is applied to discrete processes described by the enterprise budgets.

Budgeting. Budgeting uses economic theory, farm records, and economic expectations in building a physical and financial plan for a farm operation for some specific period of time (Casey, Jobes, and Walker, 1977). Walker (1980) defines budgeting as the systematic evaluation of alternatives available to the farm operator. Budgets are a means of applying economic theory through use of an economic model which presupposes a specific production function. The farm or ranch plan does not record past performances but instead serves as a plan for future development and use of resources. The validity of the budget depends on the skill with which the objectives and resource base are defined and the quality of the technical data used in estimating production coefficients. Incomplete information, uncertain prices, and uncertain yields may necessitate frequent budget modification.

Schaffner (1980) lists six steps in the budgeting procedure:

1. Appraisal of the goals and objectives of the farm firm.
2. Inventory of the farm resources.
3. Selection of enterprises to be budgeted.
4. Selection of physical data to be used in the production process.
5. Selection of prices to apply to the physical data.
6. Calculation of the expected costs and returns.

Three basic types of budgets are used as tools in the farm management process: whole farm, enterprise, and partial (Jobes, 1978). Whole farm budgets are set up to help plan the organization of an entire business and the budgets indicate net income for a given period of time. Enterprise budgets specify returns, costs, and results expected from the use of particular production practices when producing a given output. Partial budgets are used to evaluate the economic consequences

of a change in business operations. Inferences drawn from one budget may not apply to another farm having different resources. Comparisons are valid only when soils, weather, cultural practices, timing, and other factors, are similar. Unless a budget is built specifically for a farm, it may not accurately represent any one farm.

Linear Programming. Linear programming is a systematic method of selecting the most profitable farm plan from a vast number of possible soultions (Beneke and Winterboer, 1973). Three quantitative components are required:

1. A specific or numerical objective function.
2. Several alternative activities or processes.
3. Limited resources or other restrictions.

The primal problem in summation notation is to maximize:

$$z = \sum_{j=1}^{j=n} c_j x_j \tag{2.7}$$

subject to :

$$\sum_{j=1}^{j=n} a_{ij} x_j \leq b_i \tag{2.8}$$

and

$$x_j \geq 0 \tag{2.9}$$

where z is the objective, c_j is the net return of the j^{th} activity, x_j is the activity or process, a_{ij} is a technical coefficient or the amount of i^{th} resounce required to produce the j^{th} product, and b_i is the amount of resource available. Obtaining and processing data on technical coefficients is difficult when building a model for practical application on which actual decisions will be based.

The objective function in farm management problems is generally

profit maximization subject to constraints and fixed factors, but it may be any goal of an operator that can be designated numerically. An activity is defined as a particular way of combining a maximum of m variable factors for the production of a unit of output (Naylor and Vernon, 1969). Activities are one of four types: real, intermediate, disposal, or artificial. Real activities cause something to be produced, marketed, or purchased for use in production. Intermediate activities cause something to be produced in the firm and used within the firm in another product to be marketed, for instance, crops or pasture are grown on the farm for use in livestock feed. Disposal activities are included in LP problems to allow for non-use of resources and to convert inequalities into equalities in maximization problems. Artificial activities are used with activities that have minimum or equality constraints. Restrictions may be physical, institutional, or subjective and may be maximums, minimums, or equalities.

The LP model has seven basic assumptions:

1. Additivity of resources and activities.
2. Linearity of objective function.
3. Nonnegativity of decision variables.
4. Divisibility of activities and resources.
5. Finiteness of activities and resource restrictions.
6. Proportionality of activity levels to resources.
7. Single valued expectations (Agrawal and Heady, 1972).

Thus, there is no interaction among resources. If activities are used simultaneously, then quantities of outputs and inputs will be the arithmetic sums of the quantities which would be used or produced in activities performed separately. Product prices cannot be a function of

quantities sold and so the objective function must be linear if returns are to be maximized using LP. Negative activities and decision variables are nonsensical. Resources and outputs are continuous meaning that factors can be used or produced in fractional quantities. The number of activities and restrictions must be finite so that the problem can be programmed and a solution computed. Each activity is characterized by a set of ratios of quantities of factors to levels of output. These ratios are constant and independent of the usage levels in other activities and linear relationships are implicit. Therefore, resource productivity and returns to scale are constant and imply homogeneous production functions of degree one. The model is made deterministic with single-valued expectations. Perfect competition is assumed; thus, prices of inputs and outputs, technical relationships, and resource availabilities are known with certainty.

Each of LP's basic assumptions can be relaxed through variations of mathematical programming. LP's usefulness can be extended through modifications such as integer, mixed integer, parametric, and nonlinear programming. Integer or mixed integer programming can be used for problems requiring that solutions employ quantities in whole units. Parametric programming is used for sensitivity analysis when values of input-output coefficients, resource supplies, or prices of resources or products change. Nonlinear programming models are applied to situations in which the objective function or constraints are not linear and the firm faces increasing or decreasing returns to scale.

A common agricultural LP application is in selecting the optimal organization of enterprises for a farm. Heady and Dillon (1961) state that most firms are successful in allocating variable inputs within one

enterprise but that selecting enterprise combinations is done more loosely. A production possibilities frontier is theoretically formed as the program determines production possibility equations defining all possible combinations of enterprises that can be produced with the given resources and inputs. The frontier encloses the area of feasible solutions. Points along the frontier are evaluated to find the optimal combination. The solution is at the point where the feasible area just touches the highest possible isorevenue line, and ordinarily it will be at a corner on the production frontier.[2] The optimal solution may change with changes in technical efficiency or relative revenues in each enterprise, and consequently the input limitations that act as constraints may change.

Literature Review

Computerized literature searches (BRS, CAB, ABS, CAIN) produced many references of limited application to this study. Many international information sources were listed, but conditions vary so much from country to country that most are specific to a given area. Most U.S. sources were like international ones in that experimental conditions are not comparable to Oklahoma conditions, especially studies of commercial sheep production on ranges in western states. Many detailed studies of nutrition, genetic, and veterinary medicine aspects of production were more technical than was practical or feasible to incorporate into this thesis. The searches were useful in that they suggested topics that should be covered and generated ideas about other potential sources of information.

The governmental report, Costs of Producing Livestock in the United

States, stated that "sheep producers were in a relatively secure short-run financial position in 1980 and are expected to continue in a similar position in 1981" (U.S. Department of Agriculture, 1981h, p. viii). Returns are expected to cover cash costs, unpaid labor and management, and most capital costs. Returns are expected to be down in 1981 from 1980 and 1979 due to continued increases in cost of inputs for livestock enterprises in excess of expected increases in prices for lambs and wool. Projected returns for 1981 to land and risk from sheep production as a primary enterprise in the long run for all regions surveyed in the U.S. was -$10.37 per ewe.

Gee and Magleby's (1976) study of sheep production in the western United States provides information about that area's operations and management practices. Commercial sheep producers with 50 or more sheep own nearly 93 percent of the sheep though they are only 41 percent of the sheep producers. More than two-thirds are sole proprietors; the rest operate within partnerships and family corporations. Approximately one-third of the commercial operators are specialized in sheep while two-thirds have diversified livestock operations. Substantial equity positions could indicate sheep and livestock operations have been profitable.

Extensive private and public range provide most of the livestock feed requirements. Sheep are generally grazed on open ranges under the care of a herder. Most lambing is done in late winter and early spring. Shed lambing is more common than range lambing among commercial producers though the number of sheep involved is less. More than two-fifths of commercially produced lambs are sold off grass for slaughter and another one-third are sold as feeder lambs. The largest market

channel for lambs is through packer buyers (43 percent of the lambs). The biggest marketing problem cited is the small number of buyers bidding on lambs.

Gee (1977) presents sheep enterprise budgets for major producing areas of the 17 western states. Costs and returns to sheep producers with different flock sizes and management systems and the level and magnitude of sheep and lamb losses to predation are reported. Income is categorized as lamb, ewe, or wool sales. Lamb sales in this survey provided three-fourths of the income, wool sales supplied one-fifth, and ewes sold for slaughter or breeding provided the remainder. Three items accounted for about 70 percent of all production costs: interest on total capital, feed, and labor. Negative returns on capital were common in 1974 with returns on invested capital averaging a negative $2.44 per ewe. The only area which averaged a positive return to capital ($0.18 per ewe) was in Texas and New Mexico. Farm flocks in wheat-corn subregions of the Plains states earned the lowest returns.

The area called Plains Wheat-Corn contains Kansas, North Dakota, and parts of Colorado, Nebraska, and South Dakota. About one-fifth of the producers specialized in sheep production and almost no producers hired full-time shepherds. Flocks were mostly small in size with 42 percent of the operations having 50 to 300 head. Average flock size was 234 head. Approximately one-half of the annual feed supply was provided by private ranges with 35 percent of the feed requirements from supplements. Almost all pasture and range is fenced. More than 90 percent of the producers lamb their ewes in sheds.

Average net returns (gross sales minus total operating expenses) per breeding ewe for the Plains Wheat-Corn region were -$20.93 in 1974.

Commercial sheep businesses having 50 to 299 head of stock sheep with shed lambing, no Federal range, 5.3 percent lamb death loss, 5.4 percent sheep death loss and 0.09 percent ewes culled per ewe average returns to invested capital of -$4.19 per ewe. Returns were slightly higher as flock size increased -- 300 to 999 head flocks averaged $1.68 per ewe and flocks with over 1,000 ewes averaged $2.13 per ewe. Distribution of commercial sheep businesses based on profitability showed 32 percent with losses (cash costs were not covered). Sixty-three percent of the operators received returns to operator and family labor, and 48 percent received returns to invested capital. Returns to land and risk for sheep production in the Plains Wheat-Corn region for 1980 were projected to be -$25.19 (U.S. Department of Agriculture, 1980c).

An article by Thonney, Gaskins, and Hillers (1979) points out the significance of lambing percentage, lambing season and market age in determining profitability of sheep production systems. Computer modeling was used to evaluate the effects of different production alternatives on net return. In the simulated system, a lambing percentage of 125 resulted in losses while percentages of 150 and 175 were profitable. Late spring lambing (April 1 to June 30) resulted in higher returns than winter lambing (January 1 to March 31) because of lower labor and facility requirements. Net incomes from lamb marketing ages of 20, 24, and 28 weeks were compared. When prices were constant at different weights, older, heavier lambs were more profitable.

Harrison (1980) postulates that lamb production per ewe can be doubled or tripled using intensive and innovative management practices. Innovations he lists that are appropriate to intensive operations with

at least partial confinements facilities are: twice-a-year lambing, out-of-season lambing, twin or triplet lambing through use of hormones or new breeds, artificial insemination, early weaning and lamb nurseries, ultrasonic pregnancy checking, ram fertility testing, predator control, synchronized breeding, induced day time lambing, hand mating, and parasite and disease control. Production is profitable when the innonvations are applied with high levels of management in appropriate facilities. Estimated net income per ewe in a 1,000 ewe flock in total confinement facilities using appropriate technologies was highest of the four systems budgeted at $14.44.

A thesis by Badger (1958) is the most recent documented sheep budget analysis done for Oklahoma. He evaluates various methods of finishing feeder lambs and producing spring lambs for the feeder market. In his conclusions, Badger says that "as expected, the most profitable sheep alternative appears to be the fattening of feeder lambs utilizing winter small grain grazing" (p. 81). Ewe flock operations were said to be a stable alternative, that is, returns varied little from year to year. No attempt was made to evaluate the selected sheep production systems as part of a whole farm plan.

One objective of this study is to evaluate the sheep enterprise as a possible alternative to stocker cattle grazing on wheat pasture. In an article prepared by the NCA-6 Subcommittee on Sheep (1977) research, the advantages of sheep and cattle are compared. The advantages associated with sheep are:

1. More efficient with potential for greater gains in efficiency.
2. Shorter gestation and growing periods, and therefore, a cycle from mating to market of less than one year.

3. Lower investment per animal and per animal unit.
4. Greater flexibility in breeding and management.
5. More extensive and efficient use of forages including low quality feedstuffs and less use of grains, concentrates, and protein supplements.
6. Easier adjusted to seasonal feed supply and more tolerant of drought and short feed.
7. More rapid gains from selection with greater possibilities of increasing young per birth.
8. Two major products (meat and wool).
9. Lower water requirements.
10. Fewer waste disposal requirements.

On the other hand, cattle were favored for the following reasons:

1. Lower labor requirements.
2. Greater demand for more palatable meat.
3. Greater marketing and processing efficiency.
4. More resistant to predators.
5. Better adapted to humid climatic conditions.
6. Better use of cereal straws and better response to urea feeding.
7. Higher valued cull animals.
8. More prestigious and glamorous.

Nutritional and genetic factors combined with low investment costs and two saleable products suggest that sheep are potentially profitable and competitive with beef cattle in North Central Oklahoma. But this conclusion presupposes that labor requirements or costs are not prohibitive, an accessible market for sheep and lamb products exists, losses to predators are not exorbitant and the farm manager is not averse to sheep production.

Most recent work on Oklahoma sheep economics has not been in budgeting or linear programming. Dr. Clement E. Ward (1979, 1980), an Oklahoma State University agricultural economist, has published extension fact sheets on marketing lambs and has had related articles printed in several magazines. Dr. Joe V. Whiteman, an Oklahoma State University animal scientist, has supervised experiments at Fort Reno (OSU Agricultural Experiment Station) relating to production aspects of research reports and extension fact sheets (Dzakuma et al. 1980, 1979 1978; Thomas et al. 1976, 1975; Zollinger, 1968; Ercanbrack and Whiteman, 1978; Whiteman, 1978, 1979, 1980a, 1980b, 1980c, 1980d, 1981b; Stritzke and Whiteman, 1980). Larry Darnell, research associate, and Dr. Raleigh Jobes, Oklahoma State University extension agricultural economist, have built sheep enterprise budgets with Dr. Whiteman's assistance.

Research reports from other agricultural experiment stations (Vetter, Norton, and Garrigus, 1960. Shelton, 1964; Lewis, Stockey, and Hinds, 1980; Colby Branch Station, 1979, 1980; Glimp, 1971; Price et al. 1973). Federal budgets and budget material from other states were also scrutinized before making decisions about input data and machinery, labor and equipment requirements (Corkner, McReynolds, and Kraten, 1981; Sitton, 1980; Gee, 1977; Hall, 1973).

FOOTNOTES

[1]The law of diminishing returns states that if a producing unit holds constant in quantity all resources except one, equal increments in the variable resource eventually yield decreasing increments in output (Leftwich, 1979).

[2]The objective function is the equation for isorevenue curves. If the amount of revenue yielded by each output is known, isorevenue lines for outputs or enterprises can be developed. An isorevenue curve exists for every objective value and all have the same slope.

CHAPTER III

BUDGET DEVELOPMENT

The sheep budgets were developed with the use of the Oklahoma State University Enterprise Budget Generator (Kletke, 1972, 1979). Each of the 18 sheep budgets was computed individually and stored as a new budget. Since the budgets were developed for the North Central district of Oklahoma, Oklahoma State University price vectors and machinery complements for that district were incorporated in the sheep budgets. A new equipment complement including equipment specific to the sheep enterprise was constructed for application to sheep budgets. The price vector, machinery complement and equipment complement are shown in Appendix A.

Production data, operating inputs, machinery requirements, and equipment requirements were specified for the budget generation process. Production data and operating inputs were recorded by month with relevant names, prices, units, and item codes. The month in which the most product is sold was listed as the month for computing annual capital requirements. The selected month varied with the lambing season. Equipment requirements were listed with name and item code, number of units, and proportion of cost to be assigned to the budget unit. Hours of livestock labor per ewe per month were also entered in the budgets.

Assumptions Common to All Budgets

Although inputs in the production processes differ, the basis for each budget is similar so that cost and returns may be compared. The ewe flock is Dorset-Rambouillet crossbreds and replacement ewes are purchased.[1] Fifteen percent of the flock is replaced each year so that ewes remain in the flock approximately seven years.[2] Rams are replaced every four years. Three rams are maintained per 100 ewes when lambing in winter and four rams are kept per 100 ewes when lambing in off-seasons (fall or summer). For calculating feed requirements, ewes are listed as weighing 154 pounds, rams at 220 pounds, and replacement ewe lambs at 132 pounds initially. To simplify calculations, aged ewes are sold (or die), and replacements are purchased when lambs are weaned.

Production Data and Assumptions

Production data reflects differences in numbers of sheep and lambs sold due to differences in management systems and lambing season. Ewes are bred June 1 for fall lambing, September 1 for winter lambing, and January 1 for summer lambing. Fall lambs are born around November 1, winter lambs near February 1, and summer lambs near June 1. Rates for conception and lambs born in the intensive management system are based on research reports from the Oklahoma Agricultural Experiment Station in El Reno, Oklahoma (Thomas, 1975, 1976; Dzakuma, 1978, 1979, 1980). Conception rates, lambs born per ewe lambing, lamb death loss, and ewe mortality figures are assumed constant over the three ewe flock sizes (Table I). Breeding for fall lambs is the most unnatural of the three seasons, thus the lower conception rates and lower number of

TABLE I

PRODUCTION DATA FOR THREE LAMBING SEASONS AND MANAGEMENT SYSTEMS

	Lambing Season					
	Fall		Winter		Summer	
	Management System					
	Intensive	Easy Care	Intensive	Easy Care	Intensive	Easy Care
Conception rate (percent)	80.0	76.0	96.0	92.0	90.0	86.0
Lambs born/ewe lambing (head)	1.40	1.33	1.80	1.70	1.60	1.52
Lambs born/ewe exposed (head)	1.12	1.01	1.73	1.56	1.44	1.29
Lamb death loss	10.0	15.0	15.0	20.0	5.0	10.0
Lambs sold/ewe exposed (head)	1.01	.86	1.47	1.25	1.37	1.18
Ewe mortality (percent)	3.0	6.0	3.0	6.0	3.0	6.0

lambs born per ewe exposed to breeding. The number of ewes conceiving was decreased by four per 100 and lambs born per ewe lambing was lowered by 10 percent from the intensive management system for the easy care system.

Lamb death loss figures are based on percentages given in the Sheepman's Production Handbook (1975) and on correspondence with sheep specialists (Doane, 1981; Ercanbrack, 1981; Spaeth, 1981; Whiteman, 1981). Highest lamb death losses occur in winter and least losses in summer with five lambs per 100 difference in the intensive and easy care systems. For the budgets, lamb death loss is presumed to occur within two weeks after birth and the proportion of twin lambs lost is 1.5 to 2.0 times the percent of single lambs lost. Ewe mortality rates are three percent with intensive care and six percent with easy care.

Lambs are weaned when 70 days old and are sold when weighing 100 pounds. Days to market for lambs varies with the lambing season due to differences in birth weights and rates of gain. Table II presents the assumed lamb birthweights and daily gains based on data for Dorset crossbred lambs in Oklahoma recorded by Stritzke and Whiteman (1981). Table III indicates differences in weight by month from birth to market of lambs born in different seasons. Fall lambs are sold around April 1, winter lambs are sold on June 1, and summer lambs are sold in mid-November.

Six items listed in the production section yield revenue:

1. Sale of fat lambs
2. Sale of aged ewes
3. Sale of aged rams
4. Sale of wool

TABLE II

BIRTHWEIGHTS AND RATES OF GAINS FOR LAMBS
BORN IN DIFFERENT SEASONS

	Lambing Season		
	Fall	Winter	Summer
Birthweight (lbs.)			
Singles	9.0	12.5	11.5
Twins	7.0	10.0	9.5
Daily gain (lbs.)	0.65	0.75	0.56

TABLE III

WEIGHT IN POUNDS BY MONTH FROM BIRTH TO MARKET
OF LAMBS BORN IN DIFFERENT SEASONS

Age	Lambing Season					
	Fall		Winter		Summer	
	Single	Twin	Single	Twin	Single	Twin
1 mo.	28.5	26.5	35.3	32.8	28.3	26.3
2 mos.	48.0	46.0	58.1	55.6	45.1	43.1
3 mos.	67.5	65.5	80.9	78.4	61.9	59.9
4 mos.	87.0	85.0	103.7	101.2	78.7	76.7
5 mos.	106.5	104.5			95.5	93.5
6 mos.					112.3	110.3

5. Ewe wool incentive payments

6. Lamb wool incentive payments

Annual prices of market lambs, aged ewes, and aged rams are seasonally adjusted using an index based on the past five years of monthly sheep and lamb prices in Kansas.[3] (Kansas prices seemed to be the logical choice for use in north central Oklahoma as there has been no central sheep or lamb market in Oklahoma since 1976.) Prices are indexed so that the differences in value due to season of production and timing of sales can be determined. Figure 3 indicates that from February through June, lamb prices tend to be above the annual average for both the past 5 and 10 year periods with prices peaking in May. Figure 4 shows that sheep prices follow a similar pattern--that is, they are higher than the annual average from February to June--but sheep prices peak in April rather than May. Lamb prices are in dollars per cwt while ewe and ram prices are per head values.

Lambs sold per ewe (budget unit) varies with conception rate, lambs born per ewe lambing, and death losses as explained earlier. Ewes sold per budget unit depends on death loss. In intensive care budgets where three percent ewe mortality is incurred, 12 of the 15 percent of the ewes replaced each year are sold. In easy care budgets when six percent death loss occurs, only nine percent of the 15 percent being replaced are available for sale. The number of aged rams sold per ewe is equal to the number of rams being replaced for the flock divided by the number of ewes in the flock. Five rams are replaced each year in the 500 ewe FLEC, FLIC, SLEC, AND SLIC budgets, thus 0.01 aged rams are sold per ewe.

Ewes produce 8.9 pounds of wool per year regardless of when shorn

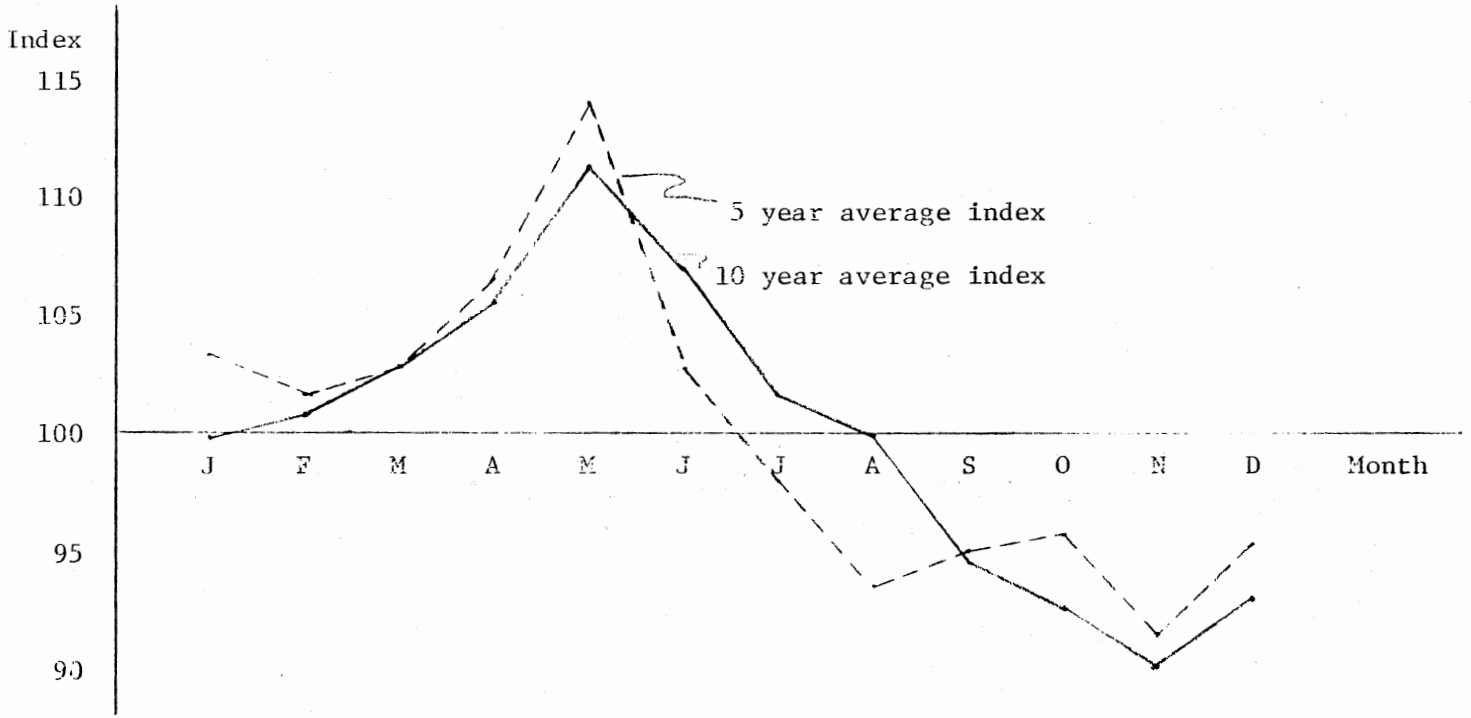


Figure 3. Seasonal Price Index for Lamb, Ten Year and Last Five Year Averages (June, 1971-June, 1981).

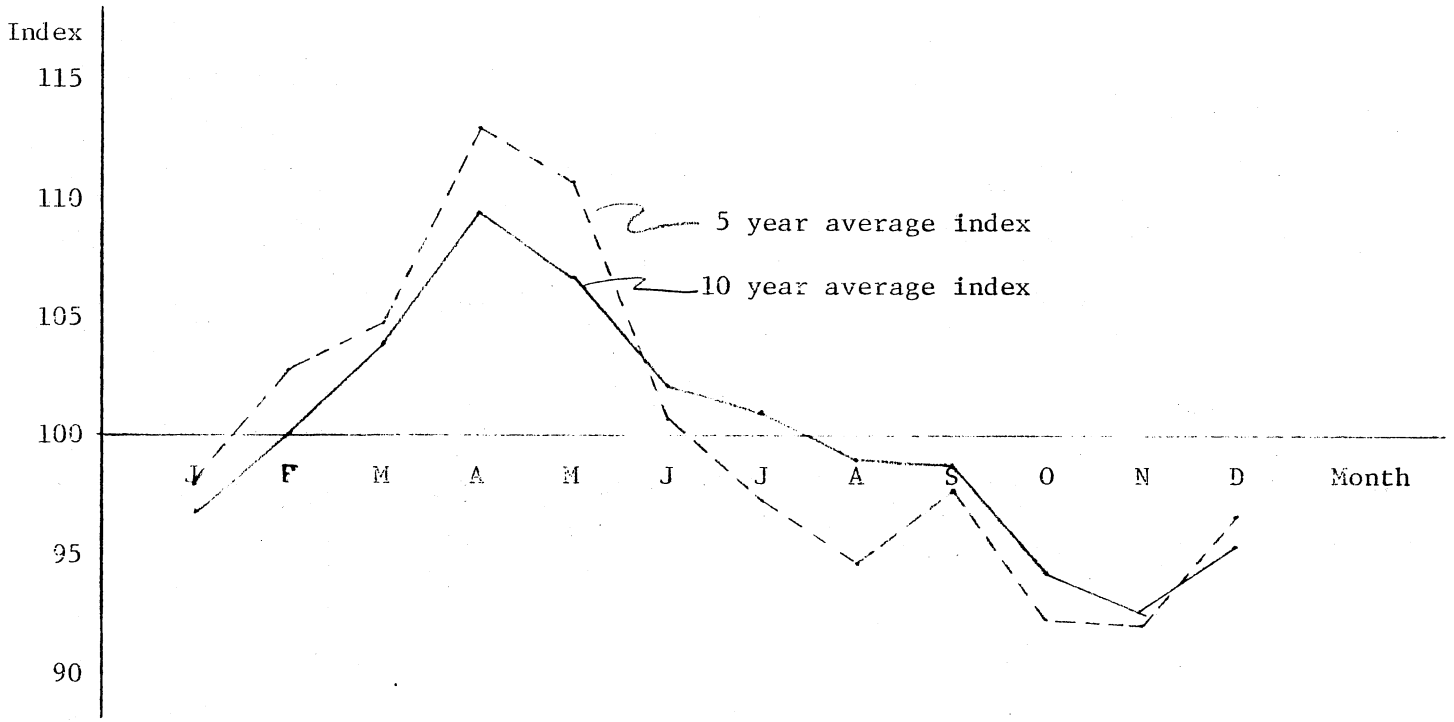


Figure 4. Seasonal Price Index for Sheep, Ten Year and Last Five Year Averages (June, 1971-June, 1981).

and wool is sold in the month that it is shorn. Lambs are marketed unshorn. Ewe and lamb wool incentive payments are received in March on all budgets. The payment rate is the amount required to bring the average market price up to the support price (U.S. Department of Agriculture, 1980c). Wool incentive payments are determined by the support price, national average wool price, and the producers sale price as shown in the following equations:

$$\frac{\left[\begin{matrix}\text{Wool Price} \\ \text{Support Level}\end{matrix} - \begin{matrix}\text{National Average} \\ \text{Wool Price}\end{matrix}\right]}{\text{National Average Wool Price}} * \begin{matrix}\text{Sales} \\ \text{Price}\end{matrix} * \begin{matrix}\text{Pounds} \\ \text{of Wool} \\ \text{Sold}\end{matrix} = \begin{matrix}\text{Ewe Wool} \\ \text{Incentive} \\ \text{Payment}\end{matrix} \quad (3.1)$$

$$\left[\begin{matrix}\text{Wool Price} \\ \text{Support Level}\end{matrix} - \begin{matrix}\text{National Average} \\ \text{Wool Price}\end{matrix}\right] * 0.80 * (5\% \text{ of Slaughter Weight})$$

$$= \text{Lamb Wool Incentive Payment} \quad (3.2)$$

Wool price support levels are set at $1.35 per pound for 1981. A national average wool price of $0.90 per pound and an Oklahoma sales price of $0.80 per pound is assumed. Thus, ewe wool incentive payments are

$$\frac{(\$1.35/\text{lb} - \$0.90/\text{lb})}{\$0.90/\text{lb}} * \$0.80/\text{lb} * 8.9 \text{ lbs} = \$3.56 \text{ per head} \quad (3.3)$$

and lamb wool incentive payments are

$$(\$1.35/\text{lb} - \$0.90/\text{lb}) * 0.80 * (5\% \text{ of } 100 \text{ lbs}) = \$1.80 \text{ per head} \quad (3.4)$$

Operating Inputs

Feed requirements are calculated using the National Academy of Sciences Nutrient Requirements of Domestic Animals (1976). Dry matter (DM) and digestible protein (DP) requirements are tabulated with DM requirements further classified as to energy density, either high, medium, or low. High energy feed or pasture has an energy density

above 2.36 Mcals of ME/kg, medium energy dry matter contains between 2.01 and 2.35 Mcals of ME/kg, and low energy feed has less than 2.0 Mcals of ME/kg (Anderson, 1974). Maintaining and non-lactating ewes, replacement lambs, and rams utilize low energy DM. Ewes in the last six weeks of gestation or nursing lambs need medium energy DM and lambs need high energy DM.

Figure 5 shows monthly DM requirements of the ewe in a winter lambing intensive care program. Analogous patterns exist for other systems with increasing amounts of DM required prior to lambing until lambs are approximately one month old. Feed requirements drop off to a maintenance level once lambs are weaned and rise slightly during breeding season. DP requirements (not shown) for the ewes increase and decrease similarly. Lamb DM and DP requirements increase with age.

Table IV summarizes the monthly DM and DP requirements of a budget unit in the six combinations of lambing season and care systems (FLEC, FLIC, WLEC, WLIC, SLEC, SLIC). Fall lambing operations require the least total DM per budget unit and summer operations require the greatest amount. IC systems require more feed than EC systems because nutrition requirements are higher with higher lamb production per ewe. Zeros were entered for prices of DM and DP in budgets so that least-cost sources could be determined through OKFARMS, a specilialized Oklahoma State University linear programming system.[4]

Health care costs are estimated assuming a general vaccination and worming program, free-choice salt and minerals and annual shearing. Vaccination costs cover vibriosis, soremouth, enterotoxemia, and tetanus shots for ewes and soremouth, tetanus, and overeating shots for lambs. Worming is included in two months prior to breeding season, once before

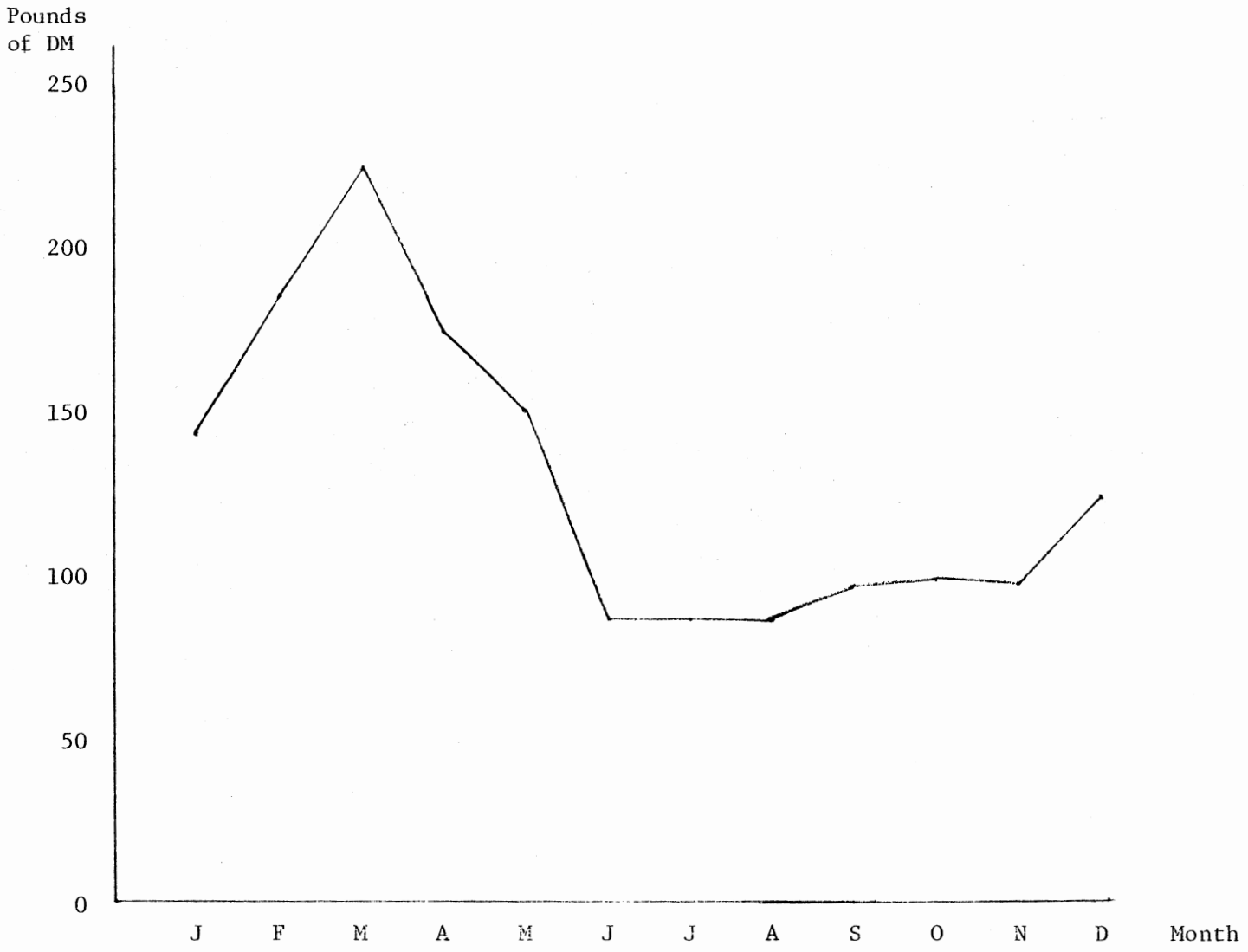


Figure 5. Annual Dry Matter Requirements of a Ewe in the WLIC System

TABLE IV

MONTHLY DRY MATTER AND DIGESTIBLE PROTEIN REQUIREMENTS FOR EWES IN FLEC, FLIC SLEC, SLIC, SLEC, AND WLIC SYSTEMS

	J	F	M	A	M	J	J	A	S	O	N	D
FLEC DM (L)	47.01	78.88	87.33	81.36	84.07	92.76	95.85	95.85	57.42	22.82	22.08	22.82
(M)	57.68								52.44	108.38	130.65	135.01
(H)	26.66	33.71	42.66								7.74	16.00
DP (ewe)	6.91	4.03	4.46	4.18	4.32	4.73	4.89	4.89	5.74	6.96	9.82	10.15
DP (lamb)	6.74	7.05	6.28								1.96	4.05
FLIC DM (L)	53.46	78.88	87.33	81.36	84.07	93.36	96.47	96.47	56.16	19.59	18.96	19.59
(M)	63.74								55.20	114.08	142.08	146.82
(H)	31.31	39.59	50.10								9.09	18.79
DP (ewe)	7.81	4.03	4.46	4.18	4.32	4.76	4.32	4.92	5.82	7.10	10.79	11.15
DP (lamb)	7.92	8.27	7.37								2.30	4.75
SLEC DM (L)	97.40	87.98	97.40	54.27	14.76	14.28	14.76	43.37	84.51	87.33	81.36	84.07
(M)				59.34	122.64	151.35	156.40	75.27				
(H)						11.79	21.95	36.58	46.02	51.21	29.21	
DP (ewe)	5.00	4.49	5.00	5.94	7.31	11.08	11.45	7.96	4.32	4.46	4.18	4.32
DP (lamb)						2.98	5.55	9.25	10.05	7.56	4.30	
SLIC DM (L)	98.02	88.54	98.02	53.01	11.53	11.16	11.53	49.43	84.51	87.33	81.36	84.07
(M)				62.10	128.34	159.84	165.17	71.70				
(H)						12.33	25.48	42.47	53.43	59.46	25.00	
DP (ewe)	5.00	4.51	5.00	6.02	7.45	11.62	12.01	8.24	4.32	4.46	4.18	4.32
DP (lamb)						3.12	6.45	10.74	11.66	8.78	5.00	
WLEC DM (L)	9.86	8.90	9.86	45.93	86.46	83.67	83.20	83.20	94.17	97.31	94.17	49.55
(M)	129.77	152.88	169.26	71.57								64.88
(H)		14.00	31.00	45.00	54.25							

TABLE IV (Continued)

DP (ewe)	7.39	11.14	12.33	8.08	4.37	4.23	4.23	4.23	4.75	4.91	4.75	6.15
DP (lamb)		4.42	7.84	10.23	8.01							
WLIC DM (L)	5.83	5.26	5.83	43.98	86.46	83.67	83.20	83.20	94.92	98.08	94.92	51.96
(M)	136.90	162.93	180.40	76.64								68.45
(H)		16.46	36.46	52.92	63.80							
DP (ewe)	7.57	11.79	13.05	8.43	4.37	4.27	4.23	3.85	4.79	4.95	4.79	8.50
DP (lamb)		4.17	9.22	12.03	9.42							

lambing, once after weaning lambs, and in summer months if not previously included. Prices for both vaccine and antithemeliate are from current supply catalogs. Ewes for fall lambing are shorn in April, ewes lambing in winter are shorn in June, and summer lambing ewes are shorn in May. Shearing costs are $1.75 for the 150 and 500 ewe flocks and $2.00 for the 25 ewe flock, a difference that reflects shearers' preferences for larger jobs.

Marketing costs of $1.00 per head are representative of costs of selling sheep via tele-auction, an increasingly common practice in north central Oklahoma. Marketing costs are incurred in the months when aged ewes, aged rams, and lambs are sold. Hauling fees of $0.25 per cwt are listed in marketing months on the 500 ewe flock budgets. Hiring hauling seems more practical than investing in a large stock trailer which would be used only a few times each year.

The operating inputs "YOUNG RAMS" and "YOUNG EWES" assigns a proportion of the livestock replacement costs to the budget unit. Miscellaneous expenses include costs of ear tags, vaccination needles, paint for branding, etc. Utility charges are assumed to be a minimum $5.00 in all months except for the summer months on 500 ewe flock budgets where $10.00 utility charges are made. Taxes in north central Oklahoma are assessed at an average seven mills of 14 percent of market value, or approximately $0.35 per ewe.

Machinery Requirements

A pickup and stock trailer are listed as necessary machinery in the budgets for the 25 and 150 ewe flocks. Only the pickup is required for the 500 ewe flock since hauling is hired. A minimum of five hours of

pickup use per month for 500 ewe flocks is prorated to each ewe with an extra hour in the month that wool is sold. For both the 150 ewe flocks and 25 ewe flocks, a minimum of three hours of pickup use for the flock is divided among the ewes. An additional hour of pickup time and an hour of trailer use is coded in when lambs or sheep are sold, or replacements purchased (one hour for every 25 lambs or 15 sheep). One extra hour is also added to pickup hours in the month that wool is sold on 150 and 25 ewe flock budgets.

Equipment Requirements

Lamb feeders, ewe feed bunks, hay panels, water tanks, a work chute, lot fence, pasture fence, electric fence, miscellaneous equipment, and a ram and ewe are included in all budgets. Budgets for intensive management systems also incorportate costs of lambing pen panels and a livestock shed. The number of units of each equipment item usually varies directly with flock size although only one work chute is included per budget. Barn space, outside lot space, feeder space, and lambing pen numbers are based on articles in the Sheep Breeder and Sheepman magazine (Engle, 1980; Petritz, 1979; and Patton, 1979) and the Sheep Handbook: Housing and Equipment (Sheep Housing Subcommittee of the Midwest Plan Service, 1974).

Barn space required per head is estimated at 20 square feet and outside lot space at 40 square feet. One lambing pen is needed per 10 ewes and each pen requires four panels if set up independently, or three panels if set up adjacent to other pens. Approximately one foot of feeder space is required per ewe. Pasture fence miles depends on the acres of bermuda pasture required to support a budget unit and electric

fence miles depends on the acres of wheat pasture expected to be utilized. Three 10' hay panels set up triangularly provide sufficient hay feeding space for 25 ewes. Two triangular hay feeders built with 16' panels suffice for 150 ewes while seven triangular feeders of 16' panels are needed for 500 ewe flocks.

Livestock Investment

The livestock investment section assigns to each ewe a proportion of the yearly cost of owning breeding livestock, that is, the cost of animals used in production but not shown as purchased inputs. Since 15 percent are replaced each year in 500 ewe flocks, 425 ewes are listed in livestock investment; in 150 ewe flocks, 127.5 ewes; and in 25 ewe flocks, 21.25 ewes. Ram investment figures reflect the number of years the rams are owned and the number of rams maintained per 100 ewes. Since a four year useful life is assumed, ram investment numbers are 15.0, 4.5, and 0.75 for 500, 150, and 25 ewe flocks respectively in fall or summer lambing programs when four rams are run per 100 ewes. Ram investment figures are slightly lower for winter lambing programs when only three rams are maintained per 100 ewes.[5]

Livestock Labor

An average number of hours of livestock labor per month for each flock size is established for intensive care systems. For 500 ewe flocks, two hours per day is the minimum requirement while for 150 ewe flocks, one hour per day is required and for 25 ewe flocks, 15 minutes per day are required. The approximate minimum hours per month per ewe are 0.31 in a 25 ewe flock, 0.21 in a 150 ewe flock, and 0.12 in a 500 ewe flock. The hours of labor used in easy care systems is assumed to be half the

hours used in intensive care systems. Average livestock labor hours are doubled in the month that ewes lamb.

FOOTNOTES

[1]Past research at the Fort Reno Oklahoma Agricultural Experiment Station indicates that Dorset-Rambouillet ewes bred to Suffolk-Hampshire rams produce lambs that perform well under Oklahoma conditions. The ewe cross is one between two relatively prolific breeds and the ram cross is one that produces growthy lambs with good carcasses.

[2]Ewe replacement rates and other production assumptions relating to the budgets unless otherwise specified are based on personal interviews and correspondence with sheep specialists (Doane, 1981; Ercanbrack, 1981; Spaeth, 1981; Whiteman, 1981b).

[3]Monthly Kansas sheep and lamb prices were taken from Agricultural Prices: Annual Summary 1971-1979 and monthly reports for 1980. The index program computed a seasonal index of prices by a centered moving average method as used by Dr. Leo. V. Blakely, Oklahoma State University, in Current Farm Economics.

[4]OKFARMS is a program developed by Dr. Darrel D. Kletke, Oklahoma State University, Agricultural Economics Department, which is currently not documented.

[5]Ram investment numbers are the same year-round for the 25 ewe flock since one ram must be maintained even in breeding seasons when it may be less than fully utilized.

CHAPTER IV

BUDGET ANALYSIS

Budgeting and whole farm planning through linear programming assist the agricultural decision maker by enumerating costs and returns within and among enterprises and enterprise combination. Net returns to the sheep enterprise are a function of the prices and quantities of inputs and outputs (see Eq. 2.2) and the timing of purchases and sales. In the sheep budgets developed here, input prices are constant so differences in returns reflect other variables.

Returns

Budgets developed for the LP program are shown in Appendix A. Returns above operating costs (except feed), capital costs, ownership costs, and labor costs for different management systems and flock sizes are summarized in Table V and are ranked from greatest to least in Table VI. Lambing season and lamb production per ewe are the most significant determinants of income. For systems with the same management, incomes are highest when lambing in winter, second highest when lambing in summer, and least when lambing in fall due to physical production differences and to sheep and lamb seasonal price variations. The IC system yields higher receipts than the EC system within any lambing season because of greater lamb production per ewe and because the proportion of aged ewes sold is higher. Wool revenues and ewe wool incentive payments are the

TABLE V

RETURNS ABOVE OPERATING COSTS (EXCEPT FEED), CAPITAL COSTS, OWNERSHIP COSTS, AND LABOR COSTS FOR DIFFERENT MANAGEMENT SYSTEMS AND FLOCK SIZES (dollars per ewe)

Management System	Flock Size (Number of Ewes)		
	500	150	25
WLIC	59.27	44.94	- 1.85
WLEC	52.36	38.92	.63
SLIC	37.53	23.48	-24.59
SLEC	33.94	23.55	-17.91
FLIC	26.20	12.76	-33.29
FLEC	24.02	15.72	-26.13

TABLE VI

EIGHTEEN BUDGETS RANKED ACCORDING TO RETURNS ABOVE OPERATING COSTS (EXCEPT FEED), CAPITAL COSTS, OWNERSHIP COSTS AND LABOR COSTS (dollars per ewe)

System	Returns
500 WLIC	59.27
500 WLEC	52.36
150 WLIC	44.94
150 WLEC	38.92
500 SLIC	37.53
500 SLEC	33.94
500 FLIC	26.20
500 FLEC	24.02
150 SLEC	23.55
150 SLIC	23.48
150 FLEC	15.72
150 FLIC	12.76
25 WLEC	0.63
25 WLIC	- 1.85
25 SLEC	-17.91
25 SLIC	-24.59
25 FLEC	-26.13
25 FLIC	-33.29

same in all budgets though the month in which wool is sold varies. Lamb wool incentive payments increase as lamb production increases but payments are received in the same month in all budgets. Receipts are greatest under the WLIC system regardless of flock size.

Returns to land, overhead, risk, management, and feed costs for a given lambing season and management system increase with flock size. The average difference in returns per ewe in 500 ewe flock IC systems and 150 ewe flock IC systems is about $13.00 and in EC systems is about $9.00. Differences between the 150 ewe flock and 25 ewe flock returns per ewe are greater. Returns to 150 ewe flock IC averaged almost $47.00 more per ewe than those for the 25 ewe flock and returns to EC system differed approximately $41.00 per ewe.

When feed costs are included in operating input costs, the returns to systems are reduced by $10.39 to $12.93 due to direct feed costs and additional annual operating capital requirements (Table VII). Returns to land, overhead, risk and management (Table VIII) followed the same pattern as those in Table II, except that in the 25 ewe flock size FLEC operations became slightly less unprofitable than SLIC operations. Twelve of the eighteen operations showed positive returns. All of the systems with 500 ewes yielded returns of more than $13.00 per ewe and the two winter lambing systems yielded more than $40.00 per ewe in returns. All 25 ewe flocks had negative returns of more than $10.00 per ewe.

Costs

Operating inputs are the largest category of costs. Some economies of size are indicated because per ewe operating input costs are highest

TABLE XVII

RETURNS ABOVE OPERATING COSTS, CAPITAL COSTS, OWNERSHIP COSTS, AND LABOR COSTS FOR DIFFERENT MANAGEMENT SYSTEMS AND FLOCK SIZES (dollars per ewe)

Management System	Flock Size (Number of Ewes)		
	500	150	25
WLIC	47.23	32.87	-14.05
WLEC	41.16	27.69	-10.71
SLIC	24.60	10.56	-37.52
SLEC	21.68	11.29	-30.17
FLIC	15.05	1.61	-44.44
FLEC	13.63	5.33	-36.51

TABLE XVIII

EIGHTEEN SHEEP ENTERPRISES RANKED ACCORDING TO RETURN TO LAND, OVERHEAD, RISK AND MANAGEMENT (dollars per ewe)

System	Returns
500 ewes, WLIC	47.23
500 ewes, WLEC	41.16
150 ewes, WLIC	32.87
150 ewes, WLEC	27.69
500 ewes, SLIC	24.60
500 ewes, SLEC	21.68
500 ewes, FLIC	15.05
500 ewes, FLEC	13.63
150 ewes, SLEC	11.29
150 ewes, SLIC	10.56
150 ewes, FLEC	5.33
150 ewes, FLIC	1.61
25 ewes, WLEC	-10.71
25 ewes, WLIC	-14.05
25 ewes, SLEC	-30.17
25 ewes, FLEC	-36.51
25 ewes, SLIC	-37.52
25 ewes, FLIC	-44.44

for 25 ewe flocks and least for 500 ewe flocks in a given lambing season and management system. The higher costs are due to higher shearing rates and minimum miscellaneous expenses and utilities that must be allocated to fewer ewes. Pickup (tractor) fuel and lube costs and pick-up, machinery, and equipment costs are also higher per ewe in the 25 ewe flock budgets. Fuel and lube costs and repair costs are least in 500 ewe budgets where hauling is hired and no stock trailer is used.

Replacement ewe lambs are the largest single cost item, a constant $15.00 in all budgets. Feed costs when aggregated are second. Feed costs represent costs of producing pasture of a given quality (high, medium, or low energy) with no charge made to land. Small grain graze-out, sudan pasture, and native pasture budgets are used to estimate costs of high, medium, and low energy pasture respectively.[1] Pasture DM production is calculated from estimates of pasture monthly production and energy density for Oklahoma in Anderson (1974). Total pasture costs per acre are divided by total pounds of DM produced to get DM cost per pound.[2] High energy DM is estimated to cost approximately 2.2 cents per pound, medium energy, 0.8 cents per pound and low energy DM, 0.4 cents per pound. The DM fed is assumed to provide the DP required by livestock, hence no price is assigned to DP. Total feed costs are higher for SLEC enterprises than for WLIC enterprises (even though WLIC enterprises require more total DM) because of the higher proportion of more costly high energy DM.

Taxes are consistently assesed at $0.35 per ewe, salt and mineral is a constant $0.60, and vaccine is $1.41 in each budget. Marketing, worming, and young ram costs are the same within a lambing season/ management system combination though timing is different. Marketing

costs increase as the number of head sold increases and so costs are least in FLEC operations ($0.96) and greatest in WLIC enterprises ($1.60). Worming costs range from $3.00 to $5.54, with least costs in FLEC and greatest costs in SLEC and SLIC operations.

Capital costs include annual operating costs and tractor , machinery, equipment, and livestock investment charges. Timing of cash outlays and income determines the annual operating captial needed. Capital costs are from $0.84 to $1.72 and are greatest in 25 ewe flocks. They are highest in FLEC systems, followed by FLIC, SLEC, SLIC, WLEC, and WLIC. Although expenditures in most months are larger for IC systems than for EC systems, larger incomes more than offset the larger variable cost outlays and operating capital requirements are smaller.

Tractor (pickup) investment costs are approximately $3.20 in 25 ewe flocks, $0.70 in 150 ewe flocks, and $0.17 in 500 ewe flocks. Machinery investment costs vary $0.15 at the most in a given flock size, with the lower costs in fall lambing enterprises where fewer lambs are produced and marketed, requiring less trailer use. Since no trailer is used in 500 ewe flocks, no machinery costs appear. Equipment costs are the largest capital costs in 25 ewe flocks, IC budgets and second largest category in most others. Equipment costs per ewe in IC systems are double or triple those in comparable EC systems. Lambing shed and lambing pen panel costs are the reason for the large difference. In small flocks, costs differ greatly because of the small number of ewes over which the costs must be allocated. Livestock investment costs are constant over all eighteen budgets, the only important difference being in winter lambing operations where the number of rams required per flock is slightly fewer resulting in slightly smaller investment costs.

Depreciation, taxes, and insurance on the pickup, stock trailer, and equipment are listed in the ownership cost section. In 25 ewe flock budgets ownership costs are much higher than in 150 or 500 ewe budgets Like the investment costs, ownership costs per ewe are greater in the small flocks because certain equipment is assumed necessary, regardless of flock size. For instance, a working chute is included in all budgets and when the costs of the chute are prorated to 25 rather than 500 ewes, per ewe ownership costs are much higher.

Total number of labor hours per ewe was greatest for 25 ewe flocks, causing costs to be highest for those flocks. Intensive care systems require more labor than easy care systems and the result is greater total labor costs. Given a flock size, IC labor costs are similar for all lambing times, as are EC system costs. Labor costs as a category ranked third in magnitude behind operating input and capital costs.

Summary and Conclusions

Budgets for 500 ewe flocks indicate positive returns to the enterprise, when feed costs are included, no matter what lambing season or management strategy is chosen. Annual returns to land, overhead, risk, and management for the entire flock range from $6,815 to $23,615 with a FLEC system. Both winter lambing systems return more than $20,000, a modest income if sheep were the only enterprise for a full-time farmer. If, as is most likely, sheep are a secondary source of income, a large flock appears profitable, provided feed, labor, and other inputs are available when needed.

Only WLIC and WLEC operations yield more than $20.00 returns per ewe in budgeted 150 ewe flocks. As a supplementary enterprise or as an

activity for a part-time farmer, 150 ewe flocks lambed in winter provide net incomes of $4,154 to $4,931. Again, if input requirements are not prohibitive, the sheep enterprise seems a viable enterprise. Small flocks of 25 ewes have negative returns regaurdless of lambing season and management season. The unprofitability of the small flocks suggests that only operators with a love for sheep, hobby farmers looking for tax write-offs, or parents with children who want to have sheep as a youth project would choose to keep 25 ewes.

Returns on inital investment are one indication of the profitability of investments in livestock in comparison to other investments. Returns to overhead, risk, and management as a percent of livestock investment for 500 ewe flocks averages 30 percent and for 150 ewe flocks more than 16 percent. Returns for 500 ewe flock WLIC and WLEC enterprises nears 50 percent of initial investment while 150 ewe flock systems average almost 34 percent. Thus, several sheep enterprises provide rates of return comparable to or better than traditional enterprises and business investments.

All comparisons of returns depend on the validity of the assumptions stated in an earlier chapter. The input-output data were checked for reasonableness and consistency and should represent results that could be expected in commercial sheep production in Oklahoma. It appears unlikely that 25 ewe commercial flocks will be able to compete with traditional Oklahoma farm enterprises, but larger flocks might be beneficial additions to the farm organization.

FOOTNOTES

[1]Production costs for small grain graze-out, sudan, and native pasture are taken from budgets 89200801, 85400101, and 87201601 respectively in the 1981 OSU Enterprise Budget Book.

[2]For instance, small grain graze-out costs per acre are $77.43 and DM production is 3,498 pounds per acre. Thus, costs per pound of high energy DM supplied by small grain pasture are:

$$\frac{\$77.43/\text{acre}}{3498\ \text{lbs/acre}} = \$0.022/\text{acre}.$$

CHAPTER V

WHOLE FARM ANALYSIS

The 18 sheep budgets are incorporated into the OKFARMS program, a computer program designed to simplify farm management linear programming problems. A matrix is built from stored budgets and a data set specifying the objective function, resource base, activity limits, and input and output prices. Once the matrix is constructed, a Mathematical Programming Solutions Extended (MPSX) alogrithm is called to maximize the objective function through linear programming. The matrix is modified and additional MPSX solutions are computed to demonstrate the effects of changes in prices and restrictions. Output from the programs is used to estimate the sheep enterprise's profit potential and its ability to compete with other activities for resources on a large and small Oklahoma farm.

Large Farm Resource Base and Assumptions

The large farm represents an average farm in the north central district of Oklahoma--640 acres of land, 70 percent crop land (448 acres) and 30 percent pasture (192 acres). The resource base was developed using Bulletin B-729, "Resource Requirements and Income Opportunities For Beginning Farmers in Selected Areas of Oklahoma" (Walker and Minnick, 1977) and the Oklahoma Census of Agriculture (U.S. Department of Commerce, 1974). Buying and renting land was not allowed nor was grazing purchases.

Crop enterprise alternatives are barley, grain sorghum, rye, wheat, alfalfa hay, bermuda pasture and hay, sudan pasture, and sudan hay. Livestock enterprise alternatives are cow-calf (spring calving, fall calving, or fall calving with 240 day weaning), stocker steers, stocker heifers (sell March 1 or sell March 15), swine (low investment, farrow-to-finish), and sheep. Sheep budgets are those developed in an earlier chapter and exhibited in Appendix B. Other budgets are a part of the Oklahoma State University Agricultural Economics Department Farm Management Extension Enterprise Budget Book (1981) and are shown in Appendix C. Twenty-seven budgets are stored in the matrix for the large farm: six 500 ewe flock sheep budgets, six 150 ewe flock budgets, seven other livestock budgets, and eight crop budgets.

Budgets are modified so that feed outputs and feed inputs are analogous in all budgets. Feed and hay listed in the production section of the crop budgets and the operating inputs section of livestock budgets are renamed and classified by dry matter and energy content. Lines are added to show digestible protein produced or used by budget units. Dry matter and digestible protein production estimates for various crops are taken from theses by Anderson (1974) and Rockeman (1974). Grain and hay yields are north central Oklahoma averages for the most recent five years.

Grazing rows are identified as dry matter (DM), either high or medium, or digestible protein (DP). High or medium energy DM satisfies livestock low energy DM requirements. Some grazing rows include more than one month if comparable pasture as named in the row is produced in each month. For instance, one DM-high energy row covers November to March since wheat pasture contains more than 2.35 Mcal/kg of energy per

kilogram of dry matter and is available throughout the period. Digestible protein rows include only one month so that protein supplements can be purchased if needed to meet nutritional requirements of livestock.

Transfer rows and activities are added so that alfalfa hay and DP can be purchased if needed by livestock to supplement that available through pasture or hay production enterprises. Medium energy alfalfa hay can be purchased for $80 per ton. The hay can be used as a high energy feed when an energy supplement costing an additional $10 per ton is added.[1] No storage costs are included for hay produced on the farm and fed later. A protein supplement (44 percent DP) can be purchased in any period for $0.25 per lb of DM.

Hay produced or purchased can be allocated to DM and DP rows for any pasture period. All hay is assumed to contain 90 percent DM. Coefficients in the DP rows differ among alfalfa, bermuda, and sudan hay because DP content differs. Alfalfa hay is 12.1 percent DP, bermuda hay is 4.8 percent DP, and suday hay is 5.5 percent DP (National Academy of Sciences, 1976).

Product prices for the enterprises other than sheep are Oklahoma's annual average prices as recorded in 1980 Oklahoma Agricultural Statistics. When specific prices are not available, the prices are based on differentials and price relationships exhibited in recent years in Oklahoma markets according to U.S. Department of Agriculture Agricultural Prices. For instance, Oklahoma Agricultural Statistics gives 1980 calf prices as $74.60/cwt but separate steer and heifer calf prices are needed. Since steer and heifer calf prices differed an average of $11.89/cwt for the past five years in U.S. Department of Agriculture price data, prices of $80/cwt and $68/cwt for steers and heifers are used. The average price

then is $75/cwt, a figure near the price for calves in Oklahoma Agricultural Statistics. Prices for slaughter pigs were arrived at similarly. Product prices used in the MPSX program are listed in Table IX.

Capital constraints and costs are classified as operating, intermediate, and long term. Operating capital provided by the owner is $10,000, roughly the total net farm income for 1979. Intermediate capital and long term capital furnished by the owner are $60,000 and $100,000 respectively. Operating capital can borrowed at 12.1 percent interest, intermediate capital at 13.8 percent interest, and long term capital at 13.0 percent interest.[2] An upper limit for borrowing is set at $100,000 for operating capital, $300,000 for intermediate capital, and $400,000 for long term capital.

Each month is classified as a labor period. One person (generally the owner-operator) works full-time on the farm without wages, so 167 labor hours are abailable each month at no cost. An additional 167 hours of labor, the equivalent of a second full-time person, can be hired for $5.00 per hour.

Small Farm Resource Base and Assumptions

The small farm is one that would generally be managed by a part-time farmer. The farm is a 80 acre tract--56 acres of cropland and 24 acres of improved pasture. Enterprises included in the LP program are the same as for the large farm except that 25 ewe flock budgets replaced the 500 ewe flock budgets. The same budget modifications are made so that DM and DP are transferable from crop enterprises to livestock enterprises and so that production and prices are representative of recent years.

The same level of operating, intermediate, and long term capital

TABLE IX

PRODUCT PRICES USED IN MPSX PROGRAMS

Product	Price
	(dollars)
Steer Calves (3-5) Choice	80.00/cwt.
Heifer Calves (3-5) Choice	68.00/cwt.
Cull Cows	44.70/cwt.
Heifers (5-7) Choice	66.00/cwt.
Slaughter Heifers - Choice	56.00/cwt.
Stocker Steers	80.00/cwt.
Barley	2.35/bu.
Rye	2.00/bu.
Grain Sorghum	5.65/cwt.
Wheat	3.85/bu.
Alfalfa Hay	70.00/ton
Bermuda Hay	54.00/ton
Sudan Hay	50.00/ton
Slaughter Pigs	45.00/cwt.
Nonbreeder Gilts	30.00/cwt.
Sows	38.00/cwt.
Boars	35.00/cwt.
Fall Lambs	79.80/cwt.
Ewes, Rams (sold in January)	29.40/head
Winter Lambs	77.10/cwt.
Ewes, Rams (sold in April)	33.90/head
Summer Lambs	68.55/cwt.
Ewes, Rams (sold in August)	28.38/head
Wool	0.80/lb.

are provided by the owner and capital borrowing costs are the same. Labor periods are again divided by months. The part-time operator only provides 83.5 hours of labor per month at no charge, compared to 167 hours per month supplied by the full-time operator of the large farm. Additional labor up to 167 hours per month can be purchased for $5.00 per hour.

Interpretation of MPSX Output for Large Farm

A matrix of 109 rows and 93 columns is built for the large farm using OKFARMS. Returns to operating and intermediate capital for the farm are maximized using MPSX with the stored matrix. The optimal solution for the large farm is a feasible one found after 129 iterations with returns of $97,283, or $152 per acre. A number of rows are constrained at upper limit level in the solution. These rows represent both land classes; operator labor in January, February, June, and September through December; hired labor in February; and operating capital and intermediate capital provided by the owner.

Shadow prices are listed for the constrained resources (Table X). The marginal value product (MVP) associated with a one unit change in acres of crop land available in $88.42 and for improved pasture land is $2.98. The ranges over which these values hold are 401.53 to 468.70 acres of cropland and 129.90 to 469.10 acres for improved pasture land (bermuda pasture). An additional hour of operator labor in February is worth $155.32 in the operation while in other periods the MVP of labor is $5.00 or less. Most ranges on labor are greater than 12 hours up or down from level of 167 hours. The shadow price of a hired labor hour in February is $150.32, five dollars less

TABLE X

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL ON THE LARGE FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	448.0	401.53-468.70	88.42
Berm. Past.[1]	hrs.	192.0	129.90-469.10	2.98
Jan. Op. Labor[2]	hrs.	167.0	78.83-245.83	5.00
Feb. Op. Labor[3]	hrs.	167.0	155.39-204.06	155.32
June Op. Labor[4]	hrs.	167.0	13.72-180.72	5.00
Sept. Op. Labor[5]	hrs.	167,0	108.42-194.25	0.42
Oct. Op. Labor[6]	hrs.	167.0	129.94-296.94	5.00
Nov. Op. Labor[7]	hrs.	167.0	78.83-245.83	5.00
Dec. Op. Labor[8]	hrs.	167.0	78.83-245.83	5.00
Feb. Labor Hire[9]	hrs.	167.0	155.39-204.06	150.32
Operating Cap.[10]	$	10,000.0	-28,415.47-71,584.50	0.12
Intermediate Cap.[11]	$	60,000.0	46,763.72-infinity	0.01

[1]Bermuda pasture.
[2]January operator (owner-provided) labor.
[3]February operator (owner-provided) labor.
[4]June operator (owner-provided) labor.
[5]September operator (owner-provided) labor.
[6]October operator (owner-provided) labor.
[7]November operator (owner-provided) labor.
[8]December operator (owner-provided) labor.
[9]February labor hire.
[10]Operating capital.
[11]Intermediate capital.

than the MVP of operator labor because of the cost associated with hiring labor. The shadow price for hired labor in February is valid between 155.39 and 204.06 hours. Operating capital has a value in use of $0.12 and intermediate capital has a value of $0.01. The ranges over which the shadow prices hold for capital are large-- $46,763.72 to infinity for intermediate capital and -$28,415.47 to $71,584.50 for operating capital.

Activities in the solution and their approximate levels are 549 stocker steers, 105 acres of rye, 343 acres of wheat, and 192 acres of bermuda (Table XI). A total of 548 hours of labor is hired with the maximum hours available per period hired in February. The operation is financed with $61,585 of borrowed operating capital in addition to owner-provided capital. Grain from rye and wheat production is sold and 203 tons of bermuda hay are sold. Stockers are fed 77 tons of bermuda hay and 19 tons of alfalfa hay are purchased for feed. Energy supplement is purchased for 17 of the 19 tons of alfalfa so that it can fulfill high energy DM requirements.

Input costs, unit costs, and lower-upper cost ranges for activities not in solution are also listed. The input cost is the value of the activity in the objective function, so production and purchase activities have negative input costs, sell activities have positive values, and transfer activities have no costs. Unit costs indicate the change in the objective function that results from forcing in a unit of an activity not in the optimal solution, ceteris paribus. The reduced cost associated with activities in solution is zero. The upper cost shows the highest cost of inputs or lowest price for outputs that permits the activity to be maintained at its present level and status in the optimal

TABLE XI

SUMMARY OF INPUT AND OUTPUT LEVELS
IN MPSX OPTIMAL SOLUTIONS FOR
THE LARGE FARM

Row	Optimal Enterprise Combination				
	A[1]	B[2]	C[3]	D[4]	E[5]
Objective function ($)	97,283	97,372	98,042	204,371	97,158
Stocker steers (head)	549	450	448	863	560
Sheep (ewes)	---	106	130	2,288	---
Barley for grain (acres)	---	---	31	---	---
Rye for grain (acres)	105	10	12	127	154
Wheat for grain (acres)	343	438	405	233	294
Alfalfa (acres)	---	---	---	29	---
Bermuda hay and pasture (acres)	192	192	192	192	192
Sudan pasture (acres)	---	---	---	60	---
Labor hire (hrs.)	548	524	554	12,238	588
Capital borrow ($)	61,585	51,107	51,232	400,000	62,961
Alfalfa hay buy (tons)	19	---	---	1,264	---
Bermuda hay sell (tons)	203	168	156	---	201

[1]Initial solution given the large farm resource base and assumptions (448 acres cropland, 192 acres bermuda pasture, 167 hours operator labor per month, 167 hours maximum labor hire, $10,000 owner provided operating capital, $60,000 owner provided intermediate capital).

[2]Optimal solution from parametric price programming when lamb prices are increased four dollars from seasonally indexed prices based on $75 per cwt annual average price.

[3]Optimal solution from parametric price programming when lamb prices are increased nine dollars from seasonally indexed prices based on $75 per cwt annual average price.

[4]Optimal solution when labor hire is not restricted.

[5]Optimal solution when alfalfa hay purchase price increases to $100 per ton.

solution.

Range output for selected production and sell activities is summatized in Table XII and Table XIII. Input costs for the sheep enterprises range from $10.52 to $19.73 per ewe. Input costs per budget unit for production activities in solution are: stocker steers, $21.72; rye, $84.26; wheat, $78.56; and bermuda, $79.95. Input costs for labor hire, capital borrow, buy and sell rows are the prices associated with the purchase or sale. Sheep enterprises have reduced costs of $0.34 to $48.02; cow-calf enterprises, $29.44 to $153.77; barley, $5.57; grain sorghum, $52.18; alfalfa, $49.95; and sudan pasture, $113.54.

Parametric programming applied to the matrix is used to estimate the effect of changes in lamb prices on the optimal plan (Table XI). The enterprise combination changes when lamb prices increase four dollars per cwt from the budgeted level. The solution now combines 105 sheep from the 500 ewe flock WLEC budget with 450 stocker steers, 10 acres of rye, 438 acres of wheat, and 192 acres of bermuda. Sheep enter the solution, the number of stockers decreases, rye acreage decreases, wheat acreage increases, and bermuda remains the same. Less bermuda hay is sold (168 tons) and no alfalfa hay is purchased. Less labor is hired (524 hours compared to 548) and less capital is borrowed ($51,107 compared to $61,585) in the new plan. Returns to the farm increase only $89.

Further dollar increases in lamb prices per cwt do not change this new combination until lamb prices are nine dollars higher than the than the original price (Table XI). Then, the optimal combination is 130 ewes (500 ewe flock, WLEC budget), 448 stockers, 31 acres of barley, 12 acres of rye, 405 acres of wheat, and 192 acres of bermuda.

TABLE XII

SUMMARY OF MPSX RANGE OUTPUT FOR PRODUCTION ACTIVITIES AT LIMIT LEVEL ON THE LARGE FARM

Column	Units	Input Cost	Unit Cost	Upper Cost
		(dollars)	(dollars)	(dollars)
500 FLEC[1]	ewes	- 10.52	0.34	- 10.18
500 WLIC[1]	ewes	- 15.47	6.65	- 8.82
500 SLEC[1]	ewes	- 13.45	2.19	- 11.27
150 FLEC[2]	ewes	- 13.63	15.31	1.68
150 FLIC[2]	ewes	- 16.92	27.62	10.70
150 WLEC[2]	ewes	- 16.33	32.60	16.27
150 WLIC[2]	ewes	- 19.51	48.02	28.51
150 SLEC[2]	ewes	- 16.89	22.09	5.19
150 SLIC[2]	ewes	- 19.73	30.28	10.55
Cow-Calf[3]	cows	- 49.41	153.77	104.36
Cow-Calf[4]	cows	- 66.54	29.44	- 37.01
Stocker Heifers[5]	heifers	- 22.41	66.34	43.92
Barley	acres	- 78.69	5.57	- 73.12
Alfalfa	acres	-135.69	49.95	85.74
Sudan Pasture	acres	- 37.43	113.54	76.12

[1]500 ewe flock.

[2]150 ewe flock.

[3]Fall calving with 240-day weaning.

[4]Fall calving.

[5]Buy October 1, sell May 15.

TABLE XIII

SUMMARY OF MPSX RANGE OUTPUT FOR SELECTED SELL ACTIVITIES ON THE LARGE FARM

Column	Units	Input Cost	Upper Cost
		(dollars)	(dollars)
Fall Lambs	cwt.	79.80	105.03
Winter Lambs	cwt.	77.10	79.13
Summer Lambs	cwt.	68.55	75.10
Slaughter Pigs	cwt.	45.00	62.74
Steer Calves	cwt.	80.00	87.38
Heifer Calves	cwt.	68.00	78.78
Heifers - Choice	cwt.	66.00	75.04
Slaughter Heifers	cwt.	56.00	64.25
Barley	bu.	2.35	2.49
Milo	cwt.	5.65	8.26
Alfalfa Hay	lb.	0.035	0.040
Sudan Hay	lb.	0.025	0.059

Hired labor increases to 554 hours and capital borrow increases to $51,232. Even less bermuda hay is sold (156 tons) and again, no alfalfa hay is bought. Returns to operating and intermediate capital are $98,042, $759 more than the original optimal combination. Range information for rows at limit level is listed in Table XIV.

The optimal solution when labor is not scarce is found by removing the labor constraints. Returns more than double to $204,371 and the enterprises in the plan are significantly different from those in the first MPSX solution (Table XI). The optimal combination is 2,288 ewes (500 ewe flock, WLIC), 863 stockers, 127 acres of rye, 233 acres of wheat, 29 acres of alfalfa, 192 acres of bermuda, and 60 acres of sudan pasture. Both operating and intermediate capital are borrowed to the limit, a total of $400,000. Operator labor amounts to 12,238 hours, more than six full-time equivalents. No bermuda hay is sold and more than 1,264 tons of alfalfa hay are purchased, a fourth of which is supplemented with high energy additives. MPSX range output for limit resources is summarized in Table XV.

Returns are slightly lower ($125) to the farm when the alfalfa hay purchase price is raised from $80 to $100. The enterprises are the same as in the original plan but levels of production are slightly different (Table XI). The plan includes 560 stocker, 154 acres of rye, 294 acres of wheat, and 192 acres of bermuda. The number of stockers increases by 11 head and rye acreage increases by 49 at the expense of wheat acreage. Labor hire increases by 40 hours to 588 hours.

TABLE XIV

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL ON THE LARGE FARM WHEN LAMB PRICES ARE INCREASED NINE DOLLARS FROM SEASONALLY INDEXED PRICES BASED ON $75 PER HUNDREDWEIGHT ANNUAL AVERAGE PRICE

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	448.0	386.89-531.10	72.69
Berm. Past.[1]	acres	192.0	92.69-371.95	5.00
Jan. Op. Labor	hrs.	167.0	68.46-235.46	178.59
Feb. Op. Labor	hrs.	167.0	102.10-189.05	178.59
June Op. Labor	hrs.	167.0	53.14-220.14	5.00
Sept. Op. Labor	hrs.	167.0	142.11-221.94	1.60
Oct. Op. Labor	hrs.	167.0	128.76-295.76	5.00
Nov. Op. Labor	hrs.	167.0	68.46-235.46	5.00
Dec. Op. Labor	hrs.	167.0	68.46-235.46	5.00
Feb. Labor Hire	hrs.	167.0	102.10-189.05	173.59
Operating Cap.	$	10,000.0	-28,767.60-61,232.38	0.12
Intermediate Cap.	$	60,000.0	55,105.73-infinity	0.01

[1]See Table X for an explanation of row name abbreviations.

TABLE XV

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL WHEN OPERATOR LABOR IS NOT RESTRICTED ON THE LARGE FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	448.0	227.35-487.67	89.69
Berm Past[1]	acres	192.0	132.31-286.35	108.00
Operating Cap.	$	10,000.0	-36,764.05-95,131.86	0.73
Intermediate Cap.	$	60,000.0	35,529.69-212,088.52	0.32
Borrowed Op. Cap.	$	100,000.0	53,235.97-185,131.84	0.61
Borrowed Intmed Cap.	$	300,000.0	275,529.69-452,088.50	0.18

[1]See Table X for an explanation of row name abbreviations.

TABLE XVI

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL
WHEN ALFALFA HAY PURCHASE PRICE INCREASES
TO $100 PER TON ON THE LARGE FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	448.0	388.76-468.70	94.46
Berm Past[1]	acres	192.0	125.48-469.10	2.98
Jan. Op. Labor	hrs	167.0	83.67-250.67	5.00
Feb. Op. Labor	hrs	167.0	155.39-217.02	144.56
June Op. Labor	hrs	167.0	14.70-181.70	5.00
Sept. Op. Labor	hrs	167.0	27.25-194.25	5.00
Oct. Op. Labor	hrs	167.0	127.50-294.50	5.00
Nov. Op. Labor	hrs	167.0	83.67-250.67	5.00
Dec. Op. Labor	hrs	167.0	83.67-250.67	5.00
Feb. Labor Hire	hrs	167.0	155.39-217.02	139.56
Operating Cap.	$	10,000.0	-27.039.31-72,960.66	0.12
Intermediate Cap.	$	60,000.0	47,938.83-infinity	0.01

[1]See Table X for an explanation of row name abbreviations.

Bermuda hay sales decrease by two tons and alfalfa hay purchases drop from 19 tons to zero tons. Capital borrowing increases from $61,585 to $62,971. A summary of MPSX range information is in Table XVI.

Intrepretation of MPSX Output for a Small Farm

A matrix of 109 rows and 93 columns similar to that of the large farm is built using OKFARMS for the small farm. The objective function, returns to operating and intermediate capital, stored with the matrix is maximized through linear programming. Only 104 iterations are needed to determine the optimal feasible solution for the small farm (Table XVII). Returns to the operator are $45,189, or $565 per acre. Rows in the solution at their upper limit are: land; January, February, October, November, and December labor; February labor hire; and owner-provided operating and intermediate capital.

The shadow price of cropland is $92.34 over a range of zero to 257.22 acres. The MVP of pasture land is $44.93 as long as pasture acreage is between 7.08 and 47.33 acres. January operator labor has a value of $5.00 in use when hours used are between 71.18 and 238.18. The range on February labor is smaller (-33.90 hours to 87.48 hours) and the shadow price is much higher ($144.89). The MVP of operator labor in other months is $5.00 or zero over a range similar to that of January labor. February hired labor has a shadow price of $139.89, $5.00 less than operator labor over a range of 49.60 to 170.98 hours. Like the large farm, owner provided operating capital has a shadow price of $0.12 and intermediate capital has a MVP of $0.01. The range over which the shadow prices hold is -$42,476.88 to $57,523.09 for operating capital and $19,598.41 to infinity for intermediate capital.

TABLE XVII

SUMMARY OF INPUT AND OUTPUT LEVELS
IN MPSX OPTIMAL SOLUTIONS FOR
THE SMALL FARM

Row	Optimal Enterprise Combination				
	A[1]	B[2]	C[3]	D[4]	E[5]
Objective function ($)	45,189	45,189	103,508	37,406	36,802
Stocker steers (head)	532	532	977	544	432
Sheep (ewes)	---	---	1,629	---	---
Barley for grain (acres)	---	---	---	---	---
Rye for grain (acres)	---	---	56	56	---
Wheat for grain (acres)	56	56	---	---	---
Alfalfa (acres)	---	---	---	---	56
Bermuda hay and pasture (acres)	24	24	24	24	24
Sudan pasture (acres)	---	---	---	---	---
Labor hire (hrs.)	795	795	9,710	808	565
Capital borrow ($)	47,523	47,523	316,281	49,101	35,964
Alfalfa hay buy (tons)	407	407	2,019	387	200
Bermuda hay sell (tons)	---	---	---	---	---

[1]Initial solution given the small farm resource base and assumptions (56 acres cropland, 24 acres bermuda pasture, 83.5 hours operator labor per month, 167 hours maximum labor hire, $10,000 owner provided operating capital, $60,000 owner provided intermediate capital).

[2]Optimal solution from parametric price programming when lamb prices are increased ten dollars from seasonally indexed prices based on $75 per cwt annual average price.

[3]Optimal solution when labor hire is not restricted.

[4]Optimal solution when alfalfa hay purchase price increases to $100 per ton.

[5]Optimal solution when alfalfa hay purchases are limited to 200 tons.

Range output is listed in Table XVIII.

Production activities in the optimal plan are 532 stocker steers, 56 acres of wheat, and 24 acres of bermuda. Hired labor totals 795 hours and operating capital borrowed is $47,523. No bermuda hay is sold and 407 tons of alfalfa hay are purchased for livestock feed. Most of the alfalfa hay is supplemented with high energy concentrates so that it substitutes for high energy DM.

Tables XIX and XX show input cost, unit costs, and upper costs for selected activities not in solution. Input costs for the 25 ewe flock sheep production enterprises are higher than the input costs for 500 ewe flocks. On the small farm, sheep input costs range from $13.63 to $39.19 per ewe. Other input costs are the same as on the large farm. Unit costs for enterprises differ from the large farm because resources are at different levels and have different values in production. Sheep enterprises have reduced costs per ewe of $1.96 to $134.07, cow-calf enterprises, $17.94 to $122.76 per cow, barley, $6.65 per acre, rye, $6.56 per acre, grain sorghum, $53.34 per acre, alfalfa, $43.69 per acre, and sudan pasture, $111.03 per acre.

Parametric price programming indicated that the sheep enterprise would not enter the optimal solution even if lamb prices increased $10 per cwt from the price in the budgets (Table XVII). When labor hire restrictions were removed from the small farm, returns again doubled and the enterprise combination changed drastically (Table XVII). The plan, though mathematically feasible, is unrealistic. Returns to the objective function are $103,508 or $1,294 per acre. The optimal plan includes 1,629 ewes (150 ewe flock, WLIC), 977 stockers, 56 acres

TABLE XVIII

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL ON THE SMALL FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	56.0	0.0-257.22	92.34
Berm. Past.[1]	acres	24.0	7.08-47.33	44.93
Jan. Op. Labor	hrs.	83.5	71.18-238.18	5.00
Feb. Op. Labor	hrs.	83.5	-33.90-87.48	144.89
Oct. Op. Labor	hrs.	83.5	79.52-246.52	5.00
Nov. Op. Labor	hrs.	83.5	71.18-238.18	5.00
Dec. Op. Labor	hrs.	83.5	71.18-238.18	5.00
Feb. Labor Hire	hrs.	167.0	49.60-170.98	139.89
Operating Cap.	$	10,000.0	-42,476.88-57,523.09	0.12
Intermediate Cap.	$	60,000.0	19,598.41-infinity	0.01

[1]See Table X for an explanation of row name abbreviations.

TABLE XIX

SUMMARY OF MPSX RANGE OUTPUT FOR PRODUCTION ACTIVITIES AT LIMIT LEVEL ON THE SMALL FARM

Column	Units	Input Cost	Unit Cost	Upper Cost
		(dollars)	(dollars)	(dollars)
25 FLEC[1]	ewes	- 31.52	113.08	81.55
25 FLIC[1]	ewes	- 33.65	134.07	98.41
25 SLEC[1]	ewes	- 33.94	66.80	32.86
25 SLIC[1]	ewes	- 38.44	96.82	58.39
25 WLEC[1]	ewes	- 35.54	65.85	30.32
25 WLIC[1]	ewes	- 39.19	78.78	39.59
150 FLEC[2]	ewes	- 13.63	43.22	29.59
150 FLIC[2]	ewes	- 16.92	57.74	40.82
150 WLIC[2]	ewes	- 19.51	6.80	- 12.71
150 SLIC[2]	ewes	- 19.73	1.96	- 17.77
Cow-Calf[3]	cows	- 49.41	122.76	- 73.35
Cow-Calf[4]	cows	- 66.45	17.94	- 48.51
Stocker Heifer[5]	stockers	- 25.95	6.65	- 19.30
Barley	acres	- 78.69	6.56	- 72.13
Grain Sorghum	acres	- 75.21	53.34	- 21.86
Alfalfa	acres	-135.69	43.69	- 91.99
Sudan Hay	acres	- 85.43	111.03	73.60

[1]25 ewe flock.

[2]150 ewe flock.

[3]Fall calving with 240-day weaning.

[4]Fall calving.

[5]Buy October 1, sell May 15.

TABLE XX

SUMMARY OF MPSX RANGE OUTPUT FOR SELECTED SELL ACTIVITIES ON THE SMALL FARM

Column	Units	Input Cost	Upper Cost
		(dollars)	(dollars)
Fall Lambs	cwt.	79.80	130.05
Winter Lambs	cwt.	77.10	109.39
Summer Lambs	cwt.	68.55	96.56
Slaughter Pigs	cwt.	45.00	58.20
Steer Calves	cwt.	80.00	115.96
Heifer Calves	cwt.	68.00	120.55
Heifers - Choice	cwt.	66.00	75.20
Slaughter Heifers	cwt.	56.00	56.76
Barley	bu.	2.35	2.51
Rye	bu.	2.00	2.03
Milo	cwt.	5.65	8.32
Alfalfa Hay	lb.	0.035	0.04
Sudan Hay	lb.	0.027	0.04

of rye, and 24 acres of bermuda. Operator labor totals 9,710 hours, operating capital borrowed is $100,000 and intermediate capital borrowed is $216,281. Bermuda hay is fed rather than sold and 2,019 tons of alfalfa hay are purchased. Range output for rows at limit level are tabulated in Table XXI.

Increasing the alfalfa hay purchase price to $100 per ton for the small farm causes results similar to those when hay prices increased on the large farm (Table XVII). Returns are reduced from $45,188 to $37,406. The number of stockers increases slightly, rye replaces wheat, labor hire increases slightly as does borrowing of operating capital. Less alfalfa hay is bought and all bermuda hay is fed. The optimal solution is 544 stocker steers, 56 acres of rye, 24 acres of bermuda, 808 hours of hired labor, $49,101 borrowed capital, and 387 tons of purchased alfalfa. MPSX range output for rows at limit level is listed in Table XXII.

When alfalfa hay purchases on the small farm are limited to 200 tons, returns to operating and intermediate capital drop to $36,802. Fewer stockers are fed (432 head) and alfalfa rather than wheat or rye is raised on cropland. Labor hire is 565 hours, 230 hours less than in any other solution. Capital borrowing is also least in this situation. All bermuda hay and alfalfa hay produced on the farm is fed to livestock and 200 tons of alfalfa, the maximum allowed, are purchased. Range output for rows at limit level is listed in Table XXIII.

Comparison of Large Farm and Small Farm Optimal Plans

Returns per acre for the optimal solutions are much higher on the

TABLE XXI

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL WHEN OPERATOR LABOR IS NOT RESTRICTED ON THE SMALL FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	56.0	32.12-75.18	294.35
Berm Past [1]	acres	24.0	0.00-41.84	176.00
Operating Cap.	$	10,000.0	-84,462.08-301,255.50	0.79
Intermediate Cap.	$	60,000.0	-23,718.50-276,281.44	0.14
Borrowed Op. Cap.	$	100,000.0	5,537.94-391,255.41	0.67

[1] See Table X for an explanation of row name abbreviations.

Table XXII

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL WHEN ALFALFA HAY PURCHASE PRICE INCREASES TO $100 PER TON ON THE SMALL FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	56.0	0.00-104.38	122.18
Berm. Past.[1]	acres	24.0	7.25-48.43	76.35
Jan. Op. Labor	hrs.	83.5	76.72-243.72	5.00
Feb. Op. Labor	hrs.	83.5	39.45-90.28	104.15
Oct. Op. Labor	hrs.	83.5	76.72-243.72	5.00
Nov. Op. Labor	hrs.	83.5	76.72-243.72	5.00
Dec. Op. Labor	hrs.	83.5	76.72-243.72	5.00
Feb. Labor Hire	hrs.	167.0	44.05-173.78	99.15
Operating Cap.	$	10,000.0	-40,898.79-59,101.19	0.12
Intermediate Cap.	$	60,000.0	20,945.94-infinity	0.01

[1]See Table X for an explanation of row name abbreviations.

Table XXIII

SUMMARY OF MPSX RANGE OUTPUT FOR ROWS AT LIMIT LEVEL
WHEN ALFALFA HAY PURCHASES ARE LIMITED TO
200 TONS ON THE SMALL FARM

Row	Units	Activity Level	Range	Shadow Price ($ per unit)
Cropland	acres	56.0	0.00-56.26	276.78
Berm. Past. [1]	acres	24.0	10.92-25.61	152.84
Jan. Op. Labor	hrs.	83.5	26.70-193.70	5.00
Feb. Op. Labor	hrs.	83.5	41.04-208.04	5.00
Oct. Op. Labor	hrs.	83.5	26.70-193.70	5.00
Nov. Op. Labor	hrs.	83.5	26.70-193.70	5.00
Dec. Op. Labor	hrs.	83.5	26.70-193.70	5.00
Operating Cap.	$	10,000.0	-54,035.54-45,964.44	0.12
Intermediate Cap.	$	60,000.0	22,815.50-infinity	0.01
Buy Hay Maximum	lbs.	400,000.0	41,448.75-572,951.5	0.03

[1]See Table X for an explanation of row name abbreviations.

small farm than on the large farm. However, hours of labor and capital available per acre are highest on the small farm. When labor is constrained on the large farm, January, February, June, September, October, November, and December operator labor and February labor hire are effective constraints. Operator labor is also restricting on the small farm in January, February, October, November, and December and February labor hire is a constraint except when a maximum on alfalfa purchases causes alfalfa production to replace wheat production. Owner-provided operating and intermediate capital is fully used in all whole farm plans. Shadow prices on land are generally highest on the small farm. The highest shadow price on cropland is $294.35 on the small farm when labor hire is unlimited. Bermuda pasture also has the highest MVP ($176) when labor hire on the small farm is not restricted.

Three production activities are common to most plans: stocker steers, wheat, and bermuda. Rye is also in all large farm solutions but wheat is replaced by rye and alfalfa in several small farm plans. Labor hire ranges from 524 to 12,238 hours on the large farm and ranges from 565 to 9,710 on the small farm with 548 hours in the initial large farm problem and 795 hours in the initial small farm problem. Operating capital borrowed for the large farm is $61,584 and for the small farm is $47,523 in the initial problem. Some bermuda hay is sold on the large farm but all of it is fed on the small farm. Alfalfa hay purchases are greatest on the small farm.

FOOTNOTES

[1]The cost of the energy supplement is based on costs of dehydrated molasses. Dried sugarcane molasses is 96 percent DM and contains 2.81 Mcal/kg (National Academy of Sciences, 1976). The molasses contains 1.277 Mcal ME/lb and alfalfa hay purchased provides 0.909 Mcal ME lb. High energy DM must contain 1.073 ME/lb so a supplement to alfalfa hay must add 0.164 Mcal ME/lb. Therefore, 0.128 lbs of dehydrated molasses provides the energy needed to make alfalfa hay a high energy feed source.

[2]Interest rates are intended to be comparable to current borrowing rates.

CHAPTER VI

SUMMARY AND CONCLUSION

Introduction

The primary objective of this study was to analyze the potential of commercial sheep production in Oklahoma. National sheep economic conditions and Oklahoma's history of sheep production were discussed. Production economics theory as related to production problems was summarized along with the theory and principles of two mathematical tools, budgeting and linear programming. Applicable literature was briefly reviewed and current studies on sheep economics, production, and marketing were cited. Eighteen sheep budgets were developed using the Oklahoma State University Enterprise Budget Generator, updated technical coefficients, and current prices. The budgets represented different combinations of management systems (intensive or easy care), lambing seasons (fall, winter, or summer), and flock sizes (25, 150, or 500). Receipts and budgeted cost categories in the sheep enterprises were analyzed and compared. The sheep budgets were incorporated into a linear programming model with alternative crop and livestock enterprises for two farm sizes in north central Oklahoma. Finally, optimal enterprise combinations were found for the two linear programming problems and for variations of the two problems.

Summary of Findings from Budgets

Lamb production was the most important factor in determining revenues to the sheep enterprise and lamb production was greatest when ewes were bred for winter lambing. Higher production and higher prices led to higher receipts for winter lambing operations compared to ones with fall or summer lambing. Operating input costs were highest in summer lambing programs, followed by winter and fall lambing systems. Annual operating capital and investment costs were least with winter lambing. Ownership costs and labor costs were similar in systems with the same flock size and management system.

Though costs were greater in intensive management budgets due to higher labor and equipment requirements, higher revenues due to greater lamb production and lower death losses more than offset the increased costs in 150 and 500 ewe flock budgets. In the 25 ewe flock budgets, costs became prohibitive and returns were negative. Operating input, annual operating and investment, ownership, and labor costs were all higher in intensive management budgets than in easy care management budgets.

Returns per ewe increased as flock size increased. Returns were negative in all 25 ewe flock budgets and positive in all 150 and 500 ewe flock budgets. Operating input costs increased with flock size as did annual operating capital and investment costs. On the other hand, ownership and labor costs decreased as flock size increased, indicating some economies of size. Receipts for a given lambing season and management system were the same for all flock sizes.

Summary of Findings From Linear Programming

Livestock, generally stocker steers, as part of optimal enterprise combinations utilized DM and DP produced in bermuda or small grain pasture. Sheep did not enter the solution in initial program runs for the large or small farm but did come in when alternative runs were made. Stocker heifer, swine, and cow-calf operations were not part of the optimal solution for any of the problems. Labor is hired on both the large and small farm and the maximum on labor hired is a constraint on both solutions. The MVP of labor in certain periods is high ($169 to $182 on the large farm). Owner-provided operating and intermediate capital was utilized fully in all solutions and was supplemented with various levels of borrowed capital in different problems.

Large Farm

Optimal solutions for the linear programming variations on the large farm generally included wheat and stockers. On the large farm, more than half of the cropland was devoted to wheat production and more than 450 stocker steers were part of every solution. Rye production in varying levels was also a part of every optimal combination. Bermuda hay and pasture came into soltuion at the maximum available acres (192) in every situation. Labor hire ranged from 524 to 588 hours except when operator labor was unrestricted, then 12,238 hours were used. Capital borrowing was $61,585 and $62,961 in the two solutions where stocker steers were the only livestock enterprise. In the two combinations where sheep were produced and labor was restricted, capital borrowing dropped to $51,107 and $51,232. When labor hire was not restricted, capital borrowing rose to the maximum of $400,000.

Barley production entered the solution only when lamb prices were increased nine dollars per cwt from the seasonally indexed prices. Rye pasture and grain production increased to more than 100 acres when stocker numbers increased to more than 549 head. Wheat acreage and bermuda hay feed was greatest on the large farm when sheep were part of the optimal combination. Alfalfa and sudan hay production became feasible when labor hire restrictions were lifted. Alfalfa hay was purchased in the initial solution and when labor hire was unrestricted. No hay was purchased in the solutions when lamb prices were parametrically programmed or when the alfalfa price was raised. Bermuda hay was sold in all problems except when labor hire was not restricted.

Solutions seemed reasonable in all problems where labor hire was restricted. Returns in each problem were similar, ranging from $97,158 to $98,042. Practically speaking, the solution when no maximum was placed on labor hire appears unreasonable. More than 3,000 head of livestock (863 stocker steers and 2,288 ewes) were placed on 640 acres of land. Labor hire totaled 12,238 hours (more than six full-time equivalents) and was not evenly distributed over the months. Capital borrowing was $400,000 and alfalfa hay purchases were 1,264 tons.

When lamb prices were high, sheep in combination with stocker steers increased returns to operating and intermediate capital. Labor hire and capital borrowing generally decreased. More bermuda hay, a lower quality forage, was utilized when sheep were produced. If bermuda pasture was established and hay was produced regardless of hay prices, sheep were better able to convert the bermuda hay into profits.

Small Farm

Stocker steer and bermuda pasture production were activities common to all small farm program solutions. Cropland was used for wheat production in the initial problem, for rye production when labor hire was not restricted and when alfalfa hay purchase price was $100 per ton, and for alfalfa production when a maximum of 200 tons was placed on alfalfa hay purchases. Bermuda hay and pasture came into solution at the maximum available acreage (24) in each problem. Labor hire ranged from 565 to 808 hours except when operator labor is unlimited and 9710 hours are used.

The sheep enterprise did not enter the optimal solution on the small farm in the initial solution, when alfalfa hay prices were raised, when alfalfa purchases were limited, or when lamb prices were increased ten dollars per cwt over the budgeted production price. Sheep did come in when labor hire was not restricted. Stocker numbers increased when the price of alfalfa hay was raised. Less hay was purchased since rye pasture (though more costly) provides more grazing than wheat pasture. Fewer stockers were fed when hay purchases were limited.

As on the large farm, when no limit was placed on labor hiring the small farm optimal solution seemed unreasonable. Livestock on the 80 acres totaled more than 2,600 head--977 stocker steers and 1,629 ewes. Hired labor amounted to 9,710 hours or almost five full-time workers. Capital borrowing, though not at limit level, was $316,281 or $3,954 per acre of land. Alfalfa hay purchased for feed summed to 2,019 tons.

Conclusions

Labor availability is a prerequisite to sheep and lamb production.

Sheep production, especially with IC management, requires more labor year-round than many other agricultural enterprises. Predator and parasite control and supervision at lambing time are important practices needed to reduce or minimize death losses. New electric fencing equipment being marketed may enhance predator control and reduce labor requirements if sheep no longer have to be penned at night.

Sheep enterprises appear to fit best in farming operations as a supplementary enterprise. Even on western ranges where sheep are better suited than other livestock to utilize low value feedstuffs, two-thirds of the farms have diversified livestock operations. Sheep production in Oklahoma for flocks of 150 or more ewes should continue to yield positive returns if lamb and wool prices remain near their present level. Increasing capital costs favor sheep over stockers since investment costs are much lower.

Individual owner preferences, farm resource situations and limitations, and economic conditions affect the feasibility and profitability of the sheep enterprise as past of the whole farm plan. Returns to land, overhead, risk, and management in the 18 budgets show that sheep can be profitable in Oklahoma if the proper flock size, management system, and lambing season are chosen. Having costs and returns enumerated allows the operator to decide where resources can be used most effectively and if the returns justify the input requirements. Sheep enterprise input requirements can be compared to those in other enterprise budgets to determine optimal allocation of resources to production activities.

When evaluating whole farm plans determined by MPSX, the model's limitations must be considered. For example, 1980 annual average product prices were used. Thus, the enterprise mix is valid only as long as the

relative factor and product prices remain the same. Price trends are ignored as are seasonal variations in all prices other than sheep or lambs. The LP model maximizes returns to operating and intermediate capital and not utility. Hence, a number of qualitative variables (e.g. personal preferences, traditions) not specified in budgets could significantly change the value of the enterprise in an owner-operator's farm plan. Risks and income variability associated with different enterprises are also ignored. Finally, comparing budgets to evaluate alternatives is fair only when the underlying assumptions are similar in all budgets. Since the Oklahoma State University enterprise budgets and sheep budgets were developed by different people, some variations in assumptions and specificity may have occurred. However, these limitations should not prevent the model from indicating practical solutions to realistic farm management problems. In addition the MPSX output provides a great deal of information about input costs, unit costs, and sensitivity of the solutions to changes in assumptions.

Recommendations

The sheep enterprise budgets can be used by Oklahoma farm managers in their process of selecting production enterprises. The budgets can easily be changed if the manager feels the assumed production or input rates are not appropriate to his operation or if another system of production is preferred. Though technical coefficients and input requirements would be difficult to determine, an economic analysis of an accelerated lambing program and of a confinement or partial confinement operation could be useful. Several experiment stations have tested production possibilities with these management systems, but no

comprehensive budgets have been developed to include extra labor hours, veterinary supplies, and additional managerial skills required by the innovative systems.

Although sheep enterprises appear profitable, production will continue only if sufficient markets exist. Sale of sheep and lambs has been a problem in Oklahoma, especially since the Oklahoma city sheep market closed. Some producers sell their lambs for slaughter locally, but the demand for slaughter lambs in an area is generally not large enough to absorb the entire lamb crop unless the producers flock is small and population relatively large. Sheep and lambs must be shipped to Kansas or Texas to reach large central markets. Further testing and analysis of tele-auction sales and other marketing alternatives would provide helpful information about sheep and lamb sale outlets to producers and potential sheepmen.

Further work should be done to compare sheep to Oklahoma's traditional livestock enterprises and to determine the effect of sheep production on farm incomes. More parametric price programming for both outputs and inputs could be done to test the sensitivity of the optimal solution in the linear programming problems for the large and small farm. Restraints on labor hired and the levels of other constraints could be varied to determine their effect on the solution. Risks and uncertainty associated with sheep production should be investigated so that the impact of sheep production on farm income variability could be studied.

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APPENDIX A

PRICE VECTOR, MACHINERY COMPLEMENT, AND EQUIPMENT SET USED IN BUDGET DEVELOPMENT

TABLE XXIV

PRICE VECTOR

NAME STUB	UNIT	EXPECTED STATE PRICE	AREA 1	AREA 2	AREA 3	AREA 5	AREA 6	AREA 7	AREA 8	AREA 9
Gasoline	gal.	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
L. P. Gas	gal.	.70	.70	.70	.70	.70	.70	.70	.70	.70
Diesel	gal.	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Natural Gas	mcf	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Interest Rate	%	.17	.17	.17	.17	.16	.16	.20	.17	.15
Machinery Labor	hr	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.65
Irrigation Labor	hr	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.65
Other Labor	hr	4.00	4.00	4.00	4.00	3.75	4.00	4.00	4.00	3.65
Livestock Labor	hr	4.00	4.00	4.00	4.00	3.75	4.00	4.00	4.00	3.65

TABLE XXV

MACHINERY COMPLEMENT

COLUMN NAME OF MACHINE	1 CODE	2 WIDTH (FEET)	3 INITIAL LIST PRICE	4 SPEED (MPH)	5 FIELD EFFIC-ENCY	6 RC1	7 RC2	8 RC3	9 HOURS USED ANNUALLY	10 YEARS OWNED	11 RFV1	12 RFV2	13 PURCHASE PRICE	14 FUEL TYPE	15 HOURS OF LIFE	16 HP
TRACTOR(1)	1.	60.0	19385.	4.5	0.88	1.35	0.000631	1.60	600.	10.0	0.680	0.920	13060.	3.	12000.	40.
TRACTOR(2)	2.	80.0	24530.	4.5	0.88	1.35	0.000631	1.60	600.	10.0	0.680	0.920	24500.	3.	12000.	80.
TRACTOR(3)	3.	100.0	30640.	4.5	0.88	1.25	0.000631	1.60	600.	10.0	0.680	0.920	30640.	3.	12000.	100.
TRACTOR(4)	4.	125.0	38300.	4.5	0.88	1.25	0.000631	1.60	600.	10.0	0.680	0.920	38300.	3.	12000.	125.
TRACTOR(5)	5.	150.0	45960.	4.5	0.88	1.25	0.000631	1.60	600.	10.0	0.680	0.920	45960.	3.	12000.	150.
TRACTOR(6)	6.	200.0	64000.	4.5	0.88	1.25	0.000631	1.60	600.	10.0	0.680	0.920	64000.	3.	12000.	200.
TRACTOR(7)	7.	250.0	77750.	4.5	0.88	1.25	0.000631	1.60	600.	10.0	0.680	0.920	77750.	3.	12000.	250.
	8.	0.5	8500.	20.0	0.88	0.60	0.001585	1.40	600.	4.0	0.600	0.885	8500.	1.	4000.	130.
TRUCK, WATER	9.	0.8	9200.	20.0	0.88	0.60	0.001585	1.40	600.	4.0	0.600	0.885	9200.	1.	4000.	140.
TRUCK	10.	1.0	10500.	20.0	0.88	0.70	0.001585	1.40	550.	6.0	0.670	0.860	10500.	1.	4000.	150.
PICKUP	11.	2.0	17000.	20.0	0.88	0.80	0.001585	1.40	500.	8.0	0.670	0.860	17000.	1.	5000.	175.
	12.	2.5	32000.	20.0	0.88	0.80	0.001585	1.40	500.	10.0	0.670	0.860	32000.	3.	6000.	200.
SP COMBINE-GRAIN	13.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.	0.	0.	0.
SP COMBINE-GRAIN	14.	12.0	52000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	52000.	3.	2000.	80.
SP COMBINE-CORN	15.	14.0	58000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	58000.	3.	2000.	93.
	16.	16.0	62000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	62000.	3.	2000.	107.
	17.	18.0	68000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	68000.	3.	2000.	120.
S.P. SWATHER	18.	20.0	72000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	72000.	3.	2000.	133.
S.P. SWATHER	19.	24.0	85000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	85000.	3.	2000.	160.
S.P. BALER	20.	30.0	98000.	3.0	0.67	0.50	0.000251	1.80	100.	10.0	0.635	0.895	98000.	3.	2000.	200.
S.P. BALE WAGON	21.	14.0	21000.	5.0	0.77	1.00	0.002510	1.30	100.	10.0	0.660	0.880	21000.	1.	1500.	60.
FORAGE HARVESTER	22.	20.0	32000.	5.0	0.77	1.00	0.002510	1.30	100.	10.0	0.660	0.880	32000.	3.	1500.	75.
	23.	21.0	36300.	3.0	0.74	1.20	0.002510	1.30	100.	10.0	0.560	0.885	36300.	3.	2000.	100.
	24.	21.0	44000.	11.5	0.80	1.00	0.002510	1.30	200.	10.0	0.560	0.885	44000.	3.	2500.	125.
	25.	7.5	46200.	4.0	0.60	1.20	0.002510	1.30	75.	10.0	0.560	0.885	46200.	3.	1500.	225.
	26.	12.0	66000.	3.0	0.63	0.75	0.000251	1.80	75.	15.0	0.585	0.875	66000.	3.	2500.	175.
PECAN HARVESTER	27.	12.0	36000.	3.0	0.63	0.60	0.000631	1.60	100.	10.0	0.585	0.875	36000.	3.	2500.	115.
	28.	7.0	14800.	2.0	0.65	0.85	0.000251	1.80	200.	6.0	0.560	0.885	14800.	1.	1400.	30.
	29.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.	0.	0.	0.
M.B. PLOW(3)	30.	4.0	1800.	4.5	0.80	2.00	0.002510	1.30	100.	10.0	0.600	0.985	1800.	0.	2000.	0.
M.B. PLOW(4)	31.	5.3	4000.	4.1	0.80	2.00	0.002510	1.30	167.	15.0	0.600	0.885	4000.	0.	2000.	0.
M.B. PLOW(5)	32.	6.6	5800.	4.5	0.80	2.00	0.002510	1.30	250.	10.0	0.600	0.885	5800.	0.	2000.	0.
M.B. PLOW(7)	33.	8.0	6400.	4.5	0.80	2.00	0.002510	1.30	300.	10.0	0.600	0.885	6400.	0.	2000.	0.
	34.	9.3	7200.	4.5	0.80	2.00	0.002510	1.30	300.	10.0	0.600	0.885	7200.	0.	2000.	0.
TANDEM DISK	35.	14.0	5000.	4.8	0.83	0.65	0.000251	1.80	100.	10.0	0.600	0.885	5000.	0.	2000.	0.
TANDEM DISK	36.	12.0	6000.	4.8	0.83	0.65	0.000251	1.80	100.	10.0	0.600	0.885	6000.	0.	2000.	0.
TANDEM DISK	37.	16.0	7200.	4.8	0.83	0.60	0.000251	1.80	100.	10.0	0.600	0.885	7200.	0.	2000.	0.
TANDEM DISK	38.	16.0	6000.	3.0	0.67	0.60	0.000251	1.80	100.	10.0	0.635	0.895	6000.	0.	2000.	0.
ONEWAY	39.	21.0	7800.	3.0	0.67	0.60	0.000251	1.80	100.	10.0	0.635	0.895	7800.	0.	2000.	0.
	40.	15.0	4000.	3.8	0.76	0.65	0.000251	1.80	50.	20.0	0.600	0.885	4000.	0.	2000.	0.
CHISEL	41.	16.0	3800.	3.8	0.76	1.00	0.000251	1.80	100.	10.0	0.600	0.885	3800.	0.	2000.	0.
ROLL. CULTIVATOR	42.	14.0	5500.	4.1	0.80	0.65	0.000251	1.80	100.	10.0	0.600	0.885	5500.	0.	2000.	0.
ROW CULTIVATOR	43.	15.0	5200.	4.5	0.76	1.00	0.000251	1.80	150.	8.0	0.600	0.885	5200.	0.	2000.	0.
FIELD CULTIVATOR	44.	12.0	4300.	4.5	0.76	1.00	0.000251	1.80	150.	8.0	0.600	0.885	4300.	0.	2000.	0.
	45.	12.0	3300.	3.8	0.76	1.00	0.000251	1.80	100.	10.0	0.600	0.885	3300.	0.	2000.	0.
FIELD CULTIVATOR	46.	20.0	4600.	3.8	0.76	1.00	0.000251	1.80	100.	10.0	0.600	0.885	4600.	0.	2000.	0.
	47.	15.0	3000.	6.0	0.76	1.00	0.000251	1.80	100.	10.0	0.600	0.885	3000.	0.	1200.	0.
	48.	12.0	2600.	4.0	0.67	1.80	0.000631	1.60	60.	10.0	0.600	0.885	2600.	0.	1200.	0.
	49.	12.0	3900.	4.5	0.76	1.00	0.000251	1.80	100.	10.0	0.600	0.885	3900.	0.	2000.	0.
	50.	12.0	2000.	4.0	0.67	0.80	0.000631	1.60	60.	10.0	0.600	0.885	2000.	0.	1200.	0.

TABLE XXV (Continued)

COLUMN NAME OF MACHINE	1 CODE	2 WIDTH (FEET)	3 INITIAL LIST PRICE	4 SPEED (MPH)	5 FIELD EFFIC-ENCY	6 RC1	7 RC2	8 RC3	9 HOURS USED ANNUALLY	10 YEARS OWNED	11 RFV1	12 RFV2	13 PURCHASE PRICE	14 FUEL TYPE	15 HOURS OF LIFE	16 HP
CULTIBEDDER TILL	51.	18.0	5600.	5.0	0.80	1.00	0.000251	1.80	100.	10.0	0.600	0.885	5600.	0.	2000.	0.
	52.	5.0	12000.	3.0	0.70	0.85	0.002510	1.30	100.	8.0	0.560	0.885	12000.	0.	2000.	0.
SPRINGTOOTH	53.	20.0	2000.	5.3	0.70	0.65	0.000251	1.80	100.	10.0	0.600	0.885	2000.	0.	2000.	0.
SPRINGTOOTH	54.	24.0	2400.	5.3	0.70	0.65	0.000251	1.80	175.	10.0	0.600	0.885	2400.	0.	2000.	0.
SPRINGTOOTH	55.	33.0	3300.	5.3	0.70	0.65	0.000251	1.80	175.	10.0	0.600	0.885	3300.	0.	2000.	0.
SPIKE HARROW	56.	18.0	800.	5.3	0.70	0.65	0.000251	1.80	100.	10.0	0.600	0.885	800.	0.	2000.	0.
ROTARY HOE	57.	24.0	1400.	5.3	0.70	0.65	0.000251	0.80	100.	10.0	0.600	0.885	1400.	0.	2000.	0.
	58.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.	0.	0.	0.
	59.	22.0	5400.	4.8	0.83	0.65	0.000251	1.80	100.	10.0	0.600	0.885	5400.	0.	2000.	0.
	60.	5.0	5000.	10.0	0.90	1.00	0.002510	1.30	100.	10.0	0.635	0.895	5000.	0.	2000.	0.
DRILL W/FERT	61.	13.0	4000.	4.0	0.72	0.65	0.000251	1.80	50.	10.0	0.600	0.885	4000.	0.	1000.	0.
DRILL W/FERT	62.	13.0	5100.	4.0	0.72	0.65	0.000251	1.80	100.	10.0	0.600	0.885	5100.	0.	1000.	0.
	63.	13.0	5900.	4.0	0.60	0.65	0.000251	1.80	100.	10.0	0.600	0.885	5900.	0.	1000.	0.
PAST DRILL W/FRT	64.	13.0	6900.	4.0	0.72	0.65	0.000251	1.80	100.	10.0	0.600	0.885	6900.	0.	1000.	0.
PLANTER AIR	65.	12.0	6200.	5.0	0.67	0.80	0.000631	1.60	60.	10.0	0.600	0.885	6200.	0.	1200.	0.
PLANTER - 4 ROW	66.	18.0	7800.	5.0	0.67	0.80	0.000631	1.60	60.	10.0	0.600	0.885	7800.	0.	1200.	0.
	67.	18.0	8500.	5.0	0.67	0.80	0.000631	1.80	60.	10.0	0.600	0.885	8500.	0.	1200.	0.
PEANUT PLANTER	68.	12.0	7100.	5.0	0.67	0.80	0.000631	1.80	60.	10.0	0.600	0.885	7100.	0.	1200.	0.
BERMUDA SPRIGGER	69.	2.4	7100.	3.0	0.70	1.20	0.002510	1.30	50.	10.0	0.600	0.885	7100.	0.	1000.	0.
	70.	6.0	6200.	4.0	0.67	0.80	0.000631	1.60	50.	10.0	0.600	0.885	6200.	0.	1000.	0.
DRY FERT SPREAD	71.	60.0	0.	5.3	0.67	0.75	0.000251	1.80	50.	10.0	0.560	0.885	0.	0.	1000.	0.
LIQUID FERT SPRD	72.	25.0	4000.	5.3	0.67	0.75	0.000251	1.80	50.	10.0	0.560	0.885	4000.	0.	1000.	0.
ANHYDROUS APPLIC	73.	12.0	4200.	4.0	0.67	1.00	0.000631	1.60	60.	10.0	0.600	0.885	4200.	0.	1000.	0.
SPRAYER	74.	24.0	4000.	3.8	0.60	0.65	0.000251	1.80	50.	10.0	0.600	0.885	4000.	0.	1000.	0.
MANURE SPREADER	75.	14.0	12000.	5.0	0.60	0.85	0.002510	1.30	100.	8.0	0.560	0.885	12000.	0.	2000.	0.
	76.	104.0	18000.	5.0	0.40	1.00	0.002510	1.30	150.	10.0	0.560	0.885	18000.	0.	2000.	0.
LAND PLANE	77.	12.0	7000.	3.5	0.42	1.00	0.000251	1.80	50.	10.0	0.600	0.885	7000.	0.	2000.	0.
FLOAT	78.	10.0	1400.	3.0	0.83	0.65	0.002510	1.30	50.	10.0	0.600	0.885	1400.	0.	2000.	0.
BED SHAPER	79.	12.0	3000.	3.0	0.70	0.60	0.000631	1.60	50.	10.0	0.600	0.885	3000.	0.	2000.	0.
MULCH TREADER	80.	15.0	2800.	5.0	0.83	1.00	0.000251	1.80	100.	10.0	0.600	0.885	2800.	0.	2000.	0.
STALK SHREDDER	81.	12.0	5100.	4.8	0.81	0.65	0.002510	1.30	80.	8.0	0.560	0.885	5100.	0.	1000.	0.
STACK HAND	82.	5.0	10000.	3.0	0.67	0.85	0.002510	1.30	100.	8.0	0.560	0.885	10000.	0.	2000.	0.
PULL COMBINE	83.	14.0	14000.	5.0	0.12	0.85	0.002510	1.30	80.	8.0	0.560	0.885	14000.	0.	2000.	0.
G-NECK TRAILER	84.	3.0	7600.	4.0	0.60	1.00	0.002510	1.30	75.	10.0	0.560	0.885	7600.	0.	1500.	0.
STACK HAND	85.	6.0	8000.	3.0	0.63	0.50	0.000631	1.60	75.	10.0	0.600	0.885	8000.	0.	1500.	0.
ROUND BALE MOVER	86.	6.0	11000.	3.0	0.63	0.60	0.000631	1.60	75.	15.0	0.600	0.885	11000.	0.	2500.	0.
PEANUT COMBINE	87.	5.0	18000.	3.0	0.67	0.80	0.000631	1.80	100.	6.0	0.660	0.880	18000.	0.	2500.	0.
SHAKER-DIGGER	88.	6.0	3600.	3.0	0.76	1.20	0.002510	1.30	100.	10.0	0.600	0.885	3600.	0.	1500.	0.
PECAN SHAKER	89.	6.0	6200.	3.0	0.76	1.00	0.002510	1.30	100.	10.0	0.600	0.885	6200.	0.	1500.	0.
ROUND BALER(6)	90.	20.0	4500.	20.0	0.90	0.50	0.002510	1.30	100.	10.0	0.635	0.895	4500.	0.	1000.	0.
SICKLE MOWER	91.	9.0	2600.	4.3	0.81	1.80	0.002510	1.30	50.	10.0	0.600	0.885	2600.	0.	1000.	0.
ROTARY MOWER	92.	7.0	2500.	4.8	0.81	1.80	0.002510	1.30	50.	10.0	0.560	0.885	2500.	0.	1000.	0.
ROTARY MOWER	93.	12.0	11000.	4.3	0.77	1.80	0.002510	1.30	80.	8.0	0.560	0.885	11000.	0.	1000.	0.
RAKE	94.	9.0	2500.	5.4	0.75	1.00	0.002510	1.30	80.	8.0	0.600	0.885	2500.	0.	1000.	0.
WINDROWER&CRIMPR	95.	12.0	7100.	5.4	0.77	1.00	0.002510	1.30	80.	8.0	0.560	0.885	7100.	0.	1500.	0.
PTO BALER	96.	6.0	8000.	3.0	0.67	0.80	0.002510	1.30	100.	8.0	0.560	0.885	8000.	0.	2000.	0.
BALE LOADER	97.	20.0	1200.	3.0	0.40	1.60	0.002510	1.30	100.	8.0	0.600	0.385	1200.	0.	1000.	0.
BALE WAGON PULL	98.	24.0	16000.	5.0	0.40	1.00	0.002510	1.30	150.	10.0	0.560	0.885	16000.	0.	2000.	0.
TRAILER	99.	16.0	3600.	20.0	0.90	0.50	0.002510	1.30	100.	10.0	0.635	0.895	3600.	0.	1000.	0.
	0.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.	0.0	0.0	0.0	0.	0.	0.	0.

TABLE XXVI

EQUIPMENT SET

COLUMN---	1	2	3	4	5	6	7	8	9	10	11
ITEM NAME	CODE	SIZE	UNIT	TYPE	LIST PRICE	PURCHASE PRICE	YEARS LIFE	SALVAGE PROP OF LIST	REPAIR PROP OF LIST	FUEL & LUB AS PROP	ANNUAL HOURS LABOR
	1.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2.	0.0	0.	0.0	0.0	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	0.0	0.0	0.0
ELECTRIC FENCE	4.	1.00	18.	2.00	370.00	370.00	20.00	0.0	0.200	0.0	4.00
	5.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	12.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	14.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	19.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	20.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	21.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	22.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	23.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	24.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	25.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	26.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	27.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	28.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	30.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	31.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	32.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	33.	0.0	0.	0.0	0.0	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	0.0	0.0	0.0
	35.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	36.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	37.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	38.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	40.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	41.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	42.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	43.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	44.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	45.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	46.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	47.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	48.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	49.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	50.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE XXVI (Continued)

COLUMN---	1	2	3	4	5	6	7	8	9	10	11
ITEM NAME	CODE	SIZE	UNIT	TYPE	LIST PRICE	PURCHASE PRICE	YEARS LIFE	SALVAGE PROP OF LIST	REPAIR PROP OF LIST	FUEL & LUB AS PROP	ANNUAL HOURS LABOR
	51.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	52.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	53.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	54.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	55.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	56.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	57.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	58.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	59.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	60.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	61.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	62.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	63.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	64.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EWE	65.	1.00	1.	1.00	100.00	100.00	8.00	1.000	0.0	0.0	1.00
RAM	66.	1.00	1.	1.00	190.00	190.00	4.00	1.000	0.0	0.0	2.00
	67.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	68.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	69.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	70.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	71.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	72.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	73.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	74.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LAMB FEEDER	75.	100.00	1.	2.00	200.00	200.00	15.00	0.200	0.400	0.0	2.00
EWE FEED BUNKS	76.	1.00	19.	2.00	3.00	3.00	15.00	0.200	0.400	0.0	1.00
SHEEP WORK CHUTE	77.	1.00	20.	2.00	250.00	250.00	20.00	0.300	0.300	0.0	2.00
	78.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHEEP FNCE & WIR	79.	1.00	18.	2.00	2300.00	2300.00	20.00	0.0	0.200	0.0	5.00
SHEEP FENCE MOVE	80.	1.00	18.	2.00	2500.00	2500.00	20.00	0.0	0.250	0.0	2.00
SHEEP WATER TANK	81.	70.00	5.	2.00	70.00	70.00	20.00	0.200	0.150	0.0	3.00
SHEEP MISC	82.	1.00	15.	2.00	195.00	195.00	10.00	0.200	0.400	0.0	5.00
SHEEP LOT FENCE	83.	1.00	19.	2.00	1.55	1.55	20.00	0.0	0.250	0.0	0.30
	84.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	85.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOVABLE HAY PNLS	86.	10.00	19.	2.00	40.00	40.00	15.00	0.300	0.300	0.0	0.0
MOVABLE HAY PNLS	87.	16.00	19.	2.00	57.00	57.00	15.00	0.300	0.300	0.0	0.0
LAMBING PEN PNLS	88.	4.00	19.	2.00	6.00	6.00	10.00	0.200	0.400	0.0	0.0
	89.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHED (SMALL)	90.	500.00	21.	2.00	2075.00	2075.00	30.00	0.100	0.100	0.0	2.00
SHED (MED.)	91.	3000.00	21.	2.00	9150.00	9150.00	30.00	0.100	0.100	0.0	2.00
SHED (LARGE)	92.	10000.00	21.	2.00	26000.00	26000.00	30.00	0.100	0.100	0.0	2.00
	93.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	94.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	95.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	96.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	97.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	98.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	99.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.	0.0	0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

APPENDIX B

1981 SHEEP ENTERPRISE BUDGETS

TABLE XXVII

500 EWE FLOCK BUDGET, FLEC

SHEEP(PER EWE)-500 EWE SYSTEM,FALL LAMBING,EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	0.380	5.70
EWE	HD.	1.00	0.85	0.200	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
FATLAMBS(80-110)	CWT.	0.86	1.00	79.300	79.80	68.63
AGED EWES	HD.	0.09	1.00	29.400	29.40	2.65
AGED RAMS	HD.	0.01	1.00	29.400	29.40	0.29
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	0.86	1.00	1.800	1.80	1.55
TOTAL RECEIPTS						83.80

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
DRY MATTER(LE)	LBS.	788.35	1.00	788.349	0.0	0.0
DRY MATTER(ME)	LBS.	484.16	1.00	484.160	0.0	0.0
DRY MATTER(HE)	LBS.	126.77	1.00	126.770	0.0	0.0
DP(EWES)	LBS.	71.08	1.00	71.080	0.0	0.0
DP(LAMBS)	LBS.	26.08	1.00	26.080	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	0.96	1.00	0.960	1.00	0.96
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	7.50	1.00	7.500	0.40	3.00
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.06	1.00	0.060	1.00	0.06
UTILITIES	DOL.	0.15	1.00	0.150	1.00	0.15
HAULING	CWT.	1.23	1.00	1.230	0.25	0.31
TRACTOR FUEL & LUBE						0.44
TRACTOR REPAIR COST						0.11
EQUIPMENT REPAIR						0.35
TOTAL OPERATING COST						26.46

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	57.34

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.757	0.98
TRACTOR INVESTMENT	0.170	1.045	0.18
EQUIPMENT INVESTMENT	0.170	12.001	2.04
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			18.62

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	38.72

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.26
EQUIPMENT	DOL.	1.30
TOTAL OWNERSHIP COST		1.56

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	37.16

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.119	0.47
EQUIPMENT LABOR	4.000	2.360	9.44
LIVESTOCK LABOR	4.000	0.806	3.22
TOTAL LABOR COST		3.284	13.14

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	24.02

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	24.02

BRED JUNE1,LAMBED NOV.1,WEANED JAN.15. DAMONA DOYE
86% CONCEPTION RATE, 1.31 LAMBS BORN/EWE EXPOSED, 1.13 LAMBS
6% EWE DEATH LOSES, 10% LAMB DEATH LOSS 10/05/81

TABLE XXVIII

500 EWE FLOCK BUDGET, FLIC

SHEEP (PER EWE) - 500 EWE SYSTEM, FALL LAMBING, INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	0.380	5.70
EWE	HD.	1.00	0.85	0.200	35.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
FATLAMBS(80-110)	CWT.	1.01	1.00	79.300	79.80	30.60
AGED EWES	HD.	0.12	1.00	29.400	29.40	3.53
AGED RAMS	HD.	0.01	1.00	29.400	29.40	0.29
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.03	1.00	1.800	1.80	1.85
TOTAL RECEIPTS						96.95

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
DRY MATTER(LE)	LBS.	785.70	1.00	785.699	0.0	0.0
DRY MATTER(ME)	LBS.	521.92	1.00	521.920	0.0	0.0
DRY MATTER(HE)	LBS.	148.88	1.00	148.880	0.0	0.0
DP (EWES)	LBS.	74.26	1.00	74.260	0.0	0.0
DP (LAMBS)	LBS.	30.61	1.00	30.610	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.14	1.00	1.140	1.00	1.14
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	7.85	1.00	7.850	0.40	3.14
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.06	1.00	0.060	1.00	0.06
UTILITIES	DOL.	0.15	1.00	0.150	1.00	0.15
HAULING	CWT.	1.43	1.00	1.428	0.25	0.36
TRACTOR FUEL & LUBE						0.43
TRACTOR REPAIR COST						0.11
EQUIPMENT REPAIR						0.60
TOTAL OPERATING COST						27.06

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	69.89

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.231	0.89
TRACTOR INVESTMENT	0.170	1.023	0.17
EQUIPMENT INVESTMENT	0.170	41.717	7.09
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			23.57

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	46.31

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.26
EQUIPMENT	DOL.	3.49
TOTAL OWNERSHIP COST		3.74

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	42.57

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.116	0.46
EQUIPMENT LABOR	4.000	2.364	9.46
LIVESTOCK LABOR	4.000	1.612	6.45
TOTAL LABOR COST		4.092	16.37

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	26.20

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	26.20

BRED JUNE 1, LAMBED NOV. 1, WEANED JAN. 15 DAMONA DOYE
90% CONCEPTION RATE, 1.44 LAMBS BORN/EWE EXPOSED, 1.37 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 5% LAMB DEATH LOSS 10/02/81

TABLE XXIX

500 EWE FLOCK BUDGET, WLEC

SHEEP (PER EWE) - 500 EWE SYSTEM, WINTER LAMBING, EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED.

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.02	0.380	4.27
EWE	HD.	1.00	0.85	0.200	35.00
TOTAL LIVESTOCK INVESTMENT					39.27

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
WINTER LAMBS	CWT.	1.25	1.00	77.100	77.10	96.38
AGED EWES	HD.	0.09	1.00	33.900	33.90	3.05
AGED RAMS	HD.	0.01	1.00	33.900	33.90	0.25
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.25	1.00	1.800	1.80	2.25
TOTAL RECEIPTS						112.61

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
DRY MATTER(LE)	LBS.	746.28	1.00	746.279	0.0	0.0
DRY MATTER(ME)	LBS.	588.36	*1.00	588.359	0.0	0.0
DRY MATTER(HE)	LBS.	144.25	1.00	144.250	0.0	0.0
DP (EWES)	LBS.	76.56	1.00	76.560	0.0	0.0
DP (LAMBS)	LBS.	30.50	1.00	30.500	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.35	1.00	1.347	1.00	1.35
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	10.85	1.00	10.850	0.40	4.34
YOUNG RAMS	HD.	0.01	1.00	0.008	190.00	1.42
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.06	1.00	0.060	1.00	0.06
UTILITIES	DOL.	0.15	1.00	0.150	1.00	0.15
HAULING	CWT.	1.61	1.00	1.610	0.25	0.40
TRACTOR FUEL & LUBE						0.43
TRACTOR REPAIR COST						0.11
EQUIPMENT REPAIR						0.35
TOTAL OPERATING COST						27.79

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	34.82

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	3.224	0.55
TRACTOR INVESTMENT	0.170	1.023	0.17
EQUIPMENT INVESTMENT	0.170	11.619	1.98
LIVESTOCK INVESTMENT	0.170	89.275	15.18
TOTAL INTEREST CHARGE			17.87

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	56.95

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.26
EQUIPMENT	DOL.	1.26
TOTAL OWNERSHIP COST		1.51

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	55.43

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.116	0.46
EQUIPMENT LABOR	4.000	2.347	9.39
LIVESTOCK LABOR	4.000	0.806	3.22
TOTAL LABOR COST		3.269	13.07

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	52.36

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	52.36

BRED SEPT. 1, LAMBED FEB. 1, WEANED APRIL 15 — DAMONA COYE
91% CONCEPTION RATE, 1.56 LAMBS BORN EWE EXPOSED, 1.25 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS, 20% LAMB DEATH LOSS — 10/08/81

TABLE XXX

500 EWE FLOCK BUDGET, WLIC

SHEEP (PER EWE) - 500 EWE SYSTEM, WINTER LAMBING, INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED.

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.02	0.380	4.27
EWE	HD.	1.00	0.85	0.200	85.00
TOTAL LIVESTOCK INVESTMENT					89.27

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
WINTER LAMBS	CWT.	1.47	1.00	77.100	77.10	113.34
AGED EWES	HD.	0.12	1.00	33.900	33.90	4.07
AGED RAMS	HD.	0.01	1.00	33.900	33.90	0.25
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.47	1.00	1.800	1.80	2.65
TOTAL RECEIPTS						130.99

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
DRY MATTER(LE)	LBS.	737.31	1.00	737.310	0.0	0.0
DRY MATTER(ME)	LBS.	625.32	1.00	625.320	0.0	0.0
DRY MATTER(ME)	LBS.	169.64	1.00	169.640	0.0	0.0
DP (EWES)	LBS.	80.59	1.00	80.590	0.0	0.0
DP (LAMBS)	LBS.	34.84	1.00	34.840	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.60	1.00	1.597	1.00	1.60
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	11.95	1.00	11.950	0.40	4.78
YOUNG RAMS	HD.	0.01	1.00	0.003	190.00	1.42
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.06	1.00	0.060	1.00	0.06
UTILITIES	DOL.	0.15	1.00	0.150	1.00	0.15
HAULING	CWT.	1.88	1.00	1.880	0.25	0.47
TRACTOR FUEL & LUBE						0.43
TRACTOR REPAIR COST						0.11
EQUIPMENT REPAIR						0.59
TOTAL OPERATING COST						28.79

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	102.19

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	3.134	0.53
TRACTOR INVESTMENT	0.170	1.023	0.17
EQUIPMENT INVESTMENT	0.170	41.335	7.03
LIVESTOCK INVESTMENT	0.170	89.275	15.18
TOTAL INTEREST CHARGE			22.91

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	79.28

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.26
EQUIPMENT	DOL.	3.44
TOTAL OWNERSHIP COST		3.70

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	75.58

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.116	0.46
EQUIPMENT LABOR	4.000	2.351	9.40
LIVESTOCK LABOR	4.000	1.612	6.45
TOTAL LABOR COST		4.079	16.31

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	59.27

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	59.27

BRED SEPT. 1, LAMBED FEB. 1, WEANED APRIL 15 — DAMONA DOYE
96% CONCEPTION RATE, 1.73 LAMBS BORN/EWE EXPOSED, 1.47 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 15% LAMB DEATH LOSS — 10/08/81

TABLE XXXI

500 EWE FLOCK BUDGET, SLEC

SHEEP(PER EWE)-500 EWE SYSTEM,SUMMER LAMBING,EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	0.380	5.70
EWE	HD.	1.00	0.85	0.200	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SUMMER LAMBS	CWT.	1.18	1.00	63.550	68.55	80.89
AGED EWES	HD.	0.09	1.00	28.380	28.38	2.55
AGED RAMS	HD.	0.01	1.00	28.380	28.38	0.28
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
SUMMER LAMBS	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.18	1.00	1.800	1.80	2.12
TOTAL RECEIPTS						96.53

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
DRY MATTER(LE)	LBS.	761.49	1.00	761.488	0.0	0.0
DRY MATTER(ME)	LBS.	565.00	1.00	565.000	0.0	0.0
DRY MATTER(HE)	LBS.	196.76	1.00	196.760	0.0	0.0
DP(EWES)	LBS.	75.51	1.00	75.510	0.0	0.0
DP(LAMBS)	LBS.	39.69	1.00	39.690	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.28	1.00	1.280	1.00	1.28
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	13.84	1.00	13.840	0.40	5.54
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.06	1.00	0.060	1.00	0.06
UTILITIES	DOL.	0.15	1.00	0.150	1.00	0.15
HAULING	CWT.	1.55	1.00	1.550	0.25	0.39
TRACTOR FUEL & LUBE						0.43
TRACTOR REPAIR COST						0.11
EQUIPMENT REPAIR						0.36
TOTAL OPERATING COST						29.39

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	67.15

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.102	0.87
TRACTOR INVESTMENT	0.170	1.023	0.17
EQUIPMENT INVESTMENT	0.170	12.078	2.05
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			18.51

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	48.63

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.26
EQUIPMENT	DOL.	1.31
TOTAL OWNERSHIP COST		1.57

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	47.06

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.116	0.46
EQUIPMENT LABOR	4.000	2.360	9.44
LIVESTOCK LABOR	4.000	0.806	3.22
TOTAL LABOR COST		3.282	13.13

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	33.94

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	33.94

BRED JAN. 1,LAMBED JUNE 1,WEANED AUG. 15 DAMONA DOYE
76% CONCEPTION RATE,1.01 LAMBS BORN/EWE EXPOSED,.86 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS,15% LAMB DEATH LOSS 10/02/91

TABLE XXXII

500 EWE FLOCK BUDGET, SLIC

SHEEP(PER EWE)-500 EWE SYSTEM,SUMMER LAMBING,INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	0.380	5.70
EWE	HD.	1.00	0.85	0.200	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SUMMER LAMBS	CWT.	1.37	1.00	68.550	68.55	93.91
AGED EWES	HD.	0.12	1.00	28.380	28.38	3.41
AGED RAMS	HD.	0.01	1.00	28.380	28.38	0.28
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
SUMMER LAMBS	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.37	1.00	1.300	1.80	2.47
TOTAL RECEIPTS						110.75

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
DRY MATTER(LE)	LBS.	758.51	1.00	758.508	0.0	0.0
DRY MATTER(ME)	LBS.	587.15	1.00	587.150	0.0	0.0
DRY MATTER(HE)	LBS.	218.17	1.00	218.170	0.0	0.0
DP(EWES)	LBS.	77.13	1.00	77.130	0.0	0.0
DP(LAMBS)	LBS.	45.75	1.00	45.750	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.07	1.00	1.070	1.00	1.07
MARKETING	HD.	1.50	1.00	1.500	1.00	1.50
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	13.82	1.00	13.820	0.40	5.53
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.06	1.00	0.060	1.00	0.06
UTILITIES	DOL.	0.15	1.00	0.150	1.00	0.15
HAULING	CWT.	1.79	1.00	1.790	0.25	0.45
TRACTOR FUEL & LUBE						0.43
TRACTOR REPAIR COST						0.11
EQUIPMENT REPAIR						0.60
TOTAL OPERATING COST						29.56

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	81.18

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	4.920	0.84
TRACTOR INVESTMENT	0.170	1.023	0.17
EQUIPMENT INVESTMENT	0.170	41.794	7.11
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			23.53

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	57.65

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.26
EQUIPMENT	DOL.	3.49
TOTAL OWNERSHIP COST		3.75

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	53.90

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.116	0.46
EQUIPMENT LABOR	4.000	2.364	9.46
LIVESTOCK LABOR	4.000	1.612	6.45
TOTAL LABOR COST		4.092	16.37

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	37.53

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	37.53

BRED JAN. 1,LAMBED JUNE 1,WEANED AUG. 15 DAMONA DOYE
80% CONCEPTION RATE,1.12 LAMBS BORN/EWE EXPOSED,1.01 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS,10% LAMB DEATH LOSS 10/02/81

TABLE XXXIII

150 EWE FLOCK BUDGET, FLEC

SHEEP (PER EWE)- 150 EWE SYSTEM, FALL LAMBING, EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENT PURCHASED.

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	1.273	5.73
EWE	HD.	1.00	0.85	0.670	35.42
TOTAL LIVESTOCK INVESTMENT					91.15

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
FATLAMBS(80-110)	CWT.	0.36	1.00	79.300	79.30	68.63
AGED EWES	HD.	0.09	1.00	29.400	29.40	2.65
AGED RAMS	HD.	0.01	1.00	29.400	29.40	0.29
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	0.86	1.00	1.800	1.80	1.55
TOTAL RECEIPTS						83.80

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	788.25	1.00	788.249	0.0	0.0
DRY MATTER(ME)	LBS.	484.16	1.00	484.160	0.0	0.0
DRY MATTER(HE)	LBS.	126.77	1.00	126.770	0.0	0.0
DP(EWES)	LBS.	71.08	1.00	71.080	0.0	0.0
DP(LAMBS)	LBS.	26.08	1.00	26.080	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	0.96	1.00	0.960	1.00	0.96
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	7.50	1.00	7.500	0.40	3.00
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.08	1.00	0.084	1.00	0.08
UTILITIES	DOL.	0.40	1.00	0.396	1.00	0.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						1.57
TRACTOR REPAIR COST						0.40
MACHINERY REPAIR COST						0.10
EQUIPMENT REPAIR						0.49
TOTAL OPERATING COST						28.07

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	55.72

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	6.245	1.06
TRACTOR INVESTMENT	0.170	3.763	0.64
MACHINERY INVESTMENT	0.170	1.154	0.20
EQUIPMENT INVESTMENT	0.170	17.655	3.00
LIVESTOCK INVESTMENT	0.170	91.154	15.50
TOTAL INTEREST CHARGE			20.40

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	35.33

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.95
MACHINERY	DOL.	0.18
EQUIPMENT	DOL.	1.93
TOTAL OWNERSHIP COST		3.05

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	32.27

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.074	0.30
EQUIPMENT LABOR	4.000	2.714	10.85
LIVESTOCK LABOR	4.000	1.352	5.41
TOTAL LABOR COST		4.140	16.56

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	15.72

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	15.72

BRED JUNE 1, LAMBED NOV. 1, WEANED JAN. 15 — DAMONA DOYE
86% CONCEPTION RATE, 1.31 LAMBS BORN/EWE EXPOSED, 1.13 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS, 10% LAMB DEATH LOSS — 10/02/81

TABLE XXXIV

150 EWE FLOCK BUDGET, FLIC

SHEEP (PER EWE)-150 EWES SYSTEM FALL LAMBING, INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	1.273	5.73
EWE	HD.	1.00	0.85	0.670	85.42
TOTAL LIVESTOCK INVESTMENT					91.15

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
FATLAMBS(80-110)	CWT.	1.01	1.00	79.300	79.80	80.60
AGED EWES	HD.	0.12	1.00	29.400	29.40	3.53
AGED RAMS	HD.	0.01	1.00	29.400	29.40	0.29
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.03	1.00	1.800	1.80	1.85
TOTAL RECEIPTS						96.95

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	785.70	1.00	785.699	0.0	0.0
DRY MATTER(ME)	LBS.	521.92	1.00	521.920	0.0	0.0
DRY MATTER(HE)	LBS.	148.88	1.00	148.880	0.0	0.0
DP(EWES)	LBS.	74.26	1.00	74.260	0.0	0.0
DP(LAMBS)	LBS.	30.61	1.00	30.610	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.14	1.00	1.140	1.00	1.14
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	7.85	1.00	7.350	0.40	3.14
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.08	1.00	0.084	1.00	0.08
UTILITIES	DOL.	0.40	1.00	0.396	1.00	0.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						1.63
TRACTOR REPAIR COST						0.42
MACHINERY REPAIR COST						0.11
EQUIPMENT REPAIR						0.77
TOTAL OPERATING COST						28.76

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	68.19

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.666	0.96
TRACTOR INVESTMENT	0.170	3.909	0.66
MACHINERY INVESTMENT	0.170	1.306	0.22
EQUIPMENT INVESTMENT	0.170	52.507	8.93
LIVESTOCK INVESTMENT	0.170	91.154	15.50
TOTAL INTEREST CHARGE			26.27

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	41.92

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	0.98
MACHINERY	DOL.	0.20
EQUIPMENT	DOL.	4.48
TOTAL OWNERSHIP COST		5.66

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	36.26

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.444	1.77
EQUIPMENT LABOR	4.000	2.727	10.91
LIVESTOCK LABOR	4.000	2.704	10.82
TOTAL LABOR COST		5.375	23.50

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	12.76

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	12.76

BRED JUNE 1, LAMBED NOV. 1, WEANED JAN. 15 DAMONA DOYE
90% CONCEPTION RATE, 1.44 LAMBS BORN/EWE EXPOSED, 1.37 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 5% LAMB DEATH LOSS 10/08/81

TABLE XXXV

150 EWE FLOCK BUDGET, WLEC

SHEEP (PER EWE)- 150 EWE SYSTEM WINTER LAMBING , EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.02	1.273	4.30
EWE	HD.	1.00	0.85	0.670	85.42
TOTAL LIVESTOCK INVESTMENT					89.72

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
WINTER LAMBS	CWT.	1.25	1.00	77.100	77.10	96.38
AGED EWES	HD.	0.09	1.00	33.900	33.90	3.05
AGED RAMS	HD.	0.01	1.00	33.900	33.90	0.25
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.25	1.00	1.800	1.80	2.25
TOTAL RECEIPTS						112.61

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	746.28	1.00	746.279	0.0	0.0
DRY MATTER(ME)	LBS.	588.36	1.00	588.359	0.0	0.0
DRY MATTER(HE)	LBS.	144.25	1.00	144.250	0.0	0.0
DP(LAMBS)	LBS.	30.50	1.00	30.500	0.0	0.0
DP(EWES)	LBS.	76.56	1.00	76.560	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.35	1.00	1.350	1.00	1.35
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	10.85	1.00	10.850	0.40	4.34
YOUNG RAMS	HD.	0.01	1.00	0.008	190.00	1.42
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.08	1.00	0.084	1.00	0.08
UTILITIES	DOL.	0.40	1.00	0.396	1.00	0.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						1.75
TRACTOR REPAIR COST						0.45
MACHINERY REPAIR COST						0.13
EQUIPMENT REPAIR						0.56
TOTAL OPERATING COST						29.66

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	82.95

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	3.452	0.59
TRACTOR INVESTMENT	0.170	4.192	0.71
MACHINERY INVESTMENT	0.170	1.596	0.27
EQUIPMENT INVESTMENT	0.170	23.105	3.93
LIVESTOCK INVESTMENT	0.170	89.721	15.25
TOTAL INTEREST CHARGE			20.75

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	62.20

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	1.05
MACHINERY	DOL.	0.24
EQUIPMENT	DOL.	2.39
TOTAL OWNERSHIP COST		3.69

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	58.51

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.476	1.90
EQUIPMENT LABOR	4.000	3.069	12.27
LIVESTOCK LABOR	4.000	1.352	5.41
TOTAL LABOR COST		4.397	19.59

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	38.92

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	38.92

BRED SEPT. 1, LAMBED FEB. 1, WEANED APR. 15 DAMONA DOYE
91% CONCEPTION RATE, 1.56 LAMBS BORN/EWE EXPOSED, 1.25 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS, 20% LAMB DEATH LOSS 10/08/81

TABLE XXXVI

150 EWE FLOCK BUDGET, WLIC

SHEEP (PER EWE)-150 EWE SYSTEM,WINTER LAMBING,INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.02	1.273	4.30
EWE	HD.	1.00	0.85	0.570	85.42
TOTAL LIVESTOCK INVESTMENT					89.72

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
WINTER LAMBS	CWT.	1.47	1.00	77.100	77.10	113.34
AGED EWES	HD.	0.12	1.00	33.900	33.90	4.07
AGED RAMS	HD.	0.01	1.00	33.900	33.90	0.25
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.47	1.00	1.800	1.80	2.65
TOTAL RECEIPTS						130.99

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	737.31	1.00	737.310	0.0	0.0
DRY MATTER(ME)	LBS.	625.32	1.00	625.320	0.0	0.0
DRY MATTER(HE)	LBS.	169.64	1.00	169.640	0.0	0.0
DP(EWES)	LBS.	80.59	1.00	80.590	0.0	0.0
DP(LAMBS)	LBS.	34.84	1.00	34.840	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.60	1.00	1.600	1.00	1.60
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	11.95	1.00	11.950	0.40	4.78
YOUNG RAMS	HD.	0.01	1.00	0.008	190.00	1.42
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.08	1.00	0.084	1.00	0.08
UTILITIES	DOL.	0.39	1.00	0.393	1.00	0.39
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						1.81
TRACTOR REPAIR COST						0.47
MACHINERY REPAIR COST						0.14
EQUIPMENT REPAIR						0.77
TOTAL OPERATING COST						30.65

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	100.33

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	3.355	0.57
TRACTOR INVESTMENT	0.170	4.338	0.74
MACHINERY INVESTMENT	0.170	1.742	0.30
EQUIPMENT INVESTMENT	0.170	52.891	8.99
LIVESTOCK INVESTMENT	0.170	89.721	15.25
TOTAL INTEREST CHARGE			25.85

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	74.48

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	1.09
MACHINERY	DOL.	0.27
EQUIPMENT	DOL.	4.52
TOTAL OWNERSHIP COST		5.88

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	68.60

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.492	1.97
EQUIPMENT LABOR	4.000	2.720	10.88
LIVESTOCK LABOR	4.000	2.704	10.82
TOTAL LABOR COST		5.917	23.67

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	44.94

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	44.94

96% CONCEPTION RATE, 1.73 LAMBS BORN/EWE EXPOSED, 1.47 LAMBS SOLD/EWE EXPOSED 3% EWE DEATH LOSS, 15% LAMB DEATH LOSS
BRED SEPT. 1, LAMBED FEB. 1, WEANED APRIL 15

DAMONA DOYE
10/08/81

TABLE XXXVII

150 EWE FLOCK BUDGET, SLEC

SHEEP(PER EWE)-150 EWE SYSTEM, SUMMER LAMBING, EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	1.273	5.73
EWE	HD.	1.00	0.85	0.570	85.42
TOTAL LIVESTOCK INVESTMENT					91.15

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SUMMER LAMBS	CWT.	1.13	1.00	68.550	68.55	80.89
AGED EWES	HD.	0.09	1.00	28.380	28.38	2.55
AGED RAMS	HD.	0.01	1.00	28.380	28.38	0.28
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
SUMMER LAMBS	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.13	1.00	1.800	1.80	2.12
TOTAL RECEIPTS						96.53

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	761.49	1.00	761.488	0.0	0.0
DRY MATTER(ME)	LBS.	565.00	1.00	565.000	0.0	0.0
DRY MATTER(HE)	LBS.	196.76	1.00	196.760	0.0	0.0
DP(EWES)	LBS.	75.51	1.00	75.510	0.0	0.0
DP(LAMBS)	LBS.	39.69	1.00	39.690	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.28	1.00	1.280	1.00	1.28
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	13.84	1.00	13.840	0.40	5.54
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.08	1.00	0.084	1.00	0.08
UTILITIES	DOL.	0.39	1.00	0.393	1.00	0.39
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						1.69
TRACTOR REPAIR COST						0.44
MACHINERY REPAIR COST						0.12
EQUIPMENT REPAIR						0.50
TOTAL OPERATING COST						31.12

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	65.41

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.303	0.90
TRACTOR INVESTMENT	0.170	4.058	0.69
MACHINERY INVESTMENT	0.170	1.459	0.25
EQUIPMENT INVESTMENT	0.170	18.496	3.14
LIVESTOCK INVESTMENT	0.170	91.154	15.50
TOTAL INTEREST CHARGE			20.48

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	44.93

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	1.02
MACHINERY	DOL.	0.22
EQUIPMENT	DOL.	2.03
TOTAL OWNERSHIP COST		3.27

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	41.66

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.461	1.84
EQUIPMENT LABOR	4.000	2.714	10.86
LIVESTOCK LABOR	4.000	1.352	5.41
TOTAL LABOR COST		4.527	18.11

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	23.55

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	23.55

BRED JAN. 1, LAMBED JUNE 1, WEANED AUG. 15 — DAMONA DOYE
76% CONCEPTION RATE, 1.01 LAMBS BORN/EWE EXPOSED, .86 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS, 15% LAMB DEATH LOSS — 10/02/81

TABLE XXXVIII

150 EWE FLOCK BUDGET, SLIC

SHEEP (PER EWE) - 150 EWE SYSTEM, SUMMER LAMBING, INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	1.273	5.73
EWE	HD.	1.00	0.85	0.670	85.42
TOTAL LIVESTOCK INVESTMENT					91.15

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SUMMER LAMBS	CWT.	1.37	1.00	68.550	68.55	93.91
AGED EWES	HD.	0.12	1.00	28.380	28.38	3.41
AGED RAMS	HD.	0.01	1.00	28.380	28.38	0.28
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
SUMMER LAMBS	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.37	1.00	1.800	1.80	2.47
TOTAL RECEIPTS						110.75

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	758.51	1.00	758.508	0.0	0.0
DRY MATTER(ME)	LBS.	587.15	1.00	587.150	0.0	0.0
DRY MATTER(HE)	LBS.	218.17	1.00	218.170	0.0	0.0
DP (EWES)	LBS.	77.13	1.00	77.130	0.0	0.0
DP (LAMBS)	LBS.	45.75	1.00	45.750	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.07	1.00	1.070	1.00	1.07
MARKETING	HD.	1.50	1.00	1.500	1.00	1.50
SHEARING	HD.	1.04	1.00	1.040	1.75	1.82
WORMING	HD.	13.82	1.00	13.820	0.40	5.53
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.08	1.00	0.084	1.00	0.08
UTILITIES	DOL.	0.40	1.00	0.396	1.00	0.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						1.74
TRACTOR REPAIR COST						0.45
MACHINERY REPAIR COST						0.13
EQUIPMENT REPAIR						0.78
TOTAL OPERATING COST						31.36

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	79.39

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.122	0.87
TRACTOR INVESTMENT	0.170	4.186	0.71
MACHINERY INVESTMENT	0.170	1.589	0.27
EQUIPMENT INVESTMENT	0.170	53.347	9.07
LIVESTOCK INVESTMENT	0.170	91.154	15.50
TOTAL INTEREST CHARGE			26.42

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	52.93

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	1.05
MACHINERY	DOL.	0.24
EQUIPMENT	DOL.	4.58
TOTAL OWNERSHIP COST		5.87

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	47.10

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.475	1.90
EQUIPMENT LABOR	4.000	2.728	10.91
LIVESTOCK LABOR	4.000	2.704	10.82
TOTAL LABOR COST		5.907	23.63

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	23.48

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	23.48

BRED JAN. 1, LAMBED JUNE 1, WEANED AUG. 15 DAMONA COYE
80% CONCEPTION RATE, 1.12 LAMBS BORN/EWE EXPOSED, 1.01 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 10% LAMB DEATH LOSS 10/02/81

TABLE XXXIX

25 EWE FLOCK BUDGET, FLEC

SHEEP(PER EWE)-25 EWE SYSTEM,FALL LAMBING,EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMPSHIRE/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	7.600	5.70
EWE	HD.	1.00	0.85	4.000	35.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
FATLAMBS(80-110)	CWT.	0.86	1.00	79.800	79.80	68.63
AGED EWES	HD.	0.09	1.00	29.400	29.40	2.65
AGED RAMS	HD.	0.01	1.00	29.400	29.40	0.29
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	0.86	1.00	1.800	1.80	1.55
TOTAL RECEIPTS						83.80

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	738.25	1.00	738.249	0.0	0.0
DRY MATTER(ME)	LBS.	484.16	1.00	484.160	0.0	0.0
DRY MATTER(HE)	LBS.	126.77	1.00	126.770	0.0	0.0
DP(EWES)	LBS.	71.08	1.00	71.080	0.0	0.0
DP(LAMBS)	LBS.	26.08	1.00	26.080	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	0.96	1.00	0.960	1.00	0.96
SHEARING	HD.	1.04	1.00	1.040	2.00	2.08
WORMING	HD.	7.50	1.00	7.500	0.40	3.00
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.20	1.00	0.204	1.00	0.20
UTILITIES	DOL.	2.40	1.00	2.400	1.00	2.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						7.64
TRACTOR REPAIR COST						1.97
MACHINERY REPAIR COST						0.22
EQUIPMENT REPAIR						1.27
TOTAL OPERATING COST						39.00

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	44.80

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	10.109	1.72
TRACTOR INVESTMENT	0.170	18.334	3.12
MACHINERY INVESTMENT	0.170	2.612	0.44
EQUIPMENT INVESTMENT	0.170	45.996	7.82
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			28.52

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	16.28

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	4.61
MACHINERY	DOL.	0.40
EQUIPMENT	DOL.	5.01
TOTAL OWNERSHIP COST		10.03

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	6.26

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.081	8.32
EQUIPMENT LABOR	4.000	4.000	16.00
LIVESTOCK LABOR	4.000	2.015	8.06
TOTAL LABOR COST		8.096	32.38

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	-26.13

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	-26.13

BRED JUNE 1, LAMBED NOV. 1, WEANED JAN. 15 DAMONA DOYE
86% CONCEPTION RATE, 1.31 LAMBS BORN/EWE EXPOSED, 1.18 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS, 10% LAMB DEATH LOSS 10/13/81

TABLE XL

25 EWE FLOCK BUDGET, FLIC

SHEEP(PER EWE)-25 EWE SYSTEM,FALL LAMBING,INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMPSHIRE/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	7.600	5.70
EWE	HD.	1.00	0.85	4.000	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
FATLAMBS(80-110)	CWT.	1.01	1.00	79.800	79.80	80.60
AGED EWES	HD.	0.12	1.00	29.400	29.40	3.53
AGED RAMS	HD.	0.01	1.00	29.400	29.40	0.29
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.03	1.00	1.800	1.80	1.85
TOTAL RECEIPTS						96.95

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	785.70	1.00	785.699	0.0	0.0
DRY MATTER(ME)	LBS.	521.92	1.00	521.920	0.0	0.0
DRY MATTER(HE)	LBS.	148.88	1.00	148.880	0.0	0.0
DP(EWES)	LBS.	74.26	1.00	74.260	0.0	0.0
DP(LAMBS)	LBS.	30.61	1.00	30.610	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.14	1.00	1.140	1.00	1.14
SHEARING	HD.	1.04	1.00	1.040	2.00	2.08
WORMING	HD.	7.85	1.00	7.850	0.40	3.14
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.20	1.00	0.204	1.00	0.20
UTILITIES	DOL.	2.40	1.00	2.400	1.00	2.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						7.64
TRACTOR REPAIR COST						1.97
MACHINERY REPAIR COST						0.22
EQUIPMENT REPAIR						1.64
TOTAL OPERATING COST						39.69

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	57.27

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	8.967	1.52
TRACTOR INVESTMENT	0.170	18.334	3.12
MACHINERY INVESTMENT	0.170	2.612	0.44
EQUIPMENT INVESTMENT	0.170	93.086	15.82
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			36.33

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	20.94

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	4.61
MACHINERY	DOL.	0.40
EQUIPMENT	DOL.	8.45
TOTAL OWNERSHIP COST		13.46

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	7.47

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.081	8.32
EQUIPMENT LABOR	4.000	4.080	16.32
LIVESTOCK LABOR	4.000	4.030	16.12
TOTAL LABOR COST		10.191	40.76

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	-33.29

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	-33.29

BRED JUNE 1, LAMBED NOV. 1, WEANED JAN. 15 — DAMONA DOYE
90% CONCEPTION RATE, 1.44 LAMBS BORN/EWE EXPOSED, 1.37 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 5% LAMB DEATH LOSS — 10/05/81

TABLE XLI

25 EWE FLOCK BUDGET, WLEC

SHEEP(PER EWE)-25 EWE SYSTEM,WINTER LAMBING, EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	7.600	5.70
EWE	HD.	1.00	0.85	4.000	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
WINTER LAMBS	CWT.	1.25	1.00	77.100	77.10	96.38
AGED EWES	HD.	0.09	1.00	33.900	33.90	3.05
AGED RAMS	HD.	0.01	1.00	33.900	33.90	0.34
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.25	1.00	1.800	1.80	2.25
TOTAL RECEIPTS						112.69

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	746.28	1.00	746.279	0.0	0.0
DRY MATTER(ME)	LBS.	588.36	1.00	588.359	0.0	0.0
DRY MATTER(HE)	LBS.	144.25	1.00	144.250	0.0	0.0
DP(EWES)	LBS.	76.56	1.00	76.560	0.0	0.0
DP(LAMBS)	LBS.	30.50	1.00	30.500	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.35	1.00	1.350	1.00	1.35
SHEARING	HD.	1.04	1.00	1.040	2.00	2.08
WORMING	HD.	10.85	1.00	10.850	0.40	4.34
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.20	1.00	0.204	1.00	0.20
UTILITIES	DOL.	2.40	1.00	2.400	1.00	2.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						7.99
TRACTOR REPAIR COST						2.06
MACHINERY REPAIR COST						0.29
EQUIPMENT REPAIR						1.25
TOTAL OPERATING COST						41.22

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	71.48

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.562	0.95
TRACTOR INVESTMENT	0.170	19.187	3.26
MACHINERY INVESTMENT	0.170	3.483	0.59
EQUIPMENT INVESTMENT	0.170	44.658	7.59
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			27.81

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	43.67

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	4.83
MACHINERY	DOL.	0.53
EQUIPMENT	DOL.	4.86
TOTAL OWNERSHIP COST		10.22

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	33.45

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.178	8.71
EQUIPMENT LABOR	4.000	4.011	16.04
LIVESTOCK LABOR	4.000	2.015	8.06
TOTAL LABOR COST		8.204	32.82

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	0.63

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	0.63

BRED SEPT 1,LAMBED FEB. 1,WEANED APR.15 DAMONA DOYE
91% CONCEPTION RATE, 1.56 LAMBS BORN/EWE EXPOSED, 1.25 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS,20% LAMB DEATH LOSS 10/08/81

TABLE XLII

25 EWE FLOCK BUDGET, WLIC

SHEEP(PER EWE)-25 EWE SYSTEM,WINTER LAMBING, INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	7.600	5.70
EWE	HD.	1.00	0.85	4.000	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
WINTER LAMBS	CWT.	1.47	1.00	77.100	77.10	113.34
AGED EWES	HD.	0.12	1.00	33.900	33.90	4.07
AGED RAMS	HD.	0.01	1.00	33.900	33.90	0.34
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.47	1.00	1.800	1.80	2.65
TOTAL RECEIPTS						131.07

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	737.31	1.00	737.310	0.0	0.0
DRY MATTER(ME)	LBS.	625.32	1.00	625.320	0.0	0.0
DRY MATTER(HE)	LBS.	169.64	1.00	169.640	0.0	0.0
DP(EWES)	LBS.	80.59	1.00	80.590	0.0	0.0
DP(LAMBS)	LBS.	34.84	1.00	34.840	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.60	1.00	1.600	1.00	1.60
SHEARING	HD.	1.04	1.00	1.040	2.00	2.08
WORMING	HD.	11.95	1.00	11.950	0.40	4.78
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.20	1.00	0.204	1.00	0.20
UTILITIES	DOL.	2.40	1.00	2.400	1.00	2.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						7.99
TRACTOR REPAIR COST						2.06
MACHINERY REPAIR COST						0.29
EQUIPMENT REPAIR						1.62
TOTAL OPERATING COST						42.28

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	38.79

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	5.436	0.92
TRACTOR INVESTMENT	0.170	19.187	3.26
MACHINERY INVESTMENT	0.170	3.483	0.59
EQUIPMENT INVESTMENT	0.170	91.748	15.60
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			35.79

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	53.00

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	4.83
MACHINERY	DOL.	0.53
EQUIPMENT	DOL.	8.29
TOTAL OWNERSHIP COST		13.66

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	39.34

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.178	8.71
EQUIPMENT LABOR	4.000	4.091	16.36
LIVESTOCK LABOR	4.000	4.030	16.12
TOTAL LABOR COST		10.299	41.20

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	-1.85

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	-1.85

BRED SEPT 1, LAMBED FEB. 1, WEANED APRIL 15 — DAMONA DOYE
96% CONCEPTION RATE, 1.73 LAMBS BORN/EWE EXPOSED, 1.47 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 15% LAMB DEATH LOSS — 10/08/81

TABLE XLIII

25 EWE FLOCK BUDGET, SLEC

SHEEP (PER EWE)-25 EWE SYSTEM, SUMMER LAMBING, EASY CARE MANAGEMENT
DORSET/RAMBOUILLET EWES, HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	7.500	5.70
EWE	HD.	1.00	0.85	4.000	35.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SUMMER LAMBS	CWT.	1.18	1.00	68.55 0	68.55	80.89
AGED EWES	HD.	0.09	1.00	23.380	28.33	2.55
AGED RAMS	HD.	0.01	1.00	23.380	28.33	0.28
WOOL	LBS.	8.90	1.00	0.800	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.18	1.00	1.800	1.80	2.12
TOTAL RECEIPTS						96.53

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	761.49	1.00	761.488	0.0	0.0
DRY MATTER(ME)	LBS.	565.00	1.00	565.000	0.0	0.0
DRY MATTER(HE)	LBS.	196.76	1.00	196.760	0.0	0.0
DP (EWES)	LBS.	75.51	1.00	75.510	0.0	0.0
DP (LAMBS)	LBS.	39.69	1.00	39.690	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.41	1.00	1.410	1.00	1.41
MARKETING	HD.	1.28	1.00	1.280	1.00	1.28
SHEARING	HD.	1.04	1.00	1.040	2.00	2.08
WORMING	HD.	13.84	1.00	13.840	0.40	5.54
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.20	1.00	0.204	1.00	0.20
UTILITIES	DOL.	2.40	1.00	2.400	1.00	2.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						7.99
TRACTOR REPAIR COST						2.06
MACHINERY REPAIR COST						0.29
EQUIPMENT REPAIR						1.32
TOTAL OPERATING COST						42.41

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	54.12

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	6.771	1.15
TRACTOR INVESTMENT	0.170	19.187	3.26
MACHINERY INVESTMENT	0.170	3.483	0.59
EQUIPMENT INVESTMENT	0.170	48.143	8.19
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			28.61

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	25.51

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	4.83
MACHINERY	DOL.	0.53
EQUIPMENT	DOL.	5.26
TOTAL OWNERSHIP COST		10.62

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	14.88

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.173	8.71
EQUIPMENT LABOR	4.000	4.007	16.03
LIVESTOCK LABOR	4.000	2.015	8.06
TOTAL LABOR COST		8.200	32.80

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	-17.92

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	-17.92

BRED JAN. 1, LAMBED JUNE 1, WEANED AUG. 15 DAMONA DOYE
76% CONCEPTION RATE, 1.01 LAMBS BORN/EWE EXPOSED, .86 LAMBS SOLD/EWE EXPOSED
6% EWE DEATH LOSS, 15% LAMB DEATH LOSS 10/13/81

TABLE XLIV

25 EWE FLOCK BUDGET, SLIC

SHEEP(PER EWE)-25 EWE SYSTEM,SUMMER LAMBING,INTENSIVE MANAGEMENT
DORSET/RAMBOUILLET EWES,HAMP/SUFFOLK RAMS
REPLACEMENTS PURCHASED

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
RAM	HD.	1.00	0.03	7.600	5.70
EWE	HD.	1.00	0.85	4.000	85.00
TOTAL LIVESTOCK INVESTMENT					90.70

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SUMMER LAMBS	CWT.	1.37	1.00	68.55 0	68 .55	93.91
AGED EWES	HD.	0.12	1.00	28.380	28.38	3.41
AGED RAMS	HD.	0.01	1.00	28.380	28.38	0.28
WOOL	LBS.	8.90	1.00	0.300	0.80	7.12
EWE WOOL INCENTI	DOL.	8.90	1.00	0.400	0.40	3.56
LAMB WOOL INCENT	DOL.	1.37	1.00	1.800	1.80	2.47
TOTAL RECEIPTS						109.90

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DRY MATTER(LE)	LBS.	758.51	1.00	758.508	0.0	0.0
DRY MATTER(ME)	LBS.	537.15	1.00	587.150	0.0	0.0
DRY MATTER(HE)	LBS.	218.17	1.00	218.170	0.0	0.0
DP(EWES)	LBS.	77.13	1.00	77.130	0.0	0.0
DP(LAMBS)	LBS.	45.75	1.00	45.750	0.0	0.0
SALT & MIN.	HD.	6.00	1.00	6.000	0.10	0.60
VACCINE	DOL.	1.07	1.00	1.070	1.00	1.07
MARKETING	HD.	1.47	1.00	1.470	1.00	1.47
SHEARING	HD.	1.04	1.00	1.040	2.00	2.08
WORMING	HD.	13.82	1.00	13.820	0.40	5.53
YOUNG RAMS	HD.	0.01	1.00	0.010	190.00	1.90
YOUNG EWES	HD.	0.15	1.00	0.150	100.00	15.00
MISCL EXPENSE	DOL.	0.20	1.00	0.204	1.00	0.20
UTILITIES	DOL.	2.40	1.00	2.400	1.00	2.40
TAXES	DOL.	1.00	1.00	1.000	0.35	0.35
TRACTOR FUEL & LUBE						7.99
TRACTOR REPAIR COST						2.06
MACHINERY REPAIR COST						0.29
EQUIPMENT REPAIR						1.69
TOTAL OPERATING COST						42.63

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	67.27

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	6.594	1.16
TRACTOR INVESTMENT	0.170	19.187	3.26
MACHINERY INVESTMENT	0.170	3.483	0.59
EQUIPMENT INVESTMENT	0.170	95.233	16.19
LIVESTOCK INVESTMENT	0.170	90.700	15.42
TOTAL INTEREST CHARGE			36.62

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	30.65

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
TRACTOR	DOL.	4.83
MACHINERY	DOL.	0.53
EQUIPMENT	DOL.	8.70
TOTAL OWNERSHIP COST		14.06

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	16.59

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.178	8.71
EQUIPMENT LABOR	4.000	4.087	16.35
LIVESTOCK LABOR	4.000	4.030	16.12
TOTAL LABOR COST		10.295	41.18

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	-24.59

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	-24.59

BRED JAN. 1, LAMBED JUNE 1, WEANED AUG. 15 — DAMONA DOYE
80% CONCEPTION RATE, 1.12 LAMBS BORN/EWE EXPOSED, 1.01 LAMBS SOLD/EWE EXPOSED
3% EWE DEATH LOSS, 10% LAMB DEATH LOSS — 10/05/81

APPENDIX C

SELECTED 1981 LIVESTOCK AND CROP BUDGETS

TABLE XLV

COW-CALF BUDGET, SPRING CALVING

SPRING COW - CALF COSTS & RETURNS PER COW — 11011018
RANGE, CAKE, AND HAY IN BAD WEATHER — 07/14/80
(PASTURE IN TONS OF DRY MATTER BY QUALITY) — STATE

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
BEEF COW	CWT.	9.50	1.00	480.000	480.00
BEEF BULL	CWT.	16.00	0.04	27.000	27.00
BEEF HEIFER	CWT.	8.00	0.12	42.000	42.00
TOTAL LIVESTOCK INVESTMENT.					549.00

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
STR CALV(3-5) CH	CWT.	0.46	4.60	80.000	368.00	169.28
HFR CALV(3-5) CH	CWT.	0.34	4.35	68.000	295.80	100.57
COWS-COMMERCIAL	CWT.	0.10	9.50	44.700	424.65	42.46
TOTAL RECEIPTS						312.32

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DP	LBS.	5080.00	1.00	5080.000	0.0	0.0
DRY MATTER (LE)	LBS.	3300.00	1.00	3300.000	0.0	0.0
DRY MATTER (ME)	LBS.	4960.00	1.00	4960.000	0.0	0.0
DRY MATTER (LE)	LBS.	220.00	1.12	246.400	0.0	0.0
SALT & MIN.	LBS.	24.00	1.12	26.880	0.10	2.69
VET & MED.	HD.	1.00	1.00	1.000	4.50	4.50
HAULING & MKTG.	HD.	1.00	1.00	1.000	7.50	7.50
PERSONAL TAXES	HD.	1.00	1.00	1.000	3.00	3.00
MACH. FUEL & LUBE						6.73
MACHINERY REPAIR COST						1.27
EQUIPMENT REPAIR						5.30
TOTAL OPERATING COST						30.99

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	231.33

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	4.748	0.81
MACHINERY INVESTMENT	0.170	8.987	1.53
EQUIPMENT INVESTMENT	0.170	114.000	19.38
LIVESTOCK INVESTMENT	0.170	549.000	93.33
TOTAL INTEREST CHARGE			115.04

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	166.29

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
MACHINERY	DOL.	1.98
EQUIPMENT	DOL.	11.26
LIVESTOCK	DOL.	7.87
TOTAL OWNERSHIP COST		21.11

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	145.17

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	2.400	9.60
EQUIPMENT LABOR	4.000	3.730	14.92
LIVESTOCK LABOR	4.000	5.920	23.68
TOTAL LABOR COST		12.050	48.20

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	96.97

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	96.97

92% CALF CROP D.P. CONTENT OF HAY 1.8 AND PASTURE 1.8 = 1.1% QUALITY IS MEASURED IN MCAL OF METABOLIZEABLE ENERGY PER KG. DM.

WALKER, JOBES, CROSS
07/16/80 0000000000

TABLE XLVI

COW-CALF BUDGET, FALL CALVING WITH 240 DAY WEANING

FALL COW-CALF COSTS AND RETURNS PER COW. 240 DAY WEANING — 110314 18 07/15/80
(PASTURE IN TONS OF DRY MATTER BY QUALITY — STATE

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
BEEF COW	CWT.	9.50	1.00	480.000	480.00
BEEF BULL	CWT.	16.00	0.03	900.000	27.00
BEEF HEIFER	CWT.	8.00	0.12	350.000	42.00
TOTAL LIVESTOCK INVESTMENT					549.00

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
STR CALV(3-5) CH	CWT.	0.46	5.40	80.000	432.00	198.72
HFR CALV(3-5) CH	CWT.	0.34	5.00	68.000	340.00	115.60
CULL COWS	CWT.	0.10	10.00	44.700	447.00	44.70
TOTAL RECEIPTS						359.02

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DP	LBS.	540.00	1.00	540.000	0.0	0.0
DRY MATTER (ME)	LBS.	8960.00	1.00	8960.000	0.0	0.0
DRY MATTER (LE)	LBS.	234.00	1.12	262.080	0.0	0.0
SALT & MIN.	LBS.	24.00	1.12	26.880	0.10	2.69
VET & MED.	HD.	1.00	1.00	1.000	0.10	0.10
HAULING & MKTG.	HD.	1.00	1.00	1.000	7.50	7.50
PERSONAL TAXES	HD.	1.00	1.00	1.000	3.00	3.00
MACH. FUEL & LUBE						12.28
MACHINERY REPAIR COST						7.03
EQUIPMENT REPAIR						3.76
TOTAL OPERATING COST						36.36

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	322.66

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	6.446	1.10
MACHINERY INVESTMENT	0.170	55.304	9.40
EQUIPMENT INVESTMENT	0.170	69.000	11.73
LIVESTOCK INVESTMENT	0.170	549.000	93.33
TOTAL INTEREST CHARGE			115.56

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	207.11

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
MACHINERY	DOL.	9.72
EQUIPMENT	DOL.	7.90
LIVESTOCK	DOL.	7.67
TOTAL OWNERSHIP COST		25.29

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	181.81

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	4.380	17.52
EQUIPMENT LABOR	4.000	3.663	14.67
TOTAL LABOR COST		8.048	32.19

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	149.62

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	149.62

92% CALF CROP. D.P. CONTENT OF HAY 1.8 = 1.1% — WALKER, JOBES, CROSS
D.P. CONTENT OF PASTURE 1.8 = 0%. QUALITY IS MEASURED
IN MCAL OF METABOLIZEABLE ENERGY PER KG. DM. — 03/15/80

TABLE XLVII

COW-CALF BUDGET, FALL CALVING

FALL COW - CALF COSTS & RETURNS PER COW — 11051218
WINTERED ON HIGH QUALITY PASTURE, CAKE AND HAY IN BAD WEATHER — 07/15/80
(PASTURE IN TONS OF DM. BY QUALITY) — STATE

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
BEEF COW	CWT.	9.50	1.00	480.000	480.00
BEEF BULL	CWT.	16.00	0.03	900.000	27.00
BEEF HEIFER	CWT.	8.00	0.12	350.000	42.00
TOTAL LIVESTOCK INVESTMENT					549.00

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
STR CALV(3-5) CH	CWT.	0.46	4.60	80.000	368.00	169.28
HFR CALV(3-5) CH	CWT.	0.34	4.35	68.000	295.80	100.57
CULL COWS	CWT.	0.10	9.50	44.700	424.65	42.46
TOTAL RECEIPTS						312.32

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
DP	LBS.	560.00	1.00	560.000	0.0	0.0
DRY MATTER (ME)	LBS.	7522.00	1.00	7522.000	0.0	0.0
DRY MATTER (LE)	LBS.	234.00	1.12	262.080	0.0	0.0
SALT & MIN.	LBS.	24.00	1.12	26.880	0.10	2.69
VET & MED.	HD.	1.00	1.00	1.000	4.50	4.50
HAULING & MKTG.	HD.	1.00	1.00	1.000	7.50	7.50
PERSONAL TAXES	HD.	1.00	1.00	1.000	3.00	3.00
PERSONAL TAXES	HD.	1.00	1.03	1.030	3.00	3.09
MACH. FUEL & LUBE						12.28
MACHINERY REPAIR COST						7.03
EQUIPMENT REPAIR						3.76
TOTAL OPERATING COST						43.85

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	268.47

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	6.811	1.16
MACHINERY INVESTMENT	0.170	55.304	9.40
EQUIPMENT INVESTMENT	0.170	69.000	11.73
LIVESTOCK INVESTMENT	0.170	549.000	93.33
TOTAL INTEREST CHARGE			115.62

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	152.85

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
MACHINERY	DOL.	9.72
EQUIPMENT	DOL.	7.90
LIVESTOCK	DOL.	7.67
TOTAL OWNERSHIP COST		25.29

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	127.56

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	4.380	17.52
EQUIPMENT LABOR	4.000	3.668	14.67
TOTAL LABOR COST		8.048	32.19

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	95.36

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	95.36

92% CALF CROP. D.P. CONTENT OF HAY 1.8 = 1.1%
D.P. CONTENT OF PASTURE 2.2 = 6.0%. QUALITY IS MEASURED
IN MCAL OF METABOLIZEABLE ENERGY PER KG. DM.

WALKER, JOBES, CROSS
03/15/80 0003000000

TABLE XLVIII

STOCKER HEIFER BUDGET, SELL MARCH 1

STOCKER HEIFER BUDGET PER HEAD 13011234
BUY OCT. 1, 435 LB, SELL MAR. 1. WHEAT GRAZING. 07/20/80
(PASTURE IN TONS OF DRY MATTER BY QUALITY) STATE

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
HFRS (5-7) CH	CWT.	0.99	7.41	66.000	489.06	484.17
TOTAL RECEIPTS						484.17

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
HFR CALV(3-5) CH	CWT.	4.35	1.00	4.350	69.00	300.15
DRY MATTER (HE)	LBS.	1880.00	1.00	1880.000	0.0	0.0
DRY MATTER (LE)	LBS.	260.00	1.00	260.000	0.0	0.0
DRY MATTER (ME)	LBS.	144.00	1.00	144.000	0.0	0.0
SALT & MIN.	LBS.	12.50	1.00	12.500	0.10	1.25
TRUCKING	CWT.	11.76	1.00	11.760	0.34	4.00
SALES COMM.	HD.	1.00	1.00	1.000	5.00	5.00
VET & MED.	HD.	1.00	1.00	1.000	5.00	5.00
UTILITIES	HD.	0.15	1.00	0.150	1.00	0.15
MACH. FUEL & LUBE						2.35
MACHINERY REPAIR COST						0.97
EQUIPMENT REPAIR						0.21
TOTAL OPERATING COST						319.07

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT 165.09

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	128.748	21.89
MACHINERY INVESTMENT	0.170	7.894	1.34
EQUIPMENT INVESTMENT	0.170	21.735	3.69
TOTAL INTEREST CHARGE			26.92

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT 138.17

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
MACHINERY	DOL.	1.42
EQUIPMENT	DOL.	3.31
TOTAL OWNERSHIP COST		4.74

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT 133.43

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.840	3.36
EQUIPMENT LABOR	4.000	0.110	0.44
LIVESTOCK LABOR	4.000	1.350	5.40
TOTAL LABOR COST		2.300	9.20

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT 124.23

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT 124.23

OCT. 1 TO NOV. 1 ON NATIVE PASTURE WALKER, JOBES, CROSS
NOV. 1 TO MAR. 1 WHEAT GRAZING. IMPLANTED, .75 PRIOR ADG.
HAY FOR BAD WEATHER. ADG=2.34 LB/DAY 08/11/80

TABLE XLIX

STOCKER HEIFER BUDGET, SELL MAY 15

STOCKER HEIFER BUDGET PER HEAD 13021236
BUY OCT. 1, 435 LB, SELL MAY 15. WHEAT GRAZING. 07/20/80
(PASTURE IN TONS OF DRY MATTER BY QUALITY) STATE

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SLTR HFRS-CHOICE	CWT.	0.99	8.84	56.000	495.04	490.09
TOTAL RECEIPTS						490.09

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
HFR CALV(3-5) CH	CWT.	4.35	1.00	4.350	69.00	300.15
DRY MATTER (HE)	LBS.	3460.00	1.00	3460.000	0.0	0.0
DRY MATTER (LE)	LBS.	260.00	1.00	260.000	0.0	0.0
DRY MATTER (ME)	LBS.	180.00	1.00	180.000	0.0	0.0
SALT & MIN.	LBS.	18.75	1.00	18.750	0.10	1.88
TRUCKING	CWT.	13.19	1.00	13.190	0.34	4.48
SALES COMM.	HD.	1.00	1.00	1.000	5.00	5.00
VET & MED.	HD.	1.00	1.00	1.000	5.00	5.00
UTILITIES	HD.	0.15	1.00	0.150	1.00	0.15
MACH. FUEL & LUBE						3.87
MACHINERY REPAIR COST						1.59
EQUIPMENT REPAIR						0.21
TOTAL OPERATING COST						322.32

RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	167.77

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	181.233	30.81
MACHINERY INVESTMENT	0.170	12.969	2.20
EQUIPMENT INVESTMENT	0.170	21.735	3.69
TOTAL INTEREST CHARGE			36.71

RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT	131.06

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
MACHINERY	DOL.	2.34
EQUIPMENT	DOL.	3.31
TOTAL OWNERSHIP COST		5.65

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	125.41

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	1.380	5.52
EQUIPMENT LABOR	4.000	0.110	0.44
LIVESTOCK LABOR	4.000	1.900	7.60
TOTAL LABOR COST		3.390	13.56

RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT	111.85

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD, RISK AND MANAGEMENT	111.85

OCT. 1 TO NOV. 1 ON NATIVE PASTURE WALKER, JOBES, CROSS
NOV. 1 TO MAY 15 WHEAT GRAZING. IMPLANTED, .75 PRIOR ADG.
HAY FOR BAD WEATHER. ADG=2.0 LB/DAY 03/11/80

TABLE L

STOCKER STEER BUDGET

STOCKER STEER BUDGET PER HEAD — 13031134
BUY OCT. 1, 300 LB, SELL MAR. 1. WHEAT GRAZING. — 07/20/80
(PASTURE IN TONS OF DRY MATTER BY QUALITY) — STATE

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
STOCKER STEERS	CWT.	0.99	5.71	80.000	456.80	452.23
TOTAL RECEIPTS						452.23

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
STR CALV(3-5) CH	CWT.	3.00	1.00	3.000	81.00	243.00
DRY MATTER (HE)	LBS.	1320.00	1.00	1320.000	0.0	0.0
DRY MATTER (LE)	LBS.	180.00	1.00	180.000	0.0	0.0
DRY MATTER (ME)	LBS.	144.00	1.00	144.000	0.0	0.0
SALT & MIN.	LBS.	12.50	1.00	12.500	0.10	1.25
TRUCKING	CWT.	8.71	1.00	8.710	0.34	2.96
SALES COMM.	HD.	1.00	1.00	1.000	5.00	5.00
VET & MED.	HD.	1.00	1.00	1.000	5.00	5.00
UTILITIES	HD.	0.15	1.00	0.150	1.00	0.15
MACH. FUEL & LUBE						2.52
MACHINERY REPAIR COST						1.04
EQUIPMENT REPAIR						0.21
TOTAL OPERATING COST						261.13
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK AND MANAGEMENT						191.11

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	105.041	17.86
MACHINERY INVESTMENT	0.170	8.458	1.44
EQUIPMENT INVESTMENT	0.170	21.735	3.69
TOTAL INTEREST CHARGE			22.99
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT			168.12

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)			
MACHINERY	DOL.		1.52
EQUIPMENT	DOL.		3.31
TOTAL OWNERSHIP COST			4.84
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT			163.28

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	0.900	3.60
EQUIPMENT LABOR	4.000	0.110	0.44
LIVESTOCK LABOR	4.000	1.350	5.40
TOTAL LABOR COST		2.360	9.44
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT			153.84

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				153.84

OCT. 1 TO NOV. 1 ON NATIVE PASTURE
NOV. 1 TO MAR. 1 WHEAT GRAZING. IMPLANTED, .75 PRIOR ADG.
HAY FOR BAD WEATHER. ADG=1.3 LB/DAY — 08/11/80

TABLE LI

SWINE BUDGET, LOW INVESTMENT, FARROW-TO-FINISH

LOW INVESTMENT FARROW TO FINISH — 41011233
PURCHASE COMPLETE RATION — 01/04/82
PER SOW BASIS — STATE

LIVESTOCK INVESTMENT	UNITS	SIZE	NUMBER	VALUE/UNIT	VALUE
SOW	HD.	1.00	1.29	170.000	217.60
BOAR	HD.	1.00	0.05	350.000	17.50
TOTAL LIVESTOCK INVESTMENT					235.10

PRODUCTION	UNITS	QUANTITY	WEIGHT	PRICE	VALUE/UNIT	VALUE
SLTR(220-240)1-3	CWT.	13.72	2.30	45.000	103.50	1420.02
NONBREEDER GILTS	CWT.	0.22	3.25	30.000	97.50	21.45
SOWS	CWT.	0.68	4.00	38.000	152.00	103.36
BOAR	CWT.	0.07	4.25	35.000	148.75	10.41
TOTAL RECEIPTS						1555.24

OPERATING INPUTS	UNITS	RATE PER UNIT	NUMBER OF UNITS	TOTAL UNITS	PRICE	VALUE
FARROWING RATION	CWT.	10.08	1.00	10.080	7.70	77.62
SOW-BOAR RATION	CWT.	20.44	1.00	20.440	7.90	161.48
STARTER RATION	CWT.	7.40	1.00	7.400	11.20	82.88
GROWER RATION	CWT.	39.84	1.00	39.840	8.40	334.66
FINISHING RATION	CWT.	62.66	1.00	62.660	8.10	507.54
STRAW	BL.	6.00	1.00	6.000	1.50	9.00
YOUNG BOAR	HD.	0.07	1.00	0.070	160.00	11.20
UTILITIES	HD.	1.00	1.00	1.000	23.50	23.50
HAULING & MKTG.	HD.	14.69	1.00	14.690	1.75	25.71
VET MEDICINE	HD.	14.69	1.00	14.690	1.50	22.03
MACHINE HIRE		0.05	1.00	0.050	87.00	4.35
MACH. FUEL & LUBE						35.26
MACHINERY REPAIR COST						14.22
EQUIPMENT FUEL AND LUBE						0.06
EQUIPMENT REPAIR						4.98
TOTAL OPERATING COST						1314.48

RETURNS TO LAND,LABOR,CAPITAL,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	240.76

CAPITAL COST	PRICE	AMOUNT	VALUE
ANNUAL OPERATING CAPITAL	0.170	77.827	13.23
MACHINERY INVESTMENT	0.170	88.174	14.99
EQUIPMENT INVESTMENT	0.170	223.896	38.06
LIVESTOCK INVESTMENT	0.170	235.100	39.97
TOTAL INTEREST CHARGE			106.25

RETURNS TO LAND,LABOR,MACHINERY,OVERHEAD,RISK AND MANAGEMENT	134.51

OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)		
MACHINERY	DOL.	11.33
EQUIPMENT	DOL.	43.29
TOTAL OWNERSHIP COST		54.62

RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT	79.89

LABOR COSTS	PRICE	HOURS	
MACHINERY LABOR	4.000	10.080	40.32
EQUIPMENT LABOR	4.000	1.825	7.30
LIVESTOCK LABOR	4.000	25.980	103.92
TOTAL LABOR COST		37.885	151.54

RETURNS TO LAND,OVERHEAD,RISK AND MANAGEMENT	-71.65

PASTURE CHARGES	UNITS	TOTAL UNITS	PRICE	
PASTURE INVESTMENT	DOL.	0.0	0.0	0.0
PASTURE TAXES				0.0
TOTAL PASTURE CHARGES				0.0

RETURNS TO OVERHEAD,RISK AND MANAGEMENT	-71.65

TWO FARROWING GROUPS
TWO LITTERS/SOW/YEAR

J. WILLIAMS,BLOOME,LUCE
11/19/81 — 2ND COMP 1111111110

TABLE LII

BARLEY BUDGET

BARLEY FOR GRAIN 71200701
SMALL GRAIN CLAY AND LOAM SOILS USUALLY USE CLASSES I & II 08/01/81
SWEEP PLOW - RESIDUE MANAGEMENT NORTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
BARLEY	BU.	2.350	40.000	94.00
DRY MATTER (HE)	LBS.	0.0	1168.000	0.0
DP	LBS.	0.0	222.000	0.0
TOTAL RECEIPTS				94.00
OPERATING INPUTS:				
BARLEY SEED	BU.	3.500	1.500	5.25
18-46-0 FERT	CWT.	14.750	1.000	14.75
NITROGEN (N)	LBS.	0.300	65.000	19.50
CUSTOM COMBINE	ACRE	17.000	1.000	17.00
CUSTOM HAULING	BU.	0.140	40.000	5.60
FERT. SPREADER	CWT.	0.125	1.000	0.13
TRACTOR FUEL & LUBE	ACRE			6.71
TRACTOR REPAIR COST	ACRE			2.09
EQUIP. FUEL & LUBE	ACRE			2.02
EQUIP. REPAIR COST	ACRE			2.20
TOTAL OPERATING COST				75.24
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				18.76
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	37.839	6.43
TRACTOR INVESTMENT		0.170	30.357	5.16
EQUIPMENT INVESTMENT		0.170	21.631	3.68
TOTAL INTEREST CHARGE				15.27
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				3.49
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			3.72
EQUIPMENT	HR.			3.61
TOTAL OWNERSHIP COST				7.33
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				-3.84
LABOR COST:				
MACHINERY LABOR	HR.	4.000	1.893	7.57
OTHER LABOR	HR.	4.000	0.400	1.60
TOTAL LABOR COST			2.293	9.17
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				-13.01
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				-13.01

100# 18-46-0 FALL 80# ANHYDROUS AMMONIA - PREPLANT
CUSTOM COMBINE & TRUCKING SHARKEY 05/23/81

TABLE LIII

GRAIN SORGHUM BUDGET

GRAIN SORGHUM — 73201904
OWNED HARVEST EQUIPMENT — 01/04/82
NORTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
MILO	CWT.	5.650	24.000	135.60
DRY MATTER (ME)	LBS.	0.0	100.000	0.0
DP	LBS.	0.0	7.000	0.0
TOTAL RECEIPTS				135.60
OPERATING INPUTS:				
GRAIN SORG SEED	LBS.	0.750	5.000	3.75
18-46-0 FERT	CWT.	13.500	1.000	13.50
NITROGEN (N)	LBS.	0.300	33.500	10.05
FERT. SPREADER	CWT.	0.125	1.000	0.13
2-4-0	LBS.	2.500	0.500	1.25
CUSTOM COMBINE	ACRE	20.000	1.000	20.00
CUSTOM HAULING	CWT.	0.200	24.000	4.80
TRACTOR FUEL & LUBE	ACRE			9.38
TRACTOR REPAIR COST	ACRE			2.92
EQUIP. REPAIR COST	ACRE			2.71
TOTAL OPERATING COST				68.49
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				67.11
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	18.148	3.09
TRACTOR INVESTMENT		0.170	42.458	7.22
EQUIPMENT INVESTMENT		0.170	20.309	3.45
TOTAL INTEREST CHARGE				13.76
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				53.35
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			5.20
EQUIPMENT	HR.			3.19
TOTAL OWNERSHIP COST				8.39
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				44.96
LABOR COST:				
MACHINERY LABOR	HR.	4.000	1.640	6.56
OTHER LABOR	HR.	4.000	0.200	0.80
TOTAL LABOR COST			1.840	7.36
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				37.60
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				37.60

100# 18-46-0 PLUS 100# 33.5-0-0

SHARKEY
11/06/81

TABLE LIV

RYE BUDGET

RYE 75700006
CUSTOM COMBINE AND HAULING 08/01/81
WESTSOUTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
RYE	BU.	2.000	25.000	50.00
DRY MATTER (HE)	LBS.	0.0	6253.000	0.0
DP	LBS.	0.0	801.000	0.0
TOTAL RECEIPTS				50.00
OPERATING INPUTS:				
RYE SEED	CWT.	12.000	0.600	7.20
NITROGEN (N)	LBS.	0.300	60.000	18.00
PHOSPH (P2O5)	LBS.	0.260	40.000	10.40
POTASH (K2O)	LBS.	0.140	20.000	2.80
FERT. SPREADER	CWT.	0.125	2.000	0.25
CUSTOM COMBINE	ACRE	18.000	1.000	18.00
CUSTOM HAULING	BU.	0.150	26.000	3.90
MISCL EXPENSE	BU.	0.150	6.000	0.90
TRACTOR FUEL & LUBE	ACRE			9.47
TRACTOR REPAIR COST	ACRE			3.26
EQUIP. FUEL & LUBE	ACRE			1.35
EQUIP. REPAIR COST	ACRE			2.11
TOTAL OPERATING COST				77.63
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				-27.63
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	34.759	5.91
TRACTOR INVESTMENT		0.170	51.224	8.71
EQUIPMENT INVESTMENT		0.170	25.059	4.26
TOTAL INTEREST CHARGE				18.88
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				-46.51
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			6.67
EQUIPMENT	HR.			4.16
TOTAL OWNERSHIP COST				10.83
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				-57.34
LABOR COST:				
MACHINERY LABOR	HR.	4.000	1.777	7.11
TOTAL LABOR COST			1.777	7.11
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				-64.45
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				-64.45

SEED SOLD IN BULK AND UNCLEANED.
N, P & K AMOUNTS ARE ACTUAL POUNDS OF MATERIAL HUTSON
MISC. EXPENSE IS HARVEST CHARGE FOR YIELD OVER 20 BU. 05/28/81

TABLE LV

WHEAT BUDGET

WHEAT FOR GRAIN CUSTOM HARVEST 76200401
SMALL GRAIN CLAY & LOAM SOILS USUALLY USE CLASS I & II 08/01/81
SWEEP PLOW - RESIDUE MANAGEMENT - 285 PTO HP TRACTOR NORTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
WHEAT	BU.	3.850	32.000	123.20
DRY MATTER (HE)	LBS.	0.0	1673.000	0.0
DP	LBS.	0.0	297.000	0.0
TOTAL RECEIPTS				123.20
OPERATING INPUTS:				
WHEAT SEED	BU.	5.000	1.000	5.00
18-46-0 FERT	CWT.	14.750	1.000	14.75
NITROGEN (N)	LBS.	0.300	40.000	12.00
INSECTICIDE	ACRE	4.500	1.000	4.50
CUSTOM COMBINE	ACRE	16.000	1.000	16.00
CUSTOM HAULING	BU.	0.140	32.000	4.48
FERT. SPREADER	CWT.	0.125	2.000	0.25
TRACTOR FUEL & LUBE	ACRE			7.70
TRACTOR REPAIR COST	ACRE			1.97
EQUIP. FUEL & LUBE	ACRE			1.18
EQUIP. REPAIR COST	ACRE			2.35
TOTAL OPERATING COST				70.18
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				53.02
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	28.328	4.82
TRACTOR INVESTMENT		0.170	24.003	4.08
EQUIPMENT INVESTMENT		0.170	34.889	5.93
TOTAL INTEREST CHARGE				14.83
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				38.19
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			5.10
EQUIPMENT	HR.			5.53
TOTAL OWNERSHIP COST				10.63
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				27.56
LABOR COST:				
MACHINERY LABOR	HR.	4.000	0.949	3.80
OTHER LABOR	HR.	4.000	0.400	1.60
TOTAL LABOR COST			1.349	5.40
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				22.16
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				22.16

100# 18-46-0 FALL
40# NITROGEN SPRING
CUSTOM COMBINE & TRUCKING

SHARKEY
05/28/81

TABLE LVI

ALFALFA HAY BUDGET

ALFALFA HAY - 3 TONS - 3 CUTTINGS				81201801
CLASSES I & II - CLAY AND LOAM SOILS				01/04/82
OWNED EQUIPMENT				NORTHCENTRAL
CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
ALFALFA	LBS.	0.041	6000.000	246.00
DRY MATTER (ME)	LBS.	0.0	1539.100	0.0
DP	LBS.	0.0	849.000	0.0
TOTAL RECEIPTS				246.00
OPERATING INPUTS:				
ALFALFA SEED	LBS.	1.500	4.000	6.00
LIME	TONS	27.000	0.400	10.80
PHOSPH (P2O5)	LBS.	0.260	72.000	18.72
POTASH (K2O)	LBS.	0.140	72.000	10.08
INSECTICIDE	ACRE	9.000	2.000	18.00
FERT. SPREADER	CWT.	0.125	1.200	0.15
STORAGE	TONS	3.000	3.000	9.00
WIRE	TONS	3.000	3.000	9.00
TRACTOR FUEL & LUBE	ACRE			7.68
TRACTOR REPAIR COST	ACRE			2.67
EQUIP. FUEL & LUBE	ACRE			8.20
EQUIP. REPAIR COST	ACRE			14.73
TOTAL OPERATING COST				115.03
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				130.97
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	7.818	1.33
TRACTOR INVESTMENT		0.170	37.281	6.34
EQUIPMENT INVESTMENT		0.170	132.585	22.54
TOTAL INTEREST CHARGE				30.21
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				100.76
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			4.57
EQUIPMENT	HR.			22.89
TOTAL OWNERSHIP COST				27.45
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				73.31
LABOR COST:				
MACHINERY LABOR	HR.	4.000	3.763	15.05
OTHER LABOR	HR.	4.000	0.750	3.00
TOTAL LABOR COST			4.513	18.05
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				55.25
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				55.25
HAY SOLD OUT OF BARN				SHARKEY
OWNED HAY EQUIPMENT				

TABLE LVII

BERMUDA PASTURE AND HAY BUDGET

BERMUDA PASTURE & HAY - 1.25 TONS - 1 CUTTING (JULY) 83200902
CUSTOM HARVEST 01/04/82
NORTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
BERMUDA HAY	LBS.	0.027	2540.000	69.85
DRY MATTER (ME)	LBS.	0.0	3197.000	0.0
DP	LBS.	0.0	217.000	0.0
TOTAL RECEIPTS				69.85
OPERATING INPUTS:				
1/10 EST. CHARGE	ACRE	75.000	0.100	7.50
NITROGEN (N)	LBS.	0.300	100.000	30.00
PHOSPH (P2O5)	LBS.	0.260	40.000	10.40
POTASH (K2O)	LBS.	0.140	40.000	5.60
HAYING EQUIP.	TONS	18.750	1.250	23.44
FERT. SPREADER	CWT.	0.125	2.000	0.25
CUSTOM HAULING	TONS	4.500	1.250	5.63
TRACTOR FUEL & LUBE	ACRE			2.15
TRACTOR REPAIR COST	ACRE			0.67
EQUIP. REPAIR COST	ACRE			0.02
TOTAL OPERATING COST				85.66
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				-15.81
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	7.139	1.21
TRACTOR INVESTMENT		0.170	9.747	1.66
EQUIPMENT INVESTMENT		0.170	0.599	0.10
TOTAL INTEREST CHARGE				2.97
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				-18.78
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			1.19
EQUIPMENT	HR.			0.09
TOTAL OWNERSHIP COST				1.29
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				-20.07
LABOR COST:				
MACHINERY LABOR	HR.	4.000	0.377	1.51
OTHER LABOR	HR.	4.000	0.200	0.80
TOTAL LABOR COST			0.577	2.31
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				-22.37
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				-22.37

$75.00 ESTABLISHMENT COST PRORATED OVER 10 YEAR LIFE
HAY SOLD OUT OF BARN
SHARKEY
11/06/81

TABLE LVIII

SUDAN PASTURE BUDGET

SUDAN PASTURE — 87201601, 01/04/82, NORTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
DRY MATTER (ME)	LBS.	0.0	6375.000	0.0
DP	LBS.	0.0	556.000	0.0
TOTAL RECEIPTS				0.0
OPERATING INPUTS:				
SUDAN SEED	LBS.	0.420	20.000	8.40
NITROGEN (N)	LBS.	0.300	50.000	15.00
FERT. SPREADER	CWT.	0.125	1.000	0.13
TRACTOR FUEL & LUBE	ACRE			6.36
TRACTOR REPAIR COST	ACRE			1.98
EQUIP. REPAIR COST	ACRE			2.43
TOTAL OPERATING COST				34.30
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				-34.30
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	5.716	0.97
TRACTOR INVESTMENT		0.170	28.779	4.89
EQUIPMENT INVESTMENT		0.170	13.395	2.28
TOTAL INTEREST CHARGE				8.14
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				-42.44
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			3.53
EQUIPMENT	HR.			2.10
TOTAL OWNERSHIP COST				5.63
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				-48.07
LABOR COST:				
MACHINERY LABOR	HR.	4.000	1.112	4.45
OTHER LABOR	HR.	4.000	0.200	0.80
TOTAL LABOR COST			1.312	5.25
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				-53.31
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				-53.31

50# NITROGEN — SHARKEY — 11/06/81

TABLE LVIX

SUDAN HAY BUDGET

SUDAN HAY - 4 TONS - 2 CUTTINGS — 87201501
CUSTOM HARVEST — 01/04/82
NORTHCENTRAL

CATEGORY	UNITS	PRICE	QUANTITY	VALUE
PRODUCTION:				
SUDAN HAY	LBS.	0.025	3500.000	87.50
DRY MATTER (ME)	LBS.	0.0	1280.000	0.0
DP	LBS.	0.0	123.000	0.0
TOTAL RECEIPTS				87.50
OPERATING INPUTS:				
SUDAN SEED	LBS.	0.420	20.000	8.40
NITROGEN (N)	LBS.	0.300	50.000	15.00
FERT. SPREADER	CWT.	0.125	1.000	0.13
HAYING EQUIP.	TONS	12.000	4.000	48.00
TRACTOR FUEL & LUBE	ACRE			6.36
TRACTOR REPAIR COST	ACRE			1.98
EQUIP. REPAIR COST	ACRE			2.43
TOTAL OPERATING COST				82.30
RETURNS TO LAND, LABOR, CAPITAL, MACHINERY, OVERHEAD, RISK, AND MANAGEMENT				5.20
CAPITAL COST:				
ANNUAL OPERATING CAPITAL		0.170	20.716	3.52
TRACTOR INVESTMENT		0.170	28.779	4.89
EQUIPMENT INVESTMENT		0.170	13.395	2.28
TOTAL INTEREST CHARGE				10.69
RETURNS TO LAND, LABOR, MACHINERY, OVERHEAD, RISK AND MANAGEMENT				-5.49
OWNERSHIP COST: (DEPRECIATION, TAXES, INSURANCE)				
TRACTOR	HR.			3.53
EQUIPMENT	HR.			2.10
TOTAL OWNERSHIP COST				5.63
RETURNS TO LAND, LABOR, OVERHEAD, RISK AND MANAGEMENT				-11.12
LABOR COST:				
MACHINERY LABOR	HR.	4.000	1.112	4.45
OTHER LABOR	HR.	4.000	0.200	0.80
TOTAL LABOR COST			1.312	5.25
RETURNS TO LAND, OVERHEAD, RISK AND MANAGEMENT				-16.36
LAND CHARGE OR RENT:				
LAND INVESTMENT	ACRE	0.0	0.0	0.0
LAND TAXES	ACRE			0.0
TOTAL LAND CHARGE				0.0
RETURNS TO OVERHEAD, RISK AND MANAGEMENT				-16.36

SHARKEY

11/06/81

VITA[2]

Damona Grace Doye

Candidate for the Degree of

Master of Science

Thesis: AN ECONOMIC EVALUATION OF ALTERNATIVE SHEEP PRODUCTION SYSTEMS IN OKLAHOMA

Major Field: Agricultural Economics

Biographical:

Personal Data: Born in Lawton, Oklahoma, July 15, 1958, the daughter of Mr. and Mrs. Damon Doye.

Education: Graduated from MacArthur High School, Lawton, Oklahoma in May, 1976; received Bachelor of Science in Agriculture degree from Oklahoma State University in May 1980; completed requirements for the Master of Science degree at Oklahoma State University in December, 1981.

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