Computing a Cropland Cash Rental Rate

Cash rent lease agreements are popular because the lease is simple, the rent is fixed, and the landowner is relieved of making operating and marketing decisions. Likewise, the tenant has maximum freedom to plan and develop the cropping and livestock programs. The risk and returns from changing prices, yields, and costs are all borne by the tenant.

Types of Cash Rent

A farm may be rented for a fixed amount per acre for all acres in the farm (e.g., 160 acres in a quarter section) regardless of the number of acres of cropland, pasture, buildings, or waste. This is referred to as a whole farm rental rate. Or, the farm may be rented for a fixed amount per cropland acre (i.e., 145 acres cropland in a 160-acre farm) with a different rental rate for any pasture or buildings.

Normally, whole farm rental rates are lower than cropland rental rates because the land that is not cropped is often of lower productivity or not used. Exceptions are building sites and grain storage facilities.

Several methods for computing cropland rental rates are outlined below. A separate rental rate should be used for pasture, storage, and livestock facilities. All of the rental items can be included in the same lease agreement.

Approaches for Determining Rental Rate

Determining a fair rate is not easy. Cash rents are likely to be too low during periods of rising prices and high yields and too high during periods of declining prices and low yields. Rates often reflect conditions over the past few years more than over the upcoming year.

Estimating a cash rental rate for cropland can be based on:

- What others are charging or paying
- Average yields
- Corn suitability rating (CSR2 index)
- Share of gross crop value or revenue
- Return on investment
- Crop share equivalent
- Tenant's residual

What Others are Charging or Paying

One method of establishing a cash rent is to set a rate similar to what other people in the area are charging. Iowa State University Extension and Outreach publication FM 1851/AgDM C2-10: Cash Rental Rates for Iowa Survey, store.extension.iastate.edu/Product/1841.pdf, shows typical rental rates reported for high-, medium-, and low-quality cropland in each county in Iowa, as well as land in oat, hay, and pasture at the crop reporting district level.

This method assumes that what others are charging is fair and equitable. A landowner receiving less rent per acre than the neighbor feels that they are not receiving what is rightfully due. However, a landowner receiving more than a neighbor may feel that they are being unfair to the tenant.There are four potential pitfalls with this approach:

- Charging what others are charging may not be appropriate for a particular farm. Remember that most other tenants and landowners are in the same position you are. They are looking for someone to tell them what rental rate is fair and equitable. If you use this method, compare your rate to many other rates instead of just one.
- Rumors about cash rental rates may be quite different than the typical rates, especially in a rapidly changing market.
- Differences in the quality of land should be taken into account when comparing your rental rate to others. Landowners who are unfamiliar with farming often assume all land is of equal productivity. So, when using this method, be sure to compare your rate to rates for land of comparable quality, based on actual yields or productivity indices.
- Variations in conservation practices and land stewardship should be considered when negotiating cash rents. See CLG 105: Whole Farm Conservation Best Practices Manual, store.extension.iastate.edu/product/15823 and FM 1814/AgDM C2-08: Lease Supplement for Obtaining Conservation Practices to Control Soil Loss, store.extension.iastate.edu/Product/1820.

Average Yields

A cash rental rate can be based on a farm's average yields (e.g., five-year or 10-year average). For example, assume the average rental rates in your county are $1.30 per bushel of corn and $4.50 per bushel of soybeans, based on the latest survey information. If your farm has an average corn yield of 190 bushels per acre, this results in a rental rate of $247 ($1.30 × 190 bushels = $247) per acre. An average soybean yield of 54 bushels per acre results in a rental rate of $243 ($4.50 × 54 bushels = $243) per acre.

ISU Extension and Outreach publication FM 1851/AgDM C2-10: Cash Rental Rates for Iowa Survey, store.

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extension.iastate.edu/Product/1841.pdf, shows rental rates per bushel of corn and soybeans by county. Remember, use a long-term average yield (both good and bad years) and don't just select the good years.

Corn Suitability Rating 2

The Corn Suitability Rating System (both CSR and CSR2) are farmland productivity indexes developed for property tax assessment purposes. Values range from 5-100, with higher numbers indicating higher land productivity. Each soil type in Iowa has a CSR2 value. The Iowa State University Soil and Land Use website, go.iastate.edu/XOVLFL, explains CSR2 in greater detail. By identifying the soil types and acres of each soil type in a tract of land, the weighted average CSR2 can be calculated for the tract. AgDM File C2-87: Computing the Corn Suitability Rating for Your Farm, www.extension.iastate.edu/agdm/wholefarm/html/c2-87.html, shows how to use the Web Soil Survey website, https://websoilsurvey.sc.egov.usda.gov, from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) to find your farm's CSR2 value. Include only the land suitable for row crop production in the "area of interest"to find the CSR2 for row crop land.

A cropland cash rental rate can be computed by multiplying the average CSR2 by a rental rate per CSR2 point. For example, assume a typical rental rate per CSR2 index point of $3.20 for your county. A tract of land with a CSR2 of 80 would have a rental rate of $256 ($3.20 × 80 CSR2 = $256) per acre. ISU Extension and Outreach publication FM 1851/AgDM C2-10: **Cash Rental Rates for Iowa**, shows typical rental rates per CSR2 index point by county.

Share of Gross Crop Value or Revenue

Cash rental rates tend to follow the gross revenue generated from the crop being produced. Table 1 shows average cash rents in Iowa as a percent of the gross crop value for the past 10 years. Gross crop value is the USDA National Agricultural Statistics Service (NASS) state average yield times the state average price from October through December. Gross crop revenue is also shown, which includes gross crop value plus USDA commodity program payments and crop insurance indemnity payments.

These percentages and expected yields and prices for the coming year can be used to estimate a fair cash rental rate. Expected crop insurance payments are zero when average yields and prices are assumed, so there is no need to try to estimate crop insurance payments that would be received the following fall when setting cash rents in advance. However, if the crop revenue method is going to be used, then the producer premium paid to purchase crop insurance should be subtracted from the crop value, to only account for net indemnities (indemnity payments-producer premiums).

Return on Investment

Another method is to multiply the estimated current market value for cropland by an expected rate of return. Surveys show that cash rents for good cropland in Iowa in recent years have averaged about 3-4% of current land values.

Land value	$7,000	$9,000
Rate of return	3-4%	3-4%
Rental rate	$210-$280	$270-$360

Estimates of current land market values are available in ISU Extension and Outreach publications AgDM C2-70: Farmland Value Survey–Iowa State University, www.extension.iastate.edu/agdm/wholefarm/pdf/c2-70.pdf, CARD Iowa Land Value Survey, www.card.iastate.edu/farmland/, and AgDM C2-75: Farmland Value Survey–Realtor's Land Institute, www.extension.iastate.edu/agdm/wholefarm/pdf/c2-75.pdf. This method is rather imprecise, especially during periods of rapidly changing land values.

Table 1. Average Iowa cash rent as a percent of gross crop value and gross crop revenue ($/acre)

	Average Cash Rent[1/]	Average Gross Crop Value[2/]		Cash Rent as % of Gross Crop Value		Average Gross Crop Revenue[3/]		Cash Rent as % of Gross Crop Revenue	
Year	Iowa	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
2013	$270	$731	$579	37%	47%	$915	$630	29%	43%
2014	$260	$655	$513	40%	51%	$761	$552	34%	47%
2015	$246	$682	$484	36%	51%	$761	$520	32%	47%
2016	$230	$662	$563	35%	41%	$716	$592	32%	39%
2017	$219	$644	$524	34%	42%	$685	$546	32%	40%
2018	$222	$674	$478	33%	46%	$707	$600	31%	37%
2019	$219	$735	$471	30%	46%	$818	$543	27%	40%
2020	$222	$678	$554	33%	40%	$827	$636	27%	35%
2021	$232	$1,073	$769	22%	30%	$1,128	$811	21%	29%
2022	$256	$1,314	$821	19%	31%	$1,365	$855	19%	30%
Average 2013-2022	$238	$785	$576	32%	43%	$868	$629	28%	39%

[1/] Cash Rental Rates for Iowa Survey, state average, AgDM File C2-10.
[2/] USDA NASS Iowa average yield × Iowa average cash price in Oct.-Dec.
[3/] USDA NASS Iowa average yield × Iowa average cash price in Oct.-Dec., plus USDA payments and net crop insurance indemnity payments.

Crop Share Equivalent

Another way of calculating cash rental rates is by comparing the rental rate to the return that would be received from a 50-50 crop-share lease. With a crop share lease, the owner's return is automatically adjusted by changes in yield, selling price, and input amounts and prices. However, to compute a cash rental rate using this method, estimates of yields, selling prices, and input costs must be made for the coming year, which is sometimes difficult to do.

An example using this method is presented in Table 2. Use five-year or 10-year average yields and current prices for harvest delivery. Then subtract the landowner's half of seed, fertilizer, pesticides, and other shared expenses.

Table 2. Crop share equivalent

Income	**Corn**	**Soybeans**
Yield (½)	96 bu.	28 bu.
Price	$4.50	$11.50
Total income allocated to owner	$432	$322
Expenses		
Seed (½)	$50	$28
Fertilizer (½)	65	34
Pesticides (½)	30	27
Crop insurance (½)	8	6
Drying and storage (½)	25	0
Miscellaneous (½)	6	5
Interest (½)	7	5
Total expenses allocated to owner	$191	$105
Net return to owner	**$241**	**$217**

In the example, the landowner will receive a net return of $241 and $217 from corn and soybeans, respectively. With a corn/soybean rotation, the average return will be (241 + 217) / 2 = $229 per acre.

Tenant's Residual

Another approach is to calculate how much income the tenant has available for rent payments after subtracting all the tenant's costs associated with producing the crop.

As in Table 2, you first need to estimate yields, selling prices, and other crop income received. Then subtract the operating expenses. Next, subtract the tenant's cost of machinery and equipment ownership. This includes depreciation, a return on investment, insurance, and machinery housing. Some people contend that these costs (fixed costs) are incurred by the tenant whether the land is rented or not and need not be subtracted when determining a rental rate. But in the long run, these costs are incurred on all acres farmed and must be paid.

Finally, a charge for the tenant's labor and management is subtracted. The remaining amount is available for the payment of cash rent.

Table 3. Tenant's residual

Income	**Corn**	**Soybeans**
Yield	192 bu.	56 bu.
Price	$4.50	$11.50
Total income	**$864**	**$644**
Operating costs		
Seed	$100	$56
Fertilizer	130	68
Pesticides	60	54
Crop insurance	16	12
Drying and storage	50	0
Miscellaneous	12	10
Fuel and repairs	50	30
Interest	14	10
Total operating costs	$432	$240
Machinery ownership	$85	$60
Labor	45	35
Management (estimate at 5% of other costs)	28	17
Total costs	**$590**	**$352**
Residual to tenant	**$274**	**$292**

Using the example values in Table 3, $274 is available for rent payment from corn and $292 from soybean production. With a corn/soybean rotation, the average amount available for rent payment is $283 per acre.

Additional Considerations

Keep in mind, no allowance has been made for risk due to variations in crop prices and yields. With a cash rent lease, the tenant assumes all of the risk. So the tenant should be compensated for assuming this risk. Do this by either using conservative price and yield estimates or adjusting the rental rate downward.

Crop insurance and government payments typically are received 3-13 months after final rent payments are due. To avoid the additional transaction costs of managing rental payments a year after the end of the season, these "other sources of revenue" often are not included. Note that percentages associated with "Cash Rent as % of Gross Crop Value" are typically higher at 19-40% for corn and 30-51% for soybeans in recent years.

To compute a rental rate for your situation, use the worksheet on the following page or enter your figures into Decision Tool C2-20: Cropland Cash Rental Rate Estimator, www.extension.iastate.edu/agdm/wholefarm/xls/c2-20croplandcashrent.xlsx.

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Cropland Cash Rent Worksheet

Gross Revenue	**Corn–per acre**	**Soybeans–per acre**
Expected yield, bushels per acre	_____	_____
Expected selling price, $ per bushel	_____	_____
Value from sales (bushels × price)	_____	_____
Other crop income received	_____	_____
Total gross revenue	_____	_____

Production Costs (Production costs are needed for tenant's residual and crop share equivalent. See FM 1712/AgDM File A1-20 for estimated costs.)	**Corn–per acre**	**Soybeans–per acre**
Seed	_____	_____
Fertilizer	_____	_____
Lime	_____	_____
Pesticides	_____	_____
Crop insurance	_____	_____
Interest, miscellaneous	_____	_____
Custom hire	_____	_____
Fuel, repairs	_____	_____
Machinery ownership	_____	_____
Drying	_____	_____
Storage	_____	_____
Hauling	_____	_____
Labor	_____	_____
Management (5% of other costs)	_____	_____
Total of all nonland costs	_____	_____

A. Average Expected Yield

Corn: Expected yield _____ bu./acre × $ _____ per bu. for rent = $ _____/acre

Soybeans: Expected yield _____ bu./acre × $ _____ per bu. for rent = $ _____/acre

B. Corn Suitability Rating 2 Index

CSR2 index: Average CSR2 _____ × $ _____ per point for rent = $ _____ /acre

C. Share of Gross Value or Revenue

Corn: Gross value or revenue _____ × share _____% (19-40%) = $_____/acre

Soybeans: Gross value or revenue _____ × share _____% (30-51%) = $_____/acre

D. Return on Investment (Percent of Land Value)

Current market value of land $ _____ /acre × _____ % return expected = $ _____/acre

E. Crop Share Equivalent

Corn: Owner's share of income _____ minus owner's share of costs _____ = $ _____/acre

Soybeans: Owner's share of income _____ minus owner's share of costs _____ = $ _____/acre

F. Tenant's Residual

Corn: Gross revenue _____ minus nonland costs _____ = $ _____ /acre

Soybeans: Gross revenue _____ minus nonland costs _____ = $ _____ /acre

For more on farmland leasing, visit the ISU Extension and Outreach **Ag Decision Maker Leasing page**, www.extension.iastate.edu/agdm/wdleasing.html.