BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

1983 Payment-In-Kind Program Overview: Its Design, Impact, and Cost

To assist the Congress in its deliberations on the 1985 farm bill, this report ties together the results of several issued GAO products and provides additional analysis on selected aspects of the 1983 Payment-In-Kind (PIK) program. Under PIK, the Department of Agriculture gave farmers commodities, instead of cash, to remove cropland from production.

Originally, PIK was to be a two-year program covering five commodities--corn, grain sorghum, wheat, rice, and cotton. However, for 1984 it was cut back to include only wheat. The program was not renewed in 1985.

GAO found that PIK cost about $10 billion, reduced farm production and surplus stock levels, and increased farmers' net cash incomes. The Department, however, did not establish specific, quantified program goals that would have provided the Congress and other policymakers with benchmarks to judge the program's effectiveness. In addition, the Department determined that a $50,000 payment limitation to farmers did not apply to PIK commodity payments. GAO concluded that this determination was incorrect and not consistent with applicable statutory requirements.

GAO makes a recommendation to the Secretary of Agriculture and raises matters for consideration by the Congress in its deliberations on the 1985 farm bill to help overcome problems identified in the report.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-211462

To the President of the Senate and the
Speaker of the House of Representatives

This report discusses the Department of Agriculture's 1983 Payment-In-Kind (PIK) program. The report represents the culmination of our work on the PIK program and, as such, it ties together the major issues developed to permit us to make overall observations and conclusions about the program. The report also raises some matters for congressional consideration in its deliberation of the 1985 farm bill. The specific issues addressed in this report include the

--design and justification of key 1983 PIK program provisions,

--program's impact,

--program's cost,

--distribution of payment to farmers, and

--effectiveness of the Department's acquisition and delivery of commodities to farmers.

Copies of this report are being sent to appropriate House and Senate Committees; interested members of Congress; the Secretary of Agriculture, Office of Management and Budget; and other interested parties

Charles A. Bowsher

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Comptroller General
of the United States

EXECUTIVE SUMMARY

Between 1980 and 1982, the cost of farm program expenditures increased fourfold--from $2.7 billion to $11.6 billion--and was expected to increase to $18.9 billion for 1983. These soaring costs prompted the Department of Agriculture (USDA) to establish the Payment-In-Kind (PIK) program in 1983. PIK payments to farmers in commodities, rather than in cash, represented a fundamental change in USDA's farm programs.

To assist the Congress in its deliberations on the 1985 farm bill, this report ties together the results of several issued GAO products and provides additional analysis on selected aspects of the 1983 PIK program. The major issues addressed in this report are the design and justification of key 1983 PIK program provisions, the program's impact, and its cost.

BACKGROUND

The goals of USDA's production control programs are to stabilize farm commodity supplies and stabilize and enhance prices and incomes by inducing farmers to remove cropland from production. The Agriculture and Food Act of 1981 authorized cropland acreage reduction programs for the 1982-85 crops of corn, grain sorghum, wheat, rice, and cotton. However, in late 1982 it became apparent that the programs were no longer meeting their objectives because of record U.S. harvests that led to a large buildup of commodity surpluses. These surpluses reduced prices for farmers and decreased farm incomes. (See pp. 1-4.)

USDA responded to this situation on January 11, 1983, by announcing a 2-year PIK program. Although the PIK program was debated by the Congress prior to its implementation, it was administratively established by the Secretary of Agriculture within existing statutory authority and did not receive specific congressional authorization. The PIK program supplemented other 1983 production control programs. PIK's broad objectives included reducing production and stock surpluses and increasing farmers' net cash incomes.

USDA selected PIK as the best alternative for reducing production and surplus stocks. Except

for the use of commodity payments instead of cash payments, the PIK program worked like most other aspects of previous, more traditional farm programs. Paying farmers in commodities was also intended to reduce surplus stocks and, as USDA determined, would allow payments in excess of a $50,000 payment limitation per farmer that otherwise would have applied to cash payments. By allowing PIK payments in excess of $50,000, USDA believed large farmers would more fully participate in the PIK program and production would be further reduced. (See pp. 4-6.)

Since PIK was formulated, much controversy and debate has centered on its effectiveness, its cost, and whether its payments to farmers were overly generous. The 1984 PIK program was limited to wheat, and GAO did not review it.

RESULTS IN BRIEF

The PIK program by design made it financially attractive for farmers to take cropland out of production by providing them a higher net cash income than they could have expected from participating in other production control programs. GAO concluded, however, that USDA's determination that the $50,000 payment limitation did not apply to PIK commodity payments was incorrect and not consistent with applicable statutory requirements. In addition, in designing the program, as was also the case with previous production control programs, USDA did not establish specific, quantified goals for PIK. Therefore, USDA could not objectively judge the overall merits of the program provisions or whether PIK was effective. (See pp. 13-27.)

In terms of impact, PIK reduced production and surplus stock levels and increased farmers' net cash incomes.

The 1983 PIK program cost about $10.0 billion. (See p. 39.) Except for its determination regarding the $50,000 payment limitation, USDA acted within its statutory authority in establishing the PIK program. GAO believes that, in the future, the Congress may want to consider specific congressional approval for multibillion-dollar programs like PIK.

GAO's ANALYSIS

Impact of PIK

PIK removed an additional 49.2 million acres of cropland from production beyond the 26.8 million acres that would have been taken out under previously announced 1983 farm programs. With PIK, the 1983 farm programs reduced production of the five PIK commodities by about 18 percent, reduced government and private stock levels by about 35 percent, and increased farmers' net cash incomes by about $9 billion. (See pp. 15, 28-38.)

PIK's Design Did Not Include Quantified Goals

In designing PIK as well as previous production control programs, USDA developed broad goals and objectives. It did not, however, establish specific amounts by which (1) production and stock levels were to be reduced, (2) storage problems were to be eased, or (3) farmers' net cash incomes were to be increased. GAO believes that such specific, quantified goals must be established for each year's production control programs to provide USDA, the Congress, and other agricultural policymakers with benchmarks to make objective judgments on the programs' effectiveness and costs. (See pp. 26-27.)

Limitation Should Have Included PIK Payments

About 15.75 million acres taken out of production as a result of PIK (representing $2.52 billion) were attributable to USDA's determination that the $50,000 payment limitation did not apply to commodity payments. This determination induced large farmers to participate; however, GAO concludes that it was incorrect and that any exemption of PIK payments from the limitation would require specific legislative approval. Although USDA believes it acted properly in not applying the limitation to the 1983 PIK program, it revised its PIK program regulations so that the payment limitation would apply to any in-kind payments made in 1984 and future years. (See pp. 23-26.)

Cost of PIK

GAO estimates the PIK program cost the government between $9.8 billion and $10.9 billion. Under either estimate, about $9.1 billion represents the cost of commodity payments made to farmers. The remaining cost includes storage compensation and diversion payments made to farmers, distribution costs for the commodities, and potential lost interest payments on loans made to farmers that participated in the PIK program.

MATTERS FOR CONSIDERATION BY THE CONGRESS

Because of the controversy surrounding the 1983 PIK program and its multibillion-dollar cost, the Congress, in its deliberations on the 1985 farm bill, may want to consider

--the need for limits on the Secretary of Agriculture's authority to initiate programs like PIK without specific congressional approval and

--the advantages and disadvantages of having a payment limitation in years when acreage reduction programs are in effect. If a payment limitation remains in effect, an upper limit would be placed on farm program outlays. On the other hand, larger farmers may be discouraged from participating in future farm programs, which in turn could diminish USDA's ability to control production. (See p. 74.)

RECOMMENDATION

GAO recommends that to better evaluate the results of production control programs, such as PIK, the Secretary of Agriculture establish specific, quantified goals stating what these programs are to accomplish. (See p. 72.)

AGENCY COMMENTS

USDA said the report was objective. Although USDA agreed, in concept, with GAO's recommendation on the need to establish specific, quantified goals on production control programs, it said the unpredictability of weather, the U.S. economic situation, and world commodity production make the establishment of specific, quantified goals, based on accurate and reliable estimation, virtually impossible. Therefore, USDA concluded that the establishment of qualitative goals is a more realistic way of dealing with program expectations.

GAO realizes that many factors, including those mentioned by USDA, are difficult to predict. Difficulties are inherent in any process where estimates need to be made. However, such difficulties, in GAO's opinion, do not diminish the need to establish specific, quantified goals. (See pp. 74-75.)

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ILLUSTRATIONS

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ABBREVIATIONS

ARP	acreage reduction program
ASCS	Agricultural Stabilization and Conservation Service
CCC	Commodity Credit Corporation
CED	county executive director
ERS	Economic Research Service
GAO	General Accounting Office
MVRA	Missouri Valley Research Associates
OIG	Office of Inspector General
PIK	Payment-In-Kind
PLD	paid land diversion program
USDA	U.S. Department of Agriculture

CHAPTER 1

INTRODUCTION

Historically, the U.S. Department of Agriculture (USDA) has used a number of production adjustment mechanisms to take cropland out of production. These mechanisms are part of a group of various farm programs designed to stabilize and enhance commodity prices and farm incomes. However, trends began to evolve in 1981 and continued into 1983--such as record U.S. harvests and decreased domestic and foreign demand--that made these traditional farm programs ineffective and costly in controlling surplus agricultural commodities. Between 1980 and 1982 farm program expenditures increased fourfold, from $2.7 billion to $11.6 billion, and were expected to increase to $18.9 billion in 1983. As a result, on January 11, 1983, USDA announced the 1983 Payment-In-Kind (PIK) program, which covered five commodities--corn, grain sorghum, wheat, rice, and cotton. Under PIK, farmers received commodities, rather than cash, in return for idling cropland and reducing production of surplus commodities. Although PIK supplemented existing production adjustment programs, it marked a fundamental change from the previous two decades in the administration of farm programs.

USDA established the PIK program administratively under its statutory authority in the Agricultural Act of 1949, as amended (7 U.S.C. 1421 et seq.), and the Commodity Credit Corporation Charter Act (15 U.S.C. 714 et seq.). That is, the PIK program was designed and implemented within existing statutory authority but did not receive specific congressional authorization.[1] Since its formulation, the PIK program has been the subject of a great deal of controversy and debate within the agricultural community, the Congress, and the media. Program proponents maintain that it was one of the most successful production control programs ever in that it (1) took out of production about a quarter of the acres that could have been planted in 1983 with the commodities covered by the PIK program, (2) reduced the expected production of these commodities substantially, and (3) reduced the surplus ending stock levels of these commodities. PIK program opponents contend that (1) PIK payments received by farmers who participated were overly generous and large farmers received a disproportionately large share of PIK payments, (2) the program's effectiveness as an acreage reduction program to reduce the supplies of commodities was questionable, (3) the program's cost was high and was not adequately considered during the program's design, and (4) USDA's ability to meet its PIK commitments to farmers in a timely manner was hampered because of the large number of participating farmers.

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[1]Prior to its administrative implementation, legislative proposals to establish a PIK program were discussed with both the House and Senate Agriculture committees and was debated on the Senate floor. After its administrative implementation, bills authorizing a PIK program (S. 3074 and H.R. 7439, 97th Cong.) died at the conclusion of the 97th Congress.

Because of the controversy and after we initiated a study of the program, we received a number of congressional requests that resulted in several reports and testimony on various PIK issues. (See app. IV.) This report ties together the results of our earlier work on the PIK program and develops additional issues that, in total, permit overall observations and conclusions about the PIK program.

BACKGROUND ON FARM PROGRAMS

USDA uses a number of farm programs to try to stabilize farm commodity supplies and stabilize and enhance prices and incomes. The Agriculture and Food Act of 1981 (Public Law 97-98, Dec. 22, 1981) authorized cropland acreage reduction programs for the 1982-85 crops of wheat, rice, cotton, and feed grains (including corn and grain sorghum). These programs continue a long line of earlier production adjustment programs intended to reduce supplies by taking cropland out of production.

For each of the commodities, the Secretary of Agriculture provides for an acreage reduction program (ARP) if the Secretary determines that the total supply of a commodity will, in the absence of such a program, likely be excessive. In making the determinations, the Secretary takes into account the need for an adequate carryover of commodity stocks from year to year in order to maintain reasonable and stable supplies and prices and to meet a national emergency.

When farmers join ARP programs, they take a certain percent of their acreage out of production to be eligible for farm program benefits. These benefits include price-support loans and deficiency payments. Price-support loans are loans made by USDA at established minimum loan rates, which are in essence floor prices, to farmers who agree to store commodities, thereby keeping them off the market during periods of excess supply to help keep prices from falling. The farmers can either pay back the loans or forfeit the commodities to the government in full payment of the loans when the loans come due. If the farmers choose to forfeit, the government takes possession of the commodities, which become part of USDA's inventory. Deficiency payments are cash payments made directly to farmers to supplement their incomes when a commodity's market price is lower than a set or target price established by law.

Whether or not an ARP program for a particular commodity is in effect, the Secretary may also provide for paid land diversion (PLD) programs and make land diversion payments to farmers if the Secretary determines that such payments are necessary to assist in adjusting the total acreage of a commodity to desirable goals.

When farmers join PLD programs, they are required to take a certain percent of their acreage out of production. The farmers receive, in turn, a specified price, in cash, for the commodities that they would have grown had they not participated in the PLD programs. These payments are called cash diversion payments.

Besides authorizing continuation of the various farm programs for 1982-85, the 1981 act also set a maximum payment limitation of $50,000 per year that a farmer could receive if the farmer joined one or more of the programs that were in effect for any one crop year.

ADMINISTRATION OF FARM PROGRAMS

USDA administers farm programs through its Commodity Credit Corporation (CCC) and its Agricultural Stabilization and Conservation Service (ASCS). CCC is a government-owned and -operated corporation created in 1933 to stabilize, support, and protect farm income and prices; to assist in maintaining balanced and adequate supplies of agricultural commodities; and to facilitate the orderly distribution of these commodities. CCC also encourages farmers to store designated commodities when stock levels are higher than needed to meet domestic and foreign demand. CCC has no operating personnel; its programs are carried out primarily through ASCS' personnel and facilities.

ASCS has a headquarters office in Washington, D.C.; an office in Kansas City, Missouri, that handles management activities and commodity operations; 50 state offices; and an office in the Commonwealth of Puerto Rico. At the time of our review, 2,822 ASCS county offices administered farm programs in 3,054 counties. Each state and county office has a committee that directs the office's activities. The county committees, which administer local operations, are composed of three farmers elected by local farmers and the county agricultural extension agent, who is an ex officio member. The county committees make local program decisions and policies and appoint a county executive director (CED) who directs the county office staff in handling the day-to-day administrative work.

EVENTS THAT LED TO PIK

As a result of trends that began to evolve in 1981, existing farm programs did not meet their objectives of stabilizing farm commodity prices and farm incomes. These trends included record U.S. harvests that resulted in low commodity prices for farmers, decreased farm incomes, and a large buildup of commodity stocks placed under price-support loans.

Growing U.S. stock levels resulted from record levels of wheat and corn and near record levels of cotton produced by U.S. farmers in 1981 and from weakened domestic and foreign demand for these and other U.S. commodities throughout the marketing year. In an effort to reduce supplies, USDA implemented acreage reduction programs for wheat, corn, grain sorghum, rice, and cotton in 1982. Despite this effort, U.S. farmers increased their per-acre yields and harvested even larger crops of wheat and corn in 1982. The record production plus the 1981 carryover in stocks dramatically increased stock levels for nearly all major commodities. By the end of the 1982 crop year (the calendar year in which a crop is harvested), ending rice stocks had quadrupled their level of 2 years earlier; grain sorghum, corn, and cotton stocks had

tripled; and wheat stocks had increased about 60 percent. As the exhibit on the following page illustrates, USDA anticipated in January 1983 that supplies of the five commodities would greatly exceed demand during the 1983 crop year.

Increased stocks and low commodity prices dramatically increased federal outlays for farm programs. Higher deficiency payments were made to farmers to make up the difference between the market price of the commodity and the target price established in the 1981 act, and more farmers put their commodities under loan because the loan amount was higher than the market price. In fiscal year 1980, federal expenditures for farm programs were $2.7 billion; however, in fiscal year 1982, these expenditures jumped to $11.6 billion, over a fourfold increase.

The initial 1983 ARP and PLD programs, mandated by the Congress in the Omnibus Budget Reconciliation Act of 1982 (Public Law 97-253, Sept. 8, 1982), were aimed at taking more land out of production than was taken out in 1982. However, soon after these programs were announced in the fall of 1982, USDA officials realized that the agricultural trends begun in 1981 would persist and federal expenditures for farm programs would continue to increase. On the basis of the announced 1983 farm programs, USDA estimated that fiscal year 1983 federal expenditures would increase to $18.9 billion,[2] a $7.3-billion increase over fiscal year 1982 and a sevenfold increase since 1980. Because of this situation, USDA had some difficult decisions to make regarding the final 1983 farm programs. USDA's response was the announcement of the 1983 PIK program on January 11, 1983. The PIK program was a supplemental program to the previously announced 1983 ARP and PLD programs.

WHY USDA SELECTED THE PIK PROGRAM

In determining the final makeup of the 1983 farm programs, USDA's major concern was how best to reduce production and surplus stocks of wheat, corn, grain sorghum, rice, and cotton without increasing federal expenditures above the estimated record level of $18.9 billion already projected by USDA for fiscal year 1983. After announcing the original 1983 ARP and PLD programs for wheat, corn, grain sorghum, rice, and cotton and analyzing expected participation in these programs, USDA did not believe that enough acres would be taken out of production to reduce production and 1983 ending stock levels significantly. USDA concluded that an additional program would be needed to supplement the announced ARP and PLD programs. In USDA's opinion, the option of providing additional cash benefits under the ARP and PLD programs to increase farmer participation and reduce commodity production would have increased budget outlays at a time when increased deficit spending was unacceptable. In addition, USDA maintained that increased benefits under the ARP and PLD programs would have required a dramatic increase in the number of farmers needed to

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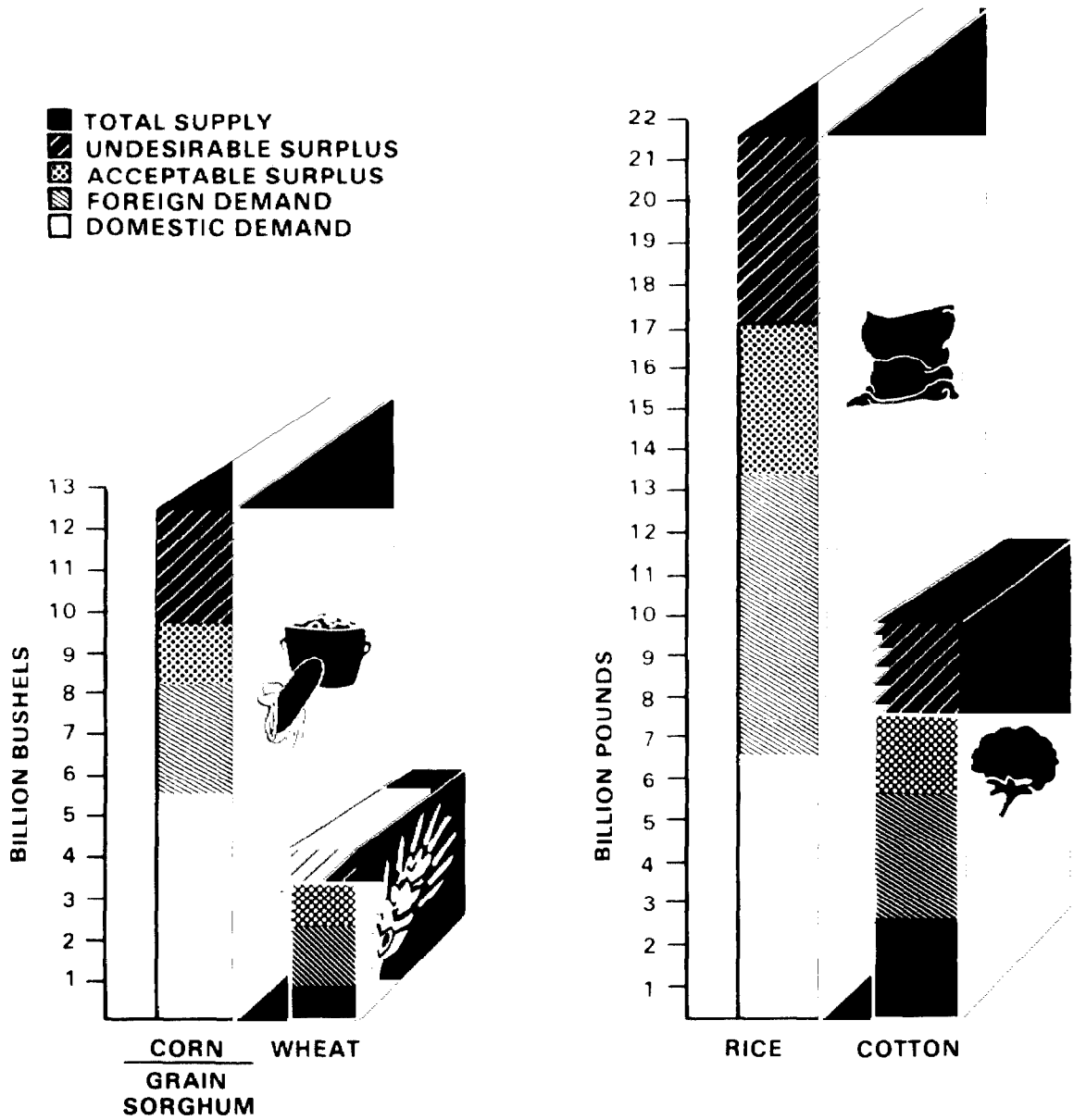
[2]Actual fiscal year 1983 expenditures were $18.9 billion.

EXHIBIT 1

USDA's JANUARY 1983 COMMODITY SUPPLY AND DEMAND ESTIMATES FOR CROP YEAR 1983



participate in these programs to reduce production and surpluses because the $50,000 payment limitation would limit participation by the large farmers.

USDA cited the following reasons for selecting the PIK program rather than expanding the ARP and PLD programs. First, paying farmers in commodities for idling acres and reducing 1983 production would not significantly increase farm program budget outlays in the short term. As originally envisioned, the commodities used to make payments would come from commodities acquired by CCC or farmer-owned commodities under CCC price-support loans. These commodities were already paid for in previous years' budget outlays. As a result, USDA would be paying farmers in commodities that were government assets, rather than in cash. No additional cash outlays would be made for these commodities although minimal increases in 1983 budget outlays could occur because of transporting the commodities to the participating farmers. Second, by paying farmers in these commodities, the surplus stocks would be reduced, and USDA storage payments on these commodities would also be reduced. Third, USDA believed that payments in commodities would not be subject to the $50,000 limitation on payments that individual farmers could receive because, in USDA's opinion, the payment limitation only applied to cash payments. As a result, large farmers, who either did not participate in farm programs or limited their participation in the past because of the $50,000 limit, would participate more fully in the PIK program, and this would further reduce production.

The PIK program, complemented by the ARP and PLD programs, was to accomplish the following broad objectives, namely to

--reduce production;

--reduce ending commodity stock levels;

--ease storage problems;

--ensure adequate supplies of commodities at all times;

--increase net cash farm income; and

--over the long term, minimize government farm program outlays.

HOW PIK WORKED

The PIK program limited eligibility to wheat, corn, grain sorghum, rice, and cotton farmers. To participate in the PIK program, eligible farmers had to take prescribed portions of their base acreage,[3] or in some cases their entire base acreage

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[3]The base acres for a particular commodity and for a particular farm are those acres ASCS recognizes for program payment purposes.

normally planted to one or more commodities, out of production to receive as compensation from USDA a certain portion of the commodity or commodities they otherwise would have planted and harvested.

USDA initially designed the PIK program so that commodity payments could be made from two sources--(1) farmer-owned commodities held by CCC as collateral against loans previously made to farmers and (2) inventory owned by CCC. If a participating farmer had one or more outstanding loans with CCC, USDA forgave part or all of the farmer's loan or loans (principal and interest), and the farmer retained the commodity used as loan collateral as the PIK payment. A farmer who did not have an outstanding loan received a letter entitling him/her to receive commodities in CCC's inventory as payment.

ASCS' Kansas City office carried out the program's commodity operations, which consisted of acquiring, positioning, and allocating the needed commodities to local ASCS county offices nationwide. Each county office then issued certificates to the county's participating farmers, enabling them to receive their PIK commodities at designated warehouses.

USDA did not have enough CCC-owned stocks of wheat, corn, grain sorghum, and cotton available to pay farmers who did not have outstanding loans. As a result, USDA had to acquire additional quantities. In accordance with PIK program provisions, USDA purchased these additional quantities from farmers who had commodities that were under loan with CCC and that were not being used for the farmers' own PIK payments.

However, even after purchasing the additional commodities, USDA did not have enough wheat and cotton to meet all its PIK obligations. To make up for these shortages, USDA implemented a program phase labeled "harvest for PIK." Under the "harvest for PIK" procedures, USDA required wheat and cotton farmers who were to receive their PIK payments from CCC inventory and who had not enrolled their entire wheat and cotton base acreage in PIK to obtain CCC loans for their 1983 crops. The wheat and cotton under loan were then assigned to USDA as collateral with the farmers receiving the loan proceeds. USDA then forgave the loans, and the farmers retained the wheat or cotton as their PIK payments.

USDA made the PIK commodities available to individual counties through the use of loading orders. A loading order instructs a specific local warehouse to release a specified amount of a commodity. When the Kansas City office sent loading orders to warehouses, it sent copies to the local ASCS county offices, which then issued PIK entitlement certificates to the farmers, notifying them that their PIK payments were available at the indicated warehouses.

The PIK program provided that commodities distributed for PIK would be of certain specified grades (or classes), such as number 2 yellow corn. However, if USDA did not provide commodities of the specified grade or class, it compensated by

providing an additional quantity of commodities if those provided were below the specified grade or class, or a reduced quantity of commodities above the specified grade or class.

USDA made the PIK commodities available to farmers on certain dates called availability dates. The availability dates varied, generally following the appropriate harvest date for each commodity in each area of the country. The availability dates for wheat, corn, and grain sorghum were earliest for the southernmost sections of the country, and advanced by 2-week increments through the central and northern sections.

Overall, the 1983 PIK program took out of production an additional 49.2 million acres of corn, grain sorghum, wheat, rice, and cotton. Over 1 million farms, involving about 831,000 farmers, participated in the program. As discussed in chapter 4, we estimated that the 1983 PIK program cost USDA between $9.8 billion and $10.9 billion.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective in issuing this report is to provide an overall assessment of the 1983 PIK program. Prior to this overall report, we reported and testified on a number of PIK-related issues beginning in November 1983. (See app. IV.) All our previous reports and testimony responded to requests from congressional committees, subcommittees, or individual members of the Congress. It should be noted, however, that when we received the first request in April 1983, we had a self-initiated study underway on the PIK program. The purpose of this report is to tie together the results of our earlier work on the PIK program and to develop additional issues that, in total, permit us to make overall observations and conclusions about the program. Thus, this report enables us to provide the Congress and agricultural policymakers with some matters for consideration and deliberation in the debate on the 1985 farm bill.

The specific issues addressed in this report are the

--justification for the design and formulation of the PIK program's key provisions;

--program's impact on reducing production and commodity stock levels, easing storage problems, ensuring adequate supplies of commodities, and increasing net cash farm income;

--program's cost;

--distribution of payments to farmers; and

--effectiveness of USDA's acquisition and delivery of PIK commodities to participating farmers.

Scope

Our reviews of the PIK program focused on the 1983 program. While there was a 1984 PIK program, we did not include it in our reviews because it was limited to wheat and was, thus, much less comprehensive than the 1983 program. In addition, congressional and public interest and controversy focused on the 1983 PIK program.

We conducted our reviews of the PIK program at ASCS headquarters, Washington, D.C., and its office in Kansas City, Missouri. The scope of our reviews also included contacts with 250 ASCS county offices in 15 states and meetings with USDA officials in the Office of the Assistant Secretary for Economics, Office of the General Counsel, Economic Research Service (ERS), Statistical Reporting Service, Federal Grain Inspection Service, and Soil Conservation Service.

To get an understanding of the views of affected farmers and how the PIK program compared with previous farm programs, we contacted officials of the National Corn Growers Association, Grain Sorghum Producers Association, National Association of Wheat Growers, Rice Millers Association, and the National Cotton Council of America. We also contacted officials of other farm associations, including the American Farm Bureau Federation, U.S. Feed Grains Council, National Farmers Organization, National Farmers Union, and National Grain and Feed Association. We chose these groups because they are major groups representing the farmers who grow commodities included in the PIK program. In addition, we discussed the PIK program with a number of experts from academia who have backgrounds and expertise in the operation of USDA's farm programs.

Further, we reviewed applicable legislation, regulations, and instructions governing farm programs in general and the 1983 PIK program in particular. We coordinated our work with USDA's Office of Inspector General (OIG) and identified and reviewed relevant OIG audit reports on PIK.

We hired a consulting firm, Missouri Valley Research Associates, to assist us in determining the 1983 PIK program's impact. The firm was specifically used to provide a computer modeling analysis of the program and to isolate the impact of the 1983 drought, which occurred in several top crop-producing states at the same time the 1983 PIK program was in effect, from that of PIK.

We made our reviews between May 1983 and December 1984 and in accordance with generally accepted government auditing standards except that we did not validate the accuracy of the computer data we obtained from USDA and used to analyze the distribution of PIK program benefits.

Methodology

We evaluated the PIK program's design and formulation beginning at the point USDA identified the need to supplement the originally announced 1983 farm programs. We reviewed USDA working papers, correspondence, and analyses regarding PIK and compared the process used to establish the PIK program provisions with the process used to develop prior farm programs. We also interviewed USDA headquarters officials responsible for designing PIK, including officials in ASCS, ERS, and the Office of the Secretary. The ASCS officials were responsible for administering the PIK program, the ERS officials were responsible for providing various analyses and options on the PIK program, and the Office of the Secretary officials had primary policy- and decision-making responsibility for the PIK program.

To help us evaluate the 1983 PIK program's impact, we hired a consulting firm to quantify PIK's impact as it related to the program's overall objectives. The consulting firm, Missouri Valley Research Associates (MVRA), specializes in agricultural economic analysis and econometric farm modeling. Such expertise was necessary because measuring the impact of the 1983 PIK program was complicated by the 1983 drought, which strongly affected the production of corn and grain sorghum and, to a much lesser degree, the production of cotton and rice. Before hiring MVRA, we held discussions with various agricultural economists and consultants; officials of the Congressional Budget Office and Congressional Research Service; and various farm analysts from academia to determine firms that have expertise in econometric farm modeling. The consensus of these discussions was that MVRA had one of the most up-to-date, flexible, state-of-the-art econometric models for analyzing farm program data. After hiring MVRA, we met with various ASCS and ERS officials responsible for performing most of USDA's economic and policy analysis on farm programs to discuss MVRA's assumptions in evaluating the impact of the 1983 PIK program. The officials said that MVRA's assumptions seemed reasonable.

We used MVRA to develop quantitative data that isolated the PIK program's impact from that of the 1983 drought to determine their respective effects on production, commodity stocks, storage problems, and farmers' net cash incomes. This was necessary because both PIK and the drought had similar effects on PIK's stated objectives. Both reduced production which, in turn, reduced commodity stock levels, eased storage problems, and affected farmers' net cash incomes.

Details of our methodology for evaluating the 1983 PIK program's impact, including a discussion of MVRA's econometric model and the assumptions used in that model, are included in appendix I.

Our methodology for estimating the 1983 PIK program's cost included identifying the elements that made up the PIK cost and determining the cost of these elements to the federal government. We identified the cost elements by reviewing ASCS' procedural

handbooks, which detail the operating procedures for the PIK program, and through discussions with ASCS' Assistant Deputy Administrator for Management and other ASCS officials in the Budget Division. Our estimate does not include costs to consumers and businesses. The cost elements identified included commodity, storage, diversion, distribution, potential interest, and miscellaneous costs. Our cost is an estimate because the final PIK obligations were not known at the time we prepared our cost data in December 1984.

The cost estimate associated with each element was essentially based on actual payments as of September 30, 1984; USDA estimates of additional quantities needed to satisfy its 1983 PIK commitments; and the sources USDA used and intended to use to fulfill these PIK obligations. These sources included (1) loan forfeitures for producers who had outstanding loans, (2) CCC inventory, and (3) loan forfeitures under the "harvest for PIK" program. Although the PIK quantities needed to satisfy USDA obligations and sources intended to fulfill the obligations are not final, changes are expected to be minimal and, therefore, should have a minimal effect when final costs are known. Appendix II presents the details of our methodology and calculations for estimating the 1983 PIK program's cost.

To examine the distribution of PIK commodities to farmers, we compiled data on PIK payment quantities for each PIK crop from USDA's 1983 Deficiency Master File, which contains computer data on each farm and farmer enrolled in the 1983 PIK program. As of November 1984, the data in the file were based on actual PIK payments through July 27, 1984, and represented about 96 percent of the payments to be made to PIK participants. Once we determined the PIK payment quantities, we valued these commodities at their estimated cost to the federal government. We then categorized these payments by farm size and type of farmer--individual or organization, such as partnership and corporation. Using the data on PIK payments by farm size, we evaluated whether PIK payments to farms were proportional to the acres the farms took out of production for PIK. We made this evaluation because of contentions that large farmers received a disproportionately large share of the PIK payments.

We did not validate the accuracy of the data in USDA's 1983 Deficiency Master File because (1) USDA was continually updating the data to account for more complete data and corrections submitted by ASCS' county offices and (2) we were more concerned with overall national data than with the accuracy of specific payments to specific farmers. However, we identified a number of errors in the data base due primarily to data entry errors. While we corrected some of the most obvious errors in the data we used, we did not attempt to correct all of them. Nonetheless, on the basis of our review of the data, discussions with ASCS officials in Kansas City, and several data checks done by ASCS to validate the information before entering it in the file, we believe that the data are indicative of the overall national conditions existing in 1983 during the PIK program. The methodology we used

was reviewed by ASCS officials who suggested some changes that we adopted prior to retrieving the data.

In reviewing the acquisition and delivery of commodities to farmers, we evaluated the effectiveness and efficiency of USDA's procedures for (1) acquiring the commodities needed to meet its payment obligations, (2) positioning or locating the commodities where they were needed, and (3) delivering the commodities to participating farmers. We evaluated commodity acquisition by comparing the method USDA used to purchase PIK commodities (lowest bid) with an alternative method (unit cost) identified by USDA's OIG. We evaluated commodity positioning by analyzing the process ASCS used to match PIK payment obligations with available inventory, and then reviewing the information USDA officials used to make decisions about inventory positioning throughout the country.

To evaluate commodity delivery, we selected 12 agricultural states--Georgia, Illinois, Nebraska, and Pennsylvania for corn; Texas for grain sorghum; Kansas, Montana, Oklahoma, Tennessee, and Washington for wheat; California for cotton; and Louisiana for rice. The state or states selected for each commodity accounted for about 25 percent of the total of that commodity distributed nationwide from inventories. For each of the 12 states, we randomly selected a number of counties that allowed us to project our results to each state as a whole. We then reviewed, at ASCS' Kansas City office, the loading orders for each county to determine the extent to which USDA had provided commodities (1) by the prescribed availability date, (2) of the agreed-upon grade, and (3) in a location specified by PIK procedures. We followed up our review of loading orders with telephone contacts with county executive directors to determine their experiences with the program. The details of our methodology for evaluating USDA's acquisition, positioning, and distribution of PIK commodities are further discussed in appendix III.

CHAPTER 2

PIK REDUCED ACREAGE PLANTED; HOWEVER, SPECIFIC, QUANTIFIED GOALS NEEDED TO BE ESTABLISHED

To accomplish the broad objectives established for the PIK program (see p. 6), USDA designed two key program provisions to encourage farmers to join the program and take additional land out of production. These were (1) establishing favorable payment rates for the PIK program and (2) permitting some farmers to take their entire base acres out of production. In addition, USDA's determination that PIK payments were not subject to the $50,000 payment limitation that otherwise applied to cash payments to farm program participants encouraged more large farmers to join the program and take additional land out of production. Although these program features were successful in getting farmers to join the program and take additional land out of production, their effectiveness in meeting program objectives cannot be determined because USDA did not establish any specific, quantified goals or benchmarks. Accordingly, in the absence of such quantified goals, USDA had no basis for deciding whether specific program design features were effective or whether the overall program was sufficient and cost-effective in reversing the trends that began in 1981. We also found that USDA's determination that the $50,000 payment limitation did not apply to PIK payments was incorrect. We concluded that the $50,000 payment limitation did apply to commodity payments under the PIK program and that exemption of these payments from the payment limitation would have required specific legislative approval.

PIK WAS DESIGNED TO TAKE LAND OUT OF PRODUCTION

After selecting the PIK option and establishing its broad objectives, USDA designed the PIK program to take as much land out of production as possible without adversely affecting local agricultural economies. PIK was designed to give farmers two options for participating in the program. Under one option, a farmer could take a portion of his/her acreage for a particular commodity out of production. Under the second option, a farmer could take his/her entire base acres planted to a particular crop out of production. USDA also made it mandatory for PIK participants to join the earlier announced ARP and PLD programs. In other words, PIK was the third tier of a three-tiered program. In addition, USDA's determination that PIK payments were not subject to the $50,000 payment limitation encouraged larger farmers to join the program and take additional land out of production.

Originally, USDA anticipated that a PIK program would be needed for 2 years--1983 and 1984--for all five crops. However, because of the reduction in 1983 production and a drought in the summer of 1983, USDA decided to reduce the scope of the PIK

program for 1984. Accordingly, for 1984 the PIK program covered only wheat.

Under the first option for taking additional land out of production, a farmer could choose to take out an additional 10 to 30 percent (10-30 PIK) of the base acres beyond what was already taken out of production to meet the ARP and PLD requirements. For example, a farmer whose farm had 100 base acres of corn and who chose to participate in the 10-30 PIK option at the 30-percent level would have had to take 10 percent of the farm's corn base acreage out of production to meet the ARP requirement, 10 percent to meet the PLD requirement, and an additional 30 percent to meet the PIK requirement, or a total of 50 percent (10+10+30) of the farm's base acres. In turn, the farmer would receive no payments on the 10 percent taken out of production for the ARP program, diversion payments in cash on the 10 percent idled for PLD, and PIK payments in the form of corn--at a fixed rate--on the 30 percent idled for PIK. Farmers who elected the 10-30 PIK option were guaranteed participation. USDA stated that it would accept all participants willing to join this option.

The second option available to PIK participants, called whole-base PIK, was to put their entire base acres into the PIK program. If a farmer chose the whole-base option, participation in the ARP program was waived, and the farmer received a payment for all of the acres put into PIK. The sources of payments were the PLD and PIK programs. For example, if the same farmer mentioned above chose to participate in whole-base PIK, the farmer would have taken all 100 base acres out of production and received cash diversion payments on 10 percent, or 10 acres, and PIK payments on 90 percent, or 90 acres.

To minimize the impact that whole-base PIK would have on local agricultural economies and such associated industries as seed, fertilizer, and agricultural equipment manufacturers and dealers, USDA established a maximum 45-percent limit on the amount of each county's base acres for each commodity that could be taken out of production. Because of the 45-percent limit, some farmers who selected the whole-base alternative could have their selection rejected.

USDA's procedure for selecting bids was to have all farmers who wanted to participate in the whole-base option submit bids for the payment rate they would accept for removing their land from production. For example, if a corn farmer wished to idle 100 base acres for whole-base PIK and submitted a bid of 75 percent, the farmer was saying that he/she would accept as a PIK payment 75 percent of the corn he/she would otherwise have planted and harvested on the 100 base acres. In counties where the 45-percent limit would have been exceeded if all bids were accepted, USDA accepted bids, starting with the lowest bids, up to the point where 45 percent of a county's base acres for the particular commodity would have been idled for PIK. To protect farmers who wanted to participate in PIK but whose whole-base selections might

be rejected, USDA allowed the farmers to indicate at the time they signed up for whole base, whether they would join the 10-30 PIK option if their whole-base selection was rejected. Those who indicated their willingness to participate in the 10-30 option were allowed to join if their whole-base option was rejected.

USDA determined that the $50,000 payment limitation did not apply to in-kind commodity payments for the 1983 PIK program. Accordingly, farmers who otherwise might not have participated in the program because their total program payments, including PIK payments, would have exceeded $50,000 could participate in the program regardless of how much they received in PIK payments.

PIK PROVISIONS REDUCED ACRES PLANTED

As a result of the PIK program, the total number of acres taken out of production increased by about 49.2 million acres, from an estimated 26.8 million acres under the originally announced ARP and PLD programs to about 76.0 million acres after PIK. Farmers' decisions to participate or not participate in farm programs are complex and depend on a number of individual factors, such as winter and spring weather patterns, current and projected commodity market prices, and whether or not the programs include guaranteed payments. According to ERS, farmers often base their decisions to participate or not participate on whether or not the programs will increase their net cash incomes. Net cash income is the amount of cash a farmer has left after deducting the cash expenses associated with operating a farm from the cash income the farmer receives from the farm operations.

On the basis of our review, we believe the main reasons for the 49.2-million-acre increase in acres taken out of production under the PIK program can be attributed to USDA

- --setting PIK payment rates on the 10-30 PIK option at levels that provided farmers a net cash income that was slightly higher than what they could have expected if they joined the original ARP and PLD programs;

- --permitting the whole-base option as an alternative to the 10-30 PIK that resulted in farmers' receiving net cash incomes significantly higher than what they could have expected under the original ARP and PLD programs; and

- --determining that the $50,000 payment limitation did not apply to PIK payments, which meant that the monetary value of PIK commodities was not counted against the amount of payments participants were able to receive from farm programs.

Of the 49.2-million increase in acres taken out of production as a result of PIK, about 27.3 million acres were in PIK acres under the 10-30 option, about 20.9 million were in PIK acres under the whole-base option, and about 1.0 million acres were ARP and

PLD acres required to be taken out of production as a prerequisite for joining the PIK program. About 15.75 million acres of the 49.2 million acres were taken out of production because USDA determined that the $50,000 payment limitation did not apply to PIK payments. We could not determine how much of the 15.75 million acres fell under the 10-30 option, whole-base option, or ARP and PLD programs.

Payment rates on 10-30 PIK option encouraged farmers to participate

USDA encouraged participation in the 10-30 PIK program by providing farmers a net cash income that was, on an overall basis, slightly higher than what farmers could have expected under the original ARP and PLD programs. USDA accomplished this by setting the payment rates at levels that, when combined with decreased cash expenses for not planting, would more than offset the cash income farmers would have received for planting and harvesting their crops. Because it was more advantageous for farmers to participate in the 10-30 PIK option than under only the original ARP and PLD programs, farmers took an additional 27.3 million acres out of production by joining the 10-30 option.

The payment rates established by USDA were 80 percent for corn, grain sorghum, rice, and cotton, and 95 percent for wheat. That is, for every acre taken out of production under the 10-30 PIK option, the farmer would receive in payment 80 percent or 95 percent of the commodity he/she would normally have grown on that acre. For example, if a corn farmer who normally harvested 100 bushels of corn per acre joined the 10-30 PIK option, he/she would receive in payment 80 bushels of corn for each acre of land placed in the 10-30 PIK option. The payment rate for wheat farmers was set at 95 percent to offset planting costs already incurred by many winter wheat farmers. (Winter wheat, which accounts for about 70 to 80 percent of U.S. wheat production, is planted in the fall preceding the year in which it is harvested; hence, farmers of winter wheat had already planted their 1983 crops before the PIK program was announced and thus had already incurred planting costs that other farmers would not incur.) Although farmers of spring wheat did not incur these costs, USDA administratively decided that all wheat farmers would receive 95 percent.

How payment rates were established

USDA officials primarily responsible for the PIK program's design and formulation[1] told us that the payment rates were

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[1]The officials whom USDA identified as having the most responsibility for and knowledge about the design and formulation of the PIK program and with whom we subsequently discussed PIK's design and formulation included USDA's Deputy Assistant Secretary for Economics, ASCS' Administrator, ASCS' Assistant Deputy Administrator for Program Planning and Development, the Director of ASCS' Analysis Division, and various ASCS commodity analysts.

determined after analyzing national data on farmers' cash receipts and cash expenses. These data are referred to as farm budget data. ASCS analysts use these data in projecting a typical farmer's net cash income. To determine the 10-30 PIK option payment rates, the analysts prepared two farm budgets for each commodity, one for 10-30 PIK participants and one for ARP and PLD participants, and determined the difference in net cash incomes under the two situations. The data used to estimate cash receipts included estimates of the value of the commodity produced and the value of the deficiency and diversion payments the farmers were estimated to receive for joining each of these programs. To determine the value of the commodity produced and the deficiency payments, USDA had to estimate what the commodity's market price would be at harvest time. Because USDA could not forecast the exact market price, it used CCC national average loan rates[2] in valuing the commodity receipts and deficiency payments.

USDA's analysis of the budgets showed that, for farms of equal size, the estimated net cash incomes of farmers participating in the 10-30 PIK option were lower than those of farmers participating in the original ARP and PLD programs. This was because 10-30 PIK participants were expected to harvest less because more acres would be taken out of production. For example, table 1 shows the two farm budgets USDA used in establishing the payment rate for corn.

As table 1 shows, a farmer with a 100 base-acre farm who participated in the original ARP and PLD programs would have an estimated net cash income of $14,424. In comparison, the same farmer participating in the 10-30 PIK option would have a net cash income of $8,640, excluding any PIK payments.

To encourage 10-30 PIK participation, USDA decided to provide commodities to PIK participants at a payment rate that would make a PIK participant's estimated net cash income at least equal to the estimated net cash income of a farmer who participated only in the original ARP and PLD programs. For example, as table 1 indicates, corn farmers taking 30 percent of their acres out of production for PIK would have to be compensated with enough bushels of corn to make up for the $5,784 difference in net cash income.

To determine how many bushels of corn were needed to make up this difference, USDA divided the $5,784 difference by the estimated market price for corn ($2.65 per bushel). This resulted in 2,183 bushels of corn that USDA would need to pay a corn farmer to make the farmer's net cash income equal that of the ARP and PLD participant for taking an additional 30 percent of his/her 100

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[2]Loan rates are in essence floor prices established by USDA on farm program commodities and are the prices USDA uses in making CCC loans and in determining deficiency payments.

base acres out of production under the 10-30 PIK option. Using this approach, USDA calculated a payment rate that would be used for all PIK corn farmers. The payment rate was expressed as a percentage.

To determine the payment rate, USDA calculated the bushels of corn the farmers would not harvest by taking the additional 30 acres out of production. Since USDA used an average program yield of 100 bushels of corn per acre for ARP and PLD participants, it used the same for 10-30 PIK participants. This resulted in 10-30 PIK participants harvesting 3,000 fewer bushels of corn (100 bushels per acre x 30 acres). USDA then divided the number of bushels of corn needed to pay the farmer (2,183 bushels) by the number of bushels the farmer would not harvest (3,000). This resulted in a payment rate of 72.75 percent. This meant that USDA would have to pay the 10-30 PIK participants 72.75 percent of what they normally would have planted had they not joined PIK to make the 10-30 PIK participants' net cash incomes equal to those of the ARP and PLD participants.

Table 1

Corn Farm Budget
(100 base-acre farm)

	Farmer participating in ARP, PLD only	Farmer participating in 10-30 PIK
Total acres	100 acres	100 acres
Acres idled for: ARP (10%)	10 acres	10 acres
PLD (10%)	10 acres	10 acres
PIK (30%)	-	30 acres
Total	20 acres	50 acres
Acres in production (total acres less acres idled)	80	50
Harvested yield (bu/acre)	112	112
Total produced (bu)	8,960[a]	5,600[a]
Market price (bu)	$ 2.65	$ 2.65
Value of corn produced	$23,744	$14,840
PLD payment[b]	1,500	1,500
Deficiency payment[c]	1,680	1,050
Total cash income	$26,924	$17,390
Cost of: production[d]	$12,000	$ 7,500
conservation[e]	500	1,250
Total costs	$12,500	$ 8,750
Net cash income	$14,424	$ 8,640

[a]Acres in production x harvested yield (bushels per acre).

[b]PLD acres x ASCS-established program yield of 100 bu/acre x $1.50 per bushel (10 acres x 100 bu/acre x $1.50 per bushel = $1,500).

[c]Total produced x $0.1875 per bushel. This figure represents USDA's estimated per bushel deficiency payment for corn in 1983.

[d]Acres in production x production costs of $150 per acre.

[e]Total idled acres x conservation costs of $25 per acre.

The farm budgets for the other PIK commodities--grain sorghum, wheat, rice, and cotton--showed a situation similar to that for corn. Table 2 shows the net cash income differences for all the PIK commodities.

Table 2

Estimated Net Cash Income[a] Before PIK Payment

Commodity	Farmer participating in ARP, PLD programs	Farmer participating in 10-30 PIK program before PIK payment	Difference
Corn	$14,424	$ 8,640	$5,784
Grain sorghum	7,360	3,982	3,378
Wheat	6,945	3,006	3,939
Rice	20,733	13,009	7,724
Cotton	13,249	7,342	5,907

[a]Based on a farm with 100 base acres and PIK participant idling 30 percent of his/her farm (30 acres) for PIK.

Based on the amounts in table 2 for the other PIK commodities, the payment rates needed to make a PIK participant's estimated net cash income equal to that of the farmer who participated in only the original ARP and PLD programs was 78.7 percent for grain sorghum, 67.9 percent for rice, 62.8 percent for cotton, and 105.8 percent for wheat.

USDA officials responsible for the design and formulation of the PIK program told us that the payment rates actually used for the PIK program--95 percent for wheat and 80 percent for the other commodities--were determined after reviewing the farm budget analysis for each crop. The officials said that the rates were selected with the general goal of encouraging program participation and that USDA's approach was to set the payment rates at a level that could prove to be too high instead of too low. In other words, if USDA's predictions on future market prices were in error, USDA wanted to be on the side of making the payment rates more, rather than less, attractive to potential participants. USDA decided on the 95-percent rate for wheat because, according to ASCS officials, a policy decision was made within USDA's Office of the Secretary of Agriculture to set the rate at 95 percent.

Effect of payment rates

The effect of USDA's payment rate decision was, in essence, to provide farmers who joined the 10-30 PIK option, with the exception of wheat farmers, a higher net cash income, especially for corn, rice, and cotton, as compared with farmers who joined only the ARP and PLD programs. For example, instead of giving the

corn farmer with a 100 base-acre farm, who took an additional 30 acres out of production for PIK, enough bushels of corn--2,183--to equal $5,784, the corn farmer received corn valued at $6,360 (3,000 bushels x 80 percent = 2,400 bushels x $2.65 per bushel = $6,360). As a result, the corn farmer taking an additional 30 acres out of production for PIK was provided a net cash income about $576 higher than the ARP and PLD participant.

Table 3 shows the differences in net cash incomes, after PIK payments, for all five PIK commodities.

Table 3

Estimated Net Cash Income[a] After PIK Payment

Commodity	Farmer participating in ARP, PLD programs	Farmer participating in 10-30 PIK program	Increase for participating in 10-30 PIK program
Corn	$14,424	$15,000	$ 576
Grain sorghum	7,360	7,417	57
Wheat	6,945	6,543	(402)
Rice	20,733	22,113	1,380
Cotton	13,249	14,866	1,617

[a]Based on a farm with 100 base acres and PIK participant idling 30 percent of his/her farm (30 acres) for PIK.

As table 3 shows, the net cash incomes provided farmers under the 10-30 PIK component were higher for all commodities except wheat. In addition, by joining the 10-30 PIK option and complying with the 10-30 requirements, the farmers received commodities in payment and did not have the risks associated with growing the commodities. As a result, participating in the 10-30 PIK option, rather than only the ARP and PLD programs, was generally more advantageous for farmers and removed an additional 27.3 million acres from production.

Whole-base PIK option was financially attractive to farmers

USDA further encouraged PIK participation by permitting farmers of all the PIK commodities except rice to idle their entire base acres. Although rice farmers were allowed to submit whole-base bids, USDA did not accept the rice bids because it determined that enough rice acreage was enrolled in the 10-30 PIK option to accomplish the program's objectives. For the other four commodities, USDA accepted 81 percent of the more than 300,000 whole-base bids submitted and permitted an additional 20.9 million acres to be taken out of production.

On the basis of our analysis of farm budget data, we believe the reason for the large number of whole-base bids was that this PIK option offered farmers significantly higher net cash incomes compared with those under the 10-30 PIK option or the original ARP and PLD option. For example, our analysis showed that a corn farmer with 100 base acres who participated in the whole-base option could expect a net cash income about $1,649, or 11 percent, higher than if the farmer took 30 acres out of production under the 10-30 PIK option. The comparable amounts for the other three commodities were $597 higher, or about 8 percent, for grain sorghum; $1,909 higher, or about 29 percent, for wheat; and $5,833 higher, or about 39 percent, for cotton.

USDA accepted whole-base bids after it had analyzed the acres that would be taken out of production under the original ARP and PLD programs and 10-30 PIK option and its rejection of all whole-base bids that exceeded the 45-percent county limit. As a result of this analysis, USDA removed another 20.9 million acres from production. USDA's rationale for accepting the whole-base bids was to take advantage of this opportunity to further reduce 1983 production. According to an official in ASCS' Analysis Division and the Assistant Deputy Administrator for Program Planning and Development, no analysis was made to determine the additional cost of the whole-base PIK option because cost was secondary to the main goal of decreasing production.

USDA's decision to permit the whole-base option resulted in increased net cash incomes for the farmers whose bids were accepted. Using the farm budget data USDA used in its analysis of the 10-30 PIK option discussed earlier, we prepared farm budgets for 10-30 participants and whole-base participants to compare the net cash incomes of farmers participating under these two options. (See table 4.) Our farm budgets were based on a hypothetical farmer idling 30 percent of his/her base for PIK under the 10-30 PIK option with that of a farmer idling his/her entire base acres under the whole-base option. We used the same market prices--that is, loan rates--that USDA used in its analysis. Because farmers submitted bids on the PIK payment percentages they were willing to receive under the whole-base option (see p. 14), we analyzed for each commodity the bid payment rates that were accepted by USDA and computed the median percent accepted. The median percent accepted is the percent that most closely reflects a bid percent where half the bids accepted were above and half the bids accepted were below the median bid percent for each commodity.

As table 4 shows, farmers who participated in the whole-base PIK option at the median payment rate had net cash incomes much higher than those under the 10-30 PIK option. This was particularly so for wheat and cotton farmers, where on average, a wheat farmer's net cash income would have been about 29 percent higher and a cotton farmer's about 39 percent higher than if they joined the 10-30 PIK option. So, while participants in the 10-30 PIK option had net cash incomes slightly higher, on an overall basis, compared with what they would have had under the original ARP

and PLD programs, the whole-base participants had significantly higher net cash incomes.

Table 4

Comparison of Estimated Net Cash Incomes for 10-30 vs. Whole-base PIK (100 base-acre farm)

	Estimated net cash income			
	Farmer participating in 10-30 PIK (30 percent)	Farmer participating in whole-base PIK[a]	Increase in net cash income under whole-base PIK	
Commodity			Amount	Percent
Corn	$15,000	$16,649	$1,649	11
Grain sorghum	7,417	8,014	597	8
Wheat	6,543	8,452	1,909	29
Cotton	14,866	20,699	5,833	39

[a]Based on median payment rate.

USDA's determination that the $50,000 limitation did not apply to PIK payments increased participation

USDA's determination that the $50,000 payment limitation did not apply to PIK payments made in 1983 meant that the value of the in-kind commodity payments to farmers was not counted in the payment limitation. Accordingly, farmers who otherwise might not have participated in the PIK program because their total farm program payments, including the value of their PIK payments, would have exceeded $50,000 could participate in the program regardless of how much they received in PIK payments.

According to the latest data available at the time of our review from USDA's computer runs on 1983 deficiency, diversion, and PIK payments received by farmers, 43,768 PIK participants received farm program payments, including PIK payments, over

$50,000.[3] Together, we estimate that the payments in excess of $50,000 received by the 43,768 farmers totaled about $2.52 billion. Because the $50,000 payment limitation could not have been exceeded in 1983 except for the PIK payments, any payments over $50,000 can be attributed to the PIK program. On the basis of our analysis of payments over $50,000, we estimate that 15.75 million acres, or about 32 percent, of the 49.2 million acres taken out of production because of PIK were due to USDA's determination that PIK payments were not included under the $50,000 payment limitation.

The 15.75-million-acre figure was calculated by dividing the total payments received by all farmers over $50,000 ($2.52 billion) by the average cost to USDA for taking one acre of land out of production for the 1983 ARP, PLD, and PIK programs ($160 per acre). The 15.75-million-acre figure is only an estimate and was calculated on the basis of a number of assumptions. Our 15.75-million-acre estimate was based on the assumption that the larger farmers received the maximum $50,000 deficiency and diversion payments and received PIK payments on all payments above $50,000. If some larger farms received PIK payments before reaching the $50,000 payment limitation, our estimate could be low. We also assumed that the larger farmers could have participated up to the $50,000 payment limitation if the $50,000 limitation was applied to PIK payments. This assumption may not be true and would also make our estimate too low. On the other hand, because of the larger participation in PIK, some larger farmers who might have participated if payments were limited to $50,000, may not have participated in PIK because they expected substantial commodity-price increases and believed they would be better off financially by not joining PIK. If this was the case, our estimate could be high.

While USDA's determination that the payment limitation did not apply to PIK payments was a key feature of the 1983 PIK program, we concluded that this determination was incorrect.[4] The

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[3]Since our estimate of the limitation's impact was based on a USDA status report, which was 96 percent complete at the time of our review, these numbers may be somewhat higher if a final status report representing 100 percent completion is prepared. Although our estimate is based on the best available information at the time of our review, we caution that we did not validate the USDA computer runs on the distribution of farm program payments to determine their accuracy or error rate. Nevertheless, because our purpose is to present overall national data and not data on specific payments to specific program participants, we believe the data are useful in providing a good indication of the impact of USDA's determination that the $50,000 payment limitation did not apply to PIK payments.

[4]Questions Regarding the Legality of the Payment-In-Kind Program, B-211462 - O.M., Oct. 31, 1983.

$50,000 payment limitation did apply to commodity payments under the PIK program, and exemption of these payments from the payment limitation would have required specific legislative approval.

Although we concluded that USDA was incorrect in its determination that the $50,000 payment limitation did not apply to PIK payments, CCC, through which the PIK payments were made, has authority under its charter act to determine the character and necessity of its obligations and expenditures and to settle and adjust its accounts. As a result, we do not have authority to render opinions binding on CCC or to take exception to its payments. However, we do have authority to report to the Congress any CCC activity or expenditure that we question. In a January 3, 1984, written response to our inquiry about this matter, USDA's Under Secretary for International Affairs and Commodity Programs, who is also CCC's President, stated that although USDA continued to believe that it acted properly in not applying the limitation to the 1983 PIK program, it would apply the $50,000 payment limitation to the commodities given in kind in the 1984 wheat PIK program. USDA subsequently (Jan. 16, 1984) revised its PIK program regulations (7 C.F.R. Part 770.6) to take into account the payment limitation on any in-kind payments made in 1984 and in future years.

The legislative history of the payment limitation clearly shows that the Congress was concerned about excessively large payments going to some individuals and large corporate farms under agriculture programs. However, it was evident from the congressional debate over bills to establish a PIK program that the Congress was uncertain whether the $50,000 payment limitation applied to commodity payments under a PIK program. The House of Representatives and the Senate Committee on Agriculture, Nutrition, and Forestry passed bills that would have exempted PIK payments from the payment limitation.[5] However, neither bill became law. During debate on the House and Senate floors on these bills, the payment limitation was discussed frequently. For example, the payment limitation was referred to by the Chairman of the House

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[5]The House of Representatives on Dec. 18, 1982, passed H.R. 7439, 97th Cong., 2nd sess., which exempted payments in kind from the $50,000 payment limitation. The bill was sent to the Senate where on Dec. 21, 1982, it was discussed on the Senate floor but not acted on. The bill died at the end of the 97th Congress. Also, the Senate Committee on Agriculture, Nutrition, and Forestry on Dec. 13, 1982, approved S. 3074, 97th Cong., 2nd sess., which in addition to authorizing a PIK program, provided that PIK payments would not be subject to the $50,000 payment limitation. S. 3074 was considered by the full Senate during the waning days of the 97th Congress but died when the 97th Congress ended. Bills similar to S. 3074 and H.R. 7439--S. 36 and H.R. 1360--were introduced in the 98th Congress on Jan. 26 and Feb. 8, 1983, respectively, but died at the end of the 98th Congress.

Committee on Agriculture as a potential obstacle to implementing the PIK program (Cong. Rec., H10317, Dec. 18, 1982) and in the Senate as an area where the Secretary stated that legislative assistance or a clarification would be helpful (Cong. Rec., S14723, Dec. 14, 1982, and S16002, Dec. 21, 1982). Also, on December 23, 1982, Senator Robert Dole stated:

> "Due to the size and scope of the PIK program, it is obvious that the payment limitation provisions of the 1981 Farm Act could be a limiting factor. It is imperative that these provisions be rescinded so that the effectiveness of the PIK program will not be jeopardized. If not, this could limit participation by many farmers who would otherwise be willing to put 10 to 30 percent or, perhaps, their entire base under the PIK program." (Cong. Rec., S16070, Dec. 23, 1982)

Conversely, Senator Jesse Helms stated on December 21, 1982, that

> ". . . as Chairman of the Senate Agriculture Committee, . . . I believe that the payment limitation . . . [was] never intended by Congress to apply to a program which provides in-kind compensation." (Cong. Rec., S16002, Dec. 21, 1982)

We believe that, because of this uncertainty, USDA should have continued to seek a specific statutory exemption for commodity payments under the PIK program from the $50,000 payment limitation.

Because we believe both cash and in-kind payments are subject to the payment limitation, the Congress and USDA face a dilemma in legislating and administering future farm programs, especially in times of crop surpluses. Continuing the limitation could discourage large farmers from joining crop reduction programs and decrease USDA's ability to control crop production in times of excessive crop surpluses. On the other hand, rescinding the payment limitation in specific situations could result in large increases in budget outlays and provide individual farmers with large farm program payments.

USDA NEEDED TO ESTABLISH SPECIFIC, QUANTIFIED GOALS FOR ITS 1983 FARM PROGRAMS

USDA's overall purpose in implementing the PIK program was to take as much land out of production as possible without adversely affecting local agricultural economies. As stated earlier, PIK induced farmers to take 49.2 million acres out of production beyond the estimated 26.8 million under the originally announced 1983 ARP and PLD programs. Nonetheless, we cannot determine whether the design of the PIK program was reasonable or justified because USDA did not establish specific, quantified goals.

Because specific, quantified goals were not established, no criteria existed for determining whether specific program provisions were justified. For example, without quantified goals, USDA could not objectively judge the overall merits or cost-effectiveness of the specific payment rates established by USDA for the 10-30 PIK option or whether the whole-base PIK option was necessary or cost-effective.

In addition, although USDA had reasons for selecting PIK as stated in chapter 1, the absence of specific, quantified goals on what the program was to accomplish resulted in USDA having no objective basis for determining whether the overall program was sufficient and cost-effective. Had USDA established specific, quantified goals, such as the number of acres to be taken out of production, amount of production to be reduced, or quantities to which ending commodity stock levels were to be reduced, and at what cost, then USDA, agricultural policymakers, and the Congress would have had a better basis for determining PIK's effectiveness.

We asked USDA's Deputy Assistant Secretary for Economics whether USDA established specific, quantified goals in past years for its more traditional farm programs. The Deputy Assistant Secretary said that, like PIK, no specific, quantified goals had been established for prior years' farm programs because farm programs cannot be fine-tuned to the degree that allows the setting of precise quantified goals.

CHAPTER 3

IMPACT OF PIK--THE DROUGHT PLAYED A SIGNIFICANT ROLE

Because USDA did not establish specific, quantified goals, no specific criteria existed to measure PIK's effectiveness against its program goals. However, because the PIK program, including the ARP and PLD component, was so controversial and was such a fundamental departure from other farm programs used by USDA over the past two decades, we did estimate the program's impact. We believe estimating the program's impact is important because these data provide policymakers, in both USDA and the Congress, with an indication of the program's results and its possible future use and will be useful in the congressional deliberations on the 1985 farm bill.

USDA's overall objectives for PIK were to (1) reduce production of wheat, corn, grain sorghum, cotton, and rice, (2) reduce these commodities' total ending stock levels, (3) ease commodity storage problems, (4) ensure adequate supplies of commodities, (5) increase net cash farm income, and (6) over the long term, minimize government farm program outlays. However, determining the impact PIK had on USDA's objectives was complicated by the 1983 summer drought.

The 1983 drought was especially severe because of when and where it occurred. The drought occurred toward the end of July and August, the prime growing season for such major crops as corn and grain sorghum, and was most severe in the top crop-producing states such as Illinois, Iowa, Kansas, Missouri, and Oklahoma.

The drought had effects similar to those of the PIK program on a number of the PIK objectives. The drought contributed to reduced 1983 production of some PIK commodities, especially corn and grain sorghum. This reduced production resulted in reduced total ending commodity stock levels and further eased USDA storage problems for PIK commodities. The drought also contributed to increased commodity prices, which increased farmers' net cash incomes in 1983. Consequently, to determine the PIK program's impact as it related to the broad objectives USDA established, it was necessary to isolate PIK's impact from the drought's impact.

To do this, we hired a consulting firm, Missouri Valley Research Associates, to isolate PIK's impact on its stated objectives and to determine the drought's impact on those same objectives. To isolate PIK's impact on its stated objectives, MVRA first analyzed what PIK's impact would have been on the objectives under normal weather and then measured the incremental impact of the drought on those same objectives. Another method of calculating PIK's and the drought's impact would have been to first measure the drought's and then measure the incremental impact of PIK under the weather conditions that existed in 1983. MVRA

calculated PIK's and the drought's impact under both methods, and the results were generally similar. Since one of our objectives was to review USDA's decision-making process as it was developing the PIK program and because the development of the program was based, partly, on the assumption that normal weather conditions would prevail in 1983, we are presenting MVRA's analysis of PIK's impact under normal weather and the incremental impact of the drought. MVRA's analysis shows that PIK and the drought

--reduced production of the five PIK commodities by about 35 percent, with 18 percent of the reduction attributable to PIK and 17 percent to the drought;

--reduced the total ending stock levels of PIK commodities by about 62 percent, with 35 percent of the reduction attributable to PIK and 27 percent to the drought;

--eased storage problems for USDA by reducing PIK commodities under government loan and government ownership by about 75 percent, with 43 percent attributable to PIK and 32 percent to the drought;

--caused stock levels of corn and cotton at the end of 1983 to be short about 1 billion bushels and 500 million pounds, respectively, of those considered necessary to ensure sufficient carryover levels, with the combination of PIK and the drought causing the corn stocks to be short and PIK causing the cotton stocks to be short; and

--increased net cash farm income to farmers by about $12 billion, with about $9.2 billion attributable to PIK and about $2.8 billion to the drought.

The model and assumptions that MVRA used in its analysis, as well as the model's limitations, are discussed in appendix I.

The data summarized above and presented in more detail throughout this chapter are estimates of the impacts of PIK and the 1983 drought. We believe the data are sufficiently reliable to give a good indication of PIK's impact and that of the drought. However, regardless of the precision of the estimates, because USDA did not establish specific, quantified goals, no judgments should be made from the data about PIK's effectiveness.

We did not analyze PIK's or the drought's impact on PIK's objective of minimizing government farm program outlays. When USDA established this objective, it said that this was a long-term objective that would not be realized completely until fiscal year 1986. Because of this objective's long-term nature and the fact that government farm program outlays are very difficult to project accurately over a number of years, determining PIK's impact on farm program outlays through fiscal year 1986 would be extremely difficult.

REDUCED PRODUCTION

A major objective of the PIK program was to reduce 1983 corn, grain sorghum, wheat, cotton, and rice production below what the 1983 production was estimated to be. USDA wanted to reduce production because expected production, on the basis of the original ARP and PLD programs, was estimated to be higher than the expected 1983 demand and the large surpluses in these commodities would continue. According to MVRA's analysis, the 1983 PIK program reduced the overall production of the five PIK commodities by about 18 percent. As columns 3 and 4 of table 5 show, the 1983 PIK program had its most dramatic impact on cotton and rice production, reducing cotton production by about 2 billion pounds, or about 34 percent, and rice production by about 4.9 billion pounds, or about 32 percent, of what USDA estimated would be produced without a PIK program. Also, as columns 3 and 4 of table 5 show, the PIK program reduced expected corn production by about 1.6 billion bushels, or 21 percent; grain sorghum production by about 100 million bushels, or about 13 percent; and wheat production by about 222 million bushels, or about 8 percent.

As columns 6 and 7 of table 5 show, the 1983 summer drought also played an important role in reducing the production of corn and grain sorghum and a minimal role in reducing the production of cotton and rice. It had no impact on wheat because the wheat crop was generally harvested before the drought occurred. Overall, the drought reduced production of the PIK commodities by about the same percentage as the PIK program because the drought had a greater impact on corn production than did PIK, and corn, as the highest production volume crop of the five PIK commodities, is more heavily weighted in determining the overall reduction. The drought caused a reduction in corn production of over 1.8 billion bushels, or about 24 percent, and PIK was responsible for a reduction of about 1.6 billion bushels, or 21 percent. The drought particularly affected corn production because the drought occurred during the critical pollination stage of the corn development cycle. Grain sorghum's production was also reduced more by the drought (167 million bushels) than by the PIK program (100 million bushels). The drought had only a minimal impact on cotton and rice production because the drought was not that severe in the major cotton- and rice-producing states and these crops are irrigated more than the other PIK crops.

Together, the 1983 PIK program and summer drought had a significant effect on the production of all PIK commodities except wheat. As column 9 of table 5 shows, overall, 1983 production of the five commodities was reduced by about 35 percent from what was expected before PIK was announced. The reduced production ranged from about 8 percent for wheat to about 45 percent for corn. Column 8 of table 5 also shows that production reductions from both the PIK program and the drought were about 3.5 billion bushels of corn, 267 million bushels of grain sorghum, 222 million bushels of wheat, 2.3 billion pounds of cotton, and 5.3 billion pounds of rice.

Table 5

1983 Crop Production Reductions Due to PIK and the Drought

Commodity	Col. 1 USDA's 1983 production estimate before PIK	Col. 2 Estimated production in 7/83 before drought[a]	Col. 3 PIK crop reductions: Reduction in production due to PIK[b] (Col. 1-2)	Col. 4 PIK crop reductions: Percent reduction in production (Col. 3÷1)	Col. 5 Latest 1983 production estimate in 6/84 after drought[c]	Col. 6 Drought crop reductions: Reduction in production due to drought[d] (Col. 2-5)	Col. 7 Drought crop reductions: Percent reduction in production due to drought (Col. 6÷1)	Col. 8 Total reduction due to PIK and drought: Unit (Col. 3+6)	Col. 9 Total reduction due to PIK and drought: Percent (Col. 8÷1)
	(millions)				(millions)			(millions)	
Corn (bu)	7,660	6,051	1,609	21.0	4,204	1,847	24.1	3,456	45.1
Grain sorghum (bu)	750	650	100	13.3	483	167	22.3	267	35.6
Wheat (bu)	2,647	2,425	222	8.4	2,425	0	0	222	8.4
Cotton (lb)	6,000	3,984	2,016	33.6	3,744	240	4.0	2,256	37.6
Rice (lb)	15,260	10,390	4,870	31.9	9,970	420	2.8	5,290	34.7
Production reduction for all five PIK commodities[e]				17.8			17.4		35.2

[a]Represents latest production estimates for crops in PIK program prior to the drought. Production estimates are based on MVRA's model results in July 1983.

[b]Represents difference between model results in July 1983 and USDA production estimates for crop year 1983 before announcement of the PIK program. The difference represents production reduction attributable to the PIK program.

[c]Represents USDA's estimate in June 1984 of production for crop year 1983.

[d]Represents difference between model results in July 1983 and USDA estimates in June 1984. The difference represents production reduction attributable to the drought.

[e]To determine the percent of production reduction for all five commodities, all units were converted to pounds. The conversion factor used for corn and grain sorghum was 56 pounds per bushel and for wheat 60 pounds per bushel.

REDUCED TOTAL ENDING STOCKS

The 1983 PIK program also had the objective of reducing the five PIK commodities' total ending stock levels. Total ending stock levels are inventories of commodities from (1) stocks owned by farmers, but under government loan, (2) stocks owned by the government, and (3) free stocks--stocks that are privately owned and available to trade freely in the marketplace. USDA wanted to reduce the total ending stock levels for the five PIK commodities because it anticipated that their supplies would greatly exceed their demand without a program like PIK. MVRA's analysis showed that the 1983 PIK program reduced the total ending stock levels for the five PIK commodities by about 35 percent of what USDA estimated ending stock levels to be without a PIK program. As table 6 shows, the 1983 PIK program had its most dramatic impact on cotton, corn, and rice stock levels--reducing ending cotton stocks by an estimated 2.35 billion pounds, or about 58 percent; corn stocks by about 1.6 billion bushels, or about 44 percent; and rice stocks by about 3 billion pounds, or about 43 percent. Grain sorghum stocks were reduced by about 144 million bushels, or about 27 percent; and wheat stocks were reduced by about 362 million bushels, or about 20 percent.

As table 6 shows, the 1983 summer drought played a major role, although a lesser one than the PIK program, in reducing total PIK commodity ending stock levels. Overall, MVRA estimates that the drought reduced ending stock levels for the five PIK commodities by about 27 percent, with most of the reduction coming in corn and grain sorghum stocks. As was the case with production, ending stock levels of corn were most affected by the drought. MVRA estimates that the drought reduced ending corn stocks by about 1.5 billion bushels, or about 42 percent, from the 3.6-billion-bushel ending stock level that USDA estimated before PIK was announced. The drought also reduced grain sorghum ending stock levels by about 135 million bushels, or about 26 percent. The drought had a lesser impact on ending stock levels of cotton, very little impact on ending stock levels of wheat, and no impact on rice levels.

Together, the 1983 PIK program and the summer drought had a significant effect on the ending stock levels of all PIK commodities, reducing them by about 62 percent of what was expected before PIK was announced. The reductions in ending stock levels ranged from about 86 percent for corn to about 21 percent for wheat. Together, the PIK program and the drought reduced ending stock levels by about 3.1 billion bushels of corn, 279 million bushels of grain sorghum, 379 million bushels of wheat, 2.6 billion pounds of cotton, and 2.8 billion pounds of rice.

Table 6

1983 Crop Stock Reductions Due to PIK and the Drought

Commodity	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
		PIK stock level reductions			Drought stock level reduction				
	USDA's 1983 stock level estimate before PIK	Latest stock level estimate in 7/83 before drought[a]	Reduction in stock levels due to PIK[b] (Col. 1-2)	Percent reduction in stock levels (Col. 3÷1)	Latest 1983 stock level estimate in 6/84 after drought[c]	Reduction in stock levels due to drought[d] (Col. 2-5)	Percent reduction in stock levels (Col. 6÷1)	Total reduction in ending stocks due to PIK and drought: Unit (Col. 3+6) (millions)	Total reduction in ending stocks due to PIK and drought: Percent (Col.8÷1)
	(millions)				(millions)				
Corn (bu)	3,647	2,049	1,598	43.8	520	1,529	41.9	3,127	85.7
Grain sorghum (bu)	526	382	144	27.4	247	135	25.7	279	53.0
Wheat (bu)	1,771	1,409	362	20.4	1,392	17	1.0	379	21.4
Cotton (lb)	4,032	1,680	2,352	58.3	1,392	288	7.2	2,640	65.5
Rice (lb)	7,070	4,060	3,010	42.6	4,290	(230)	(3.3)[e]	2,780	39.3
Stock level reduction for all five PIK commodities[f]				35.5			26.9		62.4

[a]Represents latest ending stock level estimates for crops in PIK program prior to the drought. Ending stock level estimates are based on MVRA's model results in July 1983.

[b]Represents difference between model results in July 1983 and USDA ending stock level estimates for crop year 1983 before announcement of the PIK program. The difference represents ending stock level reductions attributable to the PIK program.

[c]Represents USDA's estimate in June 1984 of ending stock levels for crop year 1983.

[d]Represents difference between model results in July 1983 and USDA estimates in June 1984. The difference represents ending stock level reductions attributable to the drought.

[e]Estimated rice stock changes associated with drought are negative because of econometric model errors in forecasting July 1983 rice supplies. (See app. 1.)

[f]To determine the percent of stock level reductions for all PIK commodities, all units were converted to pounds. The conversion factor used for corn and grain sorghum was 56 pounds per bushel and for wheat 60 pounds per bushel.

EASED STORAGE PROBLEMS

Another PIK program objective was to ease storage problems associated with the large buildup of commodities being placed under loan with USDA since 1981. USDA believed that, by paying farmers who joined PIK with the commodities the farmers had under loan, the quantity of commodities being stored at USDA's expense would be reduced. As a result of reducing production and commodity ending stock levels and paying farmers their PIK payments from commodities that were under loan, the 1983 PIK program eased USDA's commodity storage problems significantly. According to MVRA's analysis, the PIK program reduced government stock levels for all five PIK commodities by about 43 percent. As table 7 shows, the 1983 PIK program had its largest impact on government rice and cotton stocks--reducing government rice stocks by about 4.5 billion pounds, or about 83 percent, and government cotton stocks by about 1.3 billion pounds, or about 73 percent, of what USDA estimated the ending stocks to be without a PIK program. The PIK program also reduced ending government stock levels significantly for grain sorghum (50 percent), corn (49 percent), and wheat (28 percent).

Government ending stocks differ from total ending stocks (see table 6 and footnote a on table 7) in that government stocks include stocks under government loan and ownership but not privately owned free stocks available for immediate sale. The PIK program had a more dramatic impact on reducing government ending stocks than on reducing total ending stocks because PIK payments to farmers came mostly from commodities under loan to the government or government-owned commodities, thus reducing government stocks. On the other hand, as the PIK payments became available to farmers, the farmers would sell the commodities on the open market, thus increasing the free stocks and lessening the reductions in total ending stocks.

As table 7 shows, the 1983 summer drought also had a significant impact on reducing government ending stocks. MVRA estimates that, overall, the drought reduced these stocks by about 32 percent. Government corn ending stocks were affected the most by the drought, showing a reduction of about 1.3 billion bushels, or about 42 percent. Wheat and grain sorghum stocks were also reduced significantly, about 21 percent and 20 percent, respectively. The drought had a relatively small impact on reducing ending government cotton stocks. Ending government rice stock numbers associated with the drought were negative because of econometric model errors in estimation.

Together, the 1983 PIK program and the drought reduced ending government stocks of all five PIK commodities by about 75 percent of what was expected before PIK was announced. The reductions ranged from about 91 percent for corn (2.8 billion bushels) to about 48 percent for wheat and rice (735 million bushels and 2.6 billion pounds), respectively. Ending government stock level

Table 7

1983 Government[a] Stock Reductions Due to PIK and the Drought

Commodity	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
		PIK government stock reductions			Drought government stock reductions				
	USDA's 1983 government stock est. before PIK	Latest government stock estimate in 7/83 before drought[b]	Reduction in government stocks due to PIK[c] (Col. 1-2)	Percent reduction in stock levels (Col. 3÷1)	Latest government stock estimate in 6/84 after drought[d]	Reduction in government stocks due to drought[e] (Col. 2-5)	Percent reduction in stock levels (Col. 6÷1)	Total reduction in ending government stocks due to PIK and drought: Unit (Col. 3+6) (millions)	Percent (Col. 8÷1)
	(millions)				(millions)				
Corn (bu)	3,050	1,553	1,497	49.1	275	1,278	41.9	2,775	91.0
Grain sorghum (bu)	495	250	245	49.5	150	100	20.2	345	69.7
Wheat (bu)	1,520	1,101	419	27.6	785	316	20.8	735	48.4
Cotton (lb)	1,747	480	1,267	72.5	144	236	13.5	1,503	86.0
Rice (lb)	5,400	900	4,500	83.3	2,790	(1,890)[f]	(35.0)[f]	2,610	48.3
Government stock reduction for all five PIK commodities[g]				43.3			31.8		75.1

[a]Government stocks differ from total stocks in that government stocks include stocks under government loan and CCC inventories but not free stocks, which are privately owned stocks available for immediate sale.

[b]Represents latest government ending stock level estimates for crops in PIK program prior to the drought. Government ending stock level estimates are based on MVRA's model results in July 1983.

[c]Represents difference between model results in July 1983 and USDA ending government stock level estimates for crop year 1983 before announcement of the PIK program. The difference represents ending government stock level reductions attributable to the PIK program.

[d]Represents USDA's estimate in June 1984 of ending government stock levels for crop year 1983.

[e]Represents difference between model results in July 1983 and USDA estimates in June 1984. The difference represents ending government stock level reductions attributable to the drought.

[f]Estimated changes in government rice stocks associated with drought are negative because MVRA's econometric model overestimated the amount of PIK rice and rice needed to satisfy rice demand. (See app. 1.)

[g]To determine the percent of government stock reductions for all five PIK commodities, all units were converted to pounds. The conversion factor used for corn and grain sorghum was 56 pounds per bushel and for wheat 60 pounds per bushel.

reductions from both PIK and the drought were about 1.5 billion pounds, or 86 percent, for cotton and about 345 million bushels, or 70 percent, for grain sorghum.

ENSURING ADEQUATE SUPPLIES OF COMMODITIES

Another PIK program objective was to ensure that adequate levels of marketable supplies were maintained throughout the year. According to USDA, adequate levels of supplies are those that would be available for use in case of unexpected shortfalls in production and could be used to balance commodity demand and supply without causing a major increase in commodity prices. Because USDA considered the PIK program to be a major crop reduction program, it wanted to ensure that it had adequate levels of marketable supplies in case of some unexpected shortfalls in production. USDA believed that by paying farmers their PIK payments in commodities that the farmers had under loan, an adequate supply of commodities would be maintained in the marketplace.

Although USDA officials responsible for the PIK program's design and formulation told us that USDA does not have any official ending stock level numbers and did not establish any specific, quantified goals as to what the stock numbers should be as a result of the PIK program, USDA did cite specific ending stock level numbers in hearings on February 3, 1983, before the Subcommittee on Agricultural Production, Marketing, and Stabilization of Prices, Senate Committee on Agriculture, Nutrition, and Forestry. USDA said that adequate ending stock levels should be between 1.25 and 1.5 billion bushels of corn, about 1 billion bushels of wheat, 1.9 billion pounds of cotton, and 2.5 to 3.5 billion pounds of rice. For grain sorghum, a USDA commodity analyst told us that an adequate level would be about 160 million bushels. As table 6 shows, USDA's latest estimates on 1983 ending stocks of corn and cotton are 520 million bushels and 1.4 billion pounds, respectively. Thus, the ending stock level for corn is between 750 million and 1 billion bushels less and for cotton about 500 million pounds less than what USDA considers adequate. As table 6 shows, the ending stocks of grain sorghum, wheat, and rice were above the levels USDA considers adequate.

The less-than-adequate ending stock levels for corn and cotton were the result of PIK and the 1983 drought. As table 6 shows, if the drought had not occurred, the ending stock levels for corn would have been about 2 billion bushels even with PIK, substantially above the 1.25- to 1.5-billion-bushel level that USDA considers adequate. The program reduced cotton's ending stock level to about 1.7 billion pounds, or about 200 million pounds lower than USDA's estimate of an adequate ending stock level. The drought further reduced this level.

INCREASED NET CASH FARM INCOME

The PIK program, along with the drought, increased net cash farm income for calendar year 1983 by about $12.0 billion, or about 43 percent, above the $28.0 billion that USDA estimated before the PIK program. USDA's latest estimate in June 1984 placed 1983 net cash farm income at $40 billion. As table 8 shows, MVRA estimates that $9.2 billion of the $12.0-billion increase was due to PIK and about $2.8 billion was due to the 1983 drought.

As table 8 shows, the PIK program increased net cash farm income because the increase in government payments to farmers of about $5.5 billion and the decrease in cash expenses of about $9 billion more than offset the decrease in cash marketing receipts of about $5.3 billion over what was estimated without a PIK program. Of the $5.5 billion in government payment increases, about $4.8 billion was due to PIK payments.[1] The decrease of about $9 billion in cash expenses for PIK was due mainly to decreased expenses associated with reduced production. The largest reductions in cash expenses came from reduced expenditures for fertilizers, seed, fuels, and pesticides.

The $2.8-billion increase in net cash farm income as a result of the drought was due mainly to a $2.0-billion increase in cash marketing receipts and a decrease of $0.5 billion in farm expenditures. The $2.0-billion increase in cash marketing receipts resulted from increased commodity prices that more than offset the reduced commodity marketings due to the drought. The drought also had a positive effect on reducing farm expenditures by reducing costs associated with crop harvesting, equipment repairs, and fuel.

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[1]According to the ERS official responsible for estimating net cash farm income, about 53 percent of the commodities used for 1983 PIK payments ($9.134 billion multiplied by 53 percent = $4.841 billion) was marketed by farmers in calendar year 1983.

Table 8

Effects of PIK and the Drought on Calendar Year 1983 Net Cash Farm Income

	USDA estimate before PIK	Estimated in 7/83 before drought	Latest government estimate in 6/84 after drought
	(billions)		
Income:			
Cash marketing receipts[a]	$142.0	$136.7	$138.7
Government payments and other cash income[b]	5.0	10.5	10.8
Total cash income	147.0	147.2	149.5
Expenses:			
Cash expenses[c]	119.0	110.0	109.5
Residuals:			
Net cash income	$ 28.0	$ 37.2	$ 40.0

[a]Includes cash receipts from crops and livestock as well as cash received from CCC loans.

[b]Includes income from machine hire and custom work; farm recreational income; and direct government payments, such as deficiency, diversion, storage, disaster, and PIK payments.

[c]Includes all cash expenditures in operating a farm except those associated with farm dwellings and depreciation of farm capital.

CHAPTER 4

THE 1983 PIK PROGRAM COST BETWEEN $9.8 AND $10.9 BILLION

On the basis of USDA's September 30, 1984, estimates of the amount of commodities needed to meet its PIK payment obligations, we estimate that the 1983 PIK program cost USDA between $9.8 billion and $10.9 billion. Although this cost for the most part did not increase the $18.9 billion USDA spent on farm programs in fiscal year 1983,[1] it did result in $9.4 billion in CCC losses that were reimbursed to CCC through subsequent appropriations in fiscal years 1983 and 1984 to cover the 1983 PIK program cost.

CCC operations are financed by borrowings from the U.S. Treasury, and CCC borrowings cannot exceed $25 billion at any one time. To continue its operations, CCC repays its borrowings partly from receipts, such as repayments of outstanding loans. Almost all of the 1983 PIK program cost--about $9.1 billion--represents the value of government assets, including commodities under government loans and government-owned commodities, that USDA gave up to meet its PIK obligations to farmers. Because the assets given up for the 1983 PIK program will not be repaid, CCC will not receive any receipts for these assets. As a result, these assets were accounted for as CCC losses, and $9.4 billion in subsequent appropriations were needed in fiscal years 1983 and 1984 to cover the 1983 PIK program costs.

In addition to the cost of the government assets, other costs incurred by USDA for the 1983 PIK program include commodity storage compensation, land diversion payments, costs associated with distributing the commodities to farmers, potential interest forgiven on commodity loans, and other costs, such as travel and administrative expenses. Our cost estimate is based on the latest data available from USDA records as of December 1984. Our cost estimate includes only the government's PIK costs; it does not include costs to consumers and businesses.

The 1983 PIK program's cost has been the subject of a great deal of controversy and debate within the agricultural community, the Congress, and the media. The main reasons for this controversy were that, at the time PIK was announced and in the ensuing months of PIK's implementation, there was a lot of speculation as to what USDA's PIK commitments would be to the farmers as well as what the total cost of the PIK program would be to the government.

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[1]The major components of the $18.9 billion in farm program outlays in fiscal year 1983 were $8.4 billion in net lending by CCC for commodity loans, $3.5 billion in deficiency and diversion payments made to farmers, $2.5 billion in dairy price-support outlays, and $3.5 billion in net interest payments.

As of March 1985, USDA had not issued a comprehensive analysis of PIK's cost to the government. We believe our cost analysis is the most up-to-date, comprehensive analysis yet made and includes all elements necessary to determine the program's cost to the government.

Table 9 summarizes the cost elements used and the costs associated with each in making our low and high estimates. We present two estimates because estimates of two elements used in determining PIK costs--storage compensation and potential interest forgiven--can vary.

Table 9

Estimated Cost of PIK

Cost element	Low estimate	High estimate
	------(billions)--------	
Cost of commodities[a]	$9.134	$ 9.134
Storage compensation	.107	.391
Diversion payments	.311	.311
Distribution of commodities	.175	.175
Potential interest forgiven	0	.820
Other	.104	.104
Estimated cost for 1983 PIK program	$9.831	$10.935

[a]The cost of commodities is based on actual PIK payments made through Sept. 30, 1984, and USDA's estimates of additional payments needed to satisfy its 1983 PIK commitments.

COST OF PIK COMMODITIES

We estimate that the cost of commodities given to farmers to meet PIK obligations was about $9.134 billion. Our estimate is based on actual PIK payments made by USDA to farmers as of September 30, 1984, and USDA's estimate of additional payments needed to satisfy its 1983 PIK commitments. On the individual commodities, USDA's total PIK obligations are estimated to be about 1.8 billion bushels of corn costing about $5.083 billion, 179 million bushels of grain sorghum costing about $521 million, 537 million bushels of wheat costing about $2.083 billion, 4.6 billion pounds of rice costing about $367 million, and 4.2 million bales[2] of cotton costing about $1.080 billion.

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[2]One bale equals 480 pounds.

In developing our commodity cost estimates, we considered the sources of commodities USDA used to fulfill its PIK obligations. These sources included (1) loan forfeitures for farmers who had outstanding loans, (2) loan forfeitures for purchasing additional commodities from farmers, (3) CCC inventory, and (4) in the case of wheat and cotton, the requirement that some farmers take out 1983 "harvest for PIK" loans on their crops and use those crops as their PIK payments.

USDA's first source of commodities to pay its PIK obligations was the farmer's own commodity that had been pledged as collateral for a CCC loan. In these cases, USDA forgave part or all of the loan (principal and interest), and the farmer retained the commodity as payment for PIK. If the PIK participant had no loan or had a loan that did not fully cover the PIK payment, then the commodity came from CCC's inventory stocks acquired either through normal loan forfeitures or through purchases from farmers who had commodities under loan that were not needed for their PIK entitlements. If the CCC loans and inventory stocks were not sufficient to pay all PIK requirements, as was the case for wheat and cotton, selected farmers were required to take out CCC loans on their 1983 crop and then, through immediate forfeiture of the loan collateral, use that crop as their PIK payment under the program's "harvest for PIK" option.

We valued the commodities used to meet PIK obligations at CCC's cost (national average loan rates) for obtaining them. An alternative valuation method would have been to determine the commodities' market values to farmers at the time the farmers took possession. Although market values may have reflected actual commodity values to farmers, determining these values would have been difficult for two reasons: first, determining through record searches and interviews when farmers actually took possession of their PIK commodities would have required considerable time and resources; and second, market values varied in different geographical areas. Also, valuing the commodities at their cost to CCC gives a more representative estimate of the government's monetary investment in those commodities. Our methodology for valuing the PIK commodities and a detailed breakdown of our estimate of the commodities' cost are discussed in appendix II.

STORAGE COMPENSATION

Under the PIK program, USDA made storage payments to farmers on the commodities that the farmers received as their PIK payments. There were two types of storage payments--one for up to a 5-month period and the other for an additional 7-month period. USDA paid all farmers for up to 5 months of storage between the time their PIK commodities became available and the time farmers took delivery. USDA paid an additional 7-month storage compensation to farmers who had commodities that were stored on the farm in a special type of loan account called a farmer-owned reserve and were used to meet PIK obligations. Only corn, grain sorghum,

and wheat have reserve loans. These reserve loans are designed to keep the commodities in storage for an extended period. USDA made these additional 7-month storage payments to compensate these farmers for the costs they may have incurred for constructing on-farm storage facilities for the reserve commodities. The 7-month storage payments were made regardless of when the farmers disposed of their PIK commodities. Together, the two types of storage payments resulted in an estimated PIK cost ranging from $107 million to $391 million.

The lower amount--$107 million--is the additional 7-month storage compensation USDA paid regardless of how long the farm-stored reserve commodities used as PIK payments were actually stored on the farm. The difference between the upper and lower amounts represents the cost ranges for the up to 5 months of storage that depended on the time at which farmers took delivery of their PIK commodities. If all farmers took possession immediately after they were entitled to the commodities, no 5-month storage costs would have been incurred. However, if all farmers waited the entire 5-month period, then storage costs would have been about $284 million. In the latter case, this would have increased the total storage costs under PIK to about $391 million. Because of the time and resources that would have been involved, we did not determine the average storage periods or the actual cost. More detailed information and the methodology used in our calculations of increased storage costs are included in appendix II.

DIVERSION PAYMENTS

To be eligible to participate in the PIK program, a farmer was required to enroll in the PLD program for each crop that the farmer placed in PIK, except cotton. Enrollment in the cotton PLD program was voluntary under PIK. Under PLD programs, farmers receive direct payments, at a specified rate, for taking a certain percent of their cropland out of production. These payments are called diversion payments. Because more farmers participated in the PIK program than had enrolled in the originally announced 1983 farm programs, more farmers received diversion payments. We

estimate $311 million in increased diversion payments as a result of the PIK program.[3]

In determining the increase in diversion payments as a result of PIK, we relied heavily on estimates by USDA's commodity analysts of what the farm enrollment and paid land diversion acres would have been under the originally announced PLD programs for wheat, corn, grain sorghum, rice, and cotton and compared their estimates with the actual program enrollment for each crop in PIK. For corn, grain sorghum, wheat, and rice, the PLD acres under PIK were higher than under the originally announced programs; for cotton, the PLD acres were substantially less. About 1.7 million more acres of corn, 153,000 more acres of grain sorghum, 304,000 more acres of wheat, and 20,000 more acres of rice were subject to PLD payments under PIK than estimated for the original PLD programs. Together, the increased acres subject to diversion payments for these four commodities increased diversion payments by about $323 million. About 97,000 fewer acres of cotton were subject to PLD payments under PIK, which decreased diversion payments for cotton by about $12 million.

According to the USDA cotton analyst, the reason for the relatively large decrease in cotton acres was that cotton farmers had the choice under PIK of setting aside part of their land and receiving diversion payments or placing the land under the PIK component of the program and receiving PIK payments. The analyst said that the PIK payments were much more attractive to the cotton farmers than the diversion payments. As a result, most cotton farmers, who under the originally announced cotton program would have entered the diversion program, elected to place the land under the PIK component. More detailed information and the methodology used in estimating increased diversion payments are included in appendix II.

DISTRIBUTION COSTS FOR PIK COMMODITIES

USDA paid about $175 million to distribute PIK commodities to farmers. About $170 million represents premiums paid to dealers to execute corn, grain sorghum, and wheat commodity exchanges with

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[3]Our estimate is based on the latest USDA status report as of Sept. 30, 1984, which represents about 96 percent actual data. According to USDA commodity analysts, no additional updated status reports will be issued. As a result, some additional diverted acres may have been enrolled in the 1983 PIK program that could increase the final total of diversion payments. Also, while the PIK program resulted in increased diversion payments, deficiency payments may have increased or decreased from those that would have been made under the originally announced programs in 1983. Our estimate does not reflect the increase or decrease in deficiency payments that may have occurred.

USDA in areas where USDA did not have enough commodities to pay farmers. About $5 million represents transportation assistance paid by USDA to farmers who wanted their corn and grain sorghum to feed to their livestock.

USDA was obligated to provide PIK commodities as near as possible to a warehouse designated by each farmer; however, government-owned stocks needed to meet PIK obligations for corn, grain sorghum, and wheat were not always located where these commodities were needed. Instead of transporting PIK commodities to the locations needed, USDA chose whenever possible to exchange the commodities for commodities that were privately owned in the needed locations. The exchanges involved giving the dealers a premium. For example, a dealer would offer to meet USDA's PIK obligation of 50,000 bushels of wheat in a needed location in exchange for ownership of 55,000 bushels of CCC wheat of the same grade located elsewhere. The difference of 5,000 bushels represents the cost to USDA, or the dealer's premium for the exchange. In total, USDA gave dealers about 328.8 million bushels of corn, 27.5 million bushels of grain sorghum, and 82.4 million bushels of wheat and received from the dealers about 275.1 million bushels of corn, 24.9 million bushels of grain sorghum, and 77.2 million bushels of wheat in the needed locations. We valued the resulting premiums--48.7 million bushels of corn, 2.6 million bushels of grain sorghum, and 5.2 million bushels of wheat--at about $170 million. In addition, we identified one actual grain shipment that was specifically made to meet PIK requirements. In this case, about 307,000 bushels of corn were shipped from Missouri to Texas at a cost to USDA of about $245,000.

Even after the exchange program, USDA could not obtain enough corn and grain sorghum close enough to some farmers who wanted to use these PIK commodities to feed to their livestock. As a result, USDA paid an estimated $5 million in transportation assistance to move the commodities close enough to the farmers' preferred locations.

INTEREST COSTS

We estimate that forgiving loans under the PIK program may have cost USDA up to $820 million in lost potential interest payments from farmers. By forgiving loans to meet some of its PIK obligations, USDA has forgone any opportunity to recapture the interest owed by farmers on these loans.

The actual interest lost would depend on how many farmers would have repaid their loans. A farmer's decision to repay the loan would depend on the market price of the particular commodity under loan. When commodity prices are strong, farmers would most likely repay their loans with interest, take possession of their commodities, and then sell their commodities in the market. When commodity prices are weak, farmers tend to forfeit their loan collateral (let USDA take possession of their commodities) in full

payment of the loans. When the collateral is forfeited, USDA writes off both the loan principal and the accumulated interest. Thus, USDA does not receive interest due from farmers on these forfeited loans.

As table 9 (see p. 40) shows, we estimated that potential interest forgiven could range from zero to $820 million. That is, if farmers would have forfeited their commodities rather than repaid the loans forgiven because of PIK, then no forgiven interest would have occurred. However, if these loans would eventually have been repaid, then USDA would lose the potential interest, which could have been as high as $820 million.

Since corn and grain sorghum prices were high because of the drought in the South and Midwest, these loans might have been repaid, and forgiving these loans would result in an additional PIK cost to USDA. More details on the methodology used and the calculations of the potential interest forgiven are in appendix II.

OTHER COSTS

Our estimate of $104 million for other PIK costs includes $46 million for transferring farm-stored commodities that USDA purchased under its PIK acquisition program into warehouses; $55 million in additional personnel, travel, and related costs to administer the PIK program; and $3 million in service fees paid to warehouses.

CHAPTER 5

DISTRIBUTION OF PIK PAYMENTS BY FARM SIZE AND TYPE OF FARMER

To determine the distribution of PIK payments to participating farmers, we obtained information by farm size and by type of farm ownership, such as individuals or organizations like corporations or partnerships. We also determined whether the values of PIK payments to various size farms were proportional to the farms' contributions to acres taken out of production. The PIK payment values used in this chapter are based on the cost of the PIK commodities to the government.

We developed this information because, like the program's cost, the distribution of PIK payments has been the subject of much controversy. Specifically, some members of the Congress have questioned whether PIK payments to farmers were too generous and whether large farmers received a disproportionately large share of the PIK payments while small farmers received a disproportionately small portion of the PIK payments.

For our analysis, we used USDA's latest data at the time of our review on the distribution of PIK payments. These data, which cover payments as of July 27, 1984, showed that 1,031,396 farms and 831,751 farmers had received PIK payments valued at about $8.8 billion.[1] Our analysis of the recipients' characteristics showed that:

--The average PIK payment per farmer was $10,627 and per farm, $8,570.

--Of the 831,751 farmers who received PIK payments, 776,821, or 93 percent, were individuals who received an average payment of $9,390, while 53,982, or 6.5 percent, were organizations such as corporations or partnerships that received an average payment of $28,471.

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[1]This amount is lower than the $9.134 billion figure used in ch. 4 because the $9.134 billion cost figure is based on actual and estimated PIK payments to recipients totaling 100 percent, whereas the $8.8 billion figure is based only on actual PIK payments made to recipients as of July 27, 1984, which represent 96 percent of the PIK payments USDA expects to make to program recipients.

--About 28 percent of the PIK payments went to farms with 200 or less acres of cropland, which represented about 61 percent of the farms that participated in PIK; about 31 percent of the payments went to farms with between 201 and 500 acres of cropland, which represented about 26 percent of the farms that participated in PIK; and 41 percent of the payments went to farms with more than 500 acres of cropland, which represented about 13 percent of the farms that participated in PIK.

In addition, we found that for each of the five PIK commodities, PIK payments to various size farms were proportional to the farms' contributions to acres taken out of production. For example, for corn farmers, the data revealed that farms over 1,000 acres had accounted for 11.8 percent of the reduced total U.S. acreage planted to corn and had received 11.8 percent of the PIK corn payments, while farms of 101 to 300 acres accounted for 39.2 percent of the acreage reduction and 39.3 percent of the PIK corn payments. We found similar relationships for the other farm sizes and crops.

PIK PAYMENTS BY FARM SIZE

As table 10 shows, the average PIK payment per farm under the 1983 PIK program was $8,570. Overall, about $8.8 billion in PIK commodities had been given to the 1,031,396 farms that had received PIK payments as of July 27, 1984. As table 10 shows, the average farm PIK payment ranged from $2,601 for farms with 100 or fewer acres of cropland, to $43,510 for farms with over 1,000 acres of cropland.

Table 10 also shows that about 33 percent of the farms participating in PIK were farms with 100 or fewer acres of cropland, while about 4 percent of the farms had over 1,000 acres of cropland.

Table 10

Distribution of PIK Payments by Farm Size

Cropland acres on farms	No. of farms	Average farm PIK payment[a]	Total PIK payments[a] (millions)	Percent of PIK payments by farm size	Percent of total farms by farm size
100 or fewer	339,613	$ 2,601	$ 883.4	10.0	32.9
101 to 200	284,386	5,579	1,586.7	18.0	27.6
201 to 500	268,425	10,031	2,692.6	30.5	26.0
501 to 1,000	94,366	18,394	1,735.8	19.6	9.2
1,001 and over	44,606	43,510	1,940.8	21.9	4.3
Total	1,031,396	$ 8,570	$8,839.3	100.0	100.0

[a]Dollar values are based on each commodity's unit cost to the government, which we determined from an analysis of the PIK program cost in Oct. 1984. The unit costs developed at that time were $2.86 per bushel for corn, $2.92 per bushel for grain sorghum, $3.90 per bushel for wheat, 8 cents per pound for rice, and 54 cents per pound for cotton. Our update of the program's cost in Dec. 1984 showed that all unit rate costs remained the same except for that of wheat, which was reduced from $3.90 per bushel to $3.88 per bushel. As a result, there is a 2-cent-a-bushel difference in the cost of wheat to the government between our analysis of the distribution of PIK payments and the cost of the PIK commodities developed in ch. 4.

DISTRIBUTION OF PIK PAYMENTS BY TYPE OF FARMER

We classified farms by two general types of ownership: (1) individuals and (2) organizations such as corporations or partnerships. We could not place 948 farmers into either category, primarily because the owners did not provide valid identification numbers.

Table 11 shows the distribution of PIK payments by type of farmer. The data show that over 14 times as many individuals received PIK payments as did organizations. However, the average payment for individuals was about a third of that for organizations.

Table 11

Summary of PIK Payments by Type of Farmer

Farmer type	Number of payees	Value paid (millions)	Average value per farmer
Individual	776,821	$7,294.6	$ 9,390
Organization	53,982	1,536.9	28,471
Other	948	7.8	8,227
Total	831,751	$8,839.3	10,627

Table 12 provides further details on the number of farmers of each type receiving various amounts of PIK commodities. Analysis of the data in table 12 shows that about 97 percent of the individuals and 85 percent of the organizations received PIK payments of $50,000 or less. On the other hand, the 3 percent of the individuals who received more than $50,000 received about 26 percent of all PIK payments to individuals. The 15 percent of the organizations that received more than $50,000 received 65 percent of the PIK payments going to organizations, but only 11 percent of all PIK payments.

PIK PAYMENTS WERE PROPORTIONAL TO THE ACREAGE TAKEN OUT OF PRODUCTION

The PIK program was designed so that the amount of payment received by a particular farm would be proportional to the farm's acreage taken out of production. Accordingly, if the program worked as it was designed, larger farms, which contributed relatively more to the acreage taken out of production for a particular crop, would get larger PIK payments. Conversely, smaller farms would get relatively smaller PIK payments.

Table 12

Distribution of PIK Payments by Type of Farmer and Amount of Payment

Farmer type	Number of farmers receiving PIK commodities valued at: $ 0 to 1,000	$ 1,001 to 10,000	$10,001 to 25,000	$25,001 to 50,000	$ 50,001 to 100,000	$100,001 to 250,000	$250,001 to 500,000	$ 500,001 to 1,000,000	$1,000,001 or more	Total
Individual	142,139	440,997	125,905	45,694	17,157	4,548	340	35	6	776,821
Organization	4,529	23,015	11,163	7,157	4,913	2,587	487	102	29	53,982
Other	348	459	84	25	18	11	3	0	0	948
Total	147,016	464,471	137,152	52,876	22,088	7,146	830	137	35	831,751

To confirm that the PIK program operated as it was designed, we extracted data from ASCS' data file on the number of acres taken out of production versus the amount of PIK payments received by program participants. We did this for each of the five PIK commodities by various farm sizes. Table 13 summarizes the results of this analysis.

Table 13

Comparison of Percentage of Acres Taken Out of Production Versus Percentage of PIK Payments Received, by Farm Size

Commodity		Farm size in acres				
		0 to 100	101 to 300	301 to 500	501 to 1000	1001 or more
		(percent)				
Corn	Acres taken out of production	13.3	39.2	18.6	17.1	11.8
	PIK payments received	13.0	39.3	18.7	17.2	11.8
Grain sorghum	Acres taken out of production	8.1	28.8	19.2	22.7	21.2
	PIK payments received	8.0	28.8	19.2	22.8	21.2
Wheat	Acres taken out of production	6.9	22.0	16.0	23.3	31.8
	PIK payments received	6.7	21.8	16.1	23.4	32.0
Rice	Acres taken out of production	4.3	15.3	14.5	25.8	40.1
	PIK payments received	4.3	15.5	14.6	26.0	39.6
Cotton	Acres taken out of production	7.9	22.8	18.1	22.5	30.7
	PIK payments received	7.9	23.0	18.2	22.6	28.3

As the table shows, the PIK payments were proportional to the acreage taken out of production for all crops and farm sizes. In this context, the program worked as it was designed.

CHAPTER 6

USDA's PERFORMANCE IN MEETING ITS PIK PAYMENT OBLIGATIONS: A MIXED SUCCESS

To review USDA's performance in meeting its PIK payment obligations to farmers, we evaluated USDA's effectiveness in acquiring the needed commodities and its delivery system for locating and distributing PIK commodities. Overall, we found mixed results.

Because USDA did not have enough corn, grain sorghum, wheat, and cotton under loan or in inventory to meet its PIK payment obligations, it had to acquire additional quantities from farmers who had outstanding CCC loans that were not being used for PIK payment purposes. We found that if USDA had used a different method for acquiring these commodities, it could have purchased them, depending on the loan values used, for either about $58 million or about $256 million less. In addition, we found that outdated commodity inventory information and changing estimates of PIK payment obligations affected the efficiency of USDA's efforts to position, or relocate, commodities at designated delivery points. As a result, some commodities acquired by USDA at a cost of $1.7 million were not needed for the PIK program.

On the positive side, our review in 12 states showed that the delivery system USDA used in distributing PIK commodities to participating farmers was effective. In this regard, USDA generally met its PIK payment obligations to farmers by providing PIK commodities (1) in a timely manner, (2) of the specified grade or quality, and (3) at the locations desired by the participating farmers.

ACQUISITION AND POSITIONING OF PIK COMMODITIES

To help meet its PIK payment obligations to farmers who did not have outstanding CCC loans, USDA purchased 225.1 million bushels of wheat, 759.8 million bushels of corn, 144.4 million bushels of grain sorghum, and 388 million pounds of cotton. As PIK procedures provided, USDA purchased these commodities from farmers who had outstanding CCC loans and who were not using the loan collateral for their own PIK payments.

After acquiring the commodities it needed, USDA needed to position its wheat, corn, and grain sorghum inventory geographically to match, at the county level, its PIK payment obligations. This was because the program provided that these commodities, which are usually marketed at the local level, would be made available locally to farmers. Such positioning of inventory was not done for rice or cotton because these crops are generally not marketed where they are grown. Therefore, the PIK program provided that rice and cotton farmers receiving PIK payments from

CCC inventory would take ownership of the commodities at storage locations.

The first step in positioning the wheat, corn, and grain sorghum inventories was to identify CCC inventories already located in the counties in which they were needed to satisfy PIK obligations. By comparing this information with USDA's PIK obligations, the Kansas City office identified counties containing CCC inventories greater than the amounts needed for PIK (surplus counties) or less than the amounts needed for PIK (deficit counties).

Once the deficit counties were identified, USDA used an exchange program to provide the PIK commodities to deficit counties. Under this program, CCC-owned commodities held at warehouses in surplus counties were exchanged for privately owned commodities held at warehouses in or near deficit counties. USDA made the exchanges through a competitive bid process. Using exchanges, USDA fulfilled 13.3 percent of its wheat obligations, 15.2 percent of its corn obligations, and 13.5 percent of its grain sorghum obligations at a cost of about $170 million.

The final step in making the commodities available was allocating the commodities to individual counties through the use of loading orders that instructed warehouses to release specified amounts of CCC commodities. The Kansas City office simultaneously sent a loading order to a warehouse and a copy to the local ASCS county office to indicate availability of commodities for PIK payments. The county office then issued PIK entitlement certificates to the farmers, notifying them that their PIK payments were available in the indicated warehouse. Under program terms, the farmers had 5 months in which to redeem their PIK entitlements.

PIK commodities from CCC's inventory were to be made available on certain dates specified when the program was announced. The availability dates varied, generally following the harvest date for each commodity in each area of the country. The availability dates for wheat, corn, and grain sorghum were earliest for the country's southernmost sections, increasing by 2-week increments through the central and northern sections. The earliest availability date was June 1 for wheat; July 15 for cotton; August 1 for rice; and with minor exceptions, October 1 for corn and grain sorghum.

PIK COMMODITY ACQUISITION COSTS COULD HAVE BEEN LOWER

We estimate that if USDA had used a unit cost approach for accepting bids under its commodity purchase program, the value of the loans forgiven to acquire commodities for PIK would have been either about $58 million or about $256 million less. We are presenting two savings estimates ($58 million and $256 million) because two different sets of loan-rate values were used in

estimating the cost savings realized through a unit cost approach. One set of loan-rate values involved the use of the average CCC book value of outstanding loans by crop year,[1] which resulted in savings of about $58 million, while the second set of loan-rate values involved the use of national average loan rates by crop year, which resulted in savings of about $256 million. Our estimates cover wheat, corn, and grain sorghum acquired by USDA and are based on the procedures USDA established for acquiring the commodities. We did not analyze the cotton acquisition program because the criteria to acquire additional cotton, although identical to those of wheat, corn, and grain sorghum, were mandated by Public Law 98-63 passed on July 30, 1983. The following paragraphs discuss the factors bearing on our use of two different loan-rate values in estimating the cost savings. The detailed methodology used for evaluating the loan acquisition program for wheat, corn, and grain sorghum is included in appendix III.

How the commodities were acquired

On March 29, 1983, USDA announced the offer to purchase wheat, corn, and grain sorghum from farmers with outstanding CCC loans who were not using the loan collateral as their own PIK payments. USDA solicited bids from these farmers, with the bid expressed as a whole percentage of the offered loan collateral the farmer would keep in exchange for forfeiting the remainder to CCC. A farmer might, for example, submit a bid of 10 percent for 50,000 bushels. USDA would then acquire 90 percent (45,000 bushels) in return for forgiving the farmer's loan on the entire 50,000 bushels and allowing the farmer to retain 10 percent (5,000 bushels).

As a result of the bidding process, USDA received about 286,000 offers from farmers having wheat, corn, and grain sorghum pledged as collateral for CCC loans. On April 22, 1983, after receiving all the bids, USDA announced that it accepted all bids of 20 percent or less for corn, grain sorghum, and 1982 wheat, and 25 percent or less for 1981 and prior crops of wheat. Overall, about 204,000 of the 286,000 bids submitted were accepted. Using this method, USDA acquired enough corn and grain sorghum, but not enough wheat, to meet its PIK payment obligations for those commodities. To meet its remaining wheat obligations, USDA used the "harvest for PIK" program, as discussed on page 7.

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[1]The average book value for a given crop year is derived by dividing the total dollar amount of outstanding loans for the crop year by the total number of units (bushels or pounds) represented by outstanding loans.

How commodities could have been acquired for less

USDA accepted bids on the bid percentage basis without considering the effects that varying loan rates, accrued interest, or the differing dates that the loans became due would have on the cost of obtaining the commodities. Although USDA obtained commodities needed to help meet its 1983 PIK obligations, the government's costs for acquiring the commodities could have been lower. As USDA's OIG reported on April 22, 1983, USDA could have reduced purchase costs for loan commodities by comparing bids on a cost-per-unit basis (that is, the cost per bushel or pound) instead of the offered-bid-percentage basis. Implementing cost-effective acceptance of bids on a unit cost basis requires essential information about the actual cost to the government of acquiring a commodity. In this case, determining the actual cost to the government would have entailed consideration of varying loan rates, accrued interest, and differing due dates for loans. USDA's lowest offered-bid-percentage basis did not consider what it cost the government to forgive the loan.

In forgiving a loan, USDA acquires the loan collateral but loses both the outstanding loan principal and any accrued interest owed. Loan rates, which vary by location and year of loan origin, determine the amount of outstanding loan principal. Loan rates may vary substantially over a few years.[2] The OIG reported, for example, that some 15 Iowa county loan rates ranged from $2.12 to $3.34 per bushel. Take, as an example, the 50,000-bushel, 10-percent bid mentioned earlier. USDA, by using the lowest offered bid percentage, could have paid from $106,000 at a loan rate of $2.12 per bushel ($2.12 x 50,000 bushels) to a high of $167,000 at a loan rate of $3.34 per bushel ($3.34 x 50,000 bushels). In either case, USDA would acquire 45,000 bushels and allow the farmer to retain 5,000 bushels at his/her 10-percent bid. The unit cost, in this case, would vary from $2.36 to $3.71. USDA could have reduced commodity acquisition costs by calculating a unit cost for each bid and accepting those with the lowest unit costs.

We computed a unit cost for each of the 286,000 bids USDA received. We then selected the number of bids, beginning with

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[2]Loan rate variances due to location reflect different market conditions that exist throughout the country for each particular crop. For example, the loan rate for wheat in 1982 varied from $3.25 per bushel in some Colorado counties to $3.87 per bushel in some Washington counties. Further, loan rates have tended to increase over time. For example, the national average loan rate for wheat increased from $2.25 per bushel in 1977 to $3.55 per bushel in 1982.

those having the lowest unit cost for each commodity, necessary to acquire the same amount of commodities that USDA actually acquired and used for PIK. Since actual loan rates for the 286,000 bids received were not available in USDA's automated files at the time of our review, the actual unit cost could not be computer-calculated for each bid. However, other information available in the files--the commodity, the crop year, the bidder's state and county, and farm or warehouse storage for each commodity--enabled us to categorize each bid and to estimate an appropriate loan rate. We used these estimated loan rates to estimate USDA's cost savings using a unit cost approach.

After consulting Kansas City office officials, we used loan rates that resulted in an estimated $256-million cost savings based on the unit cost approach. USDA's Under Secretary for International Affairs and Commodity Programs suggested, however, that a more accurate estimated loan rate would be the average CCC book value of outstanding loans. We recalculated the unit costs using the average CCC book value and estimated a $58 million savings to USDA. As mentioned before, since the actual loan rates were not available in automated form, and since we chose not to take the time to search the 286,000 bid records manually, we could not conclude that USDA's suggested book value rates and the resulting $58-million estimated savings are any more (or less) accurate than the $256-million estimate.

We found that a unit cost approach would have allowed lower acquisition costs, although we could not calculate the precise dollar amount that would have been saved had this approach been used for purchasing PIK commodities. The magnitude of either savings estimate, $58 million or $256 million, supports our finding that substantial savings would have been possible using the unit cost approach. Therefore, we have mentioned both estimates in this report. (App. III describes the detailed methodology we used to develop each of these estimates.)

Our estimates of the costs of acquiring commodities under both the bid percentage method and the unit cost method--and therefore our estimate of the cost difference--do not take into account (1) the accrued interest on each loan bid, (2) the differences in the due dates of forgiven loans, or (3) storage costs. We did not include accrued interest because neither USDA's loan file nor its bid file includes this information and time did not permit us to search and automate each bid to calculate the accrued interest for each loan. USDA generally accrues interest on loans only during the loan's first year; the loan is subsequently interest free. Under a unit cost approach, loans with lower loan rates would tend to be favored because the lower loan rate would generally mean lower unit costs. Therefore, using a unit cost approach, USDA would lose less accrued interest, and including interest in the calculations would likely increase the estimated savings.

Further, we did not take into account the differences in the dates on which the forgiven loans were due because the expected repayment dates could not be readily determined from the bid file. In general, USDA loses more when it forgives a loan due in the immediate future than when it forgives a loan due in several years. This is true because money available in the near future has a greater value than money available in the distant future. The fact that (1) the unit cost approach tends to favor loans with lower loan rates and (2) older loans tend to have lower loan rates suggests that the unit cost method tends to favor loans due earlier than the loans actually forgiven under USDA's bid percentage method. Thus, including expected repayment dates in the analysis would likely decrease our estimated savings. Also, we did not include storage costs associated with commodities under loan because such costs do not affect the amount USDA would receive when the loan is repaid.

Because a unit cost approach would have resulted in USDA's forgiving fewer outstanding loans to acquire the same quantity of commodities, commodities would likely have been acquired in fewer locations than under the bid percentage method. Consequently, some additional commodity exchange would have been necessary to position wheat, corn, and grain sorghum where needed. This increased cost could have reduced the savings achieved through the unit cost approach. Although we cannot quantify this reduction, we do not believe it would have been significant enough to offset the savings resulting from using a unit cost approach. We noted that about 39 percent of the wheat, 36 percent of the corn, and 22 percent of the grain sorghum USDA purchased was repositioned at a cost of about $170 million. Thus, for example, a 5-percent increase in repositioned commodities would have increased costs about $8.5 million.

The Chief of ASCS' Analysis and Procedures Division in Kansas City, who was responsible for managing the PIK acquisition program, told us that USDA did not use unit cost as the criterion for selecting bids because of time pressure to acquire the needed commodities. ASCS' Deputy Administrator for Commodity Operations told us that he was not sure that USDA could have computed a unit cost for each bid and selected bids in the time allowed for the purchase program. The Chief of ASCS' Loan Branch, who helped plan the PIK acquisition program, said that he did not know whether USDA could have computed a unit cost within the time available. He said that, at any rate, he and other officials did not believe there was enough time to select bids on any basis other than bid percentage.

USDA's PIK obligations were not known until after USDA tabulated the enrollment data about March 22, 1983. At that time, USDA officials realized that they needed additional amounts of wheat, corn, grain sorghum, and cotton. The first availability dates were June 1 for wheat and, with minor exceptions, October 1 for corn and grain sorghum. USDA needed time to process the loan

documents and record the purchased commodities in CCC inventory. USDA announced the offer to accept wheat, corn, and grain sorghum bids on March 29, 1983, and accepted bids through April 15. County offices recorded the bids and forwarded the information to the Kansas City office to be compiled in an automated bid file. On April 22, USDA announced the bids selected.

We considered the time available to USDA for acquiring PIK commodities and attempted to identify how a unit cost approach could have been used within USDA's time constraints. We believe that USDA could have used the unit cost approach, excluding consideration of accrued interest, storage, and the expected repayment dates of the forgiven loans, within the same time period using either of two procedures. Officials in three ASCS county offices[3] told us that if directed by USDA, they could have computed a unit cost for each bid, using readily available loan records, and forwarded it to the Kansas City office with the bid within the time period actually used. The county officials estimated that this calculation would have taken only a few moments for each bid. Alternatively, USDA could have used its then-current automated loan file, which, for each outstanding loan, shows among other things the (1) number of bushels under loan and (2) outstanding loan principal. Using the loan file and the automated bid file, USDA could have computed a unit cost for each bid by dividing the quantity acquired by the outstanding loan principal.

If ASCS county offices had computed a unit cost for each bid, this information could have been forwarded to Kansas City with other bid information and become part of USDA's bid file. By using these existing administrative channels, USDA could have used the unit cost approach without increasing administrative expenses. Matching the automated loan file with the automated bid file would have required additional computer processing time, resulting in some additional expense that would have reduced the savings from the unit cost approach. While we cannot quantify this expense, we do not believe it would have been substantial because USDA would have used its existing computer equipment and staff.

The Chief, Analysis and Procedures Division, agreed that if the county offices had computed the unit cost for each bid, ASCS could have selected bids on the unit cost basis. He also agreed

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[3]We spoke with the CEDs of Reno County, Kansas, and Kossuth County, Iowa; and the Chief Program Assistant of Deaf Smith County, Texas. We contacted these officials because their counties have historically high amounts of CCC loan activity. While not statistically representative of all ASCS county offices, these county offices used the same procedures used nationwide for processing bids under the PIK commodity acquisition program.

that USDA could have used its then-current loan file and the bid file to calculate the unit cost for each bid; however, he said that, because of errors in matching the two files, this method would have taken more time. We noted that, because the accepted bids resulted in USDA forgiving the associated loans, the bids were eventually matched with the loan file. When this occurred, USDA experienced matching problems with about 5 to 7 percent of the bids. While this portion of the bids would have required additional processing time, USDA could have acquired the needed commodities within the required time period using the bids without matching problems.

The Deputy Administrator and the Chief, Loan Branch, pointed out that if more time had been available, ASCS would have performed a further analysis that would have considered (1) the amount of accrued interest lost as a result of forgiving each loan and (2) the location of the loan commodities relative to USDA's PIK obligations. We agree that an analysis including these factors would have been desirable because considering the amount of accrued interest lost and the location of loan commodities could have allowed USDA to minimize the total cost of acquiring PIK commodities.

USDA had made large commodity purchases on occasions prior to the PIK program. USDA purchased large amounts of wheat and corn, for example, following the Soviet grain embargo in 1980. USDA used a unit cost approach in those cases, accepting bids on a dollar-per-bushel basis. We believe that USDA should use a unit cost approach for future purchases of loan collateral because such an approach should permit USDA to minimize government costs.

POSITIONING OF PIK COMMODITIES

Outdated inventory information and changing estimates of PIK payment obligations caused USDA some problems in its efforts to relocate CCC's available inventory to match PIK obligations on a county-by-county basis; however, the program-wide impact of these factors does not appear too significant. Because of these factors, USDA did not issue loading orders for commodities in some counties by the prescribed dates, and it acquired about 3.5 million extra bushels of wheat, corn, and grain sorghum at a cost of about $1.7 million to make these commodities available in counties where they were not needed for PIK.

County offices provided information on USDA's PIK obligations to the Kansas City office in May 1983. This information was updated several times through January 1984 to correct errors and to reflect "harvest for PIK" information. As a result, the estimated obligations fluctuated during the time the Kansas City office tried to meet those obligations. Table 14 shows the details of changes in USDA's estimated PIK needs.

Table 14

Fluctuations in USDA's Estimated PIK Needs

	Corn (bushels)	Grain sorghum (bushels)	Wheat (bushels)	Rice (pounds)	Cotton (pounds)
	(thousands)				
Estimated needs, 5/25/83	1,799,260	227,232	550,977	4,029,059	1,972,800
Changes in needs:					
5/25 to 7/13/83	+10,037	-26,906	+5,126	+66,381	-12,000
7/13 to 8/8/83	-55,658	-11,847	-20,708	-133,572	-12,960
8/8 to 8/29/83	-9,499	-11,067	+8,288	+38,511	-
8/29 to 9/9/83	112,813	-418	+2,541	+110,530	-22,080
9/9 to 10/14/83	-92,850	+616	+46	+11,845	+35,374
10/14/83 to 1/4/84	+24,555	-85	+101	-3,500	-26,643
Estimated needs, 1/4/84	1,788,566[a]	177,525	546,372[a]	4,119,254	1,934,491

[a]Does not add due to rounding.

Information on the amount of CCC inventory available for PIK allocations and exchanges was updated weekly at the Kansas City office as new data became available from the county offices. The updates reflected inventory changes, including increases due to normal CCC loan forfeitures as well as forfeitures from the loan purchase program. The large volume of forfeitures for PIK delayed recording of forfeiture data in the automated inventory system, which caused the weekly inventory updates to be understated.

In July 1983, USDA's OIG reviewed forfeiture documents not recorded as of July 14 and found that these represented inventory of about 789 million bushels, an amount equal to the wheat, corn, and grain sorghum then reported as available for PIK. About 354 million bushels were unrecorded because of county offices' delays in transmitting loan forfeiture documents from the loan purchase program, and about 435 million bushels were unrecorded because the Kansas City office had not processed some 61,000 loan forfeiture documents received.

We noted that by September 30, 1983, the last date for which USDA kept such data, the number of unprocessed loan forfeiture

documents had been reduced to about 3,675. We did not determine the exact number of bushels involved because, between September 30 and the time we reviewed this matter in November 1983, the documents had been processed and filed. However, using the same ratio of documents-to-bushels reported by OIG, we estimate that the unrecorded inventory as of September 30 was about 22 million bushels, or about 3 percent of CCC's estimated available inventory of wheat, corn, and grain sorghum.

The Chief of the Bulk Commodities Division of ASCS' Kansas City office, who is responsible for managing the distribution of PIK commodities, said that the fluctuating PIK obligation estimates and inventory processing delays had contributed to some counties not receiving all of their PIK commodities by the prescribed availability dates. However, a Kansas City office official responsible for managing PIK allocations to the counties estimated that, in spite of the problem, 99 percent of the counties nationwide received some portion, and between 50 and 60 percent of the counties received all, of their PIK commodities by the promised availability dates. As discussed beginning on page 62, our review of the timing of PIK commodity payments in selected states showed that about 95 percent of the commodities for those states were made available by the prescribed availability dates.

Also, as a result of not having current data on inventory and PIK obligations at any one time, USDA contracted for some unnecessary commodity exchanges that in turn resulted in some unnecessary costs. For example, on the basis of a reported need of 419,297 bushels of grain sorghum for Pawnee County, Oklahoma, USDA entered an exchange contract. In exchange for providing 419,177 bushels in the county, USDA gave the contractor about 425,047 bushels at other locations, which cost USDA about 5,870 bushels. Later information showed that the actual need in Pawnee County was 4,193 bushels. Although USDA subsequently modified the contract, as of January 30, 1984, there were about 86,556 unallocated and unneeded bushels.

At the time of our review in September 1984, USDA had not determined the exact unused portion of the commodities received in exchanges. However, about 3.5 million bushels (about 1 percent) of the commodities received in the exchange program were not allocated for PIK needs, because inventory was available but not recorded in Kansas City's inventory system at the time of the exchange, or because estimated needs decreased. Using the average cost of the net amount of commodities USDA gave up in the exchange program, we estimate this positioning cost CCC about $1.7 million (1 percent of the exchange program's $170-million cost, see p. 43).

USDA MET ITS PIK OBLIGATIONS IN THE STATES WE REVIEWED

Our review in the ASCS Kansas City office of loading orders covering PIK payment distribution in 12 agricultural states showed that:

--About 95 percent of the wheat, corn, grain sorghum, and rice payments were made by the prescribed availability dates. (As discussed below, cotton payments were delayed for about 30 to 40 days because of special circumstances.)

--About 92 percent of the wheat, corn, and grain sorghum payments were of the grades specified for the PIK program. (As discussed on p. 65, we did not obtain quality information on rice and cotton.)

--About 75 percent of the wheat, corn, and grain sorghum payments were made available in the farmers' own counties, while the remaining 25 percent were made available at out-of-county warehouses an average of 66 miles from the center point of the farmers' counties. (As discussed on p. 68, rice and cotton were not required to be positioned at the county level.)

The state or states where we reviewed each commodity had received about 25 percent of the total amount of that commodity provided from CCC inventory nationwide for PIK. For example, the five states where we reviewed wheat had received about 25 percent of the wheat from CCC inventory. The counties selected for review in each of the 12 states permitted a statistical generalization of the results to the entire state. In addition, most of the 120 farmers and 37 CEDs we contacted in the 12 states told us that they were generally satisfied with USDA's performance in meeting its PIK obligations.

Timeliness of PIK payments

The documents we reviewed showed that most PIK allocations were made available to counties by the prescribed availability dates, except for cotton. CCC's cotton purchases, which were the subject of special legislation enacted July 30, 1983 (see p. 54), were not completed until September. For this reason, USDA was delayed in meeting its PIK commitments until 40 days after the availability dates for cotton. For the other PIK commodities, an average of 95 percent of PIK allocations was made available by the prescribed availability dates in the states we reviewed. Table 15 shows the details on the timing of PIK payments. As table 15 indicates, an estimated 92 to 100 percent of the commodities was made available by the prescribed availability dates in all the states except Kansas, where an estimated 44 percent was made available by the prescribed date and 56 percent within 30 days

thereafter, and Oklahoma, where an estimated 72 percent was made available by the prescribed date, 23 percent within 30 days thereafter, 5 percent between 31 and 60 days thereafter, and less than 1 percent made more than 60 days after the availability date.

The Chief of the Bulk Commodities Division told us that much of the Kansas wheat had not been allocated by the July 1, 1983, availability date due to the unanticipated amount of work involved in filling the large quantity of loading orders from CCC inventory, the very short time given for getting the work done, and computer malfunctions at the Kansas City office. The Chief said that in the case of Oklahoma, a significant number of loading orders had to be replaced after July 1, 1983, because the farmers had initially been paid in one variety of wheat (soft red winter wheat) when, traditionally, they plant a different variety (hard red winter wheat).

The CEDs we contacted said that the portions of PIK commodities not made available by the prescribed dates did not present a problem to most of their counties' farmers. One CED told us that not all farmers wanted to redeem their PIK payment entitlement certificates on the first day of the availability period and the county was able to accommodate those farmers who did.

Table 15

Timing of PIK Payments

State-commodity	Quantity in sample counties	Percent of PIK allocations made available: By availability date	After availability date: Between 1 and 30 days	Between 31 and 60 days	More than 60 days
Kansas-wheat	2,869,376 bu	43.9	56.1	-	-
Montana-wheat	3,575,423 bu	92.8	6.4	-	0.8
Oklahoma-wheat	3,536,723 bu	71.7	22.6	5.4	.3
Tennessee-wheat	981,232 bu	100.0	-	-	-
Washington-wheat	4,114,431 bu	92.1	7.6	.1	.2
Georgia-corn	2,180,594 bu	99.7	.3	-	-
Illinois-corn	42,819,575 bu	99.1	.8	.1	-
Nebraska-corn	16,300,596 bu	95.2	4.8	-	[a]
Pennsylvania-corn	3,513,219 bu	99.9	.1	-	-
Texas-grain sorghum	4,789,329 bu	98.4	.9	.6	.1
Louisiana-rice	235,999,242 lb	96.9	3.1	-	-
California-cotton	95,212,134 lb	-	[b]	[b]	-
Weighted average		95.0[c]			

[a]Less than 0.05 percent.

[b]All California cotton allocations reviewed were made available between 29 and 38 days past the original availability date.

[c]Excludes California cotton payments.

However, according to some CEDs, a few farmers experienced problems because their PIK entitlements were not available to them on the date promised. For example, the CEDs in Merced and Kern counties in California told us on December 16, 1983, or 62 days past the original availability date of October 15, that some of their farmers still did not have all their PIK cotton entitlements. Both CEDs said that, as a result, farmers may have

had to pay more interest on loans they planned to pay off when they received their PIK cotton. The CED in Kern County said that farmers in that county frequently had contracted to sell their PIK cotton on the promised availability date and incurred charges if unable to meet their contracts.

In another case, the CED in East Carroll Parish, Louisiana, said that two farmers in his parish who received their PIK rice after the promised availability date received a lower sales price than they would have received if the payment had been on time. However, the CED said that the farmers in his parish were rarely affected by the timing of their PIK payments.

Grade of PIK commodities

Under the PIK program, commodities distributed to participants were to be of certain specified grades (or classes). For wheat, corn, and grain sorghum, the PIK program specified certain nationwide standard grades; for rice and cotton, the standards varied by growing area. The program provided, however, that if CCC did not have enough commodities of specified grade or class, USDA would compensate by allocating an additional quantity of commodities below the specified grade or class, or a reduced quantity of commodities above the specified grade or class. The additions or reductions are known as quality adjustments.

While none of the states we reviewed were allocated all of their PIK commodities of specified grades or classes, an estimated 92 percent of the wheat, corn, and grain sorghum PIK allocations were of the specified grades, as table 16 shows.

We did not determine the classes for California cotton or grades for Louisiana rice. In California, individual allocations to cotton farmers were made in a broad mix of different classes and fiber lengths. Similarly, Louisiana parishes were allocated rice of several different grades and grain lengths. Because of the large number of different classifications for these commodities--about 50 for cotton and over 100 for rice--and because the rice and cotton standards specified for PIK varied by growing area, we did not obtain specific data on each allocation.

As table 16 shows, only about 60 to 62 percent of the wheat allocations in Kansas, Oklahoma, and Washington were of the specified grade or better. Most of the remaining wheat provided to farmers in these three states was one grade below that specified. The Chief of the Bulk Commodities Division said that the lower percentage of PIK commodities at specified grade or better in certain states, such as Kansas, Oklahoma, and Washington, resulted from the use of locally available CCC inventory that was not always at the applicable PIK-specified grades. He said that on the other hand, where states filled their PIK requirements through an exchange, such as occurred in Georgia and Pennsylvania, the exchange agreement required specified grade,

and, as a result, these states had higher percentages of PIK commodities in specified grade or better.

Table 16

Grade of PIK Commodities

State-commodity	Bushels in sample counties	Percent of PIK allocations of: Specified grade or better	1 grade below	2 grades below	3 or more grades below	Grade not shown
Kansas-wheat	2,869,376	62.0	31.0	6.5	0.5	-
Montana-wheat	3,575,423	87.9	8.1	2.7	1.3	-
Oklahoma-wheat	3,536,723	62.3	30.4	6.8	.5	-
Tennessee-wheat	981,232	90.1	8.5	1.0	.3	-
Washington-wheat	4,114,431	60.2	30.9	8.9	a	-
Georgia-corn	2,180,594	98.0	1.0	.6	.4	-
Illinois-corn	42,819,575	97.4	1.9	.3	.1	0.2
Nebraska-corn	16,300,596	97.0	2.1	.6	.3	-
Pennsylvania-corn	3,513,219	99.7	.3	-	a	-
Texas-grain sorghum	4,789,329	96.8	2.5	-	-	.7
Weighted average		92				

[a]Less than 0.05 percent.

According to the CEDs and farmers we contacted, most farmers who received commodities of below-specified grade were satisfied with the quality adjustments. However, the CEDs told us that a few farmers had experienced problems with the grade of their PIK commodities. For example, some participating farmers in East Carroll Parish, Louisiana, were originally issued PIK entitlements for rice stored in California. USDA later made locally stored rice available to the parish's farmers. According to the CED, the locally stored rice generally sold for a higher price because it was of longer grain than the California rice. In one case, a farmer had already sold his PIK rice in California for a lower price than he would have received in Louisiana. The CED in Victoria County, Texas, told us that some farmers received lower

prices for their grain sorghum PIK payments because the grain was below specified grade. Both of these CEDs told us that they had received very few complaints about the quality of PIK commodities.

While we did not review rice allocations in Texas, we noted that a group of Texas rice farmers, who grow number 1 long grain rice, had filed suit in the U.S. District Court in Galveston, Texas, alleging that (1) USDA did not honor the farmers' PIK enrollment contracts because it made payment in medium grain rice and (2) USDA could make long grain rice available instead of the medium grain rice. As of July 1, 1985, the suit was not settled.

Location of PIK commodities

The warehouses that wheat, corn, and grain sorghum farmers designated to receive their PIK payments had to have storage agreements with CCC. However, USDA provided that, if impossible to provide a farmer's PIK commodity in the preferred warehouse, it would use a warehouse in an adjacent county or the nearest warehouse having a storage agreement with CCC that was between the farmer's county and a terminal warehouse. Terminal warehouses are located adjacent to major transport facilities such as railroads, ports, and highways.

For the six states for which we obtained statistically representative statewide data,[4] an estimated 75 percent of the total wheat, corn, and grain sorghum allocations was made available at warehouses in the farmers' own counties; in the other 25 percent of the allocations, the distance between the warehouses and the center points of the farmers' counties averaged 66 miles. Table 17 shows more details on the location of PIK wheat, corn, and grain sorghum in the states we reviewed.

The Chief of the Bulk Commodities Division said that the reasons why the percentages of PIK allocations in the farmer's county were not higher in some states were that:

--In states such as Tennessee, Georgia, and Pennsylvania, which were in a deficit status and where the exchange program had to be used, USDA did not always receive the most reasonable offers and therefore did not accept bids from warehouses that were in the most centralized locations to distribute the commodities more effectively.

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[4]Because the number of loading orders for the counties in Tennessee, Georgia, Washington, and Montana was small, we could not make representative estimates of their statewide percentages. The percentages shown for these states in table 17 apply only to the sampled counties, not the entire state.

--In states such as Kansas and Oklahoma, which had deficit areas, the loading orders for the deficit areas had to be filled in areas where the grain was available.

In addition, the Chief of ASCS' Bulk Grain Branch said that, because Tennessee and Georgia are not major producers of wheat and corn, respectively, they have fewer commercial warehouses, which made it difficult for USDA to find warehouses in all counties where farmers participated in PIK.

The CEDs contacted said that most farmers did not experience problems with the location of their PIK commodities; some farmers, in fact, designated warehouses outside their own counties. However, they said that a few farmers had experienced problems when their PIK entitlements were made available outside their counties. A farmer in Obion County, Tennessee, a county which received 100 percent of its PIK wheat from warehouses outside the county, told us that the warehouse paid him 4 cents a bushel less for his PIK wheat than he would have received in his home county. A rice farmer in Pointe Coupee Parish, Louisiana, told us he was not satisfied with the California rice and maintained that he would have received a better price if the rice had been made available in Louisiana.

As mentioned previously, some participating rice and cotton farmers did not receive their PIK commodities locally, but rather where the commodities were stored. According to the records we reviewed, Louisiana rice farmers received their PIK payments either in Louisiana or California. California cotton farmers received their PIK payments in California as well as nine other states.

Table 17

Location of PIK Commodities

State-commodity	Bushels in sample counties	Percent of PIK allocation located		Distance between warehouse and farmer counties (miles)		
		In farmers' county	In another county	Average	Minimum	Maximum
Kansas-wheat	2,869,376	75.1	24.9	91	20	205
Montana-wheat	3,575,423	63.1	36.9	106	40	260
Oklahoma-wheat	3,536,723	72.5	27.5	67	20	170
Tennessee-wheat	981,232	40.4	59.6	54	20	230
Washington-wheat	4,114,431	64.8	35.2	67	20	110
Georgia-corn	2,180,594	19.9	80.1	68	15	155
Illinois-corn	42,819,575	75.0	25.0	59	10	255
Nebraska-corn	16,300,596	86.2	13.8	45	15	170
Pennsylvania-corn	3,513,219	8.9	91.1	97	15	250
Texas-grain sorghum	4,789,330	82.2	17.8	69	20	365
Weighted average[a]		75	25	66	-	-

[a]Excludes Tennessee, Georgia, Washington, and Montana.

CHAPTER 7

CONCLUSIONS, RECOMMENDATION, AND MATTERS FOR CONSIDERATION BY THE CONGRESS

PIK marked a fundamental change in the administration of farm programs over prior years in that farmers were paid in commodities, rather than in cash, to idle acres and reduce production of surplus commodities. Our review shows several lessons from the PIK experience that can be applied to future programs that might involve in-kind payments, as well as to all farm programs in general. Some of the lessons are positive and involve capitalizing on some of the strengths demonstrated by the PIK program, while others are negative and involve program and policy issues that need to be remedied or clarified for future farm programs.

On the positive side, the 1983 PIK program induced farmers to take an additional 49.2 million acres of cropland out of production beyond the 26.8 million acres estimated to be taken out of production under the farm programs originally established for 1983. The two main reasons for this were that (1) the PIK payment rates made it financially attractive for farmers to join the program and (2) large farmers participated in the program because of USDA's determination that the $50,000 payment limitation did not apply to PIK payments. By taking an additional 49.2 million acres out of production, the PIK program, along with the 1983 ARP and PLD programs announced earlier, reduced production of the five PIK commodities by 18 percent, reduced total ending stock levels by 35 percent, reduced ending government stock levels by 43 percent, and increased farmers' net cash incomes by $9 billion.

Further, the PIK program demonstrated that under the conditions that existed in 1983, USDA could effectively locate, distribute, and deliver large quantities of commodities to farmers in a relatively short period of time. USDA located, distributed, and delivered to farmers about 952 million bushels of corn, 95 million bushels of grain sorghum, 167 million bushels of wheat, 2.1 billion pounds of rice, and 757 million pounds of cotton. For the 12 states we reviewed, most of the commodities were delivered by the date prescribed; were of the grade specified for the PIK program; and were made available to farmers in warehouses located in or near their own counties or, in the case of rice and cotton, at the promised delivery points.

On the negative side, however, a number of areas need improvement. These improvements include (1) establishing specific, quantified goals so that USDA has some objective criteria for assessing a program's merits as well as its overall effectiveness, (2) requiring that major program innovations like PIK, as well as key program provisions, are more fully reviewed, analyzed, and debated by the Congress and agricultural policy

decision makers before being implemented, and (3) requiring that commodities be acquired at the lowest cost to the government.

USDA's objectives for the PIK program were broadly stated. The absence of specific, quantified goals on what the program was to accomplish resulted in USDA having no objective basis for determining whether the overall program was sufficient and cost-effective. Although the PIK program reduced 1983 production, total ending stock levels, and ending government stock levels, and also increased farmers' net cash incomes, there is no way to determine whether these accomplishments met, fell short of, or exceeded USDA's goals. Had USDA been more specific and quantified the PIK program's goals, such as the number of bushels or pounds by which production was to be reduced or how much total ending stock levels were to be reduced and at what cost, then USDA, agricultural policymakers, and the Congress would have had a better basis for determining PIK's effectiveness against its $9.8-billion to $10.9-billion cost.

A similar conclusion can be drawn in trying to evaluate the adequacy of the justification for two key program provisions--payment rates and the whole-base PIK option. While the payment rates, on average, were financially attractive to PIK participants, any judgments about whether the payment rates were reasonable, too generous, or not generous enough would hinge on USDA's specific participation goals. However, none were established. Further, although the whole-base option did remove more than 20 million acres of additional land from production, whether this option was justified depends on USDA's production control goals. But again, no specific production control goals were established--only the general objective of reducing production.

Further, the PIK program was initiated administratively by the Secretary of Agriculture. Although it was debated by the Congress, it was implemented without specific congressional approval. Although the Secretary of Agriculture's decision to initiate the PIK program was within the scope of his statutory authority, one of the 1983 program's basic features was not consistent with applicable statutory requirements. Specifically, USDA determined that the $50,000 limitation on payments that any one farmer can receive in any one year did not apply to PIK payments. However, we concluded that this limitation did apply to commodity payments under the PIK program and that exemption of these payments from the payment limitation required specific legislative approval.

This is a basic point since a key element in establishing the 1983 PIK program was USDA's determination that PIK payments were not subject to the payment limitation. And, as it turned out, USDA's determination was a major factor in the PIK program's impact, allowing about 15.75 million acres to be taken out of production that otherwise would have come under the $50,000 payment

limitation. This acreage represents about 32 percent of the 49.2 million acres taken out of production by the PIK program. With USDA's determination that PIK payments were not subject to the payment limitation, larger farmers, who control larger amounts of cropland, found it financially beneficial to participate in USDA's 1983 crop reduction programs. In contrast, in prior years, the larger farmers were discouraged from participating in the programs because it was not financially beneficial for them to participate.

Because, as we have concluded, USDA incorrectly determined that commodity payments under the 1983 PIK program were not subject to the payment limitation and because this determination was a key factor in USDA's decision to initiate the PIK program, we believe USDA's action underscores a need for specific congressional approval before such major changes to farm programs are authorized or implemented. In addition, specific congressional action on this issue prior to the initiation of the PIK program would have enabled the Congress to consider the advantages and disadvantages of maintaining the payment limitation and its effect on farm programs. For instance, a major cost advantage of the limitation to the government is that it precludes payments of more than $50,000 to individual farmers and thus places an upper limit on total outlays to farmers. However, a major disadvantage of the limitation is that it could work against effective production control programs by discouraging larger farmers from participating in USDA's farm programs and, thus, by decreasing USDA's ability to control crop production in times of large crop surpluses.

Finally, in administering the PIK program, USDA implemented a large commodity purchase program to enable it to acquire enough commodities to meet its PIK payment obligations. Because the commodity purchases were based on the lowest bid values received from the farmers rather than a unit cost approach, USDA spent about $58 million or $256 million more than necessary. This issue has more than historical PIK significance in that situations necessitating large commodity purchases have previously taken place, such as purchases resulting from the Russian grain embargo, and may occur again. Consequently, we believe that USDA should use a unit cost approach for any future purchases rather than basing purchases on the lowest bid values received.

RECOMMENDATION TO THE SECRETARY OF AGRICULTURE

We recommend that to better evaluate the results of production control programs, such as ARP, PLD, or PIK programs, the Secretary of Agriculture require the Administrator of ASCS to establish quantified goals specifying what these future programs are to accomplish each year. This will facilitate better evaluations of program results as well as determinations about overall program effectiveness by providing criteria by which a program's effectiveness can be measured against its costs.

We made a recommendation to the Secretary of Agriculture to use the unit cost approach in future acquisitions of commodities held as loan collateral in an earlier report on PIK entitled Department of Agriculture's Acquisition and Distribution of Commodities for Its 1983 Payment-In-Kind Program (GAO/RCED-84-137, Sept. 25, 1984).

In commenting on a draft of this report, USDA said that it considered, but did not use, the unit cost method to acquire loan commodities for the PIK program because the unit cost method was more complex and time-consuming and would make little difference in the cost of acquiring commodities.

As our draft report stated, officials of three counties with historically high rates of loan activity told us that their offices could have computed the unit cost of each bid. This computation, made at the time that farmers submitted the bid using loan records readily available in the county office, would have been included with the data on each bid forwarded to the Kansas City office. We clarified our report to show that, because the officials said that this calculation would have required only a few moments for each bid, the information could have been sent to Kansas City within the time period actually used. The Chief of the Kansas City office's Analysis and Procedures Division, responsible for managing the loan purchase program, agreed that if the county offices had computed each bid's unit cost, USDA could have selected bids on the unit cost basis. Our draft report also suggested that USDA's Kansas City office could have computed unit costs for each bid using its then-current automated loan file by matching loan numbers on the loan and bid files.

Subsequent to receiving USDA's comments, we met with USDA officials. ASCS' Deputy Administrator for Management explained that, in his opinion, county offices could not have accurately computed a unit cost for each bid in the available time; as support for this opinion, he noted that the bid information actually submitted by the county offices was not entirely accurate and timely. He also estimated that the errors arising from calculating a unit cost for each bid using the Kansas City office's automated files precluded this approach between the time that the offer to accept bids was announced (Mar. 29, 1983) and the date that the accepted bids were announced (Apr. 22, 1983).

USDA also commented that using a unit cost approach would make little difference in the cost of acquiring commodities and presented a figure of about $28 million. However, USDA developed this figure by comparing two cost estimates: (1) the cost of commodities, valued at national average loan rates, acquired under the bid percentage method using the 20-percent maximum bid criterion and (2) the estimated cost of the commodities that would have been acquired, under the bid percentage method, using a 35-percent maximum bid criterion. Because both of these methods use the same (bid percentage) method of selecting bids and do not

use a unit cost method, USDA's analysis is not a comparison of the estimated cost of commodities acquired under two different methods, and the $28 million does not actually reflect savings using a unit cost method.

MATTERS FOR CONSIDERATION BY THE CONGRESS

Because of the controversy surrounding the 1983 PIK program and its multibillion-dollar cost, the Congress, in its deliberations on the 1985 farm bill or on legislative changes to future farm programs, may want to consider:

--The need for limits on the Secretary of Agriculture's authority to initiate programs like PIK. In this regard, the Congress may wish to require the Secretary to obtain legislative authorization before making fundamental changes in the Department of Agriculture's approach to farm programs as was done for the 1983 PIK program.

--The advantages and disadvantages of having a payment limitation in years when acreage reduction programs are in effect in view of the fact that if a payment limitation remains in effect, larger farmers may be discouraged from participating in future farm programs. The impact of retaining a payment limitation is that future farm programs may not be able to control production on those farms having the largest contribution to production. As a result, USDA's ability to control production to the extent needed to manage the nation's agricultural output could erode. On the other hand, keeping a limitation in effect precludes large payments to individual farmers and places an upper limit on farm program outlays to farmers.

AGENCY COMMENTS AND OUR EVALUATION

USDA agreed, in concept, with our recommendation on the need to establish specific, quantified goals on production control programs (see app. V). However, USDA said that because of the unpredictability of weather, the U.S. economic situation, and world commodity production and markets, the establishment of specific, quantified goals, based on accurate and reliable estimation, is virtually impossible. USDA said that the establishment of qualitative goals, such as those established for the PIK program, provide the public, the farmers, and the program administrators with a more realistic way of dealing with program expectations.

We realize that many factors, including the weather, the future U.S. economic situation, and world commodity production and markets, are difficult to predict. Difficulties are inherent in any process where estimates need to be made. In fact, USDA makes assumptions about the weather, the future U.S. economic situation,

and world commodity production and markets when it estimates future crop demand and supply. Therefore, the unpredictability of the factors USDA mentioned should not prevent USDA from establishing specific, quantified goals at the time it is designing future crop production programs. Without specific, quantified goals, it is very difficult to determine which crop production programs are the most effective and cost-efficient to administer.

USDA did not comment on our matters for consideration by the Congress.

METHODOLOGY FOR DETERMINING THE IMPACT OF PIK AND THE DROUGHT

MISSOURI VALLEY RESEARCH ASSOCIATES

Missouri Valley Research Associates (MVRA) is a privately owned consulting firm that focuses on the evaluation of economic and policy-oriented issues associated with the general economy and farm sector. The firm is jointly owned by Abner W. Womack and Stanley R. Johnson. Abner W. Womak is a professor in the Agricultural Economics Department at the University of Missouri, Columbia. Stanley R. Johnson is a professor in the Economics Department at Iowa State University, Ames.

The firm was established on September 29, 1980, to provide consulting services to the U.S. government, private industry, farm associations, and foreign governments on policy, program design, forecasting, and evaluations of various agricultural issues based on a farm sector econometric model. Consulting services have included evaluations of alternative farm program design; implementation of long-term farm sector forecasts and forecasting production, including commodity stock levels and commodity prices based on an individual year's farm programs; evaluation of potential demand for the fertilizer and farm equipment industries over the next 5 years; and design of computer software packages and development of data systems to predict crop exports based on the international trade environment.

MVRA is completely separate from the University of Missouri activities. As such, offices, equipment, computers, and models are maintained by the firm for consulting and contract purposes. In cases where the firm needs larger computer capacity, the firm leases computer time from the University of Missouri system.

THE ECONOMETRIC MODEL USED FOR THE ANALYSIS

The econometric model MVRA uses reflects the structural relationships of the major agricultural commodities in a national and international trade environment. Policy program variables are a key component of the model. The model is programmed to react to changes in loan rates, target prices, deficiency payments, and the reserve program, as well as in policies that may affect commodity exports, such as the value of the dollar and commodity trade agreements between the United States and foreign countries.

The model's two major components include the major crops and livestock sectors of agriculture. Major crops include corn, grain sorghum, wheat, cotton, rice, and soybeans. The livestock sector includes beef, pork, poultry, eggs, turkey, and dairy. To determine specific farm program data, such as crop production, ending

commodity stock levels, and commodity prices, supply and utilization tables are tabulated for each crop.[1] The supply and utilization tables basically measure what each crop's total supply and demand will be for a certain year on the basis of the farm program in effect for that year. The crop supply is determined by estimating total production, beginning stock levels, and imports. The demand is determined by estimating the domestic use and what the United States will export. The model estimates are based on actual historical data since 1961. For example, for a particular farm program, the model can determine the average percent of participation relative to the program's restriction that include ARP and PLD plus economic incentives associated with loan rates and target prices.

ASSUMPTIONS USED FOR ANALYZING THE IMPACT OF PIK AND THE DROUGHT

Because the 1983 drought occurred while the PIK program was in effect, it was assumed that its impact, like that of the PIK program, contributed to reduced production, lowered total commodity ending stock levels, eased USDA problems in storing PIK commodities, and increased farmers' net cash incomes. The drought's severity resulted in part because it occurred toward the end of July and August 1983 during the prime growing season for such major crops as corn and grain sorghum. The estimated combined impact of PIK and the drought is the difference between USDA's December 1982 farm program projections for 1983, which did not include the PIK program, and USDA's June 1984 final estimates of farm program data for 1983.

We asked MVRA to separate the impact of PIK from that of the drought. To do this, MVRA estimated the farm program data for July 1983, the period immediately prior to the drought. The difference between MVRA's July 1983 data and USDA's December 1982 projections for 1983 can be attributed to the PIK program. The difference between MVRA's July 1983 data and USDA's June 1984 data can be attributed to the drought.

We met with ASCS and ERS officials responsible for providing policy analysis of USDA's farm programs to discuss whether the dates used for these calculations seemed reasonable. They agreed that the dates selected were reasonable; however, they cautioned that MVRA's farm program data for its July 1983 estimate might differ somewhat from USDA's own estimate.

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[1]Supply and utilization tables are the basic tables agricultural analysts use for determining basic farm program data such as crop production, total supply of a commodity, total demand for the crop, and total ending stock inventories.

HOW THE IMPACT OF PIK AND THE DROUGHT WERE MEASURED

We measured the impact of PIK and the drought as they related to the PIK program objectives of reducing production, reducing total ending stock levels, easing government storage problems, and ensuring adequate supplies of commodities. To facilitate these calculations, we tabulated information on tables called supply and utilization tables. For each PIK crop, the supply and utilization tables that appear on pages 81 through 85 show three columns of figures. The first and third columns, which derive their data from USDA supply and utilization tables, show USDA's December 1982 estimate for crop year 1983 before PIK and its June 1984 estimate for crop year 1983 after PIK and the drought. The center column is based on MVRA's July 1983 econometric model estimates for crop year 1983 just prior to the drought. On the basis of the data in these supply and utilization tables, MVRA was able to determine the estimated impact of both PIK and the drought on PIK program objectives.

To determine the reduction in production for each crop, MVRA first had to compare three estimated amounts of production. These included USDA's production estimates based on the 1983 farm program without PIK, MVRA's production estimate based on the 1983 farm program with PIK and no drought, and USDA's final estimated 1983 farm production numbers after PIK and the drought. To determine each production amount, a determination on 1983 farm program participation for the crop in question had to be made. The number of harvested acres can then be estimated. To determine the estimated production, MVRA then multiplied the harvested acres times the yield per acre. For example, on the basis of the participation rate, number of harvested acres, and yield per acre shown in table 18, USDA estimated 1983 corn production of 7,660 million bushels without PIK, MVRA estimated 1983 corn production with PIK of 6,051 million bushels, and USDA estimated 1983 production with PIK and the drought of 4,204 bushels. Of the total reduction of 3,456 million bushels of corn, 1,609 million bushels were attributed to PIK, and 1,847 million bushels were attributed to the drought.

To measure the reduction in total ending stocks, MVRA compared for each of the three estimates the total amount of each crop's supply available in 1983 with the amount of each crop's use (demand) for 1983. Total supply was determined by adding the estimated 1983 production, the amount of stock on hand at the beginning of the crop year, and crop imports. Total use was determined by adding the estimated crop use for feed and food plus exports. The difference between the total supply for each crop and total use for each crop determined the total ending stock level for each crop for the three estimates.

MVRA determined PIK's and the drought's impact on easing government storage problems by determining the reductions in ending government stock levels for each crop. Reductions in ending government stock levels meant that the government had less of each commodity to store, thus resulting in an easing of problems associated with storing large quantities of commodities. Ending government stock levels differ from total ending stock levels in that ending government stock levels are stocks that are held in the farmer-owned reserve and owned by CCC, whereas total ending stock levels also include stocks available in the free market. The season average crop price was the key component in determining what percentage of total ending stock levels would go into each of the three categories--farmer-owned reserve, CCC, or free stocks. Generally, if the season average price of a crop was below the loan rate price, then a larger portion of the total ending stocks would be in the farmer-owned reserve or CCC stocks. This is because farmers have no incentive to pay off loans that are coming due because the market price would be below the price they put their commodities under loan for. If the season average price is higher than the loan rate, then the opposite would occur. A larger portion of the total ending stocks would be in the free stock category because farmers would pay off their loans and their commodities would be sold in the free market. Once MVRA determined the amount of ending stocks to put in each of the three categories for its July 1983 estimate, it compared the July 1983 estimates with USDA's December 1982 estimates to determine PIK's impact on easing government storage problems. MVRA then compared its July 1983 estimates with USDA's June 1984 estimates to determine the drought's impact.

To determine PIK's and the drought's impact on ensuring adequate supplies of commodities, MVRA compared the total ending stock level numbers shown in the last two columns of the supply and utilization tables shown on pages 81 to 85 with the numbers USDA said, in hearings, would be needed to have an adequate level of ending stocks. These numbers are shown on page 36 of the report.

MODEL LIMITATIONS

As stated earlier, model equations are based on averages determined by actual historical data since 1961. As such, these equations estimate corresponding supply and utilization components of each commodity. A major criterion for equation selection is how well these equations replicate the historical period. Since the projections used to determine each crop's supply and utilization depend on a number of forecast assumptions, if these assumptions do not materialize, then errors in estimation will take place.

In projecting the numbers used in determining the July 1983 supply and utilization tables for each crop, assumptions based on historical data were made regarding domestic and foreign weather conditions, crop yields, worldwide crop production, and exchange rates. After these assumptions were made, the United States experienced a drought that dramatically reduced crop yields and domestic production, foreign production for some crops was lower and for other crops higher than expected, and the dollar unexpectedly soared higher than projected against foreign currencies making U.S. commodities more expensive to foreign buyers. Because of these unexpected changes, MVRA's July 1983 assumptions used in the model underestimated wheat yields and the anticipated world and domestic wheat supplies, underestimated world rice supplies and overestimated U.S. rice exports, and overestimated world cotton supplies and underestimated domestic cotton demand and U.S. cotton exports. Since the actual results in 1983 were somewhat different from what was estimated by the model in July 1983, MVRA modified the model to reflect these revisions. These revisions are footnoted in the supply and utilization tables shown on pages 83 through 85 for each of these commodities. The modifications include (1) domestic and export estimates for rice, (2) domestic and export estimates for cotton, and (3) a modification for an improvement in wheat yields and wheat production for the 1983 crop relative to the earlier July 1983 estimates.

Table 18

Corn Supply and Utilization

	Units	1983 estimate by USDA without PIK	Latest model estimate in 1983 before drought	Latest 1983 USDA estimate in 6/84 after drought
Participation	percent	60	65	67
Harvested acres	mil.	69	50.5	51.5
Yield/harvested acre	bu	111.0	120.0	81.6
Supply				
Beginning stocks	mil. bu	3,497	3,493	3,140
Production	mil. bu	7,660	6,051	4,204
Imports	mil. bu	1	1	1
Total supply	mil. bu	11,157	9,545	7,345
Utilization				
Domestic	mil. bu	5,285	5,346	4,925
Exports	mil. bu	2,225	2,150	1,900
Total use	mil. bu	7,510	7,496	6,825
Ending stocks				
Farmer-held reserves	mil. bu	2,515	1,249	100
CCC	mil. bu	535	304	175
Free stocks	mil. bu	597	496	245
Total ending stocks	mil. bu	3,647	2,049	520
Season average price	$/bu	2.60	2.71	3.25
Loan rate	$/bu	2.65	2.65	2.65

Table 19

Grain Sorghum Supply and Utilization

	Units	1983 estimate by USDA without PIK	Latest model estimate in 1983 before drought	Latest 1983 USDA estimate in 6/84 after drought
Participation	percent	68	65	65
Harvested acres	mil.	12.4	10.4	9.9
Yield/harvested acre	bu	60.5	62.5	48.8
Supply				
Beginning stocks	mil. bu	447	455	399
Production	mil. bu	750	650	483
Imports	mil. bu	--	--	--
Total supply	mil. bu	1,197	1,105	882
Utilization				
Domestic	mil. bu	411	488	410
Exports	mil. bu	260	235	225
Total use	mil. bu	671	723	635
Ending stocks				
Farmer-held reserves	mil. bu	450	210	70
CCC	mil. bu	45	40	80
Free stocks	mil. bu	31	132	97
Total ending stocks	mil. bu	526	382	247
Season average price	$/bu	2.50	2.60	2.85
Loan rate	$/bu	2.52	2.52	2.52

APPENDIX I

Table 20

Wheat Supply and Utilization

	Units	1983 estimate by USDA without PIK	Latest model estimate in 1983 before drought	Latest 1983 USDA estimate in 6/84 after drought
Participation	percent	71	75	75
Harvested acres	mil.	75.5	61.5	61.5
Yield/harvested acre	bu	35.0	39.4	39.4
Supply				
Beginning stocks	mil. bu	1,509	1,542	1,541
Production	mil. bu	2,647	2,425[a]	2,425
Imports	mil. bu	--	2	3
Total supply	mil. bu	4,156	3,969	3,969
Utilization				
Domestic	mil. bu	860	980	1,152
Exports	mil. bu	1,525	1,570	1,425
Total use	mil. bu	2,385	2,550	2,577
Ending stocks				
Farmer-held reserves	mil. bu	1,310	621	610
CCC	mil. bu	210	480	175
Free stocks	mil. bu	251	318	607
Total ending stocks	mil. bu	1,771	1,409	1,392
Season average price	$/bu	3.65	3.60	3.50[b]
Loan rate	$/bu	3.65	3.65	3.65

[a]The July 1983 estimate for wheat production was 1.0 bushels per acre lower than USDA's June 1984 estimate, implying a positive effect on production under the drought scenario. Since the wheat crop begins on June 1, a revision was made using final reported yields of 39.8 bushels per harvested acre.

[b]The lower price estimate of $3.50 (June 1984) per bushel compared with $3.60 (July 1983) can be attributed to heavier than anticipated world and domestic supplies. The model reacts to future supply expectations. The originally announced 1984 program was revised late in the crop year in an attempt to reduce acreage and prevent further pressure on future supplies and prices.

Table 21

Cotton Supply and Utilization

	Units	1983 estimate by USDA without PIK	Latest model estimate in 1983 before drought	Latest 1983 USDA estimate in 6/84 after drought
Participation	percent	80	95	95
Harvested acres	mil.	11.4	7.7	7.4
Yield/harvested acre	lbs	525	520	506
Supply				
Beginning stocks	mil. lbs	3,792.0	3,840.0	3,792.0
Production	mil. lbs	6,000.0	3,984.0	3,744.0
Imports	mil. lbs	0.0	96.0	0.0
Total supply	mil. lbs	9,792.0	7,920.0	7,536.0
Utilization				
Domestic	mil. lbs	2,688.0	2,832.0[a]	2,832.0
Exports	mil. lbs	3,024.0	3,360.0	3,360.0
Unaccounted	mil. lbs	48.0	48.0	48.0
Total use	mil. lbs	5,760.0	6,240.0	6,240.0
Ending stocks[b]				
CCC	mil. lbs	1,747.2	480.0	144.0
Free stocks	mil. lbs	2,284.8	1,200.0	1,248.0
Total ending stocks	mil. lbs	4,032.0	1,680.0	1,392.0
Season average price	$/lb	.55	.60	.67
Loan rate	$/lb	.55	.55	.55

[a]Model estimates for domestic consumption and total exports were 2.784 billion pounds. Improved economic conditions and deterioration in foreign production resulted in 2.832 billion pounds in domestic use and 3.360 billion pounds for export. These later estimates were used in the model solution to compensate for estimation errors.

[b]There are no farmer-held reserves for cotton.

Table 22

Rice Supply and Utilization

	Units	1983 estimate by USDA without PIK	Latest model estimate in 1983 before drought	Latest 1983 USDA estimate in 6/84 after drought
Participation	percent	86	95	95
Harvested acres	mil.	3.18	2.15	.17
Yield/harvested acre	cwt./ac.[a]	48.0	48.4	45.98
Supply				
Beginning stocks	mil. lbs	6,220	6,630	7,150
Production	mil. lbs	15,260	10,350	9,970
Imports	mil. lbs	40	40	70
Total supply	mil. lbs	21,520	17,060	17,190
Utilization				
Domestic	mil. lbs	6,550	6,000[b]	6,000
Exports	mil. lbs	6,900	6,200	6,200
Residual	mil. lbs	1,000	800	700
Total use	mil. lbs	14,450	13,000	12,900
Ending stocks[c]				
CCC	mil. lbs	5,400	900	2,790
Free stocks	mil. lbs	1,670	3,160	1,500
Total ending stocks	mil. lbs	7,070	4,060	4,290
Season average price	$/lb	.0814	.0861	.0865
Loan rate	$/lb	.0814	.0814	.0814

[a]Equal to 100 pounds per acre.

[b]Model estimates for domestic and foreign consumption were 6.45 billion pounds and 6.75 billion pounds, respectively. Increases in world supplies and weaker demand resulted in downward revisions to 6 billion pounds and 6.2 billion pounds, respectively.

[c]There are no farmer-held reserves for rice.

METHODOLOGY USED AND CALCULATIONS MADE ON THE ESTIMATED COST OF THE 1983 PIK PROGRAM

Presented below is our detailed methodology used and calculations made for four of the cost elements that we identified in estimating the cost of the 1983 PIK program. These cost elements are (1) PIK commodity payments, (2) storage compensation, (3) diversion payments, and (4) potential interest lost. We are not presenting detailed methodology and calculations on the two remaining cost elements identified--distribution costs for PIK commodities and miscellaneous costs, such as the cost to administer the PIK program--because these cost elements are fully explained in chapter 4.

PIK COMMODITIES

Our estimate of the cost of PIK commodities is based on USDA's estimate of quantities needed to satisfy PIK payment obligations to farmers. We priced these quantities at CCC's cost, which varied depending on the source used to fulfill the obligation; that is, whether the commodities came from outstanding loans, CCC inventory, purchases of additional commodities from farmers with outstanding loans, or "harvest for PIK." The quantities needed for PIK are based on actual payments as of September 30, 1984, and USDA estimates of additional quantities needed to satisfy its 1983 PIK commitments.

The sources of the commodities used to pay PIK obligations varied. The first source for each crop was the farmer's own commodity that had been pledged as collateral for a CCC loan. In these cases, USDA forgave part or all of the loan (principal and interest), and the farmer retained the commodity as payment for PIK. If the PIK participant had no loan, then the commodity came from CCC's inventory stocks acquired either through normal loan forfeitures or through purchases from farmers who had commodities under loan that were not needed for their PIK entitlements. If the loans and CCC's inventory stocks were not sufficient to pay all PIK requirements, as was the case for wheat and cotton, selected farmers were required to take out CCC loans on their 1983 crop and then, through immediate forfeiture of the loan collateral, use that crop as their PIK payment through the "harvest for PIK" program.

We determined the dollar value to be placed on the quantities needed for PIK from each source used for payment. For loans forgiven to meet PIK obligations, we first determined (1) all outstanding loans in effect as of April 30, 1983, that could possibly have been used for PIK and (2) the weighted average unit cost for each commodity for these outstanding loans. We then determined the quantities of commodities under loans to be forgiven as a

result of PIK and valued each of these commodities on the basis of the same weighted average unit costs determined for all outstanding loans on that commodity. We used these cost figures on our assumption that the mix of loans forgiven for PIK would be the same as the mix of all loans as of April 30, 1983. This assumption was necessary because the actual mix of loans to be forgiven was not known at the time we prepared our cost estimate. We chose the April 30, 1983, date because April was the last month prior to any unusual impact on loans from PIK activity, such as loan acquisitions, which are discussed below.

For commodities that CCC had purchased, we determined the weighted average unit cost for each commodity using the same method discussed above. We then added the additional cost, or premium, USDA paid to farmers when it acquired these commodities. Although the crop years of the commodities purchased under the acquisition program are known, we used the same weighted average unit costs we used on the forgiven loans because some of the acquisition program commodities, specifically wheat and grain sorghum, were to be used for other than PIK purposes. Although the amount of commodities to be used for other purposes can be determined, their identity, by crop year, cannot.

We valued PIK payments from CCC's inventory at the April 30, 1983, average unit cost to CCC, as computed by USDA, for commodities in CCC's inventory. We valued the 1983 wheat and cotton "harvest for PIK" loans at the 1983 weighted national average loan rate.

An alternative method of valuing the PIK commodities could have been at market values to farmers at the time they took possession of their PIK commodities. Although market values may reflect actual commodity values to farmers, it would have been difficult and time-consuming to determine when farmers actually took possession of their PIK commodities and to calculate market values that vary in different geographical areas. Valuing the PIK commodities on the basis of what the commodities cost USDA is more representative of the cost to the federal government in making PIK commodity payments to farmers.

Our estimated cost is not the final cost that will be incurred to meet PIK obligations, but is an estimate of the government's cost to acquire the commodities based on USDA's latest estimate of PIK requirements. The following table presents our estimates of the cost of the commodities that will be used as PIK payments, based on USDA's latest estimate of PIK requirements as of September 30, 1984.

APPENDIX II

Table 23

Estimate of the Cost of PIK Commodities

	Quantity	Rate	Cost
Corn (bu)			
Actual quantity paid as of 9/30/84	1,658,504,510		
Plus: estimated additional quantity needed to satisfy PIK payments	119,200,000		
Total payments	1,777,704,510		
Provided from:			
Farmer loans	825,696,051	$2.69441	$2,224,763,696
Loan purchases	759,771,096	2.69441	2,047,134,838
Added cost of loan purchases (133,265,111 bu x $2.69441)	-		359,070,848
CCC inventory[a]	192,237,363		454,249,199
Total	1,777,704,510		5,085,218,581
Less: revenues to CCC from farmer liquidated damages[b]	-		1,780,366
Total	1,777,704,510		$5,083,438,215
Sorghum (bu)			
Actual quantity needed as of 9/30/84	165,714,339		
Plus: estimated additional quantity needed to satisfy PIK payments	12,857,143		
Total payments	178,571,482		
Provided from:			
Farmer loans	83,912,113	$2.69153	$ 225,851,970
Loan purchases[c]	94,659,369	2.69153	254,778,531
Added cost of loan purchases (15,037,377 bu x $2.69153)	-		40,473,551
Total	178,571,482		521,104,052
Less: revenues to CCC from farmer liquidated damages[b]	-		306,907
Total	178,571,482		$ 520,797,145

All footnotes are listed on page 90.

Table 23 (cont'd)

Estimate of the Cost of PIK Commodities

	Quantity	Rate	Cost
Wheat (bu)			
Actual quantity paid as of 9/30/84	520,056,557		
Plus: estimated additional quantity needed to satisfy PIK payments	16,500,000		
Total payments	536,556,557		
Provided from:			
Farmer loans	229,814,876	$3.69474	$ 849,106,215
Loan purchases[c]	166,990,672	3.69474	616,987,115
Added cost of loan purchases (29,167,069 bu x $3.69474)	-		107,764,737
Harvest for PIK 1983 loans	139,751,009	3.65	510,091,183
Total	536,556,557		$2,083,949,250
Less: revenues to CCC from farmer liquidated damages[b]	-		1,291,937
Total	536,556,557		$2,082,657,313
Rice (lb)			
Actual quantity paid as of 9/30/84	3,931,994,600		
Plus: estimated additional quantity needed to satisfy PIK payments	640,000,000		
Total payments	4,571,994,600		
Provided from:			
Farmer loans	2,468,727,900	$0.08174	$ 201,793,819
CCC inventory[a]	2,103,266,700	.07862	165,358,828
Total	4,571,994,600		367,152,647
Less: revenues to CCC from farmer damages[b]	-		38,810
Total	4,571,994,600		$ 367,113,837

All footnotes are listed on page 90.

Table 23 (cont'd)

Estimate of the Cost of PIK Commodities

	Quantity	Rate	Cost
Cotton (bale)			
Actual quantity paid as of 9/30/84	4,125,406		
Plus: estimated additional quantity needed to satisfy PIK payments	30,000		
Total payments	4,155,406		
Provided from:			
Farmer loans	2,043,299	$248.72225	$ 508,213,925
Loan purchases	808,330	248.72225	201,049,656
Added cost of loan purchases (174,896 bales x $248.72225)	-		43,500,527
CCC inventory[a]	768,055	242.71370	186,417,471
Harvest for PIK 1983 loans	535,722	264.00000	141,430,608
Total	4,155,406		1,080,612,187
Less: revenues to CCC from farmer liquidated damages[b]	-		186,125
Total	4,155,406		$1,080,426,062
Total all crops			$9,134,432,572

[a]Calculated as the remaining quantity needed to satisfy PIK needs.

[b]Actual liquidated damages paid by farmers to CCC through 9/30/84. Liquidated damages are penalties assessed by CCC on PIK farmers who did not carry out the terms and conditions of their PIK contracts.

[c]Another 50 million bushels of sorghum valued at about $134.0 million and another 58 million bushels of wheat valued at about $214.8 million were purchased under the loan acquisition program but were not needed to fulfill PIK needs. Instead, these commodities will probably be used to meet other farm program requirements. USDA also paid a premium to acquire these commodities. The extra sorghum cost about $21.3 million more than the average loan rate, and the extra wheat cost about $37.5 million more.

INCREASED STORAGE COMPENSATION FOR FARMER-OWNED RESERVE COMMODITIES STORED ON THE FARM

The Code of Federal Regulations relating to the PIK program provides for payment of additional compensation for storage of farm-stored reserve commodities used to meet PIK entitlements. The payment rate for corn, grain sorghum, and wheat is 15.5 cents per bushel for the loan quantity used and represents 7 months of storage. Only corn, grain sorghum, and wheat have reserve loans.

We determined the estimated amount for this additional storage compensation in the following manner, assuming that the farm-stored reserve loan quantities actually used for PIK have the same relationship of reserve to regular loans and farm-stored to warehouse-stored commodities as the total quantities under loan as of April 30, 1983.

First, we determined, by commodity, the percentage of loan quantities in reserve as of April 30, 1983, and the ratio of reserve loan quantities that were farm stored. We then applied the reserve loan quantity percentage factor, by commodity, to the latest information available on the total farmer loan quantities to be used in meeting PIK entitlements as reported by USDA as of September 30, 1984. This gave us the reserve loan quantity for each of the three commodities.

Next, we applied the farm-stored ratio to the reserve loan quantity and multiplied the resulting bushels by the additional storage rate of 15.5 cents per bushel. The result (as shown in table 24) shows an estimated $107 million paid as additional storage costs for farm-stored reserve commodities.

Table 24

Additional Storage Compensation
for Farm-stored Reserve Commodities

	Commodities under loan and used for PIK	x	Farm-stored ratio	=	Farm-stored quantity	x	7-month storage rate (cents)	=	Additional storage amount
Corn									
Total bushels (on 9/30/84)	825,696,051								
x reserve share	x .9281								
Reserve quantity	766,328,505	x	.7213	=	552,752,751	x	15.5	=	$ 85,676,676
Sorghum									
Total bushels (at 9/30/84)	83,912,113								
x reserve share	x .9773								
Reserve quantity	82,007,308	x	.1896	=	15,548,586	x	15.5	=	2,410,031
Wheat									
Total bushels (at 9/30/84)	229,814,876								
x reserve share	x .9405								
Reserve quantity	216,140,891	x	.5628	=	121,644,093	x	15.5	=	18,854,834
Total additional storage compensation to farmers with farm-stored reserve commodities									$106,941,541

POSSIBLE ADDITIONAL STORAGE PAYMENTS

Farmers claimed (took title to) their PIK entitlements any time during a 5-month period beginning with the normal harvest date in their area. For those farmers having commodities under loan, either farm stored or warehouse stored, USDA paid storage for up to 5 months after the date of entitlement. USDA also paid storage for up to 5 months for those farmers who received PIK entitlements that came from USDA's loan purchases and for those farmers who were required to take out 1983 "harvest for PIK" wheat and cotton loans. Storage payments were not incurred on PIK commodities coming directly from government-owned CCC inventory stocks held prior to the PIK program.

If all eligible farmers had taken immediate possession of their PIK entitlements on the availability dates, no storage costs would have been incurred. On the other hand, if all eligible farmers waited until the last dates of the 5-month availability periods, maximum storage costs of about $284 million would have resulted. Table 25 shows how we estimated this amount.

Table 25

Possible Storage Compensation for Farmers

	Quantity	Monthly storage rate[a]	Monthly storage amount
Corn (bu)			
Total need (9/30/84)	1,777,704,510		
Less: CCC inventory qty.	192,237,363		
Storage quantity	1,585,467,147	$0.0220833	$ 35,012,347
Sorghum (bu)			
Total need (9/30/84)	178,571,482		
Less: CCC inventory qty.	0		
Storage quantity	178,571,482	.0220833	3,943,448
Wheat (bu)[b]			
Total need (9/30/84)	536,556,557		
Less: CCC inventory qty.	0		
Storage quantity	536,556,557	.0220833	11,848,939
Rice (lb)			
Total need (9/30/84)	4,571,994,600		
Less: CCC inventory qty.	2,103,266,700		
Storage quantity	2,468,727,900	.0007083	1,748,600
Cotton (bale)[b]			
Total need (9/30/84)	4,155,406		
Less: CCC inventory qty.	768,055		
Storage quantity	3,387,351	1.26	4,268,062
Monthly total storage			56,821,396
Times 5-month maximum limit			x 5
Total maximum storage payments			$284,106,980

[a]Monthly storage rates are calculated at 1/12 of the annual rates, as follows:

	Annual rate	Monthly rate
Corn	$ 0.265 bu	$0.0220833
Sorghum	.265 bu	.0220833
Wheat	.265 bu	.0220833
Rice	.0085 lb	.0007083
Cotton	15.12 bale	1.26

[b]The storage amounts for wheat and cotton include payments to "harvest for PIK" farmers. No other crops have "harvest for PIK." The "harvest for PIK" wheat amounts to 139,751,000 bushels for a monthly storage cost of $3,086,163, and the "harvest for PIK" cotton amounts to 535,722 bales for a monthly storage cost of $675,010. Thus, "harvest for PIK" storage payments could range from zero, if all farmers took possession on the dates of entitlement, to $18,805,865, if all producers waited to the end of the 5-month storage periods to take possession of their "harvest for PIK" wheat and cotton.

INCREASED DIVERSION PAYMENTS

Enrollment in the 1983 farm programs with the PIK component was substantially greater than the anticipated enrollment in the originally announced 1983 farm programs. While one cannot determine the exact effect that PIK had on farmers' decisions to withdraw from the originally announced programs, remain in the originally announced programs, or participate in PIK, one can reasonably say that enrollment in the 1983 farm programs increased after PIK was announced. Because of this increased enrollment, additional acreage was enrolled in the PLD programs overall, and increased diversion payments were paid as a result of PIK. While there was an increase in diversion payments as a result of the PIK program, deficiency payments may have increased or decreased from those that would have been made under the originally announced program in 1983. Our estimate does not reflect the increase or decrease in deficiency payments that may have occurred.

To determine the increase in diversion payments attributable to PIK, we relied heavily on USDA commodity analysts' estimates of what the farm enrollment and PLD acres would have been under the originally announced programs. The analysts had prepared two estimates, one in January 1983 and another in July 1983. After discussions with the analysts, it was determined that the July estimate, although lower than the January estimate, was their best estimate of what the enrollment and diverted acres would have been under the original 1983 farm programs. We then compared that estimate with the actual PLD acres set aside under the 1983 farm programs with the PIK component to determine increased diversion payments. The actual PLD acres set aside are based on the latest USDA status report as of September 30, 1984, which represents about 96 percent actual data. According to the USDA commodity analysts, no additional updated status reports will be issued. Because the status report used is 96 percent complete, some additional diverted acres may have been enrolled in the 1983 PIK program that could increase diversion payments further as a result of the PIK program.

From the September 30, 1984, status report, we determined the increase or decrease in PLD acres and the corresponding increase or decrease in units (bushels for wheat, corn, and grain sorghum, and pounds for rice and cotton) that would be subject to increased or decreased diversion payments. We then applied the 1983 diversion rates used by USDA to the units to determine the overall increase in diversion payments as a result of PIK. Because the cotton program offered a 5-percent voluntary PLD option rather than a required PLD program as was the case for the wheat, corn, grain sorghum, and rice programs, there was a large decrease in cotton diversion payments as a result of PIK. According to the USDA cotton analyst, cotton farmers had the choice of setting aside 5 percent of their land and receiving diversion payments or

placing this land under the PIK program. The analyst said the PIK component of the program was much more attractive financially to the cotton farmers than the diversion program and, as a result, most cotton farmers, who under the originally announced cotton program would have entered the diversion program, elected to place the land under the PIK program and receive PIK payments. Table 26 shows the estimated overall increase in diversion payments as a result of the 1983 PIK program.

Table 26

Increased Diversion Payments Attributable to PIK

Commodity	Increase (or decrease) in paid land diversion acres under PIK	Increase (or decrease) in commodity units subject to diversion payments	Diversion payment rate	Increase (or decrease) in diversion payments attributable to PIK
Corn	1,691,931	186,112,355	$1.50 bu	$279,168,533
Grain sorghum	152,663	9,159,750	1.50 bu	13,739,625
Wheat	303,565	10,108,715	2.70 bu	27,293,531
Rice	20,216	100,604,400	0.0270 lb	2,716,319
Cotton	(96,598)	(46,824,902)	0.25 lb	(11,706,226)
Total				$311,211,782

POTENTIAL INTEREST LOST

Farmers who take out regular and reserve loans under the CCC price-support program are generally charged interest on their loans. For regular loans, interest is usually charged for the 9-month loan period. For reserve loans, which are issued for 3 years and can be extended for an additional 2 years, interest is charged for only the first year. When commodity prices are high, farmers would most likely repay their loans, including interest, at or before the end of the loan period so they could sell their commodities in the market. When commodity prices are low, farmers tend to hold their loans until maturity and to forfeit their loan collateral at that time rather than pay off the loans. When loan collateral is forfeited, the farmer is no longer responsible for paying either the loan principal or accrued interest. Consequently, CCC receives no interest from farmers on forfeited loans.

USDA met its PIK obligations to PIK participants who had outstanding regular and reserve loans by forgiving their outstanding loans in proportion to their PIK payments. In addition, USDA purchased additional wheat, corn, grain sorghum, and cotton from farmers with outstanding loans to meet its PIK obligations. USDA paid the farmers for these additional purchases by forgiving the farmers' outstanding loans. When it forgives loans, USDA forgoes any opportunity to recapture the interest farmers owe on these loans. Therefore, this forgiven interest income should be considered a PIK cost.

In determining the amount of loans with potential forgiven interest, we used (1) the actual amount of the loans, by crop year, that were forgiven as a result of USDA's additional purchases and (2) an estimate of the amount of loans forgiven to meet farmers' PIK payments from outstanding loans. To estimate the amount of these loans, we determined the universe of outstanding loans, by crop year, as of April 30, 1983, and then weighted the loans that would be forgiven, by crop year, in the same proportion as that reflected in the April 30, 1983, loan figures.

The interest rates we used in calculating the potential interest forgiven were based on USDA's interest schedules, which showed the various interest charges by crop year. For crop year 1976 through 1980 loans, the interest rate was fixed for the life of the loan, and the interest rates tended to remain the same for the entire crop year. Beginning with crop year 1981 loans disbursed after January 1, 1981, variable monthly interest rates were charged on the basis of the interest rates the U.S. Treasury charged CCC during the month the loan was disbursed. In addition, the interest rates on outstanding 1981 and subsequent crop year loans are reviewed each January and increased or decreased to reflect U.S. Treasury rates at that time. Because most outstanding loans would carry the January rate, we based interest rates for crop year 1981 and 1982 loans on the January interest rate the U.S. Treasury charged CCC in the applicable year.

Since all regular loans except those for rice have a maturity of 9 months, we calculated the potential interest forgiven on all corn, grain sorghum, and wheat loans for a 9-month period. Because 1980 and 1981 regular cotton loans were extended and continued to accrue interest, the potential interest forgiven on these loans was based on 29 months for 1980 loans and 17 months for 1981 loans.[1] Since rice loans have a common maturity date of April 30, and most of these loans are issued by October, the

[1]Regular 1980 cotton loans were extended for 8 and then 12 additional months. Regular 1981 cotton loans were extended an additional 8 months. Interest continued to accrue on these extensions.

potential interest forgiven was calculated for a 7-month period. The potential interest forgiven on reserve loans is based on 1 year. All interest rate calculations were based on simple interest.

Table 27 summarizes the potential forgiven interest associated with loans forgiven as a result of the 1983 PIK program.

Table 27

Computations of Potential Interest Forgiven on PIK Loans

	Loan forfeitures	Acquisitions from farmers	Value of loans forgiven[a]	Loan values subject to interest	Interest rate	Potential forgiven interest
	(thousands)				(percent)	(thousands)
Corn						
Regular loans:						
1981	$ 28,534	$ 20,248	$ 48,782	$ 48,782	13.1	$ 4,793
1982	121,752	48,217	169,969	169,969	9.0	11,473
Total	150,286	68,465	218,751	218,751		16,266
Reserve loans:						
1976[b]	120	13	133	133	7.5	10
1977	4,731	4,081	8,812	8,812	6.0	529
1978	3,595	3,381	6,976	6,976	7.0	488
1979	4,190	3,327	7,517	7,517	9.0	677
1980	30,615	26,196	56,811	39,926[c]	11.5	4,591
1981	951,800	1,190,843	2,142,643	2,142,643	13.1	280,686
1982	1,079,422	1,103,656	2,183,078	2,183,078	9.0	196,477
Total	2,074,473	2,331,497	4,405,970	4,389,085		483,458
Total	$2,224,759	$2,399,962	$4,624,721	$4,607,836		$499,724

All footnotes are listed on page 102.

APPENDIX II

Table 27 (cont'd)

Computations of Potential Interest Forgiven on PIK Loans

	Loan forfeitures	Acquisitions from farmers	Value of loans forgiven[a]	Loan values subject to interest	Interest rate	Potential forgiven interest
	(thousands)				(percent)	(thousands)
Grain sorghum						
Regular loans:						
1981	$ 789	$ 1,527	$ 2,316	$ 2,316	13.1	$ 228
1982	3,734	6,650	10,384	10,384	9.0	701
Total	4,523	8,177	12,700	12,700		929
Reserve loans:						
1980	4,145	5,528	9,673	9,502[c]	11.5	1,093
1981	101,222	207,924	309,146	309,146	13.1	40,498
1982	115,964	228,855	344,819	344,819	9.0	31,034
Total	221,331	442,307	663,638	663,467		72,625
Total	$225,854	$450,484	$676,338	$676,167		$73,554

All footnotes are listed on page 102.

APPENDIX II

Table 27 (cont'd)

Computations of Potential Interest Forgiven on PIK Loans

	Loan forfeiture	Acquisitions from farmers	Value of loans forgiven[a]	Loan values subject to interest	Interest rate	Potential forgiven interest
	(thousands)				(percent)	(thousands)
Wheat						
Regular loans:						
1981	$ 9,496	$ 7,826	$ 17,322	$ 17,322	13.1	$ 1,702
1982	38,015	34,012	72,027	72,027	9.0	4,862
Total	47,511	41,838	89,349	89,349		6,564
Reserve loans:						
1976[d]	4,618	36	4,654	4,654	7.5	349
1977	9,794	459	10,253	10,253	6.0	615
1978	7,165	288	7,453	7,453	7.0	522
1979	12,894	1,455	14,349	14,349	9.0	1,291
1980	134,814	123,656	258,470	40,701[c]	11.5	4,681
1981	168,595	229,639	398,234	398,234	13.1	52,169
1982	463,714	610,961	1,074,675	1,074,675	9.0	96,721
Total	801,594	966,494	1,768,088	1,550,319		156,348
Total	$849,105	$1,008,332	$1,857,437	$1,639,668		$162,912
Rice						
Regular loans:						
1982 (Total)	$201,794	-	$ 201,794	$ 201,794	9.0	$ 10,594

All footnotes are listed on page 102.

APPENDIX II

Table 27 (cont'd)

Computations of Potential Interest Forgiven on PIK Loans

	Loan forfeitures	Acquisitions from farmers	Value of loans forgiven[a]	Loan values subject to interest	Interest rate	Potential forgiven interest
	(thousands)				(percent)	(thousands)
Cotton						
Regular loans:						
1980	$ 7,795	$ 629	$ 8,424	$ 8,424	11.5	$ 2,220
1981	217,089	9,750	226,839	226,839	13.1	35,898
1982	283,330	242,709	526,039	526,039	9.0	35,508
Total	$ 508,214	$ 253,088	$ 761,302	$ 761,302		$ 73,626
Total all commodities	$4,009,726	$4,111,866	$8,121,592	$7,886,767		$820,410

[a]Total may not add due to rounding.

[b]Final settlement date for called corn reserve loans in reserves I, II, and III, which had to be settled by May 31, 1983. Settlement was required for all corn reserve loans except those designated for PIK or accepted under the acquisition program.

[c]The total 1980 crop reserve loans have been adjusted based on USDA estimates to reflect interest-free 1980 crop loans in reserves II and III.

[d]Some 1976 crop loans entered the reserve program in 1978 and matured in January 1983. These loans can be extended beyond their maturity date and used for PIK.

APPENDIX II

METHODOLOGY USED FOR EVALUATING THE LOAN ACQUISITION PROGRAM AND DELIVERY OF PIK COMMODITIES

This appendix presents our methodology used in evaluating the effectiveness and efficiency of USDA's program for (1) acquiring the commodities needed to meet its PIK payment obligations and (2) delivering the commodities to farmers by the prescribed date, of the agreed-upon quality, and in the location specified. We evaluated the PIK program's commodity acquisition aspect by comparing the method USDA used to purchase the PIK commodities (lowest bid) with an alternative method (unit cost) identified by USDA's OIG. In evaluating the delivery of the PIK commodities to farmers, we selected 12 agricultural states and randomly selected a number of counties in each state that allowed us to project our results to each state as a whole.

METHODOLOGY USED FOR EVALUATING LOAN ACQUISITION PROGRAM

We estimate that USDA could have saved either about $58 million or about $256 million on its loan acquisition program. We base our estimates of the cost savings resulting from using a unit cost bid acceptance criterion on a comparison of the total cost of the commodities actually purchased, valued by unit cost, with the cost of the commodities that would have been selected had the bids been evaluated on the basis of the lowest unit cost. Using USDA's automated file of the approximately 286,000 bids received under the loan acquisition program, we computed unit costs (cost per bushel for corn and wheat, or cost per hundred pounds of grain sorghum) for each bid received. Our estimate covers corn, grain sorghum, and wheat acquired by USDA in its loan acquisition program.

The bids were farmers' offers to sell to USDA commodities used as collateral for obtaining CCC loans. Because USDA periodically updates its loan file to reflect recent activity such as payments and forfeitures, at the time of our review we could not use the loan file to calculate unit costs associated with the 286,000 bids USDA had received. Therefore, we estimated the loans' unit costs using two sets of loan rates to approximate actual loan rates. Using one set of rates, chosen after consultation with ASCS Kansas City office officials, resulted in estimated savings of $256 million, while the second set of rates, suggested by USDA, resulted in estimated savings of $58 million.

In developing the $256 million estimate, we first identified from the bid file the bidder's state, the commodity and related crop year, the loan number, the quantity under loan, and whether the offered loan collateral was stored in a CCC-approved warehouse or on the farmer's farm. (When farmers obtain CCC loans for their

crops, the crops may be stored either in CCC-approved warehouses or in storage facilities on the farmer's farm. The effective average loan rates are higher for warehouse-stored loan commodities than those for farm-stored loan commodities.) For farm-stored collateral, we multiplied the national average loan rate for farm-stored commodities by the amount of commodity under loan to estimate the loan's total dollar value. For warehouse-stored collateral we multiplied the arithmetic mean of the state minimum and maximum loan rates for warehouse-stored loan commodities by the amount of commodity under loan to estimate the loan's total dollar value.

Our second step was to divide each loan bid's outstanding principal, obtained in step one, by the amount of commodity that CCC would have acquired under the bid. This gave us the loan's unit cost. For example, assume a farmer with 50,000 farm-stored bushels of 1981 crop-year wheat under loan submitted a bid of 10 percent. Using CCC's average book value for farm-stored 1981 wheat of $3.46 a bushel, we determined the loan's total value to be $173,000 ($3.46 x 50,000 bushels). With a bid of 10 percent, CCC would acquire 45,000 bushels. Thus, the unit cost would be $3.84 ($173,000 divided by 45,000 bushels).

After calculating a unit cost for each loan bid, we selected the number of bids, beginning with those with the lowest unit cost for each commodity, necessary to acquire the same amount of commodities CCC actually acquired through the loan purchase program and used for PIK. Then we added the total loan values of the selected bids to arrive at a total "acquisition" cost for each commodity. Next, we added the total loan value of the bids USDA actually accepted to arrive at CCC's total cost for each commodity. The results are shown in table 28.

Table 28

Comparison of Acquisition Costs
Using Different Bid Selection Criteria

Commodity	Quantity acquired	Cost of commodities Using USDA's bid ratio selection criterion	Using GAO's unit cost selection criterion	Difference
	(millions)			
Wheat (bu)	188.2	$ 883,873,310	$ 822,426,394	$ 61,446,916
Corn (bu)	760.0	2,602,434,424	2,417,334,294	185,100,130
Grain sorghum (bu)	111.1	325,657,182	315,712,225	9,994,957
Total		$3,811,964,916	$3,555,472,913	$256,492,003

In commenting on an earlier report we issued on this matter, USDA stated that the $256 million estimate was distorted because our approximated loan rates for warehouse-stored commodities were higher than the actual rates.[1] USDA suggested that a more accurate estimated loan rate for warehouse-stored loan commodities would be the average "book value" of loans for each commodity and crop year. The average book value for a given crop year is derived by dividing the total dollar amount of outstanding loans for the crop year by the total number of units (bushels or pounds) represented by outstanding loans. For example, if there are $1 million in outstanding loans for 1981-crop wheat, comprised of outstanding loans representing 250,000 bushels, then the average book value of 1981 crop-year wheat loans is $4.00 per bushel ($1 million divided by 250,000). In a subsequent discussion, the Director of the Kansas City office said that book value would also be a somewhat more accurate estimate of farm-stored loan rates.

Since the point of our analysis is to demonstrate that using a unit cost approach allows lower acquisition costs, not the specific amount of savings that would result, we accepted USDA's suggested book value loan rate to determine unit costs for loan commodities. Then, using the same methodology outlined above, including the loan rates suggested by USDA, we estimated the savings at $58 million, as shown in table 29.

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[1]Department of Agriculture's Acquisition and Distribution of Commodities for Its 1983 Payment-In-Kind Program (GAO/RCED-84-137, Sept. 25, 1984).

Table 29

Comparison of Commodity Acquisition Costs

		Cost of commodities				
		Using USDA's bid ratio selection criterion		Using GAO's unit cost selection criterion		
Commodity	Quantity	Total	Avg. unit cost	Total	Avg. unit cost	Difference in total cost
	(millions)	(millions)		(millions)		(millions)
Wheat (bu)	188.2	$ 847	$4.50	$ 823	$4.37	$24
Corn (bu)	760.0	2,397	3.15	2,374	3.12	23
Grain sorghum (bu)	111.1	344	3.10	333	3.00	11
Total		$3,588		$3,530		$58

METHODOLOGY FOR EVALUATING DELIVERY OF PIK COMMODITIES

We evaluated whether USDA delivered the farmers' PIK commodities by the prescribed dates, in the quality agreed upon, and in the locations specified. We reviewed these three aspects of the delivery of PIK commodities because these were three important considerations in many farmers' deciding whether to participate in the PIK program. To evaluate the effectiveness of these three aspects, we reviewed PIK commodity allocations for 12 sample states. The commodities and states were: wheat in Kansas, Montana, Oklahoma, Tennessee, and Washington; corn in Georgia, Illinois, Nebraska, and Pennsylvania; grain sorghum in Texas; rice in Louisiana; and cotton in California. We selected Texas, Louisiana, and Illinois because they had the largest PIK requirements from CCC inventory for grain sorghum, rice, and corn, respectively. However, to obtain broad geographic coverage, we did not wish to select the same state for more than one commodity. California had the second largest CCC inventory requirement for cotton, after Texas. Kansas had the third largest CCC inventory requirement for wheat, after California and Texas. Consequently, we selected Kansas and California. We also selected Montana, Oklahoma, Tennessee, and Washington for wheat and Georgia, Nebraska, and Pennsylvania for corn to (1) broaden our geographic coverage, (2) include states with CCC inventory needs relatively smaller than the other selected states for comparison with the larger states, and (3) include more states each for wheat and corn because these commodities make up the greatest volume of PIK payments nationwide. According to ASCS records, the state or

states we selected for each commodity received about 25 percent of the total amount of that commodity provided from CCC inventories nationwide. The ASCS Deputy Administrator for Commodity Operations said that because the PIK payment process was the same in all states, the states we chose are as representative as any group selected on the basis of judgment.

We selected all 11 California counties having PIK cotton requirements from CCC inventory. In the remaining 11 states, we randomly selected counties to permit statistical generalization of the results to the entire state. Table 30 shows information about our sample states.

Table 30

Information on Sample States

Commodity	State	No. of counties with PIK requirements from CCC inventory	No. of sample counties
Wheat	Kansas	105	30
	Montana	54	20
	Oklahoma	76	25
	Tennessee	81	25
	Washington	30	20
Corn	Georgia	144	30
	Illinois	102	30
	Nebraska	92	30
	Pennsylvania	66	25
Grain sorghum	Texas	218	40
Cotton	California	11	11
Rice	Louisiana	33	20

For each county, we reviewed the loading orders issued by the Kansas City commodity office to meet USDA's PIK obligations to the county's farmers.[2] In reviewing the loading orders for each commodity, we determined the quantity of PIK commodities USDA had provided as of the county's prescribed availability date and the timing of subsequent PIK allocations. In addition, for wheat,

[2]For wheat, corn, and grain sorghum, we did not review certain loading orders issued from warehouses in adjacent states to meet the requirements in our selected states. However, there were few loading orders of this type. We reviewed all allocations for rice and cotton.

corn, and grain sorghum, we identified the grades of the commodities and whether the commodities were made available in warehouses within the farmer's county. For commodities located in a warehouse outside the farmer's county, we estimated the straight-line distance, using a map with a scale of miles, from the warehouse's locality to the midpoint of the farmer's county.
We did not obtain similar information for rice and cotton because (1) there are a large number of different varieties, classes, and grading factors for these commodities and (2) much of the cotton and rice was not made available locally to farmers. For rice and cotton, we noted the date of the allocation and whether the commodity was made available in the farmer's state or another state.

We aggregated the data for each loading order allocation into a file for each selected state. Where applicable, for each state sample, we sorted and analyzed the total PIK quantity by distance from the farmer's county to warehouse locality, timeliness, and grade. Next, we used the results of the analysis of our sample counties to estimate the total PIK quantity by distance, timeliness, and grade for each respective state. We calculated the standard error of these estimates at the 95-percent level of confidence. For example, we estimate that between 62.9 and 87.3 percent (75.1 percent plus or minus 12.2 percent) of all PIK wheat in Kansas (see table 31) was made available in the farmer's own county. Tables 31 through 42 show, for each state, the results of our analyses.

Table 31

Kansas - Wheat

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	2,155,626	75.1	12.2
Another county[a]	713,750	24.9	12.2
Loading orders issued:			
By availability date	1,259,674	43.9	15.6
Within 1 to 30 days later	1,609,702	56.1	15.6
Grade of commodities to be provided to farmers:			
Specified grade or better	1,777,924	62.0	9.3
1 grade below specified	889,369	31.0	9.5
2 grades below specified	187,202	6.5	2.7
3 or more grades below specified	14,881	.5	.4

[a]Average distance from the farmer's county to another county was 91 miles with a standard error of 7 miles.

Table 32

Montana - Wheat

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	2,256,471	63.1	b
Another county[a]	1,318,952	36.9	b
Loading orders issued:			
By availability date	3,318,928	92.8	8.3
Within 1 to 30 days later	228,635	6.4	8.4
Over 60 days later	27,860	.8	.8
Grade of commodities to be provided to farmers:			
Specified grade or better	3,143,463	87.9	4.1
1 grade below specified	290,835	8.1	2.5
2 grades below specified	95,856	2.7	1.8
3 or more grades below specified	45,269	1.3	1.0

[a]Average distance from the farmer's county to another county was 106 miles with a standard error of 26 miles.

[b]The standard error of the estimate was too large to permit a meaningful estimate of the statewide percentage. Consequently, the indicated percentage represents only the actual percent for the sample counties.

Table 33

Oklahoma - Wheat

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	2,563,948	72.5	13.1
Another county[a]	972,775	27.5	13.1
Loading orders issued:			
By availability date	2,534,540	71.7	13.2
Within 1 to 30 days later	799,375	22.6	14.5
Within 31 to 60 days later	190,866	5.4	3.4
Over 60 days later	11,942	.3	.3
Grade of commodities to be provided to farmers:			
Specified grade or better	2,204,923	62.3	8.7
1 grade below specified	1,076,356	30.4	9.1
2 grades below specified	239,247	6.8	3.1
3 or more grades below specified	16,197	.5	.4

[a]Average distance from the farmer's county to another county was 67 miles with a standard error of 18 miles.

Table 34

Tennessee - Wheat

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	396,512	40.4	b
Another county[a]	584,720	59.6	b
Loading orders issued:			
By availability date	981,232	100.0	-
Grade of commodities to be provided to farmers:			
Specified grade or better	884,151	90.1	14.9
1 grade below specified	83,762	8.5	12.8
2 grades below specified	10,233	1.0	1.6
3 or more grades below specified	3,086	.3	.5

[a]Average distance from the farmer's county to another county was 54 miles with a standard error of 4 miles.

[b]The standard error of the estimate was too large to permit a meaningful estimate of the statewide percentage. Consequently, the indicated percentage represents only the actual percent for the sample counties.

Table 35

Washington - Wheat

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	2,667,686	64.8	b
Another county[a]	1,446,745	35.2	b
Loading orders issued:			
By availability date	3,790,180	92.1	4.5
Within 1 to 30 days later	311,202	7.6	4.6
Within 31 to 60 days later	5,000	.1	.1
Over 60 days later	8,049	.2	.2
Grade of commodities to be provided to farmers:			
Specified grade or better	2,477,007	60.2	10.5
1 grade below specified	1,270,030	30.9	9.4
2 grades below specified	366,698	8.9	2.8
3 or more grades below specified	696	c	b

[a]Average distance from the farmer's county to another county was 67 miles with a standard error of 4 miles.

[b]The standard error of the estimate was too large to permit a meaningful estimate of the statewide percentage. Consequently, the indicated percentage represents only the actual percent for the sample counties.

[c]Less than 0.05 percent.

Table 36

Georgia - Corn

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	433,917	19.9	b
Another county[a]	1,746,677	80.1	b
Loading orders issued:			
By availability date	2,173,894	99.7	0.5
Within 1 to 30 days later	6,287	.3	.5
Grade of commodities to be provided to farmers:			
Specified grade or better	2,137,372	98.0	2.2
1 grade below specified	22,270	1.0	1.0
2 grades below specified	12,330	.6	.9
3 or more grades below specified	8,622	.4	.4

[a]Average distance from the farmer's county to another county was 68 miles with a standard error of 10 miles.

[b]The standard error of the estimate was too large to permit a meaningful estimate of the statewide percentage. Consequently, the indicated percentage represents only the actual percent for the sample counties.

Table 37

Illinois - Corn

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	31,803,247	75.0	9.2
Another county[a]	11,016,328	25.0	9.2
Loading orders issued:			
By availability date	42,423,289	99.1	.5
Within 1 to 30 days later	366,729	.8	.5
Within 31 to 60 days later	29,557	.1	.1
Grade of commodities to be provided to farmers:			
Specified grade or better	41,723,790	97.4	1.2
1 grade below specified	821,921	1.9	1.1
2 grades below specified	139,900	.3	.2
3 or more grades below specified	41,794	.1	.1
Not shown	92,170	.2	.4

[a]Average distance from the farmer's county to another county was 59 miles with a standard error of 15 miles.

Table 38

Nebraska - Corn

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	14,052,250	86.2	7.4
Another county[a]	2,248,346	13.8	7.4
Loading orders issued:			
By availability date	15,510,039	95.2	2.7
Within 1 to 30 days later	783,710	4.8	2.7
Over 60 days later	6,847	[b]	[c]
Grade of commodities to be provided to farmers:			
Specified grade or better	15,806,919	97.0	1.8
1 grade below specified	350,361	2.1	1.3
2 grades below specified	99,319	.6	.6
3 or more grades below specified	43,997	.3	.4

[a]Average distance from the farmer's county to another county was 45 miles with a standard error of 15 miles.

[b]Less than 0.05 percent.

[c]The standard error of the estimate was too large to permit a meaningful estimate of the statewide percentage. Consequently, the indicated percentage represents only the actual percent for the sample counties.

Table 39

Pennsylvania - Corn

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	311,179	8.9	11.0
Another county[a]	3,202,040	91.1	11.0
Loading orders issued:			
By availability date	3,509,406	99.9	.2
Within 1 to 30 days later	3,813	.1	.2
Grade of commodities to be provided to farmers:			
Specified grade or better	3,502,238	99.7	.5
1 grade below specified	10,385	.3	.4
3 or more grades below specified	596	b	c

[a]Average distance from the farmer's county to another county was 97 miles with a standard error of 23 miles.

[b]Less than 0.05 percent.

[c]The standard error of the estimate was too large to permit a meaningful estimate of the statewide percentage. Consequently, the indicated percentage represents only the actual percent for the sample counties.

Table 40

Texas - Grain Sorghum

	Number of bushels in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	3,935,245	82.2	13.0
Another county[a]	854,084	17.8	13.0
Loading orders issued:			
By availability date	4,714,316	98.4	1.7
Within 1 to 30 days later	41,687	.9	1.3
Within 31 to 60 days later	30,503	.6	1.0
Over 60 days later	2,823	.1	.1
Grade of commodities to be provided to farmers:			
Specified grade or better	4,633,834	96.8	3.3
1 grade below specified	119,781	2.5	3.0
Not shown	35,714	.7	1.3

[a]Average distance from the farmer's county to another county was 69 miles with a standard error of 5 miles.

APPENDIX III

Table 41

Louisiana - Rice

	Number of pounds in sample of counties	Actual percent in sample counties and estimated percent in state	Standard error of the estimate at 95-percent confidence level
			(percent)
Location where PIK commodities were provided:			
Farmer's county	98,521,665	41.4	8.0
Another Louisiana county[a]	53,918,845	23.2	7.4
California	83,558,732	35.4	7.0
Loading orders issued:			
By availability date	228,789,653	96.9	2.6
Within 1 to 30 days later	7,209,589	3.1	2.6

[a]Average distance from the farmer's county to another Louisiana county was 68 miles with a standard error of 4 miles.

Table 42

California - Cotton

	Number of pounds in universe[a]	Percent
State where PIK commodities were provided:		
Arkansas	25,858,021	27.2
Alabama	21,199,774	22.3
Tennessee	15,980,010	16.8
Texas	11,623,782	12.2
Missouri	11,065,776	11.6
North Carolina	3,778,273	4.0
Mississippi	3,560,054	3.7
Louisiana	1,493,595	1.6
South Carolina	377,591	.4
California	275,267	.3
Total	95,212,143	100.0[b]

Loading orders issued:

All allocations reviewed were made available between 29 and 38 days after the original availability date.

[a]We reviewed all 11 California counties having PIK requirements from CCC inventory.

[b]Does not add due to rounding.

To cross-check our review of PIK loading orders, we telephoned USDA's ASCS county representatives, CEDs, and farmers. Our objective was to obtain the CEDs' and farmers' opinions on USDA's effectiveness in meeting PIK obligations. Time did not permit us to contact the CED in each sample county. Instead, we used our judgment to select for each state a mix of counties in which, on the basis of our analyses of loading order information, USDA had generally met its PIK obligations with commodities that were favorable to the farmers with respect to timeliness, grade, and location; as well as counties in which, on the basis of our analyses, USDA's performance was somewhat less favorable. We contacted a total of 37 CEDs.

We contacted the CEDs between December 8, 1983, and February 1984, and asked a series of questions regarding the PIK commodities provided. Because we used our judgment to select the CEDs, the results are not necessarily representative of all counties in the sample.

Each CED we contacted provided us with the names of several farmers in the county who participated in the PIK program. We contacted a total of 10 of these farmers in each state to determine their level of satisfaction with their PIK payments. Because of the limited number of contacts and the method of their selection, the farmers' comments are not necessarily indicative of all farmers.

GAO REPORTS, TESTIMONY, AND LEGAL OPINION ON USDA's PIK PROGRAM

The Department of Agriculture's 1983 Payment-In-Kind Program: A Review of Its Costs, Benefits and Key Program Provisions (GAO/RCED-85-60, Aug. 29, 1985).

This report provides responses to questions raised by the Subcommittee on Department Operations, Research, and Foreign Agriculture, House Committee on Agriculture, on various aspects of the PIK program. In response to the Subcommittee's questions, we provided information on, among other things, the cost of the 1983 PIK program, (2) the distribution of program benefits to PIK recipients, and (3) USDA's justification for the key provisions of the program.

Department of Agriculture's Acquisition and Distribution of Commodities for Its 1983 Payment-In-Kind Program (GAO/RCED-84-137, Sept. 25, 1984).

This report provides responses to questions raised by the Chairman of the Subcommittee on Government Information, Justice, and Agriculture, House Committee on Government Operations, on USDA's procedures for acquiring, positioning, and delivering PIK commodities to farmers. On the basis of our review in seven states, we concluded that USDA generally met its PIK payment obligations by providing commodities of the specified quality, at the locations called for by program provisions, and by the dates prescribed. We also described how USDA could have acquired PIK commodities at a lower cost.

Evaluation of the Quality of Corn Stored by the U.S. Department of Agriculture at a Plainview, Texas, Grain Warehouse (GAO/RCED-84-175, Aug. 17, 1984).

This report provides responses to questions raised by the Chairman of the House Committee on Agriculture on whether corn stored at the PLB Grain Storage Corporation warehouse in Plainview, Texas, had seriously deteriorated and whether it could be used for making payments under the PIK program and as livestock feed. We responded that the corn at the warehouse had not deteriorated beyond what would normally be expected and that the corn could be used for making payments under the PIK program and for feeding livestock.

Department of Agriculture Is Using Improved Payment Procedures for Its 1984 Farm Programs (GAO/RCED-84-159, Aug. 6, 1984).

This report responded to questions raised by Congressman Berkley Bedell on the procedures USDA used in determining the amount of payment an individual farmer receives when participating in farm programs. Based on our review in two states--Nebraska and Texas--USDA could have reduced its farm payments to farmers in 1983 if it had based payment

computations on the expected crop yield of the land actually taken out of production instead of on a farm's previous planting practices. If USDA had based its payment computations on the expected crop yield, it could have saved between $19.4 million and $43.2 million in 1983 on farm program payments to Nebraska corn farmers. USDA revised its procedures so that 1984 farm program payments were based on expected crop yields of land actually taken out of production.

Analysis of Certain Aspects of a Corn Shipment to South Texas to Meet Obligations to Producers Under the Payment-In-Kind Program (GAO/RCED-84-71, Dec. 2, 1983).

This report responded to questions raised by the Chairman of the House Committee on Agriculture about a corn shipment to South Texas to meet USDA obligations to farmers under its 1983 PIK program. We provided the Chairman with answers on the cost of the shipment and the rationale behind the shipment. We also provided information on various aspects of the quality of corn shipped and the type of quality used to fulfill USDA's PIK obligations.

Testimony on the Department of Agriculture's Payment-In-Kind Program (Nov. 3, 1983).

At the request of the Chairman of the Subcommittee on Select Revenue Measures of the House Committee on Ways and Means, we provided testimony at a November 3, 1983, hearing on the PIK program. We testified on the cost of the 1983 PIK program, which at that time we estimated would cost USDA between $10 billion and $11 billion. We also testified on the results of our survey of large PIK payments made to individual farmers and why we had reservations about the reasonableness of USDA's estimated budget savings as a result of the PIK program.

Questions Regarding the Legality of the Payment-In-Kind Program (B-211462-O.M., Oct. 31, 1983).

This document discusses our review of the legality of three specific issues relating to the PIK program. As a result of this review, we concluded that USDA (1) should have applied the $50,000 payment limitation to PIK payments, (2) does have statutory authority to conduct a PIK program, and (3) can use its commodities for PIK payments to farmers. Concerning the applicability of the $50,000 payment limitation to PIK payments, we concluded that, since PIK was a land diversion program and the Congress authorized the Secretary of Agriculture to limit land diversion payments to $50,000 per individual farmer, then the payment limitation should have applied to the PIK program regardless of whether the payments were in cash or in commodities.

DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

JUN 14 1985

Mr. J. Dexter Peach
Director
Resources, Community and
Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

This responds to your proposed draft report entitled "1983 Payment-in-Kind Program Overview: Its Design, Impact and Cost".

This report, as well as another recent GAO summary report on the PIK Program was also reviewed by various USDA Agencies. The general consensus was that the proposed report was well written and objective. Comments received provided additional clarity or program depth, more recent data and editorial suggestions. Such comments were made available to your local representatives under separate cover.

Our response to the GAO recommendation in the proposed report follows:

GAO RECOMMENDATION:

"....to better evaluate the results of production control programs, such as Acreage Reduction Program (ARP), Paid Land Diversion (PLD) or PIK programs, the Secretary of Agriculture requires the Administrator of ASCS to establish quantifiable goals specifying what these future programs are to accomplish each year. This will facilitate better evaluations of program results as well as determinations about overall program effectiveness by providing criteria by which a program's effectiveness can be measured against its costs."

USDA RESPONSE:

The establishment of quantifiable goals confronts program administrators frequently. Specific quantity goals, while laudable in concept, must be viewed in terms of their value to the public. In the case of the farm programs under consideration in this GAO report, the vagaries of weather, the U.S. economic situation and world farm commodities production and markets make accurate and reliable estimation virtually impossible. Thus, it is concluded that qualitative goals provide the farmer and the public, as well as program administrators a more realistic way of dealing with program expectations. Such goals, we believe, were aptly stated by the Department's

Assistant Secretary for Economics on November 3, 1983 before the Committee on Ways and Means, House of Representatives, as follows:

"In examining policy options in late 1982, it was clear that any policy option chosen had to accomplish a number of objectives:

(1) Retire a substantial amount of acreage, enough to significantly reduce production;

(2) reduce stocks to more reasonable levels without jeopardizing world and domestic needs;

(3) cut unprecedented levels of current government budget outlays for price support programs;

(4) help improve net farm income; and

(5) encourage better soil conservation practices."

We thank you for the opportunity to comment on the proposed report, and commend you for providing ample analytical "checkpoints" for consideration relative to future agricultural programs.

In conclusion, we think the Department's Payment-in-Kind Program was a necessary response to an obvious need for an effective acreage reduction program. Economic realities are still unfolding; we firmly believe that the domestic agricultural situation has been improved and that this would not have occurred without the 1983 PIK Program.

Sincerely,

Richard M. Kelly

Acting Under Secretary for
International Affairs and
Commodity Programs

(022888)

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