Inducing shifts from crop production to beef on dryland farms in Montana
by Charles A Carpy

A THESIS Submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of Master of Science in Agricultural Economics at Montana State College
Montana State University

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The primary objective of this study was to determine cattle prices necessary to shift cropland from the production of wheat to the production of range forage for beef. The budget method was used to describe the costs over the shifting period. Shifts both with and without the use of the conservation reserve were investigated.

The prices for calves per cwt. required to induce a shift on these selected farms ranged from $69.61 on low yielding spring wheat to $84.32 on higher yielding spring wheat. Comparable figures for winter wheat are $58.52 and $92.95. These prices apply to shifts without the conservation reserve. The conservation reserve can be used to subsidize the costs of shifting land use, in fact payments under the program would yield higher returns under most cirucmstances than the cattle enterprise. The findings of the study indicate that a cow-calf operation is not a ready substitute for wheat production on these dryland farms.

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Any errors or omissions in this study are the responsibility of the author.

ABSTRACT

Beef production has often been considered a ready substitute for wheat production on dryland farms in the Northern Great Plains. This study investigated this hypothesis using selected dryland wheat-cattle farms in Montana. These farms were selected and described in previous work. Two model organizations were used: (1) spring wheat-cattle, and (2) winter wheat-cattle.

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CHAPTER I

INTRODUCTION

The Problem

Is it profitable, or under what conditions would it be profitable, for Montana farmers to shift from wheat to beef production? In order to answer this question a farm operator must make estimates of, (1) the various ways the shift can be made, (2) the timing and physical limitations imposed by the methods, and (3) the physical product now, during and after the shift. Having done this he must estimate relevant costs and prices which may prevail during and after the shift. The maximum time an operator is willing to consider for completing the shift is determined by the probable duration and level of these estimated prices and costs. This study is concerned with those aspects of time and price determinations which make shifts profitable.

Historical Setting

Historically, problems of shift between crop and livestock enterprises have been continuous in the Northern Plains since the production of wheat and cattle began in the region during the late 1800's. Two periods in history have witnessed major shifts to wheat of sufficient proportions to create national policy problems. The first problem period occurred soon after World War I, the after effect of a war-induced expansion in wheat acreage. The second occurred during the great drought and depression of the 1930's. Both were periods of surplus production.

Demand for wheat during and after World War II again stimulated increased wheat production. National acreages of wheat increased from 66 million in 1954 to 84 million in 1949. By 1949, exports and domestic use tapered off and large wheat stocks threatened to accumulates. Acreage restrictions were invoked for 1950, dropping the acreage to 71 million. But the Korean Conflict created a new demand; prices increased, acreage restrictions were removed, and plantings increased to about 78 million acres. Greatly reduced demand since 1952 has resulted in large wheat stocks. Acreage controls and marketing quotas have again been invoked. Up to the present these restrictions have not solved the problem of reducing the accumulated surplus. Production from the 55 million acre minimum allotment in 1956 is still more than sufficient to supply our annual needs at the publicly-supported price for wheat.

Present Situation

One of the problems at present is how to reduce these surpluses without reducing the income of the farmer to a point where he can no longer survive. The recently enacted Soil Bank Plan is aimed at alleviating this problem. The plan consists of two parts: (1) the acreage reserve, and (2) the conservation reserve.

> The purpose of the acreage reserve program is to assist producers to divert a portion of their cropland from the production of excessive supplies of agricultural commodities by compensating them for reducing their acreage below their allotment, or

in the case of corn, their Soil Bank corn base or allotment, whichever is in effect.1/

The conservation reserve program is a long-term program designed to carry out the policy of the Act by assisting farmers to divert a portion of their cropland from the production of excessive supplies of agricultural commodities and to carry out soil-, water-, forest-, and wild-life-conservation practices. In carrying out this program, the Secretary will enter into contracts with producers (1) to share costs of establishing approved conservation practices on the conservation reserve and (2) to make annual payments to such producers for maintaining the conservation uses for the term of the contract.2/

One of the major unknowns of this program is whether the size of payments are sufficient to induce the farmer to place part of his acreage in either or both of the acreage or conservation reserves. A situation where the soil bank practices and provisions can be incorporated in shifting to an alternative enterprise could greatly offset the cost of shifting and make this alternative more attractive. Range forage for beef production is one of these alternatives.

In some dryland areas of Montana, one of the major enterprise alternatives to grain production has been, and is, forage for beef production. Technological advances in both the wheat and cattle industries have served in effect to substantially enlarge the transition area between the two; i.e., these techniques have made it possible to produce wheat and cattle in areas where production prior to these advances was restricted to one or

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1/ Commodity Stabilization Service and Commodity Credit Corporation, Department of Agriculture, Soil Bank Bulletin 201, Title 6--Agricultural Credit, Section 485.202.

2/ Ibid., Section 485.152.

the other. Development of new disease and drought resistant, stronger stemmed, higher producing varieties has caused a significant impact on wheat production. The livestock industry has been affected by new and faster means of range revegetation, water diversion and range usage, and livestock husbandry practices. These developments have not only changed the level of physical production, they have also changed the rates at which such shifts can be made. Both these factors partially determine the margin at which land use is shifted from livestock to crop production and vice versa.

Technological advances have generally made the physical shift much easier, but at the same time they have increased the economic difficulty of making the shift. The development of large fixed capital items specific to particular enterprises has resulted in relatively higher fixed, and lower variable costs. This situation creates a rigidity in the farm organization, since reduction in output of one type of product generally brings about diseconomies associated with a high fixed cost-low machine use.

A shift from one enterprise to another takes place within the framework of a certain physical, economic, and institutional environment. The shift is generally caused by either a profit relationship favorable to one product over the other or government programs restricting production or marketing in a given enterprise. The shift itself is a reallocation and recombination of factors of production, adding some and liquidating others,

so as to produce more of one product (e.g., beef) and reducing or eliminating another product (e.g., wheat). One of the costs of shifting is the loss of income between the time old assets are liquidated and newly acquired assets produce income. This necessitates financing of some sort. Either internal or external sources of capital can be used.

Before proceeding further, it is important at this point to determine what the entrepreneur has as a goal in his operations. Why does he want to shift? Assuming that the goal is of an economic nature, what is he trying to maximize? In brief, Kenneth E. Boulding states:

> It may seem surprising that the question, "What does the entrepreneur maximize?" (What is the measure of profitability of an enterprise?) should still be a matter of dispute, for this is perhaps the most fundamental question in all of economic theory. Nevertheless, the question is not altogether easy to answer. If we look at a single enterprise, . . . , it would seem fairly evident that we will always prefer a large present value to a smaller [present value of an income stream] . . . . This is the most generally accepted solution. If, however, we regard the enterprise not as a single unit but as a continuously repeated series of operations, it can be shown that . . . where the internal (average) rate of return is the greatest gives the best result.
>
> * * * * *
>
> It may be said, however, that the entrepreneur does not wish merely to accumulate capital forever; what he wants is an income stream of consumption rather than a maximum rate of accumulation. It is not difficult to . . . [determine] what period of investment . . . gives the maximum income stream. Suppose that the entrepreneur at the conclusion of each process withdraws the growth in capital from the enterprise and starts each repetition of the process with the amount of capital with which it began. . . . It is clear that maximizing the internal rate of return . . . yields a higher income payments stream than maximizing the discounted net revenue. . . .

> Even if interest is deducted from the receipts of the enterprise it can be shown that the maximum net income stream from a repeated investment is given when the internal rate of return is maximized. . . .3/

This goal of maximization is highly dependent upon future income and since future income can seldom be determined with certainty, the expectations of the future are very important. Again, in brief, Kenneth E. Boulding states:

> It is difficult to exaggerate the importance of expectations in determining the course of economic life. It is clear that the quantity of any commodity which people are willing to buy or sell depends not merely upon its current price but also on what people believe will be the future course of its price. Thus expectations help to determine prices at any time. But what determines the expectations? This is unfortunately a problem about which we know all too little, and it does not seem possible to make any clear a priori judgments about it.4/

The decision of whether to shift made by the individual operator must be based on his assumptions as to the expected costs and prices during and following the period of the shift. The wisdom of his decision to shift or not is dependent upon the accuracy of his prediction of prices and costs which do in fact prevail during this time. His decision can lead to four possible results: (1) choose to shift and be right, (2) choose not to shift and be right, (3) choose to shift and be wrong, and (4) choose not to shift and be wrong. One of the factors which could influence a decision is the seriousness of the consequences due to error in (3) as

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3/ Kenneth E. Boulding, Economic Analysis, (3rd. Ed.; New York: Harper & Bros., 1955), pp. 868-870.

4/ Ibid., pp. 880-881.

opposed to (4). The likelihood that a shift will take place is inversely related to the length of time required to complete the shift and finance it. Confidence in predictions of future economic conditions generally decreases as the period of time into the future lengthens. Thus, a situation favorable to a shift may not bring one about if the length of time required is of such duration that unfavorable changes are likely to occur.

The problem of shifting from wheat to beef production is affected by five main factors: (1) the physical rate of transferring non-specific factors of production from wheat to beef, (2) maintenance of an adequate income during the transition, (3) credit available to the operator, (4) the price relationship between the products of the two enterprises, and (5) the costs of resources specific to the two enterprises. Associated with these price relationships would be some expectation as to the duration of a favorable relationship and probable changes in the cost of production. The operator can determine his position with respect to the first three with a fair degree of certainty. However, the duration and favorability of price relationships is a factor over which he has virtually no control. Programs designed to remove the uncertainty of this factor could induce shifts from wheat to beef which would not be made under present circumstances.

Previous Work

Two circulars have preceded this study; the first by Dwight Blood Delineating Firms Sensitive to Shift Between Wheat and Range Forage,

September, 1954;[5] the second by Terry Norman Forage-Crop Substitution on Dryland Units Sensitive to Shift, March, 1956.[6]

In Blood's study a method was established for delineating areas which are sensitive to shifts on the basis of non-price variables alone--i.e., natural and climatological factors which affect patterns of land use.

From observations made on 156 wheat farms and 118 cattle ranches a function Z was derived:

$$Z = X_1 - 63.92209\ X_2 - 1881.479\ X_3$$

Where Z = a type of index number for discriminating between groups according to departure from a critical value of Z, determined in the analysis;

X_1 = Total acres operated,

X_2 = Ratio of leased to owned land, and

X_3 = Total annual precipitation in inches.

The hypothesis is that the above three variables are sufficient to discriminate between wheat and cattle ranches.

Results from the study indicate that 26 per cent of the cattle ranches in the area with an average of (1) 17.1" precipitation, (2) about 26 per cent of the land operated under lease and (3) 3,672 acres of land were found susceptible to shifts toward dryland crop production.

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[5] Dwight M. Blood, Delineating Firms Sensitive to Shift Between Wheat and Range Forage, Mimeograph Circular 84, Montana Agricultural Experiment Station, Bozeman, Montana, September, 1954.

[6] Terry Norman, Forage-Crop Substitutions on Dryland Units Sensitive to Shift, Mimeograph Circular 92 Montana Agricultural Experiment Station, Bozeman, Montana, March, 1956.

Similarly, about 21 per cent of the wheat farms with comparable averages of (1) 15 inches precipitation, (2) 22 per cent of land leased and up to 3,975 total acres were found susceptible to shifts toward range forage production. The study also indicates the necessity for considering each farm in its own internal and external environment in reaching ultimate decisions relative to shifting.

Norman's study developed the situation facing the operator of combination wheat-beef organizations in both the spring and winter wheat areas. Subareas were selected within these general wheat areas which conformed closely to the precipitation criterion in Blood's circular for defining shift sensitive units. A sample was then drawn from farms which fit the other two criteria and a field survey was taken of them. Budgets were constructed from these surveys for the organization and operation of two representative units. One faced the alternative of range beef cattle vs. spring wheat; the other, range beef cattle vs. winter wheat. These budgets were not only used to describe these units, but also to classify expense items according to enterprise.

Once the expense items had been established for each enterprise, in a given operation, it was possible to test the economic feasibility of shifting from one enterprise to another. This analysis was accomplished through a series of prices which, after a matured shift, would yield a net farm income from the new organization equal to the net farm income from the old organization (Table I). These prices would not induce the

shift since they would not replace income lost during transition nor would they cover the cost of the transition.

To implement the analysis, two sets of assumptions were made, one relating to production relationships and the other to time periods for enterprise adjustment: (1) A constant rate of product substitution between shiftable limits, and marginal costs of resources specific to each enterprise are a linear function of output. (2) Decisions to shift enterprise organizations are assumed to be based on completed adjustment, with no problems in financing the adjustment.

The prices which would yield a net farm income on shifted units equal to the income realized before shifting are summarized in Table I.

TABLE I. SUMMARY OF PRICES DETERMINED IN NORMAN'S STUDY.*

Direction of Shift From Present Organization	Price Required For		Given the 1954 Price of	
Spring Wheat Area				
To Livestock	Beef:	$19.98/cwt.	Wheat:	$ 2.12/bu.
To Wheat	Wheat:	$ 1.51/bu.	Beef:	$16.01/cwt.
Winter Wheat Area				
To Livestock	Beef:	$29.10/cwt.	Wheat:	$ 2.05/bu.
To Wheat	Wheat:	$ 1.52/bu.	Beef:	$16.48/cwt.

*Source: Terry Norman, op.cit., Derived from Table XXIII, p. 77.

Research Problem

This study, as well as the two by Blood and Norman, are part of a larger study entitled Economic Analysis of Capital Investments Required in Marginal Shifting Between Range and Dryland Cropping currently being

carried on at Montana Agricultural Experiment Station. The present study uses the farms and the limits of the shift established in previous work as a point of departure and attempts to describe the price conditions necessary to induce a shift as well as to describe the transition period facing the farm operator. It identifies the "break even" prices after such a shift has been made. It explores some of the possible means by which shifts in resource use can be brought about, specifically an evaluation of the effects of present farm programs on the feasibility of shifting cropland to range use is made.

CHAPTER II

THE PROCEDURE

Budget Analysis of Time Series

When contemplating an enterprise shift, there are three time relationships to consider, (1) the pattern and size of the income stream during the shift, (2) the net worth position at the completion of the shift, and (3) the expected rate of return for the firm at the end of the shift. These must be considered for both the shifted and unshifted firm and, of course, compared.

The first relationship requires a production time schedule over the years of the shift. Budgets were made for each year of the shift. These give us the expected annual income during the shift. The operator must put some minimum limit on income to cover family living and income taxes during the shift. This limit will vary from individual to individual depending on his particular cost of family living as well as his liability for income tax.

To determine the net worth at the completion of the shift, it was necessary to compound net annual reinvestable income (net farm income less income tax liability and operator's withdrawals) over the period of the shift and add it to the beginning net worth. This net reinvestable income is taken from the budgets.

The rate of return at the completion of the shift is the ratio of net income to net worth at that point.

A shift is profitable when the following conditions are met: (1) the income over the shift is adequate to meet family living expenses after taxes, (2) the shifted firm's net worth position at the completion of the shift is equal to or greater than the unshifted firm and (3) the rate of return is greater for the shifted firm.

The Models

Having established the criteria for analyzing a shift, our next concern is how to proceed with the problem at hand, namely, a shift from wheat to beef on selected dryland units in Montana. Previous work has established model farms in both the spring and winter wheat areas and the extent of their respective shifts.[7] Norman points out that all cropland is not shiftable for the following reason: "The remaining . . . acres in crop may be thought to be fixed either by rent agreements or lack of stock water. As a matter of fact these are commonly found to be limiting factors."[8] Some changes have been made in the organization and costs used in Norman's circular. Costs for grain and hay production were developed from a field survey taken in 1955 by the U.S.D.A. These are more up-to-date and more accurately represent costs met by farm operators in Montana. Leased land is considered as owned for our purposes.[9] This assumption will not change the results significantly and, at the same time, it

[7] Ibid. pp. 30-55.

[8] Ibid., p. 62.

[9] Ibid., Table III, p. 31.

permits concentration on the shifting problem without encumbering it with too much detail. Even though some of the cropland is changed from leased to owned, the restriction on the number of shiftable acres is retained. The minor enterprises such as chickens, hogs, milk cows, etc. used mainly for home consumption have been eliminated. These enterprises contribute little if anything to farm income and are not involved in the shift, so their absence has no effect on the end results.

The resources for these farms are summarized in Tables II and III. A more detailed breakdown is found in Appendix A.

TABLE II. LAND AND LIVESTOCK ON MODEL FARMS.

Item	Unit	Spring Wheat Farms	Winter Wheat Farms
Land:[a]			
Wheat	Acre	424	372
Barley	Acre	86	139
Oat Hay	Acre	50	--
Fallow	Acre	560	511
Total Cropland	Acre	1,120	1,022
Pasture	Acre	1,967	1,846
Hay	Acre	88	84
Headquarters & Waste	Acre	98	192
Total		3,273	3,144
Livestock:[b]			
Bulls	Head	4	4
Cows	Head	106	102
Replacement Heifers	Head	16	11
Total		126	117
Cropland Shiftable to Range Forage[c]	Acre	646	800

[a] Terry Norman, op. cit., p. 35. The oat enterprise (not oat hay) was eliminated and those acres were listed as barley.

[b] Ibid., p. 41. Adjusted for elimination of minor enterprises.

[c] Ibid., p. 61.

TABLE III. INVESTMENT IN RESOURCES ON MODEL FARMS.

Item	New Cost	Average Investment
Spring Wheat Farms:	Dollars	Dollars
Land[a]	93,036	93,036
Structures	19,122	9,311
Equipment	24,529	13,244
Livestock[b]	19,881	19,881
Total	156,568	135,472
Winter Wheat Farms:		
Land[a]	108,480	180,480
Structures	22,765	12,870
Equipment	24,187	13,088
Livestock[b]	18,693	18,693
Total	174,115	153,131

[a] Land values closely approximate current market values. See Table XI and XII for values used.

[b] Livestock values are based on a calf selling price of $18.50 per cwt., taken from U. S. Department of Agriculture, Agricultural Research Service, Agricultural Price and Cost Projection for Use in Making Benefit and Cost Analyses of Land and Water Resource Projects, (Unpublished data, Washington D. C., June, 1956), p. 26.

Why aren't shifts taking place on these units under present conditions? If we look at the net incomes presented below (Table IV), it becomes apparent why these shifts are not taking place.

TABLE IV. NET FARM INCOME ON MODEL FARMS.

Area	Normal Wheat Yield Per Acre	Net Farm Income	
		Present Organization	Shifted Organization
	Bushel	Dollars	Dollars
Spring	8	3,092	1,116
	12	6,735	2,793
	16	10,377	4,605
Winter	10	3,324	635
	15	7,553	2,052
	20	11,781	3,200

The prices used to determine net farm income in Table IV are: spring wheat--$1.90 per bushel, winter wheat--$1.80 per bushel, barley--$0.90 per bushel and calves--$18.50 per cwt. Budgets showing costs before and after shift are found in Appendix B.

What price for calves would be required to induce a shift on these units, assuming the prices for grain? The problem thus becomes one of estimating beef prices necessary for profitable shifts.

Assumptions Specific to the Problem

With this as the initial objective, the first step is to develop a production time schedule for each farm and budget them over the period of the shift. This requires certain assumptions and estimates with respect to yields, costs, prices, and time span for completing the shift. The following estimates and assumptions are pertinent to the study:

1. A constant rate of product substitution over the extent of the shift, i.e., all shiftable acres are identical in physical production of either wheat or beef. In the spring wheat area this will be a shift of 646 acres from the grain enterprise to range forage. In the winter wheat area the shift will be 800 acres from grain to range forage.
2. Yields are constant over time. To get some indication of the effect of yield levels on shifts, three levels of wheat yields are used in each area; 10, 15, and 20 bushels per acre

for winter wheat and 8, 12, and 16 bushels per acre for spring wheat.

3. The conversion of cropland to range forage is as follows:

TABLE V. GRAZING RATES FOR CONVERTED CROPLAND

Area	Normal Wheat Yield Per Acre	Acres Required Per Animal Unit Per Grazing Season
	Bushel	Acres
Spring	8	30
	12	22
	16	15
Winter	10	21
	15	16
	20	15

These conversion rates are based on estimates of 14 county extension agents from each area. The grazing rates pertain only to the cropland that is shifted. The original pasture has a different carrying capacity (15.6 acres per cow) and is constant for all three yield levels in the same area.

4. All costs except beef inputs were taken from secondary data and adjusted to reflect 1954 costs. These costs are held constant throughout the period of the shift. Part of the cost of the production of beef is the beef animals purchased for this enterprise. These costs are a function of the price of beef required for a profitable shift and are determined simultaneously with this required price. Costs are found in the budgets in Appendix B.

5. The ratios of prices among bulls, cows, calves, and heifers are constant. (Table VI)

TABLE VI. PRICE INDEX FOR CATTLE*

Disposition and Item	Price Index for Whole Animals In Terms of Calves	Price Index for Cwt. in Terms of Calf Price
Sell:		
Calves	1.000	1.000
Cows	1.396	.558
Bulls	2.216	.572
Buy:		
Bulls	4.654	--
Heifers	1.463	--
Inventory Values:		
Cows	2.184	--
Bulls	3.435	--
Heifers	1.463	--

*Indexes for animals sold, per animal and per cwt., based on relationship between classes developed by Terry Norman, op.cit., Table V, p. 65. The ratio among prices received for the three classes of cattle sold is consistent at various price levels, e.g., Ibid., p. 74.

6. The rate of return on reinvestable income is 4.5 per cent on those funds invested outside the farm.

7. The time period allowed in which to finance the shift is ten years.

Production time schedules for these farms appear in Appendix C, Tables I, II, III, VII, VIII, and IX. These schedules show the physical changes which take place during the shift. It will be noted that one column is headed "Year 0"; this is the unshifted organization in all cases and the departure point for the shift. Year 10 in all cases is the last

year of the shift period. It also represents the final shifted organization.

In addition to the above shifts, the prices necessary to induce shift where a five year conservation reserve contract is employed in the shift will be determined. The average reserve payment in Montana is $9 per acre with a $5000 maximum annual payment. Besides the annual payment, the cost of establishing a grass stand is shared by the government. The cost-sharing payment will cover 80 per cent of the cost for seed and allow 80 cents an acre for drilling. Production time schedules for the shift employing the conservation reserve are found in Appendix C, Table IV, V, VI, X, XI, and XII.

CHAPTER III

CALCULATIONS

Tables in Appendix D summarize the budgets prepared from the production time schedules (Appendix C). Income tax liability and an allowance for family living have been left out in these calculations. The tax rate is determined by the level of net income and thus becomes a function of the price of beef. The calculation becomes too complex to warrant doing this. Leaving out an allowance for family living does not affect the calculated beef price because this figure appears in both the shifted and unshifted farms and cancels out when the incomes from the two are equated.

To estimate the price of beef which will make a shift profitable, the future value of all the reinvestable income to the end of year 10 for both the shifted and unshifted farms are equated. The required price of beef is then determined. The calculation in equation form is:

$$R_0\left(\frac{(1.045)^{10} - 1}{.045}\right) = R_1\ (1.045)^9 + R_2\ (1.045)^8 + \cdots + R_9\ (1.045) + R_{10}$$

Where: R_0 = annual reinvestable income of the unshifted farm

$R_1, R_2, \ldots, R_{10}$ = annual reinvestable income of the shifting firms from year 1 through year 10.

R_0 through R_{10} for all yield levels and both areas are a function of the price of calves (P_b) required for a profitable shift. P_b is not the price per cwt., but rather the price for a 400 pound calf. Appropriate calculations must be made to express the prices on a cwt. basis (see Table VII).

TABLE VII. ESTIMATED PRICES REQUIRED FOR A PROFITABLE SHIFT.

Farm*	Price Required for Calves			
	Without Conservation Reserve		With Conservation Reserve	
	Per Head (P_b)	Per Cwt.	Per Head (P_b)	Per Cwt.
Spring Wheat	Dollars	Dollars	Dollars	Dollars
8	278.46	69.61	28.52	7.13
12	328.72	82.18	213.30	53.32
16	337.30	84.32	328.17	82.04
Winter Wheat				
10	234.07	58.52	106.67	26.67
15	291.03	72.76	259.32	64.83
20	371.80	92.95	408.67	102.17

*In all tables and in the text to follow, the farms and areas will be designated by the notation in this column, e.g., Spring Wheat 12 stands for the spring wheat farm with a 12 bushel per acre normal wheat yield.

Using the above prices, the calculations which permit an analysis of the shifts according to the three points discussed at the beginning of Chapter II are set up. This time, however, the income tax liability and operator's withdrawal are included. Assuming that the above prices actually occurred, would it be profitable to shift to beef?

First annual net income is calculated by applying the calf prices (P_b) in Table VII to the net farm income figures found in Appendix D tables. This converts them to a dollar value for each year. With these figures the calculations found in Appendix E are made. This gives net reinvestable income. In the same tables is also found the accumulated cash balance resulting from the accumulation of the reinvestable income which does not go toward the purchase of additional beef. This is the same operation as compounding the net reinvestable income to the end of year 10. Net worth at the beginning and end of the shift as well as the

average annual net income before and after the shift are then determined. An average net income is used because cattle sales are not constant from year to year. To calculate the rates of return, the annual net income is divided by the net worth. These operations are summarized in Tables VIII-X.

TABLE VIII. NET WORTH AT BEGINNING AND END OF SHIFT PERIOD.

Farm Yield	Calf Price Per Cwt.	Beginning	End	
			Unshifted	Shifted
	Dollars	Dollars	Dollars	Dollars
Spring Wheat		Without Conservation Reserve		
8	69.61	190,399	349,912	253,162
12	82.18	203,902	416,547	421,190
16	84.32	206,206	443,741	451,063
		With Conservation Reserve		
8	--	--	--	--
12	53.32	172,894	315,836	318,271
16	82.04	203,755	431,733	443,675
Winter Wheat		Without Conservation Reserve		
10	58.52	193,565	319,304	321,475
15	72.76	207,953	398,591	403,475
20	92.95	228,356	482,533	491,111
		With Conservation Reserve		
10	26.67	161,382	191,235	192,453
15	64.83	199,942	372,548	378,697
20	102.17	237,669	507,949	520,144

Note that values for Spring Wheat 8--with Conservation Reserve are left out of the above and remaining tables. The price required to induce a shift under this condition is unrealistically low because of the $5000 conservation reserve payment. The conservation reserve payment is so large with respect to total income that it requires a very low calf price over the period of the shift to equate the compounded incomes of the shifted and unshifted farms.

TABLE IX. AVERAGE ANNUAL NET INCOME BEFORE AND AFTER SHIFT.

Farm	Calf Price Per Cwt.	Before	After	
			Unshifted	Shifted
	Dollars	Dollars	Dollars	Dollars
Spring Wheat		Without Conservation Reserve		
8	69.61	21,719	28,897	29,422
12	82.18	29,941	39,510	40,014
16	84.32	34,365	45,054	45,737
		With Conservation Reserve		
8	--	--	--	--
12	53.32	19,426	25,858	24,252
16	82.04	32,624	42,883	44,461
Winter Wheat		Without Conservation Reserve		
10	58.52	17,173	22,831	23,414
15	72.76	26,331	34,910	35,548
20	92.95	37,547	48,985	49,898
		With Conservation Reserve		
10	26.67	6,150	7,493	5,301
15	64.83	23,587	31,354	31,128
20	102.17	40,737	52,900	55,148

TABLE X. RATE OF RETURN BEFORE AND AFTER SHIFT.

Farm	Before	After	
		Unshifted	Shifted
	Per Cent	Per Cent	Per Cent
Spring Wheat		Without Conservation Reserve	
8	11.41	8.26	8.33
12	14.68	9.48	9.50
16	16.66	10.15	10.14
		With Conservation Reserve	
8	--	--	--
12	11.23	8.19	7.62
16	16.01	9.93	10.02
Winter Wheat		Without Conservation Reserve	
10	8.87	7.15	7.28
15	12.66	8.76	8.80
20	16.44	10.15	10.16
		With Conservation Reserve	
10	3.81	3.92	2.75
15	11.80	8.42	8.22
20	17.14	10.41	10.60

There is one more calculation which is of interest, namely the "break-even" price or that price which gives equal net farm income to both the unshifted organization and shifted organization. Note that the incomes equated do not include a return on accumulated capital. This price is strictly a measure for comparing the two organizations and is not influenced by the cost of the shift or the point in time when the comparison is made. A higher calf price favors the shifted organization, a lower price favors the unshifted organization.

TABLE XI. BREAK-EVEN PRICES.

Farm	"Break-Even" Price Required Per Cwt. of Calves
Spring Wheat	Dollars
8	53.32
12	67.46
16	69.37
Winter Wheat	
10	45.42
15	59.72
20	76.89

The method of calculating the "break-even" prices in Table XI is different than the method used by Norman.[10] He determined a net farm income for the unshifted farm and then calculated a price for beef which would give the shifted farm the same net farm income it received before shifting. (The net farm income of the unshifted farm includes some income from the sale of beef. Thus, if Norman's "break-even" prices were to prevail in the market, the unshifted farm would have a higher income than the

[10] Ibid. pp. 56-79.

one that shifted from wheat to beef.) The calculation of his prices in equation form is:[11]

$$N_vFI - L_m = A_w (Q_wP_w - E_a) + C(Q_bP_b - E_c)$$

Where: N_vFI = net farm income above variable and specific expense

L_m = receipts from minor livestock enterprise net of variable expense

A_w = acres of wheat

Q_w = bushels of wheat per acre

P_w = price of wheat

E_a = crop expense variable and specific to crop

C = number of cows

Q_b = turnoff per cow

P_b = price of beef per cwt.

E_c = livestock expense variable and specific to livestock

The left side of this equation is the net farm income of the unshifted farm and is constant throughout Norman's work, i.e., one for the spring wheat farm and one for the winter wheat farm. It is based on a calf price of $18.80 per cwt., a spring wheat price of $2.12 per bushel, and a winter wheat price of $2.05 per bushel.

The "break-even" price in this study is calculated by the following equation:

$$a\ P_b + X = b\ P_b + Y$$

Where: P_b = price for 400 pound calf

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[11] Ibid., p. 60.

a = number of calf units sold on unshifted farm

b = number of calf units sold on shifted farm

X = net farm income less gross income from livestock on unshifted farm

Y = net farm income less gross income from livestock on shifted farm

This equation determines the price of beef which will give both the shifted and unshifted farms equal incomes under the calculated price.

The difference between the "break-even" price and price required to make a shift profitable in some cases is quite large. At the same time the differences in net farm income over the last five years of the shift are relatively small. The reason for this is the small change in livestock sales associated with the shift, e.g., the increase in livestock sales between the shifted and unshifted Winter Wheat 20 is only 36.736 calf equivalents. This increase in livestock sales offsets a loss in sales of 1771 bushels of wheat and 924 bushels of barley. In this example the difference in the average net farm income (excluding a return on accumulated cash) of the shifted farm using "break-even" and "shifting" prices is $2360 in favor of the latter. Yet it takes $16.06 per cwt. to make up this difference.

CHAPTER IV

ANALYSIS, DISCUSSION, AND CONCLUSIONS

Analysis of the Shift

An analysis of the shifts considering the three points mentioned in the first part of Chapter II supports the method used to estimate the minimum prices for beef required to make a shift profitable without including a provision for income tax liability. It seems reasonable to expect the accuracy of this method to be inversely related to the size of the fluctuations in taxable income because of the nature of income tax rates.

The pattern and size of the income stream over the shift is adequate in all cases under the selected price conditions. (See Appendix E)

In all cases the shifted farms have a slightly larger net worth at the end of the shifting period. This advantage is due to the appreciation of the heifers used to increase the herd. If the value of the herd increase was limited to the purchase price of the additional animals rather than the inventory value, the difference in net worth between the unshifted and shifted farms at the end of year 10 would be negligible.

The rate of return is essentially the same for both the shifted and unshifted farms in all cases except Spring Wheat 12--with Conservation Reserve and Winter Wheat 10--with Conservation Reserve. In both these cases the price required to induce a shift is below the "break-even" price. This situation occurs when the conservation reserve payment gives a better net return on the acres in the program than a wheat enterprise (50% fallow) on those same acres.

It is evident that in the last two situations shifts should not be attempted without anticipating "break-even" prices at the completion of the shift or some type of subsidization which would bring net income up to where it would be equivalent to the net income enjoyed under the "break-even" price.

The calculated prices which must prevail over the extent of the shift for it to be profitable are specific to the organizations and assumptions in this study. How would a change in these assumptions (pages 16, 17, and 18) affect the calculated prices?

A changing rate of product substitution over the shiftable acres could change the extent of the shift. An all or nothing shift is no longer the solution. A smaller shift would be profitable even with lower beef prices.

Another point to consider is that it is not physically possible to shift all the cropland to grass for beef production. It would be better to completely eliminate the wheat enterprise, sell all the equipment specific to that enterprise, and have idle acres if the converted assets could bring a greater return in some other form of investment. If this were done a shift would be profitable with lower beef prices than those determined in this study.

There seems to be no practical alternative to the assumption that yields are constant over time. The unpredictability of Montana yield patterns makes it impossible to select a ten year sequence of yields which can be considered as typical or representative.

The conversion rates for cropland to range forage are the best we can make without further investigation. An error in estimate which would require fewer acres per animal unit per grazing season for a particular wheat yield would reduce the beef price required for a profitable shift, e.g., if the conversion rate of Winter Wheat 10 cropland was 18 instead of 21 acres per animal unit, the beef price required for that shift would be lower.

The assumption that costs for productive services are constant over time is one of convenience for this study. If anything, present expectations would indicate a rise in costs in the future. If the rise were proportionately the same for both enterprises, it would not affect the results. If, however, the costs for wheat were to rise proportionately higher than beef costs, this would reduce the price for beef required for a profitable shift. This would have the same effect as holding costs constant and reducing the prices for wheat.

A change in the ratio of prices among cattle has the same effect as a change in costs for the livestock enterprise. The classes of livestock other than calves have both a buying and selling price. In all cases the buying price is higher than the selling price, hence the price of these animals has a greater effect on cost than on income. If the price of other classes of livestock decreases relative to the price of calves, it will lower the price of calves required to bring about a shift.

A higher rate of return on reinvestable income for off farm investments would favor the unshifted farm since it accumulated more of these funds. The shifted farm puts some of these funds into the purchase of additional livestock. A higher return on these outside investments would result in a higher beef price required for a profitable shift. Another aspect of interest rates is the cost of borrowing capital to help finance a shift. An increase in the interest rate paid for capital would also increase the price required for beef.

Shortening the period of time for the shift would require a higher price for cattle, since the cost of shifting would have to be spread over a shorter period of time.

Effects of the Conservation Reserve

It is evident that the employment of the conservation reserve in shifting from wheat to beef substantially reduces the price required for beef. Under most price conditions the conservation reserve is a better alternative than a cow-calf operation. For example assume that 15 acres is required for a cow and calf. Under the conservation reserve payment this would gross $135 with little required for expenses other than property tax and something for upkeep. From this same 15 acres say we harvest one 400 pound calf. To gross the same amount the calf would have to bring $34 per cwt.; to net the same amount it would have to sell for considerably more, since there would be much higher expenses in raising the calf than in maintaining the conservation reserve.

The conservation reserve is an even better alternative to low yielding wheat. Some rough estimates indicate that about a 14 bushel yield with $1.80 wheat is needed to break even with the $9 per acre conservation reserve payment on wheat enterprises similar in size to these in the study. This, of course, is on wheat land with 50 per cent in fallow.

Policy Implications

If the findings in the previous work which delineated shift sensitive dryland units in Montana are at all valid, the particular units chosen for the study are those farms most likely to shift to beef under the proper economic incentive. The results indicate that these units are not apt to shift without a very high calf price. Dryland crop farms without cattle enterprises are even less likely to shift, since higher cattle prices are required to induce shifts on wheat-cattle farms where the cattle enterprise is relatively small.

The 1954 Census of Agriculture indicates that 99 per cent of the winter wheat produced in Montana came from farms averaging 15 or more bushels per acre and 97 per cent of the spring wheat came from farms averaging 8 or more bushels per acre.[12] The 1954 averages are almost identical to the 6-year average from 1951 through 1956. This further supports the contention that wheat production will not be significantly reduced until cattle prices reach unheard-of heights. This is

[12] U. S. Bureau of the Census, U. S. Census of Agriculture: 1954. Counties and State Economic Areas, Vol. 1, Part 27 (Washington: Government Printing Office, 1956.)

evidenced by the data in Table IV (page 15) by the comparisons of the net incomes of the shifted and unshifted farms, using currently existing price levels.

Under current price relationships cow-calf enterprises are not ready substitutes for wheat production. To make the cattle industry more attractive as an alternative to wheat at something near realistic prices would require a fairly substantial reduction in the price of wheat. If a price relation for wheat and cattle were to prevail in the market which would induce shifts from wheat to cattle, the increase in cattle production on those shifted acres would be relatively small compared to the decrease in wheat production, as is illustrated by the example on page 25. Changes in price relationship in favor of livestock will shift progressively higher yielding cropland to livestock. Such shifts require increasingly larger sacrifices in wheat production for each unit increase in beef production, i.e., the marginal rate of production substitution of cattle for wheat is increasing.

APPENDIX

Appendix A

TABLE I. RESOURCES OF SPRING WHEAT FARMS.

Item and Description	New Cost	Average Investment
Land[a]	Dollars	Dollars
Cropland--1120 acres @ $60	67,200	67,200
Pasture & waste--2153 acres @ $12	25,836	25,836
Subtotal	93,036	93,036
Livestock[b]		
Bulls--4 head @ $254.25	1,017	1,017
Cows--106 head @ $161.62	17,132	17,132
Repl. Heifers--16 head @ $108.25	1,732	1,732
Subtotal	19,881	19,881
Equipment		
Combine 14' S-P	5,558	3,477
Oneway 10'	836	418
Duckfoot 12'	575	286
Drill 12'	823	412
Grain Auger 26'	242	121
Mower 7' P.T.O.	300	150
Rake 7' S.D.	395	198
Baler	2,500	1,276
Elevator 32' conveyor	272	136
Binder 10'	800	400
Tractor 4-5 plow	4,000	2,020
Tractor 3 plow	2,558	1,299
Manure spreader 70 bu.	420	210
Shop tools	500	250
Trailer 4 wheel	500	275
Truck 2 ton	3,000	1,650
Car (farm share 50%)	1,250	665
Subtotal	24,529	13,244

Continued

TABLE I. -- Continued

Item and Description	New Cost	Average Investment
Structures	Dollars	Dollars
Machine shed	3,500	1,750
Granaries, steel--8 each	4,850	2,425
Barn	2,100	1,050
Stockshed	1,330	665
Stockade & Feeder	300	150
Hog House	250	125
Chicken house	465	231
Bunk house	1,600	800
Garage-shop	862	431
Fence	3,500	3,500
Fuel storage tanks	365	183
Subtotal	19,122	9,311
Total	156,568	135,472

a/ Land values closely approximate current market values.

b/ Livestock inventory value based on a calf selling price of $18.50 per cwt.

Appendix A

TABLE II. RESOURCES OF WINTER WHEAT FARMS.

Item and Description	New Cost	Average Investment
Land[a]	Dollars	Dollars
Cropland--1022 acres @ $75	76,650	76,650
Pasture & waste--2122 acres @ $15	31,830	31,830
Subtotal	108,480	108,480
Livestock[b]		
Bulls--4 head @ $254.25	1,017	1,017
Cows--102 head @ $161.62	16,485	16,485
Repl. Heifers 11 head @ $108.28	1,191	1,191
Subtotal	18,693	18,693
Equipment		
Combine 14' S-P	5,558	3,477
Oneway 10'	836	418
Duckfoot	575	287
Rodweeder	458	244
Drill	823	412
Grain auger	242	121
Mower	300	150
Rake	395	197
Baler	2,500	1,276
Elevator	272	136
Tractor 4-5 plow	4,000	2,020
Tractor 3 plow	2,558	1,299
Manure spreader	420	210
Shop tools	500	250
Trailer	500	275
Truck	3,000	1,650
Car (farm share 50%)	1,250	665
Subtotal	24,187	13,088

Continued

TABLE II.--Continued

Item and Description	New Cost	Average Investment
Structures	Dollars	Dollars
Machine shed	3,500	1,750
Granaries, steel--8 each	7,760	3,880
Barn	1,750	875
Stockshed	750	375
Chickenhouse	465	231
Tenant house	2,500	1,250
Hog house	100	50
Garage-shop	1,500	750
Pumphouse & system	1,100	550
Fence	2,975	2,975
Fuel storage tanks	365	183
Subtotal	22,765	12,870
Total	174,115	153,131

a/ Land values closely approximate current market values.

b/ Livestock inventory value based on a calf selling price of $18.50 per cwt.

Appendix A

TABLE III. RESOURCES CLASSIFIED BY ENTERPRISE.

Spring Wheat Farms	Winter Wheat Farms
Specific to Crop	
Tractor 4-5 plow	Tractor 4-5 plow
Combine 14' S-P	Combine 14' S-P
Oneway 10'	Oneway 10'
Duckfoot 12'	Duckfoot 12'
Drill 12'	Rodweeder 12'
Grain Auger 26'	Drill 12'
Machine shed, quonset	Grain Auger 26'
Granaries, steel--5 each	Machine shed, quonset
Specific to Livestock	
Mower 7' P.T.O.	Mower 7' P.T.O.
Rake 7' S-D	Rake 7' S-D
Baler twine tie	Baler twine tie
Elevator 32'	Elevator 32'
Binder 10'	Barn
Barn	Stock shed
Stock shed	
Stockade & Feeder	
Non-Specific	
Tractor 3 plow	Tractor 3 plow
Manure spreader 70 bu.	Manure spreader 70 bu.
Shop tools	Shop tools
Trailer 4 wheel	Trailer 4 wheel
Truck 2 ton	Truck 2 ton
Car	Car
Bunk house	Tenant house
Garage, shop	Garage, shop
Hog house	Hog house
Chicken house	Chicken house
Fence 4 wire (20 miles)	Pump house & system
Fuel storage tanks, 1500 gallon	Fence 4 wire (17 miles)
	Fuel storage tanks, 1500 gallon
Cropland Shiftable to Range Forage	
646 acres	800 acres

Appendix B

TABLE I. NON-SPECIFIC FIXED COSTS OF PRODUCTION ON SPRING WHEAT FARMS*

Machine	Size	Original Cost	Expected Life	Annual Depr.	Repair	Total Fixed Costs
		Dollars	Years	Dollars	Dollars	Dollars
Tractor	3 plow	2,558.00	13	182.92		182.92
Manure Spreader	70 bu.	420.00	20	21.00		21.00
Shop tools		500.00	8	61.25		61.25
Trailer	4 wheel	500.00	16	28.15		28.15
Truck	2 ton	3,000.00	10	270.00		270.00
Car (farm share 50%)		1,250.00	10	112.50		112.50
Buildings & Equipment						
Bunk house		1,600.00	33	48.48	25.00	73.48
Garage, shop		862.00	33	26.12	10.00	36.12
Hog house		250.00	33	7.58	3.00	10.58
Chicken house		465.00	33	14.09	5.00	19.09
Fence (20 mi.)	4 wire	3,500.00	15		200.00	200.00
Fuel Storage Tanks (1500 gal.)		365.00	33	11.06		11.06
Taxes (non-specific bldgs. and equipment)						112.78
Taxes (land)						332.85
Insurance (all except crop)						250.00
Labor						2,400.00
Misc. truck use	6000 miles @ .103					618.00
Misc. car use	7000 miles @ .0338					236.60
Miscellaneous						75.00
Total						5,051.38

* These non-specific annual fixed costs apply to all three yield levels and are constant before, during and after the shift.

Appendix B

TABLE II. SPECIFIC FIXED COSTS OF PRODUCTION ON SPRING WHEAT FARMS*

Machine	Size	Original Cost	Expected Life	Annual Depr.	Repair	Total Fixed Costs
		Dollars	Years	Dollars	Dollars	Dollars
SPECIFIC TO CROP						
Equipment:						
Tractor	4-5 plow	4,000	13	304.62		304.62
Combine	14' S-P	5,558	10	416.16		416.16
Oneway	10'	836	7	119.42		119.42
Duckfoot	12'	575	12	47.91		47.91
Drill	12'	823	9	91.44		91.44
Grain auger	26'	242	12	20.17		20.17
Buildings:						
Machine shed, quonset		3,500	33	106.06	35.00	141.06
Granaries, steel (5)		4,850	33	146.96	48.50	195.46
Taxes on above items						109.03
Total						1,445.27
SPECIFIC TO LIVESTOCK						
Equipment:						
Mower	7' P.T.O.	300	10	30.00		30.00
Rake	7' S.D.	395	10	39.50		39.50
Baler	Tie twine	2,500	12	204.00		204.00
Elevator	32'	272	10	27.20		27.20
Binder	10'	800	12	66.67		66.67
Buildings:						
Barn		2,100	33	63.63	25.00	88.63
Stock Shed		1,330	33	41.81	20.00	61.81
Stockade & feeder		300	10	30.00	20.00	50.00
Taxes on above items						41.36
Total						609.17

* These specific annual fixed costs apply to all three yield levels and are constant before, during, and after the shift.

Appendix B

TABLE III. SPECIFIC VARIABLE COSTS OF PRODUCTION ON SPRING WHEAT 8 BEFORE SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
SPECIFIC TO CROP					Dollars	Dollars
Plow	10'	Oneway	510	3.8	.310	158.10
Duckfoot	12'	Cultivator	1,020	4.7	.263	268.26
Drill-duckfoot	12'	Combination	510	4.2	.271	138.21
Combine	14'	S-P	510	4.4	.429	218.79
Grain Hauling & Elevating	2 ton	Truck	4,424 bu.		.02/bu.	88.48
Weed Spray (Contract)			510		1.25	637.50
Seed, Clean & Treat			532 bu.		.07/bu.	37.24
Crop Insurance			510		1.00	510.00
Total						2,056.58
SPECIFIC TO LIVESTOCK						
Hay Operation:	Native Hay					
Mowing	7'	P.T.O.	88	2.8	.348	30.62
Raking	7'	S.D.	88	3.4	.296	26.05
Baling w/motor	auto tie	twine	88	2.3	.879	77.35
Hauling & Elevating	2 ton 32''	Truck Elevator	22 loads		.100	2.20
	Oat Hay					
Plow	10'	Oneway	50	3.8	.310	15.50
Duckfoot	12'	Cultivator	100	4.7	.263	26.30
Drill	12'	Grain Press	50	4.2	.271	13.55
Binding		Binder	50	3.0	.350	17.50
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	14.0	.15	2.10
Grain*			cwt.	14.0	2.40	33.60
Minerals			50 lbs.	4	4.85	19.40
Salt			50 lb. blk.	51	1.35	68.85
Veterinary						40.00
Medicine						45.00
Protein (20% range cake)			ton	3.7	75.00	277.50
Taxes on cattle						263.18
Total						958.70

* Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE IV. SPECIFIC VARIABLE COSTS OF PRODUCTION ON SPRING WHEAT 8 AFTER SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
SPECIFIC TO CROP					Dollars	Dollars
Plow	10'	Oneway	171	3.8	.310	53.01
Duckfoot	12'	Cultivator	342	4.7	.263	89.95
Drill-duckfoot	12'	Grain Press	171	4.2	.271	46.34
Combine	14'	S-P	171	4.4	.429	73.40
Grain Hauling & Elevating	2 ton	Truck	1,368 bu.		.02/bu.	27.36
Weed Spray (Contract)			171		1.25	213.75
Seed, Clean & Treat			171 bu.		.07/bu.	11.97
Crop Insurance			171		1.00	171.00
Total						686.78
SPECIFIC TO LIVESTOCK						
Hay Operation:	Native Hay					
Mowing	7'	P.T.O.	112	2.8	.348	38.98
Raking	7'	S.D.	112	3.4	.296	33.15
Bailing w/motor	auto tie	twine	112	2.3	.879	98.45
Hauling & Elevating	2 ton 32'	Truck Elevator	28 loads		.100	2.80
	Oat Hay					
Plow	10'	Oneway	66	3.8	.310	20.46
Duckfoot	12'	Cultivator	132	4.7	.263	34.72
Drill-duckfoot			66	4.2	.271	17.89
Binding			66	3.0	.350	23.10
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	17.5	.15	2.63
Grain*			cwt.	17.5	2.40	42.00
Minerals			50 lbs.	5	4.85	24.25
Salt			50 lb. blk.	59	1.35	79.65
Veterinary						50.00
Medicine						60.00
Protein (20% range cake)			ton	4.3	75.00	322.50
Taxes on cattle						306.58
Total						1,134.85

* Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE V. SPECIFIC VARIABLE COSTS OF PRODUCTION ON SPRING WHEAT 12 BEFORE SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
SPECIFIC TO CROP					Dollars	Dollars
Plow	10'	Oneway	510	3.8	.310	158.10
Duckfoot	12'	Cultivator	1,020	4.7	.263	268.26
Drill-duckfoot	12'	Combination	510	4.2	.271	138.21
Combine	14'	S-P	510	4.4	.429	218.79
Grain Hauling & Elevating	2 ton	Truck	6,636 bu.		.02/bu.	132.72
Weed Spray (contract)			510		1.25	637.50
Seed, Clean & Treat			532 bu.		.07/bu.	37.24
Crop Insurance			510		1.00	510.00
Total						2,100.82
SPECIFIC TO LIVESTOCK						
Hay Operation:	Native Hay					
Mowing	7'	P.T.O.	88	2.8	.348	30.62
Raking	7'	S.D.	88	3.4	.296	26.05
Baling w/motor	auto tie	twine	88	2.3	.879	77.35
Hauling & Elevating	2 ton 32'	Truck Elevator	22 loads		.100	2.20
	Oat Hay					
Plow	10'	Oneway	50	3.8	.310	15.50
Duckfoot	12'	Cultivator	100	4.7	.263	26.30
Drill-duckfoot	12'	Grain Press	50	4.2	.271	13.55
Binding		Binder	50	3.0	.350	17.50
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	14.0	.15	2.10
Grain*			cwt.	14.0	2.40	33.60
Minerals			50 lbs.	4	4.85	19.40
Salt			50 lb. blk.	51	1.35	68.85
Veterinary						40.00
Protein (20 % range cake)			ton	3.7	75.00	277.50
Taxes on cattle						263.18
Total						958.70

*Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE VI. SPECIFIC VARIABLE COSTS OF PRODUCTION ON SPRING WHEAT 12 AFTER SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
SPECIFIC TO CROP					Dollars	Dollars
Plow	10'	Oneway	171	3.8	.310	53.01
Duckfoot	12'	Cultivator	342	4.7	.263	89.95
Drill-duckfoot	12'	Grain Press	171	4.2	.271	46.34
Combine	14'	S-P	171	4.4	.429	73.40
Grain Hauling & Elevating	2 ton	Truck	2,052 bu.		.02/bu.	41.04
Weed Spray (Contract)			171		1.25	213.75
Seed, Clean & Treat			171 bu.		.07/bu.	11.97
Crop Insurance			171		1.00	171.00
Total						700.46
SPECIFIC TO LIVESTOCK						
Hay Operation:	Native Hay					
Mowing	7'	P.T.O.	112	2.8	.348	38.98
Raking	7'	S.D.	112	3.4	.296	33.15
Bailing w/motor auto tie twine			112	2.3	.879	98.45
Hauling & Elevating	2 ton	Truck				
	32'	Elevator	28 loads		.100	2.80
	Oat Hay					
Plow	10'	Oneway	66	3.8	.310	20.46
Duckfoot	12'	Cultivator	132	4.7	.263	34.72
Drill-duckfoot			66	4.2	.271	17.89
Binding			66	3.0	.350	23.10
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	17.5	.15	2.63
Grain*			cwt.	17.5	2.40	42.00
Minerals			50 lbs.	.6	4.85	29.10
Salt			50 lb. blk.	62	1.35	83.70
Veterinary						55.00
Medicine						65.00
Protein (20% range cake)			ton	4.3	75.00	337.50
Taxes						322.48
Total						1,206.96

* Ration: 2 parts barley and 1 part oats by volume.

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TABLE VII. SPECIFIC VARIABLE COSTS OF PRODUCTION ON SPRING WHEAT 16 BEFORE SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
SPECIFIC TO CROP					Dollars	Dollars
Plow	10'	Oneway	510	3.8	.310	158.10
Duckfoot	12'	Cultivator	1,020	4.7	.263	268.26
Drill	12'	Combination	510	4.2	.271	138.21
Combine	14'	S-P	510	4.4	.429	218.79
Grain Hauling & Elevating	2 ton	Truck	8,848 bu.		.02/bu.	176.96
Weed Spray (Contract)			510		1.25	637.50
Seed, Clean & Treat			532 bu.		.07/bu.	37.24
Crop Insurance			510		1.00	510.00
Total						2,145.06
SPECIFIC TO LIVESTOCK						
Hay Operation:	Native Hay					
Mowing	7'	P.T.O.	88	2.8	.348	30.62
Raking	7'	S.D.	88	3.4	.296	26.05
Baling w/motor	auto tie	twine	88	2.3	.879	77.35
Hauling & Elevating	2 ton 32'	Truck Elevator	22 loads		.100	2.20
	Oat Hay					
Plow	10'	Oneway	50	3.8	.310	15.50
Duckfoot	12'	Cultivator	100	4.7	.263	26.30
Drill-duckfoot	12'	Grain Press	50	4.2	.271	13.55
Binding		Binder	50	3.0	.350	17.50
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	14.0	.15	2.10
Grain*			cwt.	14.0	2.40	33.60
Minerals			50 lbs.	4	4.85	19.40
Salt			50 lb. blk.	51	1.35	68.85
Veterinary						40.00
Medicine						45.00
Protein (20% range cake)			ton	3.7	75.00	277.50
Taxes on cattle						263.18
Total						958.70

* Ration: 2 parts barley and 1 part oats by volume.

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TABLE VIII. SPECIFIC VARIABLE COSTS OF PRODUCTION ON SPRING WHEAT 16 AFTER SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
SPECIFIC TO CROP					Dollars	Dollars
Plow	10'	Oneway	171	3.8	.310	53.01
Duckfoot	12'	Cultivator	342	4.7	.263	89.95
Drill-duckfoot	12'	Grain Press	171	4.2	.271	46.34
Combine	14'	S-P	171	4.4	.429	73.40
Grain Hauling & Elevating	2 ton	Truck	2,736 bu.		.02/bu.	54.72
Weed Spray (Contract)			171		1.25	213.75
Seed, Clean & Treat			171 bu.		.07/bu.	11.97
Crop Insurance			171		1.00	171.00
Total						714.14
SPECIFIC TO LIVESTOCK						
Hay Operation:	Native Hay					
Mowing	7'	P.T.O.	112	2.8	.348	38.98
Raking	7'	S.D.	112	3.4	.296	33.15
Bailing w/motor auto tie twine			112	2.3	.879	89.45
Hauling & Elevating	2 ton 32'	Truck Elevator	28 loads		.100	2.80
	Oat Hay					
Plow	10'	Oneway	66	3.8	.310	20.46
Duckfoot	12'	Cultivator	132	4.7	.263	34.72
Drill-duckfoot			66	4.2	.271	17.89
Binding		Binder	66	3.0	.350	23.10
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	21.0	.15	3.15
Grain*			cwt.	21.0	2.40	50.40
Minerals			50 lbs.	6	4.85	29.10
Salt			50 lb. blk.	67	1.35	90.45
Veterinary						60.00
Medicine						70.00
Protein (20% range cake)			ton	4.9	75.00	367.50
Taxes on cattle						351.25
Total						1,291.40

*Ration: 2 parts barley and 1 part oats by volume.

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TABLE IX. NON-SPECIFIC FIXED COSTS OF PRODUCTION ON WINTER WHEAT FARMS*

Machine	Size	Original Cost	Expected Life	Annual Depr.	Repair	Total Fixed Costs
		Dollars	Years	Dollars	Dollars	Dollars
Tractor	3 plow	2,558	13	182.92		182.92
Manure Spreader	70 bu.	420	20	21.00		21.00
Shop tools		500	8	61.25		61.25
Trailer	4 wheel	500	16	28.15		28.15
Truck	2 ton	3,000	10	270.00		270.00
Car (farm share 50%)		1,250	10	112.50		112.50
Buildings & Equipment:						
Tenant house		2,500	33	75.00	50.00	125.75
Garage, shop		1,500	33	45.00	46.90	91.90
Hog house		100	33	3.03	--	3.03
Chicken house		465	33	14.09	5.00	19.09
Pump house & system		1,100	33	33.33	15.00	48.33
Fence (17 mi.) 4 wire		2,975	15		200.00	200.00
Fuel storage tanks (1500 gal.)		365	33	11.06		11.06
Taxes (non-specific bldgs. and equipment)						127.13
Taxes (land)						467.83
Insurance (all except crop)						250.00
Labor						2,400.00
Misc. truck use	6,000 mi. @ .103					618.00
Misc. car use	7,000 mi. @ .0338					236.60
Miscellaneous						75.00
Total						5,349.72

*These non-specific annual fixed costs apply to all three yield levels and are constant before, during, and after the shift.

Appendix B

TABLE X. SPECIFIC FIXED COSTS OF PRODUCTION ON WINTER WHEAT FARMS*

Machine	Size	Original Cost	Expected Life	Annual Depr.	Repair	Total Fixed Costs
		Dollars	Years	Dollars	Dollars	Dollars
SPECIFIC TO CROP						
Equipment:						
Tractor	4-5 plow	4,000	13	304.62		304.62
Combine	14' S-P	5,558	10	416.16		416.16
Oneway	10'	836	7	119.42		119.42
Duckfoot	12'	575	12	47.91		47.91
Rodweeder	12'	458	10	42.80		42.80
Drill	12'	823	9	91.44		91.44
Grain auger	26'	242	12	20.17		20.17
Buildings:						
Machine shed, quonset		3,500	33	106.06	35.00	141.06
Granaries, steel (8)		7,760	33	235.15	77.60	312.75
Taxes on above items						132.17
Total						1,628.50
SPECIFIC TO LIVESTOCK						
Equipment:						
Mower	7' P.T.O.	300	10	30.00		30.00
Rake	7' S.D.	395	10	39.50		39.50
Baler	tie twine	2,500	12	204.00		204.00
Elevator	32'	272	10	27.20		27.20
Buildings:						
Barn		1,750	33	53.03	45.00	98.03
Stock shed		750	33	22.72	15.00	37.72
Taxes on above items						30.92
Total						467.37

*These specific annual fixed costs apply to all three yield levels and are constant before, during, and after the shift.

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TABLE XI. SPECIFIC VARIABLE COSTS OF PRODUCTION ON WINTER WHEAT 10 BEFORE SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
					Dollars	Dollars
SPECIFIC TO CROP						
Plow	10'	Oneway	511	3.8	.310	158.41
Duckfoot	12'	Cultivator	1,022	4.7	.263	268.79
Rodweeder	12'	Rodweeder	511	5.1	.1993	101.84
Drill	12'	Grain Press	511	4.2	.227	116.00
Combine	14'	S-P	511	4.4	.429	219.22
Grain Hauling & Elevating	2 ton	Truck	5,805 bu.		.02/bu.	116.10
Weed Spray (contract)			511		1.25	638.75
Seed, Clean & Treat			546 bu.		.07/bu.	38.22
Crop Insurance			511		1.00	511.00
Total						2,168.33
SPECIFIC TO LIVESTOCK						
Hay Operation:						
Mowing	7'	P.T.O.	84	2.8	.348	29.23
Raking	7'	S.D.	84	3.4	.296	24.86
Baling w/motor	auto tie	twine	84	2.3	.879	73.84
Hauling & Elevating	2 ton 32'	Truck Elevator	16 loads		.100	1.60
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	14.0	.15	2.10
Grain*			cwt.	14.0	2.40	33.60
Minerals			50 lbs.	4	4.85	19.40
Salt			50 lb. blk.	47	1.35	63.45
Veterinary						37.80
Medicine						50.00
Hay			ton	18.0	20.00	360.00
Protein (20% range cake)			ton	3.5	75.00	262.50
Taxes on cattle						253.77
Total						1,212.15

* Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE XII. SPECIFIC VARIABLE COSTS OF PRODUCTION ON WINTER WHEAT 10 AFTER SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
					Dollars	Dollars
SPECIFIC TO CROP						
Plow	10'	Oneway	111	3.8	.310	34.41
Duckfoot	12'	Cultivator	222	4.7	.263	58.39
Rodweeder	12'	Rodweeder	111	5.1	.1993	22.12
Drill	12'	Grain Press	111	4.2	.227	25.20
Combine	14'	S-P	111	4.4	.429	47.62
Grain Hauling & Elevating	2 ton	Truck	1,110 bu.		.02/bu.	22.20
Weed Spray (contract)			111		1.25	138.75
Seed, Clean & Treat			111 bu.		.07/bu.	7.77
Crop Insurance			111		1.00	111.00
Total						467.46
SPECIFIC TO LIVESTOCK						
Hay Operation:						
Mowing	7'	P.T.O.	119	2.8	.348	41.41
Raking	7'	S.D.	119	3.4	.296	35.22
Baling w/motor auto tie twine			119	2.3	.879	104.60
Hauling & Elevating	2 ton / 32'	Truck / Elevator	23 loads		.100	2.30
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	21.0	.15	3.15
Grain*			cwt.	21.0	2.40	50.40
Minerals			50 lbs.	6	4.85	29.10
Salt			50 lbs. blk.	62	1.35	83.70
Veterinary						50.00
Medicine						70.00
Hay			ton	18.0	20.00	360.00
Protein (20% range cake)			ton	4.5	75.00	337.50
Taxes on cattle						333.81
Total						1,501.19

*Ration: 2 parts barley and 1 part oats by volume.

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TABLE XIII. SPECIFIC VARIABLE COSTS OF PRODUCTION ON WINTER WHEAT 15 BEFORE SHIFTING

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
					Dollars	Dollars
SPECIFIC TO CROP						
Plow	10'	Oneway	511	3.8	.310	158.41
Duckfoot	12'	Cultivator	1,022	4.7	.263	268.79
Rodweeder	12'	Rodweeder	511	5.1	.1993	101.84
Drill	12'	Grain Press	511	4.2	.227	116.00
Combine	14'	S-P	511	4.4	.429	219.22
Grain Hauling & Elevating	2 ton	Truck	5,805 bu.		.02/bu.	174.16
Weed Spray (contract)			511		1.25	638.75
Seed, clean & treat			546 bu.		.07/bu.	38.22
Crop Insurance			511		1.00	511.00
Total						2,226.39
SPECIFIC TO LIVESTOCK						
Hay Operation:						
Mowing	7'	P.T.O.	84	2.8	.348	29.23
Raking	7'	S.D.	84	3.4	.296	24.86
Baling w/motor auto tie twine			84	2.3	.879	73.84
Hauling & Elevating	2 ton 32'	Truck Elevator	16 loads		.100	1.60
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	14.0	.15	2.10
Grain*			cwt.	14.0	2.40	33.60
Minerals			50 lbs.	4	4.85	19.40
Salt			50 lb. blk.	47	1.35	63.45
Veterinary						37.80
Medicine						50.00
Hay			ton	18.0	20.00	360.00
Protein (20% range cake)			ton	3.5	75.00	262.50
Taxes on cattle						253.77
Total						1,212.15

* Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE XIV. SPECIFIC VARIABLE COSTS OF PRODUCTION ON WINTER WHEAT 15 AFTER SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
					Dollars	Dollars
SPECIFIC TO CROP						
Plow	10'	Oneway	111	3.8	.310	34.41
Duckfoot	12'	Cultivator	222	4.7	.263	58.39
Rodweeder	12'	Rodweeder	111	5.1	.1993	22.12
Drill	12'	Grain Press	111	4.2	.227	25.20
Combine	14'	S-P	111	4.4	.429	47.62
Grain Hauling & Elevating	2 ton	Truck	1,665 bu.		.02/bu.	33.30
Weed Spray (contract)			111		1.25	138.75
Seed, Clean & Treat			111 bu.		.07/bu.	7.77
Crop Insurance			111		1.00	111.00
Total						478.56
SPECIFIC TO LIVESTOCK						
Hay Operation:						
Mowing	7'	P.T.O.	119	2.8	.348	41.41
Raking	7'	S.D.	119	3.4	.296	35.22
Baling w/motor auto tie twine			119	2.3	.879	104.60
Hauling & Elevating	2 ton 32'	Truck Elevator	23 loads		.100	2.30
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	21.0	.15	3.15
Grain*			cwt.	21.0	2.40	50.40
Minerals			50 lbs.	6	4.85	29.10
Salt			50 lb. blk.	66	1.35	89.10
Veterinary						50.00
Medicine						75.00
Hay			ton	25.0	20.00	500.00
Protein (20% range cake)			ton	4.75	75.00	356.25
Taxes on cattle						356.48
Total						1,693.01

*Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE XV. SPECIFIC VARIABLE COSTS OF PRODUCTION ON WINTER WHEAT 20 BEFORE SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
					Dollars	Dollars
SPECIFIC TO CROP						
Plow	10'	Oneway	511	3.8	.310	158.41
Duckfoot	12'	Cultivator	1,022	4.7	.263	268.79
Rodweeder	12'	Rodweeder	511	5.1	.1993	101.84
Drill	12'	Grain Press	511	4.2	.227	116.00
Combine	14'	S-P	511	4.4	.429	219.22
Grain Hauling & Elevating	2 ton	Truck	11,610 bu.		.02/bu.	232.20
Weed spray (contract)			511		1.25	638.75
Seed, clean & treat			546 bu.		.07/bu.	38.22
Crop Insurance			511		1.00	511.00
Total						2,284.43
SPECIFIC TO LIVESTOCK						
Hay Operation:						
Mowing	7'	P.T.O.	84	2.8	.348	29.23
Raking	7'	S.D.	84	3.4	.296	24.86
Baling w/motor auto tie		twine	84	2.3	.879	73.84
Hauling & Elevating	2 ton / 32'	Truck / Elevator	16 loads		.100	1.60
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	14.0	.15	2.10
Grain*			cwt.	14.0	2.40	33.60
Minerals			50 lbs.	4	4.85	19.40
Salt			50 lb. blk.	47	1.35	63.45
Veterinary						37.80
Medicine						50.00
Hay			ton	18.0	20.00	360.00
Protein (20% range cake)			ton	3.5	75.00	262.50
Taxes on cattle						253.77
Total						1,212.15

*Ration: 2 parts barley and 1 part oats by volume.

Appendix B

TABLE XVI. SPECIFIC VARIABLE COSTS OF PRODUCTION ON WINTER WHEAT 20 AFTER SHIFTING.

Operation	Machine Size	Machine Type	Acres	Acres Per Hour	Cost Per Acre	Total Variable Costs
					Dollars	Dollars
SPECIFIC TO CROP						
Plow	10'	Oneway	111	3.8	.310	34.41
Duckfoot	12'	Cultivator	222	4.7	.263	58.39
Rodweeder	12'	Rodweeder	111	5.1	.1993	22.12
Drill	12'	Grain Press	111	4.2	.227	25.20
Combine	14'	S-P	111	4.4	.429	47.62
Grain Hauling & Elevating	2 ton	Truck	2,220 bu.		.02/bu.	44.40
Weed Spray (contract)			111		1.25	138.75
Seed, Clean & Treat			111 bu.		.07/bu.	7.77
Crop Insurance			111		1.00	111.00
Total						489.66
SPECIFIC TO LIVESTOCK						
Hay Operation:						
Mowing	7'	P.T.O.	119	2.8	.67	41.41
Raking	7'	S.D.	119	2.5	.48	35.22
Baling w/motor auto tie twine			119	2.3	2.13	104.60
Hauling &	2 ton	Truck			10/load	
Elevating	32'	Elevator	23 loads			2.30
Other Livestock Expenses			Unit	Amount	Price	
Feed Grinding			cwt.	21.0	.15	3.15
Grain*			cwt.	21.0	2.40	50.40
Minerals			50 lbs.	6	4.85	29.10
Salt			50 lb. blk.	68	1.35	91.80
Veterinary						50.00
Medicine						75.00
Hay			ton	28	20.00	560.00
Protein (20% range cake)			ton	5.0	75.00	375.00
Taxes on cattle						364.17
Total						1,782.15

*Ration: 2 parts barley and 1 part oats by volume.

Appendix C

TABLE I. PRODUCTION TIME SCHEDULE FOR SPRING WHEAT 8 WITHOUT CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967
Oat Hay	Acre	50	66	66	66	66	66	66	66	66	66	66
Native Hay	Acre	88	88	112	112	112	112	111	112	112	112	112
Fallow	Acre	560	--	237	237	237	237	237	237	237	237	237
Wheat	Acre	424	424	171	171	171	171	171	171	171	171	171
Barley	Acre	86	70	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	536	622	622	622	622	622	622	622	622
C. W. (newly seeded) [a]	Acre	--	560	86	--	--	--	--	--	--	--	--
Farmstead & Waste	Acre	98	98	98	98	98	98	98	98	98	98	98
Livestock:												
Bulls	Head	4	4	5	5	5	5	5	5	5	5	5
Cows	Head	106	106	120	123	123	123	123	123	123	123	123
Replacement Heifers	Head	16	16	18	18	18	18	18	18	18	18	18
Calves	Head	90	90	102	104	104	104	104	104	104	104	104
Crop Production:												
Wheat	Bu.	3,392	3,392	1,026[b]	1,368	1,368	1,368	1,368	1,368	1,368	1,368	1,368
Barley	Bu.	1,032	840	--	--	--	--	--	--	--	--	--
Wild Hay	Ton	44	44	56	56	56	56	56	56	56	56	56
Oat Hay	Ton	50	66	66	66	66	66	66	66	66	66	66
Disposition:												
Bulls Sold	Head	1	1	1	1	1	2	1	1	1	2	1
Cows Sold	Head	14	14	13	16	16	16	16	16	16	16	16
Calves Sold	Head	74	72	84	86	86	86	86	86	86	86	86
Wheat Sold	Bu.	2,968	2,968	855	1,197	1,197	1,197	1,197	1,197	1,197	1,197	1,197
Barley Sold	Bu.	924	752	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	2	1	1	1	2	1	1	1	2
Heifers Bought	Head	--	--	14	--	--	--	--	--	--	--	--
Cows Died	Head	2	2	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu/ac.)	Bu.	424	424	171	171	171	171	171	171	171	171	171
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	108	88	--	--	--	--	--	--	--	--	--

a/ Crested Wheat Grass

b/ Wheat yield reduced to 6 bushels per acre because it is not planted on fallow.

Appendix C

TABLE II. PRODUCTION TIME SCHEDULE FOR SPRING WHEAT 12 WITHOUT CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967
Oat Hay	Acre	50	66	66	66	66	66	66	66	66	66	66
Native Hay	Acre	88	88	112	112	112	112	112	112	112	112	112
Fallow	Acre	560	--	237	237	237	237	237	237	237	237	237
Wheat	Acre	424	424	171	171	171	171	171	171	171	171	171
Barley	Acre	86	70	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	536	622	622	622	622	622	622	622	622
C. W. (newly seeded) [a]	Acre	--	560	86	--	--	--	--	--	--	--	--
Farmstead & Waste	Acre	98	98	98	98	98	98	98	98	98	98	98
Livestock:												
Bulls	Head	4	4	5	5	5	5	5	5	5	5	5
Cows	Head	106	106	127	130	130	130	130	130	130	130	130
Replacement Heifers	Head	16	16	20	19	19	19	19	19	19	19	19
Calves	Head	90	90	108	110	110	110	110	110	110	110	110
Crop Production:												
Wheat	Bu.	5,088	5,088	1,539[b]	2,052	2,052	2,052	2,052	2,052	2,052	2,052	2,052
Barley	Bu.	1,548	1,260	--	--	--	--	--	--	--	--	--
Wild Hay	Ton	44	44	56	56	56	56	56	56	56	56	56
Oat Hay	Ton	50	66	66	66	66	66	66	66	66	66	66
Disposition:												
Bulls Sold	Head	1	1	1	1	1	2	1	1	1	2	1
Cows Sold	Head	14	14	15	17	17	17	17	17	17	17	17
Calves Sold	Head	74	70	89	91	91	91	91	91	91	91	91
Wheat Sold	Bu.	4,664	4,664	1,368	1,881	1,881	1,881	1,881	1,881	1,881	1,881	1,881
Barley Sold	Bu.	1,440	1,172	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	2	1	1	1	2	1	1	1	2
Heifers Bought	Head	--	--	21	--	--	--	--	--	--	--	--
Cows Died	Head	2	2	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	424	424	171	171	171	171	171	171	171	171	171
Barley Seed (1¼ bu./ac.)	Bu.	108	88	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 9 bushels per acre because it is not planted on fallow.

Appendix C

TABLE III. PRODUCTION TIME SCHEDULE FOR SPRING WHEAT 16 WITHOUT CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967
Oat Hay	Acre	50	66	66	66	66	66	66	66	66	66	66
Native Hay	Acre	88	88	112	112	112	112	112	112	112	112	112
Fallow	Acre	560	--	237	237	237	237	237	237	237	237	237
Wheat	Acre	424	424	171	171	171	171	171	171	171	171	171
Barley	Acre	86	70	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	536	622	622	622	622	622	622	622	622
C. W. (newly seeded) [a]	Acre	--	560	86	--	--	--	--	--	--	--	--
Farmstead & Waste	Acre	98	98	98	98	98	98	98	98	98	98	98
Livestock:												
Bulls	Head	4	4	6	6	6	6	6	6	6	6	6
Cows	Head	106	106	137	140	140	140	140	140	140	140	140
Replacement Heifers	Head	16	16	21	21	21	21	21	21	21	21	21
Calves	Head	90	90	116	119	119	119	119	119	119	119	119
Crop Production:												
Wheat	Bu.	6,784	6,784	2,052[b]	2,736	2,736	2,736	2,736	2,736	2,736	2,736	2,736
Barley	Bu.	2,064	1,680	--	--	--	--	--	--	--	--	--
Wild Hay	Ton	44	44	56	56	56	56	56	56	56	56	56
Oat Hay	Ton	50	66	66	66	66	66	66	66	66	66	66
Disposition:												
Bulls Sold	Head	1	1	1	1	1	3	1	1	1	3	1
Cows Sold	Head	14	14	16	18	18	18	18	18	18	18	18
Calves Sold	Head	74	69	95	98	98	98	98	98	98	98	98
Wheat Sold	Bu.	6,360	6,360	1,881	2,565	2,565	2,565	2,565	2,565	2,565	2,565	2,565
Barley Sold	Bu.	1,956	1,592	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	3	1	1	1	3	1	1	1	3
Heifers Bought	Head	--	--	31	--	--	--	--	--	--	--	--
Cows Died	Head	2	2	2	3	3	3	3	3	3	3	3
Wheat Seed (1 bu./ac.)	Bu.	424	424	171	171	171	171	171	171	171	171	171
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	108	88	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 12 bushels per acre because it is not planted on fallow.

Appendix C

TABLE IV. PRODUCTION TIME SCHEDULE FOR SPRING WHEAT 8 WITH CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967
Oat Hay	Acre	50	50	50	50	50	66	66	66	66	66	66
Native Hay	Acre	88	88	88	89	89	89	112	112	112	112	112
Fallow	Acre	560	--	237	237	237	237	237	237	237	237	237
Wheat	Acre	424	424	187	187	187	171	171	171	171	171	171
Barley	Acre	86	86	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	5	90	90	90	622	622	622	622	622
C. W. (Newly seeded) [a]	Acre	--	5	86	--	--	--	--	--	--	--	--
Conservation Reserve	Acre	--	555	555	555	555	555	--	--	--	--	--
Farmstead & Waste	Acre	98	98	98	98	98	98	98	98	98	98	98
Livestock:												
Bulls	Head	4	4	4	4	4	4	5	5	5	5	5
Cows	Head	106	106	106	109	109	109	123	123	123	123	123
Replacement Heifers	Head	16	16	16	16	16	16	18	18	18	18	18
Calves	Head	90	90	90	92	92	92	104	104	104	104	104
Crop Production:												
Wheat	Bu.	3,392	3,392	1,122[b]	1,496	1,496	1,368	1,368	1,368	1,368	1,368	1,368
Barley	Bu.	1,032	1,032	--	--	--	--	--	--	--	--	--
Wild Hay	Ton	44	44	44	44	44	44	56	56	56	56	56
Oat Hay	Ton	50	50	50	50	50	66	66	66	66	66	66
Disposition:												
Bulls Sold	Head	1	1	1	1	1	1	1	1	1	2	1
Cows Sold	Head	14	14	14	14	14	14	16	16	16	16	16
Calves Sold	Head	74	74	74	76	76	74	86	86	86	86	86
Wheat Sold	Bu.	2,968	2,968	935	1,309	1,309	1,197	1,197	1,197	1,197	1,197	1,197
Barley Sold	Bu.	924	924	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	1	1	1	1	2	1	1	1	2
Heifers Bought	Head	--	--	--	3	--	--	14	--	--	--	--
Cows Died	Head	2	2	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	424	424	187	187	187	171	171	171	171	171	171
Barley Seed ($1\frac{1}{4}$ bu/ac.)	Bu.	108	108	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 6 bushels per acre because it is not planted on fallow.

Appendix C

TABLE V. PRODUCTION TIME SCHEDULE FOR SPRING WHEAT 12 WITH CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967
Oat Hay	Acre	50	50	50	50	50	66	66	66	66	66	66
Native Hay	Acre	88	88	88	91	91	91	112	112	112	112	112
Fallow	Acre	560	--	237	237	237	237	237	237	237	237	237
Wheat	Acre	424	424	187	187	187	171	171	171	171	171	171
Barley	Acre	86	86	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	5	88	88	88	622	622	622	622	622
C. W. (newly seeded)[a]	Acre	--	5	86	--	--	--	--	--	--	--	--
Conservation Reserve	Acre	--	555	555	555	555	555	--	--	--	--	--
Farmstead & Waste	Acre	98	98	98	98	98	98	98	98	98	98	98
Livestock:												
Bulls	Head	4	4	4	4	4	4	5	5	5	5	5
Cows	Head	106	106	106	110	110	110	130	130	130	130	130
Replacement Heifers	Head	16	16	16	16	16	16	19	19	19	19	19
Calves	Head	90	90	90	93	93	93	110	110	110	110	110
Crop Production:												
Wheat	Bu.	5,088	5,088	1,683[b]	2,244	2,244	2,052	2,052	2,052	2,052	2,052	2,052
Barley	Bu.	1,548	1,548	--	--	--	--	--	--	--	--	--
Wild Hay	Ton	44	44	44	46	46	46	56	56	56	56	56
Oat Hay	Ton	50	50	50	50	50	66	66	66	66	66	66
Disposition:												
Bulls Sold	Head	1	1	1	1	1	1	1	1	1	2	1
Cows Sold	Head	14	14	14	14	14	14	17	17	17	17	17
Calves Sold	Head	74	74	74	77	77	74	91	91	91	91	91
Wheat Sold	Bu.	4,664	4,664	1,496	2,057	2,057	1,881	1,881	1,881	1,881	1,881	1,881
Barley Sold	Bu.	1,440	1,440	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	1	1	1	1	2	1	1	1	2
Heifers	Head	--	--	--	4	--	--	20	--	--	--	--
Cows Died	Head	2	2	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	424	424	187	187	187	171	171	171	171	171	171
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	108	108	--	--	--	--	--	--	--	--	--

a/Crested Wheat Grass

b/Wheat yield reduced to 9 bushels per acre because it is not planted on fallow.

Appendix C

TABLE VI. PRODUCTION TIME SCHEDULE FOR SPRING WHEAT 16 WITH CONSERVATION

Item	Unit	Year of Shift 0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967	1,967
Oat Hay	Acre	50	50	54	54	54	66	66	66	66	66	66
Native Hay	Acre	88	88	88	89	89	89	112	112	112	112	112
Fallow	Acre	560	--	237	237	237	237	237	237	237	237	237
Wheat	Acre	424	424	183	183	183	171	171	171	171	171	171
Barley	Acre	86	86	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	5	90	90	90	622	622	622	622	622
C. W. (Newly seeded) [a]	Acre	--	5	86	--	--	--	--	--	--	--	--
Conservation Reserve	Acre	--	555	555	555	555	555	--	--	--	--	--
Farmstead & Waste	Acre	98	98	98	98	98	98	98	98	98	98	98
Livestock:												
Bulls	Head	4	4	4	5	5	5	6	6	6	6	6
Cows	Head	106	106	106	111	111	111	140	140	140	140	140
Replacement Heifers	Head	16	16	16	17	17	17	21	21	21	21	21
Calves	Head	90	90	90	94	94	94	119	119	119	119	119
Crop Production:												
Wheat	Bu.	6,784	6,784	2,196[b]	2,928	2,928	2,736	2,736	2,736	2,736	2,736	2,736
Barley	Bu.	2,064	2,064	--	--	--	--	--	--	--	--	--
Wild Hay	Ton	44	44	44	44	44	44	56	56	56	56	56
Oat Hay	Ton	50	50	54	54	54	66	66	66	66	66	66
Disposition:												
Bulls Sold	Head	1	1	1	1	1	1	2	1	1	2	2
Cows Sold	Head	14	14	14	15	15	15	18	18	18	18	18
Calves Sold	Head	74	74	73	77	77	73	98	98	98	98	98
Wheat Sold	Bu.	6,360	6,360	2,009	2,741	2,741	2,565	2,565	2,565	2,565	2,565	2,565
Barley Sold	Bu.	1,956	1,956	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	1	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	--	5	--	--	29	--	--	--	--
Cows Died	Head	2	2	2	2	2	2	3	3	3	3	3
Wheat Seed (1 bu./ac.)	Bu.	424	424	183	183	183	171	171	171	171	171	171
Barley Seed ($1\frac{1}{4}$ bu/ac.)	Bu.	108	108	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 12 bushels per acre because it is not planted on fallow.

Appendix C

TABLE VII. PRODUCTION TIME SCHEDULE FOR WINTER WHEAT 10 WITHOUT CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846
Hay	Acre	84	84	119	119	119	119	119	119	119	119	119
Fallow	Acre	511	--	111	111	111	111	111	111	111	111	111
Wheat	Acre	372	372	111	111	111	111	111	111	111	111	111
Barley	Acre	139	139	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	476	765	765	765	765	765	765	765	765
C. W. (newly seeded) [a]	Acre	--	511	289	--	--	--	--	--	--	--	--
Farmstead & Waste	Acre	192	192	192	192	192	192	192	192	192	192	192
Livestock:												
Bulls	Head	4	4	5	6	6	6	6	6	6	6	6
Cows	Head	102	102	121	132	132	132	132	132	132	132	132
Replacement Heifers	Head	11	11	13	15	15	15	15	15	15	15	15
Calves	Head	86	86	102	112	112	112	112	112	112	112	112
Crop Production:												
Wheat	Bu.	3,720	3,720	832[b]	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110
Barley	Bu.	2,085	2,085	--	--	--	--	--	--	--	--	--
Hay	Ton	63.0	63.0	89.3	89.3	89.3	89.3	89.3	89.3	89.3	89.3	89.3
Disposition:												
Bulls Sold	Head	1	1	1	1	1	2	2	1	1	2	2
Cows Sold	Head	10	10	11	13	13	13	13	13	13	13	13
Calves Sold	Head	75	73	87	97	97	97	97	97	97	97	97
Wheat Sold	Bu.	3,348	3,348	721	999	999	999	999	999	999	999	999
Barley Sold	Bu.	1,911	1,911	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	2	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	19	11	--	--	--	--	--	--	--
Cows Died	Head	1	1	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	372	372	111	111	111	111	111	111	111	111	111
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	174	174	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 7.5 bushels per acre because it is not planted on fallow.

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TABLE VIII. PRODUCTION TIME SCHEDULE FOR WINTER WHEAT 15 WITHOUT CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846
Hay	Acre	84	84	119	119	119	119	119	119	119	119	119
Fallow	Acre	511	--	111	111	111	111	111	111	111	111	111
Wheat	Acre	372	372	111	111	111	111	111	111	111	111	111
Barley	Acre	139	139	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	476	765	765	765	765	765	765	765	765
C. W. (newly seeded) [a]	Acre	--	511	289	--	--	--	--	--	--	--	--
Farmstead & Waste	Acre	192	192	192	192	192	192	192	192	192	192	192
Livestock:												
Bulls	Head	4	4	5	6	6	6	6	6	6	6	6
Cows	Head	102	102	129	142	142	142	142	142	142	142	142
Replacement Heifers	Head	11	11	13	16	16	16	16	16	16	16	16
Calves	Head	86	86	109	120	120	120	120	120	120	120	120
Crop Production:												
Wheat	Bu.	5,580	5,580	1,249[b]	1,665	1,665	1,665	1,665	1,665	1,665	1,665	1,665
Barley	Bu.	3,128	3,128	--	--	--	--	--	--	--	--	--
Hay	Ton	63.0	63.0	89.3	89.3	89.3	89.3	89.3	89.3	89.3	89.3	89.3
Disposition:												
Bulls Sold	Head	1	1	1	1	1	2	2	1	1	2	2
Cows Sold	Head	10	10	11	14	14	14	14	14	14	14	14
Calves Sold	Head	75	73	93	104	104	104	104	104	104	104	104
Wheat Sold	Bu.	5,208	5,208	1,138	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554
Barley Sold	Bu.	2,954	2,954	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	2	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	27	13	--	--	--	--	--	--	--
Cows Died	Head	1	1	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	372	372	111	111	111	111	111	111	111	111	111
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	174	174	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 11.25 bushels per acre because it is not planted on fallow.

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TABLE IX. PRODUCTION TIME SCHEDULE FOR WINTER WHEAT 20 WITHOUT CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846
Hay	Acre	84	84	119	119	119	119	119	119	119	119	119
Fallow	Acre	511	--	111	111	111	111	111	111	111	111	111
Wheat	Acre	372	372	111	111	111	111	111	111	111	111	111
Barley	Acre	139	139	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	476	765	765	765	765	765	765	765	765
C. W. (newly seeded) [a]	Acre	--	511	289	--	--	--	--	--	--	--	--
Farmstead & Waste	Acre	192	192	192	192	192	192	192	192	192	192	192
Livestock:												
Bulls	Head	4	4	5	6	6	6	6	6	6	6	6
Cows	Head	102	102	130	145	145	145	145	145	145	145	145
Replacement Heifers	Head	11	11	13	17	17	17	17	17	17	17	17
Calves	Head	86	86	110	123	123	123	123	123	123	123	123
Crop Production:												
Wheat	Bu.	7,440	7,440	1,665[b]	2,220	2,220	2,220	2,220	2,220	2,220	2,220	2,220
Barley	Bu.	4,170	4,170	--	--	--	--	--	--	--	--	--
Hay	Ton	63.0	63.0	89.3	89.3	89.3	89.3	89.3	89.3	89.3	89.3	89.3
Disposition:												
Bulls Sold	Head	1	1	1	1	1	2	2	1	1	2	2
Cows Sold	Head	10	10	11	15	15	15	15	15	15	15	15
Calves Sold	Head	75	73	93	106	106	106	106	106	106	106	106
Wheat Sold	Bu.	7,068	7,068	1,554	2,109	2,109	2,109	2,109	2,109	2,109	2,109	2,109
Barley Sold	Bu.	3,996	3,996	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	2	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	28	15	--	--	--	--	--	--	--
Cows Died	Head	1	1	2	2	2	2	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	372	372	111	111	111	111	111	111	111	111	111
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	174	174	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 15 bushels per acre because it is not planted on fallow.

Appendix C

TABLE X. PRODUCTION TIME SCHEDULE FOR WINTER WHEAT 10 WITH CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846
Hay	Acre	84	84	84	104	104	104	119	119	119	119	119
Fallow	Acre	511	--	111	111	111	111	111	111	111	111	111
Wheat	Acre	372	372	111	111	111	111	111	111	111	111	111
Barley	Acre	139	139	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	--	225	225	225	721	765	765	765	765
C. W. (newly seeded) [a]	Acre	--	--	245	--	--	--	--	--	--	--	--
Conservation Reserve	Acre	--	511	555	555	555	555	44	--	--	--	--
Farm stead & Waste	Acre	192	192	192	192	192	192	192	192	192	192	192
Livestock:												
Bulls	Head	4	4	4	5	5	5	6	6	6	6	6
Cows	Head	102	102	102	110	110	110	129	132	132	132	132
Heifers	Head	11	11	11	12	12	12	15	15	15	15	15
Calves	Head	86	86	86	93	93	93	109	112	112	112	112
Crop Production:												
Wheat	Bu.	3,720	3,720	832[b]	1,110	1,110	1,110	1,110	1,110	1,110	1,110	1,110
Barley	Bu.	2,085	2,085	--	--	--	--	--	--	--	--	--
Hay	Ton	63.0	63.0	63.0	78.0	78.0	78.0	89.3	89.3	89.3	89.3	89.3
Disposition:												
Bulls Sold	Head	1	1	1	1	1	1	2	1	1	2	2
Cows Sold	Head	10	10	10	11	11	11	11	13	13	13	13
Calves Sold	Head	75	75	74	81	81	78	94	97	97	97	97
Wheat Sold	Bu.	3,348	3,348	721	999	999	999	999	999	999	999	999
Barley Sold	Bu.	1,911	1,911	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	1	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	--	8	--	--	19	--	--	--	--
Cows Died	Head	1	1	1	1	1	1	1	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	372	372	111	111	111	111	111	111	111	111	111
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	174	174	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 7.5 bushels per acre because it is not planted on fallow

Appendix C

TABLE XI. PRODUCTION TIME SCHEDULE FOR WINTER WHEAT 15 WITH CONSERVATION RESERVE.

Item	Unit	Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846
Hay	Acre	84	84	84	104	104	104	119	119	119	119	119
Fallow	Acre	511	--	111	111	111	111	111	111	111	111	111
Wheat	Acre	372	372	111	111	111	111	111	111	111	111	111
Barley	Acre	139	139	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	--	225	225	225	721	765	765	765	765
C. W. (newly seeded) [a]	Acre	--	--	245	--	--	--	--	--	--	--	--
Conservation Reserve	Acre	--	511	555	555	555	555	44	--	--	--	--
Farmstead & Waste	Acre	192	192	192	192	192	192	192	192	192	192	192
Livestock:												
Bulls	Head	4	4	4	5	5	5	6	6	6	6	6
Cows	Head	102	102	102	114	114	114	140	142	142	142	142
Replacement Heifers	Head	11	11	11	12	12	12	16	16	16	16	16
Calves	Head	86	86	86	97	97	119	120	120	120	120	120
Crop Production:												
Wheat	Bu.	5,580	5,580	1,249[b]	1,665	1,665	1,665	1,665	1,665	1,665	1,665	1,665
Barley	Bu.	3,128	3,128	--	--	--	--	--	--	--	--	--
Hay	Ton	63.0	63.0	63.0	78.0	78.0	78.0	89.3	89.3	89.3	89.3	89.3
Disposition:												
Bulls Sold	Head	1	1	1	1	1	1	2	1	1	2	2
Cows Sold	Head	10	10	10	11	11	11	12	14	14	14	14
Calves Sold	Head	75	75	74	85	85	81	103	104	104	104	104
Wheat Sold	Bu.	5,208	5,208	1,138	1,554	1,554	1,554	1,554	1,554	1,554	1,554	1,554
Barley Sold	Bu.	2,954	3,996	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	1	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	--	12	--	--	26	--	--	--	--
Cows Died	Head	1	1	1	1	1	1	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	372	372	111	111	111	111	111	111	111	111	111
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	174	174	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 11.25 bushels per acre because it is not planted on fallow.

Appendix C

TABLE XII. PRODUCTION TIME SCHEDULE FOR WINTER WHEAT 20 WITH CONSERVATION RESERVE.

		Year of Shift										
		0	1	2	3	4	5	6	7	8	9	10
Land Use:												
Pasture	Acre	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846	1,846
Hay	Acre	84	84	84	104	104	104	119	119	119	119	119
Fallow	Acre	511	--	111	111	111	111	111	111	111	111	111
Wheat	Acre	372	372	111	111	111	111	111	111	111	111	111
Barley	Acre	139	139	--	--	--	--	--	--	--	--	--
Cr. Wheat Gr. Pasture[a]	Acre	--	--	--	225	225	225	721	765	765	765	765
C. W. (newly seeded) [a]	Acre	--	--	245	--	--	--	--	--	--	--	--
Conservation Reserve	Acre	--	511	555	555	555	555	44	--	--	--	--
Farmstead & Waste	Acre	192	192	192	192	192	192	192	192	192	192	192
Livestock:												
Bulls	Head	4	4	4	5	5	5	6	6	6	6	6
Cows	Head	102	102	102	115	115	115	143	145	145	145	145
Replacement Heifers	Head	11	11	11	12	12	12	17	17	17	17	17
Calves	Head	86	86	86	97	97	97	121	123	123	123	123
Crop Production:												
Wheat	Bu.	7,440	7,440	1,665[b]	2,220	2,220	2,220	2,220	2,220	2,220	2,220	2,220
Barley	Bu.	4,170	4,170	--	--	--	--	--	--	--	--	--
Hay	Ton	63.0	63.0	63.0	78.0	78.0	78.0	89.3	89.3	89.3	89.3	89.3
Disposition:												
Bulls Sold	Head	1	1	1	1	1	1	2	1	1	2	2
Cows Sold	Head	10	10	10	11	11	11	13	15	15	15	15
Calves Sold	Head	75	75	74	85	85	80	104	106	106	106	106
Wheat Sold	Bu.	7,068	7,068	1,554	2,109	2,109	2,109	2,109	2,109	2,109	2,109	2,109
Barley Sold	Bu.	3,996	3,996	--	--	--	--	--	--	--	--	--
Bulls Bought	Head	1	1	1	2	1	1	2	2	1	1	2
Heifers Bought	Head	--	--	--	13	--	--	28	--	--	--	--
Cows Died	Head	1	1	1	1	1	1	2	2	2	2	2
Wheat Seed (1 bu./ac.)	Bu.	372	372	111	111	111	111	111	111	111	111	111
Barley Seed ($1\frac{1}{4}$ bu./ac.)	Bu.	174	174	--	--	--	--	--	--	--	--	--

[a] Crested Wheat Grass

[b] Wheat yield reduced to 15 bushels per acre because it is not planted on fallow.

Appendix D

TABLE I. BUDGET SUMMARIES FOR SPRING WHEAT 8 WITHOUT CONSERVATION RESERVE

Year	Total Income		Expenses								Net Income[a]		
			Variable			Fixed							
			Specific			Specific		Non-					
	Beef	+ Grain	Beef	+ Grain	= Total	Beef	+ Grain	+ spec.	= Total	Total Expense	[b]	+ Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$91.106P_b$	6,471	959	2,057	3,016	609	1,445	5,051	7,105	10,121	-3,650	$91.106P_b$	R_0
1	$89.106P_b$	6,316	1,164	1,578	2,742	609	1,445	5,051	7,105	9,847	-3,531	$89.106P_b$	R_1
2	$98.579P_b$	1,625	1,414	680	2,094	609	1,445	5,051	7,105	9,199	-7,574	$98.579P_b$	R_2
3	$104.767P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$104.767P_b$	R_3
4	$104.767P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$104.767P_b$	R_4
5	$106.983P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$106.983P_b$	R_5
6	$100.113P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$100.113P_b$	R_6
7	$104.767P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$104.767P_b$	R_7
8	$104.767P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$104.767P_b$	R_8
9	$106.983P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$106.983P_b$	R_9
10	$100.113P_b$	2,274	1,435	687	2,122	609	1,445	5,051	7,105	9,227	-6,953	$100.113P_b$	R_{10}

a/ Total Income minus Total Expense equals Net Income.

b/ The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

c/ Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 91.106. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using the appropriate "R" values (see footnote d).

d/ The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 3{,}650 + 91.106\ P_b$, $R_1 = 3{,}531 + 89.106P_b$, etc.

Appendix D

TABLE II. BUDGET SUMMARIES FOR SPRING WHEAT 12 WITHOUT CONSERVATION RESERVE.

Year	Total Income		Expenses								Net Income[a]		
			Variable			Fixed							
			Specific			Specific							
	Beef +	Grain	Beef +	Grain =	Total	Beef +	Grain +	Non-spec. =	Total	Total Expense	[b] +	Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$91.106P_b$	10,158	959	2,101	3,060	609	1,445	5,051	7,105	10,165	- 7	$91.106P_b$	R_0
1	$87.106P_b$	9,916	1,164	1,620	2,784	609	1,445	5,051	7,105	9,889	+ 27	$87.106P_b$	R_1
2	$105.701P_b$	2,599	1,464	690	2,154	609	1,445	5,051	7,105	9,259	-6,660	$105.701P_b$	R_2
3	$110.493P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$110.493P_b$	R_3
4	$110.493P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$110.493P_b$	R_4
5	$112.709P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$112.709P_b$	R_5
6	$105.839P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$105.839P_b$	R_6
7	$110.493P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$110.493P_b$	R_7
8	$110.493P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$110.493P_b$	R_8
9	$112.709P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$112.709P_b$	R_9
10	$105.839P_b$	3,574	1,485	700	2,185	609	1,445	5,051	7,105	9,290	-5,716	$105.839P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 91.106. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using the appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 7 + 91.106P_b$, $R_1 = 27 + 87.106P_b$, etc.

Appendix D

TABLE III. BUDGET SUMMARIES FOR SPRING WHEAT 16 WITHOUT CONSERVATION RESERVE.

Year	Total Income		Expenses								Net Income[a]		
			Variable			Fixed							
			Specific			Specific		Non-		Total			
	Beef +	Grain	Beef +	Grain =	Total	Beef +	Grain +	spec. =	Total	Expense	[b] +	Beef	"R"
	[c]	Dol.	Dol	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$91.106P_b$	13,844	959	2,145	3,104	609	1,445	5,051	7,105	10,209	+3,635	$91.106P_b$	R_0
1	$86.106P_b$	13,517	1,164	1,662	2,826	609	1,445	5,051	7,105	9,931	+3,586	$86.106P_b$	R_1
2	$112.438P_b$	3,574	1,678	700	2,378	609	1,445	5,051	7,105	9,483	-5,909	$112.438P_b$	R_2
3	$118.230P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$118.230P_b$	R_3
4	$118.230P_b$	4,874	1,569	714	2,283	609	1,445	5,051	4,105	9,388	-4,514	$118.230P_b$	R_4
5	$122.662P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$122.662P_b$	R_5
6	$108.922P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$108.922P_b$	R_6
7	$118.230P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$118.230P_b$	R_7
8	$118.230P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$118.230P_b$	R_8
9	$122.662P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$122.662P_b$	R_9
10	$108.922P_b$	4,874	1,569	714	2,283	609	1,445	5,051	7,105	9,388	-4,514	$108.922P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 91.106. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using the appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 3,635 + 91.106P_b$, $R_1 = 3,586 + 86.106P_b$, etc.

Appendix D

TABLE IV. BUDGET SUMMARIES FOR SPRING WHEAT 8 WITH CONSERVATION RESERVE.

Year	Total Income				Expenses								Net Income[a]		
					Variable			Fixed							
			Cons.		Specific			Specific		Non-		Total			
	Beef +	Grain +	Paym't =	Total	Beef +	Grain =	Total	Beef+	Grain +	spec. =	Total	Expense	[b] +	Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$91.106P_b$	6,471	--	6,471	959	2,057	3,016	609	1,445	5,051	7,105	10,121	-3,650	$91.106P_b$	R_0
1	$91.106P_b$	6,471	6,549	13,020	2,450	1,630	4,080	609	1,445	5,051	7,105	11,185	-1,835	$91.106P_b$	R_1
2	$91.106P_b$	1,777	4,995	6,772	1,321	744	2,065	609	1,445	5,051	7,105	9,170	-2,398	$91.106P_b$	R_2
3	$92.908P_b$	2,487	4,995	7,482	975	751	1,726	609	1,445	5,051	7,105	8,831	-1,349	$92.908P_b$	R_3
4	$92.908P_b$	2,487	4,995	7,482	975	751	1,726	609	1,445	5,051	7,105	8,831	-1,349	$92.908P_b$	R_4
5	$90.908P_b$	2,274	4,995	7,269	999	687	1,686	609	1,445	5,051	7,105	8,791	-1,522	$90.908P_b$	R_5
6	$104.569P_b$	2,274	--	2,274	1,156	687	1,843	609	1,445	5,051	7,105	8,948	-6,674	$104.569P_b$	R_6
7	$104.569P_b$	2,274	--	2,274	1,157	687	1,844	609	1,445	5,051	7,105	8,949	-6,675	$104.569P_b$	R_7
8	$104.569P_b$	2,274	--	2,274	1,157	687	1,844	609	1,445	5,051	7,105	8,949	-6,675	$104.569P_b$	R_8
9	$106.785P_b$	2,274	--	2,274	1,157	687	1,844	609	1,445	5,051	7,105	8,949	-6,675	$106.785P_b$	R_9
10	$99.915P_b$	2,274	--	2,274	1,157	687	1,844	609	1,445	5,051	7,105	8,949	-6,675	$99.915P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 91.106. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 3,650 + 91.106P_b$, $R_1 = 1,835 + 91.106P_b$, etc.

Appendix D

TABLE V. BUDGET SUMMARIES FOR SPRING WHEAT 12 WITH CONSERVATION RESERVE.

Year	Total Income				Expenses								Net Income[a]		
					Variable			Fixed							
			Cons.		Specific			Specific		Non-		Total			
	Beef	+ Grain	+ Paym't	= Total	Beef	+ Grain	= Total	Beef	+ Grain	+ spec.	= Total	Expense	[b]	+ Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$91.106P_b$	10,158	--	10,158	959	2,101	3,060	609	1,445	5,051	7,105	10,165	- 7	$91.106P_b$	R_0
1	$91.106P_b$	10,158	6,549	16,707	2,450	1,668	4,118	609	1,445	5,051	7,105	11,223	+5,484	$91.106P_b$	R_1
2	$91.106P_b$	2,842	4,995	7,837	1,321	755	2,076	609	1,445	5,051	7,105	9,181	-1,344	$91.106P_b$	R_2
3	$93.843P_b$	3,908	4,995	8,903	990	766	1,756	609	1,445	5,051	7,105	8,861	+ 42	$93.843P_b$	R_3
4	$93.843P_b$	3,908	4,995	8,569	990	766	1,756	609	1,445	5,051	7,105	8,861	+ 42	$93.843P_b$	R_4
5	$90.843P_b$	3,574	4,995	3,574	1,014	700	1,714	609	1,445	5,051	7,105	8,819	- 250	$90.843P_b$	R_5
6	$110.505P_b$	3,574	--	3,574	1,205	700	1,905	609	1,445	5,051	7,105	9,010	-5,436	$110.505P_b$	R_6
7	$110.505P_b$	3,574	--	3,574	1,207	700	1,907	609	1,445	5,051	7,105	9,012	-5,438	$110.505P_b$	R_7
8	$110.505P_b$	3,574	--	3,574	1,207	700	1,907	609	1,445	5,051	7,105	9,012	-5,438	$110.505P_b$	R_8
9	$112.721P_b$	3,574	--	3,574	1,207	700	1,907	609	1,445	5,051	7,105	9,012	-5,438	$112.721P_b$	R_9
10	$105.851P_b$	3,574	--	3,574	1,207	700	1,907	609	1,445	5,051	7,105	9,012	-5,438	$105.851P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed at the number of 400 pound calf units sold, e.g., in year 0 it is 91.106. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 7 + 91.106P_b$, $R_1 = 5,484 + 91.106P_b$, etc.

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TABLE VI. BUDGET SUMMARIES FOR SPRING WHEAT 16 WITH CONSERVATION RESERVE.

Year	Total Income				Expense								Net Income		
					Variable			Fixed							
			Cons.		Specific			Specific		Non-		Total			
	Beef +	Grain +	Paym't =	Total	Beef +	Grain =	Total	Beef+	Grain +	spec. =	Total	Expense	b/	+ Beef	"R"
	c/	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	c/	d/
0	$91.106P_b$	13,844	--	13,844	959	2,145	3,014	609	1,445	5,051	7,105	10,209	+3,635	$91.106P_b$	R_0
1	$91.106P_b$	13,844	6,549	20,393	2,450	1,712	4,162	609	1,445	5,051	7,105	11,267	+9,126	$91.106P_b$	R_1
2	$90.106P_b$	3,817	4,995	8,812	1,327	750	2,077	609	1,445	5,051	7,105	9,182	- 370	$90.106P_b$	R_2
3	$94.963P_b$	5,208	4,995	10,203	1,030	764	1,794	609	1,445	5,051	7,105	8,899	+1,304	$94.963P_b$	R_3
4	$94.963P_b$	5,208	4,995	10,203	1,031	764	1,795	609	1,445	5,051	7,105	8,900	+1,303	$94.963P_b$	R_4
5	$90.963P_b$	4,874	4,995	9,869	1,048	714	1,762	609	1,445	5,051	7,105	8,867	+1,002	$90.963P_b$	R_5
6	$120.249P_b$	4,874	--	4,874	1,448	714	2,162	609	1,445	5,051	7,105	9,267	-4,393	$120.249P_b$	R_6
7	$113.379P_b$	4,874	--	4,874	1,291	714	2,005	609	1,445	5,051	7,105	9,110	-4,236	$113.379P_b$	R_7
8	$118.033P_b$	4,874	--	4,874	1,291	714	2,005	609	1,445	5,051	7,105	9,110	-4,236	$118.033P_b$	R_8
9	$120.249P_b$	4,874	--	4,874	1,291	714	2,005	609	1,445	5,051	7,105	9,110	-4,236	$120.249P_b$	R_9
10	$115.595P_b$	4,874	--	4,874	1,291	714	2,005	609	1,445	5,051	7,105	9,110	-4,236	$115.595P_b$	R_{10}

a/ Total Income minus Total Expense equals Net Income.

b/ The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

c/ Income from cattle is expressed at the number of 400 pound calf units sold, e.g., in year 0 it is 91.106. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using appropriate "R" values (see footnote d).

d/ The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 3{,}635 + 91.106P_b$, $R_1 = 9{,}126 + 91.106P_b$, etc.

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TABLE VII. BUDGET SUMMARIES FOR WINTER WHEAT 10 WITHOUT CONSERVATION RESERVE.

Year	Total Income		Expenses							Total Expense	Net Income[a]		
			Variable			Fixed							
			Specific			Specific		Non-					
	Beef +	Grain	Beef +	Grain =	Total	Beef +	Grain +	spec. =	Total		[b] +	Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$86.522P_b$	7,746	1,212	2,168	3,380	467	1,628	5,350	7,445	10,825	-3,079	$86.522P_b$	R_0
1	$84.522P_b$	7,746	1,428	1,639	3,067	467	1,628	5,350	7,445	10,512	-2,766	$84.522P_b$	R_1
2	$98.458P_b$	1,298	2,088	462	2,550	467	1,628	5,350	7,445	9,995	-8,697	$98.458P_b$	R_2
3	$109.979P_b$	1,798	1,862	467	2,329	467	1,628	5,350	7,445	9,774	-7,976	$109.979P_b$	R_3
4	$109.979P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$109.979P_b$	R_4
5	$112.195P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$112.195P_b$	R_5
6	$107.541P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$107.541P_b$	R_6
7	$105.325P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$105.325P_b$	R_7
8	$109.979P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$109.979P_b$	R_8
9	$112.195P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$112.195P_b$	R_9
10	$107.541P_b$	1,798	1,864	467	2,331	467	1,628	5,350	7,445	9,776	-7,978	$107.541P_b$	R_{10}

a/ Total Income minus Total Expense equals Net Income.

b/ The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

c/ Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 86.522. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using the appropriate "R" values (see footnote d).

d/ The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 3,079 + 86.522P_b$, $R_1 = 2,766 + 84.522P_b$, etc.

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TABLE VIII. BUDGET SUMMARIES FOR WINTER WHEAT 15 WITHOUT CONSERVATION RESERVE

Year	Total Income		Expenses								Net Income[a]		
			Variable			Fixed							
			Specific			Specific		Non-					
	Beef +	Grain	Beef +	Grain =	Total	Beef +	Grain +	spec. =	Total	Total Expense	[b] +	Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$86.522P_b$	12,033	1,212	2,226	3,438	467	1,628	5,350	7,445	10,883	+1,150	$86.522P_b$	R_0
1	$84.522P_b$	12,033	1,428	1,697	3,125	467	1,628	5,350	7,445	10,570	+1,463	$84.522P_b$	R_1
2	$103.931P_b$	2,048	2,195	470	2,665	467	1,628	5,350	7,445	10,110	-8,062	$103.931P_b$	R_2
3	$118.054P_b$	2,797	2,054	479	2,533	467	1,628	5,350	7,445	9,978	-7,181	$118.054P_b$	R_3
4	$118.054P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$118.054P_b$	R_4
5	$120.270P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$120.270P_b$	R_5
6	$115.616P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$115.616P_b$	R_6
7	$113.400P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$113.400P_b$	R_7
8	$118.054P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$118.054P_b$	R_8
9	$120.270P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$120.270P_b$	R_9
10	$115.616P_b$	2,797	2,056	479	2,535	467	1,628	5,350	7,445	9,980	-7,183	$115.616P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 86.522. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using the appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 1,150 + 86.522P_b$, $R_1 = 1,463 + 84.522P_b$, etc.

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TABLE IX. BUDGET SUMMARIES FOR WINTER WHEAT 20 WITHOUT CONSERVATION RESERVE.

Year	Total Income		Expense								Net Income a/		
			Variable			Fixed							
			Specific			Specific		Non-		Total			
	Beef	+ Grain	Beef	+ Grain	= Total	Beef	+ Grain	+ spec.	= Total	Expense	b/	+ Beef	"R"
	c/	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	c/	d/
0	$86.522P_b$	16,319	1,212	2,284	3,496	467	1,628	5,350	7,445	10,941	+5,378	$86.522P_b$	R_0
1	$84.522P_b$	16,319	1,428	1,755	3,183	467	1,628	5,350	7,445	10,628	+5,691	$84.522P_b$	R_1
2	$103.865P_b$	2,797	2,226	479	2,705	467	1,628	5,350	7,445	10,150	-7,353	$103.865P_b$	R_2
3	$121.252P_b$	3,796	2,143	490	2,633	467	1,628	5,350	7,445	10,078	-6,282	$121.252P_b$	R_3
4	$121.252P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$121.252P_b$	R_4
5	$123.368P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$123.368P_b$	R_5
6	$118.814P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$118.814P_b$	R_6
7	$116.598P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$116.598P_b$	R_7
8	$121.252P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$121.252P_b$	R_8
9	$123.368P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$123.368P_b$	R_9
10	$118.814P_b$	3,796	2,145	490	2,635	467	1,628	5,350	7,445	10,080	-6,284	$118.814P_b$	R_{10}

a/ Total Income minus Total Expense equals Net Income.

b/ The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

c/ Income from cattle is expressed as the number of 400 pound calf units sold, e.g., in year 0 it is 86.522. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using the appropriate "R" values (see footnote d).

d/ The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income e.g., $R_0 = 5,378 + 86.522P_b$, $R_1 = 5,691 + 84.522P_b$, etc.

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TABLE X. BUDGET SUMMARIES FOR WINTER WHEAT 10 WITH CONSERVATION RESERVE.

Year	Total Income				Expenses								Net Income[a]		
					Variable			Fixed							
					Specific			Specific		Non-					
	Beef +	Grain +	Cons. Paym't =	Total	Beef +	Grain =	Total	Beef +	Grain +	spec. =	Total	Total Expense	[b]	+ Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$86.522P_b$	7,746	--	7,746	1,212	2,168	3,380	467	1,628	5,350	7,445	10,825	-3,079	$86.522P_b$	R_0
1	$86.522P_b$	7,746	6,426	14,172	2,606	1,639	4,245	467	1,628	5,350	7,445	11,690	-2,482	$86.522P_b$	R_1
2	$85.522P_b$	1,298	5,118	6,416	2,368	462	2,830	467	1,628	5,350	7,445	10,275	-3,859	$85.522P_b$	R_2
3	93.182P	1,798	4,995	6,793	1,474	467	1,941	467	1,628	5,350	7,445	9,386	-2,593	$93.182P_b$	R_3
4	$93.182P_b$	1,798	4,995	6,793	1,176	467	1,643	467	1,628	5,350	7,445	9,088	-2,295	$93.182P_b$	R_4
5	$90.182P_b$	1,798	4,995	6,793	1,176	467	1,643	467	1,628	5,350	7,445	9,088	-2,295	$90.182P_b$	R_5
6	$106.938P_b$	1,798	--	1,798	1,662	467	2,129	467	1,628	5,350	7,445	9,574	-7,776	$106.938P_b$	R_6
7	$105.860P_b$	1,798	--	1,798	1,501	467	1,968	467	1,628	5,350	7,445	9,413	-7,615	$105.860P_b$	R_7
8	$110.514P_b$	1,798	--	1,798	1,501	467	1,968	467	1,628	5,350	7,445	9,413	-7,615	$110.514P_b$	R_8
9	$112.730P_b$	1,798	--	1,798	1,501	467	1,968	467	1,628	5,350	7,445	9,413	-7,615	$112.730P_b$	R_9
10	$108.076P_b$	1,798	--	1,798	1,501	467	1,968	467	1,628	5,350	7,445	9,413	-7,615	$108.076P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed at the number of 400 pound calf units sold, e.g., in year 0 it is 86.522. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 3{,}079 + 86.522P_b$, $R_1 = 2{,}482 + 86.522P_b$, etc.

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TABLE XI. BUDGET SUMMARIES FOR WINTER WHEAT 15 WITH CONSERVATION RESERVE.

Year	Total Income				Expenses								Net Income[a]		
					Variable			Fixed							
					Specific			Specific		Non-					
	Beef	+ Grain	+ Cons. Paym't	= Total	Beef	+ Grain	= Total	Beef	+ Grain	+ spec.	= Total	Total Expense	[b]	+ Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$86.522P_b$	12,033	--	12,033	1,212	2,226	3,438	467	1,628	5,350	7,445	10,883	+1,150	$86.522P_b$	R_0
1	$86.522P_b$	12,033	6,426	18,459	2,606	1,697	4,303	467	1,628	5,350	7,445	11,748	+6,711	$86.522P_b$	R_1
2	$85.522P_b$	2,048	5,118	7,166	2,368	470	2,838	467	1,628	5,350	7,445	10,283	-3,117	$85.522P_b$	R_2
3	$96.919P_b$	2,797	4,995	7,792	1,540	479	2,019	467	1,628	5,350	7,445	9,464	-1,672	$96.919P_b$	R_3
4	$96.919P_b$	2,797	4,995	7,792	1,242	479	1,721	467	1,628	5,350	7,445	9,166	-1,374	$96.919P_b$	R_4
5	$92.919P_b$	2,797	4,995	7,792	1,242	479	1,721	467	1,628	5,350	7,445	9,166	-1,374	$92.919P_b$	R_5
6	$116.609P_b$	2,797	--	2,797	1,880	479	2,359	467	1,628	5,350	7,445	9,804	-7,007	$116.609P_b$	R_6
7	$113.531P_b$	2,797	--	2,797	1,693	479	2,172	467	1,628	5,350	7,445	9,617	-6,820	$113.531P_b$	R_7
8	$118.185P_b$	2,797	--	2,797	1,693	479	2,172	467	1,628	5,350	7,445	9,617	-6,820	$118.185P_b$	R_8
9	$120.401P_b$	2,797	--	2,797	1,693	479	2,172	467	1,628	5,350	7,445	9,617	-6,820	$120.401P_b$	R_9
10	$115.747P_b$	2,797	--	2,797	1,693	479	2,172	467	1,628	5,350	7,445	9,617	-6,820	$115.747P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed at the number of 400 pound calf units sold, e.g., in year 0 it is 86.522. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 1,150 + 86.522P_b$, $R_1 = 6,711 + 86.522P_b$, etc.

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TABLE XII. BUDGET SUMMARIES FOR WINTER WHEAT 20 WITH CONSERVATION RESERVE.

Year	Total Income				Expenses								Net Income[a]		
					Variable			Fixed							
					Specific			Specific		Non-					
	Beef	+ Grain	+ Cons. Paym't	= Total	Beef	+ Grain	= Total	Beef	+ Grain	+ spec.	= Total	Total Expense	[b]	+ Beef	"R"
	[c]	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.	[c]	[d]
0	$86.522P_b$	16,319	--	16,319	1,212	2,284	3,496	467	1,628	5,350	7,445	10,941	+ 5,378	$86.522P_b$	R_0
1	$86.522P_b$	16,319	6,426	22,745	2,606	1,755	4,361	467	1,628	5,350	7,445	11,806	+10,939	$86.522P_b$	R_1
2	$85.522P_b$	2,797	5,118	7,915	2,368	479	2,847	467	1,628	5,350	7,445	10,292	- 2,377	$85.522P_b$	R_2
3	$96.853P_b$	3,796	4,995	8,791	1,570	490	2,060	467	1,628	5,350	7,445	9,505	- 714	$96.853P_b$	R_3
4	$96.853P_b$	3,796	4,995	8,791	1,272	490	1,762	467	1,628	5,350	7,445	9,207	- 416	$96.853P_b$	R_4
5	$91.853P_b$	3,796	4,995	8,791	1,272	490	1,762	467	1,628	5,350	7,445	9,207	- 416	$91.853P_b$	R_5
6	$118.808P_b$	3,796	--	3,796	1,958	490	2,448	467	1,628	5,350	7,445	9,893	- 6,097	$118.808P_b$	R_6
7	$116.730P_b$	3,796	--	3,796	1,782	490	2,272	467	1,628	5,350	7,445	9,717	- 5,921	$116.730P_b$	R_7
8	$121.384P_b$	3,796	--	3,796	1,782	490	2,272	467	1,628	5,350	7,445	9,717	- 5,921	$121.384P_b$	R_8
9	$123.600P_b$	3,796	--	3,796	1,782	490	2,272	467	1,628	5,350	7,445	9,717	- 5,921	$123.600P_b$	R_9
10	$118.946P_b$	3,796	--	3,796	1,782	490	2,272	467	1,628	5,350	7,445	9,717	- 5,921	$118.946P_b$	R_{10}

[a] Total Income minus Total Expense equals Net Income.

[b] The dollar column in Net Income is the difference between Grain Income and Total Expense, which in most cases is a negative value.

[c] Income from cattle is expressed at the number of 400 pound calf units sold, e.g., in year 0 it is 86.522. These units are all sold at a price (P_b) to be determined by solving the equation on page 20 using appropriate "R" values (see footnote d).

[d] The "R" value is the symbolic representation for Net Reinvestable Income. For purposes of calculating a price to induce a shift to beef, Net Income estimates Net Reinvestable Income, e.g., $R_0 = 5{,}378 + 86.522P_b$, $R_1 = 10{,}939 + 86.522P_b$, etc.

Appendix E

TABLE I. NET REINVESTABLE INCOME ON SPRING WHEAT 8 WITHOUT CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	21,719	--	--	21,719	4,708	3,000	13,911
2	21,719	13,911	626	22,345	4,921	3,000	14,424
3	21,719	28,335	1,275	22,994	5,142	3,000	14,852
4	21,719	43,187	1,943	23,662	5,380	3,000	15,282
5	21,719	58,469	2,631	24,350	5,641	3,000	15,709
6	21,719	74,178	3,338	25,057	5,910	3,000	16,147
7	21,719	90,325	4,065	25,784	6,186	3,000	16,598
8	21,719	106,923	4,812	26,531	6,470	3,000	17,061
9	21,719	123,984	5,579	27,298	6,761	3,000	17,537
10	21,719	141,521	6,368	28,087	7,095	3,000	17,992
		159,513[e]					
			Shifted Firm				
1	21,281	--	--	21,281	4,560	3,000	13,721
2	19,876	6,722	302	20,178	4,185	3,000	12,993
3	22,220	19,715	887	23,107	5,180	3,000	14,927
4	22,220	34,642	1,559	23,779	5,424	3,000	15,355
5	22,837	49,997	2,250	25,087	5,921	3,000	16,166
6	20,924	66,163	2,977	23,901	5,470	3,000	15,431
7	22,220	81,594	3,672	25,892	6,227	3,000	16,665
8	22,220	98,259	4,422	26,642	6,512	3,000	17,130
9	22,837	115,389	5,193	28,030	7,071	3,000	17,959
10	20,924	133,348	6,001	26,925	6,620	3,000	17,305
		150,653[e]					

a/ Calculated from Appendix D, Table I using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE II. NET REINVESTABLE INCOME ON SPRING WHEAT 12 WITHOUT CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	29,941	--	--	29,941	7,893	3,000	19,048
2	29,941	19,048	857	30,798	8,261	3,000	19,537
3	29,941	38,585	1,736	31,677	8,650	3,000	20,027
4	29,941	58,612	2,638	32,579	9,074	3,000	20,505
5	29,941	79,117	3,560	33,501	9,507	3,000	20,994
6	29,941	100,111	4,505	34,446	9,952	3,000	21,494
7	29,941	121,605	5,472	35,413	10,407	3,000	22,006
8	29,941	143,611	6,462	36,403	10,902	3,000	22,501
9	29,941	166,112	7,475	37,416	11,408	3,000	23,008
10	29,941	189,120	8,510	38,451	11,926	3,000	23,525
		212,645[e]					
			Shifted Firm				
1	28,660	--	--	28,660	7,342	3,000	18,318
2	28,086	6,052	272	28,358	7,212	3,000	18,146
3	30,605	24,198	1,089	31,694	8,658	3,000	20,036
4	30,605	44,234	1,991	32,596	9,082	3,000	20,514
5	31,334	64,748	2,914	34,248	9,859	3,000	21,389
6	29,075	86,137	3,876	32,951	9,249	3,000	20,702
7	30,605	106,839	4,808	35,413	10,407	3,000	22,006
8	30,605	128,845	5,798	36,403	10,902	3,000	22,501
9	31,334	151,346	6,811	38,145	11,773	3,000	23,372
10	29,075	174,718	7,862	36,937	11,169	3,000	22,768
		194,486[e]					

a/ Calculated from Appendix D, Table II, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE III. NET REINVESTABLE INCOME ON SPRING WHEAT 16 WITHOUT CONSERVATION RESERVE

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	34,365	--	--	34,365	9,914	3,000	21,451
2	34,365	21,451	965	35,330	10,367	3,000	21,963
3	34,365	43,414	1,954	36,319	10,860	3,000	22,459
4	34,365	65,873	2,964	37,329	11,365	3,000	22,964
5	34,365	88,837	3,998	38,363	11,882	3,000	23,481
6	34,365	112,318	5,054	39,419	12,410	3,000	24,009
7	34,365	136,327	6,135	40,500	12,983	3,000	24,517
8	34,365	160,844	7,238	41,603	13,568	3,000	25,035
9	34,365	185,879	8,365	42,730	14,165	3,000	25,565
10	34,365	211,444	9,515	43,880	14,789	3,000	26,091
		237,535[e]					
			Shifted Firm				
1	32,629	--	--	32,629	9,098	3,000	20,531
2	32,016	2,094	94	32,110	8,854	3,000	20,256
3	35,364	22,350	1,006	36,370	10,885	3,000	22,485
4	35,364	44,835	2,018	37,382	11,391	3,000	22,991
5	36,859	67,826	3,052	39,911	12,671	3,000	24,240
6	32,225	92,066	4,143	36,368	10,884	3,000	22,484
7	35,364	114,550	5,155	40,519	12,993	3,000	24,526
8	35,364	139,076	6,258	41,623	13,578	3,000	25,045
9	36,859	164,121	7,385	44,244	14,993	3,000	26,251
10	32,225	190,372	8,567	40,792	13,138	3,000	24,654
		215,026[e]					

a/ Calculated from Appendix D, Table III, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE IV. NET REINVESTABLE INCOME ON SPRING WHEAT 12 WITH CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	19,426	--	--	19,426	3,929	3,000	12,497
2	19,426	12,497	562	19,988	4,120	3,000	12,868
3	19,426	25,365	1,141	20,567	4,317	3,000	13,250
4	19,426	38,615	1,738	21,164	4,520	3,000	13,644
5	19,426	52,259	2,352	21,778	4,729	3,000	14,049
6	19,426	66,308	2,984	22,410	4,943	3,000	14,467
7	19,426	80,775	3,635	23,061	5,165	3,000	14,896
8	19,426	95,671	4,305	23,731	5,406	3,000	15,325
9	19,426	110,996	4,995	24,421	5,668	3,000	15,753
10	19,426	126,749	5,704	25,130	5,937	3,000	16,193
		142,942[e]					
			Shifted Firm				
1	24,917	--	--	24,917	5,856	3,000	16,061
2	18,089	16,061	723	18,812	3,744	3,000	12,068
3	20,059	26,881	1,210	21,269	4,555	3,000	13,714
4	20,059	40,595	1,827	21,886	4,765	3,000	14,121
5	19,127	54,716	2,462	21,589	4,664	3,000	13,925
6	18,134	61,407	2,763	20,895	4,428	3,000	13,467
7	18,132	74,874	3,369	21,501	4,634	3,000	13,867
8	18,132	88,741	3,993	22,125	4,847	3,000	14,278
9	18,605	103,019	4,636	23,241	5,226	3,000	15,015
10	17,140	118,034	5,312	22,452	4,958	3,000	14,494
		132,528[e]					

a/ Calculated from Appendix D, Table V, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE V. NET REINVESTABLE INCOME ON SPRING WHEAT 16 WITH CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	32,624	--	--	32,624	9,095	3,000	20,529
2	32,624	20,529	924	33,548	9,530	3,000	21,018
3	32,624	41,547	1,870	34,494	9,974	3,000	21,520
4	32,624	63,067	2,838	35,462	10,431	3,000	22,031
5	32,624	85,098	3,829	36,453	10,927	3,000	22,526
6	32,624	107,624	4,843	37,467	11,434	3,000	23,033
7	32,624	130,657	5,880	38,504	11,952	3,000	23,552
8	32,624	154,209	6,939	39,563	12,486	3,000	24,077
9	32,624	178,286	8,023	40,647	13,061	3,000	24,586
10	32,624	202,872	9,129	41,753	13,647	3,000	25,106
		227,978[e]					
			Shifted Firm				
1	39,112	--	--	39,112	12,256	3,000	23,856
2	29,200	23,856	1,074	30,274	8,036	3,000	19,238
3	32,468	39,166	1,762	34,230	9,850	3,000	21,380
4	32,467	60,546	2,725	35,192	10,302	3,000	21,890
5	30,854	82,436	3,710	34,564	10,007	3,000	21,557
6	35,069	88,517	3,983	39,052	12,226	3,000	23,826
7	32,972	112,343	5,055	38,027	11,714	3,000	23,313
8	34,499	135,656	6,105	40,604	13,038	3,000	24,566
9	35,226	160,222	7,210	42,436	14,009	3,000	25,427
10	33,699	185,649	8,354	42,053	13,806	3,000	25,247
		210,896[e]					

[a] Calculated from Appendix D, Table VI, using appropriate calf price.

[b] Net farm income.

[c] Based on four exemptions.

[d] Net reinvestable income.

[e] Accumulated cash at the end of year 10.

Appendix E

TABLE VI. NET REINVESTABLE INCOME ON WINTER WHEAT 10 WITHOUT CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	17,173	--	--	17,173	3,252	3,000	10,921
2	17,173	10,921	491	17,664	3,399	3,000	11,265
3	17,173	22,186	998	18,171	3,551	3,000	11,620
4	17,173	33,806	1,521	18,694	3,708	3,000	11,986
5	17,173	45,792	2,061	19,234	3,870	3,000	12,364
6	17,173	58,156	2,617	19,790	4,053	3,000	12,737
7	17,173	70,893	3,190	20,363	4,247	3,000	13,116
8	17,173	84,009	3,780	20,953	4,448	3,000	13,505
9	17,173	97,514	4,388	21,561	4,655	3,000	13,906
10	17,173	111,420	5,014	22,187	4,868	3,000	14,319
		125,739[e]					
			Shifted Firm				
1	17,018	--	--	17,018	3,205	3,000	10,813
2	14,349	3,217	145	14,494	2,484	3,000	9,010
3	17,767	7,371	332	18,099	3,530	3,000	11,569
4	17,765	18,940	852	18,617	3,685	3,000	11,932
5	18,284	30,872	1,389	19,673	4,013	3,000	12,660
6	17,194	43,532	1,915	19,109	3,833	3,000	12,276
7	16,676	55,808	2,511	19,187	3,856	3,000	12,331
8	17,765	68,139	3,066	20,831	4,407	3,000	13,424
9	18,284	81,563	3,670	21,954	4,788	3,000	14,166
10	17,194	95,729	4,308	21,502	4,635	3,000	13,867
		109,596[e]					

a/ Calculated from Appendix D, Table VII, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE VII. NET REINVESTABLE INCOME ON WINTER WHEAT 15 WITHOUT CONSERVATION.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	26,331	--	--	26,331	6,394	3,000	16,937
2	26,331	16,937	762	27,093	6,683	3,000	17,410
3	26,331	34,347	1,546	27,877	7,005	3,000	17,872
4	26,331	52,219	2,350	28,681	7,351	3,000	18,330
5	26,331	70,549	3,175	29,506	7,706	3,000	18,800
6	26,331	89,349	4,021	30,352	8,069	3,000	19,283
7	26,331	108,632	4,888	31,219	8,442	3,000	19,777
8	26,331	128,409	5,778	32,109	8,853	3,000	20,256
9	26,331	148,665	6,690	33,021	9,282	3,000	20,739
10	26,331	169,404	7,623	33,954	9,720	3,000	21,234
		190,638[e]					
			Shifted Firm				
1	26,062	--	--	26,062	6,292	3,000	16,770
2	22,185	3,919	176	22,361	4,927	3,000	14,434
3	27,177	11,463	516	27,693	6,926	3,000	17,767
4	27,175	29,230	1,315	28,490	7,269	3,000	18,221
5	27,820	47,451	2,135	29,955	7,899	3,000	19,056
6	26,465	66,507	2,993	29,458	7,685	3,000	18,773
7	25,820	85,280	3,838	29,658	7,771	3,000	18,887
8	27,175	104,167	4,688	31,863	8,738	3,000	20,125
9	27,820	124,292	5,593	33,413	9,466	3,000	20,947
10	26,465	145,239	6,536	33,001	9,272	3,000	20,729
		165,968[e]					

a/ Calculated from Appendix D, Table VIII, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE VIII. NET REINVESTABLE INCOME ON WINTER WHEAT 20 WITHOUT CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	37,547	--	--	37,547	11,474	3,000	23,073
2	37,547	23,073	1,038	38,585	11,993	3,000	23,592
3	37,547	56,665	2,100	39,647	12,531	3,000	24,116
4	37,547	70,781	3,185	40,732	13,106	3,000	24,626
5	37,547	95,407	4,293	41,840	13,693	3,000	25,147
6	37,547	120,554	5,425	42,972	14,293	3,000	25,679
7	37,547	146,233	6,580	44,127	14,927	3,000	26,200
8	37,547	172,433	7,759	45,306	15,587	3,000	26,719
9	37,547	199,152	8,962	46,509	16,261	3,000	27,248
10	37,547	226,400	10,188	47,735	16,958	3,000	27,777
		254,177[e]					
			Shifted Firm				
1	37,116	--	--	37,116	11,258	3,000	22,858
2	31,264	5,897	265	31,529	8,581	3,000	19,948
3	38,800	15,955	718	39,518	12,463	3,000	24,055
4	38,798	40,010	1,800	40,598	13,035	3,000	24,563
5	39,584	64,573	2,906	42,490	14,038	3,000	25,452
6	37,891	90,025	4,051	41,942	13,747	3,000	25,195
7	37,067	115,220	5,185	42,252	13,912	3,000	25,340
8	38,798	140,560	6,325	45,123	15,485	3,000	26,638
9	39,584	167,198	7,524	47,108	16,596	3,000	27,512
10	37,891	194,710	8,762	46,653	16,342	3,000	27,311
		222,021[e]					

a/ Calculated from Appendix D, Table IX, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE IX. NET REINVESTABLE INCOME ON WINTER WHEAT 10 WITH CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[e]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	6,150	--	--	6,150	627	3,000	2,523
2	6,150	2,523	114	6,264	648	3,000	2,616
3	6,150	5,139	231	6,381	669	3,000	2,712
4	6,150	7,851	353	6,503	691	3,000	2,812
5	6,150	10,663	480	6,630	713	3,000	2,917
6	6,150	13,580	611	6,761	737	3,000	3,024
7	6,150	16,604	747	6,897	761	3,000	3,136
8	6,150	19,740	888	7,038	787	3,000	3,251
9	6,150	22,991	1,035	7,185	815	3,000	3,370
10	6,150	26,361	1,186	7,336	844	3,000	3,492
		29,853[e]					
			Shifted Firm				
1	11,711	--	--	11,711	1,761	3,000	6,950
2	5,263	6,950	313	5,576	524	3,000	2,052
3	7,347	7,258	327	7,674	912	3,000	3,762
4	7,645	11,020	496	8,141	1,004	3,000	4,137
5	7,325	15,157	682	8,007	977	3,000	4,030
6	3,631	15,726	708	4,339	301	3,000	1,038
7	3,677	16,764	754	4,431	318	3,000	1,113
8	4,173	17,877	804	4,977	416	3,000	1,561
9	4,410	19,438	875	5,285	471	3,000	1,814
10	3,413	21,252	956	4,869	396	3,000	1,473
		22,725[e]					

a/ Calculated from Appendix D, Table X, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE X. NET REINVESTABLE INCOME ON WINTER WHEAT 15 WITH CONSERVATION RESERVE.

Year	Farm Income[a]	Accum. Cash	Interest (4.5%)	NFI[b]	Income Tax[c]	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	23,587	--	--	23,587	5,351	3,000	15,236
2	23,587	15,236	686	24,273	5,612	3,000	15,661
3	23,587	30,897	1,390	24,977	5,879	3,000	16,098
4	23,587	46,995	2,115	25,702	6,155	3,000	16,547
5	23,587	63,542	2,859	26,446	6,437	3,000	17,009
6	23,587	80,551	3,625	27,212	6,729	3,000	17,483
7	23,587	98,034	4,412	27,999	7,058	3,000	17,941
8	23,587	115,975	5,219	28,806	7,405	3,000	18,401
9	23,587	134,376	6,047	29,634	7,761	3,000	18,873
10	23,587	153,249	6,896	30,483	8,126	3,000	19,357
		172,606[e]					
			Shifted Firm				
1	29,148	--	--	29,148	7,567	3,000	18,581
2	19,060	18,581	836	19,896	4,089	3,000	12,807
3	23,461	25,629	1,153	24,614	5,741	3,000	15,873
4	23,759	41,502	1,868	25,627	6,126	3,000	16,501
5	22,721	58,003	2,610	25,331	6,014	3,000	16,317
6	23,232	63,249	2,846	26,078	6,298	3,000	16,780
7	22,621	80,029	3,601	26,222	6,352	3,000	16,870
8	23,827	96,899	4,360	28,187	7,138	3,000	18,049
9	24,402	114,948	5,173	29,575	7,735	3,000	18,840
10	23,195	133,788	6,020	29,215	7,580	3,000	18,635
		152,423[e]					

a/ Calculated from Appendix D, Table XI, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

Appendix E

TABLE XI. NET REINVESTABLE INCOME ON WINTER WHEAT 20 WITH CONSERVATION RESERVE.

Year	Farm[a] Income	Accum. Cash	Interest (4.5%)	NFI[b]	Income[c] Tax	Operator's Withdrawal	NRI[d]
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
			Unshifted Firm				
1	40,737	--	--	40,737	13,109	3,000	24,628
2	40,737	24,628	1,108	41,845	13,696	3,000	25,149
3	40,737	49,777	2,240	42,977	14,296	3,000	25,681
4	40,737	75,458	3,396	44,133	14,930	3,000	26,203
5	40,737	101,661	4,575	45,312	15,590	3,000	26,722
6	40,737	128,383	5,777	56,514	16,264	3,000	27,250
7	40,737	155,633	7,003	47,740	16,961	3,000	27,779
8	40,737	183,412	8,254	48,991	17,699	3,000	28,292
9	40,737	211,704	9,527	50,264	18,450	3,000	28,814
10	40,737	240,518	10,823	51,560	18,798	3,000	29,762
		270,280[e]					
			Shifted Firm				
1	46,298	--	--	46,298	16,143	3,000	27,155
2	32,573	27,155	1,222	33,795	9,646	3,000	21,149
3	38,867	38,630	1,738	40,605	13,039	3,000	24,566
4	39,165	63,196	2,844	42,009	13,783	3,000	25,226
5	37,122	88,422	3,979	41,101	13,302	3,000	24,799
6	42,457	94,578	4,256	46,713	16,375	3,000	27,338
7	41,783	121,916	5,486	47,269	16,687	3,000	27,582
8	43,685	149,498	6,727	50,412	18,537	3,000	28,875
9	44,591	178,373	8,027	52,618	19,839	3,000	29,779
10	42,689	208,152	9,367	52,056	19,507	3,000	29,549
		237,701[e]					

a/ Calculated from Appendix D, Table XII, using appropriate calf price.

b/ Net farm income.

c/ Based on four exemptions.

d/ Net reinvestable income.

e/ Accumulated cash at the end of year 10.

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