# Determining Cash Rental Rates

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What is a fair cash rental payment? That is one of the questions most often asked by farmers. Several factors influence rental rates, including the productive capability of the land; cost of production; price of commodities to be raised; local supply of and demand for rental land; government program crop base and yield; and what the operator and his/her family are willing to accept as return for labor, management and equity capital.

## **Production Capability Of The Land**

The production capability of the land is dependent on soil type, natural fertility, climate and location. These factors affect yield potential as well as the crops that can be grown.

#### **Cost Of Production**

Variable production costs are different for each individual farmer and will also vary from one location to another. Emphasis is often placed on yield and price; however, cost of production is equally important in determining what will be available for rental payments.

## **Commodity Prices**

Commodity prices are a major factor influencing what an operator can pay for rent. The price changes that are significant here are the changes that occur in commodity price levels from year to year, not the seasonal fluctuations that occur during the year. The following table illustrates average prices received by North Dakota farmers for the five-year period from 1982 to 1986. Although there are some exceptions, prices in general peaked in 1983 and have declined each year since then. In addition to studying past market prices, producers could use government program prices as planning prices for program commodities.

#### Marketing Year Average Prices Received by North Dakota Farmers, 1982-1986

| Crop             | 1982  | 1983  | 1984  | 1985  | 1986  |
|------------------|-------|-------|-------|-------|-------|
| Spring wheat     | 3.51  | 3.70  | 3.51  | 3.34  | 2.40  |
| Durum            | 3.42  | 3.97  | 3.70  | 3.16  | 2.40  |
| Winter wheat     | 3.31  | 3.45  | 3.15  | 2.80  | 2.00  |
| Oats             | 1.19  | 1.37  | 1.42  | 1.05  | 1.20  |
| Barley           | 1.76  | 2.20  | 1.94  | 1.60  | 1.25  |
| Rye              | 2.00  | 1.79  | 1.76  | 1.82  | 1.00  |
| Flaxseed         | 5.14  | 6.83  | 6.07  | 5.00  | 3.55  |
| Dry edible beans | 11.30 | 18.70 | 16.10 | 14.40 | 19.70 |
| Soybeans         | 5.42  | 7.37  | 5.59  | 4.79  | 4.40  |
| Corn, for grain  | 2.48  | 3.03  | 2.57  | 2.17  | 1.35  |
| Sunflower, all   | 8.84  | 13.00 | 11.20 | 8.01  | 7.09  |

## Local Supply Of And Demand For Rental Lands

While there are always operators in every locality looking for additional land to lease, some areas may exhibit greater demand for rental land than others. Land ownership differs from one area to another. Areas with a greater share of cropland owned by non-operators would have a greater supply of land available for rent. The larger the supply of rented land, the more bargaining power the renter tends to have. The larger the demand for rental land, the more bargaining power the landlord has.

## Government Program Crop Base

The direction that the government farm program takes has a major impact on the rental rate operators can afford to pay. At the present time, the historical base, and the resulting deficiency and diversion payments for program crops, have nearly as much impact on what an operator can afford to pay for rent as does the productive capacity of the land.

## Operator's Return To Labor, Management And Equity Capital

The operator's return to labor, management and equity capital is a non-cash cost and as such often becomes the bottom line. That is, it is often not budgeted for when negotiating rental rates. The correct way to handle these expenses is to charge an opportunity cost for these inputs.

Opportunity cost refers to the return that could be earned by the resource under consideration if it was applied to its best alternative use. Thus, the opportunity cost of the operator's labor used in farming the rental land would be the wage that could be earned from alternative employment.

In practice, farmers tend to substitute a contribution toward family living in place of returns to labor, management and facilities. This is satisfactory to the extent that family living will come from the return to operator labor and management and equity capital. However, it may not value resources at their fair market value and as a result an inappropriate rental rate may result.

## Historical Rental Rates Versus Land Values

For the landowner, rent represents the return on investment. It is useful to look at market value and rental rate of cropland over a period of time in North Dakota. The best available data on land

values and rental rates are from the NDSU land value survey conducted annually by Dr. Jerome Johnson, Department of Agricultural Economics. This survey covers cash rental rates as well as market values.

From 1975 to 1986 annual rental rates averaged 7.0 percent of market value of land with a low of 5.9 percent and a high of 8.82 percent as shown in the table. Rents, however, tend to be less volatile than land values. This is likely due to a major difference in what these two figures represent. Land values are influenced by speculative or expected longterm return as well as current profitability potential. Land rents, however, primarily reflect current profitability potential only.

Changes in land rent also tend to lag behind changes in land value. This is largely due to rental contracts of more than one year which lock in rental rates while potential profitability changes annually.

Historical Cropland Values, Cash Rents and Rent As A Percent Of Value, North Dakota 1975-1986

| Year | Cropland<br>Value | Cropland<br>Cash Rents | Rent to<br>Value |
|------|-------------------|------------------------|------------------|
| 1986 | \$322             | \$28.40                | 8.82%            |
| 1985 | 382               | 30.94                  | 8.09             |
| 1984 | 441               | 32.14                  | 7.29             |
| 1983 | 489               | 31.00                  | 6.34             |
| 1982 | 498               | 32.97                  | 6.62             |
| 1981 | 533               | 32.30                  | 6.06             |
| 1980 | 503               | 29.68                  | 5.90             |
| 1979 | 490               | 31.56                  | 6.44             |
| 1978 | 420               | 26.04                  | 6.20             |
| 1977 | 380               | 25.29                  | 6.66             |
| 1976 | 375               | 29.52                  | 7.87             |
| 1975 | 331               | 25.58                  | 7,73             |

## Determining Appropriate Rental Rate

Cash rents are ultimately determined by negotiation between landlord and tenant. Advanced determination of the limits that may be acceptable to each party is likely to lead to a more informed negotiation and greater satisfaction with the results. This circular contains a worksheet that is intended to help producers calculate a maximum cash rental bid. A line by line explanation of the input requested in the worksheet is included.

This land rent worksheet is intended to be an exact duplicate of the computerized RENTLAND computer program also available through the NDSU Extension Service. A producer can use either version, depending on individual preference, and be assured the result will be the same. The computerized version has default values stored in it for several of the calculations, while values must be inserted directly in the worksheet version.

Default values are values that will automatically be used unless changed by the user. The default values are easily changed and should be adjusted to reflect each operator's individual situation.

Regardless of which method is used, it is first necessary to work through a partial budget to determine whether compliance with the current farm program is beneficial. A partial budget worksheet for making this analysis is also available from the NDSU Extension Service. Once this form has been completed, the best crop plan is used as an input into the land rent calculation.

Another publication on cash rental rates available from the NDSU Extension Service is North Central Regional Extension Publication #75 entitled "Fixed and Flexible Cash Rental Arrangements For Your Farm." This publication offers an explanation of the economic theory of cash rentals.

## EXPLANATION OF RENTLAND WORKSHEET

Cropland Acres: (line 1)

Enter the total number of acres of tillable land in this unit.

#### Return From Sale of Crops: (line 2)

List all the crops to be planted on this rental unit. Enter the total acres to be planted of each crop. For program crops list the number of acres actually planted, not total base acreage. Yield should be your anticipated actual yield sold, not your ASCS yield or yield goal used to determined resource commitments. Price should reflect your best estimate of actual market price including any quality premiums. Government loan rate should be used if the expected price is less than the loan rate assuming this land will be enrolled in the government program.

#### **Return From Government Payments: (line 3)**

For crops enrolled in the government program, compute the anticipated deficiency payment and diversion payment, if applicable. Calculate deficiency payments by multiplying planted acres times ASCS yield times the projected deficiency rate. To calculate diversion payments multiply your ASCS yield times the number of diverted acres times the per bushel diversion payment.

#### Gross Returns: (line 4)

Gross returns equals the total of all crop sales and all government payments.

#### Cash Costs: (line 5)

For each crop to be raised on this tract of rented land, list the cash operating costs that will be

inc rred. Include summerfallow or set-aside as one of the crops. Costs that should be included are direct cash costs such as seed, fertilizer, che.nicals, fuel, repairs, crop insurance and crop drying. If homegrown seed is used rather than pur hasing seed, the cost of this seed should be valided at market price plus the cost of contitioning and treatment. Interest should not be included here as this will be entered later.

Use your own costs derived from your own records wherever possible. There is no good substitute for your own figures. If you do not have this information the next best source of information may be budgets available through the NDSU Extension Service. Keep in mind, however, that these published budgets are typical costs and yours may be different. As a result, the maximum cash rent bid calculated will be in error by an amount equal to the difference in the values used and your actual costs.

#### Hired Labor: (line 6)

Calculate the cost of additional hired labor that will be needed if this tract of land is rented. Do not include the value of your own labor in this calculation.

#### Total Cash Costs Before Interest: (line 7)

Add the cash costs for each crop plus the hired labor cost.

#### Interest On Operating Capital: (line 8)

Interest charge is calculated by multiplying total cash costs times percent interest rate on operating capital times the portion of the year that this money will be used. Typically the portion of the year will be .5 (six months); however, if your marketing and borrowing practices are different you may enter the appropriate values.

If you do not borrow operating capital you should still calculate an interest charge as an opportunity cost. Use an interest rate that you could earn in another investment. In other words, your money will be tied up in the production of crops for the period from expenditure until the crop is sold and will not be earning interest in another investment.

#### Annual Cost Of Additional Machinery: (line 9)

If rental of this tract of land will require purchasing or leasing additional machinery, the annual cost of this additional machinery is calculated here. For leased machinery the total lease payment should be used. If additional machinery is purchased an annual charge must be determined. This charge should represent the annual cost of owning this machinery. These costs include interest on the average investment, depreciation, insurance, taxes and storage. The cost of any custom work would also apply here, if

it has not been included in cash costs of production.

#### **Desired Contribution To Family Living: (line 10)**

This charge provides for a minimum family living draw for farming the land in question. The family living budget, size of the farming operation and other sources of income all have an effect on the amount that must be derived from each acre of additional rental land. Determine an amount for each acre's contribution and multiply this value by the number of acres on line 1.

#### Total Costs Other Than Rent: (line 11)

Subtract total costs other than rent (line 6) from gross returns (line 4).

#### Maximum Cash Rent/Bid/Acre: (line 13)

Divide maximum total rent bid by the total acres of cropland to be rented. This represents the maximum per acre you could pay for this land and still pay all of the costs outlined above.

#### MARGINAL AND/OR WHOLE FARM ANALYSIS

This land rent worksheet is a marginal analysis tool. It is designed to analyze the maximum rent a current operator can afford to pay for an additional tract of land. It is also applicable for analyzing bids on rented land that is currently part of an existing operation if the rented land constitutes a minor portion of the whole operation. In such a case, dropping the rented land likely would not mean liquidating any part of the existing machinery line.

With minor changes, this worksheet can also be used to calculate a maximum bid for rental land that currently makes up a major part of an existing operation. It can also be used by a beginning farmer to determine a maximum bid.

To calculate for the major part of a farm operation or a beginning farmer, insert an annual machinery ownership charge for the current total machinery complement rather than additional machinery acquisition. The same would be true for hired labor. Rather than looking at additional hired labor, use the cost of the current hired labor. Divide the total rented acres by the total acres farmed. This percentage should then be applied to the value of the total machinery complement and hired labor cost to calculate the cost per acre for the rented land. For a beginning farmer, all machinery and labor needs would represent additional acquisition.

The ownership cost for machinery should reflect interest on the average investment, annual depreciation, insurance, taxes and storage. Annual depreciation may not be the same as the figure used for tax filing. Farmers are encouraged to adjust depreciation to reflect actual years of life rather than the tax life.

## **RENTLAND WORKSHEET**

(Determining A Maximum Cash Rental Bid)

| 1.  | Enter total acres of cropland to be rented:  |         |
|-----|--|---------|
| 2.  | Return from sale of crop: (acres × yield × price) Crop   |         |
|     | (xx) = \$  |         |
|     | Crop = \$  |         |
|     | Crop = \$  |         |
|     | ( x x) = \$  | \$ (2a) |
| 3.  | Return from government payments:   |         |
|     | Deficiency (pl acre x ASCS yld x rate/bu)  |         |
|     | Wheat (xx) = \$<br>Barley (xx) = \$  |         |
|     | Oats (xx) = \$<br>Corn (xx) = \$   |         |
|     | Diversion (div acr x ASCS yld x rate/bu)   |         |
|     | Barley (xx) = \$<br>Oats (xx) = \$   |         |
|     | Corn (xx) = \$   |         |
|     | Total government payments:   | \$ (3a) |
| 4.  | Gross returns: (2a + 3a)   | \$      |
| 5.  | Cash costs: (acres x cost/ac.)   |         |
|     | Summerfallow       (x) = \$         Crop       (x) = \$  |         |
|     | Crop       (x) = \$         Crop       (x) = \$  |         |
|     | Crop   |         |
| 6.  | Hired labor (additional hired labor needed) \$   |         |
| 7.  | Total cash costs before interest (5 + 6)   | \$      |
| 8.  | Interest on operating capital:<br>(Cash costs x % interest x 1/2)  | \$      |
| 9.  | Annual cost of additional machinery (suggestion: 18 percent of purchase price)   | \$      |
| 10. | Desired contribution to family living (\$ per acre x acres)  | \$      |
| 11. | Total costs other than rent $(7 + 8 + 9 + 10)$   | ¢       |
| 12. |  | Ψ       |
|     | Maximum total rent bid (Gross returns minus total costs other than rent)   | ¢       |
| 13. | Maximum total rent bid (Gross returns minus total costs other than rent)  Maximum cash rent bid/acre (line 12 divided by line 1) | \$      |

## **RENTLAND WORKSHEET EXAMPLE**

(Determining A Maximum Cash Rental Bid)

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|-----|--|-------------------|----------|
| 1.  | Enter total acres of cropland to be rented:  |                   |          |
| 2.  | Return from sale of crop: (acres × yield × price)  Crop Wheat ( $58 \times 32 \times 2.50$ ) = \$ 4,640  Crop Barley ( $26 \times 50 \times 1.35$ ) = \$ 1,755  Crop Sunflowers ( $50 \times 1.200 \times .07$ ) = \$ 4,200  Crop ( x x) = \$ Total crop sales:                          | \$_ <u>10,595</u> | (2a)     |
| 3.  | Return from government payments:   |                   |          |
|     | Deficiency (pl acre x ASCS yld x rate/bu)         Wheat       (58 x 29 x 1.89 ) = \$ 3,179         Barley       (26 x 48 x 1.12 ) = \$ 1,398         Oats       ( x x x x ) = \$         Corn       ( x x x x ) = \$   |                   |          |
|     | Diversion (div acr x ASCS yld x rate/bu)         Barley       ( 6 x 48 x 1.60 ) = \$ 461          Oats       ( x x x x ) = \$          Corn       ( x x x x ) = \$   |                   |          |
|     | Total government payments:   | \$5,038_          | (3a)     |
| 4.  | Gross returns: (2a + 3a)   |                   | \$15,633 |
| 5.  | Cash costs:       (acres x cost/ac.)         Summerfallow $(26 \times 11.00) = $286$ Crop_Wheat $(58 \times 45.00) = $2,610$ Crop_Barley $(26 \times 44.00) = $1,144$ Crop_Sunflowers $(50 \times 50.00) = $2,500$ Crop_ $(26 \times 20.00) = $2,500$ Crop_ $(50 \times 50.00) = $2,500$ |                   |          |
| 6.  | Hired labor (additional hired labor needed) \$   |                   |          |
| 7.  | Total cash costs before interest (5 + 6)   | \$6,540           |          |
| 8.  | Interest on operating capital:<br>(Cash costs x % interest x 1/2)  | \$ 360            |          |
| 9.  | Annual cost of additional machinery (suggestion: 18 percent of purchase price)   | \$                |          |
| 10. | Desired contribution to family living (\$20 per acre x160 acres)   | \$3,200           | _        |
| 11. | Total costs other than rent $(7 + 8 + 9 + 10)$   |                   | \$10,100 |
| 12. | Maximum total rent bid (Gross returns minus total costs other than rent)   |                   | \$5,533  |

13. Maximum cash rent bid/acre (line 12 divided by line 1)

34.58

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## Helping You Put Knowledge To Work