United States General Accounting Office

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Briefing Report to Congressional Requesters

February 1989

FARM PAYMENTS

Evaluation of Changes in County Loan Rates

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United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-231264

February 15, 1989

The Honorable Kent Conrad
The Honorable Thomas A. Daschle
United States Senate

As you requested, we examined aspects of the U.S. Department of Agriculture's (USDA) county commodity loan program. Under this program, farmers in 1987 obtained $8.6 billion in wheat and corn loans using their commodities as collateral. Their loan rate--the dollar amount received per bushel--is determined by USDA's Agricultural Stabilization and Conservation Service (ASCS) on a county-by-county basis. To do this, ASCS adjusts the national loan rate to reflect differences in commodity prices in approximately 3,000 counties. County loan rates, in effect, establish a minimum guaranteed crop price for producers by allowing them to repay their loans by forfeiting commodities.

In 1987 USDA revised its procedures for calculating individual county loan rates for the first time since 1972. Consequently, you asked us to determine why the changes were made and whether they resulted in reasonable and justified loan rates. This report summarizes our briefing to your staff on these matters.

RESULTS IN BRIEF

The major change between the two methods of calculating loan rates concerns the county commodity price relationships used to adjust the national loan rate for differences in county prices. USDA revised its method for calculating county loan rates to update these commodity price relationships among counties and make the price relationships used in the loan program consistent with those used for commodity certificates--a form of payment USDA uses in other farm support programs.

We believe that USDA's rationale for changing the loan rate calculation method was reasonable--particularly in view of changes in county commodity prices that have occurred since 1972. However, we observed that the price relationships used to calculate county loan rates may not always reflect current market prices. Consequently, some county loan

rates may not closely reflect the current differences in county commodity prices. As agreed, we did not evaluate what actions, if any, USDA should take to revise these price relationships.

REASONS FOR CHANGING LOAN RATE CALCULATION PROCEDURES

ASCS revised its procedures for calculating loan rates to (1) update commodity price relationships among counties and (2) make the price relationships used in the loan program consistent with those used for its commodity certificates. These price relationships are important because they determine the specific loan rate a county is entitled to receive. In essence, the higher a county's commodity price, the higher its loan rate relative to other counties. ASCS relies on estimates of county prices to establish county price relationships because it does not routinely collect commodity price data for every county.

The prior calculation method used county price relationships that had not been updated since 1972. These relationships were largely based upon railroad freight rates between a county and its major selling market--generally known as a terminal market. Generally, the higher a county's transportation cost to its terminal market, the lower the county's price for its commodity. As a result of rail deregulation in the 1970s, transportation costs changed, but published freight rates were no longer available because they began to be negotiated between the shipper and the transporter. The previous loan rate calculation method, however, continued to rely upon price relationships that were based upon the freight rates prior to deregulation.

In addition to updating county commodity price relationships, ASCS changed the price relationships to be consistent with those used for its commodity certificates. More specifically, it adopted for the loan program the price system it used for valuing commodity certificates. This system, developed in 1986, estimates daily commodity prices for each county. These estimates, known as the Posted County Price (PCP), are the prices at which commodity certificates can be redeemed. (See section 1.) According to ASCS, inconsistency in price relationships between the loan program and commodity certificates resulted, under certain circumstances, in inequitable benefits among producers. (See section 2.)

NEW CALCULATION METHOD NOT SOLELY RESPONSIBLE FOR LOAN RATE CHANGES

Changes in county loan rates between 1986 and 1987 are not entirely attributable to the new procedure for calculating loan rates. On average, the county loan rates for wheat and corn in 1987 were less than in 1986 in all four states we examined. However, at least 50 percent of the change in these loan rates would have occurred even if ASCS had not revised its method for calculating loan rates. This is due to the decline in the national average loan rate as well as other changes. (See section 3.)

NEW LOAN RATES MAY NOT ALWAYS REFLECT MARKET PRICES

Although ASCS updated county commodity price relationships in 1987, using 1985 and early 1986 data, many of the revised price estimates we reviewed may not reflect, among other things, changes in county market prices that have taken place since then. As a result, some 1987 county loan rates may not closely reflect differences in county prices.

We examined the accuracy of the price relationships, known as warehouse price differentials, used to calculate loan rates in selected counties in four states. These differentials represent the difference in the commodity's price at the county warehouse and its price at the terminal market. We found that many differentials changed since the time they were originally established. We examined 351 warehouse differentials for wheat and found that 27 percent varied from the differentials used by ASCS by at least 10 cents a bushel (ASCS' criteria for initiating reviews of warehouse differentials in response to producer complaints). A larger number of corn differentials varied from those used by ASCS--50 percent of the 138 differentials we evaluated differed by 10 cents or more a bushel from ASCS'. (See section 4.)

We were unable to obtain price data for all warehouses within the counties we reviewed. Therefore, we could not fully evaluate the impact that potentially inaccurate warehouse differentials had on 1987 county loan rates because the loan rates are based on the average of all warehouse differentials in the county. However, under certain assumptions, impacts on loan rates could be significant. (See section 5.)

AGENCY COMMENTS

ASCS attributes the differences in the price differentials primarily to market changes that took place since the differentials were originally established. In written comments on this report (see app. II), ASCS noted that the Commodity Credit Corporation makes a concerted effort to see that the pricing system is as current and accurate as it can be. ASCS officials told us that since the pricing system was established, thousands of differentials have been reviewed because of complaints and other reasons. These reviews resulted in hundreds of changes. However, ASCS currently does not plan to systematically update all established price differentials. It believes that the present updating method makes the differentials as accurate as is necessary. Also, ASCS believes it would not be feasible to systematically update the differentials because of the cost involved in surveying over 7,000 warehouses and because the data they would receive might not be reliable. However, ASCS has recently requested its state directors to review all their county average PCPs that were used to set the 1988 county loan rates.

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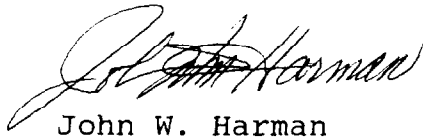
To obtain the requested information, we met with ASCS officials responsible for developing and administering the county loan program. In addition, we selectively tested the county commodity price relationships used in the new methodology by obtaining data on reported commodity prices. Appendix I contains further details on our methodology. As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 2 days after the date of this letter. At that time we will send copies of this report to the Acting Secretary of Agriculture; the Administrator, ASCS; the Director, Office of Management and Budget; and other interested parties. If you have further questions regarding this information, please contact me at (202) 275-5138. Major contributors to this briefing report are listed in appendix III.



John W. Harman
Director
Food & Agriculture Issues

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ABBREVIATIONS

AMS	Agricultural Marketing Service
ASCS	Agricultural Stabilization and Conservation Service
GAO	U.S. General Accounting Office
KCCO	Kansas City Commodity Office
RCED	Resources, Community, and Economic Development Division
PCP	Posted County Price
PIK	payment-in-kind
USDA	U.S. Department of Agriculture

SECTION 1

INTRODUCTION

SUMMARY

-- Our objectives were to determine why USDA changed its method for computing county commodity loan rates for 1987 and whether the change resulted in reasonable loan rates. We reviewed loan rates for wheat and corn for selected counties in North Dakota, South Dakota, Nebraska, and Kansas.

-- Under the U. S. Department of Agriculture's (USDA) commodity loan program, producers can obtain loans using their commodities as collateral. The loans are important because, among other things, they provide a minimum guaranteed crop price for the producer.

-- USDA establishes individual county loan rates for each commodity by adjusting a national loan rate to reflect differences in commodity prices among counties. Thus, the higher a county's commodity price, the higher its loan rate.

-- Producers can repay their loans with cash or commodity certificates that are issued by USDA. Repaying the loans with certificates rather than cash can sometimes result in additional financial benefits to the producer.

COMMODITY LOANS

Producers can obtain loans on their wheat, corn, and certain other farm commodities. In exchange for commodities producers place under loan, the Agricultural Stabilization and Conservation Service (ASCS) pays producers an amount equal to the loan rate per bushel (normally expressed in terms of a dollar amount per bushel). The loan period is 9 months for most crops. While a commodity is under loan, the producer is responsible for storing it. The producer may repay the loan at any time (with interest) or forfeit the commodity as full payment. Because a producer can forfeit the commodity as full payment of the loan, the loan program effectively establishes the minimum price for a commodity. That is, eligible producers can always receive the loan price no matter how low the market price falls. Forfeited crops become part of the government's inventory. According to ASCS, commodity loans are intended to provide producers with funds to operate their farms. Commodity loans are not intended to be used as the primary means for producers to sell their crops. Commodity loans for corn and wheat, the crops we examined during this review, totaled $7.5 and $1.1 billion, respectively, for crop-year 1987.

The Secretary of Agriculture sets the national average loan rate for wheat and corn in accordance with procedures mandated by law. Once the national average loan rate is set, the Secretary adjusts it further for each county to reflect the difference in commodity prices among counties. Commodity prices vary among counties mainly because of differences in transportation costs to the terminal markets and unique market characteristics in a county. Unique market characteristics can include, among other things, the number of warehouses located in a county. More specifically, a large number of warehouses could result in increased commodity prices because of the competition generated by the warehouses for the commodity. The higher a county's commodity price, the higher its loan rate.

The Food Security Act of 1985 (P.L. 99-198) established the national average loan rate and also allowed the wheat and corn loan rates to be reduced annually until 1990. The act generally limits the reduction each year to 5 percent of the previous year's loan rate. However, the Secretary can further reduce the national loan rate by as much as 20 percent to maintain competitiveness in domestic and export markets. The decline in the wheat and corn national average county loan rates between 1985 and 1987 is shown in table 1.1.

Table 1.1: Average County Loan Rates

Year	Wheat	Corn
1985	$3.30	$2.55
1986[a]	$2.40	$1.92
1987	$2.28	$1.82

[a]The loan rates for wheat and corn were reduced to $2.30 and $1.84 per bushel, respectively, to meet the requirements of the Balanced Budget and Emergency Deficit Control Act of 1985, also known as Gramm-Rudman-Hollings.

NEGOTIABLE COMMODITY CERTIFICATES

Commodity certificates can be used to pay off county loans for a commodity. The Food Security Act of 1985 authorizes the Secretary of Agriculture to issue negotiable commodity certificates to eligible producers instead of a portion of the cash payments due them for their participation in government price- and income-support programs for wheat, feed grains, rice, and cotton. Between April 1986, when ASCS began issuing commodity certificates, and July 31, 1988, ASCS issued about $22.6 billion in commodity certificates.

The certificates can be (1) sold back to ASCS for cash at their face value, (2) sold to other interested parties, such as producers and grain companies, (3) exchanged for commodities in the government's inventory,[1] or (4) exchanged for commodities pledged as collateral for loans. When exchanged for commodities under loan or in inventory, the amount of commodities (e.g., bushels or pounds) that may be obtained for a given amount of certificates is based on the commodities' certificate redemption rate, rather than the loan rate.

The relationship between the loan rate and the commodity certificate redemption rate can result in a profit for producers under certain conditions. That is, when commodity loan rates exceed the commodity certificate redemption rate, producers can benefit from certificates by putting their commodities under loan and then immediately regaining the commodity by exchanging

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[1]The use of commodity certificates to obtain government inventory is similar to USDA's 1983 Payment-in-Kind (PIK) program. Under the PIK program, USDA paid producers with commodities instead of cash to compensate them for taking land out of production. Because of this similarity, commodity certificates are commonly referred to as "PIK Certificates."

certificates for it at the lower certificate redemption rate. (See section 2.)

OBJECTIVES, SCOPE, AND METHODOLOGY

As a result of producer interest in ASCS' revised methodology, Senators Kent Conrad and Thomas A. Daschle, on August 26, 1987, asked us to examine why the changes were made and whether the changes resulted in reasonable loan rates.

To determine what changes were made in calculating county loan rates and why the changes were made, we obtained documents and interviewed officials at ASCS headquarters in Washington, D.C., who were responsible for designing, calculating, and administering the 1987 county loan rates.

To determine whether the new method resulted in accurate county loan rates, we interviewed representatives at ASCS' headquarters in Washington, D.C., and at its Kansas City Commodity Office (KCCO). The KCCO developed the estimates of county commodity prices that ASCS headquarters used in calculating the 1987 loan rates. Use of these revised price estimates was the principal change in computing the 1987 loan rates. We tested the commodity price estimates for which data were readily available. To do so, we analyzed reported market prices for wheat and corn on 126 warehouses located in 91 counties in 4 states. We selected 53 counties in the senators' states of North and South Dakota, and added 38 counties in Kansas and Nebraska because market data were readily available. We limited our analysis to wheat and corn because they were the major crops in the four states. We obtained reported market prices from newspapers and USDA's Agricultural Marketing Service (AMS) for the 1-year period ending April 30, 1987. We compared the results of our analyses of reported prices with ASCS estimates. We then illustrated the impact that inaccurate pricing estimates could have had on the 1987 county loan rates. The methodology we used in this analysis is lengthy and technical. It is fully explained in appendix I.

We began our work in September 1987 and completed it in June 1988. Our work was done in accordance with generally accepted government auditing standards.

SECTION 2

CHANGES IN THE METHOD FOR COMPUTING 1987 COUNTY LOAN RATES AND WHY THEY WERE MADE

SUMMARY

-- In 1987 ASCS changed its method for calculating county loan rates. Specifically, it changed its basis for determining the relative county commodity prices that are used to set the loan rate.

-- The prior method used county commodity price estimates that were developed before 1972.

-- The 1987 method uses county commodity price estimates that were developed in 1986 for valuing USDA's commodity certificates.

-- ASCS changed the procedures for calculating county loan rates to (1) update county commodity price relationships and (2) make county commodity price relationships used in the loan program consistent with those used for commodity certificates.

COUNTY LOAN RATE CALCULATION METHOD PRIOR TO 1987

USDA does not maintain a data base containing current county commodity prices. As a result, it must estimate the county prices used to adjust national loan rates.

Prior to 1987, USDA relied upon county commodity price estimates that were developed before 1972. These estimates were based upon rail freight rates between counties and terminal markets. Freight rates were used to establish relative commodity prices between counties because ASCS believed that transportation costs to a terminal market represented the biggest part of the difference in commodity prices. Generally speaking, the higher the county's transportation cost to its terminal market, the lower the county price for its commodity.

From 1972 to 1986, freight rate information was not available because of the decline of rail service and deregulation of the industry. Deregulation increased competition in the transportation industry and changed transportation costs. Further, freight rates began to be negotiated between the shipper and the transporter and were no longer available to ASCS. Because freight rate information was not available, the calculation of the county loan rates during this period did not reflect any changes in relative market prices that may have occurred between counties. Instead, during these 14 years, county loan rates were set by adjusting the previous crop year's county loan rate for any change in the national average loan rate, county production, and the 5-year average of state prices received by farmers.

1987 COUNTY LOAN RATE CALCULATION METHOD

Early in 1986, ASCS developed a commodity price system to estimate daily county commodity prices for its commodity certificates. The daily commodity prices, also known as posted county prices, or PCPs, were needed to set redemption rates for commodity certificates. In 1987 ASCS began using this system to calculate the county loan rates from the national loan rate.

The PCP price system is based on predetermined differentials that estimate the difference in commodity prices between each county and specific terminal markets. This relationship allows ASCS to estimate market prices in approximately 3,000 counties while monitoring actual prices in only 19 terminal markets. For example, if Brown County's corn price differential to the Kansas City terminal market was 10 cents, ASCS would subtract 10 cents from the Kansas City terminal market corn price to estimate Brown County's corn price--the PCP.

To develop the differentials, ASCS obtained commodity prices from 21 terminal markets and over 7,000 warehouses with which it had Uniform Grain Storage Agreements.[1] ASCS obtained prices for each commodity for 5 sample days over a 1-year period ending January 31, 1986. ASCS officials told us that the 5 days used in the sample were selected judgmentally to capture principle occurrences in the production-marketing cycle.

To compute the differentials, ASCS assigned all warehouses in a county to the same terminal market; computed differences in the price between each warehouse and its assigned terminal market for each sample day; eliminated the highest and lowest differences in prices; computed a warehouse differential by averaging the remaining three differences; and computed a county differential by averaging the warehouse differentials within a county.

In December 1986, ASCS assigned each warehouse in a county to a second terminal market and established a county differential between each county and its second terminal market. On a daily basis, ASCS computes the PCP for a commodity by adding or subtracting the county differential from each of the two terminal market prices. The higher of the two resulting prices for each county is the commodity's PCP.

ASCS, however, does not periodically update its county differentials. Although ASCS representatives said that the office has reviewed thousands of differentials and changed hundreds since they were established, such reviews are made when a producer complains that a county differential is inaccurate or ASCS becomes aware of changed conditions. Also, ASCS representatives said that a review would not usually be initiated unless a county's differential varied 10 cents or more from its surrounding counties.

To adjust the 1987 national average loan rate to reflect differences in county commodity prices, ASCS used a 1-year average of each county's PCP. To ease the producer's transition to ASCS' new methodology, ASCS limited the amount of change in a county's loan rate from 1986 to 1987. The change was limited to plus or minus 5 percent of the amount that the 1987 loan rate would have been if ASCS had followed the methodology it used in 1986.

The Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203) further eased the transition to the new methodology. It limits the amount of adjustment to the county loan rates in 1988 and future years to the change in the national average plus or minus 2 percent for local market factors. Additionally, ASCS has asked state ASCS

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[1]Uniform Grain Storage Agreements are standard contracts between USDA and local warehouses that establish the terms and conditions for storage of government inventory.

directors to review the accuracy of all their county average PCPs that were used to set the 1988 county loan rates. ASCS is reviewing the state directors' comments to determine whether any changes are necessary. ASCS has not yet determined if a similar procedure will be used in future years.

REASONS FOR CHANGE

ASCS changed the method for calculating loan rates in 1987, in part to update the commodity price estimates that are used to set price relationships between counties. Changes occurred in local markets that ultimately affected commodity prices. For example, as discussed earlier, transportation costs to major terminal markets changed as a result of the deregulation in the transportation industry. Therefore, ASCS concluded that the price relationships used in setting the county loan rates should be updated.

The new calculation method was also intended to make estimates of county commodity prices, which were used to calculate county loan rates, consistent with those used in calculating the county's PCPs. According to ASCS, these inconsistencies, under certain circumstances, resulted in inequitable benefits among producers. For example, when the loan rate is above the PCP redemption rate, producers can put their commodities under loan and then use certificates to repay the loan at the PCP. The larger the difference between the loan rate and the PCP, the larger the potential benefit.[2]

In 1986, ASCS noted that the relationship between loan rates and PCPs allowed producers in some counties to receive greater benefits from using certificates than producers in other counties. This is illustrated by a hypothetical example in table 2.1.

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[2]One way to take advantage of the difference between the loan rate and PCP is known as "PIK-and-roll." PIK-and-roll allows a farmer to benefit from the loan program without incurring the storage costs associated with it. GAO has issued other reports dealing with "PIK-and-roll," including Farm Payments: Cost and Other Information on USDA's Commodity Certificates, (GAO/RCED-87-117BR, Mar. 26, 1987) and Farm Payments: Benefits and Costs of Trading in USDA Commodity Certificates, (GAO/RCED-88-142BR, June 2, 1988).

Table 2.1: Difference in Potential Benefits Between Two Counties

	County A	County B
County loan rate per bushel	$2.00	$1.60
PCP redemption rate	1.50	1.50
Potential benefit to farmer	$ .50	$ .10

In this example, the PCPs were equal in the two counties. However, a producer could use a certificate with a face value of $1.50 to redeem a bushel with a loan value of $2.00 in County A, while the producer in County B could redeem a bushel with a loan value of only $1.60. According to an ASCS representative, the benefits from using certificates in this example are different because the estimates of county commodity prices used to develop the loan rates were different than those for developing the PCP. Ideally, if both the county loan rate and the PCP in this example had been based on the same price system, the county loan rates should have been equal because the PCPs were equal.[3] Therefore, to create a similar spread between the loan rate and the PCP, ASCS began using the same price relationship factors to calculate the rates for both programs.

[3]In practice, some variance in the rates may occur on a daily basis because of the terminal markets a county is assigned to and the supply and demand factors that affect prices in these markets.

SECTION 3

SELECTED COUNTY LOAN RATES COMPARED UNDER THE NEW AND OLD METHODS

SUMMARY

-- On average, the 1987 county loan rates for wheat and corn were less than in 1986 in all four states we reviewed. The largest decrease was in South Dakota, where the average wheat rate fell 23 cents, to $2.21 per bushel. However, at least 50 percent of the change in these loan rates would have occurred even if ASCS had not revised its method for calculating loan rates. This is because of the decline in the national average loan rate as well as changes in other factors associated with the old calculation method.

-- Average 1987 wheat loan rates varied from $2.20 to $2.27 a bushel in the four states. The largest changes in average county loan rates from 1986 attributable to ASCS' new methodology were reductions of 10 and 9 cents a bushel for wheat, respectively, for South Dakota and North Dakota. Although the average wheat loan rate in Kansas decreased between 1986 and 1987, it was 3 cents higher under the new methodology than it would have been under the old methodology. Nebraska's average wheat loan rate was the same under the new methodology as it would have been under the old.

-- Average 1987 corn loan rates varied from $1.66 to $1.93 a bushel in the four states. The new methodology reduced the average corn loan rate by 8, 4, and 2 cents a bushel, respectively, for North Dakota, South Dakota, and Nebraska. The average corn loan rate in Kansas was 5 cents higher under the new methodology than it would have been under the old one.

CHANGES IN AVERAGE COUNTY LOAN RATES FOR WHEAT IN SELECTED STATES

On average,[1] the county loan rates for wheat were less in 1987 than in 1986 in each of the four states. Also, at least 50 percent of the change in these loan rates would have occurred even if the calculation method had not changed. This is because of a 12-cent-a-bushel reduction in the national average loan rate from 1986 to 1987 as well as changes in other factors associated with the old calculation method. Although average county wheat loan rates went down in all four states, figure 3.1 shows that the average 1987 wheat loan rates were different for three of the four states than they would have been if ASCS had used its 1986 method to calculate the 1987 loan rates. More specifically,

-- the average 1987 county loan rates for South Dakota and North Dakota were 10 and 9 cents a bushel lower, respectively, in 1987 than they would have been under the old methodology;

-- the average 1987 county loan rate for Kansas was 3 cents a bushel higher than it would be under the old methodology;

-- the average 1987 loan rate in Nebraska would have been the same under the old methodology.

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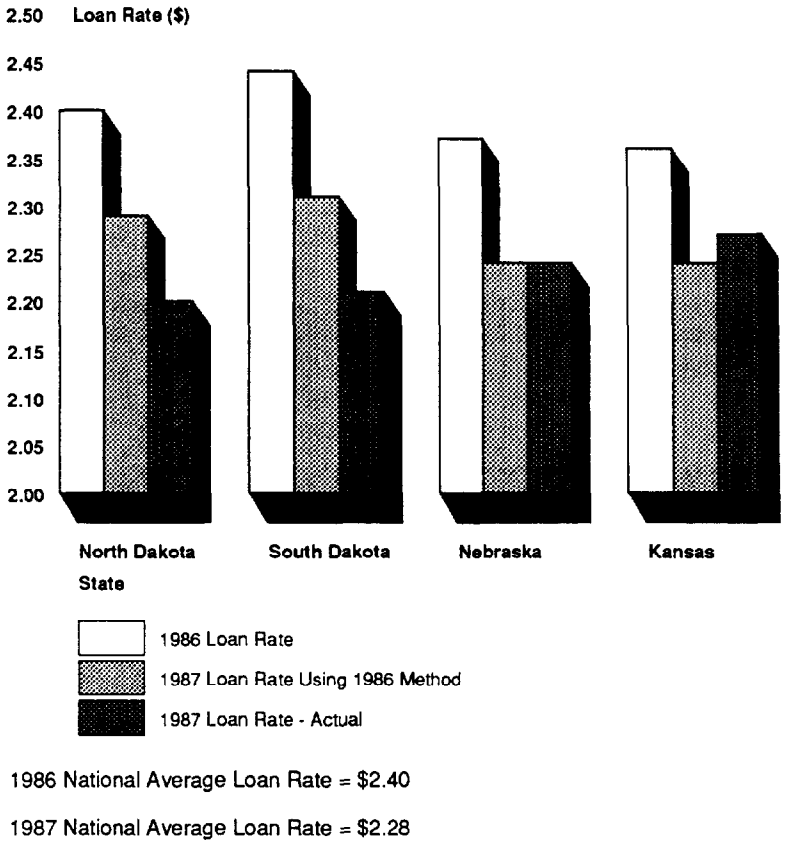
[1]The state average 1987 county loan rate is a simple average of each of its counties' 1987 loan rate.

Figure 3.1: 1986 Wheat Loan Rates, 1987 Loan Rates Using ASCS' 1986 Method, and Actual 1987 Loan Rates



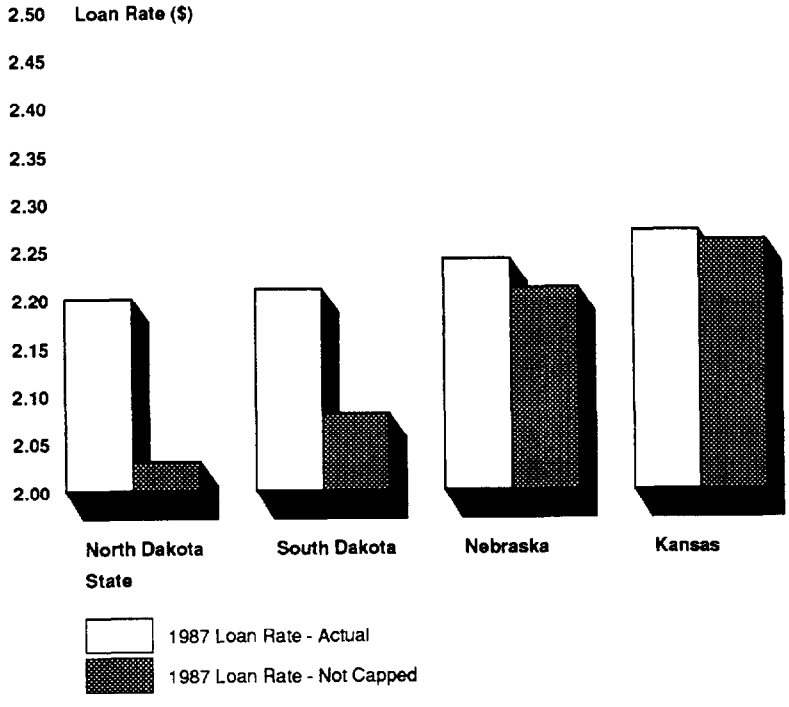
Note: All 1986 loan rates were ultimately reduced by 4.3 percent to meet the requirements of the Balanced Budget and Emergency Deficit Control Act of 1985.

Figure 3.2 shows the additional change in 1987 county wheat loan rates that, on average, would have occurred if ASCS had not limited the amount of change to 5 percent in each county as a result of its new method.[2] The additional change would have further reduced the average county loan rate per bushel by 17 cents

[2]The state average loan rate may move in a different direction when the 5-percent cap is removed than when it was capped. This is because these figures are simple averages and the 5-percent cap masks the full impact that the changes in individual county loan rates have on the state average loan rate.

in North Dakota, 13 cents in South Dakota, 3 cents in Nebraska, and 1 cent in Kansas.[3]

Figure 3.2: 1987 Wheat Loan Rates If ASCS Had Not Limited the Change From 1986



The effects of the 5-percent limit shown in figure 3.2 mean that the full impact of the new methodology has not yet been realized and that, ultimately, the average loan rates in some states will be changed more significantly than in others.

[3]These amounts do not include adjustments that ASCS might have needed to make to have the average of the county loan rates (weighted for production) equal the preestablished average national loan rate.

CHANGES IN AVERAGE COUNTY LOAN RATES FOR CORN IN SELECTED STATES

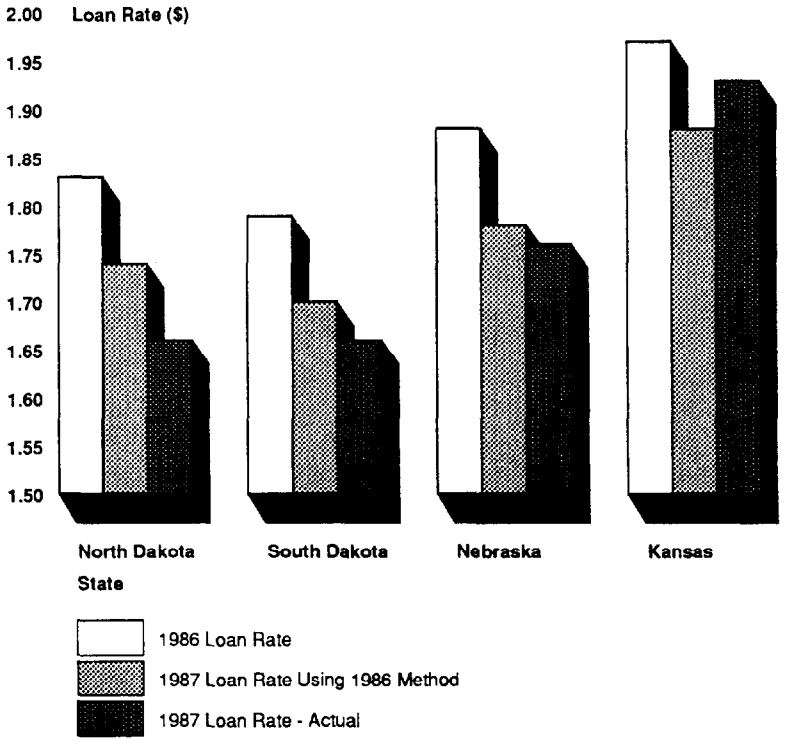
Figure 3.3 shows that, on average,[4] the 1987 county loan rates for corn were less in 1987 than in 1986 in each of the four states. Also, at least 50 percent of the change in loan rates would have occurred even if the calculation method had not changed. This is because of a 10-cents-a-bushel reduction in the national average loan rate from 1986 to 1987, as well as changes in other factors associated with the old calculation method. Although, on average, county loan rates for corn were reduced in all states, figure 3.3 also shows that average 1987 loan rates were different in all four states from what they would have been if ASCS had used its 1986 method to calculate the 1987 loan rates. More specifically,

-- the average 1987 county loan rates for North Dakota, South Dakota, and Nebraska were lower by 8 cents, 4 cents, and 2 cents a bushel, respectively, in 1987 than they would have been under the old methodology;

-- the average 1987 county loan rate for Kansas was 5 cents a bushel higher than it would have been under the old methodology.

[4]The state average 1987 county loan rate is a simple average of each of its counties' 1987 loan rate.

Figure 3.3: 1986 Corn Loan Rates, 1987 Loan Rates Using ASCS' 1986 Method, and Actual 1987 Loan Rates



1986 National Average Loan Rate = $1.92

1987 National Average Loan Rate = $1.82

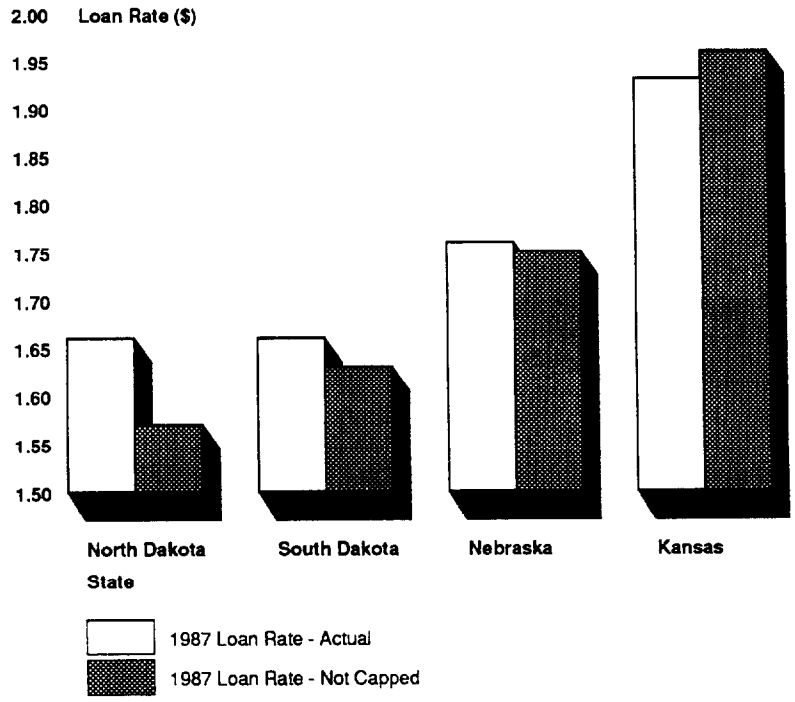
Note: All 1986 loan rates were ultimately reduced by 4.3 percent to meet the requirements of the Balanced Budget and Emergency Deficit Control Act of 1985.

Figure 3.4 shows the additional change in 1987 county loan rates for corn that would have occurred if ASCS had not limited the amount of change resulting from its new method to 5 percent in each county.[5] The additional change would have further increased the average county loan rate per bushel by 3 cents in Kansas while

[5]The state average loan rate may move in a different direction when the 5-percent cap is removed than when it was capped. This is because these figures are simple averages and the 5-percent cap masks the full impact that the changes in individual county loan rates have on the state average loan rate.

reducing loan rates in North Dakota, South Dakota, and Nebraska by 9, 3, and 1 cents, respectively.[6]

Figure 3.4: 1987 Corn Loan Rates If ASCS Had Not Limited the Change From 1986



As with wheat, the full impact of the new methodology has not yet been realized because of the 5-percent limit. Ultimately, the average loan rates in some states will be changed more significantly than in others.

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[6]These amounts do not include adjustments that ASCS might have needed to make to have the average of the county loan rates (weighted for production) equal the preestablished average national loan rate.

SECTION 4

COUNTY PRICE DIFFERENTIALS USED TO CALCULATE 1987 LOAN RATES MAY BE OVER- OR UNDERSTATED

SUMMARY

-- The accuracy of warehouse differentials used to estimate a county's commodity price relative to other county prices is critical to the accuracy of the county's loan rate. An overstated differential may cause a county loan rate to be too small; an understated differential may cause it to be too large (as further explained in section 5).

-- In 351 wheat warehouse differentials we tested, 27 percent were over- or understated by 10 cents a bushel or more (10 cents or more is ASCS' criteria for initiating reviews of warehouse differentials in response to producer complaints). Of the 138 corn differentials we examined, 50 percent were over- or understated by that amount or more.

-- ASCS representatives attribute the differences primarily to changes in market prices between the time when the differentials were established and when we tested them.

RELATIONSHIP OF WAREHOUSE DIFFERENTIALS TO COUNTY LOAN RATES

The accuracy of warehouse differentials is key to the accuracy of county loan rates. As explained in section 2, ASCS averages warehouse differentials within a county to establish an overall county differential. The county differential then becomes the basis for determining the PCP for a commodity, which in turn is used to determine a county's loan rate.

An overstated warehouse differential may cause the county differential to be overstated, may cause the PCP to be understated, and may cause the county loan rate to be understated.[1] For example, assume that a county has only one warehouse and that the ASCS differential for that warehouse is 22 cents, when it should be 18 cents. To compute the county differential, ASCS would take the average of all warehouse differentials in that county. In this case, the county differential would be the same as the warehouse differential. Next, ASCS would compute the PCP by subtracting the county differential from the appropriate terminal market price. Assuming that the terminal market price for a particular commodity is $1.00, this county's PCP for that commodity would be 78 cents using the incorrect ASCS differential ($1.00 less a 22-cents differential). However, the PCP, in actuality, should be 82 cents ($1.00 less an 18-cents differential) because the ASCS differential was overstated by 4 cents. Because the county loan rate is based on the PCP, the loan rate would also be approximately 4 cents less than what it should have been if the correct differential had been used.[2] Thus, an overstated warehouse differential could cause the loan rate received by producers to be understated. Conversely, an understated warehouse differential may cause the county differential to be understated, may cause the PCP to be overstated, and may cause the county loan rate to be overstated.

EVALUATION OF WHEAT AND CORN WAREHOUSE DIFFERENTIALS

To test the accuracy of warehouse differentials, we obtained reported commodity price data on 126 warehouses and their appropriate terminal selling markets for the year ending 1987; we

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[1]In order for any incorrect PCP to affect a loan rate, it must, of course, be incorrect relative to other county PCPs. If, for example, all PCPs were equally incorrect, the loan rate would not be affected because the relative PCPs would be accurate.

[2]The amount that the county differential is in error does not always translate into an identical error in a county loan rate because of other factors used in calculating the loan rates.

used the data to calculate differentials and compared these differentials with those used by ASCS. Table 4.1 shows that of the 351 wheat warehouse differentials we tested, 27 percent were over- or understated by 10 cents a bushel or more. The warehouses for which we obtained price data handled three types of wheat, each of which has a separate differential. The South Dakota warehouse handled spring wheat, the Nebraska and Kansas warehouses handled winter wheat, and the North Dakota warehouses handled spring, winter, and durum wheat. Table 4.1 also shows that of the total wheat differentials we examined, 53 percent of 65 durum wheat differentials, 41 percent of 128 winter wheat differentials, and 6 percent of 158 spring wheat differentials were over- or understated by 10 cents a bushel or more.

Table 4.1: Difference Between ASCS- and GAO-Computed Wheat Differentials by State

	Percent of ASCS differentials that varied from GAO's						
	North Dakota			South Dakota	Nebraska	Kansas	Total
	Winter	Spring	Durum	Spring	Winter	Winter	Wheat
Amount per bushel (cents)							
Understated							
-10 or more	15	3	2	0	0	14	6
- 6 to - 9	18	9	0	14	0	6	8
- 1 to - 5	13	45	2	14	25	19	26
No difference	0	4	2	0	4	3	3
Overstated							
1 to 5	13	31	6	43	25	22	22
6 to 9	2	8	39	0	33	17	15
10 or more	40	1	51	29	13	19	21
Number reviewed	68	144	65	14	24	36	351

Note: Percents may not add because of rounding.

Table 4.2 shows that 50 percent of the 138 warehouse differentials for corn were over- or understated by 10 cents or more a bushel. Within the states we examined, Nebraska's differentials were most frequently in error by 10 cents or more.

Table 4.2: Difference Between ASCS- and GAO-Computed Corn Differentials by State

Amount per bushel (cents)	Percent of ASCS differentials that varied from GAO's: North Dakota	South Dakota	Nebraska	Kansas	Total
Understated					
-10 or more	8	0	0	5	4
- 6 to - 9	4	0	0	5	2
- 1 to - 5	12	17	0	9	8
No difference	4	6	0	5	3
Overstated					
1 to 5	12	11	4	41	14
6 to 9	16	50	29	9	24
10 or greater	44	17	67	27	46
Number reviewed	50	18	48	22	138

Note: Percents may not add because of rounding.

REASONS FOR DIFFERENCES BETWEEN ASCS' AND GAO'S WAREHOUSE DIFFERENTIALS

ASCS representatives said that, in their opinion, the main reason for the differences between the ASCS and GAO warehouse differentials was changes in county commodity prices that took place between the time the prices were originally collected and when we tested them. For example, the transportation costs in a county may have increased, which would cause the local commodity prices to change.

The differences may also be related to changes in the terminal markets to which a warehouse was assigned for computing the PCPs and county loan rates. As previously discussed, the difference between a warehouse and its terminal market is called a differential. The differential is used to estimate local commodity prices for the PCP and county loan rate. However, if a warehouse is not assigned to the correct terminal selling market, its differentials will not reflect the true local market price. This may be the case for inaccurate Nebraska corn differentials. For example, ASCS computed the original differentials for Nebraska on the basis of terminal markets that have since changed. Current local Nebraska commodity prices are therefore being influenced by terminal markets that are not considered in ASCS' differential calculation. This would, in part, explain some of the differences between the differentials we calculated and ASCS'.

ASCS representatives stated that some of the differences between the differentials may be related to the accuracy of the commodity price data we obtained from newspapers and AMS. We can neither prove nor disprove the extent to which inaccurate price data have contributed to differences in the values of warehouse differentials. However, we believe the data we collected reasonably reflect actual warehouse prices because, among other things, we obtained price data for all trading days and, consequently, errors in prices for any individual day would tend to be minimized when computing an average annual differential.

Another factor that could have contributed to the differences in warehouse differentials was the judgmental sample that ASCS used to develop its differentials. As explained earlier, when ASCS established its differentials, it sampled warehouse prices for 5 days during the year ending January 1986. To estimate whether the 5-day judgmental sample was causing the differences, we applied a similar sample methodology to the market prices for the 1-year period ending April 30, 1987, which we used to develop actual warehouse differentials. We found that approximately 60 percent were within 2 cents and 90 percent were within 4 cents of the differentials we calculated using a full year's worth of data. It should be noted, however, that the scope of this analysis is limited and its results are not projectable.

SECTION 5

ACCURACY OF WAREHOUSE DIFFERENTIALS AFFECTS COUNTY LOAN RATES

SUMMARY

-- Because commodity price data were not available for all warehouses in the counties we examined, we could not calculate the impact that potentially inaccurate warehouse differentials had on county loan rates.

-- We were able to provide a perspective of the potential impact inaccurate warehouse differentials had on 1987 loan rates in two counties through the use of certain assumptions about the accuracy of each of the county's warehouse price data that were unavailable.

-- Assuming that all warehouse differentials within each of the two counties reviewed were accurate except for the ones we examined, inaccurate warehouse differentials would result in a 1987 county loan rate that was overstated by 1 cent per bushel in one county and understated by 4 cents per bushel in the other county. Given the number of bushels placed under loan in these counties for 1987, total loans made to these counties for these commodities would be overstated by as much as $15,622 and understated by as much as $612,528, respectively.

-- Assuming that all warehouse differentials within each of the two counties reviewed were inaccurate by the same percentage as the ones we examined, inaccurate warehouse differentials would produce a 1987 county loan rate that was overstated by 15 cents per bushel in one county and understated by 7 cents in the other. Given the number of bushels placed under loan in these counties, total loans made to these counties for these commodities could therefore be overstated by as much as $234,335 and understated by as much as $1,071,924, respectively.

-- It is also possible that all the county's individual warehouse differentials were incorrect but that the county's loan rate was accurate. This is because the errors could net to zero during the process of calculating the loan rate.

POTENTIAL IMPACT OF INACCURATE WAREHOUSE DIFFERENTIALS ON 1987 COUNTY LOAN RATES

We could not determine the impact that the inaccurate warehouse differentials had on county loan rates because data were not available for all warehouses within the counties we examined. However, we estimated the potential impact on the 1987 county loan rates for two counties by using different sets of assumptions about the accuracy of the other warehouse differentials within those counties for which data were not available.[1] Table 5.1 presents descriptive information on each of the two counties used in our examples, including how many of the county's total warehouses we reviewed and the results of these reviews. We selected these counties because they illustrate potentially significant impacts that could result from inaccurate warehouse differentials--they are not intended to be representative of all counties.

In one case, we assumed that all warehouse differentials in Holt County, Nebraska, and Sumner County, Kansas, were correct except for the one warehouse in each county we reviewed and found inaccurate (Sumner county had 18 warehouses and Holt county had 2). Using this assumption, we estimated that the 1987 corn loan rate for Holt County should have been 4 cents higher than the rate used by USDA. Similarly, the 1987 wheat loan rate for Sumner County should have been 1 cent less than USDA's loan rate. Such errors in the county loan rates would result in total county loans (based on the number of bushels producers placed under loan in 1987 for the commodity) to be understated in 1987 by as much as $612,528 for Holt County and overstated by as much as $15,622 for Sumner County.

In a second case, we assumed that the inaccurate warehouse differentials we found were representative of the other warehouse differentials in a county. Under this assumption, for Sumner County the 1987 wheat loan rate should have been lower by 15 cents per bushel than the rate used by USDA. Further, the estimate of total potential value of overstated wheat loans would have increased by about $219,000--from $15,622 to $234,335 (based on the number of bushels producers placed under loan in 1987 for the commodity). Conversely, the corn loan rate for Holt County should have been 7 cents higher than what USDA used. Also, the estimate of the total potential value of corn loans in Holt County would be further understated by about $459,000--from $612,528 to $1,071,924

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[1]Additionally, we assumed that all warehouse differentials, except for the county being examined, were correct. As noted earlier, if all differentials were inaccurate by the same amount, the relationship between county PCPs would be correct and, in turn, be accurately reflected in the loan rates.

(based on the number of bushels producers placed under loan in 1987 for the commodity).

In a third possible case, we also assumed that the differentials for the warehouses we did not examine were inaccurate. However, this time we assumed that these inaccuracies may have balanced each other out, resulting in no impact on the loan rate. For example, in Holt County, Nebraska, we found that one of its two warehouse differentials was 6 cents too large, which caused the loan rate to be understated by 4 cents. However, if the other warehouse was 6 cents too small, the two errors--one 6 cents too high and the other 6 cents too low--would net out to be no error when computing the overall county differential used in calculating loan rates. As a result, there would be no impact on the county's loan rate.

Table 5.1: Background Information on Selected Counties

Warehouse/County Information	County Loan Rate	
	Overstated	Understated
County	Sumner, Kans.	Holt, Neb.
Commodity	Wheat	Corn
Number of warehouses in county	18	2
Number of warehouses reviewed	1	1
Amount, per bushel, that warehouse differential was inaccurate[a]	$0.17	$0.06
County production, in bushels, placed under loan in 1987	1,562,230	15,313,197

[a]The amount that a warehouse differential is inaccurate will not translate into an identical error in a county loan rate. When only one of two or more warehouse differentials is in error in a county, the amount of the inaccuracy must be averaged for all warehouses to determine the amount that the county differential should be adjusted. Further, other factors considered in calculating the county loan rate prevent the amount of error in a county differential from translating into an identical error in the county loan rate.

METHODOLOGY FOR EXAMINING THE ACCURACY OF THE 1987 COUNTY LOAN RATES

We examined the accuracy of the county commodity loan rates resulting from ASCS' revised methodology for calculating county loan rates. First, we examined the accuracy of the warehouse differentials that form the basis of the commodity price relationships ASCS used to establish county loan rates. To the extent that county differentials are inaccurate, the loan rates may also be inaccurate. Secondly, we compared warehouse differentials calculated using ASCS' methodology with warehouse differentials calculated using a full year of daily commodity price data for selected warehouses in selected counties. We did this to determine the extent to which ASCS' sampling methodology may have contributed to errors in the differentials. Also, we estimated the effect that inaccurate warehouse differentials had on selected county loan rates.

We performed our analysis in counties for which data were readily available in the requested states of North and South Dakota. In addition, we selected Kansas and Nebraska because market data were also readily available. We evaluated county loan rates for wheat and corn because they are the major commodities grown in the states we analyzed. The warehouse differentials included in our review represented 126 of the total 1,955 warehouses for which ASCS has Uniform Storage Grain Agreements with in the 4 states. Warehouse commodity price data are not easy to obtain because there is no central repository. We looked at all the warehouses for which commodity price data were readily available.

EVALUATING THE ACCURACY OF WAREHOUSE DIFFERENTIALS

To evaluate the accuracy of the warehouse differentials, we obtained reported commodity price data on selected warehouses and their appropriate terminal markets for the year ending April 30, 1987, used this data to calculate a differential, and compared the differential we calculated with the one used by ASCS. More specifically:

-- We obtained historical daily market prices for the terminal markets (to which ASCS assigned counties in the four states) from ASCS' Kansas City Commodity Office for the 1-year period ending April 30, 1987.

-- We obtained historical daily market prices for wheat and corn for 126 warehouses in the 4 states for a 1-year period

ending April 30, 1987. Although ASCS' Kansas City Commodity Office recorded and retained historical market prices for the terminal markets, we found no similar centralized record of prices for the many local warehouses in each state. Therefore, we used the pricing data that were readily available in each state and constructed a computerized data base of commodity prices. For South Dakota (9 warehouses) and Nebraska (25 warehouses), we obtained historical closing daily prices from the AMS.[1] For the other 2 states, we obtained the closing daily prices from past issues of newspapers for 18 warehouses in Kansas,[2] and 29 warehouses in North Dakota.[3] Also, we obtained the closing Friday prices for 45 warehouses in North Dakota.[4]

-- We designed a computer data base and entered the terminal and warehouse prices we collected into the computer. We then adjusted the terminal prices for wheat for the appropriate protein levels, quality discounts, and premiums, following ASCS' published instructions.

-- We computed the difference in price each day (Friday's prices, where appropriate, for some warehouses in North Dakota) for the 1-year period ending April 30, 1987, between the warehouse and each of its ASCS-assigned terminal markets. We averaged these differences for each warehouse to arrive at actual warehouse differentials for this time period.

-- We compared the actual warehouse differentials that we computed with the ASCS warehouse differentials used in calculating the 1987 loan rates.

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[1]AMS is responsible for collecting market data for USDA. It does not, however, collect commodity price data for all counties or all states. Instead, it collects prices from selected warehouses in various, but not all, states.

[2]Wichita Eagle Beacon.

[3]Grand Forks Herald.

[4]AGWEEK.

SOUNDNESS OF ASCS' SAMPLE METHODOLOGY

We reviewed ASCS' sample methodology for computing warehouse differentials to determine to what extent it might have contributed to the variance between ASCS' differentials and the differentials we computed. We reviewed the sample methodology in the following steps:

-- We calculated a differential for the 1-year period of our evaluation that ended on April 30, 1987, using ASCS' sample methodology to the extent possible. We applied a 5-day sample (dates selected were May 1, July 1, and September 30, 1986, and January 30 and April 1, 1987) for our 1-year period that was as near as possible to the days in the months originally used by ASCS (January 31, April 1, July 1, and September 30, 1985, and January 31, 1986). Following ASCS' procedures, we calculated differentials between the warehouse prices and their assigned terminal market prices for the 5 days, eliminated the high and low differentials, and computed a simple average of the remaining three to arrive at one differential for the warehouse.

-- We compared the results of our 5-day sample with the actual warehouse differentials we calculated using the 1-year of pricing data that we collected.

POTENTIAL IMPACT OF INACCURATE WAREHOUSE DIFFERENTIALS ON TWO COUNTY LOAN RATES

We estimated the potential impact that the inaccurate warehouse differentials had on two 1987 county loan rates under several assumptions. First, we assumed that the warehouse differentials for the warehouses in a county for which we could not obtain price data were correct. Next, we assumed that all warehouse differentials in a county were inaccurate to the same extent as the warehouse differential we reviewed. Finally, we assumed that all individual warehouses in a county were incorrect but that the errors netted to zero. The procedures we used to calculate the county loan rates under these assumptions are shown below.

-- We calculated a GAO county differential for each county using a simple average of the warehouse differentials for that county. Under the first assumption, for warehouses not included in our review, we used the ASCS warehouse differential for April 1987, assuming, for calculation purposes, that it was correct. Under the second assumption, we assumed all the warehouse differentials in

a county to be in error by the same percentage as the one in our review.

-- Using the GAO county differentials and appropriate terminal markets, we identified a county loan rate from ASCS' Final County Loan Rate worksheets, which were used to establish the 1987 county loan rates. Using ASCS' procedures, we adjusted our final county loan rate to fall within 5 percent of what the rate would have been using the 1986 calculation method. We then compared our loan rate with the appropriate ASCS final county loan rate after it was adjusted to remain within the 5-percent limitation discussed earlier.

-- We estimated the total dollar effect of the inaccurate county loan rates by multiplying the difference (step above) by the number of bushels placed under loan in 1987 for the commodity in the county. Further adjustments to the rate were made by ASCS but are not used for evaluation because both the rates would have to be adjusted by the same amount.

APPENDIX II

COMMENTS FROM THE U.S. DEPARTMENT OF AGRICULTURE

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

United States Department of Agriculture
Agricultural Stabilization and Conservation Service
P.O. Box 2415
Washington, D.C. 20013

DEC 1 6 1989

SUBJECT: Farm Payments: Evaluation of Changes in County Loan Rates (GAO/RCED-89-47BR)

TO : Associate Director, Resources, Community, and Economic Development Division, General Accounting Office

This is in response to your letter of November 29 enclosing a draft copy of the subject audit. We have no comment of a specific nature concerning the audit. There are, however, several comments of a general nature we offer for your consideration.

See comment 1.

In your letter of November 29 you make reference to commodity certificates as another farm support program. The use of commodity certificates for payments-in-kind is not an agricultural program but rather is just a form of payment received for participating in a specific agricultural program.

See comment 2.

With respect to updating or keeping the Commodity Credit Corporation (CCC) pricing system current, it was recognized at its inception that many adjustments would be necessary as market conditions change. To that end, thousands of potential price changes have been evaluated with hundreds of changes actually being made. The pricing system will readily accommodate change and CCC makes a continuous concerted effort to see that the system is as current and accurate as it can be. When deemed necessary changes are and will continue to be made as market conditions warrant.

See comment 3.

One final observation is that CCC price support loans are operating capital and should not be viewed as a primary source of income. Therefore, loan rates should reflect relative market values so as not to disrupt or preclude normal marketings by producers.

Milt Hertz
Administrator

ASCS

GAO COMMENTS

The following are GAO's comments on the Agricultural Stabilization and Conservation Service's Letter dated December 16, 1988.

1. The technical corrections have been made in the report as appropriate.

2. ASCS' position was added to the final report. (See p. 4.)

3. We added this information to the final report. (See p. 8.)

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