

A COMPARISON OF A LEASING ALTERNATIVE  
TO CONVENTIONAL FINANCING OF  
AGRICULTURAL ASSETS

By

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## TABLE OF CONTENTS

Chapter	Page
I. THE RESEARCH PROBLEM . . . . .	1
Statement of the Problem . . . . .	1
Background of the Study . . . . .	2
Objectives of the Study . . . . .	3
Procedures . . . . .	4
II. ECONOMIC THEORY AND LITERATURE REVIEW . . . . .	6
Theory . . . . .	6
Principle Financial Variables . . . . .	7
Interest Rate . . . . .	7
Discount Rate . . . . .	7
Income Tax Rate . . . . .	7
Cash Flow . . . . .	8
Capital Gains Deduction . . . . .	8
Ordinary Income Tax . . . . .	9
Fundamental Financial Analysis . . . . .	9
Depreciation . . . . .	9
Present Value . . . . .	10
Compounding . . . . .	12
Net Present Value . . . . .	12
Literature Review . . . . .	13
Basics of Leasing . . . . .	13
Operations of a Lease . . . . .	13
Definitions of Leases . . . . .	14
Historical Review of Leasing . . . . .	15
Background of Agricultural Leasing . . . . .	15
Reasons for Recent Growth of Leasing . . . . .	16
Leasing Advantages and Disadvantages . . . . .	18
Leasing Evaluation Procedures . . . . .	20
Recent Literature Analysis of Lease Versus Purchase . . . . .	21
III. MODEL DEVELOPMENT AND PROCEDURES . . . . .	27
Farm Equipment Analyses . . . . .	27
Equipment Model Assumptions . . . . .	28
Equipment Model Description and Requirements . . . . .	31
Equipment Model Lease Break-Even Payments	31

Chapter	Page
Livestock Analyses . . . . .	32
Livestock Model Description and Requirements .	32
Livestock Model Lease Break-Even Payments	34
Dairy Cattle Analysis . . . . .	34
Dairy Cattle Model Assumptions . . . . .	35
Lease Plan 1 . . . . .	36
Lease Plan 2 . . . . .	38
Beef Cattle Analysis . . . . .	40
Beef Cattle Model Assumptions . . . . .	42
Lease Plan 1 . . . . .	43
Lease Plan 2 . . . . .	46
IV. MODEL FINDINGS . . . . .	49
Farm Equipment Results . . . . .	49
Large Equipment Break-Even Analysis . . . . .	49
Lease-Purchase Results With 25 Percent	
Down Payment . . . . .	50
Lease-Purchase Results With Zero	
Down Payment . . . . .	50
Small Equipment Break-Even Analysis . . . . .	53
Lease-Purchase Results With 25 Percent	
Down Payment . . . . .	53
Lease-Purchase Break-Even With Zero	
Down Payment . . . . .	57
Livestock Results . . . . .	60
Dairy Cattle Break-Even Analysis . . . . .	60
Lease Plan 1 Results . . . . .	60
Lease Plan 2 Results . . . . .	62
Beef Cattle Break-Even Analysis . . . . .	66
Lease Plan 1 Results . . . . .	66
Lease Plan 2 Results . . . . .	69
V. SUMMARY AND CONCLUSIONS . . . . .	73
Introduction . . . . .	73
Summary of Farm Equipment Analysis Findings . . . . .	74
Summary of Livestock Analysis Findings . . . . .	74
Summary of Dairy Cattle Findings . . . . .	75
Summary of Beef Cattle Findings . . . . .	75
Conclusions of Farm Equipment Findings . . . . .	76
Conclusions of Livestock Findings . . . . .	76
Recommendations . . . . .	78
BI BL IOGRAPHY . . . . .	79

Chapter	Page
APPENDIX A - DAIRY AND BEEF CATTLE BUDGETS . . . . .	85
APPENDIX B - FARM EQUIPMENT, DAIRY CATTLE, AND BEEF CATTLE BREAK-EVEN PAYMENT RESULTS . . . . .	96



LIST OF TABLES

Table	Page
I. Accelerated Cost Recovery System Applicable Percent For Depreciation . . . . .	11
II. Large Equipment Loan Payments For Various Interest Rates	29
III. Small Equipment Loan Payments For Various Interest Rates	30
IV. Annual Dairy Cow Loan Payments For Various Interest Rates	37
V. Dairy Cattle Lease Plan 1: Costs of Providing Ownership of One Dairy Cow . . . . .	39
VI. Beef Cattle Lease Plan 2: Costs of Providing Ownership of One Beef Cow . . . . .	41
VII. Annual Beef Cow Loan Payments For Various Interest Rates	44
VIII. Beef Cattle Lease Plan 1: Costs of Providing Ownership of One Beef Cow . . . . .	45
IX. Beef Cattle Lease Plan 2: Costs of Providing Ownership of One Beef Cow . . . . .	47
X. Dairy Cattle Ownership Budget . . . . .	86
XI. Dairy Cattle Lease Plan 1: Lessee's Budget . . . . .	87
XII. Dairy Cattle Lease Plan 1: Lessor's Budget . . . . .	88
XIII. Dairy Cattle Lease Plan 2: Lessee's Budget . . . . .	89
XIV. Dairy Cattle Lease Plan 2: Lessor's Budget . . . . .	90
XV. Beef Cattle Ownership Budget . . . . .	91
XVI. Beef Cattle Lease Plan 1: Lessee's Budget . . . . .	92
XVII. Beef Cattle Lease Plan 1: Lessor's Budget . . . . .	93
XVIII. Beef Cattle Lease Plan 2: Lessee's Budget . . . . .	94
XIX. Beef Cattle Lease Plan 2: Lessor's Budget . . . . .	95

Table	Page
XX. Lease Break-Even Payment Schedule for Large Equipment with 25 Percent Down Payment at an Annual Interest of 25 Percent . . . . .	97
XXI. Lease Break-Even Payment Schedule for Large Equipment With 25 Percent Down Payment at an Annual Interest of 15 Percent . . . . .	98
XXII. Lease Break-Even Payment Schedule for Large Equipment With 25 Percent Down Payment at an Annual Interest of 18 Percent . . . . .	99
XXIII. Lease Break-Even Payment Schedule for Large Equipment With 25 Percent Down Payment at an Annual Interest of 21 Percent . . . . .	100
XXIV. Lease Break-Even Payment Schedule for Large Equipment With 25 Percent Down Payment at an Annual Interest of 25 Percent . . . . .	101
XXV. Lease Break-Even Payment Schedule for Large Equipment With Zero Down Payment at an Annual Interest of 12 Percent . . . . .	102
XXVI. Lease Break-Even Payment Schedule for Large Equipment With Zero Down Payment at an Annual Interest of 15 Percent . . . . .	103
XXVII. Lease Break-Even Payment Schedule for Large Equipment With Zero Down Payment at an Annual Interest of 18 Percent . . . . .	104
XXVIII. Lease Break-Even Payment Schedule for Large Equipment With Zero Down Payment at an Annual Interest of 21 Percent . . . . .	105
XXIX. Lease Break-Even Payment Schedule for Large Equipment With Zero Down Payment at an Annual Interest of 24 Percent . . . . .	106
XXX. Lease Break-Even Payment Schedule for Large Equipment With 25 Percent Down Payment at an Annual Interest of 12 Percent . . . . .	107
XXXI. Lease Break-Even Payment Schedule for Small Equipment With 25 Percent Down Payment at an Annual Interest of 15 Percent . . . . .	108
XXXII. Lease Break-Even Payment Schedule for Small Equipment With 25 Percent Down Payment at an Annual Interest of 18 Percent . . . . .	109

Table	Page
XXXIII. Lease Break-Even Payment Schedule for Small Equipment With 25 Percent Down Payment at an Annual Interest of 21 Percent . . . . .	110
XXXIV. Lease Break-Even Payment Schedule for Small Equipment With 25 Down Payment at an Annual Interest of 24 Percent . . . . .	111
XXXV. Lease Break-Even Payment Schedule for Small Equipment With Zero Down Payment at an Annual Interest of 12 Percent . . . . .	112
XXXVI. Lease Break-Even Payment Schedule for Small Equipment With Zero Down Payment at an Annual Interest of 15 Percent . . . . .	113
XXXVII. Lease Break-Even Payment Schedule for Small Equipment With Zero Down Payment at an Annual Interest of 18 Percent . . . . .	114
XXXVIII. Lease Break-Even Payment Schedule for Small Equipment With Zero Down Payment at an Annual Interest of 21 Percent . . . . .	115
XXXIX. Lease Break-Even Payment Schedule for Small Equipment With Zero Down Payment at an Annual Interest of 24 Percent . . . . .	116
XL. Dairy Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 12 Percent . . . . .	117
XLI. Dairy Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 15 Percent . . . . .	118
XLII. Dairy Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 18 Percent . . . . .	119
XLIII. Dairy Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 21 Percent . . . . .	120
XLIV. Dairy Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 24 Percent . . . . .	121
XLV. Dairy Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 12 Percent . . . . .	122

Table	Page
XLVI. Dairy Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 15 Percent . . . . .	123
XLVII. Dairy Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 18 Percent . . . . .	124
XLVIII. Dairy Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 21 Percent . . . . .	125
XLIX. Dairy Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 24 Percent . . . . .	126
L. Beef Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 12 Percent . . . . .	127
LI. Beef Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 15 Percent . . . . .	128
LII. Beef Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 18 Percent . . . . .	129
LIII. Beef Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 21 Percent . . . . .	130
LIV. Beef Cattle Lease Plan 1: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 24 Percent . . . . .	131
LV. Beef Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 12 Percent . . . . .	132
LVI. Beef Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 15 Percent . . . . .	133
LVII. Beef Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 18 Percent . . . . .	134
LVIII. Beef Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 21 Percent . . . . .	135

Table

Page

LIX.	Beef Cattle Lease Plan 2: Break-Even Payment Schedule With Various Discount and Tax Rates at an Annual Interest of 24 Percent . . . . .	136
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## LIST OF FIGURES

Figure	Page
1. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment With a 25 Percent Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20 and 25 Percent . . . . .	51
2. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment With a 25 Percent Down Payment at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	52
3. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment With a Zero Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20 and 25 Percent . . . . .	54
4. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment With Zero Down Payment at a Discount Rate of 10 Percent and Interest Rates of 5, 10, 15, 20, and 25 Percent . . . . .	55
5. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment With a 25 Percent Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent . . . . .	56
6. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment With a 25 Percent Down Payment at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	58
7. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment With Zero Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20 and 25 Percent . . . . .	59
8. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment With Zero Down Payment at a Discount Rate of 10 Percent of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	61

Figure	Page
9. Break-Even Decision Lines Between Dairy Lease Plan 1 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent . . . . .	63
10. Break-Even Decision Lines Between Dairy Lease Plan 1 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	64
11. Break-Even Decision Lines Between Dairy Lease Plan 2 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20 and 25 Percent . . . . .	65
12. Break-Even Decision Lines Between Dairy Lease Plan 2 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	67
13. Break-Even Decision Lines Between Beef Lease Plan 1 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20 and 25 Percent . . . . .	68
14. Break-Even Decision Lines Between Beef Lease Plan 1 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	70
15. Break-Even Decision Lines Between Beef Lease Plan 2 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20 and 25 Percent . . . . .	71
16. Break-Even Decision Lines Between Beef Lease Plan 2 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent . . . . .	72

## CHAPTER 1

### THE RESEARCH PROBLEM

#### Statement of the Problem

The costs of entering and advancing in agriculture are becoming insurmountable. The cost-price squeeze is an element of economic problems to farmers. The cash flow requirements are a tremendous burden in the operation of farms. Farmers and ranchers are on a treadmill. At first, a few farmers adopt new technological equipment and practices. These farmers profit from increased efficiency and/or production. Later, other farmers find they must adopt the new technology to remain competitive (Cochrane, 1958). This treadmill theory explains why some farm problems arise and why it is necessary for farmers to search for financing alternatives. Leasing is one of the promising alternatives. However, the leasing alternative should not be viewed with too much optimism before the advantages and disadvantages have been analyzed. This study will view the merits of leasing livestock and equipment as opposed to purchasing the assets.

"The best way to acquire a farm is by marriage or inheritance" is a cliché well supported in the 1980's with high land prices and huge capital requirements for equipment and livestock. Entering farmers must confront low equity problems because it is unlikely they



will have enough credit reserves to debt finance all their capital needs. Leasing may provide a means for faster equity growth (Penson, 1981).

The average to small sized commercial beef and dairy programs are facing increasing requirements for capital investments in buildings and equipment. Labor efficiency is important to livestock management. Efficient barns and corral layouts, feed handling machinery, in addition to other operating equipment such as trailers, vehicles, chutes, and fences are of importance. However, some cattlemen may overbuild (Neumann, 1977). To avoid this problem cattlemen may view leasing as a means of testing equipment to see if the asset would benefit their operation. Leasing livestock is another solution approach. If investment capital is tied up with operating equipment, then the cattlemen may lease livestock to expand herds. Leasing dairy cows is becoming popular and leasing breeding stock or beef cattle is increasing as livestock managers are expanding to keep pace with their competitors (Beef, 1982).

#### Background Of Study

For many years leasing has been a means of acquiring land for farm and ranch operations. Leasing enables managers to expand their operations and increase returns. Farmers and ranchers were able to lease land and receive more returns than if they invested the capital in owned land (Plaxico, 1979).

Although leasing was primarily confined to land; in recent years, leasing has expanded into agricultural equipment, livestock, and even permanent farm structures. The Economic Recovery Act of

1981 gave leasing a new appeal. The new tax legislation removed previous restrictions on leasing and provided advantages to both the lessee and lessor. A well-structured lease plan can improve a farmer's financial position. Leasing has become a viable financing tool especially when the farmer has other profitable opportunities for investing limited capital.

#### Objectives Of Study

The purpose of this study is to investigate the leasing alternative to conventional debt financing of an agricultural asset. Specifically, the objectives are to:

1. Analyze the lease-purchase alternatives for farm equipment.
  - a. Find the break-even lease payment that equates the lessee's lease position to the costs of ownership; varying discount rates, income tax rates, and annual interest rates.
  - b. Graph the farmer's indifference boundary between purchasing and leasing farm equipment.
2. View the lease-purchase analysis for livestock.
  - a. Appraise the dairy cattle situation.
    1. Find the break-even lease payment that equates the lessee's lease position to the cost of ownership varying discount rates, income tax rates, and annual interest rates.
    2. Graph the dairyman's indifference boundary between purchasing and leasing dairy cattle.

- b. Appraise the beef cattle situation.
1. Find the break-even lease payment that equates the lessee's lease position to the cost of ownership; varying discount rates, income tax rates and annual interest rates.
  2. Graph the rancher's indifference boundary between purchasing and leasing beef cattle.

#### Procedures

The objectives of this study will be met by employing a new financial package installed in the Oklahoma State University computer system. This new package, Interactive Financial Planning System (IFPS) is a financial modeling system. A program will be constructed within IFPS specifically for the subject's objectives.

A system of present value (PV) equations will be constructed to determine the cost of a lease plan and the cost for conventional financing. The equations outlined below indicate the value of each financing plan.

The cost of a conventional financing plan of acquiring an asset is determined by NPVC computations incorporating the following equation:

$$NPVC = \sum_{i=1}^5 \left[ \frac{NC}{(1+DR)^i} \right] + INV \quad (1.1)$$

where NPVC is the net present value of cost for ownership, NC equals

annual net cost, DR is the discount rate which is considered as the cost of capital, and INV is the initial investment. The NPVC procedure is the computational procedure for determining the cost of acquiring an asset through a lease. In this study all computational procedures are summed over five years because the asset life is always assumed five years.

Utilizing equation (1.1) for estimating ownership cost and lease cost is the basis for computing a farmer's indifference line between the lease plan and the conventional financing plan. The calculation of the break-even lease payment is:

$$LB_e = \frac{NPVC}{1 + \sum_{i=0}^4 \left[ \frac{1(1 - TX)}{(1 + DR)^i} \right]} \quad (1.2)$$

where  $LB_e$  is the break-even lease payment and TX is the marginal tax rate. If the annual lease payments are greater than the break-even lease payment then the purchase would be preferred. If the annual lease payments are less than  $LB_e$ , then the farmer would prefer the lease plan. And, if the annual lease payments are equal to  $LB_e$ , then the farmer would be indifferent between the lease and purchase.

## CHAPTER II

### ECONOMIC THEORY AND LITERATURE REVIEW

Financial analyses relating to income, capital inflow and outflow, borrowing capacity, and alternative means of acquiring resources is the foundation for this analysis of leasing agricultural assets. A brief discussion of the economic management principles and procedures concerning the efficient use of capital is necessary for understanding the foundation of leasing and borrowing arrangements.

#### Theory

Leftwich (1979) defines economics as the science of using resources and techniques as a means for achieving societal goals: welfare maximization, growth, efficiency, or equity. Agricultural finance, a subset of economics is defined as an economic study of the acquisition and use of capital in agriculture (Lee, Boehlje, Nelson, and Murray, 1980). The capital requirements of a farm or ranch are large and increasing. The control of agricultural assets, land, machinery, livestock, and other resources is essential to a farm or ranch business. There are several methods of acquiring the capital resources. Leasing is one alternative to the conventional debt financing. Understanding basic financing terminology and its mechanics is necessary for the investigation of alternatives to agricultural financing.

## Principle Financial Variables

There are many components of financial analysis. The primary components discussed in this study are interest rate, discount rate, an individual's income tax rate and cash flow. Each of these variables effect the final decisions of a farmer.

### Interest Rate

The interest rate is defined as the "charge" on the use of borrowed capital for a specified period. The charge is collected by the lending financial institution (Barry, Hopkin, and Baker, 1979).

### Discount Rate

The discount rate, viewed as an opportunity cost, is another variable for consideration. The discount rate may be a different value for each firm, depending on how the firm's managers view their cost of capital. Management may evaluate the discount rate from their cost of capital plus a risk and uncertainty factor (Matz and Milton, 1980).

### Income Tax Rate

An individual's marginal income tax rate is the percentage of an additional dollar of his income that is payable to the city, state, and federal government as an income tax as set down by the Internal Revenue Service Code of 1954 (Hoffman and Phillips, 1982).

### Cash flow

Cash flow suggests the income and the outgoing of cash throughout the operations of a firm. The cash flow forecast, or budget, is one of the most important tools in the firm's management because it depicts a dated sequence of when and how funds are likely to be flowing in and out over the coming weeks, months or possibly years (Ritter and Silber, 1977). Cash flow, CF, is calculated by the following equation:

$$CF = PR - EX - P \quad (2.1)$$

where PR is production receipts, EX is expenses, and P is equal to the payments. Payments include the principal and interest.

### Capital Gains Deduction

The intention of capital gains is to offset income received in one year of an asset held over a period of years. An individual may take a deduction equal to 60 percent of the net capital gain on property qualifying for the capital gains deduction. Capital gains are a very important tool in tax planning because the effective tax rate is calculated by multiplying the individual's marginal tax rate by the 40 percent of net capital gain included in computing taxable income (100 percent minus the 60 percent net capital gain deduction). This computation greatly reduces the tax paid, for example, a taxpayer in the 10 percent tax bracket would have an effective rate of 4 percent (10 percent times 40 percent), a taxpayer in the 20 percent bracket would have an effective rate of 8 percent. The effective rate for capital gains for a taxpayer in the 30, 40, and 50 percent bracket is 12, 16, and 20 percent respectively (Hoffman and Phillips, 1982).

The qualifying features for capital gains of cattle are: the cattle must be held for draft, breeding, or sporting purposes at least two years or more (Department of the Treasury, 1982).

#### Ordinary Income Tax

Ordinary income is classified as income received within one year that does not qualify for capital gains deduction or other special treatment. Ordinary income deductions are taxed at 100 percent and is calculated by the following equation:

$$\text{OIT} = (\text{CF} + \text{P} - \text{D}) * \text{T} \quad (2.2)$$

where OIT is ordinary income tax deduction, CF is equal to cash flow, P is the principal loan payment, D is equal to depreciation, and T equals the tax rate. The principal is positive because it is not a deduction for ordinary income tax; whereas, other components of cash flow (operating expenses and interest) are considered a deduction for tax purposes.

#### Fundamental Financial Analysis

Some basic calculations of financial analysis are presented in this study. This section describes the calculations of ACRS depreciation, present value (PV), net present value (NPV), and discounting to present value.

#### Depreciation

The Economic Recovery Act of 1981 outlined business tax changes with respect to depreciation. The Accelerated Cost Recovery System (ACRS) is now used for both new and used property recovering the cost



of an asset over a 3 year, 5 year, 10 year, or 15 year period. The salvage value is disregarded in this approach (Maynard, 1981). Table I contains the percent depreciation (percent of asset purchase price) that is depreciated each year for the four asset categories. Most agricultural assets fall into the 3-year or 5-year asset category. For example, light trucks, automobiles, sows and boars, all horses placed in service, and personal property that has an Accelerated Depreciation Range (ADR) of four years or less are considered 3-year assets. Five-year assets include dairy, beef, sheep, and goats breeding stock, tractors, combines, plows, planters, and single purpose agricultural structures eligible for investment tax credit (Burhart, 1982). To calculate the correct depreciation one should employ the following equation:

$$\text{DEPR} = \text{PP} - \left[ \frac{\text{ITC}}{2} \right] * Y \quad (2.3)$$

where DEPR equals the amount of depreciation to be taken, PP is the asset's purchase price, ITC is investment tax credit<sup>1</sup>, and Y is the applicable depreciation percentage rate found in Table I on the following page.

#### Present Value

Weston and Brigham (1981) define present value as today's value of a future payment discounted at the appropriate discount rate. Present value, PV, is a useful concept demonstrating how much one will

TABLE I  
ACCELERATED COST RECOVERY SYSTEM  
APPLICABLE PERCENT FOR DEPRECIATION

Recovery Year	3 Year	5 Year	10 Year	15 Year
1	25	15	8	5
2	38	22	14	10
3	37	21	12	8
4		21	10	7
5		21	10	7
6			10	7
7			9	6
8			9	6
9			9	6
10			9	6
11				6
12				6
13				6
14				6
15				6

value a specified amount of money sometime in the future, today. Equation (2.4) is the present value formula.

$$PV = \sum_{t=0}^n \left[ \frac{V_t}{(1 + DR)^t} \right] \quad (2.4)$$

Where  $V_t$  is the value at the end of  $t$  periods and DR is the discount rate.

### Compounding

Compounding is the reverse of present value. Compounding is the future value of a specified amount of money today. The compounding equation is established by shuffling the terms of the PV equation.

$$V_t = \sum_{t=0}^n PV (1 + DR)^t \quad (2.5)$$

### Net Present Value

Net present value, NPV, is the present value of future returns discounted at the appropriate cost of capital minus the cost (purchase price) of the asset. The NPV equation is:

$$NPV = \sum_{t=0}^n \left[ \frac{NC}{(1 + DR)^t} \right] - PP \quad (2.6)$$

Where NCF equals net cash flows, DR is the marginal cost of capital and PP is the purchase price of the asset.

## Literature Review

### Basics of Leasing

A lease is a tool used in financial management. A lease is a means of acquiring the use of an asset without the complications of purchase of the asset. Today, many financial managers recognize leasing as a beneficial means for financing capital needs (Koppe, 1978). Knowledge of leasing is essential to understand its potential in project financing.

### Operations of a Lease

A lease, the acquisition of an asset without purchase, requires a contract to be negotiated between the lessor (owner of the asset being leased) and the lessee (user of the asset being leased). The contract is legally binding for a specified period of time at a prearranged lease rate. The lease rate is the lessor's charge for use of the asset. The lease rate is paid by the lessee in predetermined periodic payments (Moore, 1981). There are several types of leases; but, the foundation of each lease includes common details. Plaxico (1982) identified the details specified in a lease as:

1. A description of the property being leased.
2. The identification of the lessor and lessee.
3. The amount and due dates of the lease rate.
4. The obligations for repairs and maintenance.
5. The responsibility for insurance costs, property taxes, and other ownership costs.

6. The qualifications of lease termination and alteration.
7. The implications of a violation of the lease contract.

The term "lease" is sometimes used loosely. A "lease agreement" may not actually be a lease. The next section defines different types of leases in order to clear any misunderstanding.

#### Definitions of Leases

A true lease, a name coined for tax purposes, qualifies under the Internal Revenue Code, and enables rental payments to be tax deductible by the lessee. Also the lessor may claim tax benefits of ownership. Specifically the lessors tax benefits include Investment Tax Credit (ITC)<sup>1</sup> and depreciation (Koppe, 1978).

A financial lease corresponds to the economic life of the asset, as opposed to an operating lease which is a short term agreement covering one production period or less (Adair, Penson, and Duncan, 1981).

A capital lease, sometimes termed a lease-purchase contract, enables the lessee to purchase the leased asset at the termination of the lease. This provision was made by the Economic Recovery Tax of 1981 (ERTA '81). The ERTA '81 is discussed later in this chapter. A leveraged lease usually deals with huge capital requirements. Three parties are involved: a lessor, a lessee, and a long-term creditor. Leveraged leasing is a competitive alternative to forms of long term financing, for example, bonds, mortgages, etc (Koppe, 1978).

### Historical Review of Leasing

Property and equipment leasing have long histories. There are citations of lease agreements in the thirteenth century. A significant notice of leasing was not made until the early nineteenth century. The surge in agricultural leases is attributed to the increased mechanization of agriculture. Railways in the mid-1800's promoted leasing and provided the basis for future leasing techniques and contracts. Equipment trusts purchased railcars for long term leasing to the railroads. The involvement of trusts in leasing prompted legislative action concerning the legality of leasing (Eiteman and Davison, 1951).

Henry Schoenfield credited for organizing the United States Leasing Corporation in 1952 (now United States Leasing International, Inc.) saw how leasing could be a useful financial tool and decided to develop this marketing technique. Other manufacturers quickly recognized the value of leasing as a financial tool; thus, leasing grew rapidly after 1955. Leasing companies began investigating foreign markets and leasing as a financial management device was firmly established (Clark, 1978).

### Background of Agricultural Leasing

Farmland has been the most commonly leased agricultural asset in the past. However, recent surveys have indicated a sharp increase in leased equipment throughout the economy. Agricultural leasing has become more involved with financial leases as the leasing industry leaned to equipment leases (Penson and Duncan, 1981).

In recent years, agricultural leasing extended into livestock. Livestock leasing is especially noticeable in the dairy industry. But, leasing is also used in beef breeding stock and swine operations. (Cilley, 1982).

#### Reasons for Recent Growth of Leasing

Battersby (1978) said "You can now lease everything!" Battersby's article discussed how an Ohio farmer encouraged his bank into the dairy cow leasing business by pointing out the bank's benefits of sheltered earnings, tax breaks, plus a happy customer. However, one farmer in Ohio did not spark the sudden growth in agricultural leasing: there were economic and institutional reasons.

From the economic view point, the late 1970's brought extremely high interest rates and disillusionment to established farmers and those wishing to enter the agricultural industry. Leasing offered a means of acquiring an asset which was impossible to obtain through the conventional bank financing. Established farmers found a process of keeping up with competition (Adair, Penson, and Duncan, 1981).

A major boost to leasing came when President Reagan signed the Economic Recovery Tax of 1981 (ERTA '81) into law, August 13, 1981. The "safe harbor" provision of ERTA '81 created a powerful incentive for leasing by relaxing previous leasing restrictions. The objective of the law was to create a situation where more firms shared in the leasing benefits. Profitable firms would benefit from tax breaks as lessors while firms without taxable earnings were expected to benefit as lessees. Batlin (1981) noted ERTA '81 would be a stimulus to

capital spending and also increase investment thereby increasing productivity which would help moderate inflation. Batlin also cited two problems which could be caused by ERTA '81: first, the new law could cause a reduction in the efficiency of resource allocation and second, the law would reduce tax revenues to the federal government causing no relief for the federal deficit. Gerhart (1982) outlined the ERTA '81 less-stringent guidelines as:

1. The leased property must be tangible personal property as defined in the tax code.
2. Lessee and Lessor should both agree with a written contract that their transaction should be deemed a lease.
3. The lessor must make and maintain an investment in the leased property of ten percent or more of the cost of the property.
4. The lease term cannot exceed 90 percent of the useful life or 150 percent of the ADR class life, whichever is greater.

The ERTA '81 relaxed many of the previous law details one of which was very important to agriculture. The new law enables one to lease an asset with the option to purchase that asset at the termination of the lease.

ERTA '81 was not welcome by everyone. Soon after the law was enacted many politicians and newsmen were expressing their dislikes about ERTA '81. Apcar and Merry (1981) said ERTA '81 enables big corporations to cash in on tax credits. Leasing arrangements allowed the transfer of billions of dollars from company to company and the



new purchase option only greatedened the big corporation's advantages. An article in Business Week (1982) criticized the ERTA '81 by saying the law made it much easier for companies to "rip-the-nation-off" with tax benefits.

The ill feeling about ERTA '81 prompted new legislation. ERTA '81 was modified by the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA '82). Under TEFRA '82 a Finance Lease must meet the following criteria (American Association of Equipment Lessor, 1982):

1. The lessee may have an option to purchase the leased property, provided the purchase is at least ten percent of the cost of the property.
2. The lessee cannot invest in the leased property or lend funds to the lessor to purchase property.
3. The lessor must have a profit aside from the tax benefits.

#### Leasing Advantages and Disadvantages

Leasing has many benefits. Several advantages often cited are:

1. Lease payments can match the lessee's cash flow.
2. Leases do not increase the lessee's debt to equity or decrease the lessee's borrowing ability because they do not appear on the balance sheet.
3. Leases provide a better cash flow than a purchase of asset.
4. Leasing often provides long term tax savings (Plaxico, December, 1982).

5. Lease payments are a fixed rate which could have an advantage over a variable rate loan.
6. When an asset is purchased the owner faces some risk of obsolescence. Leasing provides a chance to change the asset as technology changes (Gerhart, 1982).
7. Leasing allows a farmer to acquire the use of specialized equipment (Brooks, 1977).
8. In some cases the farmer does not know what type of equipment to use. A lease enables the farmer to test the equipment and then the farmer can decide to return the equipment to the lessor or purchase the equipment.

An article in Business Week magazine (1983) reported a climb in equipment leasing because of tax shelters. An estimated 20 percent of the new equipment put into service this year will be leased. Investors (lessors) are attracted to the leasing ventures because they receive large tax benefits; specifically ACRS, Investment Tax Credit, and deductible interest payments. Also the lessor has added benefits of an investment secured by equipment, a steady cash flow (because of lease payments), and possibly have an increased value on the equipment at the termination of the lease.

Apparent lease disadvantages are that a lease term plus the purchase option generally would cost more than an outright purchase. While it is true that a lease arrangement does not appear on the balance sheet most financial managers will register the outflow of the lessee's payments. The amount of down payment could put the lessee in a poor cash flow position at the beginning of the lease. And one

point that comes around again is the farmer's pride of ownership (Allen, 1979).

### Leasing Evaluation Procedures

Optimal decision between leasing and purchasing depends on the lessee's attitude toward uncertainty. Wyman (1973) set up an after-tax interest cost estimation process to determine the degree of uncertainty associated with a lease. Wyman equated the after-tax interest cost to the implicit interest value in the leasing arrangement.

A method to determine the cost of a lease to create a basis for the lease or purchase solution was created by developing an analysis between interest, cash flows, and operating cost differentials between a lease or loan. The true cost of the lease was defined as the change in cash flow, or net lease cash flow. This value was viewed in the same manner as a loan (Beechy, 1969).

Bower, Herringer, and Williamson (1966) set up a simple method of leasing evaluation. Determination of the lease market value, the lease payments at loan rates, was the first step of the lease evaluation. Subtraction of the lease market value from the purchase price of the asset yielded the financial advantage of the lease. To determine the lease's basic cash flow savings the difference between the lease and loan's deductible expenses was multiplied by the tax rate plus the operating flow difference associated with the lease. The final step was to add the financial advantage of the lease and the operating advantage of the lease to get the net advantage of the lease. If the net advantage was positive, then the decision-maker

would opt for the lease. The decision-maker would reject the lease if the net advantage was negative. This is a logical method but it still leaves questions of loan rate, average cost of capital, and risk effects unanswered.

Mitchell (1970) compared a net present value (NPV) approach to a present value of cash flows, using the discount rate as an internal rate of return. Mitchell's results with NPV analysis showed leasing to be the favored plan over borrowing. The lease in Mitchell's analysis had lower cash out-flows in each year except year one where the lease and loan out-flow were equal. However, if the lessor received the tax benefits the tax deductions lost from leasing which would adjust cash flows may find the loan alternative cheaper.

#### Recent Literature Analysis of Lease Versus Purchase

There are many sources on the lease or buy question. Some sources are disappointing because they draw no special conclusions citing the problem of variation in lease arrangements and the differences in each farmer's position. There are, however, some good references on the lease-buy question and the optimistic views of leasing, for the most part, appear after the 1981 tax law.

Prior to the 1981 and 1982 tax laws, Willett and Penland (1975) noted important considerations of the tax rate, depreciation policy, the after-tax return on alternative investment opportunities and whether the lessee or lessor received the investment tax credit. Their research found that the tax advantages received from leasing were not substantial enough to create concern. Therefore, their advice to a potential lessee was not to place too much emphasis on tax

advantages, but to focus on the non-tax considerations when deciding to lease or purchase farm machinery.

As well as the lessee's viewpoint, Lins (1976) approaches a similar question, but from the lessor's standpoint. Should the lessor sell or lease? Can there be a mutual advantage for both the lessee and lessor? Lins supports consideration of cost, and income values, as well as, cash flows and the degree of risk for effective analysis of the lease or loan question. Lins diagrams his analysis with tables for a farm operator and a bank. A lease is favorable when the farmer is in a low tax bracket with a high opportunity cost of capital advantages to the farmer. The magnitude of the mutual gains depends on the tax rate faced by each party plus the opportunity cost of capital.

In 1973 Hopkin conducted a research study on leasing. The purpose of his study was to ascertain if leasing, with its benefits, helps a farmer. One of the primary advantages offered by leasing was that the farmer was able to stretch limited capital. However, Hopkin's conclusions were not optimistic about leasing. Hopkin stated a farmer would be better off borrowing funds if he could not invest the capital generated by decreased outflow, (during the early life of the machine) at a higher rate than the rate paid for borrowed funds.

In 1977, LaDue found that if a machine was kept more than  $1/3$  to  $1/2$  of its expected life then leasing would be less profitable. LaDue stated that leases have a few profitable aspects, but most farmers would be better off borrowing the money and purchasing the equipment. In 1977 LaDue saw no apparent reason for leasing to become an important means of financing in agriculture.

A study of several leasing arrangements concluded that a loan or purchase of an asset was superior to leasing under typical conditions. LaDue (May, 1982) found some leases very costly and, for the most part, a purchase would have an advantage over leasing. The average of the seven leasing arrangements for interest rates of 16, 18, 20, 22 and 24 percent favored the purchase option by as much as 121 dollars per year. Of the seven lease plans, only one lease proved to be profitable at an interest rate of 20 and 22 percent. In other words, the profitability of leasing is greatly affected by interest rates. LaDue noted that there are other factors that effect the value of a lease. But when viewing the interest rate component, it appears leasing has a better chance to be profitable at higher interest rates.

In October 1982, LaDue completed a similar study and his conclusions were more optimistic toward the leasing venture. LaDue said the average lease is a higher cost method of obtaining an asset, but the freed working capital made leasing a feasible alternative. LaDue noted that farmers in low tax brackets and unable to use ITC usually found leasing feasible.

Non-ownership alternatives are becoming essential for profit making farms. The selection of a lease program is a complex problem. A farmer should view the lease fees, the capital investments for purchased machinery, availability and terms of debt capital, alternative uses for capital, extent of machinery use, and income tax differences before making the lease or purchase decision (Willet, 1978).

Reff (1981) outlined the advantages of a lease over a loan with the following list.

1. If the interest rate differences between the lease and the loan are narrow the lease would have the advantages.
2. The higher the income tax rate the greater the advantage of leasing.
3. Leasing tends to have an edge over borrowing when the alternative uses for capital are great. Reff cited that the lease terms determined its profitability.

Schoney and Massie (1981) completed an investigation of leases of irrigation equipment. Their investigation was conducted by a break-even cost of capital analysis which was directly compared to the commercial lending rates and the cost of capital from alternative sources. Costs of capital analysis were estimated using various tax rates, leasing rates and salvage values. Because of ITC and depreciation the advantage went with ownership as the tax rates increased.

Brooks (1977) in cooperation with the Farmer Cooperative Service discovered that leasing generally cost more than the purchase of a farm truck. However, Brooks concluded that the additional cost was offset by an improved cash flow, and debt to equity ratio.

An example to lease or purchase farm equipment clearly illustrated that the ownership plan would be considerably favored to leasing (Gerloff, 1981). Gerloff set up a five-year repayment plan with annual loan payments at 12, 14, 16, and 18 percent. An analysis of the tax savings from ownership and cost of ownership were viewed. Net ownership payments to the lease payments and the ownership payments were found to be less. Gerloff noted that the limitations to his study may change the outcome.

Moore (1981) approached the leasing versus owning livestock problem by setting up an example which viewed the lessor's and the lessee's initial position and their eventual financial position of the leasing venture. The financial position was defined discounting the monthly flow of funds and then determining the equal annual or monthly charges that would be equal to the discounted value. Moore also exhibited illustrations of the lessor's and lessee's negotiation ranges .

LaDue (August, 1982) saw leasing as an attractive venture for lessors, but leasing for the dairyman, as a lessee, might not be the best available alternative. Leasing is a good means of bringing nonfarm equity capital into the agriculture industry; however, since dairymen will probably choose other sources, leasing will not replace a large proportion of the borrowed capital in the dairy industry.

Plaxico (1983) viewed the leasing option as a potential cost-effective strategy for farm managers. Plaxico compared the lease and purchase costs for a cash flow, after tax cash flow and present value analyses. The results showed that when the leasing company is in a higher income tax bracket than the farmer and the lessor's financing is in more favorable terms than the farmer's financing plans, then leasing would be favorable. When ownership costs are lower for the lessor than the farmer, then leasing will probably benefit both parties. On the other hand, if the farmer's costs of ownership were lower than the lessor's, leasing would not be beneficial to either party.



## FOOTNOTES

<sup>1/</sup> Investment Tax Credit (ITC) is an allowed credit against federal income tax on depreciable property (Commerce Clearing House, Inc., 1981). The amount of credit depends on the type of property. Qualifying property must:

1. be depreciable,
2. have a useful life of at least three years, and
3. be tangible property, except buildings.

Examples that qualify include machinery, equipment, dairy and breeding livestock.

The percentage of investment credit for agricultural machinery and equipment is ten percent of the purchase price for an asset with a five-year life. The investment credit for dairy cattle and other breeding stock is also ten percent of the purchase price (Maynard and Hardin, 1982).

## CHAPTER III

### MODEL DEVELOPMENT AND PROCEDURES

The model development and procedures are divided into three sections for specific analyses of leasing as an alternative to ownership of three agricultural assets: farm equipment, dairy cattle, and beef cattle. The analyses were developed with the use of the Interactive Financial Planning System, a financial modeling system available at Oklahoma State University. The system of equations for determining the lease break-even payment values is very similar for each categorie. However, the livestock analyses include more detailed tax benefits due to the capital gains deductions on cull cattle and heifer calves. Since the livestock system of equations involve more components, an illustration of net cost determination is presented with the livestock analyses. The farm equipment analysis is discussed in the first section of this chapter followed by the livestock analyses.

#### Farm Equipment Analysis

Leasing farm equipment has greatly increased since the 1981 and 1982 tax legislation. Before the 1981 tax legislation, a farmer was only able to purchase equipment at the end of the lease at fair market value, but a fixed price purchase option can now be included in a lease contract. Another leasing incentive, created by the recent tax

legislation, was the provision of the Accelerated Cost Recovery System (ACRS) and more liberal investment tax credit (ITC) rules, which caused leasing to be a more favorable venture for the lessee and lessor (Plaxico, 1983).

#### Equipment Model Assumptions

For an example situation, model equipment characteristics and assumptions are organized for the lease and purchase comparison. Important variables in the model are the purchase price, length of the asset life, down payment, interest rate, tax rate, and discount rate. The tax rate and discount rate, adjusted for the calculation of a decision boundary between leasing and purchasing, are discussed later in this chapter. Two classes of equipment are viewed. First, large farm machinery i.e., tractors, grain combines, and cotton harvesters, and second, farm implements such as discs, plows and grain drills. The break-even payment for each type of equipment is calculated by assuming a down payment of 25 percent of the asset's purchase price and assuming no down payment.

The purchase price for the large equipment is assumed at \$50,000 and \$2,500 for the small farm equipment. The lease break-even payment analysis is computed for a zero down payment and a down payment of 25 percent of the purchase price; \$12,500 for the large equipment and \$625 for the small equipment. Each of the four lease plans are solved for break-even analysis at annual interest rates of 12, 15, 18, 21, and 24 percent. Table II and Table III indicate the annual loan payments for the \$50,000 equipment and \$2,500 equipment at each interest rate with a 25 percent down payment.

TABLE II

LARGE EQUIPMENT LOAN PAYMENTS  
FOR VARIOUS INTEREST RATES

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Interest Rate (Percentage)	Loan Payment
.12	10,403
.15	11,187
.18	11,992
.21	12,816
.24	13,659

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TABLE III

SMALL EQUIPMENT LOAN PAYMENTS  
FOR VARIOUS INTEREST RATES

Interest Rate (Percentage)	Loan Payment
.12	520.20
.15	559.30
.18	599.60
.21	640.80
.24	683.00

### Equipment Model Description and Requirements

The objective of the farm equipment model is to equate the net present value of cost (NPVC) equations for leasing and owning. In all cases of the ownership option, debt financing is assumed. Thus the model permits the determination of the farmers indifference point between leasing and owning. The important variables are analyzed, and a finance plan of five equal annual payments is determined. The finance payments coupled with the farmer's tax benefits yield components for the Net Present Value of Cost (NPVC) formula:

$$NPVC = \sum_{i=1}^5 \left[ \frac{NC}{(1 + DR)^i} \right] - INV \quad (3.1)$$

Where NC is the cost of ownership including finance costs and tax benefits, DR is the discount rate and INV equals the initial investment. The primary objective of the NPVC computations is to determine the equipment ownership costs. This objective builds a foundation for the determination of the break-even analysis presented in the next section.

### Equipment Model Lease Break-Even Payments

The NPVC computations are applied to ownership data and become a major component of the lease break-even ( $LB_e$ ) payment analysis. Because leasing is an alternative to ownership, the ownership costs are important in the computation of the lease break-even payments (how much the lessor can pay for the lease). The  $LB_e$  payment for a five year lease is calculated by the following equation:

$$LB_e = \frac{NPVC}{1 + \sum_{i=0}^4 \frac{1(1 - TX)}{(1 + DR)^i}} \quad (3.2)$$

where TX is the tax rate.

### Livestock Analyses

Unlike the farm equipment leasing industry, the livestock leasing business has not developed a standard leasing format. Cilley (1982) noted that there are as many leasing contracts as there are leasing investors. Because of the wide diversity in the livestock leasing contracts, assumptions must be made in order to collectively analyze the lease vs purchase situations. Dairy cattle leasing is discussed below with the model assumptions, model description, and model adjustments.

#### Livestock Model Description and Requirements

The objective of the cattle model is to find a rancher's economic indifference point between leasing and purchasing cattle. The determinates for the indifference point are the discount rate, the interest rate, and the tax rate, and the residual value. Net present value of cost (NPVC) equations for owning cattle and leasing cattle are equated to find the indifference points. The NPVC equations are set equal to each other by determining the break-even lease payment at specified interest, tax, and discount rates.

A finance plan for the purchase of dairy cattle is modeled to determine the loan payments, interest, principal and remaining balance values. Depreciation, using the ACRS system, is calculated for the purchased cattle. The depreciation components are length of life, purchase year, and applicable ACRS depreciation percentage.

Tax benefits are extremely important in financial leasing analysis. A group of tax benefits along with cash flows will yield net cash flows. The net cost (NC) equation is:

$$NC = C - DV - IV - ITC - CGC - CGH + DEP \text{ RECAP} \quad (3.3)$$

Where C is cash flows. All variables except C are considered for tax purposes. DV equals the depreciation value deduction. DV is calculated by multiplying the annual depreciation by the tax rate. IV is the interest value deduction, which is determined by the loan interest times the tax rate. ITC is the investment tax credit allowance or 10 percent of the purchase price in the first year and zero in all other years. CGC is capital gains deduction for a cull cow (CGC equals the cull cow price minus, the difference of the cull cow price and the replacement cow cost, times 60 percent times the tax rate). CGH is the capital gains allowance for heifer calves sold after two years. CGH equals the heifer sale price multiplied by 60 percent multiplied by the tax rate. DEP RECAP is depreciation recapture which is five percent of the purchase price times the tax rate.

The requirements of the NPVC involve the series of computational steps mentioned above. The series of steps are incorporated in the NPVC function shown on the following page.



$$NPVC = \sum_{i=1}^5 \left[ \frac{NC}{(1+DR)^i} \right] - INV \quad (3.4)$$

Where: DR equals the discount rate and INV is the investment.

#### Livestock Model Lease Break-Even Payments

The NPVC computations are applied to the ownership and leasing data to obtain a NPVC for ownership (NPVC). A lease break-even ( $LB_e$ ) payment is calculated by the following equation:

$$LB_e = \frac{NPVC}{1 + \sum_{i=0}^4 \left[ \frac{1(1 - TX)}{(1 + DR)^i} \right]} \quad (3.5)$$

Where TX is the tax rate and DR is equal to the discount rate.

The lease break-even payment is the annual payment that equates the NPVC between purchasing or leasing the cattle over the lease period. For example, if the annual lease payments are less than  $LB_e$ , then the lease would be preferred over the purchase. On the other hand, if the annual lease payments were greater than  $LB_e$ , then the purchase would be the preferred option.

#### Dairy Cattle Analysis

Tremendous growth has occurred in dairy cattle leasing in the past ten years. There are several important conditions of a lease that should be known and understood by the lessee and lessor before the lease contract is finalized. LaDue (May 1982) suggests that decisions regarding animal selection, culling decisions,

responsibility of replacement animals, performance standard responsibilities for ownership of the offspring are the most important conditions found in a dairy lease. Offspring of the leased cattle may either go to the lessee or the lessor. Some contracts provide for dividing the offspring by sex with the bull calves belonging to the lessee and the heifer calves belonging to the lessor. The offspring ownership problem also presents questions of "Who raises the calves and who pays the growing costs?" Two sample lease plans have been developed with assumptions and conditions for the purpose of comparing the leasing situations and ownership options.

#### Dairy Cattle Model Assumptions

Two lease plans plus ownership data provide a basis to build the analysis of leasing versus owning comparison. All the plans assume an 80 dairy cow and replacement herd with 16,000 pounds of milk sold each year. The purchase price of a dairy cow is assumed at \$1,600. The dairy cow purchase price is accomplished with a down payment of 25 percent of the purchase price and five equal annual payments. The useful life of a dairy cow is considered to be five years and the length of the lease is also five years.

Dairy cattle ownership data on costs and production receipts are shown in Appendix A on Table X. Table X also includes annual cash flows before taxes. Production receipts and costs plus lease arrangements for two lease plans, in budget form, for the lessee and lessor are compiled in Tables X through XIV. These tables appear in Appendix A.

The enterprise budgets are used to determine costs of providing ownership services for a dairy cow for one year (for the dairyman or lessor). The purpose of this study is to ascertain the difference between a lease and a purchase with NPVC equations. The costs included are the cow payments and replacement costs. The cattle belong to the lessor at the end of the lease; therefore, a salvage value is determined for calculations. Heifer calves are held for two years to enable the owner to receive capital gains. Adjustments and additions to the budgets provide a means for comparing the lease plans with the ownership statistics.

The purpose of the dairy cattle model is to incorporate an ownership cost into NPVC equations as a basis for the lease break-even payment equation. The break-even procedure will identify a dairyman's indifference point between lease and purchase at a specific discount rate and tax rates of 0, 10, 20, 30, 40, and 50 percent. The calculations are repeated to accommodate changing interest rates. The indifference point is determined at the annual interest rate of 12, 15, 18, 21, and 24 percent. For the purpose of the break-even analysis the cost of providing ownership, Tables V and VI are equal at each interest rate with the exception of the dairy cow loan payment. Table IV on the following page shows the annual loan payment per dairy cow for the aforementioned interest rates.

Lease Plan 1. Specific assumptions for the first lease plan are:

TABLE IV  
ANNUAL DAIRY COW LOAN PAYMENTS  
FOR VARIOUS INTEREST RATES

Interest Rate (Percentage)	Loan Payment
.12	332.90
.15	358.00
.18	383.70
.21	410.10
.24	437.10

1. Selection of the herd is made by the lessor.
2. The lessor decides when to cull a cow and replaces the cow with one equivalent to the value at the beginning of the lease.
3. All calves belong to the lessor.
  - a. Calves are raised by the lessee.
  - b. All capital gains from the sale of calves is assumed by the lessor. Heifer calves are sold after two years at \$1,045.00. Capital gains are assumed by the lessee from the sale of heifers at the end of year three, four, and five.
  - c. A set fee of \$4.00 per month per calf is paid by the lessor to the lessee each month for growing costs.
4. Insurance of five dollars per head is paid by the lessor.
5. Lease payments include a down payment of 10 percent of the herd's value, plus monthly payments of 20.00 dollars per cow.

Table V illustrates the Dairy Cattle Lease Plan 1 costs and receipts that do not appear in the lessee's budget.

Lease Plan 2. The second lease plan assumptions are:

1. Selection of the herd is made by the lessee.
2. The lessee is responsible for culling and replacing the cull cattle. The lessee's responsibility is to return to the lessor a comparable herd to the original herd.

TABLE V  
 DAIRY CATTLE LEASE PLAN 1: COSTS OF  
 PROVIDING OWNERSHIP OF  
 ONE DAIRY COW

Costs and Receipts	1983	1984	1985	1986	1987
<u>COSTS</u>					
Initial Investment	400.00				
Dairy Cow Payment (15% interest)	358.00	358.00	358.00	358.00	358.00
Dairy Cow Replacement	160.00	160.00	160.00	160.00	160.00
Total Costs	913.60	518.00	518.00	518.00	518.00
<u>PRODUCTION</u>					
Cull Cows	86.73	86.73	86.73	86.73	86.73
Bull Calves	39.63	39.63	39.63	39.63	39.63
Heifer Calves	0.00	0.00	0.00	104.50	140.50
Heifer Held for Capital Gains	0.00	0.00	522.50	522.50	522.50
Dairy Cow Salvage					522.00
Total Production Receipts	126.36	126.36	648.86	753.36	1275.36

3. All calves belong to the lessee. The lessee is responsible for all growing costs. The lessee retains all capital gains on the sale of heifer calves. The calves are sold after two years at \$1,045.00.
4. Insurance of five dollars per head is paid by the lessee.
5. Lease payments include a down payment of 10 percent of the herd's value, plus monthly payments of 17.50 dollars per cow and five percent of the gross value of the milk sold each month.

Table VI indicates the cost of providing ownership of a dairy cow with Lease Plan 1. The partial budget includes costs and returns incurred by the lessor. Table V statistics are utilized in the NPVC equation, and become a major component to the calculation of the  $LB_e$  for the dairy cattle Lease Plan 1.

The major difference between the two dairy lease plans is ownership of the heifer calves which provides tax benefits. Assumptions such as herd selection are subjective in nature and have no actual impact on the break-even payments. The lease payments also have no effect on the break-even payments, but are included as average lease cost and used to analyze the practicality of leasing dairy cattle.

#### Beef Cattle Analysis

Beef cattle leasing is not as common as dairy cattle leasing but it is becoming more popular each year. Beef leasing contracts are

TABLE VI  
 DAIRY CATTLE LEASE PLAN 2: COSTS OF  
 PROVIDING OWNERSHIP OF  
 ONE DAIRY COW

Costs and Receipts	1983	1984-1986	1987
<u>COSTS</u>			
Initial Investment	400.00		
Dairy Cow Payment (15% interest)	358.00	358.00	358.00
Dairy Cow Replacement	160.00	160.00	160.00
Total Annual Cost	918.00	518.00	518.00
<u>PRODUCTION</u>			
Milk (5% of the gross value)	227.27	227.27	227.27
Cull Cows	86.73	86.73	86.73
Dairy Cow Salvage			522.00
Total Production	314.00	314.00	836.00



similar to the dairy cattle contracts in that the beef leasing arrangements are also diverse. Two lease plans have been set up to identify the cattle selection, lease payments, replacement responsibilities and offspring ownership.

#### Beef Cattle Model Assumptions

Beef cattle ownership data plus two leasing plans have been organized to compare the merits of the leasing plans to the ownership option. A 100-cow unit size, fall calving operation is assumed. The cow-calf cost and returns are assumed with a cool season pasture. The purchase price of a beef cow is assumed at \$675.00. The purchase price is divided into a finance plan for the purchase analysis with a down payment of 25 percent of the purchase price. The useful life is assumed to be five years.

Data were extracted from the Oklahoma State University Enterprise Budgets to compile the beef cattle budgets in Appendix A. The budgets include the cost statistics are production receipts and returns per head for ownership and two lease plans in Tables XV through XIX. Alterations and additions to the budgets provide a means for analyzing the lease arrangements with ownership costs and receipts. Appendix A tables also include the annual cash inflows and outflows. Cash inflows less cash outflows yield the annual cash flows, before taxes.

The beef cattle model, similar to the dairy cattle model determines the lease payment at which a rancher is indifferent between the lease or purchase of a beef cow. The break-even procedure identifies the indifference between the lease or purchase option at

specific income tax rates of 0, 10, 20, 30, 40, and 50 percent and discount rates of 5, 10, 15, 20, and 25 percent. The procedure is repeated for annual interest rates of 12, 15, 18, 21, and 24 percent. Table VII on the following page indicates the annual loan payment per beef cow for interest rates of 12, 15, 18, 21, and 24 percent.

Lease Plan 1. Assumptions for the first lease plan are:

1. Selection of the herd is made by the lessor.
2. The lessor decides when to cull a cow and replaces the cow with one equivalent to the value at the beginning of the lease.
3.
  - a. All heifer calves belong to the lessee.
  - b. All bull calves belong to the lessor.
  - c. The lessee takes all capital gains on the sale of each heifer. The lessee keeps the heifer calves for two years and then sells the heifer at market for \$675.00. Capital gains are assumed at the end of 1985, 1986, and 1987.
  - d. The lessor pays a set fee to the lessee of four dollars each month for each bull calf growing costs.
4. Insurance of three dollars per head is paid by the lessee.
5. Lease payments are a down payment of 10 percent the value of the cattle plus a monthly fee of 8 dollars per cow.

Lease Plan 1 costs of providing ownership are shown in Table VIII.

TABLE VII  
ANNUAL BEEF COW LOAN PAYMENTS FOR  
VARIOUS INTEREST RATES

Interest Rate (Percentage)	Loan Payment
.12	168.80
.15	151.00
.18	161.90
.21	173.00
.24	184.40

TABLE VIII  
 BEEF CATTLE LEASE PLAN 1: COSTS OF  
 PROVIDING OWNERSHIP OF  
 ONE BEEF COW

Costs and Production	1983	1984	1985	1986	1987
<u>COSTS</u>					
Initial Investment	168.75				
Beef Cow Payment (15%)	151.00	151.00	151.00	151.00	151.00
Beef Cow Replaclement	70.00	70.00	70.00	70.00	70.00
	-----	-----	-----	-----	-----
Total Costs	389.75	221.00	221.00	221.00	221.00
<u>PRODUCTION</u>					
Steer Calves	165.60	165.60	165.60	165.00	165.60
Heifer Calves	0.00	0.00	0.00	100.75	165.60
Commercial Cull Cows	47.50	47.50	47.50	47.50	47.50
Heifer Calves Held	0.00	0.00	385.50	337.50	337.50
Beef Cow Salvage					475.50
	-----	-----	-----	-----	-----
Total Production Receipts	213.10	213.10	550.60	1126.85	651.35

Lease Plan 2. The second lease plan assumptions are:

1. Selection of the herd is made by the lessee.
2. The lessee is responsible for culling and informs the lessor. The lessor replaces the cull cow and receives the revenue from the sale.
3. All calves belong to the lessee. The lessee is responsible for all growing costs.
4. The lessee assumes all capital gains on the heifer calves. The lessee sells a heifer after two years for \$675.00. Capital gains are taken at the end of year three.
5. Insurance of three dollars per head is paid by the lessee.
6. Lease payments include a down payment of 10 percent of the herd's value, plus monthly payments of 10 dollars per cow.

Lease Plan 2 costs of ownership are shown in Table IX. Table IX is made up of the costs and returns that are included in the model to determine the NPVC equation.

The purpose of the beef cattle model is to equate the NPVC for owning beef cattle and leasing beef cattle. This procedure will identify a rancher's indifference point between the lease or buy situation at a specific discount rate and tax rate by utilizing the  $LB_e$  analysis.

As in the dairy lease plans, the major difference between the two lease plans is control of the tax benefits. The tax benefits apply when breeding stock, cull cows and heifer calves are sold after

TABLE IX  
 BEEF CATTLE LEASE PLAN 2: COSTS OF  
 PROVIDING OWNERSHIP OF  
 ONE BEEF COW

Costs and Receipts	1983	1984-1986	1987
<u>COSTS</u>			
Initial Investment	108.00		
Beef Cow Payment	96.65	96.65	96.65
Beef Cow Replacement	70.00	70.00	70.00
	-----	-----	-----
Total Costs	274.65	166.65	166.65
<u>PRODUCTION</u>			
Commercial Cull Cows	47.50	47.50	47.50
Salvage Value			475.50
	-----	-----	-----
Total Production	47.50	47.50	523.00

two years of possession. The assumptions of herd selection, lease payments, insurance, have no quantifiable impact on the lease break-even payments but have important considerations for both the lessor and lessee.

## CHAPTER IV

### MODEL FINDINGS

The present value of a stream of cash flows analyses for farm equipment, dairy cattle, and beef cattle were constructed according to the procedure previously described. The present value analyses were presented as a comparison of leasing agricultural assets to conventional debt financing.

#### Farm Equipment Results

The determination of the farm equipment lease break-even payments is made by using financial components in equations (3.1) and (3.2). The results of the large farm equipment and small farm equipment have corresponding characteristics with the difference being the magnitude of break-even payments. The farm equipment break-even payment computations are presented in the following section.

#### Large Equipment Break-Even Analysis

Equation (3.2) was solved for tax rates of 0, 10, 20, 30, 40, and 50 percent and discount rates of 5, 10, 15, 20, and 25 percent at each tax level. A solution was found for each tax and discount rate combination at interest rates of 12, 15, 18, 21 and 24 percent.



### Lease-Purchase Results With 25 Percent Down Payment

The lease break-even schedules for large farm equipment with a 25 percent down payment are shown in Tables XX through XXIV in Appendix B. The break-even payments increase as the discount rate increases, the tax rate decreases, and the interest rate increases. An illustration on the following page presents the break-even payment schedules i.e., farm management decision lines at the 15 percent interest rate. The break-even payments range from a low of \$7,185 per year to a high of \$11,021 per year.

Figure 2 illustrates the effect on the break-even payments at a discount rate of 10 percent and an allowance for tax rate changes from 0 to 50 percent and interest rate changes from 12 to 24 percent. Holding the discount rate constant and varying the interest rate, the break-even payments increase from \$7,633 at a tax rate of 50 percent and a interest rate of 12 percent to a high of \$11,303 at a zero tax rate and a 24 percent interest rate.

The decision lines in Figures 1 and 2 are the point at which the farmer is indifferent between a lease or a purchase option. If the farmer's financial position (tax level) was above the decision line at a particular interest rate and discount rate, then the purchase would be preferable. However, if the farmer's financial position was below the decision line, then the lease option would be preferred.

### Lease-Purchase Results With Zero Down Payment

The lease break-even payment schedules for large equipment with no down payment are shown in Tables XXV through XXIX in Appendix B.

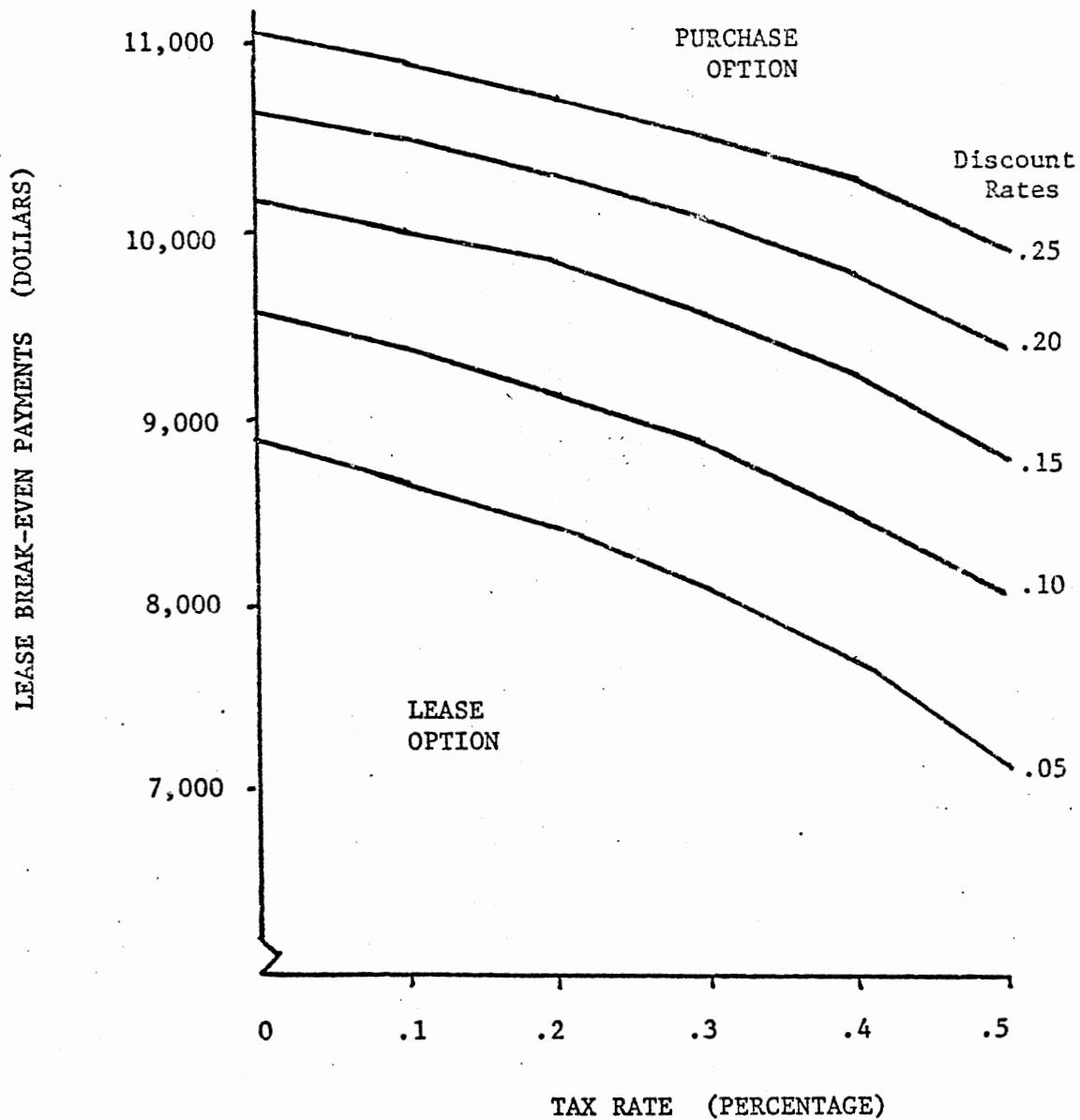


Figure 1. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment with a 25 Percent Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

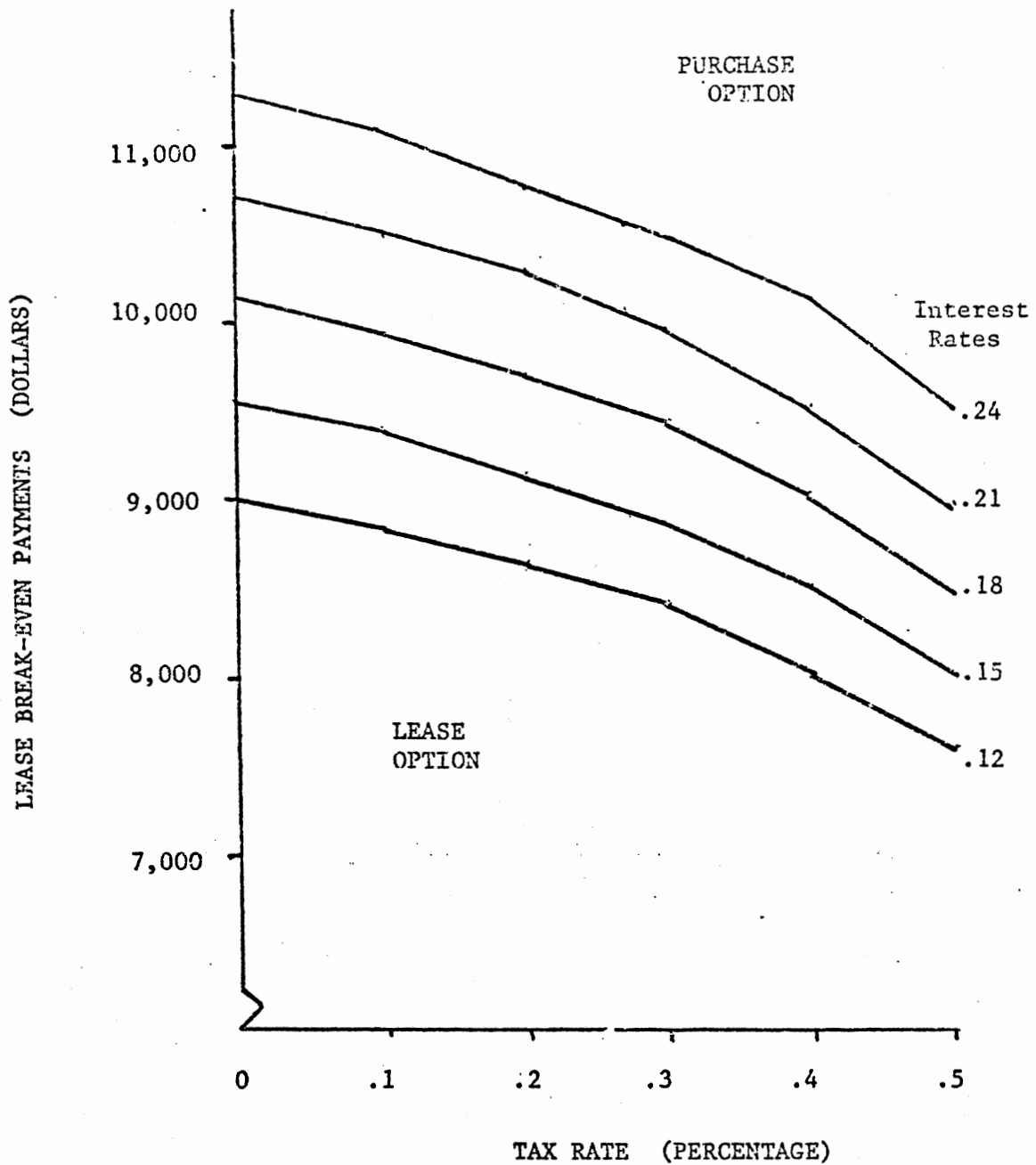


Figure 2. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment with a 25 Percent Down Payment at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

Figure 3 on the following page indicates the decision lines for various tax rates and discount rates at an interest rate of 15 percent. For the most part, the lease break-even payments are lower when the farmer views a purchase plan with no down payment than if the farmer's purchase plan requires a 25 percent down payment. The lease break-even payments in Figure 3 range from \$6,952 at a 50 percent tax rate and a discount rate of 5 percent to \$9,231 at a zero tax rate and 25 percent discount rate.

The discount rate is held at 10 percent and the tax rate and interest rate are varied for Figure 4. The lease break-even values include a high value of \$10,832 at an interest rate of 24 percent and zero tax rate and a low value of \$6,453 at an interest rate of 12 percent and tax rate of 50 percent. As mentioned earlier, the decision lines are indifference points between the lease and purchase options.

#### Small Equipment Break-Even Analysis

The lease break-even payment schedules for small equipment are shown in Tables XXX and XL in Appendix B. Illustrations and analyses of specified lease break-even payment schedules are presented in the following two subsections.

#### Lease-Purchase Results With 25 Percent Down Payment

Figure 5 on the following page is an illustration of decision lines at 15 percent interest rate and discount rates of 5, 10, 15, 20 and 25 percent allowing the tax rate to vary from zero to 50 percent.

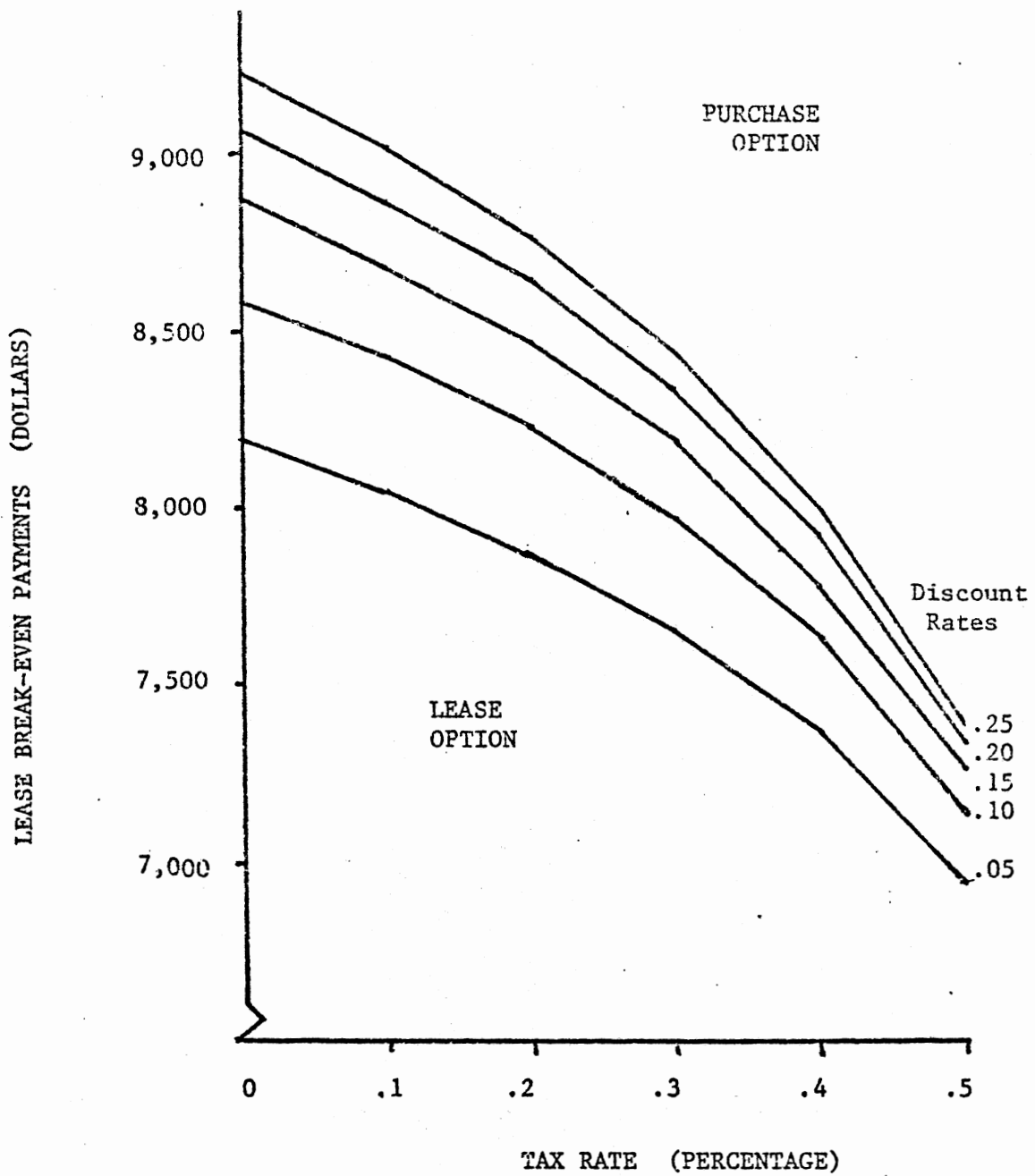


Figure 3. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment with Zero Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

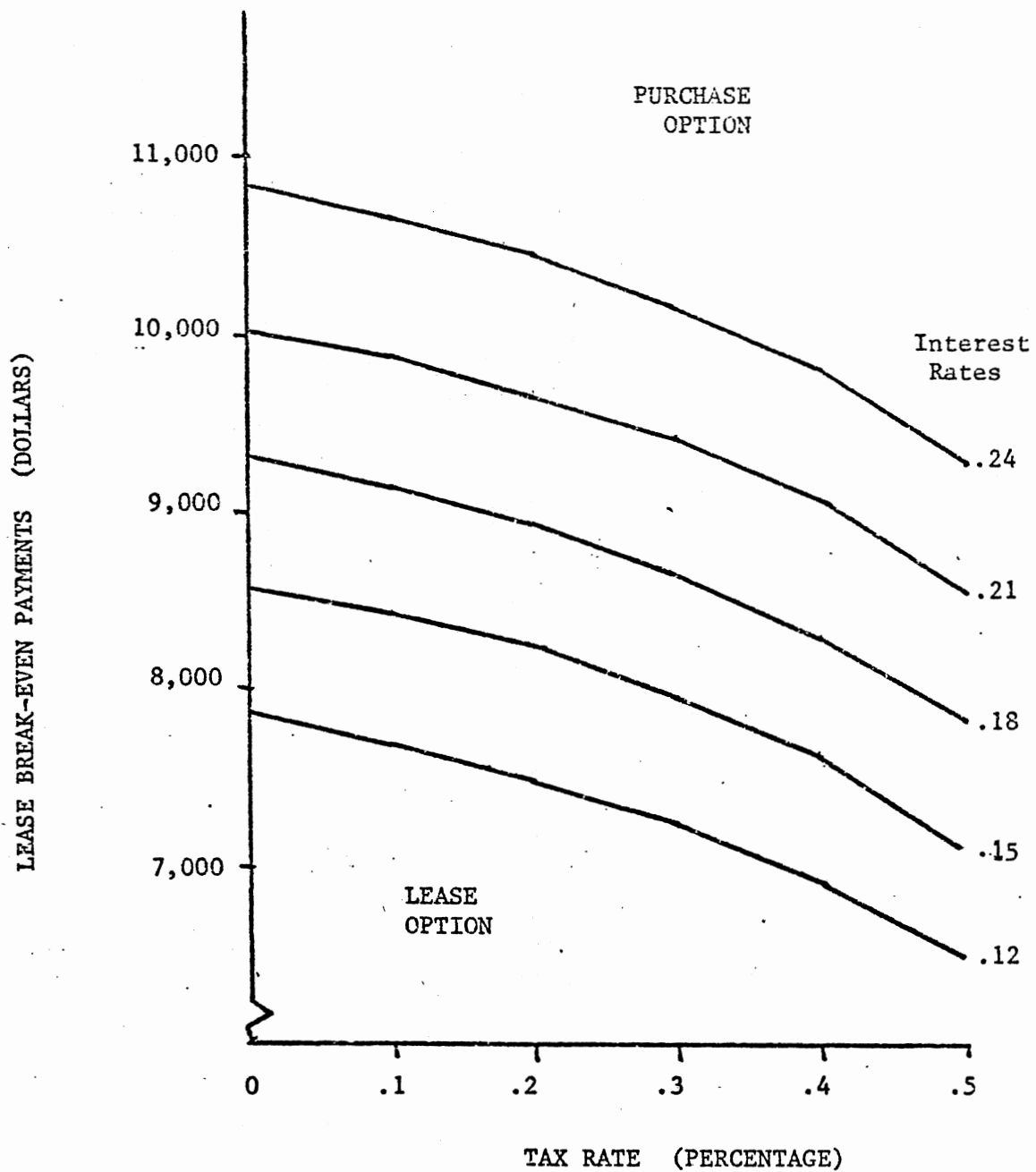


Figure 4. Break-Even Decision Lines Between a Lease or Purchase Option of Large Farm Equipment with Zero Down Payment at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

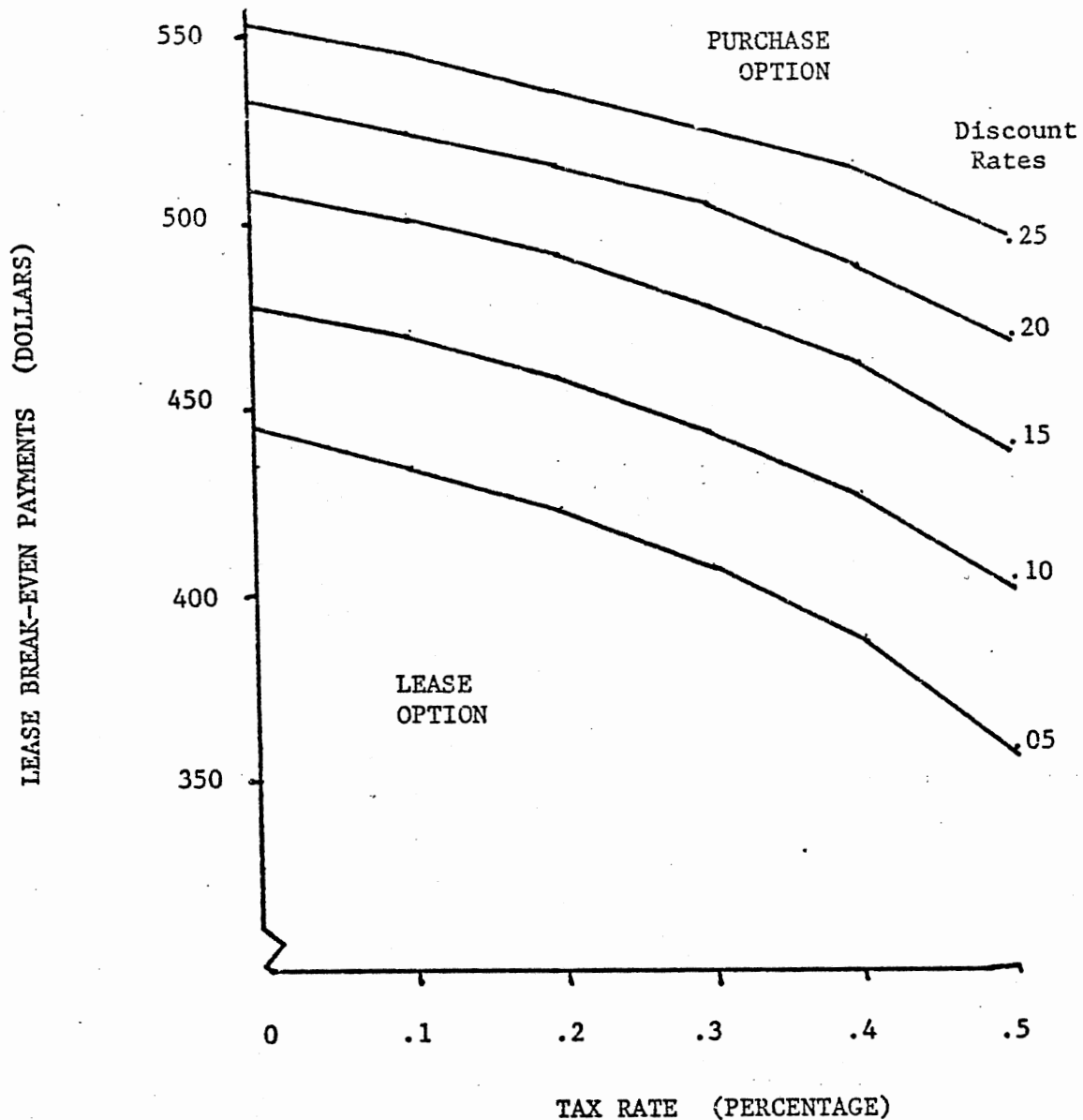


Figure 5. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment with a 25 Percent Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

The highest lease break-even payment is \$551.00 per year at a zero tax rate and 25 percent discount rate. The lowest lease break-even payment is \$359.30 per year at a 50 percent tax rate and a 5 percent discount rate. The area above the decision lines indicates the purchase option would be preferable to the lease option. Conversely, the area below the decision line supports the lease option as the preferred choice.

Figure 6 indicated the lease break-even payments while interest rates are allowed to vary from 12 to 24 percent and tax rates vary from 0 to 50 percent assuming a constant 10 percent discount rate. The lease break-even payments increase as the interest rate increases and decreases as the tax rate increases. The lease break-even payment values range from a low of \$381.70 at a 50 percent tax rate and 12 percent interest rate to a high of \$565.20 at a zero tax rate and an interest rate of 24 percent.

#### Lease-Purchase Results With Zero Down Payment

Figure 7 indicates the change in lease break-even payments as the tax rate increases from 0 to 50 percent and the discount rate increases from 5 to 25 percent, assuming a 15 percent interest rate. The highest payment, \$461.50 is at a zero tax rate and 25 percent discount rate and the lowest payment is \$347.60 at a 50 percent tax rate and 5 percent discount rate. The decision lines in Figure 7 are a graphical presentation of the lease break-even payment schedule shown in Table XXXVII.

An illustration of the lease break-even payments holding the discount rate at 10 percent and allowing the tax rate and interest



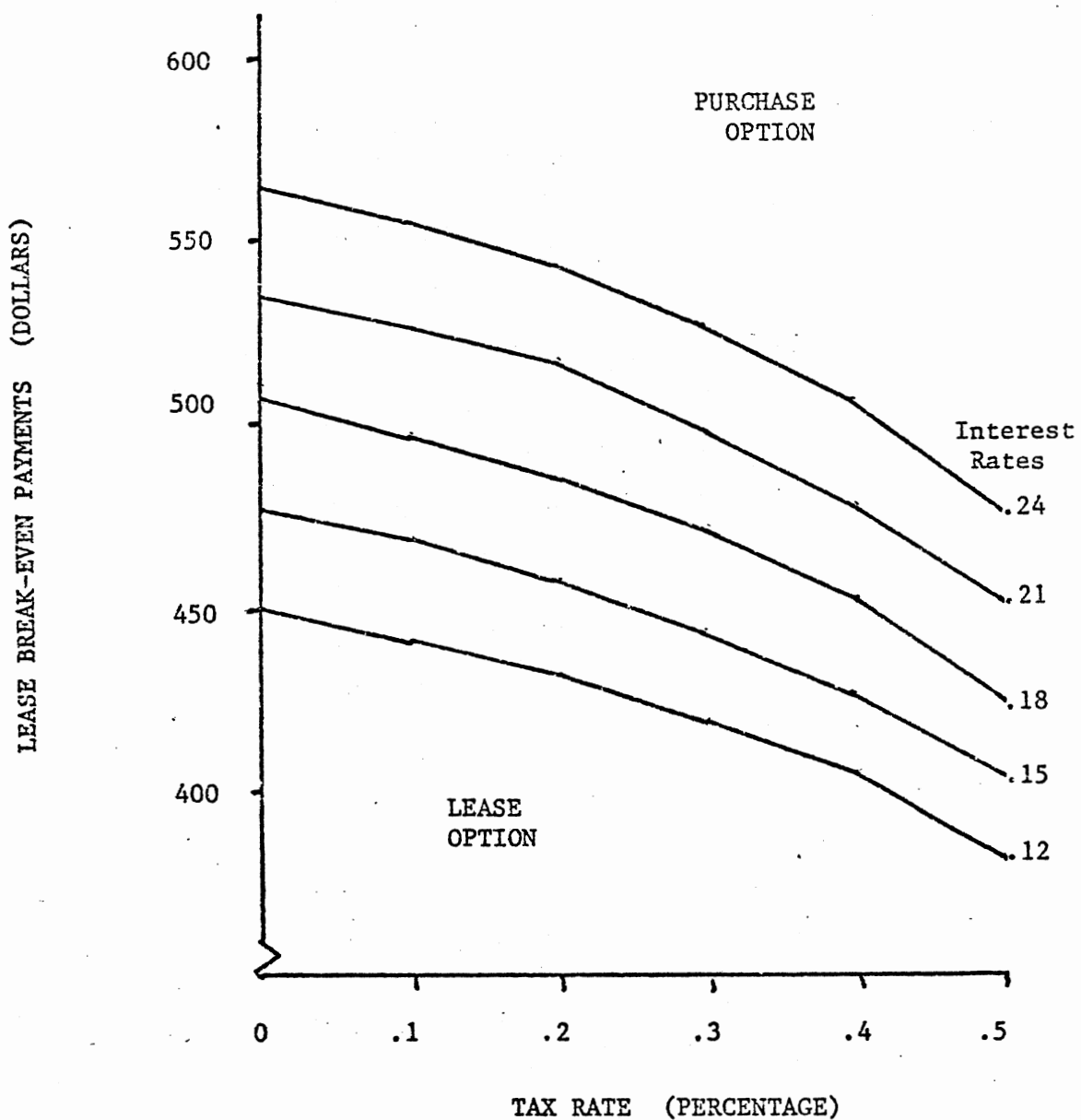


Figure 6. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment with a 25 Percent Down Payment at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

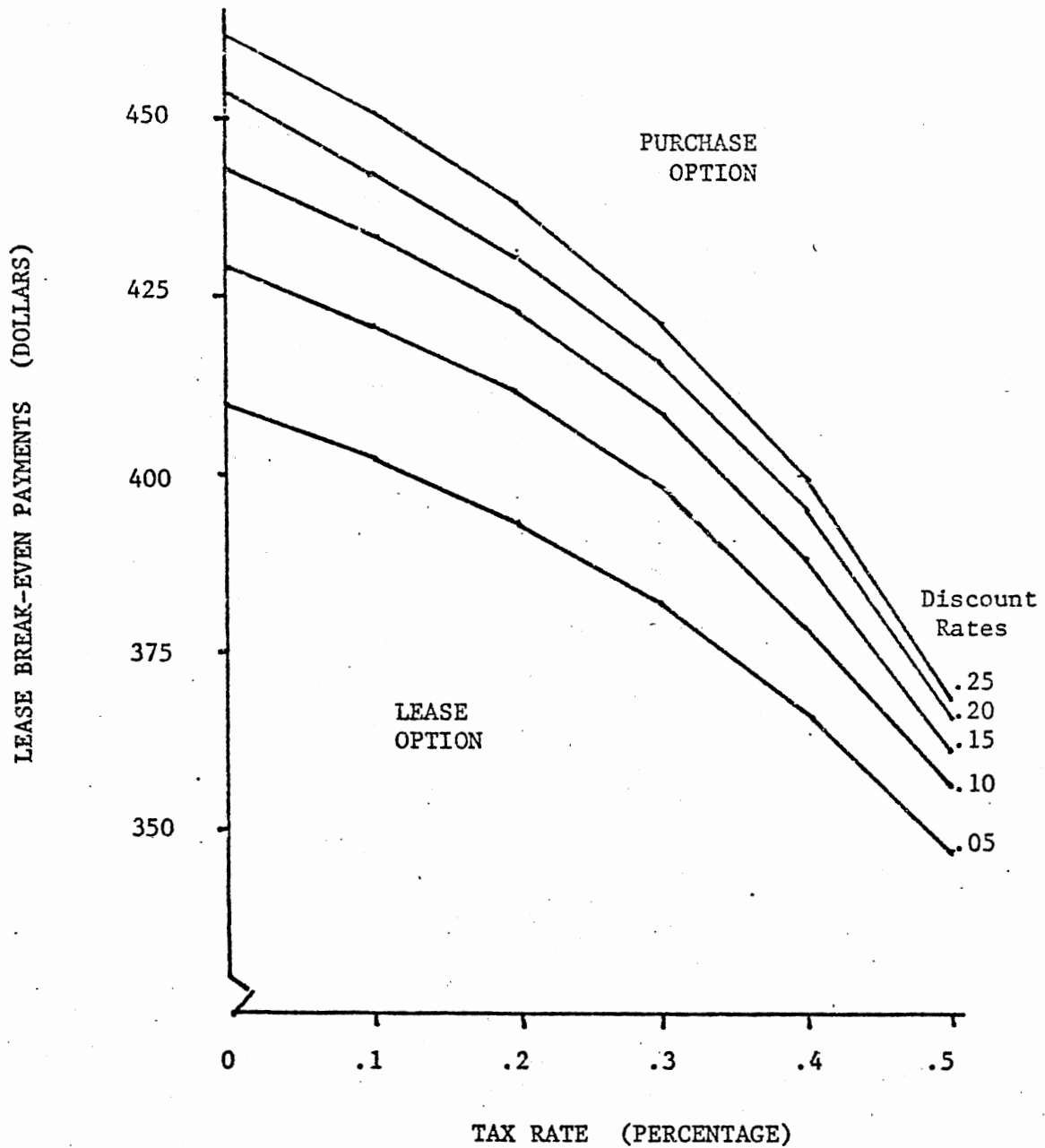


Figure 7. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment with Zero Down Payment at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

rate to vary is shown in Figure 8. The break-even values range from \$322.70 at a 50 percent tax rate and 12 percent interest rate to \$541.60 at a zero tax rate and 24 percent interest rate. Again, the area above the decision lines indicates the purchase option would be favorable and a position below the decision would support the lease option. The farmer would be indifferent between a lease or purchase at any position on the decision line.

### Livestock Results

The procedures used to find the dairy cattle break-even lease payments and the beef cattle break-even payments were identical in computation and produced similar characteristics. The following section illustrates the computations of the break-even payments and their effect on cattle leases.

#### Dairy Cattle Break-Even Analysis

The lease break-even payments were calculated from equation (3.5). The equation was solved for tax rates of 0, 10, 20, 30, 40, and 50 percent with discount rates 5, 10, 15, 20, and 25 percent.

#### Lease Plan 1 Results

The first dairy cattle lease break-even payments for an annual interest rate of 12, 15, 18, 21, and 24 percent are shown in Table XL through Table XLIV in Appendix B. The tables indicate the break-even payments decrease as the tax rate increases. The break-even payments have a positive correlation with discount rates and interest rates, in that the break-even payments increase as the discount and/or interest

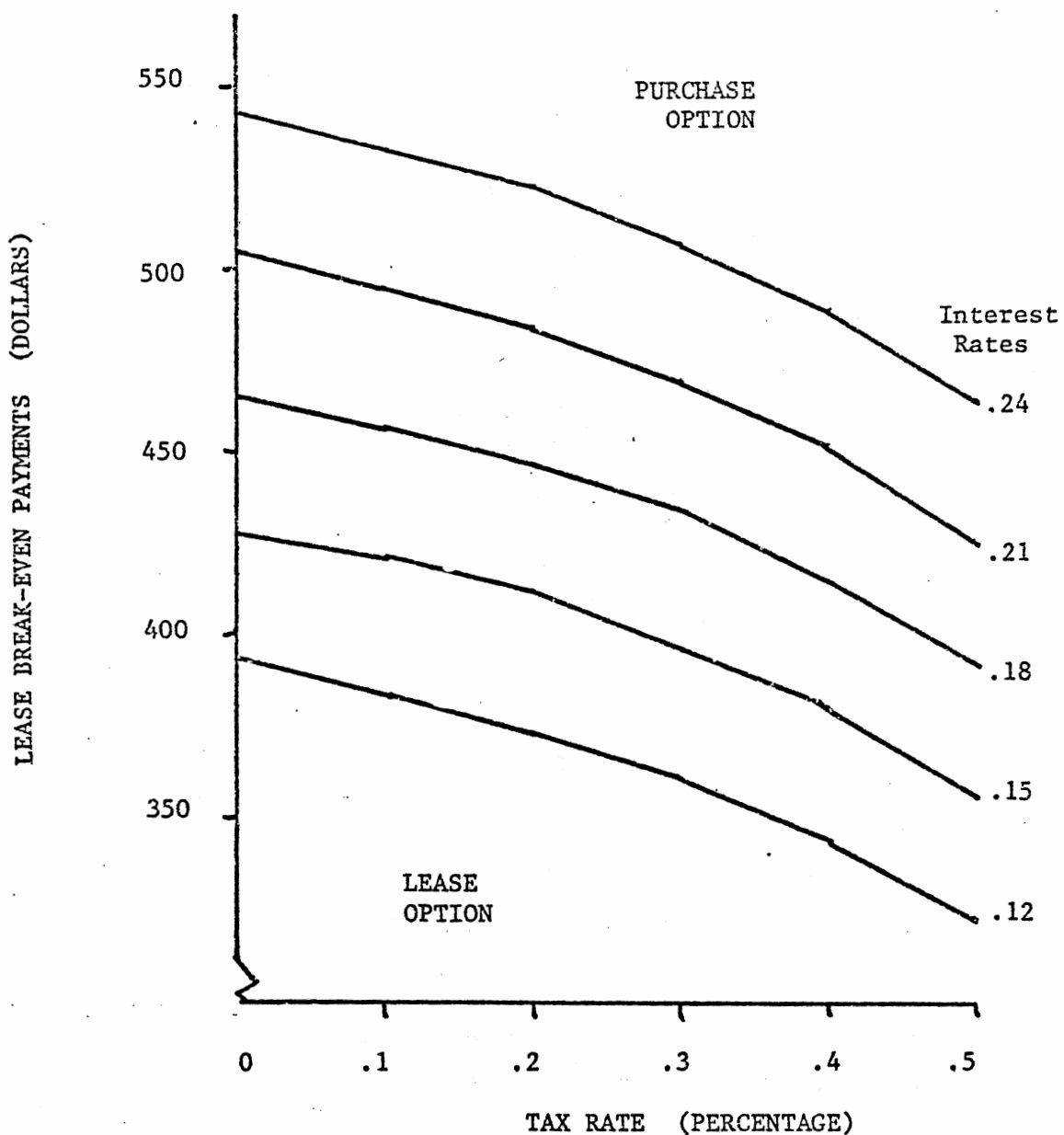


Figure 8. Break-Even Decision Lines Between a Lease or Purchase Option of Small Farm Equipment with Zero Down Payment at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

rate increases. For illustrative purposes a graph of the break-even payments at the 15 percent annual interest is shown on the following page in Figure 9. Figure 9 indicates the changes in break-even payments as the tax rate increases from 0 to 50 percent and as the discount rate increases from 5 to 25 percent. At low discount rates the tax rate has a great effect on the amount of the break-even payments (approximately 100 dollars). However, the tax rate has less effect at higher discount rates. At a discount rate of 25 percent the break-even payments change 57 dollars as the tax rate changes from 0 to 50 percent. On the other hand, the discount rate has very little effect at a zero tax rate (eight dollars), but alters the break-even payments by 66 dollars at a 50 percent tax rate.

Figure 10 is an illustration of break-even decision lines at a discount rate of 10 percent and interest rates of 12, 15, 18, 21, and 24 percent. Increasing the interest rate from 12 percent to 24 percent increases the break-even payments approximately 100 dollars, and at the 10 percent discount rate the tax rate, increased from 0 to 50 percent, decreases the break-even payments approximately 75 dollars.

#### Lease Plan 2 Results

The second dairy cattle lease break-even payment schedules for interest rates of 12, 15, 18, 21, and 24 percent are shown in Tables XLV through XLIX in Appendix B. Figure 11 indicates the break-even payment schedules for an annual interest rate of 15 percent. The lease break-even payments range from \$231.60 to \$263.90. Comparison of Figure 11 with Figure 9 finds the second lease plan requires larger

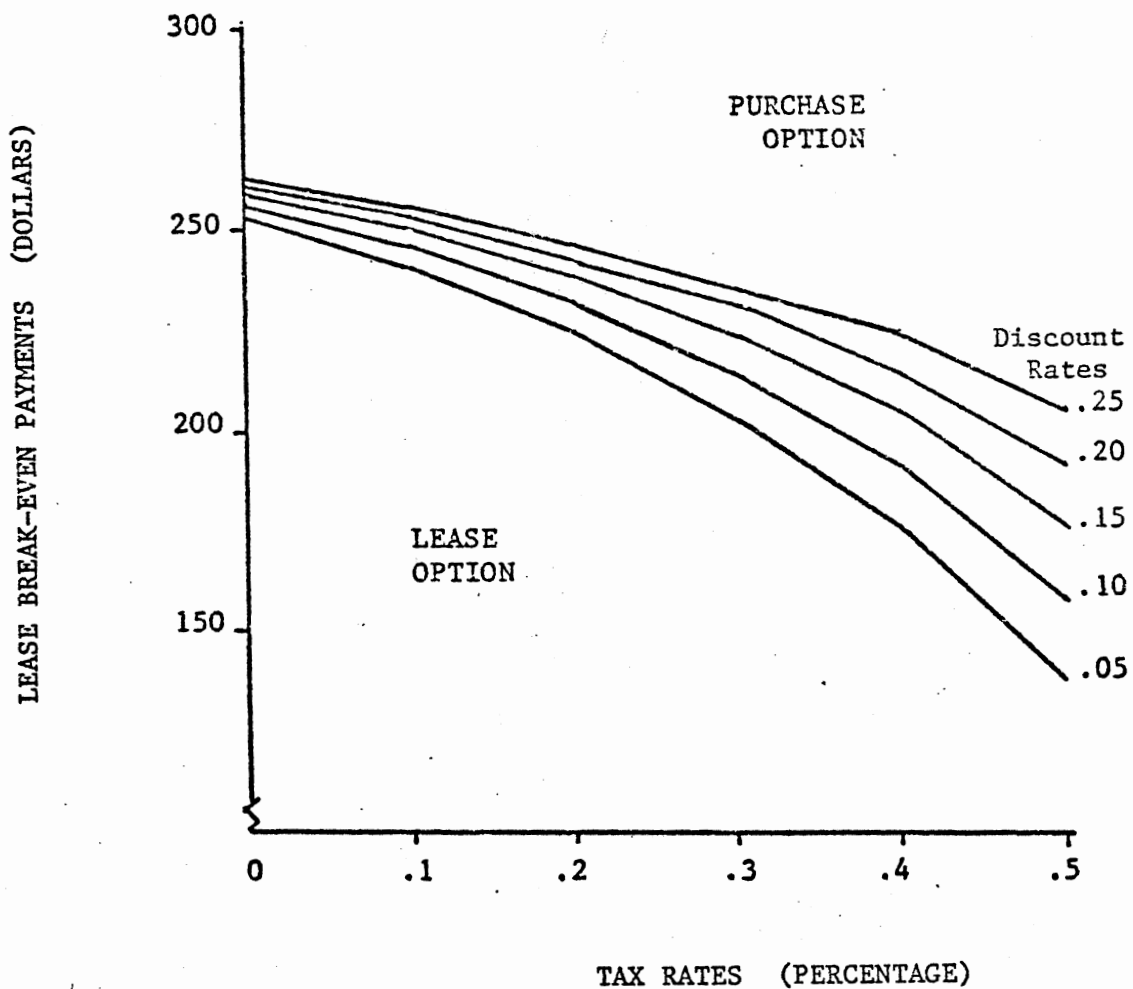


Figure 9. Break-Even Decision Lines Between Dairy Lease Plan 1 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

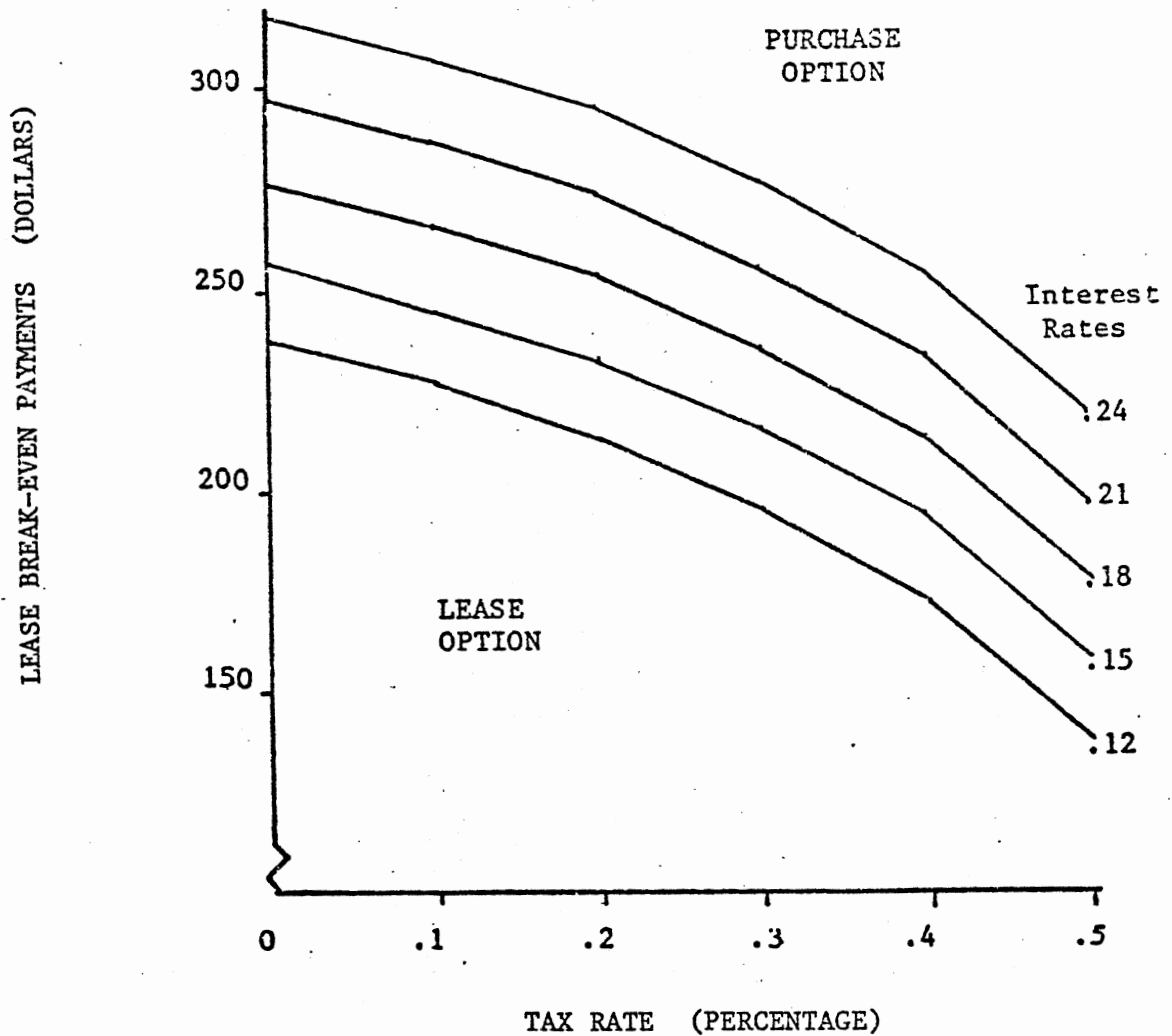


Figure 10. Break-Even Decision Lines Between Dairy Lease Plan 1 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

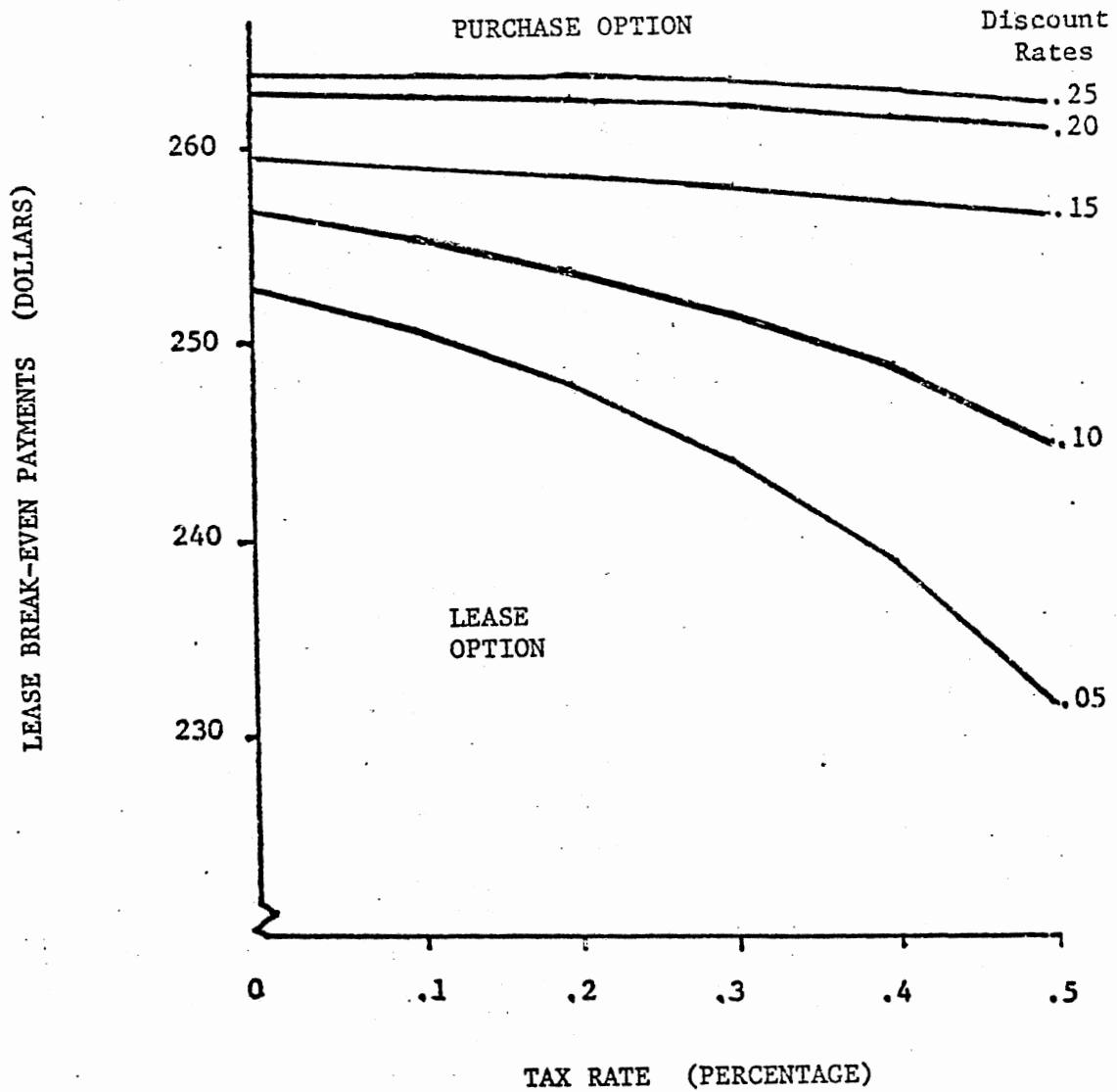


Figure 11. Break-Even Decision Lines Between Dairy Lease Plan 2 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.



XLV through XLIX in Appendix B. Figure 11 indicates the break-even payment schedules for an annual interest rate of 15 percent. The lease break-even payments range from \$231.60 to \$263.90. Comparison of Figure 11 with Figure 9 finds the second lease plan requires larger break-even payments. Plus, the second lease plan break-even payment schedule only varies \$30 from the lowest to highest point; the first lease plan changed approximately \$125 from the lowest to highest value.

Figure 12 shows the changes in lease break-even payments at a discount rate of 10 percent. The lowest lease break-even payment is at an interest rate of 12 percent and tax rate of 50 percent and the highest break-even payment is found at a 24 percent interest rate and zero tax rate.

#### Beef Cattle Break-Even Analysis

Tables L through LIX in Appendix B show the break-even payment schedules for each beef cattle lease plan. As shown in the dairy cattle analyses, the beef cattle break-even payments are calculated from equation (3.5). The break-even payment schedules are derived by solving equation (3.5) at various tax rates, discount rates, and interest rates.

#### Lease Plan 1 Results

The first beef cattle lease decision lines of break-even payments for an interest rate of 15 percent are shown on the following page in Figure 13. The break-even values range from zero to \$98.05.

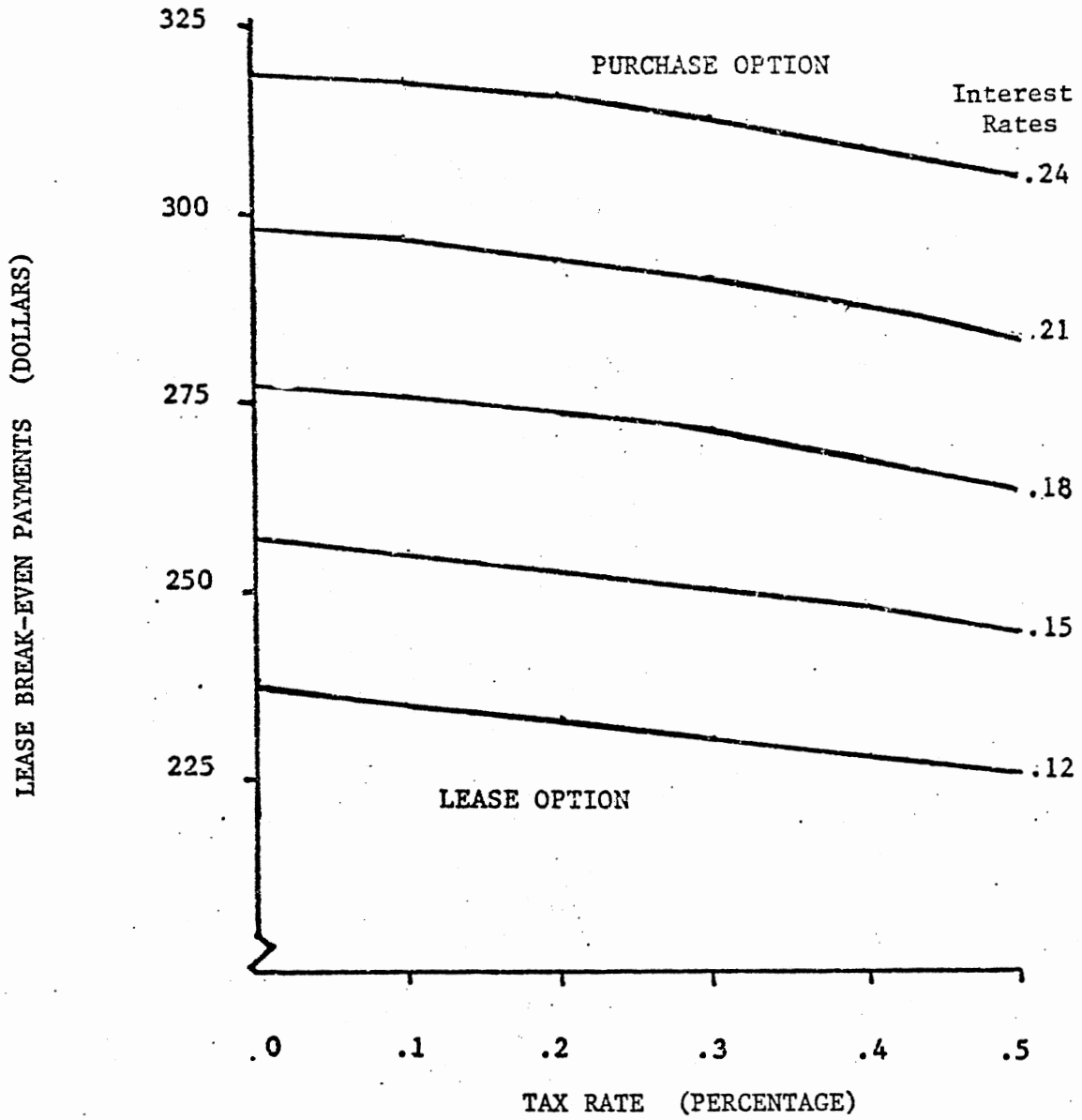


Figure 12. Break-Even Decision Lines Between Dairy Lease Plan 2 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

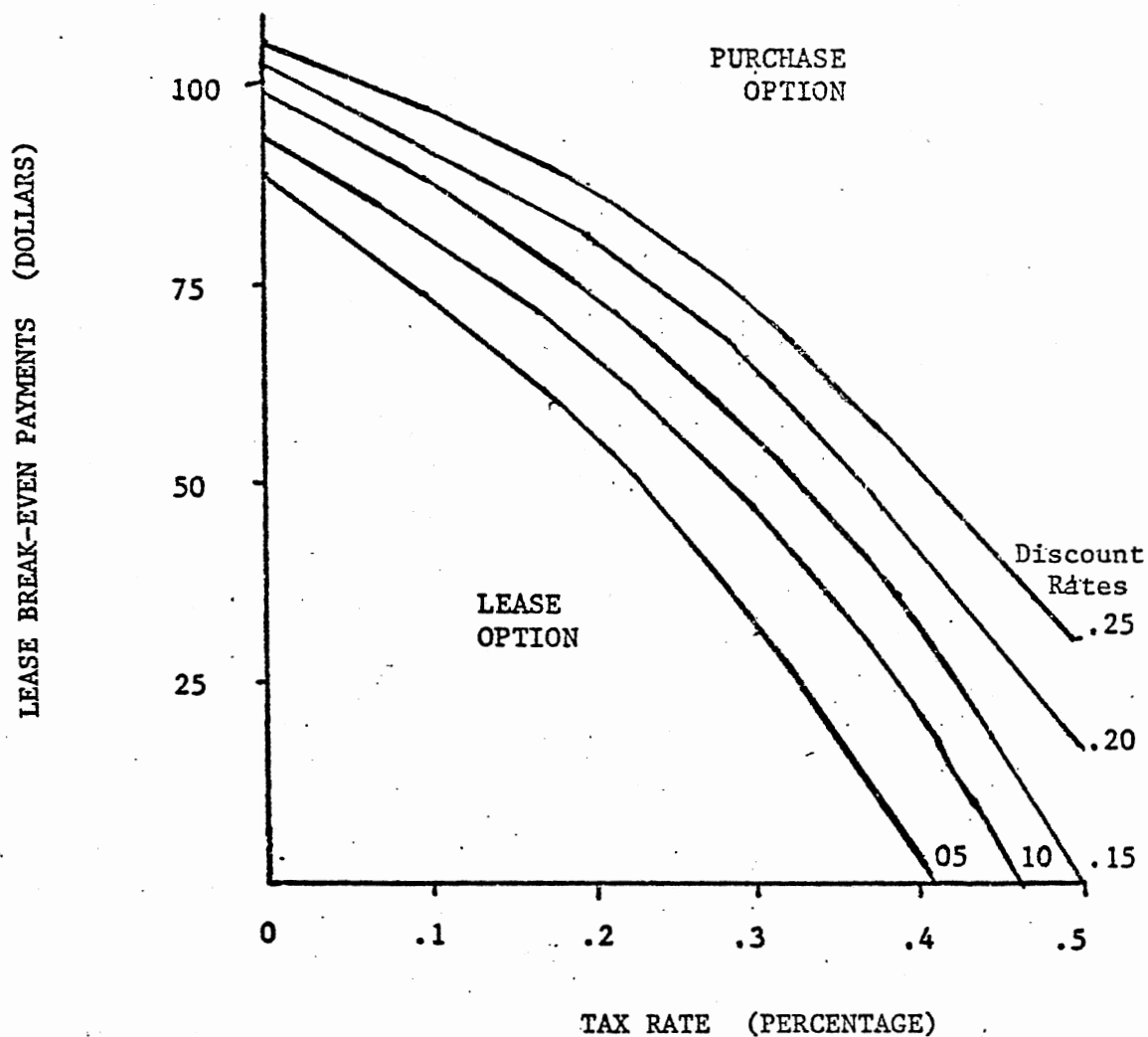


Figure 13. Break-Even Decision Lines Between Beef Lease Plan 1 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

Figure 13 indicates that a rancher would purchase cattle if his tax level was 50 percent and the discount rate was 15 percent or less. The higher the discount rate and lower the tax rate the higher the probability for leasing beef cattle.

An illustration of the effect of interest rates on the first beef cattle lease plan is shown in Figure 14. The break-even lease payments range from zero to \$121.30. Figure 14 shows that the lease option becomes more favorable at higher interest rates.

#### Lease Plan 2 Results

The lease break-even decision lines for the second beef cattle lease plan has higher break-even payments than the first beef lease plan. Figure 15 shows the break-even payment schedule for various tax and discount rates at an interest rate of 15 percent. The highest break-even payment is \$106.20 at a zero tax rate and 25 percent discount rate. The lowest break-even payment is \$53.25 at a 50 percent tax rate and 5 percent discount rate.

Figure 16 illustrates the lease break-even decision line while interest rates are allowed to vary from 12 to 24 percent and tax rates vary from zero to 50 percent assuming a 10 percent discount rate. The lease break-even payments increase as the interest rate increases and as the tax rate decreases. The lease break-even payment values range from a low of \$44.86 at the 50 percent tax rate and 12 percent interest rate to a high of \$130.50 at a zero tax rate and 24 percent interest rate.

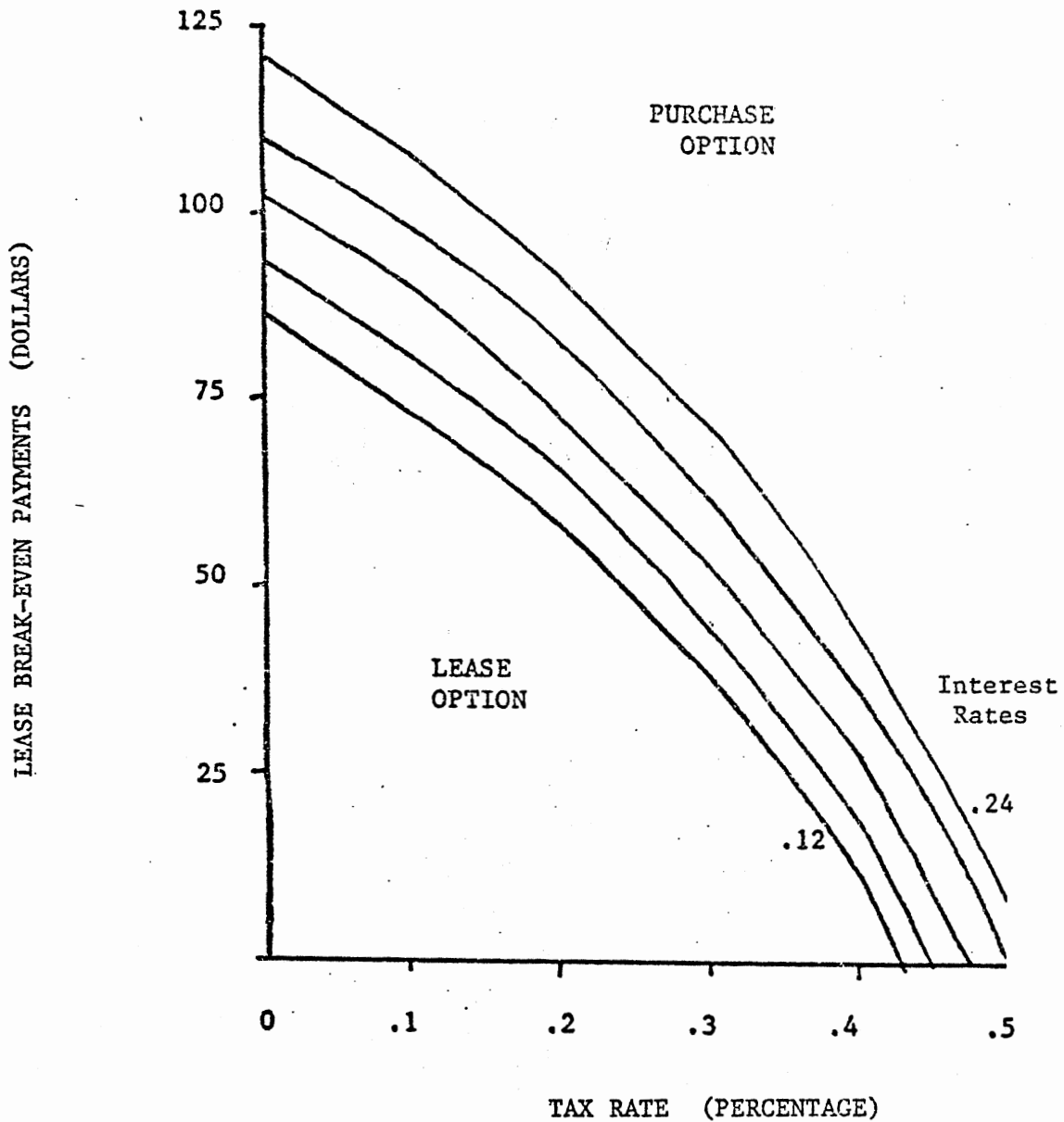


Figure 14. Break-Even Decision Lines Between Beef Lease Plan 1 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

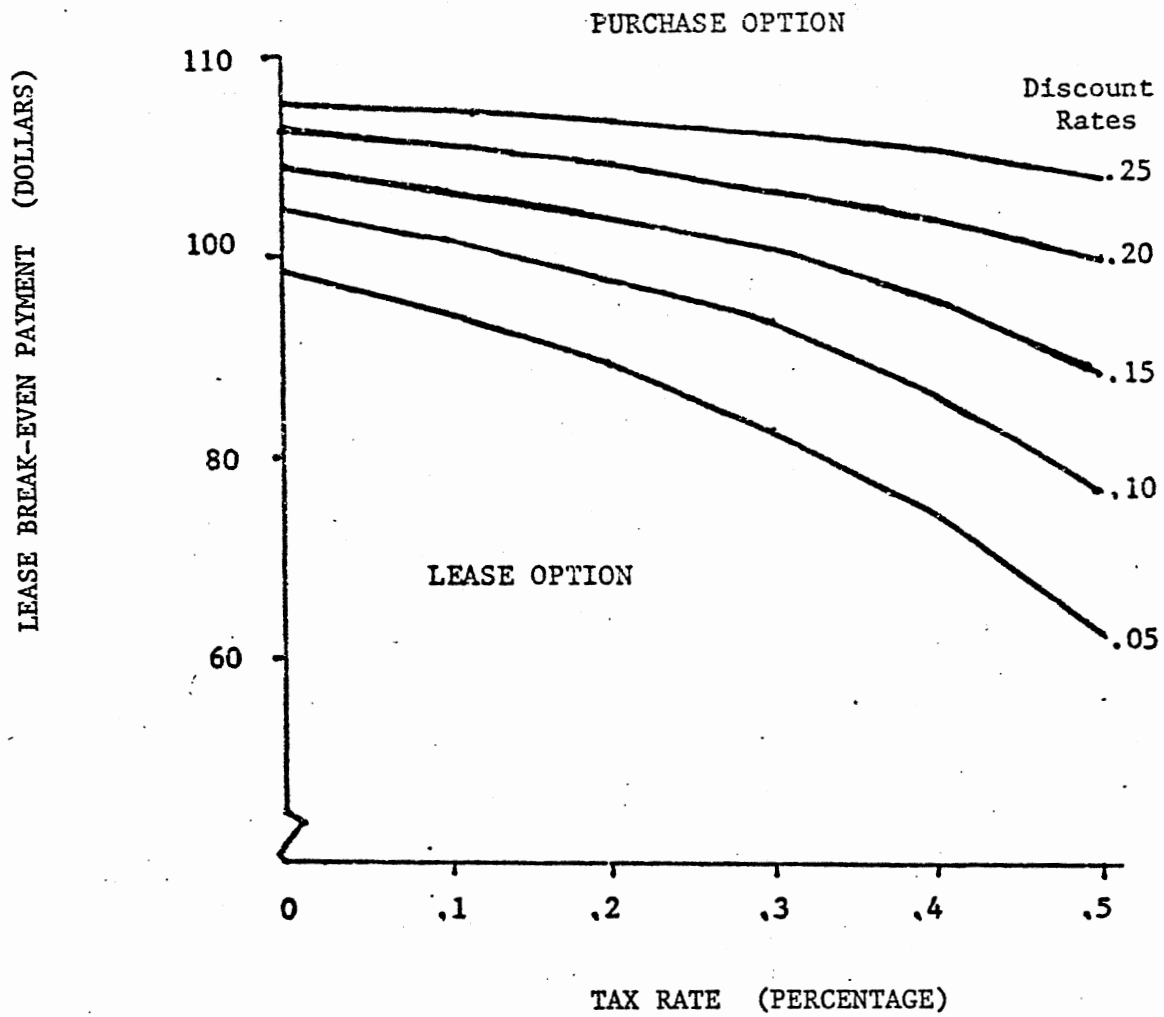


Figure 15. Break-Even Decision Lines Between Beef Lease Plan 2 and a Purchase Option at an Interest Rate of 15 Percent and Discount Rates of 5, 10, 15, 20, and 25 Percent.

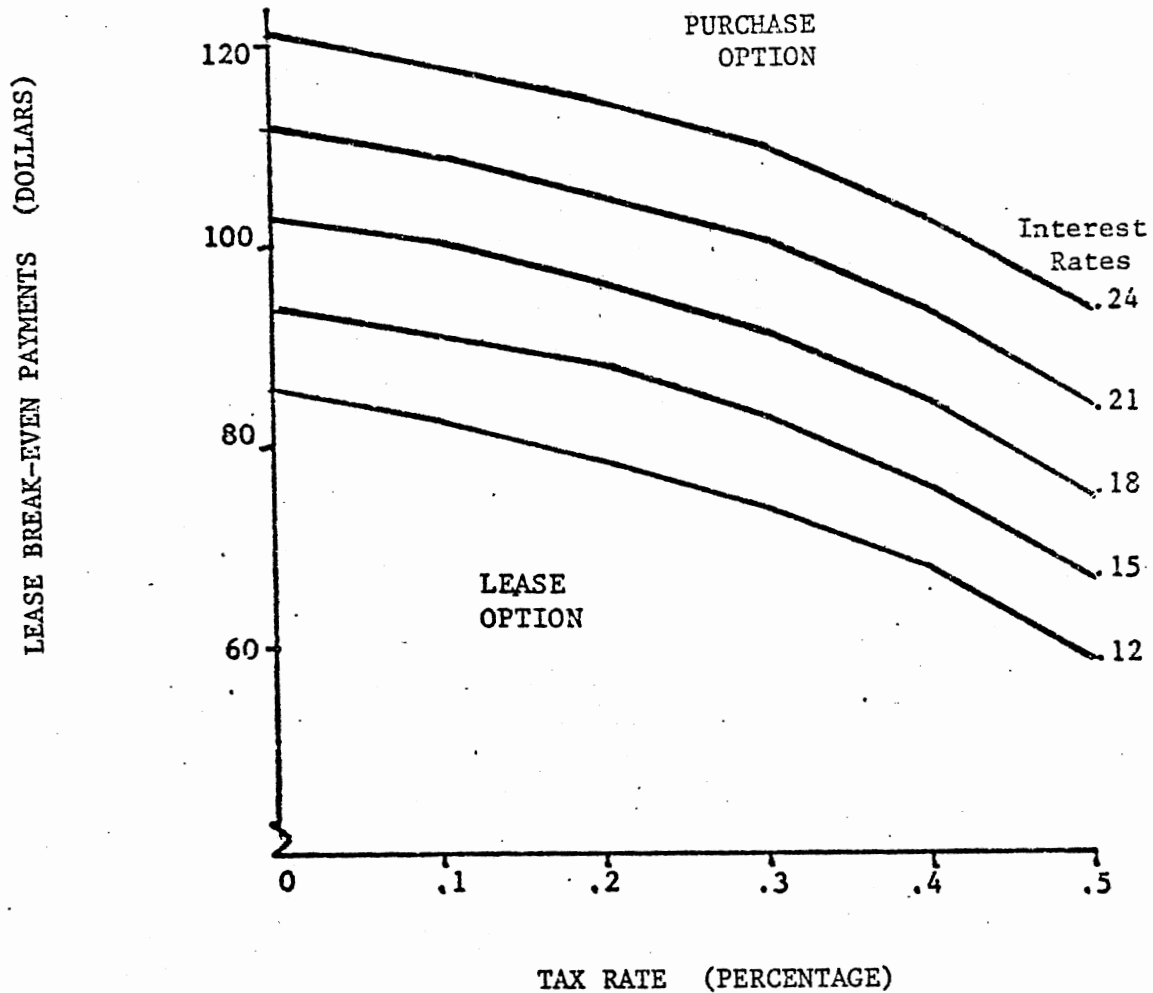


Figure 16. Break-Even Decision Lines Between Beef Lease Plan 2 and a Purchase Option at a Discount Rate of 10 Percent and Interest Rates of 12, 15, 18, 21, and 24 Percent.

## CHAPTER V

### SUMMARY AND CONCLUSION

#### Introduction

The primary objective of this study was to analyze the potential merits of leasing to an agricultural producer. The background and current status of leasing were discussed. Financial economic theory as related to present value analysis was summarized. A literature review consisting of leasing definitions, historical review, advantages, disadvantages, and evaluation procedures was presented. Costs and returns for ownership and lease analysis were developed for farm equipment, dairy cattle, and beef cattle. The model descriptions and requirements for each of three agricultural asset categories (equipment, dairy, and beef) were outlined along with the adjustment in discount rates and tax rates for each model. Finally, the results of the alternative discount rates and tax rates were discussed with a graphic presentation for each lease plan.

This study focused on the managerial decisions of acquiring farm equipment, dairy cattle, and beef cattle. The objectives of this study were subject to several limitations. Model limitations i.e., production data were limited to values taken from the Oklahoma Crop and Livestock Enterprise Budgets. A budget was selected for each cattle category and data extracted from the budgets were used for



equipment statistics thus, the study was subject to the constraints of the Oklahoma agricultural conditions.

#### Summary of Farm Equipment Analyses Findings

The farm equipment lease break-even payments were calculated from equations (3.1) and (3.2). The model findings were presented in the previous chapter. The break-even payments were solved for tax rates of zero, 10, 20, 30, 40, and 50 percent and discount rates of 5, 10, 15, 20, and 25 percent. This procedure was solved for interest rates of 12, 15, 18, 21, and 24 percent.

The farm equipment analyses were divided into two classes, large equipment with a purchase price of \$50,000 and small equipment with a purchase price of \$2,500. Each farm equipment class was separated into two lease plans. The first lease plan assumed a 25 percent down payment and the second lease plan assumed a zero down payment. The purpose of the two lease plans was to find the impact of a down payment and how it affected the annual lease break-even payments.

All of the farm equipment lease plans demonstrated similar characteristics. The lease break-even payments decreased as the tax rate was increased from zero to 50 percent. The lease break-even payments increased as the discount rate was increased from 5 to 25 percent. Finally, the lease break-even payments increased as the interest rate was increased from 12 to 24 percent. Also, the farmer was willing to pay more for a lease option if the lease plan assumed a zero down payment.

### Summary of Livestock Analyses Findings

The livestock break-even payment schedules, derived from equations (3.4) and (3.5), yielded the similar characteristics as the farm equipment break-even payments. In other words, as shown in the farm equipment findings, the livestock break-even payments decreased as the tax rate increased and increased as the cost of capital and interest rate increased. Both the dairy and beef cattle were divided into two lease plans. The major difference between the lease plans was who received ownership of the offspring. The livestock break-even payments were solved for tax rates of zero, 10, 20, 30, 40, and 50 percent and discount rates of 5, 10, 15, 20, and 25 percent at interest rates of 12, 15, 18, 21, and 24 percent.

#### Summary of Dairy Cattle Findings

Comparison of the two dairy cattle lease plans illustrated that a dairyman would pay more for a lease that channeled the tax benefits to the dairyman. For example, dairy cattle Lease Plan 1 assumed that all offspring belonged to the lessor; therefore, the lessor received the tax benefits from heifer calves as well as the cull cattle. However, dairy cattle Lease Plan 2 assumed the lessee would acquire ownership of offspring, providing the lessee with the heifer calf tax benefits. Therefore, not surprising, the lessee would pay more to lease a dairy cow under the stipulations of the second lease plan.

### Summary of Beef Cattle Findings

Analysis of the beef cattle lease plans 1 and 2 again proved that the tax benefits were a deciding factor of the lease or purchase option. The first beef cattle lease plan assumed the lessor would receive all offspring and cull cattle. Therefore, the lessor received the capital gains tax benefits. This caused the purchase option to be more desirable to the lessee, and in some cases, the purchase option was the lessee's only choice. On the other hand, the second beef cattle lease plan assumed the lessee would receive the offspring which enabled the lessee to be willing to pay more for the cattle.

### Conclusion of Farm Equipment Findings

The farm equipment lease plans included assumptions of down payments, interest rates, tax rates, and discount rates. Results proved that a farmer was willing to pay more for a lease when his marginal tax rate was decreased, the interest and discount rate was increased and the down payment was lowered.

Figures 1 through 8 in Chapter IV demonstrated the break-even payment schedules for each farm equipment plan. The farm equipment illustrations may be used as a decision guide for farm management.

### Conclusion of Livestock Findings

The livestock lease plan had an assumption of annual lease payments. As mentioned earlier this assumption was subjective in nature, but was included to analyze the practicality of leasing.

The tax benefits were the most important factor to the lease or purchase decision. If the lessee received the offspring tax benefits,

then leasing became a more viable alternative. Also, lower marginal tax rates and higher discount and interest rates increased the practicality of leasing to the lessee.

Dairy Cattle Lease Plan 1 assumed an annual lease payment of \$240. Figure 9 in Chapter IV demonstrated that with this annual lease payment the lessee would accept the lease if his tax rate was less than 30 percent (assumed 25 percent discount rate) at a 15 percent interest rate. The lease plan was favorable at \$240 per cow per year at all tax rates if the interest rate was 24 percent (Figure 10).

Dairy Cattle Lease Plan 2 assumed an annual lease payment of approximately \$230 and the lessee was required to yield 5 percent of the gross value of the milk production to the lessor. Figures 11 and 12 indicated the second lease plan more favorable for the lease option. The lessee's tax benefits were the reason for this result.

The first beef cattle lease plan showed the purchase option to dominated the lease-purchase decision in Figures 13 and 14. The offspring ownership was assumed by the lessor which did not enable the lessee, without tax benefits, to pay a lease in the average range of \$100 per cow per year.

However, the leasing alternative became more reasonable when the tax benefits of offspring were collected by the lessee, but only at very high discount and interest rates. Figures 15 and 16 demonstrated the results of the second beef lease plan.

Under the criteria mentioned, tax benefits appear to be the most important consideration when deciding between a lease and purchase. Dairymen experiencing high interest and discount rates and under low tax rates should study the leasing alternative. Ranchers, on the

other hand, may find it more difficult to accept the leasing alternative, largely due to the fact that the beef animals are less costly and the tax benefits do not adequately compensate the lessee.

#### Recommendations

Good management practices are essential for a successful farm or ranch; therefore, farm and ranch managers should research opportunities and keep abreast of changing laws and other opportunities which would benefit their operation. This study set up leasing situations for farm equipment, dairy cattle, and beef cattle. This study also included a section on economic theory and literature review. The analyses of the study indicated the leasing opportunity would become more favorable as marginal tax rates decreased and as the cost of capital and interest rates increased. A farm manager may use this concept in operational decision making. However, the farm manager must keep in mind the assumptions specific to this study and how a change in the study's assumptions could affect the outcome. This gives rise to a list of possible future research projects in agricultural leasing. For example, changes in ownership costs, asset life, and the addition of the purchase option at the lease termination are a few additional topics that deserve further consideration. Also, a survey could be designed to measure the subjective aspects of leases. The lease agreement may be influenced by the lessee's and lessor's attitudes pertaining to the judgement of herd quality. Measurement of the subjective components of a lease may affect the farmer's decision to lease or purchase. Further investigation should be conducted to evaluate the significance of the subjective nature of a lease.

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APPENDIX A

DAIRY AND BEEF CATTLE BUDGETS

Table X

## DAIRY CATTLE OWNERSHIP BUDGET

Costs & Receipts	1983	1984	1985	1986	1987
<b>Costs</b>					
Initial Investment	400.00				
Machinery & Land	284.93	284.93	284.93	284.93	284.93
Dairy Cow	358.00	358.00	358.00	358.00	358.00
Replacement Heifer	160.00	160.00	160.00	160.00	160.00
Operating Cost	1696.07	1696.07	1696.07	1696.07	1696.07
<b>Total Annual Cost</b>	<b>2899.00</b>	<b>2499.00</b>	<b>2499.00</b>	<b>2499.00</b>	<b>2499.00</b>
<b>Production</b>					
Milk	2272.65	2272.65	2273.65	2273.65	2273.65
Dairy Cull Cows	86.73	86.73	86.73	86.73	86.73
Bull Calves	39.63	39.63	39.63	39.63	39.63
Heifer Calves				104.50	104.50
Heifer Held	0.00	0.00	522.50	522.50	522.50
Dairy Cow Salvage					522.00
<b>Total Production Receipts</b>	<b>2399.01</b>	<b>2399.01</b>	<b>2922.51</b>	<b>3027.01</b>	<b>3549.01</b>

TABLE XI

## DAIRY CATTLE LEASE PLAN 1: LESSEE'S BUDGET

Costs & Receipts	1983	1984-1986
<b>Costs</b>		
Machinery & Land	284.93	284.93
Total Operating Cost	1696.07	1696.07
<b>Total Annual Cost</b>		
	1981.00	1981.00
<b>Lease Payments</b>		
Down Payment	135.00	0.00
Annual Payment	240.00	240.00
Insurance	5.00	5.00
Payment for raising calves	- 48.00	- 48.00
<b>Total Lease Cost</b>		
	332.00	197.00
Milk Production	2272.65	2272.65

TABLE XII

## DAIRY CATTLE LEASE PLAN 1: LESSOR'S BUDGET

Costs & Receipts	1983	1984	1985	1986	1987
<b>Costs</b>					
Initial Investment	400.00				
Dairy Cow	358.00	358.00	358.00	358.00	358.00
Dairy Replacement	160.00	160.00	160.00	160.00	160.00
Total Costs	918.00	518.00	518.00	518.00	518.00
<b>Lease Arrangements</b>					
Down Payment	135.00				
Annual Payment	240.00	240.00	240.00	240.00	240.00
Calf Growing Cost	-48.00	-48.00	-48.00	-48.00	-48.00
Total Lease Receipts	327.00	192.00	192.00	192.00	192.00
<b>Production</b>					
Dairy Cull Cows	86.73	86.73	86.73	86.73	86.73
Bull Calves	39.63	39.63	39.63	39.63	39.63
Heifer Calves	0.00	0.00	0.00	104.50	104.50
Heifer Held	0.00	0.00	522.50	522.50	522.50
Dairy Cow Salvage					522.00
Total Production	126.36	126.36	648.86	753.36	1275.36
Annual Cash Flows	-464.64	-64.64	322.86	427.36	949.36

TABLE XIII

## DAIRY CATTLE LEASE PLAN 2: LESSEE'S BUDGET

Costs & Receipts	1983	1984	1985	1986-87
<b>Cost</b>				
Machinery & Land	284.93	284.93	284.93	284.93
Replacement Heifer	53.10	53.10	53.10	53.10
Operating Cost	1696.07	1696.07	1696.07	1696.07
<b>Total Cost</b>	<b>2034.10</b>	<b>2034.10</b>	<b>2034.10</b>	<b>2034.10</b>
<b>Lease Payments</b>				
Down Payment	135.00	0.00	0.00	0.00
Annual Payment	230.00	230.00	230.00	230.00
Insurance	5.00	5.00	5.00	
<b>Total Lease Cost</b>	<b>370.00</b>	<b>235.00</b>	<b>235.00</b>	<b>235.00</b>
<b>Production</b>				
Milk	2045.38	2045.38	2045.38	2034.10
Dairy Cull Cow	86.73	86.73	86.73	86.73
Bull Calves	39.63	39.63	39.63	39.63
Heifer Calves				104.50
Heifer Held	0.00	0.00	522.50	522.50
<b>Total Production Receipts</b>	<b>2171.74</b>	<b>2171.74</b>	<b>2589.74</b>	<b>2045.35</b>
<b>Annual Cash Flows*</b>	<b>-233.36</b>	<b>-97.36</b>	<b>320.64</b>	<b>425.14</b>

\* Production Receipts - (Total Cost + Total Lease Cost)



TABLE XIV

## DAIRY CATTLE LEASE PLAN 2: LESSOR'S BUDGET

Costs & Receipts	1983	1984-1986	1987
<b>Costs</b>			
Initial Investment	400.00		
Dairy Cow	358.00	358.00	358.00
<b>Total Annual Costs</b>	<u>758.00</u>	<u>358.00</u>	<u>358.00</u>
<b>Lease Arrangement</b>			
Down Payment	135.00		
Annual Payments	230.00	230.00	230.00
	<u>365.00</u>	<u>230.00</u>	<u>230.00</u>
<b>Production</b>			
Milk (20%)	227.27	227.27	227.27
Dairy Cows Salvage			522.00
<b>Total Production</b>	<u>227.27</u>	<u>227.27</u>	<u>749.27</u>
<b>Annual Cash Flows</b>	-165.73	99.27	621.27

TABLE XV

## BEEF CATTLE OWNERSHIP BUDGET

Costs & Receipts	1983	1984	1985	1986-87
<b>Costs</b>				
Initial Investment	168.75			
Machinery & Land	12.53	12.53	12.53	12.53
Beef Cow	151.00	151.00	151.00	151.00
Beef Bull	3.54	3.54	3.54	3.54
Beef Replacement	70.00	70.00	70.00	70.00
<b>Total Costs</b>	<b>405.82</b>	<b>237.07</b>	<b>237.07</b>	<b>237.07</b>
<b>Production</b>				
Steer Calves	165.60	165.60	165.60	165.60
Heifer Calves	0.00	0.00	0.00	100.75
Commercial Cull Cow	47.50	47.50	47.50	47.50
Heifer Held	0.00	0.00	337.50	337.50
Residual Value				475.50
<b>Total Production</b>	<b>213.10</b>	<b>213.10</b>	<b>550.60</b>	<b>1026.10</b>
<b>Receipts</b>				
Annual Cash Flows*	-192.72	-23.97	313.53	789.03

\* Annual Cash Flows = Total Production Receipts - Total Cost

TABLE XVI

## BEEF CATTLE LEASE PLAN 1: LESSEE'S BUDGET

Costs & Receipts	1983	1984	1985-1987
<b>Costs</b>			
Machinery & Land	12.53	12.53	12.53
Beef Bull	3.54	3.54	3.54
Total Costs	<u>16.07</u>	<u>16.07</u>	<u>16.07</u>
<b>Lease Arrangements</b>			
Down Payment	48.00	0.00	0.00
Annual Payment	96.00	96.00	96.00
Insurance	3.00	3.00	3.00
Payments for raising heifer calves	-21.60	-21.60	-21.60
Total Lease Cost	<u>125.40</u>	<u>77.40</u>	<u>77.40</u>
<b>Production</b>			
Steer Calves	<u>165.60</u>	<u>165.60</u>	<u>165.60</u>
Total Production	165.60	165.60	165.60
Annual Cash Flows*	24.13	72.13	72.13

\* Annual Cash Flows = Total Production - (Total Costs + Total Lease Cost)

TABLE XVII

## BEEF CATTLE LEASE PLAN 1: LESSOR'S BUDGET

Costs & Receipts	1983	1984	1985	1986	1987
<b>Costs</b>					
Initial Investment	168.75				
Annual Loan Payments	151.00	151.00	151.00	151.00	151.00
Beef Replacement	70.00	70.00	70.00	70.00	70.00
<b>Total Costs</b>	<b>389.75</b>	<b>221.00</b>	<b>221.00</b>	<b>221.00</b>	<b>221.00</b>
<b>Lease Arrangements</b>					
Lessee's Down Payment	48.00	0.00	0.00	0.00	0.00
Lessee's Annual Payment	120.00	120.00	120.00	120.00	120.00
Steer Calf Growing Cost	-21.60	-21.60	-21.60	-21.60	-21.60
<b>Total Lease Receipts</b>	<b>146.40</b>	<b>98.40</b>	<b>98.40</b>	<b>98.40</b>	<b>98.40</b>
<b>Production</b>					
Heifer Held	0.00	0.00	0.00	100.75	100.75
Heifer Calves	0.00	0.00	337.50	337.50	337.50
Commercial Cull Cows	47.50	47.50	47.50	47.50	47.50
Beef Cow Salvage	0.00	0.00	0.00	475.50	
<b>Total Production</b>	<b>47.50</b>	<b>47.50</b>	<b>385.00</b>	<b>961.25</b>	<b>485.75</b>
<b>Annual Cash Flows</b>	<b>-195.85</b>	<b>-75.10</b>	<b>262.40</b>	<b>848.65</b>	<b>363.15</b>

TABLE XVIII

## BEEF CATTLE LEASE PLAN 2: LESSEE'S BUDGET

Costs & Receipts	1983	1984	1985	1986-87
<b>Cost</b>				
Machinery & Land	12.53	12.53	12.53	12.53
Beef Bull	3.54	3.54	3.54	3.54
<b>Total Costs</b>	<b>16.07</b>	<b>16.07</b>	<b>16.07</b>	<b>16.07</b>
<b>Lease Payment</b>				
Down Payment	48.00	0.00	0.00	0.00
Annual Payment	144.00	144.00	144.00	144.00
Insurance	3.00	3.00	3.00	3.00
<b>Total Lease Payment</b>	<b>195.00</b>	<b>147.00</b>	<b>147.00</b>	<b>147.00</b>
<b>Production</b>				
Steer Calves	165.60	165.60	165.60	165.60
Heifer Calves	0.00	0.00	0.00	100.75
Heifer Held	0.00	0.00	337.50	337.50
<b>Total Production</b>	<b>165.60</b>	<b>165.60</b>	<b>502.10</b>	<b>602.85</b>
<b>Annual Cash Flows*</b>	<b>-45.47</b>	<b>2.53</b>	<b>339.03</b>	<b>439.78</b>

\* Annual Cash Flows = Total Production - (Total Cost + Total Lease Payment)

TABLE XIX

## BEEF CATTLE LEASE PLAN 2: LESSOR'S BUDGET

Lessor: Beef Lease Plan 2	1983	1984-1986	1987
<b>Costs</b>			
Initial Investment	168.75	0.00	0.00
Annual Loan Payments	151.00	151.00	151.00
Beef Replacement	70.00	70.00	70.00
<b>Total Cost</b>	<b>389.75</b>	<b>221.00</b>	<b>221.00</b>
<b>Lease Arrangement</b>			
Lessee's Down Payment	48.00	0.00	0.00
Lessee's Annual Payment	144.00	144.00	144.00
<b>Total Lease Receipts</b>	<b>192.00</b>	<b>144.00</b>	<b>144.00</b>
Cull Cows	47.50	47.50	47.50
Beef Cow Salvage	0.00	0.00	475.50
<b>Annual Cash Flows</b>	<b>-150.25</b>	<b>-29.50</b>	<b>446.00</b>

APPENDIX B

FARM EQUIPMENT, DAIRY CATTLE, AND BEEF CATTLE

BREAK-EVEN PAYMENT RESULTS

TABLE XX

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH 25 PERCENT DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	8,281	9,000	9,581	10,051	10,435
.1	8,115	8,848	9,443	9,928	10,326
.2	7,907	8,658	9,271	9,774	10,190
.3	7,640	8,414	9,050	9,576	10,014
.4	7,285	8,089	8,755	9,312	9,781
.5	6,787	7,633	8,342	8,942	9,454



TABLE XXI

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH 25 PERCENT DOWN PAYMENT AT AN  
ANNUAL INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	8,867	9,586	10,167	10,637	11,021
.1	8,680	9,414	10,009	10,495	10,894
.2	8,446	9,199	9,813	10,318	10,735
.3	8,146	8,922	9,561	10,090	10,532
.4	7,746	8,554	9,224	9,785	10,260
.5	7,185	8,037	8,753	9,359	9,879

TABLE XXII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH 25 PERCENT DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	9,446	10,166	10,746	11,217	11,600
.1	9,246	9,980	10,576	11,062	11,461
.2	8,996	9,749	10,364	10,869	11,288
.3	8,674	9,451	10,090	10,621	11,065
.4	8,246	9,054	9,726	10,290	10,767
.5	7,645	8,498	9,216	9,826	10,350

TABLE XXIII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH 25 PERCENT DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	10,019	10,738	11,319	11,790	12,173
.1	9,812	10,546	11,142	11,628	12,027
.2	9,554	10,306	10,921	11,426	11,845
.3	9,222	9,997	10,636	11,167	11,611
.4	8,779	9,586	10,257	10,821	11,299
.5	8,160	9,009	9,726	10,336	10,862

TABLE XXIV

LEASE BREAK-EVEN PAYMENT SCHEUDLE FOR LARGE EQUIPMENT  
WITH 25 PERCENT DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.26
0	10,584	11,303	11,884	12,354	12,738
.1	10,377	11,110	11,705	12,191	12,590
.2	10,118	10,869	11,482	11,987	12,406
.3	9,786	10,559	11,195	11,725	12,168
.4	9,343	10,145	10,813	11,375	11,852
.5	8,722	9,566	10,277	10,885	11,409

TABLE XXV

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	7,454	7,872	8,188	8,426	8,604
.1	7,317	7,714	8,013	8,238	8,405
.2	7,146	7,517	7,795	8,003	8,157
.3	6,926	7,262	7,515	7,701	7,837
.4	6,633	6,926	7,141	7,298	7,412
.5	6,223	6,453	6,618	6,734	6,815

TABLE XXVI

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	8,200	8,584	8,870	9,079	9,231
.1	8,061	8,423	8,690	8,885	9,025
.2	7,888	8,221	8,465	8,642	8,767
.3	7,665	7,962	8,177	8,330	8,436
.4	7,368	7,617	7,792	7,913	7,994
.5	6,952	7,133	7,253	7,330	7,376

TABLE XXVII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	8,967	9,316	9,569	9,750	9,875
.1	8,826	9,151	9,385	9,550	9,662
.2	8,650	8,945	9,154	9,299	9,395
.3	8,424	8,680	8,858	8,977	9,052
.4	8,123	8,327	8,462	8,547	8,596
.5	7,701	7,833	7,909	7,946	7,956

TABLE XXVIII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	9,752	10,065	10,286	10,437	10,534
.1	9,609	9,897	10,097	10,231	10,314
.2	9,431	9,687	9,860	9,973	10,039
.3	9,202	9,417	9,556	9,641	9,686
.4	8,897	9,056	9,151	9,199	9,214
.5	8,470	8,551	8,583	8,580	8,554



TABLE XXVIX

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR LARGE EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	10,555	10,832	11,019	11,140	11,209
.1	10,411	10,660	10,826	10,928	10,982
.2	10,230	10,446	10,583	10,663	10,699
.3	9,998	10,170	10,272	10,322	10,335
.4	9,689	9,803	9,856	9,868	9,849
.5	9,256	9,288	9,275	9,232	9,170

TABLE XXX

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
 WITH 25 PERCENT DOWN PAYMENT AT AN  
 ANNUAL INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	414.00	450.00	479.00	502.60	521.70
.1	405.70	442.40	472.20	496.40	516.30
.2	395.40	432.90	463.60	488.70	509.50
.3	382.00	420.70	452.50	478.80	500.70
.4	364.20	404.50	437.80	465.60	489.00
.5	351.20	381.70	417.10	447.10	472.70

TABLE XXXI

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
 WITH 25 PERCENT DOWN PAYMENT AT AN  
 ANNUAL INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	443.30	479.20	508.30	531.90	551.00
.1	434.00	470.70	500.50	524.80	544.70
.2	422.30	459.90	490.70	515.90	536.80
.3	407.30	446.10	478.00	504.50	526.60
.4	387.30	427.70	461.50	489.30	513.00
.5	359.30	401.90	437.60	468.00	494.00

TABLE XXXII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
WITH 25 PERCENT DOWN PAYMENT AT AN  
ANNUAL INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	472.50	508.30	537.30	560.80	580.00
.1	462.30	499.00	528.80	553.10	573.10
.2	449.80	487.40	518.20	543.50	564.40
.3	433.70	472.50	504.50	531.00	553.20
.4	412.30	452.70	486.30	514.50	538.40
.5	382.30	424.90	460.80	491.30	517.50

TABLE XXXIII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
 WITH 25 PERCENT DOWN PAYMENT AT AN  
 ANNUAL INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.5	.10	.15	.20	.25
0	500.90	536.90	565.90	589.50	608.60
.1	490.60	527.30	557.10	581.40	601.40
.2	477.70	515.30	546.00	571.30	592.30
.3	461.10	499.90	531.80	558.30	580.60
.4	439.00	479.30	512.80	541.00	565.00
.5	408.00	450.50	486.30	516.80	543.10

TABLE XXXIV

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
 WITH 25 PERCENT DOWN PAYMENT AT AN  
 ANNUAL INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	529.20	565.20	594.20	617.70	636.90
.1	518.80	555.50	585.30	609.60	629.50
.2	505.90	543.40	574.10	599.40	620.30
.3	489.30	527.90	559.80	586.20	608.40
.4	467.10	507.20	540.60	568.70	592.60
.5	436.10	478.30	513.90	544.20	570.50

TABLE XXXV

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	372.70	393.60	409.40	421.30	430.20
.1	365.80	385.70	400.70	411.90	420.30
.2	357.30	375.80	389.80	400.20	407.80
.3	346.30	363.20	375.70	385.00	391.90
.4	331.70	346.30	357.10	364.90	370.60
.5	339.30	322.70	330.90	336.70	340.80

TABLE XXXVI

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	410.00	429.20	443.50	454.00	461.50
.1	403.10	421.10	434.50	444.20	451.20
.2	394.40	411.10	423.30	432.10	438.40
.3	383.30	398.10	408.80	416.50	421.80
.4	368.40	380.80	389.60	395.70	399.70
.5	347.60	356.60	362.70	366.50	368.80



TABLE XXXVII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
 WITH ZERO DOWN PAYMENT AT AN ANNUAL  
 INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	448.30	465.80	478.50	487.50	493.70
.1	441.30	457.60	469.20	477.50	483.10
.2	432.50	447.30	457.70	464.90	469.80
.3	421.20	434.00	442.90	448.80	452.60
.4	406.10	416.30	423.10	427.40	429.80
.5	385.00	391.60	395.40	397.30	397.80

TABLE XXXVIII

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	487.60	503.30	514.30	521.90	526.70
.1	480.50	494.90	504.30	511.50	515.70
.2	471.60	484.30	493.00	498.60	502.00
.3	460.10	470.80	477.80	482.10	487.30
.4	444.90	452.80	457.50	460.00	460.70
.5	423.50	427.60	429.10	429.00	427.70

TABLE XXXIX

LEASE BREAK-EVEN PAYMENT SCHEDULE FOR SMALL EQUIPMENT  
WITH ZERO DOWN PAYMENT AT AN ANNUAL  
INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	527.70	541.60	551.00	557.00	560.40
.1	520.50	533.00	541.30	546.40	549.10
.2	511.50	522.30	529.20	533.10	535.00
.3	499.90	508.50	513.60	516.10	516.70
.4	484.50	490.10	492.80	493.40	492.50
.5	462.80	464.40	463.70	461.60	458.50

TABLE XL

DAIRY CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	232.80	237.00	240.00	242.00	243.00
.1	220.10	226.20	230.90	234.40	236.90
.2	204.10	212.60	219.50	224.90	229.20
.3	183.60	195.10	204.80	212.80	219.30
.4	156.20	171.80	185.20	196.60	206.10
.5	117.90	139.20	157.80	173.90	187.70

TABLE XLI

DAIRY CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
ANNUAL INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	253.20	256.90	259.30	260.80	261.30
.1	240.40	245.90	250.10	253.00	254.90
.2	224.40	232.20	238.50	243.30	247.00
.3	203.70	214.50	223.50	230.90	236.80
.4	176.20	191.00	203.60	214.30	223.10
.5	137.80	158.10	175.80	191.00	204.10

TABLE XLII

DAIRY CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	274.20	277.30	279.20	280.10	281.10
.1	261.30	266.20	269.80	272.10	273.50
.2	245.20	252.30	258.00	262.20	265.30
.3	224.50	234.50	242.80	249.50	254.70
.4	196.90	210.80	222.60	232.50	240.70
.5	158.20	177.60	194.40	208.80	221.00

TABLE XLIII

DAIRY CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	295.60	298.10	298.50	298.90	299.30
.1	282.70	287.00	289.90	291.70	292.50
.2	266.50	273.00	278.00	281.60	284.10
.3	245.70	255.10	262.60	268.60	273.20
.4	218.00	231.10	242.10	251.30	258.70
.5	179.20	197.60	213.50	227.00	238.40

TABLE XLIV

DAIRY CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	317.50	319.50	320.30	321.00	321.50
.1	304.50	308.20	310.60	311.80	312.00
.2	288.30	294.10	298.50	301.50	303.30
.3	267.40	276.00	282.90	288.20	292.10
.4	239.60	251.90	262.10	270.50	277.20
.5	200.70	218.10	233.10	245.80	256.40



TABLE XLVIII

DAIRY CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
ANNUAL INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	295.60	298.10	299.50	300.90	301.80
.1	293.10	296.60	298.90	300.00	300.90
.2	289.90	294.70	298.10	299.10	300.00
.3	285.90	292.30	297.10	298.60	299.50
.4	280.60	289.00	295.70	298.00	298.90
.5	273.00	284.50	293.00	297.30	298.20

TABLE XLVII

DAIRY CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	274.20	277.30	279.20	281.10	281.90
.1	271.70	275.80	278.70	280.40	281.10
.2	268.60	274.10	278.10	280.20	280.80
.3	264.70	271.80	277.30	279.80	280.30
.4	259.40	268.70	275.20	279.30	280.00
.5	252.10	264.50	274.70	278.70	279.70

TABLE XLVI

DAIRY CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT RATES AND TAX RATES AT AN  
 ANNUAL INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	253.20	256.90	259.30	262.70	263.90
.1	250.80	255.60	259.00	262.50	263.70
.2	247.80	253.90	258.50	262.30	263.40
.3	244.00	251.80	258.00	262.00	263.10
.4	238.80	248.90	257.20	261.60	262.70
.5	231.60	245.00	256.10	261.10	262.60

TABLE XLV

DAIRY CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
ANNUAL INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	232.80	237.00	240.00	243.00	245.00
.1	230.50	235.80	239.80	242.60	244.50
.2	227.60	234.30	239.50	242.30	244.10
.3	223.80	232.30	239.20	242.00	243.80
.4	218.80	229.70	238.70	241.60	243.20
.5	211.70	226.00	238.10	241.10	242.90

TABLE XLIX

DAIRY CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	317.50	319.50	320.50	321.00	321.25
.1	314.90	317.90	319.50	320.00	320.60
.2	311.80	315.90	318.60	319.10	320.40
.3	307.70	313.30	317.30	319.00	320.10
.4	302.20	309.80	315.70	318.70	319.90
.5	294.50	305.00	313.40	318.20	319.80

TABLE L

BEEF CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	80.55	86.51	91.41	95.37	98.05
.1	66.16	73.86	80.34	85.73	90.15
.2	48.17	58.05	66.51	73.68	79.71
.3	25.03	37.72	48.72	58.19	66.29
.4	0.00	10.61	25.00	37.54	48.41
.5	0.00	0.00	0.00	8.63	23.36

TABLE LI

BEEF CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
ANNUAL INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	89.15	94.89	99.56	103.30	106.20
.1	74.73	82.19	88.43	93.58	97.77
.2	56.71	66.33	74.52	81.44	87.22
.3	33.54	45.93	56.63	65.83	73.66
.4	2.65	18.73	32.79	45.01	55.57
.5	0.00	0.00	0.00	15.87	30.26

TABLE LII

BEEF CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	97.98	103.50	107.90	111.40	114.10
.1	83.54	90.75	96.74	101.70	105.60
.2	65.49	74.83	82.76	89.42	94.94
.3	42.28	54.36	64.78	73.68	81.24
.4	11.34	27.07	40.80	52.71	62.97
.5	0.00	0.00	7.24	23.34	37.39



TABLE LIII

BEEF CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	107.00	112.30	116.50	119.80	122.20
.1	92.56	99.52	105.30	109.90	113.60
.2	74.48	83.55	91.20	97.60	102.90
.3	51.24	63.01	73.13	81.75	89.03
.4	20.26	35.64	49.03	60.62	70.58
.5	0.00	0.00	15.03	31.04	44.75

TABLE LIV

BEEF CATTLE LEASE PLAN 1: LEASE BREAK-EVEN PAYMENT SCHEDULE  
WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
ANNUAL INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	116.30	121.30	125.30	128.30	130.50
.1	101.80	108.50	114.00	118.40	121.80
.2	83.68	92.47	99.85	106.00	111.00
.3	60.41	71.87	81.69	90.01	97.02
.4	29.38	44.41	57.47	68.74	78.39
.5	0.00	5.96	23.57	38.95	52.38

TABLE LV

BEEF CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 12 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	80.55	86.51	91.41	95.37	98.50
.1	76.59	83.51	89.27	93.98	97.77
.2	71.63	79.77	86.59	92.24	96.85
.3	65.26	74.95	83.15	90.01	95.68
.4	56.76	68.53	78.56	87.03	94.12
.5	44.86	59.53	72.12	82.86	91.93

TABLE LVI

BEEF CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 15 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	89.15	94.89	99.56	103.30	106.20
.1	85.16	91.85	97.36	101.80	105.40
.2	80.18	88.04	94.60	100.00	104.40
.3	73.77	83.16	91.06	97.64	103.00
.4	65.22	76.64	86.34	94.50	101.30
.5	53.25	67.52	79.73	90.10	98.83

TABLE LVII

BEEF CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 18 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	97.98	103.50	107.90	111.40	114.10
.1	93.97	100.40	105.70	109.90	113.20
.2	88.95	96.55	102.80	108.00	112.10
.3	82.51	91.59	99.20	105.50	110.60
.4	73.91	84.99	94.35	102.20	108.70
.5	61.88	75.74	87.56	97.57	106.00

TABLE LVIII

BEEF CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 21 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	107.00	112.30	116.50	119.80	122.20
.1	103.00	109.20	114.20	118.20	121.30
.2	97.95	105.30	111.30	116.20	120.00
.3	91.47	100.20	107.60	113.60	118.40
.4	82.83	93.55	102.60	110.10	116.30
.5	70.73	84.18	95.63	105.13	113.30

TABLE LIX

BEEF CATTLE LEASE PLAN 2: LEASE BREAK-EVEN PAYMENT SCHEDULE  
 WITH VARIOUS DISCOUNT AND TAX RATES AT AN  
 ANNUAL INTEREST OF 24 PERCENT

Tax Rate (Percentage)	Discount Rate (Percentage)				
	.05	.10	.15	.20	.25
0	116.30	121.30	125.30	128.30	130.50
.1	112.20	118.10	122.90	126.60	129.50
.2	107.10	114.20	119.90	124.50	128.10
.3	100.60	108.10	116.10	121.80	126.40
.4	91.95	102.30	111.00	118.20	124.10
.5	79.79	92.84	103.90	113.20	120.90

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