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BY THE COMPTROLLER GENERAL

# Report To The Congress

OF THE UNITED STATES

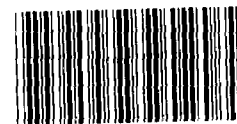
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## Federal Price Support For Honey Should Be Phased Out

The mandatory honey price-support program, which is currently set at the lowest support level allowable by law, has become costly to the government--about \$164 million for the 1980-83 period. Only 1 percent of the nation's beekeepers participate in the program. Since 1980 the government has acquired increasing quantities of honey as forfeiture of loan collateral because the support price has been greater than the world market price, and cheaper imported honey has been replacing domestic honey in the market.

The program, which was originally justified on the need to ensure an adequate supply of honeybees for crop pollination purposes, is actually unnecessary to ensure pollination. Producers of seed or fruit crops to which bee pollination is essential pay for or supply their own honeybees for this purpose. In addition, program management is not adequate to prevent fraud or abuse, and improvements would be costly and may not be completely effective.

GAO recommends that the Congress eliminate the mandatory aspects of the honey price-support program and consider directing the Secretary of Agriculture to continue, under existing discretionary authority, financial support to the beekeeping industry, but phase out the program by reducing the price-support level over time to minimize the impact on the industry.



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

B-214502

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

This report discusses the need for the mandatory honey price-support program to ensure crop pollination, beekeepers' participation in the program, the cost of the program, and the administration of the program.

We made the review because of the increasing program costs and increasing honey forfeitures to the government. The report also provides the Congress with information on the honey price-support program that would be useful in debating the 1985 farm bill.

We are sending copies of this report to the Director, Office of Management and Budget, and the Secretary of Agriculture.

A handwritten signature in cursive script that reads "Charles A. Bowsher".

Charles A. Bowsher  
Comptroller General  
of the United States



D I G E S T

The mandatory honey price-support program, which began in 1950, has become costly. Since 1980 the government has been acquiring increasing quantities of honey because the support price has been much higher than either prices for imported honey or the market prices for domestically produced honey. As a result, cheaper imported honey is being purchased for domestic use. (See pp. 2 and 24-28.)

Sugar rationing and the need for beeswax for waterproofing ammunitions and equipment during World War II led to an increase in the number of bee colonies and honey production. After the war, honey prices dropped and the industry requested congressional assistance. The Agricultural Act of 1949 was passed, and it required the Secretary of Agriculture, among other things, to support the price of honey. (See p. 1.)

The act's general purpose was to provide economic stability to a number of agricultural crops because of their importance to the public welfare and impact on the overall economy. The honey price-support program was established to ensure an adequate supply of honeybees because of their significance in pollinating agricultural crops. Support for honey was to be temporary until crop producers could pay for or provide the pollination service themselves. (See pp. 1 and 6-7.)

Under the program, beekeepers may obtain a federal loan on the basis of the support price for honey that they have produced domestically. Honey is storable, and borrowers can wait until they judge that the market price is advantageous to sell their honey. When the market price is suitable, borrowers sell the honey and then pay off the loan with interest and related charges. Borrowers also may default on their loans and forfeit the honey used as collateral to the U.S. Department of Agriculture (USDA). Borrowers do not pay interest on defaulted loans. (See pp. 1-2.)

Because of the increasing costs of the program and the recent large increases in honey forfeitures to the government, GAO (1) evaluated the need for the program, (2) determined who participated in the program, (3) determined why program costs and government inventories were increasing, and (4) evaluated USDA program administration. (See p. 3.)

IS THE HONEY PRICE-SUPPORT PROGRAM  
NEEDED TO ENSURE CROP POLLINATION?

To evaluate the honeybee's importance to crop pollination, GAO reviewed USDA reports on insect pollination and beekeeping practices; interviewed entomologists and crop production scientists affiliated with three land grant universities; and interviewed 18 crop production officials who represented fruit, nut, seed, and fiber industries in 10 states. (See pp. 3-4.)

GAO found that producers of seed and fruit crops to which bee pollination is critical either pay beekeepers to place bee colonies near their crops or operate their own beekeeping enterprises. They view this cost as another cost of production, similar to fertilizer, fuel, and labor. Crop producers also indicated that they believe honeybee pollination would still be cost-effective even if the pollination service price rose as a result of honey support price reduction or elimination. (See pp. 16-18.)

In the United States, three types of beekeepers exist--commercial, part-time, and hobbyist. According to industry sources, only about 1 percent of all beekeepers in 1983 were classified as commercial. These commercial beekeepers operated about 50 percent of the 4.2 million honeybee colonies and produced 60 percent of the honey. (See p. 20.)

Commercial beekeepers emphasize honey production instead of pollination services. Since the program began, honey production has increased significantly in those states where crops with abundant flowers are grown. These crops, such as sunflowers, and alfalfa and clover for hay production, produce large amounts of nectar needed for honey production; however, the crops do not require pollination. Commercial beekeepers move their

honeybee colonies to these areas to take advantage of the abundant floral sources. (See pp. 13-16.)

GAO interviewed 20 beekeepers to obtain their views on the honey price-support program. These beekeepers operated in 15 states and included some of the nation's largest beekeepers, who managed an average of 6,800 colonies each.

The beekeepers GAO talked with said that they believed that many of the 1,700 U.S. commercial beekeepers would be forced out of business if the program were eliminated; however, some beekeepers stated that crop pollination needs would be met. For instance, a commercial beekeeper who operated in five states told GAO that if the support program were eliminated, part-time and hobbyist beekeepers would quickly begin providing the pollination services commercial beekeepers now provide. (See pp. 18-19.)

#### FEW BEEKEEPERS PARTICIPATE IN THE HONEY PRICE-SUPPORT PROGRAM

Although all of the nation's estimated 211,700 beekeepers are eligible to participate in the program, only about 1,600 beekeepers participated in the 1982 loan program and about 2,400 beekeepers participated in the 1983 program. According to USDA officials, the participants were generally commercial beekeepers in business to produce honey.

Some participants have forfeited large quantities of honey to the government. To illustrate, in North Dakota, one commercial beekeeper placed about 3 million pounds of honey under loans in 1982 and forfeited 2.5 million pounds to the government. Of a total of 176 beekeepers in the state using the loan program in 1982, the top 15 placed 9 million pounds of honey under loans for about \$5.5 million. Practically all of the honey under loan was forfeited to the government in 1983. (See pp. 20-23.)

#### THE HONEY PRICE-SUPPORT PROGRAM HAS BECOME COSTLY IN RECENT YEARS

The government did not acquire any honey through defaulted loans for a 9-year period

ending in 1979. However, inflation, which affects the indices used for computing the support price, caused the support price to rapidly increase since the mid-1970's and double from 32.7 cents per pound for the 1977 crop year to 65.8 cents per pound for the 1984 crop year. At the same time, world honey supplies increased more rapidly than demand, causing prices to drop. Support prices higher than world market prices, and the strength of the dollar, encouraged honey imports to the United States. From 1979 to 1983, annual honey imports nearly doubled to 109.8 million pounds.

In addition, as a result of the high support price:

--Honey used as collateral for loans increased from 41.1 million pounds for the 1980 crop year to 113.6 million pounds for the 1983 crop year.

--Honey forfeited to the government increased from 5.3 million pounds in crop year 1980 to 106 million pounds in 1983. The value of the defaulted loans totaled \$133 million. The loans for the 1984 crop year matured in April 1985, and USDA estimates that 105 million pounds will be forfeited. Most of the forfeited honey is being distributed through government donation programs.

--Government costs for managing honey inventories increased from practically nothing for a 9-year period ending in 1979 to about \$31 million for the 1980-83 period.

The overall program costs of about \$164 million for the 1980-83 period do not include USDA administrative and interest costs because USDA did not allocate these costs to the honey program. (See pp. 24-29.)

#### ADMINISTRATION OF PROGRAM IS NOT ADEQUATE

To administer the honey price-support program, USDA's management is required to:

--Compute the support price on the basis of a formula, set forth in the law.



--Ensure that producers meet eligibility requirements for loans. Only domestic honey that has been produced by bees owned by the person desiring the loan or members of approved honey marketing cooperatives is eligible to be used as collateral for loans.

--Ensure that honey used as collateral is not imported or adulterated by adding corn syrup.

GAO found that administration of the honey price-support program is not adequate to ensure that these requirements can be met.

First, during 1982-84, USDA did not collect sufficient wholesale price data for computing the support price in the manner required by law. In addition, USDA did not collect sufficient honey production data for USDA management to use for helping to determine price-support levels.

Second, USDA relies solely on loan applicants' certifications that they produced the honey domestically. Honey production data would allow USDA officials at the county level to verify that the producers had the capacity to produce the honey offered as collateral for loans.

Third, USDA generally does not perform tests on honey used for loan collateral to ensure that the honey is not imported or adulterated with corn syrup.

According to USDA, collecting the necessary data and testing honey samples would be costly. Analyses to identify adulterated honey are too expensive to be used routinely, and accurate testing has not been developed to ensure positive identification of imported honey. Pollen analyses can identify the floral source of the honey. This, however, only determines whether the honey could have been produced in the area claimed. The honey could have been imported from areas with similar floral sources. (See pp. 32-37.)

#### CONCLUSIONS

GAO believes that the mandatory honey price-support program, which is currently set at the

lowest support level allowable by law, is no longer needed because (1) the program is encouraging honey production and is not needed to ensure crop pollination, (2) producers of crops that require honeybee pollination view pollination as another cost of producing crops and are already renting or own honeybees, (3) few beekeepers participate in the program, (4) the program has become costly, and (5) program management is not adequate and would be costly to improve. (See pp. 38-39.)

Without a mandatory program, the Secretary of Agriculture would still have discretionary authority that gives him flexibility to determine the level of financial support to the beekeeping industry. Under a discretionary program the support price for honey could be phased out in a manner that minimizes the impact on the industry. GAO believes that it is important that, as part of the phase-out, steps be taken to monitor the conditions in the industry that result from lowering the support price and to use that information to determine further phase-out actions that might be appropriate to facilitate industry adjustment.

#### RECOMMENDATIONS TO THE CONGRESS

GAO recommends that the Congress pass legislation to repeal the mandatory honey price-support program (7 U.S.C. 1446(b)). If the Congress repeals the mandatory program, it should consider directing the Secretary of Agriculture to use his existing discretionary authority under 7 U.S.C. 1447 to provide price support to honey producers and to reduce this support incrementally over a period of time to ensure an orderly phaseout of the program and minimize the undue adverse impact on the beekeeping industry. (See p. 39.)

#### AGENCY COMMENTS

USDA stated that the report was well prepared and that it agreed with GAO's conclusions that (1) the honey program is unnecessary to ensure pollination, (2) it is a costly program and serves few beekeepers, (3) program controls are not adequate, and (4) the Congress should eliminate the mandatory honey price-support program. (See pp. 40 and 42.)

## C o n t e n t s

		<u>Page</u>
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	How the program works	1
	Program costs	2
	Objectives, scope, and methodology	3
2	IS A HONEY PRICE-SUPPORT PROGRAM NECESSARY TO ENSURE CROP POLLINATION?	6
	Crop pollination was the original program justification	6
	How valuable are honeybees for crop pollination?	7
	Producers of some crops finance pollination services	13
	Honey production is emphasized instead of pollination services	13
	Crop producers' views on what they would do to obtain pollination services in the absence of a honey price-support program	16
	Beekeepers' views on the effects of elimin- ating the honey price-support program	18
3	FEW BEEKEEPERS PARTICIPATE IN THE HONEY PRICE-SUPPORT PROGRAM	20
	Types of beekeepers	20
	Relatively few beekeepers obtain loans	21
4	THE HONEY PRICE-SUPPORT PROGRAM HAS BECOME COSTLY IN RECENT YEARS	24
	Recent increases in support price	24
	Honey imports have increased	25
	Loans made and defaulted on have increased dramatically	27
	Managing honey inventories is costly	28
	Proposals for resolving honey industry issues	29
5	ADMINISTRATION OF HONEY PRICE-SUPPORT PROGRAM IS NOT ADEQUATE	32
	USDA does not obtain data needed to properly manage support program	32
	Inadequate assurance that honey placed under loan is domestic and was produced by the borrower	34
	Honey can be adulterated with corn syrup	36

6	CONCLUSIONS AND RECOMMENDATIONS	38
	Conclusions	38
	Recommendations to the Congress	39
	Agency comments	40

APPENDIX

I	Use of honey price-support program from inception in 1950 through 1983 and honey imports for the same period	41
II	Letter dated June 17, 1985, from the Acting Under Secretary for International Affairs and Commodity Programs	42

ILLUSTRATIONS

	Acquisition costs of honey from 1980 through 1983	3
	Value of crops pollinated by bees-1980	10
	Major honeybee population shifts between 1951 and 1981	14
	1982 honey price-support program participation in states GAO visited	22
	U.S. honey imports by country of origin, 1978-83	26
	Average honey prices per year, 1981 and 1983	26
	Honey used as collateral for government loans and forfeited, 1980-83	27

ABBREVIATIONS

ARS	Agricultural Research Service
ASCS	Agricultural Stabilization and Conservation Service
CCC	Commodity Credit Corporation
GAO	General Accounting Office
OIG	Office of Inspector General
SRS	Statistical Reporting Service
USDA	U.S. Department of Agriculture

## CHAPTER 1

### INTRODUCTION

The beekeeping industry expanded during World War II to meet the needs of the war economy. Honey was a substitute for rationed sugar. Beeswax was considered a strategic material because it could be used instead of petroleum products to waterproof ammunition and other war equipment. For beeswax alone, the industry was categorized as war-essential, which gave beekeepers high priority to secure the scarce materials needed to expand their capacity. With the end of the war and sugar rationing, beekeepers found themselves faced with price-depressing honey surpluses. Due to the depressed economic situation, representatives of the beekeeping industry asked the Congress for assistance.

The Congress provided assistance through the Agricultural Act of 1949 (7 U.S.C. 1446(b)). The act expanded existing price-support programs for basic commodities such as corn, cotton, rice, tobacco, and wheat, and added honey as another agricultural commodity to receive federal support. The act's general purpose was to provide economic stability to the entire agricultural sector because of its importance to the public welfare and impact on the economy. The act's purpose, as it related specifically to honey, was to establish a mandatory price-support program for honey to ensure an adequate supply of honeybees, which pollinate many seed, fruit, nut, and vegetable crops. The Secretary of Agriculture sets the support price within the range specified in the act.

### HOW THE PROGRAM WORKS

Price support for honey is accomplished primarily through loans to honey producers and honey marketing cooperatives. Under the loan program, producers may obtain a loan on the honey they produce domestically, which will assist them in continuing their operations, by applying to the U.S. Department of Agriculture's (USDA) Agricultural Stabilization and Conservation Service (ASCS). Application must be made at one of more than 2,800 ASCS county offices throughout the country. The potential borrower must apply at the ASCS office in the county where the honey is stored or, in the case of honey stored in commercial warehouses, at the ASCS office in the county either (1) where the warehouse is located or (2) where the borrower's business is headquartered.

Participants can borrow an amount at the established loan rate per pound up to 90 percent of the honey pledged as collateral. The loan amount can be up to 95 percent if the honey

collateral is stored in a warehouse approved by the USDA Commodity Credit Corporation (CCC).<sup>1</sup>

The act requires that the Secretary of Agriculture support honey at a price no less than 60 percent and no more than 90 percent of the parity<sup>2</sup> price. The Secretary then establishes loan rates for the various qualities of honey. The weighted average of these rates must equal the support price; loan rates are less for lower quality honey. Factors affecting quality include flavor and color. These factors are affected by the floral source of the honey (e.g., clover, sunflowers, orange blossoms).

Since honey is storable and borrowers have the loan principal in hand, borrowers can wait until the price is most advantageous to them to sell the honey. The limit on the waiting period is the loan maturity date, which is the end of the crop year.<sup>3</sup> If the borrower chooses to sell the honey, he must repay the loan principal with interest at the prevailing Treasury rate. Any borrowers unable to sell their honey for a price high enough to repay the loan plus interest can forfeit the honey as collateral to CCC. When borrowers forfeit honey, the loan amount and interest charges are forgiven.

#### PROGRAM COSTS

In 1980 borrowers started forfeiting their honey to the government for the first time in 10 years. Since then borrowers have forfeited increasing amounts of their honey to CCC to settle their loans. (See table on p. 3.)

From 1980 to 1983, honey acquisition costs multiplied more than 24 times. The following table shows acquisition costs from 1980 through 1983. Acquisition costs include the forfeited loan amount but do not include government costs for storing, transporting, processing, and distributing honey which, according to CCC estimates, costs a minimum of 14 cents per pound. The costs also do not include interest and administrative costs.

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<sup>1</sup>CCC is a government-owned and -operated organization created to stabilize, support, and protect farm income and prices. The principal objective of the CCC is to provide funding for commodity loans made by ASCS and to store, handle, and dispose of commodities acquired under various programs.

<sup>2</sup>parity is a measure of the purchasing power of farm commodities today in relation to their purchasing power during the base period of 1910-14.

<sup>3</sup>For honey, a crop-year loan program currently runs from April 1 to April 30 of the following year. For example, the 1984 crop year ended on April 30, 1985.

<u>Crop year</u>	<u>Pounds forfeited</u>  (thousands)	<u>Acquisition cost</u>	
		<u>Per pound</u>	<u>Total</u>
1980	5,327	\$.50	\$ 2,687,078
1981	35,154	.57	19,968,612
1982	74,075	.60	44,567,227
1983	<u>105,987</u>	.62	<u>65,741,578</u>
Total	<u>220,543</u>		<u>\$132,964,495</u>

#### OBJECTIVES, SCOPE, AND METHODOLOGY

We reviewed the honey price-support program because of increasing program costs and increasing honey forfeitures to the government. Our objectives were to (1) evaluate the current need for the price-support program, (2) determine the extent of beekeeper participation, (3) determine why program costs were rising, and (4) evaluate the adequacy of program administration.

To meet these objectives, we reviewed the legislative history and program regulations and searched the Congressional Information Service's Index to Publications of the United States Congress to determine the congressional actions relating to honey. We interviewed USDA officials concerning the need for the program and its operations. Specifically, we interviewed ASCS officials responsible for program administration and analysis, CCC officials responsible for honey acquisition and inventory management, Agricultural Research Service (ARS) scientists knowledgeable of crop production and pollination requirements, a Cooperative Extension Service scientist who specializes in beekeeping, a former ARS scientist who developed tests for detecting the adulteration of honey, U.S. Forest Service scientists knowledgeable of forest and meadow plant pollination requirements, and Agricultural Marketing Service specialists at one field laboratory who grade honey. In addition, we coordinated our work with the USDA Inspector General and corresponded with USDA General Counsel about the legality of the parity computation procedures.

We obtained (1) loan activity information from the CCC office, where we met with officials and reviewed reports and data, (2) program participant information from 8 state and 16 county ASCS offices, where we met with officials and reviewed documents and reports, and (3) honey import information from the U.S. Customs Service. We interviewed U.S. Customs officials concerning tariffs, duties, and country-of-origin labeling regulations. We selected the eight states on the basis of the large volume of honey they produced and pledged as collateral for loans. The states--California, Florida, Iowa, Minnesota, Nebraska, North

Dakota, South Dakota, and Texas--represented about 71 percent of all the loans made nationwide for crop year 1982. Beekeepers in the counties we visited had pledged large quantities of honey as collateral for loans.

We interviewed 20 beekeepers and 5 honey processors to obtain their views on the honey price-support program. We selected 15 of the beekeepers because they had large quantities of honey under loan. We interviewed an additional five beekeepers who either contacted us, were in the area we visited, or were referred to us by others. These 20 beekeepers operated in 15 states and the number of honeybee colonies they each owned ranged from 250 to 29,000 colonies. Two of the five honey processors were selected because they were marketing cooperatives that participated in the loan program. The larger of the honey marketing cooperatives we interviewed has over 680 producing members who collectively produce over 20 percent of the domestic honey, with individual production ranging from less than 1,000 pounds to more than 1.5 million pounds. The smaller of the two cooperatives has about 100 members located throughout California who produce between 5 million and 5-1/2 million pounds of honey annually. Two processors were selected because they were honey importers. The fifth processor contacted us to discuss program issues. We also discussed the honey price-support program with the Executive Secretary of the American Honey Producers Association and members of the American Beekeeping Federation Executive Committee.

To obtain additional information relating to the honeybee's importance to agricultural crop pollination, we reviewed ARS reports, including Insect Pollination of Cultivated Crop Plants and Beekeeping in the United States;<sup>4</sup> interviewed entomologists and crop production scientists affiliated with three land grant universities; and interviewed 18 crop production officials who represented fruit, nut, seed, or fiber industries in 10 states. We were generally referred to these officials because state agricultural departments' divisions of markets judged them to be a knowledgeable source for discussing pollination needs and practices. The 18 crop production officials were actively producing their respective crops or were members of crop production associations. The states were selected because they were significant producers of valuable crops that, according to USDA, require pollination by insects. We also discussed our observations on pollination, as summarized in this report, with ARS crop production scientists and three land grant university crop production scientists who were selected because of their expertise in crop production matters.

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<sup>4</sup>Insect Pollination of Cultivated Crop Plants, Agriculture Handbook 496 and Beekeeping in the United States, Agriculture Handbook 335.



Our selection of industry representatives was judgmental rather than statistical, but represented a broad cross section of the industries. Our work was conducted from November 1983 through October 1984 and was performed in accordance with generally accepted government auditing standards.

## CHAPTER 2

### IS A HONEY PRICE-SUPPORT PROGRAM

#### NECESSARY TO ENSURE CROP POLLINATION?

The principal reason that the honey price-support program was enacted was to ensure that honeybees would be available in sufficient numbers for crop pollination purposes. The program was to be in effect until producers of crops requiring pollination could pay for the pollination services.

Pollination is the process of fertilizing plants so they will produce fruit or seeds. Pollination takes place by many methods; honeybees provide one important method, but we found that their value has sometimes been overstated.

Producers of crops such as almonds and apples for which bee pollination is critical for seed or fruit production generally obtained pollination services either by paying beekeepers to place bee colonies near their crops or by operating their own beekeeping enterprise. These crop producers view the cost of pollination as another cost of production similar to fertilizer, fuel, and labor. They normally take whatever action is needed--including owning and managing their own bees--to ensure that their crops are pollinated, as long as the incremental cost is less than the incremental revenue obtained through the additional pollination.

Beekeepers have been emphasizing honey production instead of pollination services. Since the program began, the honeybee population has shifted to some states where more honey can be produced but where few crops are grown that require honeybee pollination for seed or fruit pollination.

#### CROP POLLINATION WAS THE ORIGINAL PROGRAM JUSTIFICATION

The mandatory honey price-support program was established to ensure an adequate honeybee population because of its significance in producing many crops. After World War II the price of honey was so low that beekeepers were finding it impossible to recover their production costs. Despite USDA purchases of more than 23 million pounds of honey in 1948 and early 1949 under USDA surplus removal programs, the price of honey continued to drop.

Records of both House and Senate deliberations concerning honey price-support legislation show that some members of the Congress believed assistance was necessary to maintain sufficient honeybee pollinators and that the honey price-support program should only be retained until crop producers recognized the value of honeybee pollination and would pay for the service. The House Committee on Agriculture's report (No. 1027, July 12, 1949), which recommended that the honey price-support program be passed, states:

". . . In order to have a bee population in the United States capable of doing the pollinating job . . . beekeepers must either receive direct payment for the pollination done by their bees or they must receive an adequate return from the honey for sale, to make the operation of the hives profitable.

"The committee believe that the time will come when farmers in general will recognize the value of bees in their agricultural operations and . . . will be willing to pay for the services of bees, just as they would pay for fertilizer or anything else essential to production of their crops.

. . . . .

"Since the close of the war, the price of honey has dropped to the point where beekeepers are finding it impossible to obtain their costs of production. It appears obvious to the committee that, if these vitally important insects are to be maintained in sufficient numbers to pollinate our crops, the beekeeping industry must have immediate assistance. Until the time comes when beekeepers can receive an adequate return from pollination services, the committee believe that a price support for honey, as provided in this bill, is the only answer to this problem."

A Senator on the Senate Agriculture and Forestry Committee stated during deliberations his concern that there would be too much emphasis on honey production. He stated that at that time colonies were not always available where they were needed for pollination and that the program would worsen the problem by making honey production so attractive that beekeepers would not have to serve crop producers. Another Senator expressed concern that price support would result in increased honey production and an expansion of the bee industry beyond the needs of pollination.

HOW VALUABLE ARE HONEYBEES  
FOR CROP POLLINATION?

Crop pollination is essential for most seed and fruit production. However, there are many sources of crop pollination and it is difficult to determine the value added to crops by each of these sources. In our discussions with beekeepers, USDA officials, and agricultural scientists, individuals who discussed the value of honeybees in crop pollination provided annual dollar value estimates that ranged from about \$10 billion to about \$19 billion. As support for their estimates, they referred to a study made by ARS. Our evaluation of this study disclosed that the information contained therein on the dollar value of honeybees for crop pollination is overstated.

## The pollination process

An understanding of the pollination process is essential if one is to estimate the incremental value added by the honeybee. Pollination is the transfer of pollen from the male flower parts to the female parts and is essential to most seed and fruit production. It takes place inconspicuously--the flower blooms and only if it is pollinated does it set a fruit or seed. When a crop has been adequately pollinated, it will have a higher yield--properly shaped fruit or well-filled seedpods.

Pollination occurs by several means. For some flowers, pollination takes place before a flower opens; within the bud the pollen is released directly onto the female flower part. Barley, wheat, oats, tobacco, potatoes, flax, rice, peas, beans, soybeans, and tomatoes are examples of these naturally self-pollinated plants. Other plants require an external force, or pollinating agent, to transfer the pollen. There are a number of pollinating agents, the most significant of which is wind. Many plant species can be pollinated by wind, and the most successfully wind-pollinated plants are those that have a great deal of light pollen that can be carried through the air easily. Wind-pollinated plants include most forest and landscape trees, corn and rye, and many grasses and weeds.

Insects are generally needed to successfully pollinate those plants that have less pollen or pollen that is sticky and heavy and not easily blown from flower to flower or moved between parts of one flower. Some pollination would result from wind, but because the flowers have fewer pollen grains, there are statistically fewer chances of the pollen reaching female flower parts. Insects increase the chances for pollination because they visit the flower. Many visit for pollen and/or nectar and by the act of removing them, they move the pollen from the male to female flower parts and fertilization occurs. In cross-pollination, the insect carries the pollen from one plant's male flower part to the female flower part of another plant. Most insects are known to pollinate some plants. Those known to pollinate commercial crops include ants, aphids, wild bees and honeybees, beetles, butterflies, flies, midges, mosquitoes, moths, and wasps. These insects may not be present in sufficient numbers in the crop vicinity or be effective enough to satisfy pollination needs. In those cases, producers can increase pollinating insect numbers by bringing in colonized bees--honeybees and other bees--or provide favorable nesting and foraging areas to increase wild pollinators.

## USDA's estimate of the value of honeybees for crop pollination

The ARS Agricultural Handbook on insect pollination of cultivated crops, published in July 1976, discussed the value to agriculture crop production attributable to insect pollination. In an attempt to attribute a dollar value to honeybee pollination,

an ARS scientist performed an analysis using 1980 crop production data. The analysis, entitled Value of Bee Pollination to U.S. Agriculture, was published in 1983 and attributed about \$19 billion in crop value to honeybee pollination. Our evaluation of this study indicated that the \$19 billion estimate is misleading because it included (1) the total crop value rather than the value of increased production from honeybee pollination and (2) some crops for which producers generally do not use honeybees but rather let wind and native insects pollinate.

The crop value attributable to  
honey bee pollination is misleading

The following table lists those domestically-grown crops that are not adequately pollinated by wind and require or directly benefit from insect visits. The ARS scientist who was responsible for the table told us the crops shown as requiring or directly benefiting from bee pollination are those that have such large planted acreages that honeybees are the only pollinating insects in sufficient number to effectively pollinate them. The crops shown include those that could be pollinated by honeybees rather than those that actually are.

Value of Crops Pollinated by Bees-1980

	<u>Commodities</u>	<u>Annual value</u>	<u>Total</u>	<u>Cumulative totals</u>	
		(000)	(000)	(000)	
Crops requiring or directly benefiting from bee pollination	Apples	\$ 757,027			
	Apricots	33,705			
	Avocados	121,293			
	Bush berries	62,263			
	Cherries (tart)	43,648			
	Cherries (sweet)	91,812			
	Citrus				
	Lemons	61,319			
	Tangerines	37,559			
	Tangelos	26,816			
	Temples	25,020			
	Cranberries	88,674			
	Eggplant	10,411			
	Nectarines	44,468			
	Peaches	368,004			
	Pears	174,876			
	Pomegranates	3,516			
	Prunes and plums	13,777			
	Strawberries	288,776			
	Cantaloupes	161,133			
	Cucumbers--fresh	116,260			
	Cucumbers--processed	100,933			
	Honeydew	42,864			
	Watermelons	149,757			
	Almonds	473,340			
	Macadamia nuts	24,174			
	Alfalfa	114,652			
	Red clover	16,176			
	Ladino clover	3,941			
	Crimson clover	1,433			
	Lespedeza	2,628			
	Soybeans (1/10) <sup>a</sup>	1,382,494			
	Sunflower	410,377			
Cotton seed (1/10) <sup>a</sup>	57,693				
Cotton lint (1/10) <sup>a</sup>	407,831				
Lima beans	25,137				
Flax	59,054				
Vegetable seeds	60,000	\$5,862,841	\$ 5,862,841		
Crops resulting from seed requiring bee pollination	Artichokes	27,473			
	Asparagus	82,118			
	Broccoli	55,286			
	Brussels sprouts	15,706			
	Cabbage	175,211			
	Carrots	161,432			
	Cauliflower	95,762			
	Garlic	33,816			
	Onions	346,539			
	Alfalfa hay	4,981,394	\$5,974,737	11,837,578	
Commodities indirectly dependent on bee pollination	Cattle and calves (1/10) <sup>b</sup>	5,435,974			
	Liquid milk production (1/10) <sup>b</sup>	1,688,340	\$7,124,314	\$18,961,892 =====	

<sup>a</sup>Not all varieties benefit. Ten percent is a conservative estimate of pollination value.

<sup>b</sup>Sixty percent of all hay fed to cattle and dairy herds is alfalfa. A conservative 10 percent of total value is credited to pollinating activities that initiate the following chain of production: pollination->alfalfa seed->hay->cattle, meat, and dairy.

Source: Levin, M.D., Value of Bee Pollination to U.S. Agriculture, Bulletin of ESA, Winter 1983.

The values shown overstate the value of bee pollination because they include the values of crops that do not require honeybee pollination. Because of wind and other insects, the lack of honeybee pollination would not eliminate these crops. Therefore, the value of the total crop is not the same as the benefit value from the honeybee. Beekeeping industry officials used the total crop value to justify continuing the honey price-support program. For example, in October 1983 the Executive Secretary of the American Honey Producers Association presented information in a prepared statement for the Subcommittee on International Trade of the Senate Committee on Finance. He stated that for more than 30 years the Association has stressed the value to crops of honeybee pollination when seeking assistance of any nature from the government. He added that government and industry officials have estimated this value to other segments of agriculture at \$10 billion or more. He told us that the difference between his \$10 billion estimate and the \$19 billion estimate made by the ARS scientist was that he did not include the value of dairy and alfalfa hay. He stated that he believed including such values tended to overstate the value added by honeybees.

Producers of some crops do not supplement pollination with honeybees

The table also includes some valuable crops that, in practice, the crop producers leave up to the wind and/or other insects to pollinate. We contacted organizations of peach and nectarine, pear, strawberry, cotton, soybean, and sunflower producers in states with high productions of these crops. For each of those crops, we found that producers generally do not maintain honeybees or rent them for pollination. Some of the reasons the producers gave for not using honeybees as pollinators are listed below.

--A soybean industry official in Iowa, where about 18 percent of the 1980 U.S. crop was produced, told us he was not familiar with varieties of soybeans that benefit from honeybee pollination, nor did he know of soybean producers who used honeybees to supplement the self-pollinating blooms. He said that yields were high enough so that he would not recommend incurring additional expense to increase them.

- An official of the National Sunflower Association told us that most sunflowers now grown in North Dakota and Minnesota (about 88 percent of the 1981 U.S. production) are self-pollinating and that insects are not needed for a commercial yield. He acknowledged that insects would assist pollination and increase yield somewhat, but not enough to justify paying a pollination fee. That official, who had been a hobbyist beekeeper, believed sunflowers benefited the beekeeping industry more than the beekeeping industry benefited sunflowers. The sunflower blooming period follows that of clover and alfalfa--the other floral sources in the area. Because of sunflowers, he said the honey season is extended 30 days and a colony may generate up to 40 or 50 extra pounds of honey.
- A California strawberry industry official told us that there would be higher yields if honeybees were used for pollination. They are not used, however, because honeybees are not naturally attracted to strawberry blooms and will go to them only if there is nothing else around that they find more attractive, and honeybees are easily killed by the pesticides that must be applied at bloom time. California produced about 74 percent of the 1980 U.S. strawberry crop. (1980 data is the latest production data available.)
- Peach and nectarine varieties grown commercially generally require no supplemental honeybee pollination. One official of the California industry, a scientist affiliated with the land grant university, told us that the varieties that require supplemental pollination are of no commercial significance in California. California's peach and nectarine production was about 64 and 100 percent of the 1980 U.S. production, respectively. A South Carolina peach industry official told us that 10 percent of his 2,000 acres of peaches required honeybee pollination because they were difficult to pollinate. He said that he would replace those trees with the easier-to-pollinate varieties if he were ever unable to rent honeybees. South Carolina represented about 12 percent of the 1980 U.S. peach production.
- Pears grown in California represented about 44 percent of the 1980 U.S. production. California pear industry officials told us that wind and native insects are adequate pollinators and they do not, as a practice, use honeybees as pollinators. In Washington, Oregon, and New York, the pear blossom develops differently because of the colder climate. In these states, honeybees are needed and are used to pollinate pear trees.



--Producers of alfalfa seed rely on the alfalfa leafcutter bee for pollination purposes rather than the honeybee.

PRODUCERS OF SOME CROPS  
FINANCE POLLINATION SERVICES

Through discussions with beekeepers, insect and plant production scientists, crop producers, and others, we determined that producers generally pay to pollinate apples, bushberries, cherries, kiwi, pears (other than those grown in California), plums, melons, cucumbers, squash, almonds, alfalfa seed, and vegetable seeds. A large part of the paid pollination takes place in California. In 1982 these crop producers paid beekeepers more than \$28 million for pollination. This was about 48 percent of beekeepers' total revenues in California. We did not find similar statistics for the nation.

Pollination fees are determined by supply and demand. In California, for example, the pollination fees for almonds, cherries, and plums are the highest in the spring because honeybees are in great demand to pollinate these crops (which all bloom at the same time), and as a result, there is competition for commercial honeybee services. Later in the year, the fees drop because there are sufficient honeybees to pollinate the crops that need it at that time. In addition, Florida beekeepers charge more to pollinate the second squash crop than they do the first because the second crop comes when the beekeepers use the colonies to produce citrus honey, which commands a higher price. One beekeeper told us he can charge \$10 more per colony to pollinate Maine blueberries than he does for New Jersey blueberries. This difference, in part, is due to travel costs to get to Maine, but also arises from the need for more honeybees in Maine.

In Florida, producers of the specialty citrus crops--tangerines, tangelos, and temple oranges--which require cross-pollination, do not pay for the service but rather they grant beekeepers the privilege to place bees in their groves where bees can produce very desirable citrus honey.

HONEY PRODUCTION IS EMPHASIZED  
INSTEAD OF POLLINATION SERVICES

Although the price-support program's principal intent was to ensure adequate crop pollination, it is the price of honey that is supported. Since the program was started in 1950, the bee population has shifted to states where more honey is produced, yet where there is less need for pollination.

From 1950 to 1983, the U.S. honeybee population dropped from 5.5 million to 4.2 million colonies--a 24-percent decrease in the total number of colonies. Honey production, however,

decreased only about 12 percent due to the higher production in the states that gained honeybee population.<sup>1</sup>

The honeybee population shift in this country resulted in significant reductions for the North Atlantic, East North Central, and South Central areas, while the bee population increased slightly or remained about the same in the West North Central, Western, and South Atlantic areas. The following table illustrates the shifts for some of the states from 1951 to 1981.

<u>State</u>	<u>Number of colonies</u>		<u>Average honey yield per colony</u>	
	<u>1951</u>	<u>1981</u>	<u>1951</u>	<u>1981</u>
	---(thousands)----		----- (pounds)-----	
National average	5,560	4,213	46	44
States losing significant bee population:				
New York	209	116	54	34
Pennsylvania	180	85	36	30
Ohio	295	85	42	22
Indiana	170	76	48	22
Illinois	167	41	45	26
Michigan	184	98	55	50
Kentucky	152	56	20	21
Alabama	200	42	21	43
Georgia	215	145	24	37
Virginia	157	73	29	31
West Virginia	123	62	20	20
States gaining significant bee population:				
North Dakota	15	265	138	87
South Dakota	17	180	115	51
Montana	65	108	80	100
Nebraska	43	122	75	40
Florida	218	360	82	67

The most significant change occurred in North Dakota where the bee population went from 15,000 colonies producing 2.1 million pounds of honey in 1951 to 265,000 colonies producing 23.1 million pounds of honey in 1981. Information from the North Dakota State Department of Agriculture indicates that there were over 300,000 colonies of bees registered in that state in 1984.

<sup>1</sup>Because weather conditions affect honey production, we used 5-year averages (1950-54 and 1979-83) to compute colony numbers and percentage reduction in colony numbers and honey production.

North Dakota, however, does not generally grow crops that need supplemental pollination. It is a significant producer of sunflowers, wheat, oats, barley, rye, sugar beets, edible beans, potatoes, and hay. Of these crops, hay and sunflowers produce large numbers of flowers that produce large amounts of nectar needed for honey production and are attractive to bees. Hay includes the flowering legumes such as alfalfa and the clovers--ladino, crimson, and sweet. Hay does not require pollination. Sunflower producers used to rely on honeybee pollination for seed production. However, a crop production scientist affiliated with a land grant university specializing in sunflower research told us that there are now over 20 varieties of seed that producers could plant and produce 100 percent of a commercial-sized crop without relying on honeybee pollination.

Commercial beekeepers and ASCS officials told us that beekeepers migrate to states like North and South Dakota, Nebraska, and Minnesota to take advantage of abundant floral sources--not to pollinate crops.

With the exception of Florida, the states that increased their honeybee populations grow very few crops that require supplemental pollination. Some of the states that lost honeybees, however, are significant producers of crops that require honeybee pollination. New York and Michigan, for example, are significant producers of apples, cherries, and other fruits that need honeybee pollinators.

The United States has about 1,700 commercial beekeepers. Generally, commercial beekeepers earn most of their revenue by producing honey--not by providing pollination services to those crops to which honeybee pollination is critical for production. We interviewed commercial beekeepers who operated in California, Texas, Montana, North Dakota, South Dakota, Nebraska, Minnesota, New Jersey, Maine, Georgia, Louisiana, Hawaii, and Florida. Of those, only California beekeepers told us that they derive a significant portion of their income from pollination services. The rest were primarily honey producers. For 14 of the 20 beekeepers we interviewed, we had information on whether they provided paid pollination services. Of the 14 beekeepers:

--Four were solely honey producers who had no income from pollination services.

--Five were primarily honey producers with limited income from pollination services. Three of these five pollinated only California almonds, one pollinated California almonds and melons, and one derived 10 percent of his income from pollinating Florida cucumbers and Maine and New Jersey blueberries. He received no income for pollinating alfalfa seed in South Dakota.

--Five were primarily pollinators who also produced honey.

Statistics were not available on the number of beekeepers who were paid to pollinate nor on the number of colonies that were used. A Cooperative Extension Service scientist who specializes in beekeeping estimated that, statistically, one of every four colonies was used in paid pollination activities. (That would be about 1 million colonies.) However, he said he believed the estimate may be high because although only 200,000 colonies were rented for pollination, they were used over and over.

CROP PRODUCERS' VIEWS ON WHAT THEY WOULD DO  
TO OBTAIN POLLINATION SERVICES IN THE ABSENCE  
OF A HONEY PRICE-SUPPORT PROGRAM

The increased emphasis on honey production instead of pollination services and the fact that crop producers generally pay for pollination services when needed, as well as the increasing cost of the honey price-support program, raise questions about the desirability of continuing the honey price-support program.

Elimination of the program would likely result in some changes in the beekeeping industry with respect to the number of beekeepers and hives, their location, and the relative importance to beekeepers of producing honey and providing pollination services. These changes and their effects on crop producers who currently obtain pollination services from commercial beekeepers are hard to predict.

We can, however, identify some of the factors that would be likely to influence the availability of bees for pollination. Perhaps the most important factor is the extent to which commercial beekeepers will be competitive with foreign honey producers in the absence of the program. This, in turn, depends upon the relative costs of producing and marketing domestic and foreign honey and quality differences that might lead consumers to prefer certain types of domestic honey, even at prices somewhat above those charged for imported honey. If domestic commercial beekeepers can profitably compete with foreign producers in the absence of a program, the more likely it is that the beekeeping industry and the availability of pollination services will not be changed much.

On the other hand, if elimination of the program would cause a sharp reduction in domestic honey production, the availability of pollination services might be affected as honey producers reduce production and sell or liquidate their hives, or, alternatively, migrate from the Northern Plains states to areas where their bees can be more profitably used for pollination. In this situation, beekeepers' actions would be affected by, among other factors, the costs of moving their hives, the prices they could obtain for their hives from crop producers or

part-time beekeepers and hobbyists, the prices crop producers would be willing to pay for pollination services, and the willingness of part-time beekeepers and hobbyists to provide pollination services currently being provided by commercial beekeepers.

Because of the uncertainty surrounding possible beekeeper responses to elimination of the program, and the possibility that program elimination might mean fewer commercial beekeepers, we asked 11 fruit, vegetable, and seed production officials who use honeybees for pollination what they would do if that outcome materialized. These officials generally said they would continue to have their crops pollinated even if there were fewer commercial beekeepers. They view the cost of pollination as another cost of production such as fertilizer, fuel, and labor. It would be economically rational for crop producers to continue pollinating their crops, perhaps by owning and managing their own bees, as long as the cost of obtaining pollination from honeybees was lower than the incremental revenue such pollination would produce. The responses from crop producers suggest that they believe honeybee pollination would still be cost-effective even at the higher price for pollination services that might exist if the honey support price is reduced or eliminated.

Their specific responses are as follows. Three doubted whether crop production would be affected at all. They said that crop producers will pay for pollination services or manage their own bees. One was a New York apple producer who rented bees from local beekeepers. The second was a Florida specialty citrus industry official who believed that citrus honey was so valuable that there would always be enough beekeepers willing to cross-pollinate the tangerines, tangelos, and temple oranges in exchange for the opportunity to produce citrus honey. The third was a California plum producer whose orchard was so near citrus groves that she believed there always would be an ample supply of honeybees for rent. Beekeepers would be in the area to produce the desirable citrus honey.

The other crop producers, except for the almond producers, were already paying a pollination fee and said they would pay the higher fees that might result from the elimination of the honey price-support program because the pollination so greatly increased production in most cases. A Michigan blueberry industry official said blueberry producers would be willing to pay considerably higher fees to get adequate pollination because pollination so greatly increased production. He viewed the existing average rental fee as high--\$20 per colony--but estimated that producers would pay up to \$50 or \$60 before they would begin to own and manage their own hives. He estimated that one-third of the Michigan blueberry growers now own their own honeybees. A New York apple producer told us he rented colonies for between \$20 and \$40 per growing season depending on their size. He would consider owning and managing his own colonies if average rental fees increased to \$50.

Two California almond producers said they were not able to pay any more for pollination fees. One producer, who rented 6,000 hives at a rate of \$20 to \$25 per hive for his 2,000 acres of almonds, said he could not afford to pay any more. Almonds were a losing proposition, he said, because their export market was eroded by the strength of the dollar, and for this reason believed that he would have to sell his operation. This producer's pollination fees were about \$60 per acre as compared with about \$1,200 per acre for total production costs, which did not include taxes or debt payments. The other producer had 450 acres of almonds. He paid \$25 to \$27 per colony in 1984 and anticipated rental fees would rise to \$30 for 1985. He said that those fees were high enough for him to consider joining other almond producers to cooperatively hire a beekeeper to maintain the necessary honeybee colonies.

A Michigan blueberry producer, who said he was dissatisfied with the quality of the colonies he was renting, bought his own. To make the honeybees pay for themselves, he rented them to other Michigan cherry, pear, and apple producers; pollinated his own blueberries; and then put the bees in clover fields for honey production. A New Jersey blueberry producer told us he had considered an arrangement in which he and a Florida citrus producer would use the same bees to pollinate the citrus in the early spring and the blueberries in late spring and early summer. One Washington apple, pear, and cherry producer told us that buying packaged bees--a quantity of bees shipped to a producer and used to start or strengthen existing colonies--would be one option he would have if he could no longer rent bees.

#### BEEKEEPERS' VIEWS ON THE EFFECTS OF ELIMINATING THE HONEY PRICE-SUPPORT PROGRAM

Beekeepers we talked with had various views of what effects program elimination would have on the continuity of pollination services and on beekeeping. Discussed below is a representation of individual beekeeper views. These beekeepers were some of the largest in the nation, managing an average of 6,800 colonies each. They believed that many commercial beekeepers would be forced out of business if the program were eliminated. Some estimated that up to 50 percent would be forced out of business. However, as illustrated by the following comments, some beekeepers said that crop pollination needs still would be met.

A beekeeper who operates in Nebraska and California and has no revenue from pollination services said that without the program there would be less free pollination. He estimated that his honeybees increased soybean production by about 5 percent, but he said that because farmers would not notice such an increase, they are not willing to pay for it.

A California beekeeper who provides pollination services and produces honey said elimination of the honey price-support program would cause a major disruption throughout agriculture that might last 3 years or more. Pollination fees would have to rise for beekeepers to survive this period. He would increase his number of colonies in order to increase his revenues from almond pollination contracts.

Another California beekeeper, who derives two-thirds of his income from pollination services, predicted that beekeepers from North Dakota, South Dakota, Minnesota, and some eastern states would move their operations to California where they would compete for pollination contracts. The competition would drive pollination fees down so low that some beekeepers could be driven out of business. He said he was improving the service he provided to producers who buy his pollination services in the hopes that they would continue with him when competition increased.

Another California beekeeper predicted that if the program were eliminated pollination fees would drop because many beekeepers would shift from honey production to pollination services. The beekeeper had a plan to cut back his activities while fees were low, and wait until the number of beekeepers offering pollination services drops off so that the price goes back up, and then expand.

A beekeeper who operates in five states said that the honey price-support program did not affect pollination. It would not take long, according to him, for part-time and hobbyist beekeepers to take over the pollination services that commercial beekeepers now provide. All almond producers would have to do to ensure that their trees were adequately pollinated would be to own and manage their own bees or hire someone to keep bees for them.

A South Carolina beekeeper, who derived 60 percent of his beekeeping income from pollination services, said the ideal situation would be to have enough crops to pollinate so that he would not have to produce more honey than it takes to feed his bees over the winter months. He was participating in the honey price-support program for the first time in crop year 1984. As a participant, he could receive 54 to 56 cents per pound through the program for his bakery-grade honey, whereas he was paid only 40 to 42 cents per pound the previous year; and he will only have to drive 150 miles one way to deliver the honey to a government warehouse, as compared with more than 400 miles one-way to his commercial outlet.

## CHAPTER 3

### FEW BEEKEEPERS PARTICIPATE IN THE HONEY PRICE-SUPPORT PROGRAM

According to a U.S. honey industry official, the United States has about 211,700 beekeepers; yet, according to USDA, only about 1,600 participated in the 1982 crop year loan program and we estimate that only 2,400 participated in the 1983 crop year program. The primary participants were migratory commercial beekeepers, some of whom produced large quantities of honey and forfeited the honey to the government.

#### TYPES OF BEEKEEPERS

Three types of beekeepers exist in the United States--commercial, part-time, and hobbyist. An industry official, in October 1983 testimony before the Subcommittee on International Trade, Senate Finance Committee, stated that of the 211,700 U.S. beekeepers, 1,700 commercial beekeepers operated about 50 percent of the 4.2 million honeybee colonies in the United States and produced 60 percent of the honey. He defined a commercial, part-time, and hobbyist beekeeper, respectively, as owning more than 300 colonies, 25 to 300 colonies, and less than 25 colonies.

Generally, commercial beekeepers are migratory, moving their colonies from one to several times each year. They move their colonies to areas where crops are in bloom (commonly referred to in the industry as "honey flows") or areas where they have pollination contracts. Some migrate from the Midwest honey flows to winter their colonies in warmer climates, such as California and Florida. The beekeepers migrate to warmer climates where there are floral sources year-round and they can keep colonies alive with minimum feeding, increase the number of bees in the colony using honey from early spring floral sources as food, divide the colonies, making two or more colonies out of every one, and then return the colonies to the Midwest in time for honey production.

There are other migration patterns. Some beekeepers--primarily California beekeepers--migrate within one state. They move to obtain pollination contracts and/or to areas of major honey flows. Many of the California beekeepers use their colonies for honey production between servicing pollination contracts. They do this primarily to keep their bee colonies alive and to hopefully produce honey that can be sold. Other beekeepers migrate through the southwestern states--from Texas to California--primarily to areas where honey flows are occurring.

Part-time and hobbyist beekeepers are not as mobile as commercial beekeepers because they have other activities that keep



them in one geographic area. Hobbyists likely would not have the equipment to move their colonies.

#### RELATIVELY FEW BEEKEEPERS OBTAIN LOANS

The government honey loan program reports do not explicitly disclose the number of participants in the program. Instead, the reports disclose the number of loans made, the quantities and amounts involved, and loan repayments made. As shown in appendix I, since the program started, the number of loans has varied from a low of 32 in 1960 to 4,749 in 1983. The number of loans, however, is not the same as the number of participants.

Generally, a new loan is processed each time a borrower places a quantity of honey under loan; thus, an individual producer could take out many loans. For example, a producer operating in North Dakota took out 12 loans in 4 counties on his 1982 crop.

Because we were interested in finding out how many producers actually benefited from the program, we analyzed the loans made for the 1982 crop year for the eight states included in our review. A total of 2,181 loans were made, not including 16 that involved a honey marketing cooperative, or about 71 percent of the 3,108 loans made for that year on a national basis. Our analysis showed that 1,112 producers were associated with those 2,181 loans in the 8 states included in our review, or about 50 percent of the number of loans. On the basis of that ratio, we estimated that 1,600 beekeepers, not including those in the honey marketing cooperative, participated nationally in the 1982 program. USDA, in January 1984, also estimated that about 1,600 beekeepers participated in the 1982 government loan program.

The marketing cooperative previously mentioned had about 680 honey-producing members for the 1982 crop year and obtained 16 loans on 12.7 million pounds of honey, of which about 8.5 million pounds were forfeited. Thus, even if one considered that all members of the cooperative participated in the loan program for 1982, there would still have been only about 2,300 participants for the 1982 crop year, or about 1 percent of the nation's beekeepers.

The number of loans for the 1983 crop year increased dramatically to 4,749 loans. When the ratio for 1982 is applied to the 1983 crop year, we estimate that about 2,375 beekeepers, not including cooperatives, participated in the 1983 loan program.

According to USDA, most participants in the loan program were commercial beekeepers. The hobbyist beekeepers, who comprise the vast majority of the nation's beekeepers, do not use the honey loan program because the honey produced from that type of operation is generally used at home or is given to friends. In addition, many part-timers market their honey at roadside

stands or directly to the consumer and do not use the loan program.

The estimated 1,600 producers who participated in the loan program for the 1982 crop year placed 88.4 million pounds of honey under loan, of which about 74.2 million pounds were forfeited. As the following table shows, in the states we visited, we found that some beekeepers who used the program in 1982 placed extremely large quantities of honey under loan--most of which was forfeited.

1982 Honey Price-Support Program Participation  
in States GAO Visited

<u>State</u>	<u>Number of loans made</u>	<u>pounds placed under loan</u>	<u>Number of participants</u>	<u>Range of pounds placed under program by participants</u>
North Dakota	407	17,128,064	176	594 - 2,954,256
California	581	13,451,746	332	594 - 784,188
South Dakota	190	10,862,166	94	585 - 1,494,288
Florida	410	4,570,704	204	522 - 829,332
Minnesota	172	4,457,960	87	549 - 337,479
Nebraska	128	3,766,602	71	864 - 270,173
Texas	240	3,035,693	107	540 - 217,998
Iowa <sup>a</sup>	53	1,573,032	41	916 - 385,560
Total	<u>2,181</u>	<u>58,845,967</u>	<u>1,112</u>	

<sup>a</sup>does not include loans made to honey marketing cooperative headquartered in state.

In at least two of these states, only a few beekeepers out of those participating in the program were responsible for the majority of the honey placed under loan in those states:

--In North Dakota, 176 beekeepers obtained 407 honey loans totaling about \$10.5 million on about 17.1 million pounds of honey, almost all of which was subsequently forfeited. One migratory commercial beekeeper placed about 3 million pounds of honey under loans totaling about \$1.8 million and forfeited about 2.5 million pounds. Another North Dakota migratory commercial beekeeper pledged about 1.2 million pounds of honey for loans totaling about \$740,000 and forfeited the entire amount. Altogether, the top 15 beekeepers using the loan program in North Dakota for the 1982 crop placed about 9 million pounds under loans totaling about \$5.5 million--about 53 percent of the honey placed under loan for the entire state.

--In South Dakota, 94 beekeepers obtained 190 honey loans totaling about \$6.7 million on about 10.9 million pounds of the 1982 crop. One migratory commercial beekeeper obtained 10 loans totaling about \$921,000, offering as collateral about 1.5 million pounds of honey. The beekeeper subsequently forfeited the honey to the government. Two other migratory commercial beekeepers forfeited more than 1 million pounds each. In addition, one of these beekeepers forfeited about 780,000 pounds of honey in Kansas and the other beekeeper forfeited about 825,000 pounds of honey in Florida. The top 15 borrowers in South Dakota for the 1982 crop year forfeited about 8.2 million pounds, or about 76 percent of the total quantity forfeited in the state.

## CHAPTER 4

### THE HONEY PRICE-SUPPORT PROGRAM

#### HAS BECOME COSTLY IN RECENT YEARS

The government did not acquire any honey through defaulted loans for a 9-year period ending in 1979. However, inflation in the economy has caused the support price to rapidly increase since the mid-1970's, and double from 32.7 cents per pound for the 1977 crop year to 65.8 cents for the 1984 crop year. At the same time, world honey supplies increased more rapidly than demand, causing prices to drop. Support prices higher than world market prices and the strength of the dollar encouraged honey imports to the United States. From 1979 to 1983, annual honey imports nearly doubled to 109.8 million pounds.

In addition, as a result of the high support price:

- Honey used as collateral for loans increased from 41.1 million pounds for the 1980 crop year to 113.6 million pounds for the 1983 crop year.
- Honey forfeited to the government increased from 5.3 million pounds in 1980 to 106 million pounds in 1983. The value of the defaulted loans was \$133 million. The loans for the 1984 crop year matured in April 1985, and USDA estimates that 105 million pounds will be forfeited. Most of the forfeited honey is being distributed through government donation programs.
- Government costs for managing honey inventories increased from practically nothing for a 9-year period ending in 1979 to about \$31 million for the 1980-83 period.

The overall cost for the honey price-support program, including defaulted loans, storage, transportation, reprocessing, and other handling costs, was about \$164 million for the 1980-83 period. This estimate does not include USDA's administrative and interest costs because USDA did not allocate these costs to the honey program.

#### RECENT INCREASES IN SUPPORT PRICE

The Agricultural Act of 1949 requires that the price of honey be supported at not less than 60 percent nor more than 90 percent of the parity price. As illustrated in appendix I, the level of support has never exceeded 75 percent and since 1973 the level of support has been kept at the legal minimum of 60 percent.

The support price for honey has increased rapidly in recent years because the index of prices paid by farmers used in the

formula to compute the support price increased due to inflation in the economy. In 1981 the support price rose to 57.4 cents per pound, which put it above the import and domestic market prices, and the support price has remained above market prices ever since. As of January 1985, the support price for the 1984 honey crop was at least 15 cents a pound above the market price for domestically produced honey, according to USDA.

Currently, the price structure at the wholesale level for honey includes a government support price, a domestic market price, and an import price. The prices for domestic honey vary, depending on whether it is table- or nontable-grade; for table-grade honey, prices vary depending on color (i.e., white or lighter, extra-light amber, or light amber). The prices for domestic honey vary among the states. The prices for imported honey vary among countries by grade and by color. In the past few years, the government support price has risen above the domestic market price and the import price has been considerably lower than either price. For example, for the week ending June 22, 1984, the price for domestically produced white or extra-white honey varied from 55 cents to 60 cents per pound. The import price for similar honey varied from 42 cents to 52.5 cents for Argentine honey to 52 cents for Canadian honey. The support price was 69 cents a pound. Similarly, the price for domestically produced light amber honey varied from 45 cents to 50 cents per pound compared with an import price that varied from 34.75 cents to 44 cents per pound for Mexican honey. The support price was 60 cents per pound.

#### HONEY IMPORTS HAVE INCREASED

During the period 1978-83, annual honey imports nearly doubled from 56 million pounds to almost 110 million pounds. As indicated in the following table, the imports during that period came principally from four countries, with Mexico as the biggest supplier.

U.S. Honey Imports By Country of Origin  
1978-83

<u>Country</u>	<u>Year</u>						<u>Total</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	
	------(millions of pounds)-----						
Mexico	18.3	20.3	8.4	24.9	27.6	44.1	143.6
Argentina	15.4	.9	1.4	12.2	16.5	19.4	65.8
Mainland China	.7	18.0	17.5	19.0	17.5	19.3	92.0
Canada	8.8	9.5	17.4	11.2	14.6	15.4	76.9
Other countries	12.8	9.9	4.3	10.0	15.8	11.6	64.4
<b>Total</b>	<u>56.0</u>	<u>58.6</u>	<u>49.0</u>	<u>77.3</u>	<u>92.0</u>	<u>109.8</u>	<u>442.7</u>

World honey supplies have been increasing more rapidly than world demand, particularly since 1980, and have caused prices to drop. In addition, support prices higher than world market prices and the strength of the dollar are encouraging honey imports to the United States. According to USDA, in 1981 and 1983 the national average support prices for domestic honey were much higher than average prices for imported honey from the 10 principal suppliers, as shown on the following table.

Average Honey Prices Per Year, 1981 and 1983

	<u>Price</u>	
	<u>1981</u>	<u>1983</u>
	(cents/pound)	
U.S. support price	57.4	62.2
Prices of imported honey by country of origin:		
Major suppliers:		
Mexico	37.4	35.8
China	38.7	38.5
Argentina	41.8	39.1
Canada	53.9	51.8
Other sources:		
Australia	32.9	34.9
Brazil	38.4	41.2
Dominican Republic	37.5	33.1
El Salvador	34.1	36.1
Guatemala	35.9	35.8
Honduras	39.7	39.8

The table shows that the import price for the four major suppliers has decreased from 1981 to 1983, while the U.S. domestic support price increased during the same period.

LOANS MADE AND DEFAULTED ON  
HAVE INCREASED DRAMATICALLY

The rising government support price has drastically reduced the wholesale market for domestic honey because honey packers can buy cheaper imported honey. As a result, beekeepers and honey marketing cooperatives have used increasing amounts of domestically produced honey as collateral for government loans, and an increasing number of borrowers have defaulted on these loans. The following table shows the amount of honey produced, used as collateral, and forfeited to the government, and the government acquisition cost.

Honey Used As Collateral for Government Loans and Forfeited  
1980-83

<u>Year</u>	<u>Estimated honey produced</u>	<u>Honey used as collateral</u>	<u>Honey forfeited</u>	<u>Acquisition costs</u>
	----- (pounds) -----			
1980	199,756,000	41,135,000	5,327,000	\$ 2,687,078
1981	185,927,000	55,168,000	35,154,000	19,968,612
1982	230,000,000	88,443,000	74,075,000	44,567,227
1983	<u>205,000,000</u>	<u>113,629,000</u>	<u>105,987,000</u>	<u>65,741,578</u>
<b>Total</b>	<u>820,683,000</u>	<u>298,375,000</u>	<u>220,543,000</u>	<u>\$132,964,495</u>

The acquisition cost is the value of the forfeited loan and does not include handling, transportation, or costs to reprocess the honey for the government's food donation programs. These costs also do not include any administrative or interest costs because, as mentioned earlier, USDA records do not identify these costs with the honey program.

The percentage of domestic honey acquired by the government is significant. For the 1983 crop year, 113.6 million pounds of honey were placed under loan, but only about 7 million pounds were redeemed. Consequently, about 106 million pounds, or 52 percent of all domestic honey produced, was acquired by the government.

In February 1985, USDA estimated the acquisition and handling costs for forfeited honey from the 1984 crop year at \$76.7 million, on the basis of an estimated 105 million pounds of honey being forfeited.

Honey producers told us that the packers they previously sold their honey to were not willing to buy their honey unless the price compared favorably with the import price. The two large packers we visited both told us that they packed mostly imported honey.

#### MANAGING HONEY INVENTORIES IS COSTLY

During the 9-year period ending in 1979, the government did not acquire any honey through defaulted loans and thus did not incur any costs for handling and disposing of the honey. Since then, the government has acquired increasing amounts of honey that it has had to store and eventually dispose of.

Most of the honey forfeited to the government from 1980 through 1983 has been distributed through government donation programs such as the USDA special distribution program under which USDA-owned surplus food products are provided to states for distribution to the needy. However, since the honey is raw and stored in 55-gallon drums, the government awards contracts to reprocess the honey and put it into containers suitable for consumers. In addition, the government incurs storage, transportation, and other handling costs which, along with the processing costs, have been estimated by the Department at a minimum of 14 cents per pound. Thus, on the basis of that estimate, the government will incur additional costs of about \$31 million for the honey it has or will acquire for crop years 1980 to 1983.

Through May 1985 about 173.5 million pounds of honey have been distributed through the federal school lunch program and special distribution programs. Industry officials have become concerned that these donations may displace retail sales. To our knowledge, no studies have been done on the impact the donations have had on sales, but the president of one cooperative told us that sales were down because the giveaway programs were supplanting sales. The president of another cooperative told us in a letter dated March 27, 1984, that:

"Also, the huge Government 'giveaway' program to various groups is something else we must constantly contend with, especially when you discover that the 'free' honey is 'trickling down' to many who can well afford to purchase honey, but jump at the chance to 'get something for nothing' which certainly has a negative impact on honey sales. I have been informed by the California Farm Bureau that the 'giveaway' of cheese, for instance, has caused the cheese manufacturers to lose 3/4 of a pound in sales for every one pound given away by the Government. So, you can see this hits an industry very hard."



The alternative to giving away the forfeited honey would be to store it--probably for a long time. The national average storage rate paid for honey is about 10 cents per hundredweight per month. Therefore, to store the forfeited honey from the 1983 crop year would cost about \$1.3 million annually.

#### PROPOSALS FOR RESOLVING HONEY INDUSTRY ISSUES

Both USDA and the honey-producing industry have proposed legislation and other actions for resolving issues concerning the honey industry in the United States.

In early 1976, the U.S. International Trade Commission, at the request of several honey producers/marketing associations and some independent beekeepers, investigated whether honey was being imported in such quantity as to cause serious injury or threat to the domestic honey industry under the provisions of the Trade Act of 1974. The Commission concluded that honey imports threatened the domestic industry. The Commission, in its report to the President, recommended a tariff-quota system to prevent the threatened injury. At the time of the Commission's investigation, imports had reached the level of about 46.4 million pounds for 1975. The President decided that it was not in the nation's economic interest to impose import restrictions on honey.

More recently, producers, honey associations, and cooperatives have been demanding import quotas and/or increases in the duty on imported honey to make domestic prices more favorable. However, the administration has generally opposed quotas because of its belief in free trade. Legislation (S. 2124) was introduced in February 1982 to increase the duty, but it did not pass. The Secretary of Agriculture, in commenting on the proposed legislation, stated that "enactment of the bill would have international repercussions because the United States has granted a concession (i.e., a commitment not to raise the duty) on honey in the General Agreement on Tariffs and Trade." He also stated that "if this bill becomes law, the United States would be vulnerable to actions by its trading partners. One possible result could be that the United States would be obligated to pay compensation by cutting import duties on other products having equivalent trade value."

The duty on imported honey is 1 or 3 cents per pound, based on a U.S. tariff binding, or commitment, in the General Agreement on Tariffs and Trade. On the basis of a waiver granted to the United States under article 25 of the General Agreement on Tariffs and Trade, for the Caribbean Basin Initiative, certain Caribbean countries are permitted duty-free treatment for honey. Most of the honey is imported into the United States with a duty of 1 cent per pound.

Senate resolution 393 was proposed during May 1982 expressing the "sense of the Senate" that the Secretary of Agriculture should promptly call for the study on honey imports under Section 22<sup>1</sup> of the 1933 Agricultural Adjustment Act, as amended (7 U.S.C. 624). In December 1982 the Secretary of Agriculture, in response to the proposed resolution, stated that facts available to the Department did not permit a determination that the imports were interfering with the honey support program. The Secretary also stated that USDA was continuing to monitor the relationship between imports and the support program and that if a section 22 study became necessary, it would be recommended.

The proposed resolution was later reintroduced in the Senate as a "sense of the Congress" resolution that was adopted by voice vote as an amendment to a trade bill in April 1983 and sent to the House. However, the House returned the bill because it contained revenue measures that must originate in the House.

Because of concern about the rising support price, the increased acquisitions of honey by the government, and the increased imports, the Secretary of Agriculture in February 1983 submitted proposed legislation which, if enacted, would have eliminated the mandatory price-support program, but would still have allowed the Secretary, using discretionary authority under Section 301 of the Agricultural Act of 1949, as amended (7 U.S.C. 1447), to support the price of honey.

Section 301 of the Agricultural Act of 1949 authorizes the Secretary of Agriculture to make available through loans, purchases, or other operations, price support to producers for any nonbasic commodity not designated in title II of the act (7 U.S.C. 1446 *et. seq.*) at a level not in excess of 90 percent of the parity price for the commodity. This section allows the Secretary more flexibility in administering the program, whereas under section 201(b) of the act (7 U.S.C. 1446(b)), the Secretary is required to support the price of honey at not less than 60 percent nor more than 90 percent of the parity price.

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<sup>1</sup>Section 22 of the 1933 Agricultural Adjustment Act, as amended, provides that whenever the Secretary of Agriculture has reason to believe that any article is imported into the United States in such quantities to materially interfere with a support program, he shall so advise the President and, if the President agrees, he shall ask for an immediate investigation by the U.S. International Trade Commission. Further, the provision states that if the investigation substantiates the facts, the President shall impose fees or quantitative limitations necessary to ensure that the import of such articles will not materially interfere with a price-supported item.

In the February 1983 letters transmitting the proposed legislation to both houses of the Congress, the Secretary stated:

"Furthermore, honey imports have increased substantially in recent years. Initially, the increase in imports of honey was due to a deficit in the domestic supply of honey as the result of declining domestic production. Now, however, because the minimum level of price support is above the market price and the domestic production is being acquired by CCC, honey imports are further replacing the domestic production in the marketplace. This has resulted in increases in costs to the American taxpayer. Without a change in legislation, the continued escalation of the level of price support under the present formula will continue to increase costs to the American taxpayer. It will also further encourage the supplantation of imported honey for that which is domestically produced."

The proposed legislation (S. 1257 and H.R. 3762) was not voted out of committee.

In May 1984 a letter signed by 15 senators and sent to the Secretary of Agriculture urged the Secretary to request a section 22 study of honey imports. The Acting Secretary of Agriculture, in a response dated July 2, 1984, stated a belief that the honey import problem was primarily that the price-support program for honey, on the basis of the parity formula, was inconsistent with the world supply situation as it had evolved since enactment of the present legislation in 1949. The Acting Secretary also expressed a belief that the relationship between the support price and world prices needs to be corrected by giving the Secretary discretionary authority to establish support prices that are fair to both the beekeepers and the taxpayers.

Also in 1984, the honey industry sponsored a bill to enable the industry to establish a marketing order for honey. The marketing order would impose a monetary assessment, subject to approval by the industry, on all domestic and imported honey to be used to fund research, promotion, and consumer education. This legislation was signed by the President on October 30, 1984 (Public Law 98-590).

In 1985 bills have been introduced in the Congress to either change or eliminate the honey price-support program. For example, S. 616 would base the support level on no less than 75 percent or no more than 85 percent of the simple average price received by producers for honey during the preceding 5 marketing years, excluding the high and low years. This contrasts with the current price-support level of not less than 60 percent nor more than 90 percent of the parity price. Another bill, S. 501, would eliminate the honey price-support program after the 1985 crop.

## CHAPTER 5

### ADMINISTRATION OF HONEY PRICE-SUPPORT PROGRAM

#### IS NOT ADEQUATE

To administer the honey price-support program, USDA is required to:

- Compute the support price on the basis of the parity formula set forth in the law.
- Ensure that producers meet eligibility requirements for loans. Only domestic honey that has been produced by bees owned by the person desiring the loan or members of approved honey marketing cooperatives is eligible to be used as collateral for government loans.
- Ensure that honey used as loan collateral is not imported honey or honey that has been adulterated by adding corn syrup.

The administration of the honey price-support program is not adequate to ensure that these requirements can be met.

During 1982-84, USDA did not collect sufficient wholesale price data for computing the support price in the manner required by law. In addition, USDA did not collect sufficient honey production data for USDA management to use for setting price-support levels or for ASCS county officials to verify that producers had the capacity to produce the honey offered as collateral for loans.

In addition, USDA generally does not perform tests on honey used for loan collateral to ensure that imported honey is not included or that the honey has not been adulterated with corn syrup.

According to USDA, collecting the necessary data and testing honey samples would be costly. In addition, the testing has not been developed sufficiently to ensure positive identification of imported honey.

#### USDA DOES NOT OBTAIN DATA NEEDED TO PROPERLY MANAGE SUPPORT PROGRAM

The government used to collect and publish data on honey production, number of bee colonies, the honey yield per colony on both a state and national basis, and honey wholesale prices. That information, which was collected and published by USDA's Statistical Reporting Service (SRS), was discontinued after 1981 due to budget restrictions.

Such information is needed at the national level for setting price-support rates. Wholesale price data is needed to correctly calculate the support price; since the data is not being collected, a time period shorter than the 10-year time period required by law has been used since 1982 to calculate the support price. Production data would be used for setting the support level between 60 percent and 90 percent of parity and for estimating the impact on consumers and the government. Currently, decisions regarding the price-support level are based on estimates resulting from telephone inquiries with a few beekeepers and industry officials.

In addition, the information would help ASCS personnel at the county level verify producer eligibility. The information, together with the producer's statement as to the number of bee colonies used to produce the honey, would give ASCS a basis on which to judge whether the beekeeper had the capacity to produce the honey offered as collateral for a loan.

The need for data on honey production and prices prompted the Commissioner of Agriculture for North Dakota in November 1983 to request that the Secretary of Agriculture reconsider allocating funds to continue the collection of honey statistics. The Commissioner, in his letter, pointed out that

"[since] . . . the Crop Reporting Service's annual report on honey was discontinued, loan activity on honey has skyrocketed. Statistics on honey production are essential for sound analysis of the economic status of the beekeeping industry, determination of price support rates, and determination of the impact on the industry of the introduction of the African "Killer" bees and associated mite pests."

The Secretary of Agriculture, in reply, stated that the points made in support of the need for reliable information on honey production were all valid, and he pointed out that recognition of those points was responsible for beginning the reports and their continuation over the years. However, the Secretary stated that budget restrictions necessitated making judgments that would have the least impact on agriculture and that included elimination of some reports and the curtailment of coverage, or reducing the frequency of other reports.

In a letter to USDA dated July 26, 1984, we questioned USDA's legal basis for using a less-than-10-year price history in determining the adjusted base price for honey, which is one of the components of the parity price formula. On September 26, 1984, the Department's Associate General Counsel for Production, Distribution, and Assistance advised us by letter that no statutory basis existed for using a shorter price history. He also advised us that the matter had been discussed with USDA officials responsible for administering the honey price-support

program and that steps were to be taken to ensure that the parity price was determined as required by law.

On December 21, 1984, the SRS Administrator advised USDA's Deputy Assistant Secretary for Economics that SRS believed that, for computing the honey support price for 1985, it could use the national average support prices for 1982, 1983, and 1984 to ensure that the support price determination process includes 10 years of prices, as required by the Agricultural Adjustment Act of 1938 (7 U.S.C. 1301(a)). He stated that the preferable procedure would have been to have survey data for these years, but no surveys were conducted in these years. He added that if the 1985 farm bill continues to make use of the parity price for the honey program, then USDA will need to reinstate the honey price survey.

INADEQUATE ASSURANCE THAT HONEY  
PLACED UNDER LOAN IS DOMESTIC  
AND WAS PRODUCED BY THE BORROWER

Current procedures direct ASCS officials at the county level to inspect honey to be used as collateral for loans to (1) verify the quantity, (2) ensure that the honey contains no excessive defects (bee parts) or foreign matter (such as ants), and (3) verify that the honey is stored in proper containers. The borrower completes the required forms and certifies that he or she produced the honey domestically, and that the honey comes from a certain floral source and is of a certain color.

In addition, starting with crop year 1984 honey, ASCS performs a moisture test to ensure that honey containing more than 18.5 percent moisture is not used as collateral for a loan. In addition, the producer is required to declare the number of colonies of bees that produced the honey.

These procedures do not provide adequate assurances that the honey is eligible for a loan because ASCS personnel at the county level have no adequate means of verifying whether the honey is domestic honey and produced by the person desiring the loan.

As discussed on page 32, USDA no longer collects honey production data that would help ASCS county officials make judgments about beekeepers' honey production capacity. County ASCS officials told us they had no way of knowing whether the producer had the capability of producing the honey offered as collateral because they do not independently verify the producer's certifications of the floral source of the honey and his/her capacity to produce the honey. Current practice is to rely on the producers' statements.

Industry officials, beekeepers, packers, and government officials told us that they had heard allegations that imported

honey is being used as collateral for loans and forfeited to the government. However, none of the people we talked to provided evidence that this was being done. Regardless of whether these allegations are true or not, adequate controls do not exist to prevent imported honey from being used as collateral. In addition, the high government support prices compared to the import price provide an incentive to use imported honey as collateral.

In the summer of 1983, the USDA's Office of Inspector General (OIG), concerned about the possibility of imported honey being placed under loan, obtained data from the U.S. Customs Service on the names and addresses of individuals/entities that imported honey from 1980 through 1982. That list was circulated to all state and county ASCS offices, with instructions to review their loan records and determine whether anyone on the list received a price-support loan or delivered honey under a purchase order agreement. That comparison resulted in the identification of 10 cases. Such identification is not in itself evidence of wrongdoing. It simply means that 10 cases were identified in which the individual/entity was found to be an importer of honey and had honey under loan. In January 1985 the OIG terminated its investigation of the nine cases without finding any evidence of wrongdoing.

The fact that only 10 cases were found in which honey importers also had received honey loans is not necessarily a good indication that no problem exists because the listing of honey importers frequently identified companies, whereas honey loans are frequently made to individuals. In theory, companies importing honey could sell the honey to individuals who could use it as collateral for government loans.

Whether honey is domestic or imported can sometimes be determined by pollen analysis. However, the tests are expensive--about \$75 per analysis--and they would not provide assurances that honey was domestically produced. The analysis identifies the floral source of the honey and can determine whether it has been produced in the area claimed. But for similar floral sources there would be no way of proving whether the honey is domestic or imported. For example, floral sources in the Imperial Valley in California are the same as those in the adjacent area in Mexico. If honey were imported from that area in Mexico and placed under loan in the Imperial Valley, a pollen analysis would not show that the honey was imported. On the other hand, if a producer in North Dakota acquired honey imported from Mexico and placed it under loan in North Dakota, it should be possible to prove that the honey could not have come from floral sources in North Dakota.

In one case, USDA did establish that imported honey had been used as collateral for two loans in Wisconsin in 1980. The USDA investigation disclosed that about 178,000 pounds of

Chinese honey was used for the loans, which totaled about \$75,000. USDA inspection discovered that the loan collateral was missing and initiated an investigation. At that time there was no evidence that imported honey was involved. During the investigation USDA established that the honey used for the loan was Chinese honey purchased from U.S. companies on the East and West Coasts.

The honey used as collateral was sold without government permission to a company owned by the borrower. The borrower subsequently pleaded guilty to the unauthorized sale of government-mortgaged property and was given a suspended sentence, placed on probation for 4 years, and ordered to make restitution of over \$100,000. The individual was never prosecuted for falsely declaring that the honey placed under loan was domestic.

In summary, USDA does not have a system to adequately determine whether the honey being used as collateral for loans is in fact produced domestically.

#### HONEY CAN BE ADULTERATED WITH CORN SYRUP

USDA does not require tests of honey used as collateral that would disclose whether the honey has been adulterated with corn syrup, which costs less than honey. Honey adulterated with high-fructose corn syrup has posed a potential threat to the honey industry ever since the corn syrup was introduced on the market in the early 1970's.

Two honey packers told us that it is possible to mix as much as 40 percent corn syrup with honey with no difference in taste or appearance. A recognized honey-testing expert confirmed this observation.

Corn syrup is readily available. Some beekeepers told us that they feed corn syrup to their bees during the winter or off-season. One of the beekeepers we talked with was installing a 30,000-gallon tank to store corn syrup at the time of our visit.

Because of a potential adulteration problem, ARS's Eastern Regional Research Center developed an isotope ratio analysis, which is based on the fundamental difference in the carbon atoms in corn and honey sugars. By comparing atomic weights, one can determine whether the honey product contains corn or honey sugars.

The costs of isotope ratio analysis are about \$50 per test. In a report dated February 1978, a USDA official stated that these tests were expensive for routine use.



The Honey Industry Council of America and the American Beekeeping Federation sponsor programs that encourage people to submit samples of honey for analysis that they suspect have been adulterated. During 1983, 42 samples were submitted of which 6, or 14 percent, were found to be adulterated with corn syrup. The prior year, 66 samples were analyzed of which 11, or 17 percent, were adulterated.

The government does sample honey that is to be forfeited, but this sampling is limited to testing for moisture content, color, and grade. The government does not require tests to be made that would determine whether the honey had been adulterated with corn syrup. We were told by the president of the nation's largest honey marketing cooperative that it tests for corn syrup adulteration. He also said that the beekeepers know that the government does not test for adulteration and he believes that the government could be acquiring adulterated honey.

## CHAPTER 6

### CONCLUSIONS AND RECOMMENDATIONS

The principal objective of the mandatory price-support program is to ensure an adequate supply of honeybees because of their significance in producing many crops. The objective was to be met through a price-support program that would maintain the price of honey at specified levels and thereby support beekeepers' incomes.

From 1950, when the program began, to 1979, USDA operated the program at relatively little cost. Since 1980, USDA has acquired honey in increasingly larger amounts because the honey support price has exceeded the world market price for honey.

In 1983 the Secretary of Agriculture proposed legislation which, if enacted, would have eliminated the mandatory honey price-support program, but would still have allowed the Secretary, using discretionary authority, to support the price of honey. This proposed legislation was not reported out of committee. However, conditions have gotten worse during the past 2 years. For example, at the time of the Secretary's proposal, he estimated that 60 million pounds of honey would be acquired by the federal government in 1982, up from 38.7 million pounds in 1981. Actual honey acquired in 1982 was 75 million pounds, and in 1983 115 million pounds was acquired. Acquisition cost to the government totaled \$22.7 million for crop years 1980-81, compared to \$110.3 million for crop years 1982-83 and an estimated \$76.7 million for the 1984 crop year alone.

### CONCLUSIONS

The Congress should eliminate the mandatory program because:

- The program is not needed to ensure necessary crop pollination, since producers of crops that require honeybee pollination are already renting or own their honeybees. They view the cost as another cost of production, similar to fertilizer, fuel, and labor.
- Honey production is emphasized instead of crop pollination. Since the program began, the honeybee population has shifted to states where more honey can be produced but where few crops are grown that require honeybee pollination. Some of the top honey-producing states, such as North and South Dakota, are major producers of sunflowers and the hay crops, such as alfalfa and the clovers. These crops produce large numbers of flowers that contain nectar attractive to honeybees. These crops, however, do not require honeybee pollination.

- Few beekeepers participate in the program. About 1 percent of the beekeepers in the United States participate and they are generally commercial honey producers. The participants placed 113.6 million pounds under loan, or 55 percent of the estimated 1983 production in the United States. Some have forfeited large quantities of honey.
- The legislative requirement to use a specific price-support formula has resulted in a support price that is much higher than both import and domestic market prices. Therefore, in recent years, honey imports have doubled, loans made and defaulted on have dramatically increased, and program costs have increased from practically nothing during the 1970's to \$164 million in 1980-83.
- Program management is not adequate. From 1982 to 1984, USDA did not collect production and wholesale price data for honey needed to calculate support prices and to evaluate a borrower's capacity to produce the honey offered as collateral. In addition, honey adulterated with corn syrup and imported honey is not eligible to be used as collateral for government loans; however, honey used as collateral is not tested to determine whether it is adulterated or imported. To adequately manage the program and make it less vulnerable to potential fraud or abuse, the government would need to again collect data and begin to test honey used as collateral. These actions would be costly and may not be completely effective.

Without a mandatory program, the Secretary of Agriculture would still have discretionary authority under Section 301 of the Agricultural Act of 1949 (7 U.S.C. 1447) that gives him flexibility to determine the level of financial support to the beekeeping industry. Under the discretionary program the support price for honey could be phased out in a manner that minimizes the impact on the industry. We believe that it is important that, as part of the phase-out, steps be taken to monitor the conditions in the industry that result from lowering the support price and to use that information to determine further phase-out actions that might be appropriate to facilitate industry adjustment.

#### RECOMMENDATIONS TO THE CONGRESS

We recommend that the Congress pass legislation to repeal the mandatory honey price-support program (7 U.S.C. 1446(b)). If the Congress repeals the mandatory program, it should consider directing the Secretary of Agriculture to use his existing discretionary authority under 7 U.S.C. 1447 to provide price support to honey producers and to reduce this support incrementally over a period of time to ensure an orderly phaseout of the program and minimize the undue adverse impact on the beekeeping industry.

## AGENCY COMMENTS

In commenting on this report (see app. II), USDA stated that the report was well prepared and that it agreed with our conclusions that (1) the honey program is unnecessary to ensure pollination, (2) it is a costly program and serves few beekeepers, (3) program controls are not adequate, and (4) the Congress should eliminate the mandatory honey price-support program.

Use of Honey Price-Support Program From Inception  
in 1950 Through 1983 and Honey Imports for the Same Period

	National average support price (cents per pound)	Support as a percent of parity	Domestic honey produced (millions of pounds)	Honey loan activity		Quantity acquired by CCC <sup>a</sup> (millions of pounds)	Honey imports
				Number of loans made	Quantity placed under loan (millions of pounds)		
1950	9.0	b	233.0	c	c	7.4	12.0
1951	10.1	60	258.3	c	c	17.8	8.2
1952	11.4	70	272.8	344	9.2	7.0	8.5
1953	10.5	70	223.8	128	3.1	.5	9.8
1954	10.2	60	216.8	76	1.5	0	9.2
1955	9.9	75	255.2	37	1.9	0	9.9
1956	9.7	70	214.0	37	1.6	0	4.8
1957	9.7	70	241.2	81	2.9	.1	4.8
1958	9.6	70	260.5	156	5.6	.2	3.9
1959	8.2	60	236.6	42	1.3	0	4.5
1960	8.6	60	242.8	32	1.1	0	12.4
1961	11.2	75	255.9	105	4.2	1.1	9.0
1962	11.2	75	249.6	99	3.7	0	7.1
1963	11.2	67	266.8	65	3.2	0	2.6
1964	11.2	65	251.2	207	9.7	2.2	4.9
1965	11.2	63	241.8	543	17.2	3.3	13.3
1966	11.4	61	241.6	643	35.1	4.1	9.5
1967	12.5	67	215.8	787	31.0	5.4	16.8
1968	12.5	67	191.4	631	24.9	.1	16.9
1969	13.0	67	267.5	930	45.7	3.5	14.7
1970	13.0	64	221.7	703	40.3	d	8.9
1971	14.0	67	197.8	478	22.9	0	11.4
1972	14.0	63	215.6	377	19.5	0	39.0
1973	16.1	60	239.1	244	11.6	0	10.7
1974	20.6	60	187.9	278	12.5	0	26.0
1975	25.5	60	199.2	e	e	0	46.4
1976	29.4	60	198.0	e	e	0	66.5
1977	32.7	60	178.1	324	13.9	0	63.9
1978	36.8	60	231.5	473	37.9	0	56.0
1979	43.9	60	238.7	792	49.1	0	58.6
1980	50.3	60	199.8	1,201	41.1	6.0	49.0
1981	57.4	60	185.9	2,188	55.2	38.7	77.3
1982	60.4	60	230.0 <sup>f</sup>	3,108	88.4	75.0	92.0
1983	62.2	60	205.0 <sup>f</sup>	4,749	113.6	115.0 <sup>g</sup>	109.8

<sup>a</sup>Includes quantity acquired under purchase agreements.

<sup>b</sup>Not available.

<sup>c</sup>Direct packer purchase program.

<sup>d</sup>Less than 6,000 pounds.

<sup>e</sup>A purchase-only program was available for 1975 and 1976.

<sup>f</sup>Since honey production and related data is no longer collected by USDA, estimate was made by ASCS.

<sup>g</sup>Estimated.



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

17 JUN 1985

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

Dear Mr. Peach:

Thank you for the opportunity to review and comment on your proposed report entitled "Federal Price Support for Honey Should Be Phased Out".

The report was well prepared and we totally agree with GAO's conclusions that (1) the honey program is unnecessary to ensure pollination; (2) that it is a costly program and serves few beekeepers; (3) program controls are not adequate; and (4) Congress should eliminate the mandatory Honey Price Support Program.

Comments and statistical information, including editorial suggestions, that resulted from a review by several USDA agencies were previously made available to members of your staff.

In conclusion, we are pleased that GAO is supportive of the Administration's earlier proposal to phase out the Honey Price Support Program. Our thanks to you and your staff for the excellent and thoughtful manner in which this timely report was prepared.

Sincerely,

A handwritten signature in cursive script that reads "Richard W. Goldberg". The signature is written in black ink and is positioned above the typed name.

Richard W. Goldberg

Acting Under Secretary for  
International Affairs and  
Commodity Programs

(097704)



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