GAO

United States General Accounting Office

Report to the Honorable Kent Conrad, U.S. Senate

May 1990

U.S. GRAIN SALES

Inventory Sales Raise Issues for Legislative Consideration





GAO	United States General Accounting Office Washington, D.C. 20548 ————————————————————————————————————			
	B-239362			
	May 22, 1990			
	The Honorable Kent Conrad United States Senate			
	Dear Senator Conrad:			
	During fiscal years 1988 and 1989, the U.S. Department of Agriculture (USDA) sold about \$8.2 billion of government-owned grain that had been obtained largely as forfeited collateral from farmers under USDA's nonrecourse loan program. The sales, which reduced large and costly grain inventories by about two-thirds, primarily involved exchanges for commodity certificates—a form of federal payment used in farm support programs in lieu of cash. In response to your concerns about whether USDA had received reasonable prices for the grain it sold, this letter (1) discusses USDA's policies and procedures for selling grain and (2) compares prices USDA received for selected sales with local market prices.			
Results in Brief	USDA's overall policy for certificate exchange sales was to price grain as close as possible to estimated local market prices. Implementing instruc- tions further specified that exchange prices should be at or below esti- mated local market prices rather than at or above them in order to encourage sales. USDA determines selling prices for exchange sales based on estimates of local market prices instead of collecting actual daily commodity prices for the approximately 7,000 elevators that store its grain.			
	We examined, as you requested, a sample of sales from about 500 exchanges in the states of North Dakota, South Dakota, Minnesota, and Nebraska for which data on local market prices were readily available. The 500 sales, which amounted to \$84 million and 36 million bushels of wheat and corn, took place between April 1, 1988, and March 31, 1989. On the basis of this sample, we estimate that on average USDA's sale prices for the 36 million bushels of grain were about 5 cents below local market prices which averaged \$2.42 per bushel (these results cannot be generalized beyond the 500 sales in our sample universe). We found no generally accepted criteria to measure the reasonableness of the sale prices in relation to the need to reduce inventories.			
٠	The grain sales were instrumental in reducing costly federal grain inven tories. However, current grain stock policy does not address a number o			

important areas such as when USDA should initiate sales to control inventory costs and whether USDA's authority for grain sales should be expanded or restricted. Further, the financial incentives under the current agricultural loan program offer little assurance against the future buildup of large and costly grain inventories. USDA's nonrecourse loan program is one of several federal programs Background intended to help stabilize farm income. Under the program, producers can obtain loans from USDA on wheat, corn, and certain other farm commodities. In exchange for promising these commodities as collateral, USDA pays producers an amount equal to the loan rate, normally expressed in terms of a dollar amount per bushel. The loan period is 9 months for most crops during which time the farmer is responsible for paying storage costs. The producer may repay the loan at any time (with interest) or forfeit the commodity as full payment at the end of the loan period. Forfeited crops become part of the government's inventory. Producers' decisions on whether to forfeit commodities under the program are based primarily on how market prices compare with loan rates. For example, when market prices are less than loan rates, producers will generally choose to forfeit their commodities thereby effectively receiving the loan rate as their selling price. Conversely, when market prices are higher than loan rates, producers would be inclined to pay off their loans and sell their commodities. As a result of rising loan forfeitures, USDA's grain inventories increased from about 1 billion bushels in fiscal year 1985 to a peak of 3.2 billion bushels in mid-fiscal year 1987. Inventory storage problems became so severe that in 1986 USDA resorted to storing grain temporarily on barges. With increasing inventories, USDA's annual storage, handling, and transportation costs for bulk grain¹ also increased about 300 percent from approximately \$353 million in fiscal year 1985 to almost \$1.4 billion in fiscal year 1987. In 1987, USDA projected that storage, handling, and transportation costs for all commodities would exceed \$3 billion for fiscal years 1988 and 1989. The Congress included in the Omnibus Budget Reconciliation Act of 1987 a provision requiring the Secretary of Agriculture to reduce the projected 1988 and 1989 fiscal year expenditures for commercial storage, handling, and transportation of federal grain inventories by \$230 million.

¹Includes corn, wheat, barley, oats, rye, soybeans, and sorghum.

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|                                           | Following the 1987 congressional directive to reduce storage, handling,<br>and transportation costs, USDA sales of grain inventories increased.<br>Between fiscal years 1987, when federal bulk grain inventories were at<br>their peak, and 1989, USDA reduced its bulk grain inventory from about 3<br>billion bushels to about 1 billion bushels (about 67 percent). By way of<br>perspective, federal exchange sales of bulk grain during this period<br>equalled about 12 percent of the estimated production in the United<br>States. USDA's bulk grain storage, handling, and transportation costs also<br>decreased from about \$1.4 billion for fiscal year 1987 to about \$525 mil-<br>lion in fiscal year 1989, a reduction of approximately 62 percent.<br>Appendix I summarizes the increases in inventories and storage, han-<br>dling, and transportation costs prior to 1987 as well as their decline in<br>subsequent years.                                                                                                                           |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Policies and Practices<br>for Grain Sales | USDA can reduce government-owned grain stocks through cash sales or<br>through exchanges for negotiable commodity certificates. However,<br>because USDA is generally prohibited from selling grain for cash unless<br>market prices reach legislatively established levels, most of the grain<br>sold from federal inventories during fiscal years 1988 and 1989 was sold<br>in exchange for commodity certificates. USDA's overall policy was to set<br>exchange prices as close to estimated local prices as possible. Imple-<br>menting instructions further specified that sale prices should be set at or<br>below rather than at or above estimated local market prices to<br>encourage sales. USDA established sale prices based upon estimated local<br>market prices rather than actual prices because it does not collect price<br>information for its thousands of grain storage locations. To publicize its<br>sales, USDA distributed catalogs that identify the quantities and locations<br>of grain available for exchange with commodity certificates. |
| Limitations on Cash Sales                 | About 71 percent of the \$8.2 billion sales during fiscal years 1988 and<br>1989 involved certificate exchanges as opposed to cash sales. The rela-<br>tively small amount of cash sales reflect legislative limitations that pro-<br>hibit cash sales unless market prices reach a minimum price level, which<br>is established in accordance with a statutory formula. Under the<br>formula, the minimum price will always be a certain percentage above<br>the loan rate. Restrictions on cash sales stem from concerns that releas-<br>ing federal grain into the market could depress prices and thereby hurt<br>farm income. During the 4-year period ending September 30, 1989, soy-<br>beans was the primary commodity to reach the statutory price level that<br>allowed sales through cash.                                                                                                                                                                                                                                                                   |

|                                  | Under the certificate authority, there are no restrictions concerning the<br>Secretary's authority for releasing federally owned grain through<br>exchanges for commodity certificates. The Food Security Act of 1985<br>authorized the Secretary of Agriculture to issue negotiable commodity<br>certificates to eligible producers instead of cash payments for partici-<br>pating in government farm support programs. These certificates can be<br>(1) sold back to USDA for cash at their face value; (2) sold to other inter-<br>ested parties, such as producers and grain companies; (3) exchanged for<br>commodities in the government's inventory; and (4) used to pay off com-<br>modity loans. Between April 1986, when USDA began issuing certificates,<br>and September 1989, USDA issued about \$24 billion of commodity<br>certificates.                                                                                                                         |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Determining Grain Sale<br>Prices | USDA uses estimates of local market prices when valuing commodities for<br>exchange sales. Commodity prices can vary by location due to, among<br>other things, differences in transportation costs to major selling mar-<br>kets. Because USDA does not maintain actual commodity price informa-<br>tion for its grain storage locations, it estimates local prices through the<br>use of a system called the posted elevator price system (PEP). The PEP<br>system is based on the use of price differentials that reflect the price<br>relationship between each of the approximately 7,000 individual eleva-<br>tors and major selling markets (commonly referred to as terminal mar-<br>kets). Knowing this relationship allows USDA to estimate current market<br>prices for grain in its approximately 7,000 elevator locations, while<br>monitoring actual prices in only 19 major selling markets.                                                                      |
| ·                                | USDA originally computed a sales price by subtracting an elevator's dif-<br>ferential from the assigned terminal market's closing cash bid price and<br>adjusting the resulting price for grain quality and grade. However, in<br>order to sell its grain, USDA in 1987 found it necessary to make additional<br>downward adjustments to the PEP price. One adjustment was to account<br>for the uncertainties in pricing grain stored in locations that do not have<br>official grades or weights and are usually 15 to 30 days from the termi-<br>nal markets. In addition, USDA also made a transportation adjustment,<br>which was intended to account for fluctuations in barge rates that were<br>not considered in the PEP price differential. These adjustments affected<br>corn and grain sorghum tied to the Texas and Louisiana Gulf markets<br>and for corn and barley tied to the Pacific Northwest market. These<br>adjustments varied during the period reviewed. |

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| Advertising Grain Sales                                                    | USDA uses catalogs to advertise the grain available for exchange of com-<br>modity certificates. Program officials stated that the criteria for deter-<br>mining what grain to advertise for sale could depend on a number of<br>factors including storage costs at a particular location, storage space<br>problems, total remaining inventory of a given commodity, balances<br>remaining on existing catalogs, the nature of commercial demand for the<br>commodity, and the availability of commodity certificates.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Selected Grain Sales<br>Average 5 Cents a<br>Bushel Below Market<br>Prices | Within the four states we reviewed, we identified about 500 exchange<br>sales for which local commodity price information was readily available<br>through USDA records or newspapers. (Because local price information<br>was not available for all locations in which USDA sales took place, the<br>sales we identified do not encompass all sales within the four states—<br>see methodology in appendix II for further details). The 500 sales,<br>which took place during the 1 year period ending March 31, 1989,<br>totaled \$84 million and involved 36 million bushels of wheat and corn.<br>On the basis of a sample of these sales, we estimate that (1) on average<br>USDA sold its grain for about 5 cents below local market prices (as deter-<br>mined by GAO), which averaged \$2.42 per bushel and (2) about 40 per-<br>cent of the bushels were more than 10 cents a bushel below market<br>prices. To be on the same basis for comparison with USDA sales, we<br>adjusted the reported local market prices—closing cash bid prices—for<br>factors including quality and grade (see app. II). |
|                                                                            | Table 1 summarizes our estimates concerning how USDA sale prices com-<br>pared with local market prices for the universe we sampled. The results<br>are presented both in terms of the number of sales transactions and the<br>number of bushels involved in those transactions. For example, the table<br>shows that we estimate that USDA received a sale price at or above the<br>local market price in about 30 percent of the 500 sales in our universe<br>and 22 percent of the 36 million bushels in our universe.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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#### Table 1: Comparison of Sale Prices With Market Prices for Selected Grain Sales

|                                                                            | estimate | error (+ or -) |
|----------------------------------------------------------------------------|----------|----------------|
| Percent of sample universe transactions                                    |          |                |
| The same or over market price                                              | 30       | 6              |
| 1 to 10 cents less than market price                                       | 35       | 7              |
| More than 10 cents less than market price                                  | 35       | 7              |
| Percent of sample universe bushels                                         |          |                |
| The same or over market price                                              | 22       | 13             |
| 1 to 10 cents less than market price                                       | 38       | 22             |
| More than 10 cents less than market price                                  | 40       | 21             |
| Average dollar difference between market and sale price (market less sale) | \$.051   | \$.026         |

Note: Estimates are for our sample universe of sales in North Dakota, South Dakota, Nebraska, and Minnesota. They are expressed in terms of GAO's estimate and the sampling error around that estimate at the 95-percent confidence level.

The sampling error associated with each estimate provides a range within which the actual value is likely to fall. For example, our best estimate is that 30 percent of the sales transactions in our sample universe were the same or over market price, but the actual value is likely to fall anywhere between 24 and 36 percent.

To better understand why sale prices were below market prices, we examined sampled sales transactions that were below local market prices by more than 10 cents. We found that the primary reason these sales were below market prices was because of USDA's adjustments for price uncertainties. As indicated earlier, USDA reduced exchange prices to account for increased uncertainties in, among other things, pricing grain at locations that do not have official grades or weight. Such adjustments were as high as 16 cents a bushel in the transactions we examined. According to USDA officials, adjustments were applied gradually (no more than 2 cents per day) in order to find a price at which the grain would sell.

We could not find any generally accepted criteria for what a reasonable sale price should be in relation to the need to reduce inventory costs. Such criteria would need to consider a number of factors including the benefits of avoiding storage costs as well as the possible impact that sales could have on local market prices. For example, while it might be financially prudent for USDA to discount the price of its grain in order to avoid storage costs, discounting the prices too much would (1) reduce returns to the federal government and (2) possibly depress local market prices thereby hurting local farmers.

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| Other Issues                                    | Past grain sales have helped USDA to control the growth of federal grain<br>stocks and reduce the associated storage costs. Additionally, some of<br>USDA grain sales occurred during a period when the United States was<br>experiencing one of its worst droughts—the 1988 drought contributed<br>to corn and wheat production declines of 30 and 14 percent, respec-<br>tively, under 1987 levels. Consequently, it is possible that the sales<br>helped to moderate the impact that the drought could have had on the<br>availability and price of grain. On the other hand, federal policy does<br>not address some important aspects of acquiring, storing, and selling<br>grain stocks. For example, how large should grain inventories be<br>allowed to accumulate and to what extent should USDA be allowed to sell<br>grain at or below the legislative release level? Further, can or should<br>farm programs be modified to prevent future buildup of excessive stock<br>levels?                                                                                            |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inventory Size                                  | One important inventory management question concerns how high or<br>low grain inventories should be allowed to go before actions are taken to<br>increase or decrease them. Federal grain stocks are thought to serve a<br>number of purposes, which include providing a cushion against times<br>when production is not adequate to meet the nation's food requirement.<br>While these and other needs have been used to support the desirability<br>of maintaining federal stocks, they have not been translated into target<br>levels for the minimum and maximum quantities of grain that USDA<br>should maintain in its stocks. Without such target levels, it is difficult to<br>determine when actions should be taken to increase or decrease<br>inventories.                                                                                                                                                                                                                                                                                                                   |
| Authority for Releasing<br>Federal Grain Stocks | A second question relates to USDA's authority for releasing grain stocks;<br>more specifically, whether USDA should be given more flexibility to<br>release grain through cash sales of grain stocks or whether its authority<br>for certificate sales should be restricted. These are questions that arise<br>from what could be considered an inconsistency between USDA's author-<br>ity for cash sales versus its authority for certificate sales. For example,<br>the use of cash sales is restricted to those times when market prices<br>equal or exceed legislatively established price levels. The intent of this<br>restriction was to avoid depressing market prices through the release of<br>federal grain unless market prices reached certain minimum levels.<br>However, USDA has no such restrictions concerning certificate sales and<br>therefore has the potential to considerably influence market prices<br>through release of federal grain stocks. This inconsistency illustrates the<br>underlying issue—should USDA be allowed more flexibility on cash sales |

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|                                                 | or be restricted on its use of certificate sales? In discussing possible<br>restrictions on certificate sales, it should be recognized that such restric-<br>tions may limit USDA's ability to effectively manage future stock levels.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Avoiding Excessive<br>Inventories in the Future | Finally, there is a question concerning whether production incentives of federal crop support programs should be modified to avoid accumulat-<br>ing large grain inventories again. One way to avoid the problems associ-<br>ated with managing large federal grain inventories is to avoid the<br>buildup of excessive inventories. This could be done by modifying the<br>incentives in the federal program that create the inventories. For exam-<br>ple, the federal government acquires grain because it is more profitable<br>for farmers to forfeit their crops under the loan program than to sell the<br>crops on the open market. To reduce this incentive, the loan rate could<br>be tied to the level of grain stocks—the higher the stock level, the lower<br>the loan rate. <sup>2</sup> This would reduce the incentive for farmers to<br>overproduce. |  |  |  |
| Conclusions                                     | USDA grain sales helped to reduce large and costly federal grain invento-<br>ries. Our analysis indicates that for selected sales in four states USDA, on<br>average, received 5 cents per bushel less than local market prices. It is<br>difficult to evaluate whether these sale prices were reasonable because<br>we found no generally accepted criteria for price reasonableness that<br>considered the need to reduce grain inventories. However, in the course<br>of developing information for this review, we identified several policy<br>questions concerning the acquisition, management, and sale of federal<br>grain inventories that we believe warrant congressional consideration<br>during the upcoming farm bill debates.                                                                                                                          |  |  |  |
| Matters for<br>Congressional<br>Consideration   | Resolving questions on federal grain sales and inventory management,<br>such as those that are discussed in this letter, could have significant<br>implications for future farm policy. Over the next few months, the Con-<br>gress will be considering changes to the nation's farm policy as it delib-<br>erates over the 1990 farm bill. Therefore, as part of these deliberations,<br>the Congress may want to consider addressing questions concerning (1)<br>how high or low federal grain stocks should be allowed to go before<br>actions are taken to decrease or increase them, (2) whether USDA's                                                                                                                                                                                                                                                          |  |  |  |
| v                                               | <sup>2</sup> In 1985 legislation, the Congress took a similar approach to control dairy surpluses. It linked price support levels with projected surpluses—a surplus projected to exceed certain levels would trigger a reduction in the price support.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |  |

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|                                       | authority for grain sales should be expanded or restricted, and (3) whether USDA's farm support programs can or should be modified to avoid the buildup of unnecessarily large inventories.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agency Comments and<br>Our Evaluation | USDA had three primary concerns with the information in this letter (see<br>app. III). First, it believed that a grain exchange should not be consid-<br>ered a sale and that, as a result, combining grain exchanges with cash<br>sales produces a "grossly inaccurate" total dollar sales figure. We agree<br>that there are differences between the two types of transactions and<br>recognize this throughout the report. However, we believe that charac-<br>terizing grain exchanges as a type of sale is consistent with commonly<br>accepted definitions of the term. Further, we note that Commodity<br>Credit Corporation (CCC) financial documents also refer to the exchanges<br>as sales. Therefore, while we have revised the report to highlight that<br>exchange sales are included in the total dollar sales figure, we continue<br>to refer to exchanges as a type of sale. |
|                                       | Second, USDA stated that its overall policy was to set exchange prices as<br>close to market price as possible—not at or below market price as indi-<br>cated in the report. We clarified the report to distinguish between USDA's<br>overall policy of pricing as close to the market as possible and its operat-<br>ing instructions which provided that adjustments to exchange prices<br>should be sufficient to result in prices being at or below the estimated<br>market rather than at or above the market in order to encourage sales.                                                                                                                                                                                                                                                                                                                                               |
|                                       | Finally, USDA stated that it does not specifically adjust its grain prices<br>for buyers' risk. In subsequent discussions with USDA staff, it was agreed<br>to characterize these adjustments as adjustments to reflect pricing<br>uncertainties resulting, in part, from unknown grades and weights of<br>grain in local elevators.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| v                                     | Our work was performed between April 1989 and February 1990 in<br>accordance with generally accepted government auditing standards. To<br>review USDA policies and procedures for grain sales, we interviewed offi-<br>cials and obtained documents at USDA's Agricultural Stabilization and<br>Conservation Service (ASCS) in Washington D.C., and at ASCS' Kansas<br>City Commodity Office. ASCS is responsible for managing the storage and<br>disposal of government-owned grain. To compare USDA sale prices with<br>local market prices, we identified sales in four states for which we could<br>obtain historical local market prices, sampled from among these sales,                                                                                                                                                                                                                |

and then used standard statistical techniques to estimate price comparison for the sample universe. Appendix II contains a detailed explanation of the scope and methodology for our price comparison.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days after the date of this letter. At that time we will send copies to the Secretary of Agriculture, Office of Management and Budget, and other interested parties.

This report was prepared under the direction of John W. Harman, Director, Food and Agriculture Issues, (202) 275-5138. Major contributors to this report are listed in appendix IV.

Sincerely yours,

J. Dexter Peach Assistant Comptroller General

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| Appendix IV<br>Major Contributors to<br>This Report                                                                                                  | Resources, Community and Economic Development<br>Division, Washington, D.C.<br>Kansas City Regional Office<br>Program, Evaluation, and Methodology Division,<br>Washington, D.C. | 20<br>20<br>20<br>20 |
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#### Abbreviations

ASCS Agricultural Stabilization and Conservation Service
 CCC Commodity Credit Corporation
 PEP posted elevator price
 USDA U.S. Department of Agriculture

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## Ending Bulk Grain Inventory Balances and Storage, Handling, and Transportation Costs for Fiscal Years 1985 Through 1989

| Inventory and                                  |       | F     | iscal year        |                   |       |
|------------------------------------------------|-------|-------|-------------------|-------------------|-------|
| costs                                          | 1985  | 1986  | 1987              | 1988              | 1989  |
| Bulk grain <sup>a</sup><br>ending<br>inventory | 979   | 1,851 | 3,041             | 1,580             | 1,019 |
| Bulk grain                                     |       |       |                   |                   |       |
| Storage and handling                           | \$289 | \$585 | \$1,270           | \$949             | \$506 |
| Transportation                                 | 64    | 101   | 119               | (14) <sup>b</sup> | 19    |
| Total                                          | \$353 | \$686 | \$1,389           | \$935             | \$525 |
| Other<br>commodities                           |       |       | . <u></u> 1997 18 |                   |       |
| Storage and handling                           | \$105 | \$128 | \$106             | \$37              | \$81  |
| Transportation                                 | 70    | 79    | 66                | 51                | 21    |
| Total <sup>c</sup>                             | \$175 | \$206 | \$172             | \$88              | \$102 |
| All commodities                                |       |       |                   |                   |       |
| Storage and handling                           | \$394 | \$713 | \$1,376           | \$986             | \$586 |
| Transportation                                 | 134   | 179   | 185               | 37                | 41    |
| Total <sup>c</sup>                             | \$528 | \$892 | \$1,561           | \$1,023           | \$627 |

Note: Inventory is in millions of bushels. Cost for storage, handling, and transportation is in millions of dollars.

<sup>a</sup>Includes barley, corn, oats, rye, sorghum, soybeans, and wheat.

<sup>b</sup>Shows a minus because estimated accruals carried over from the prior fiscal year exceeded actual payments.

<sup>c</sup>Totals may not add due to rounding.

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## Methodology for Comparing USDA Sale Prices With Local Market Prices

As requested, we compared selected grain sale prices received by USDA with local market prices in four states—North Dakota, South Dakota, Nebraska, and Minnesota. The sales we examined took place during the 1 year period beginning April 1, 1988, and ending March 31, 1989. During this period, USDA made a total of 24,864 grain sales for about \$3.2 billion; 7,369 of these sales representing about \$702 million were in the states we examined.

In the four states we reviewed, we found no central record of local market prices for all locations from which federal grain had been sold. Therefore, we obtained selected local market price information from various sources. We used the daily local closing cash bid prices from USDA's Agricultural Marketing Service and a daily newspaper, the <u>Grand Forks Herald</u>, to obtain prices for 109 locations within the four states. In addition, we obtained weekly local closing cash bid prices for another 68 locations in North Dakota, South Dakota, and Minnesota from a weekly newspaper, <u>AGWEEK</u>. It is important to recognize that the prices we used to approximate local grain prices were cash bid prices and, as a result, there is no assurance that any grain was actually sold at those prices.

We matched locations where we could obtain local commodity prices with the locations where USDA sold grain and found that 503 of the sales were at locations where we could obtain local market closing cash bid prices. We next sampled from among the 503 matched locations as shown in table II.1.

| Auctions<br>Winter Spring<br>wheat wheat |    | PEF | exchanges       |                 |      |       |
|------------------------------------------|----|-----|-----------------|-----------------|------|-------|
|                                          |    |     | Winter<br>wheat | Spring<br>wheat | Corn | Total |
| Sample                                   | 28 | 21  | 50              | 50              | 50   | 199   |
| Universe                                 | 28 | 21  | 85              | 102             | 267  | 503   |

Note: When wheat advertised in catalogs at the PEP price did not sell, USDA sometimes offered it to the highest bidder through an auction process under which USDA reserved the right to reject all bids.

Before comparing the closing bid prices with the USDA sale prices, we made a number of adjustments to the closing bid prices, which are detailed below.

#### Table II.1: Sample of USDA Sales for Comparing With Market Prices

1. We added 5 cents per bushel for the added value, according to USDA, that grain physically stored in a warehouse has over grain at the receiving side of a warehouse. USDA adds 5 cents per bushel to their price for this factor.

2. We deducted loadout expenses exceeding 5 cents per bushel charged by the storing warehouse. USDA made this adjustment to their prices to standardize loadout charges a buyer can plan on paying at any warehouse storing USDA grain.

3. We adjusted for the change in the futures' market from the prior trading session to the time the sale is made. USDA made this adjustment to its prices.

4. We applied grade discounts for differences between the standard grade quoted by the respective publications and the actual grade USDA exchanged. These discounts account for differences in grain quality. We applied the discounts that USDA used.

5. For winter and spring wheat, we adjusted the price for differences between the actual protein value and the quoted standard premium. We applied the premium factors that USDA used.

6. For locations where only the weekly local closing cash bid prices were available, we adjusted the price to the appropriate day based on the changes in the price at the applicable terminal market.

7. We adjusted the price for the premium that commodity certificates were selling for in the market on the day of the sale.<sup>1</sup> This adjustment allows for the differences between trading on the cash market and the certificate. To make this adjustment, we used the premium that USDA recorded for that particular day. During our review, certificates did not trade at a discount.

After making all necessary adjustments, we calculated the difference between the USDA sales price and the GAO-adjusted local market price. We then used a standard statistical technique to estimate price comparisons for the universe of sales from which we sampled. The estimate calculations include sampling errors that define the upper and lower bounds of

<sup>&</sup>lt;sup>1</sup>For auctions, USDA added this step to its PEP price calculation to reach a benchmark price. On the basis of the auction bids, USDA then decided the actual price it would exchange grain that could be the same as, above, or below the benchmark price.

the estimates within a 95-percent confidence interval—19 out of 20 times, the procedure we used would produce an interval capturing the true value. The results of our sample cannot be generalized beyond the sample universe of 503 USDA exchanges.

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## Comments From the U.S. Department of Agriculture

|           | a contract to       | DEPARTMENT OF AGRICULTU                                                  | RE                                    |
|-----------|---------------------|--------------------------------------------------------------------------|---------------------------------------|
|           |                     | OFFICE OF THE SECRETARY                                                  |                                       |
|           |                     | WASHINGTON, D.C. 20250                                                   |                                       |
|           | Mr. John W. Harmon  |                                                                          | APR 0 6 1990                          |
|           | Mr. John W. Harman  | Agriculture Issues                                                       |                                       |
|           | Resources, Communit | -                                                                        |                                       |
|           | Economic Develop    |                                                                          |                                       |
|           |                     | ral Accounting Office                                                    |                                       |
|           | Washington, D.C.    | 20548                                                                    |                                       |
|           | Dear Mr. Harman:    |                                                                          |                                       |
|           |                     | he draft report, "U.S. Grain Sales<br>tive Consideration," and submit th |                                       |
|           |                     | paragraph of the letter to Senato                                        |                                       |
|           |                     | Department of Agriculture has "sol<br>ed grain." This statement is gros  |                                       |
|           |                     | cludes grain "sold" for cash and g                                       |                                       |
|           |                     | it Corporation (CCC) by private pa                                       |                                       |
|           |                     | ertificates. The latter are not "                                        |                                       |
|           |                     | s in Brief, the letter contains th                                       |                                       |
|           |                     | olicy for these exchanges was to p<br>rices, in order to encourage sales |                                       |
| omment 1. |                     | or the grain is not a sale.                                              | · main, an enclange of                |
|           | The base form       |                                                                          | m an elege to the local               |
|           | 1                   | C's policy to value its grain at o<br>s is possible and practical to det |                                       |
|           |                     | , either temporary or permanent, t                                       |                                       |
|           |                     | ortation adjustments and fluctuati                                       |                                       |
|           |                     | the purpose of more accurately ref                                       |                                       |
| mment 2.  |                     | locations where the grain was stor                                       |                                       |
|           | , · · · · ·         | rs' risk" although one would expec<br>rs who make the market, factor the | · · · · · ·                           |
|           |                     | es. Accordingly, we believe that                                         | · · · · · · · · · · · · · · · · · · · |
| omment 3. |                     | ing "Policies and Practices for Gr                                       |                                       |
|           |                     | ncourage exchange sales, USDA atte                                       |                                       |
|           |                     | ocal market at virtually every loc                                       |                                       |
|           | grain, and fur      | rther, under the heading Determini<br>"During fiscal years 1988 and 198  | ng Grain Sale Prices, the             |
|           |                     | t or below local market prices."                                         | s, observed to set                    |
|           | -                   | -                                                                        |                                       |
|           |                     | ction should, therefore, be made i                                       |                                       |
|           | below local market  | remove any reference to a policy w<br>prices.                            | nich would price grain                |
|           | Sincerely,          |                                                                          |                                       |
|           | 1 1 id              | se li                                                                    |                                       |
|           | 1 1/m Ands          | ye com                                                                   |                                       |
|           | 19-10-0000          |                                                                          |                                       |
|           | Richard T. Crowder  |                                                                          |                                       |
| ن         | ]                   | r International Affairs                                                  |                                       |
|           | and Commodity Pr    | ograms                                                                   |                                       |
|           |                     |                                                                          |                                       |

GAO/RCED-90-120 U.S. Grain Sales

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|              | The following are GAO's comments on the Department of Agriculture's letter dated April 6, 1990.                     |
|--------------|---------------------------------------------------------------------------------------------------------------------|
| GAO Comments | 1. GAO continues to believe that a commodity certificate exchange is a type of sale. (See p. 9.)                    |
|              | 2. GAO has recharacterized the "buyers risk" adjustment. (See p. 9.)                                                |
|              | $3.\ {\rm GAO}$ has distinguished between USDA's overall pricing policy and its operating instructions. (See p. 9.) |

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#### Appendix IV Major Contributors to This Report

| Resources, Community<br>and Economic<br>Development Division,<br>Washington, D.C. | Jeffrey E. Heil, Assistant Director<br>Robert Robertson, Assignment Manager                                                                                             |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kansas City Regional<br>Office                                                    | Carl Lee Aubrey, Evaluator-in-Charge<br>Cecelia M. DiRaimo, Evaluator<br>Thomas M. Cook, Evaluator<br>Fredrick C. Light, Evaluator<br>Gregory H. Land, Computer Analyst |
| Program, Evaluation,<br>and Methodology<br>Division, Washington,<br>D.C.          | Harry M. Conley, Statistician                                                                                                                                           |

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