

Wisconsin Cash Rents For Cropland – 2008

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For the first time, the National Agricultural Statistics Service (NASS) reported cash rent data by county for Wisconsin in 2008. Previously only a state-wide average cash rent was reported.

County level cash rent data permit assessment of how rents vary across the state. Moreover the relationship between cash rents and corn yields can be estimated to explore the basis for differences in cash rents across counties.

This paper reports the results of an analysis of Wisconsin cash rents using county-level cash rent and corn yield data contained in the NASS interactive data base. The results of this analysis show a positive relationship exists between average corn yields and cash rents. Cash rents are generally higher in the southern region of Wisconsin where the highest corn yields acre are the greatest.

CORN YIELD AND CASH RENT STATISTICS

Yield and cash rent statistics across consolidated Wisconsin crop reporting districts, as defined by NASS, are presented in Table 1. The combined northern region is comprised of the counties in the Northwest, North-Central, and the Northeast crop reporting districts; the central region includes counties in the West Central, Central, and East Central crop reporting districts; and the counties in the Southwest, South Central, and Southeast crop reporting districts make up the southern region.

The yield statistics shown in the table are the five year averages of the NASS corn yields for the counties included in the respective regions over the 2003-2007 period. These yield data are assumed to reflect differences in the productivity of cropland across regions of Wisconsin. The yield statistics are also an indication of the adverse impacts frosts in late spring or early fall can have on corn yields.

The corn yield data clearly show that yields vary by region. Average corn yields were around 107 bushels in northern counties, 130 bushels in the central region counties, and 150 bushels in southern counties. Lower average yields for the northern and central region counties are expected since growing conditions there are generally less favorable than they are in the south.

The cash rents reported in Table 1 are positively related to average corn yields. The cash rents are highest in the southern counties, ranging from \$71 to \$162 per acre, where corn yields are

highest in Wisconsin. The next highest cash rents are in the central counties and cash rents are lowest in the northern counties of Wisconsin where corn yields are lowest.

RELATIONSHIPS BETWEEN CASH RENTS AND AVERAGE CORN YIELDS

The two curves presented in Figure 1 show how cash rents change in response to changes in corn yields depending on whether the cropland is located in the northern and central regions, or in the south. These curves correspond to the two equations, also presented in the figure, that were estimated by regressing cash rents on average corn yields and dummy variables reflecting regions. The northern and central region counties were combined into a single region because no statistically significant differences were found to exist for the estimated coefficients for these two regions. The model obtained from this regression analysis explained over 85 percent of the observed variation in cash rents ($R^2 = .8518$) and the coefficients of the model were all statistically significant at a 95 percent level of confidence.

The curves in Figure 1 illustrate how rents change as corn yields move from the reported minimums to the reported maximums for the two districts. The cash rent curve for the north / central region is for the minimum reported corn yield of 81.20 bushels to the maximum reported yield of 145.2 bushels. Similarly the south region rent curve is for yields from 132.80 bushels to 171.20 bushels.

As shown in Figure 1, southern region cash rents are much more responsive to changes in corn yields than rents in the central and northern NASS crop reporting districts. In the south, a 10 bushel increase in yield results in cash rents rising \$21.40. In contrast the same 10 bushel increase in corn yield only raises cash rents \$9.37 in the north /central region. This lower rent response rate for the central and northern counties suggests that farmers in this area of Wisconsin are not subjected to as much rent variability as farmers in the southern region of the state.

CONCLUSIONS

Information presented here clearly shows that higher cash rents are paid/collected on the Wisconsin cropland that is most productive in terms of average corn yield. It is also shown here that less favorable growing conditions in the northern counties are reflected in the lower cash rents for this district.

What is most interesting is that in the southern region of Wisconsin, the change in cash rents from changes in corn yields is roughly two times higher than what it is in the central and northern counties of the state. It is unclear why this is occurring. Further research could be done to determine what is causing this difference in cash rental markets across regions of Wisconsin.

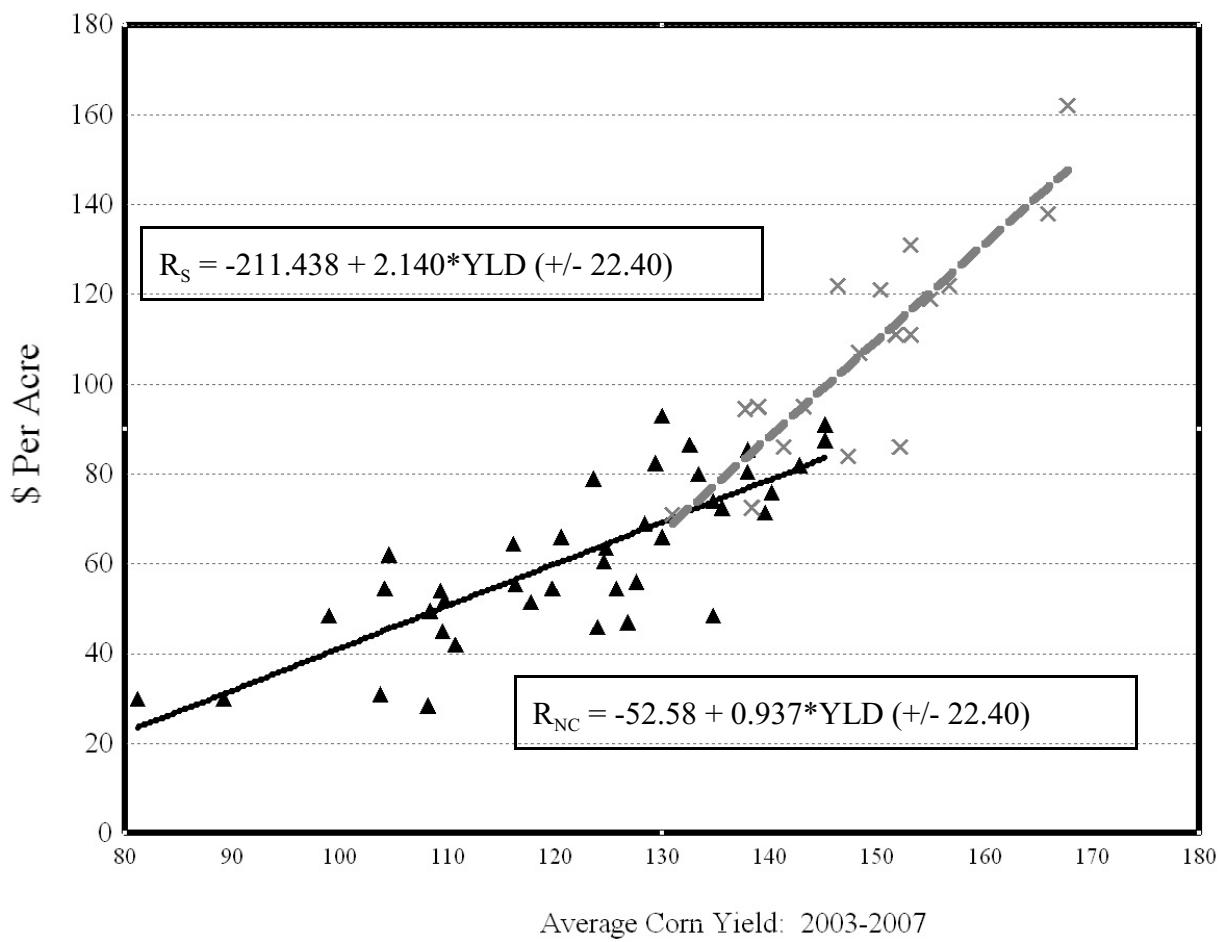
Table 1: Corn Yield And Cash Rent Statistics For Wisconsin

District	County Level Average Corn Yield (For 2003-2007 Period):			County Level Cash Rent (For 2008):		
	Minimum	Maximum	Average	Minimum	Maximum	Average
Southern	131.0	167.8	148.9	71.00	162.00	107.11
Central	104.2	145.2	129.5	46.00	93.00	70.09
Northern	81.2	125.8	106.8	28.50	62.00	44.54

Figure 1

Cash Rent As Function Of Corn Yield

By Region



North & Central-- Actual



North & Central - Estimated



South -- Actual



South -- Estimated