

GAO

Report to the Ranking Minority Member,
Subcommittee on Risk Management,
Research, and Specialty Crops,
Committee on Agriculture, House of
Representatives

April 1999

CROP INSURANCE

USDA's Progress in Expanding Insurance for Specialty Crops



**Resources, Community, and
Economic Development Division**

B-281887

April 16, 1999

The Honorable Gary A. Condit
Ranking Minority Member
Subcommittee on Risk Management
Research, and Specialty Crops
Committee on Agriculture
House of Representatives

Dear Mr. Condit:

Farming is inherently risky because producers operate at the mercy of nature and frequently are subjected to weather-related and other natural disasters. Over the years, the federal government has played an active role in helping to mitigate the effects of risk on agriculture by offering producers subsidized crop insurance, which allows them to receive a claims payment when production falls below an insured level. However, the federal crop insurance program has mostly focused on providing insurance coverage for producers who raise nonspecialty crops, such as wheat, corn, and soybeans. Coverage for producers who grow specialty crops—fruits, nuts, and vegetables, which generally have a higher crop value per acre—has been limited. This is, in part, because of the large number of specialty crops that are grown and because of specialty crops' unique production and risk characteristics, which may require a customized insurance program for individual types of crops.

The U.S. Department of Agriculture (USDA) manages the federal crop insurance program and offers producers two principal levels of insurance coverage—catastrophic and buyup. Catastrophic insurance provides producers with protection against extreme crop losses for a small processing fee, while buyup insurance provides protection against more typical crop losses in exchange for a producer-paid premium, subsidized in part by USDA. Crop insurance is delivered through private insurance companies. In return for selling and servicing federal crop insurance, USDA reimburses the companies for their administrative costs, and both share in underwriting profits and losses. The federal government's cost for the program—including premium subsidies, administrative fees paid to companies that sell crop insurance, and underwriting losses—is about \$1.4 billion annually.

Concerned about the availability of federal crop insurance for specialty crops, you asked us to examine (1) USDA's recent progress in expanding

coverage to specialty crops and (2) the new marketing practices insurance companies have introduced for specialty crops and to identify potential advantages and disadvantages of the practices, including their effect on producers' participation. In addition, you asked us to review the potential effect on participation by producers in the catastrophic crop insurance program if they were charged higher fees. In 1998, the Agricultural Research, Extension, and Education Reform Act imposed a higher fee, which was later reduced.¹

Results in Brief

USDA insures 52 specialty crops and plans to begin testing coverage for another 9 specialty crops by 2001. These 61 crops represent a majority of the value of all specialty crops, but insurance coverage will not be available for about 300 crops. While programs for specialty crop insurance have expanded in recent years, more rapid expansion has not occurred because USDA follows a deliberate multistep process involving the assessment of risk and setting of premiums to ensure that the programs it develops are actuarially sound.² This process, including testing, is lengthy, typically requiring about 5 years, because, among other things, the production history data needed to develop a specialty crop program are often not readily available. According to USDA, while the development process cannot be accelerated because of the need to ensure actuarial soundness, additional resources would allow the Department to evaluate more crops concurrently.

In recent years, insurance companies have used alternatives to the traditional strategy of having independent agents market federal crop insurance to producers. One alternative strategy uses endorsements—an insurance company pays a fee to a producer association to promote the sale of its insurance product. A proposed strategy would allow an insurance company to pass through administrative savings to producers in the form of reduced premiums. For example, if an insurance company could deliver the program for less than the administrative fee it receives from USDA for this service, the company would be permitted to reduce the premiums charged to the producer. These strategies could increase producers' participation and, ultimately, if USDA chooses to share in these

¹The Agricultural Research, Extension, and Education Reform Act of 1998 (P.L. 105-185, June 23, 1998) changed the effective cost of catastrophic insurance from a fee of \$50 per policy to the higher of \$60 or \$10 plus 10 percent of the calculated premium. The Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999 (P.L. 105-277, Oct. 21, 1998) subsequently set the fee at \$60 per policy.

²Actuarial soundness is the level at which premiums, including the portion paid by the government, are sufficient to cover claims payments. USDA is required by law to achieve actuarial soundness.

administrative cost savings, reduce the administrative fees the government pays insurance companies. However, these strategies have some potential disadvantages. For example, USDA is concerned that they could prevent smaller insurance companies from competing if they cannot provide the economic incentives that larger companies provide.

Under the now rescinded provision of the 1998 agricultural research act, the increase in the processing fee for many specialty crop farmers would have been large and participation would have declined. While we were unable to estimate the magnitude of the decline, available studies on traditional crop insurance show that, in general, for each 10-percent increase, there is a 2- to 9-percent decrease in participation.

Background

Federal crop insurance protects participating farmers against crop losses caused by perils such as droughts, floods, hurricanes, and other natural disasters. Since 1981—the first year in which the government enlisted private insurance companies to sell and service crop insurance—federally subsidized multiple-peril crop insurance has been a principal means of managing the risk associated with crop losses.³ Federal crop insurance offers producers two primary levels of insurance coverage, catastrophic and buyup, which are available for major crops. Catastrophic insurance, created by the Federal Crop Insurance Reform and Department of Agriculture Reorganization Act of 1994, was designed to provide producers with protection against extreme crop losses for a small processing fee. Buyup insurance protects against more typical and smaller crop losses in exchange for a producer-paid premium. Table 1 shows the levels of coverage available through federal crop insurance.

Table 1: Federal Crop Insurance Coverage Levels

Type of insurance	Coverage level	Cost to producer
Catastrophic	Insures 50 percent of production, with payment provided at 55 percent of market price	Small processing fee for each policy (by county and crop)
Buyup	Insures from 50 to 75 percent of production, with payment provided up to 100 percent of market price	Small processing fee for each policy plus premium paid by the producer based on level of coverage

Source: USDA.

³The Federal Crop Insurance Act of 1980 (P.L. 96-365, Sept. 26, 1980) authorized the use of private insurance companies to sell and service federal crop insurance policies starting with the 1981 crop year.

USDA's Risk Management Agency establishes the premiums, terms, and conditions for federal crop insurance and manages the program. When producers obtain insurance coverage, the government subsidizes the total premium for catastrophic insurance and a portion of the premium for more expensive buyup insurance. Specifically, for every dollar of buyup premium, the government subsidizes an average of 40 cents and the producer pays roughly 60 cents.⁴ Under the terms of a negotiated agreement, 17 insurance companies sell crop insurance and process claims. USDA pays these companies an administrative fee for these services. For example, the government reimburses the participating insurance companies 24.5 cents for every dollar of buyup insurance premium and 11 cents for catastrophic insurance. Furthermore, the companies share underwriting profits (the difference between premiums and claims) as well as a limited portion of any underwriting losses with the government. However, the government absorbs the vast majority of losses.

Nonspecialty crops have experienced higher losses than specialty crops. Beginning in October 1998, USDA is required to achieve actuarial soundness, defined as a loss ratio of 1.075: That is, for every dollar in premiums, including the portion paid by the government, the claims paid would be expected to average no more than \$1.075. For 1981 through 1998, the claims paid averaged \$0.99 per \$1.00 of premium for specialty crops, compared with \$1.12 per \$1.00 of premium for nonspecialty crops. Appendix I provides information on crop insurance for 1998 and the loss ratio experience by each crop since 1981.

The cost of the federal crop insurance program—including premium subsidies, company reimbursements, and underwriting losses—has averaged about \$1.4 billion annually since 1995 and is estimated to be \$1.6 billion for 1999. In 1998, specialty crops, such as grapes, oranges, almonds, and tomatoes, represented about 13 percent of the government's costs.

Many specialty crops, however, are not covered by federal crop insurance but are instead covered by the Noninsured Crop Disaster Assistance Program, which was created by the 1994 reform act. For an individual producer who suffers a loss, this assistance program provides protection only when an area—such as an entire county—suffers a loss. Thus, unlike federal crop insurance, this program is tied to an area's losses rather than to an individual producer's losses.

⁴For 1999, the government will subsidize an additional 15 to 21 cents per dollar of premium as a special, one-time allowance related to the emergency assistance provided for crop losses in the 1999 appropriations act.

The Agricultural Research, Extension, and Education Reform Act of 1998 temporarily raised the effective cost of catastrophic insurance from \$50 per policy to the higher of \$60 or \$10 plus 10 percent of the calculated premium. The higher fee was enacted as a budget offset to provide permanent funding to pay the commissions of agents selling federal crop insurance policies. However, the appropriations act for fiscal year 1999 replaced this provision, requiring that all purchasers of catastrophic insurance pay no more than \$60 per policy.

Although the Congress has made a number of changes to the crop insurance program to encourage participation, the program has had a relatively low level of participation in terms of acres planted and insured. As shown in table 2, only about 51 percent and 64 percent of specialty crop and nonspecialty crop acres, respectively, were insured in 1997, the latest year for which complete data were available. This level of participation represents a decline from 1995, particularly for nonspecialty crops. (For a more detailed discussion of participation, see app. II.)

Table 2: Participation in the Federal Crop Insurance Program, 1995-97

Type of coverage	Percent of planted acres					
	Specialty crops			Nonspecialty crops		
	1995	1997	Change	1995	1997	Change
Catastrophic	33.8	27.3	-6.5	42.6	22.1	-20.5
Buyup	24.7	24.0	-0.7	39.9	41.6	1.7
Total	58.5	51.2	-7.3	82.5	63.7	-18.8

Note: Totals may not add because of rounding.

Source: GAO's analysis of USDA's data.

USDA Has Expanded the Insurance Program for Specialty Crops Using a Multiyear Process

USDA insures 52 specialty crops⁵—14 of which have been added since 1994—and plans to begin testing coverage for another 9 specialty crops by 2001. While these 61 crops represent a majority of the value of all specialty crops, insurance coverage will still not be available for about 300 crops, such as taro and parsley. Programs for specialty crop insurance have not expanded more rapidly because USDA follows a deliberate multistep process to ensure that the programs it develops are actuarially sound. The process includes collecting and analyzing data, setting appropriate premiums, and testing and evaluating the program. This process can be lengthy, typically requiring about 5 years, because, among other things, the

⁵USDA also insures 23 nonspecialty crops, for a total of 75 insured crops.

data on production history needed to develop a specialty crop program are often not readily available. According to USDA, while the development process is necessary to ensure actuarial soundness, additional resources would allow it to evaluate more crops concurrently.

USDA Has Expanded the Insurance Program for Specialty Crops, but Many Crops Remain Unprotected

Between 1981 and 1994, USDA developed insurance programs for 38 specialty crops. Since the implementation of the 1994 reform act, which encouraged USDA to develop additional plans for specialty crops,⁶ the Department has developed 14 specialty crop programs, as shown in table 3.

Table 3: Specialty Crops Added to the Federal Crop Insurance Program Since the 1994 Reform Act

Year	Specialty crop
1995	Blueberries
1996	Avocado/mango trees (Florida)
	Florida fruit trees
1998	Avocados
	Pecans
	Sweet potatoes
1999	Cabbage
	Cherries
	Crambe
	Mustard
	Rangeland
	Watermelons
	Wild rice
	Winter squash

Note: Crops shown in table are pilot programs offered in limited areas.

Source: GAO's analysis of USDA's data.

Including the 14 additions, the total number of specialty crops currently covered by the federal crop insurance program is 52. USDA expects to offer insurance for many other specialty crops over the next several years. By 2001, USDA plans to add nine new specialty crops, including, for example, cucumbers, mint, and strawberries. These 61 crops represent about 85 percent of the market value of all specialty crops.

⁶However, if a private sector insurance program is generally available, USDA is prohibited from implementing a competing insurance program.

Along with adding new crops to the program, USDA expanded insurance coverage for specialty crops in other ways, including allowing producers to insure by crop variety and making the insurance of existing crops available in additional areas. For example, in 1995, USDA broadened crop insurance for grapes by offering catastrophic coverage for individual grape varieties, such as zinfandel, merlot, and cabernet sauvignon. According to USDA officials, participation—measured in terms of acres insured—increased in 1996 and 1997 after this change was instituted. In 1996, USDA expanded crop insurance for citrus trees from three counties in Texas, where it had been offered since 1983, to an additional five counties in Florida. Moreover, in 1999, USDA began pilot testing a new plan—known as adjusted gross revenue—in selected counties in Florida, Maine, Massachusetts, Michigan, and New Hampshire. This new insurance plan will provide a producer with a guaranteed level of income, which will be determined by the producer's reported farm income for the past 5 years. It will also provide coverage for all specialty and nonspecialty crops as well as some livestock.⁷

Despite this progress, many crops remain uninsured, and many covered crops are not insured in all the areas where they are grown. USDA does not offer insurance for about 300 commercially grown specialty crops, which represent about 15 percent of the economic value of specialty crops grown in the United States.⁸ Many of the crops for which insurance is not available are small crops, such as taro, guava, and parsley, that are grown in limited areas. In addition, although crop insurance may exist for a particular specialty crop, the coverage may not be available in all locations where the crop is grown. For example, crop insurance for grapes is available in selected counties in Arkansas, California, Michigan, Missouri, New York, Ohio, Oregon, Pennsylvania, and Washington but not in other growing areas—specifically, selected counties in Arizona, Georgia, North Carolina, and South Carolina. According to USDA, crop insurance for grapes is not available in these states because producers have shown limited interest.

Furthermore, USDA's authority to offer revenue insurance plans for specialty and nonspecialty crops is legislatively limited by the Federal Crop Insurance Act, as amended. The act only allows USDA to offer revenue insurance on a pilot basis through 2000. According to USDA, legislative

⁷In addition, USDA developed other new insurance plans for nonspecialty crops in recent years, including plans offering revenue coverage.

⁸Because of differences in categorization, these 300 crops represent approximately 900 crops and crop varieties covered by USDA's Noninsured Crop Disaster Assistance Program.

changes would be necessary to offer revenue insurance on a permanent basis.

USDA’s Process for Developing Specialty Crop Insurance

USDA’s process for developing specialty crop insurance for a particular crop is deliberate and often time-consuming, typically requiring about 5 years to complete. Specifically, collecting and analyzing data to determine whether a new insurance program is feasible can require 2 years or more, and pilot testing can add another 3 years. According to USDA, while the development process is necessarily thorough to ensure actuarial soundness, additional resources would allow it to evaluate more crops concurrently. Table 4 presents USDA’s multistep development process.

Table 4: Major Steps in USDA’s Process for Developing Specialty Crop Insurance

Step	Development process
1	Select new crop to insure
2	Assemble multidisciplinary program development team
3	Collect data necessary for program development
4	Analyze data to develop the specific provisions of the program
5	Test the program
6	Evaluate test results, make necessary modifications to program
7	Implement the program on a permanent basis or take other actions

Source: USDA.

In steps 1, 2, and 3—beginning the development process—USDA considers several criteria when selecting a new crop to insure, including legislative mandates, its own initiatives, and requests by producers and commodity groups. Appendix III discusses these criteria and their application to the 14 crops added to the program since 1995. Because data for specialty crops are often not readily available, the program development team collects data about the crop from various sources, including producer organizations and land grant universities. These data concern historical production, growing practices, and the risks associated with producing the crop. Appendix IV discusses the unique risk characteristics of specialty crops.

In step 4—specifying the provisions for the new program—the development team develops appropriate premium rates by developing a statistical model using the collected data or by applying premium rates from similar crops. In addition, the team analyzes the collected data to establish insured crop prices and determine loss adjustment standards. Appendix V describes in detail the insurance plans and the rating methods USDA uses to set premiums for specialty crops.

In steps 5, 6, and 7—the testing and evaluation phase—USDA introduces the new program on a pilot basis and uses the experience of this pilot to develop empirical data and refine program operations. USDA also ensures that adequate producer participation can be achieved. Adequate participation is generally considered key to achieving the program’s legislative objective of actuarial soundness. Without sufficient participation among producers, opportunities for diversification across various growing conditions and farming practices will be limited, and this limitation will jeopardize the actuarial soundness of the insurance program. For example, USDA developed a pilot revenue insurance policy for almonds in two California counties in 1998, but because premiums for the coverage would have been higher than premiums for already available yield insurance, almond producers indicated they would be unwilling to purchase the revenue coverage. Consequently, USDA did not initiate the program, citing concerns about the program’s actuarial soundness because of expected low participation.

New Marketing Strategies Offer Certain Advantages and Disadvantages

In recent years, new marketing strategies for crop insurance have been introduced that use endorsements by producer associations to sell insurance or that pass through administrative savings to producers. These strategies could increase producers’ participation and ultimately reduce the government’s administrative reimbursements to insurance companies, and one of these strategies could also reduce producers’ premiums. At the same time, however, according to USDA, these strategies have some potential disadvantages. For example, USDA is concerned that the strategies could prevent smaller insurance companies from competing if they cannot provide the economic incentives that larger companies provide. USDA is developing draft regulations to govern the use of the new marketing strategies.

New Strategies Have Potential to Increase Participation and Decrease Costs for Federal Crop Insurance

In recent years, insurance companies have used alternatives to the traditional structure of having independent agents market federal crop insurance to producers. The most common of these alternatives has an insurance company paying a fee to a producer association—such as a cooperative or processor—in exchange for the association’s endorsement and the right to use the association’s name and logo on direct mailings to the association’s members to market federal crop insurance. Since 1995, this new strategy, frequently referred to as an “endorsement agreement,” has principally occurred in California for specialty crops. According to USDA’s Risk Management Agency, three of the companies selling federal crop insurance engaged in an endorsement agreement with at least one producer association in 1998. These endorsements are used mostly for selling catastrophic insurance.

Endorsements can contribute to increasing participation in specialty crop insurance programs. For example, according to a large association of California wine grape producers that has an endorsement agreement with one of the insurance companies, participation among the association’s members increased from roughly 20 percent in 1994, prior to entering into the agreement, to about 40 percent in 1998. Similarly, according to a key California citrus cooperative that also has an endorsement agreement, crop insurance premiums for the cooperative’s members increased from about \$2.5 million in 1995 to \$4 million in 1998, or roughly 60 percent. Producer associations told us that endorsements have been successful because specialty crop producers generally rely on their associations for key information about production practices and risk management.

Endorsements may provide other advantages as well. They can lower insurance companies’ delivery costs by enabling the companies to reach their intended audience through targeted marketing to association members. Over the long term, therefore, USDA may be able to share in these savings by reducing the administrative reimbursements it pays to companies. Furthermore, according to USDA, endorsements may allow companies to penetrate market niches not currently reached by independent agents and to promote “one-stop shopping” because many associations and cooperatives provide multiple producer services.

Another new marketing strategy, authorized by the 1994 reform act for buyup insurance, could also increase participation. Under this strategy, an insurance company could reduce the premiums charged to a producer if the company can deliver the program for less than its administrative reimbursement from USDA. For example, if the expenses of selling and

servicing crop insurance policies are less than the administrative reimbursement, the administrative savings could be passed through to the producer in an effort to increase the company's share of crop insurance sales. Ultimately, increased sales by a number of companies could raise participation in the crop insurance program and reduce the administrative fees the government pays insurance companies. As of February 1999, USDA had received four proposals to implement this new strategy.

New Strategies May Pose Risks to the Crop Insurance Program

Although new marketing strategies may provide certain benefits to the crop insurance program, they may also undermine the program in several ways. First, USDA is concerned that the strategies could harm smaller insurance companies. For example, the strategies could prevent these smaller companies from competing if they cannot provide the economic incentives to producer associations that larger companies provide.

Second, with the use of endorsements, USDA has a concern about rebating. Rebating is the offering of any benefit or valuable consideration as an inducement to purchase insurance. Rebating can occur when insurance companies pay producer organizations large endorsement fees to market crop insurance. These organizations could use the fees to provide benefits or services to those producers purchasing the insurance, such as lowering these members' dues or providing services that are not available to those producers who did not purchase crop insurance. For example, in 1995, one cooperative with an endorsement agreement paid for catastrophic insurance for those members who agreed to sign up for the insurance. According to USDA, the cooperative was funding the cost of the catastrophic insurance from the endorsement fee it received from the insurance company. USDA considered this action to be a form of rebating—a direct inducement to producers to buy the coverage. Consequently, starting in 1996, USDA implemented restrictions against using endorsement fees to pay for catastrophic insurance for producers.

Third, according to USDA, these strategies could reduce a company's ability to diversify its risk over a large geographic area if marketing becomes highly concentrated.

Finally, USDA believes that new marketing strategies may jeopardize its use of producer associations to independently verify data for rating, coverage, and claim calculations. This could occur because associations would be involved in selling crop insurance to their members while at the same time maintaining the production records USDA uses to settle claims.

To address these potential problems, USDA is developing new regulations to govern the use of alternative marketing strategies. The draft regulations require that insurance companies selling federal crop insurance submit all marketing agreements and endorsements to USDA for approval prior to implementing them. This step is designed to ensure that these agreements and endorsements are in compliance with regulations and that the program is safeguarded. In addition, in 1999, USDA's Risk Management Agency expects to initiate a review of new marketing strategies that will evaluate potential advantages and disadvantages in further detail.

Higher Insurance Fees for Catastrophic Insurance Would Reduce Producer Participation, but the Magnitude of the Reduction Is Unclear

Under the now-rescinded provision of the Agricultural Research, Extension, and Education Reform Act of 1998 (P.L. 105-185, June 23, 1998),⁹ the processing fee for catastrophic insurance for many specialty crop producers would have been significantly higher than \$50—as much as \$3,821—and participation would have declined. While we were unable to estimate the magnitude of the decline, available studies for crop insurance show that, in general, for each 10-percent increase in insurance costs to producers, there is a 2- to 9-percent decrease in participation.¹⁰

Payments for Specialty Crop Catastrophic Insurance Would Have Been Significantly Higher

According to our analysis of 1997 sales for catastrophic crop insurance, the average fee of all specialty crop policies would have increased from \$50 to \$189 had the 1998 provision gone into effect. Table 5 shows the average fees that would have resulted from proposed fee increases and the percentage of policies affected in different premium ranges. The average fees shown reflect the amount producers would have paid if the processing fees had been increased to the greater of \$60 or 10 percent of the calculated premium plus \$10. For 15 percent of the policies, the average fee would have risen from \$50 to \$487, and for the top 2 percent of the policies, the average fee would have risen from \$50 to \$3,821.

⁹The fee increase enacted under the 1998 agricultural research act changed the effective cost of catastrophic insurance from a fee of \$50 per policy to the higher of \$60 or \$10 plus 10 percent of the calculated premium. The Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999 (P.L. 105-277, Oct. 21, 1998) subsequently set the fee at \$60 per policy.

¹⁰The one available study on specialty crops suggests that declines in participation for specialty crops may be greater. This study, however, was based on a survey that had a low response rate. The low response rate limited the validity of the results, and therefore we did not include them in our range.

Table 5: Potential Fees for Catastrophic Crop Insurance If Higher Processing Fee Had Been Implemented

Dollars per policy

Premium range ^a	Specialty crops			Nonspecialty crops		
	Average premium	Average fee ^b	Percent of policies	Average premium	Average fee ^b	Percent of policies
\$500 or less	\$205	\$60	53	\$143	\$60	82
501 to 1,000	717	82	17	698	80	10
1,001 to 2,000	1,410	151	13	1,379	148	5
2,001 to 15,000	4,769	487	15	3,986	409	3
15,000+	38,113	3,821	2	26,997	2,710	0 ^c
Average/total	\$1,789	\$189	100	\$398	\$60	100

^aUSDA calculates and tracks premiums related to each catastrophic insurance policy to establish administrative reimbursements and any underwriting profits or losses owed the insurance company that sells the policy. Premiums are based upon factors that include the value of the crop insured and the crop's risks of production.

^bAverage fee equals the greater of \$60 or 10 percent of the average premium plus \$10.

^cRounds to less than 1 percent.

Source: GAO's analysis of USDA's data.

As the table shows, if the higher fee schedule had been implemented, the average fee would have been greater for specialty crop producers than for nonspecialty crop producers. This is because specialty crops have a higher value than nonspecialty crops—a key determinant in calculating premiums—making insurance for specialty crops generally more costly per acre. For example, the average value of six major nonspecialty crops ranges from about \$120 to \$720 per acre. In comparison, the value of a single specialty crop can be as high as about \$8,800 per acre.

Available Studies Indicate Participation Declines as Producers' Costs Increase

According to available studies on nonspecialty crops and experts we spoke with, fee increases would lead to lower participation. However, the magnitude of the effect on participation is unclear. The studies indicate that a 10-percent increase in cost to the producer would result in a 2- to 9-percent decrease in participation. In addition, if the cost increase were larger, the decline in participation would be correspondingly larger.

The data from these studies deal with specific crops, regions, and time periods. Furthermore, these studies generally looked at nonspecialty crops, such as corn and wheat, as well as at buyup crop insurance prior to the introduction of catastrophic insurance, and are therefore most

relevant to buyup insurance. For these reasons, it is not possible to project directly from these studies to determine how much lower participation in specialty crop insurance would be as a result of an increase in fees.

While premiums can affect producers' participation, other factors, such as the availability of federal payments for crop losses, can influence a producer's decision to purchase crop insurance. If producers believe that disaster relief will be forthcoming when growing or market conditions are poor, they could view federal payments for crop losses as a free substitute for crop insurance. Under these conditions, federal payments could have the unintended effect of reducing participation.

Agency Comments

We provided USDA with a draft of this report for review and comment. USDA made a number of technical comments and suggestions, which we incorporated, as appropriate. USDA's comments and our responses are presented in detail in appendix VI.

Scope and Methodology

To determine the progress USDA has made in expanding federal insurance coverage for specialty crops, we reviewed agency documentation and discussed with USDA officials their efforts to expand the number of locations for existing specialty crop programs and to develop new programs. We described the methods used to develop premiums for specialty crop insurance programs by summarizing the basic specialty crop plans and rating methods used by USDA. We also interviewed selected agency officials and academicians familiar with the specialty crop insurance area.

To review the new marketing practices insurance companies have introduced for specialty crops and to identify potential advantages and disadvantages of the practices, including their effect on producers' participation, we reviewed pertinent documents from USDA and producer associations. Our analysis included discussions with USDA as well as with selected producer associations and insurance companies in key specialty crop states, including California and Florida.

To examine the potential effect of increased insurance costs on specialty crop producers' participation in the crop insurance program, we analyzed USDA's crop insurance databases to determine what the impact would have been for different policy sizes if the increases had been applied to catastrophic insurance in 1997. We also reviewed studies performed by

economists and academic experts on producers' responses to changes in the price for crop insurance.

We conducted our review from June 1998 through March 1999 in accordance with generally accepted government auditing standards. Although we did not independently assess the accuracy and reliability of USDA's computerized databases, we used the same files USDA uses to manage the crop insurance program, which are the only data available.

We are sending copies of this report to Senator Richard Lugar, Chairman, and Senator Tom Harkin, Ranking Minority Member, Senate Committee on Agriculture, Nutrition, and Forestry; Representative Larry Combest, Chairman, and Representative Charles Stenholm, Ranking Minority Member, House Committee on Agriculture. We are also sending copies of this report to: The Honorable Dan Glickman, Secretary of Agriculture; The Honorable Kenneth Ackerman, Administrator of the Risk Management Agency; and The Honorable Jacob Lew, Director of the Office of Management and Budget. Copies will also be made available to others upon request. If you or your staff have any questions about the report, please contact me on (202) 512-5138. Major contributors to this report are listed in appendix VII.

Sincerely yours,



Lawrence J. Dyckman
Director, Food and
Agriculture Issues

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Abbreviations

USDA U.S. Department of Agriculture

Crop Insurance Experience, 1998

The tables in this appendix show information on crop insurance for 1998 and the loss ratio experienced by each crop since 1981.¹ Table I.1 shows these data for specialty crops, while table I.2 shows these data for nonspecialty crops.

Table I.1: Crop Insurance Experience for Specialty Crops

Acres insured and dollars in thousands

Crop	1998						First year insurance offered since 1981	Loss ratio since insurance offered through 1998
	Policies in force	Acres insured	Total premiums	Government premium subsidy	Claims payments	Loss ratio ^e		
Almonds	2,840	268	\$24,927	\$11,547	\$20,154	0.81	1981	1.02
Apples	3,177	237	14,283	10,213	7,610	0.53	1981	1.23
Avocado/ mango trees (Florida)	269	^d	104	84	0	0.00	1996	0.01
Avocados	286	8	2,103	2,040	3	0.00	1998	0.00
Blueberries	238	21	797	737	168	0.21	1995	0.31
Canning beans	536	62	940	596	369	0.39	1988	0.79
Citrus trees	1,194	^d	4,566	2,130	0	0.00	1983	0.68
Citrus ^a	10,975	816	18,684	15,317	1,489	0.08	1981	0.50
Cranberries	517	25	4,694	2,216	1,367	0.29	1984	0.98
Dry beans	10,186	1,452	26,291	12,873	15,981	0.61	1981	1.18
Dry peas	1,496	195	1,046	590	959	0.92	1981	0.90
Figs	57	8	334	185	79	0.24	1988	0.47
Florida fruit trees	1,406	^d	3,031	2,814	0	0.00	1996	0.00
Grapes (table)	443	88	4,909	4,574	700	0.14	1984	0.54
Grapes (wine)	5,006	469	23,039	18,427	4,566	0.20	1981	0.61
Green peas	2,367	148	2,072	979	1,936	0.93	1981	0.97
Macadamia nuts	^c	^c	^c	^c	^c	^c	1988	0.07 ^f
Macadamia trees	33	^d	724	386	0	0.00	1988	0.00
Nursery	1,574	^d	18,477	15,179	3,587	0.19	1986	0.90
Onions	570	62	5,231	4,020	2,287	0.44	1988	0.95
Peaches	865	41	2,855	1,750	3,635	1.27	1981	2.37
Pears	751	36	1,264	1,005	116	0.09	1989	0.18

(continued)

¹We chose 1981 because the Federal Crop Insurance Act of 1980 significantly expanded the crop insurance program and, for the first time, enlisted private insurance companies to sell and service federal crop insurance policies. The U.S. Department of Agriculture (USDA) implemented the provisions of this act in 1981.

**Appendix I
Crop Insurance Experience, 1998**

Acres insured and dollars in thousands

Crop	1998						First year insurance offered since 1981	Loss ratio since insurance offered through 1998
	Policies in force	Acres insured	Total premiums	Government premium subsidy	Claims payments	Loss ratio ^e		
Pecans	144	36	1,372	1,000	277	0.20	1998	0.20
Peppers (fresh)	39	8	2,930	1,252	2,754	0.94	1984	1.29
Plums	685	23	1,146	773	768	0.67	1990	1.44
Popcorn	1,403	194	3,046	1,296	4,342	1.43	1984	1.43
Potatoes	2,454	790	37,603	21,109	22,973	0.61	1981	1.43
Prunes	764	59	4,353	2,073	10,970	2.52	1986	1.24
Raisins	2,284	^d	12,261	5,186	255	0.02	1981	0.69
Stonefruit ^b	1,686	68	4,392	2,992	2,225	0.51	1988	0.82
Sweet corn (fresh)	134	41	1,138	667	223	0.20	1985	0.76
Sweet corn (processing)	2,580	218	2,022	979	747	0.37	1981	0.88
Sweet potatoes	182	20	688	514	1,173	1.71	1998	1.71
Tomatoes (fresh)	327	56	7,603	4,603	3,298	0.43	1984	1.02
Tomatoes (processing)	796	223	6,994	4,491	2,018	0.29	1981	0.58
Walnuts	761	61	1,501	1,219	337	0.22	1984	0.68
Total	59,025	5,731	\$247,421	\$155,815	\$117,366	0.47		0.99

Note: Data for the seven types of citrus fruit as well as the three types of stonefruit are combined.

^aCitrus includes grapefruit, lemons, mandarins, murcotts, oranges, tangelos, and tangerines.

^bStonefruit includes apricots, nectarines, and peaches grown in California.

^cThe U.S. Department of Agriculture (USDA) did not report 1998 data for macadamia nuts because the policy was extended in order to accommodate modifications made during 1998. The revised policy is in place for 1999.

^dNursery, tree, and raisin crops use a measurement other than acres.

^eLoss ratio is calculated by dividing claims payments by total premiums.

^fLoss ratio is calculated using macadamia nut data for 1988 through 1997.

Source: GAO's analysis of USDA's data.

**Appendix I
Crop Insurance Experience, 1998**

Table I.2: Crop Insurance Experience for Nonspecialty Crops

Acres insured and dollars in thousands

Crop	1998						First year insurance offered since 1981	Loss ratio since insurance offered through 1998
	Policies in force	Acres insured	Total premiums	Government premium subsidy	Claims payments	Loss ratio ^a		
Barley	25,661	3,969	\$19,905	\$9,718	\$15,566	0.78	1981	1.41
Canola	4,524	781	6,565	3,138	3,709	0.56	1995	1.26
Corn	359,875	51,074	534,607	233,039	292,505	0.55	1981	0.83
Cotton	57,352	11,577	253,906	150,299	334,866	1.32	1981	1.25
Extra long staple cotton	842	280	8,037	4,334	18,380	2.29	1984	1.61
Flaxseed	2,069	212	959	493	390	0.41	1981	1.23
Forage production	9,341	1,117	5,855	4,347	2,378	0.41	1981	0.91
Forage seeding	2,286	88	699	435	100	0.14	1981	1.15
Grain sorghum	65,451	6,778	51,008	25,184	85,303	1.67	1981	1.32
Hybrid corn seed	4,155	403	12,130	5,155	2,758	0.23	1983	0.96
Millet	403	51	237	114	168	0.71	1996	0.60
Oats	15,979	940	4,220	2,435	2,571	0.61	1981	1.44
Peanuts	13,121	1,272	38,175	17,362	36,307	0.95	1981	1.71
Rice	9,325	2,019	16,330	11,674	10,868	0.67	1981	1.51
Rye	325	35	127	68	70	0.55	1981	0.88
Safflower	603	111	732	427	357	0.49	1987	3.93
Soybeans	320,925	45,506	313,988	149,838	139,976	0.45	1981	1.01
Sugarbeets	7,263	1,116	23,169	10,518	16,878	0.73	1981	0.93
Sugarcane	968	743	6,841	5,719	1,345	0.20	1981	0.88
Sunflowers	15,344	2,685	18,643	9,181	12,868	0.69	1981	1.37
Hybrid sorghum seed	461	38	1,154	953	89	0.08	1988	1.05
Tobacco	38,245	459	46,209	19,428	90,498	1.96	1981	1.54
Wheat	227,300	44,237	264,747	126,264	146,926	0.55	1981	1.30
Total	1,181,818	175,490	\$1,628,243	\$790,123	\$1,214,875	0.75		1.12

^aLoss ratio is calculated by dividing claims payments by total premiums.

Source: GAO's analysis of USDA's data.

Participation in Specialty Crop Insurance Programs

The tables in this appendix show the percentage of participation, in terms of acres planted and insured, for selected specialty crops for 1997, the latest year complete data were available. Table II.1 shows nationwide participation by specialty crop category; table II.2 shows nationwide participation for a cross-section of specialty crops and the major nonspecialty crops; and table II.3 shows the major specialty crop states and selected specialty crops they produce.

Table II.1: Nationwide Participation for Specialty Crops by Category, 1997

Specialty crop categories	Planted acres	Insured acres	Percent of planted acres		
			Catastrophic coverage	Buyup coverage	Overall
Noncitrus fruits	1,712	979	43.9	13.3	57.2
Vegetables	5,640	2,918	20.5	31.2	51.7
Nuts	606	323	27.3	26.0	53.3
Citrus fruits	1,152	448	35.7	3.2	38.9
Total	9,110	4,668	27.3	24.0	51.2

Note: This table excludes fruit trees, macadamia nut trees, raisins, and nursery crops because these crops use a measurement other than acres.

Source: GAO's analysis of USDA's data.

**Appendix II
Participation in Specialty Crop Insurance
Programs**

Table II.2: Nationwide Participation for Specialty and Nonspecialty Crops, 1997

Acres in thousands					
Selected crops	Planted acres	Insured acres	Percent of planted acres		
			Catastrophic coverage	Buyup coverage	Total participation
Specialty crops					
Almonds	410	259	27.0	36.2	63.2
Cranberries	35	24	39.7	30.5	70.2
Pears	69	33	45.0	1.9	47.0
Peppers (fresh)	68	8	3.9	7.7	11.6
Tomatoes (fresh and processed)	423	225	27.4	25.9	53.2
Walnuts	177	51	25.0	4.0	29.0
Other specialty crops	7,928	4,068	27.3	24.0	51.3
Total	9,110	4,668	27.3	24.0	51.2
Nonspecialty crops					
Corn	80,227	49,396	19.9	41.7	61.6
Cotton	13,808	11,662	37.6	46.8	84.5
Grain sorghum	10,108	6,282	20.3	41.9	62.1
Peanuts	1,431	1,180	23.3	59.1	82.5
Soybeans	70,850	43,566	24.0	37.5	61.5
Wheat	74,605	50,669	21.0	46.9	67.9
Other nonspecialty crops	23,827	12,299	19.3	32.3	51.6
Total	274,856	175,054	22.1	41.6	63.7

Source: GAO's analysis of USDA's data.

**Appendix II
Participation in Specialty Crop Insurance
Programs**

**Table II.3: Crop Insurance Participation
for Major Specialty Crop States and
Selected Specialty Crops Produced,
1997**

State	Crop	Planted acres	Insured acres	Percent participation
Arizona				
	Apples	4,000	3,198	80.0
	Grapefruit	4,700	146	3.1
	Lemons	13,900	345	2.5
	Oranges	9,200	293	3.2
	Potatoes	6,200	4,505	72.7
	Table grapes	4,200	2,090	49.8
California				
	Almonds	410,000	259,068	63.2
	Apples	38,500	13,159	34.2
	Apricots (fresh and processed)	19,100	10,336	54.1
	Dry beans	135,000	42,706	31.6
	Figs	16,000	7,777	48.6
	Grapefruit	18,600	531	2.9
	Lemons	47,400	408	0.9
	Nectarines (fresh)	37,100	20,187	54.4
	Oranges	200,000	8,121	4.1
	Peaches (fresh and processed)	66,200	35,178	53.1
	Pears	22,800	10,774	47.3
	Plums (fresh)	42,000	24,549	58.5
	Potatoes	43,700	14,768	34.3
	Prunes	79,500	56,022	70.5
	Tomatoes (processing)	270,000	168,519	62.4
	Tomatoes (fresh)	40,800	17,062	41.8
	Walnuts	177,200	51,439	29.0
Florida				
	Peppers (fresh)	19,200	7,587	39.5
	Citrus	815,100	437,648	53.7
	Potatoes	43,500	31,487	72.4
	Sweet corn (fresh)	43,300	27,172	62.8
	Tomatoes (fresh)	38,300	21,984	57.4
Georgia				
	Apples	2,300	703	30.6

(continued)

**Appendix II
Participation in Specialty Crop Insurance
Programs**

State	Crop	Planted acres	Insured acres	Percent participation
	Peaches	20,000	12,531	62.7
	Sweet corn (fresh)	20,000	5,149	25.7
	Tomatoes (fresh)	5,500	740	13.5
Michigan				
	Apples	55,000	26,998	49.1
	Blueberries	17,000	7,817	46.0
	Dry beans	315,000	181,326	57.6
	Onions	6,200	1,623	26.2
	Peaches	5,500	1,875	34.1
	Potatoes	48,000	28,685	59.8
	Tomatoes (processing)	3,800	2,024	53.3
	Wine grapes	12,100	7,448	61.6
New York				
	Apples	51,000	23,536	46.1
	Dry beans	40,000	13,283	33.2
	Green peas	18,900	6,191	32.8
	Onions	12,500	8,664	69.3
	Peaches	1,600	169	10.6
	Potatoes	28,500	8,157	28.6
	Sweet corn (processing)	40,400	18,289	45.3
	Wine grapes	31,500	14,058	44.6
Oregon				
	Apples	8,700	3,136	36.0
	Cranberries	2,000	579	29.0
	Dry beans	11,000	2,056	18.7
	Green peas	28,100	19,419	69.1
	Onions	19,800	8,631	43.6
	Pears	17,300	11,729	67.8
	Sweet corn (processing)	41,500	1,427	3.4
	Wine grapes	6,300	1,124	17.8
Texas				
	Dry beans	15,000	3,790	25.3
	Grapefruit	20,400	0	0.0
	Oranges	8,700	0	0.0
	Peaches	12,000	2,618	21.8

(continued)

**Appendix II
Participation in Specialty Crop Insurance
Programs**

State	Crop	Planted acres	Insured acres	Percent participation
Washington				
	Apples	155,000	97,483	62.9
	Cranberries	1,500	993	66.2
	Dry beans	38,000	11,178	29.4
	Green peas	54,400	24,752	45.5
	Onions	14,700	9,185	62.5
	Pears	24,400	9,992	41.0
	Potatoes	152,000	73,594	48.4
	Sweet corn	89,600	34,320	38.3
	Wine grapes	37,000	23,774	64.3
Wisconsin				
	Apples	6,500	286	4.4
	Cranberries	13,100	9,674	73.8
	Dry beans	8,800	3,988	45.3
	Green peas	62,500	16,108	25.8
	Potatoes	84,000	21,258	25.3
	Sweet corn (processing)	115,800	31,413	27.1

Source: GAO's analysis of USDA's data.

Factors USDA Considers When Selecting Crops to Review for Insurance

The U.S. Department of Agriculture (USDA) considers several criteria when selecting crops to review for insurance, with requests for insurance for specific crops being a major factor. These requests may come from producers; producer associations; reinsured companies; individual Members of Congress; USDA's regional service offices; or other USDA agencies, such as the Farm Service Agency.

According to USDA, several factors are considered in setting priorities for these requests. First, USDA gives priority consideration to developing new crop insurance programs for crops that, for the most recent year, meet at least one of four criteria for economic significance: (1) within the agricultural statistics district that is to be covered, the value of the crop exceeds \$3 million;¹ (2) within the state that is covered, the value of the crop exceeds \$9 million; (3) within the area served by the USDA regional service office responsible for administering the insurance program for that crop, the value of the crop exceeds \$15 million; or (4) at the national level, the value of the crop exceeds \$30 million.

Second, USDA considers producer interest, as measured in a number of ways. Specifically, high levels of payments for disaster assistance and the Noninsured Crop Disaster Assistance Program for a crop may signal a potentially high interest among producers of that crop for an insurance program. In addition, USDA relies on the recommendations resulting from the detailed feasibility studies of each crop performed by its Economic Research Service and on recommendations from its regional service offices regarding producer and private company interest.

Because USDA considers a number of factors in addition to interest when selecting a crop to review, it may not ultimately develop an insurance program for each of the crops on the list. For example, adequate producer participation is required for a crop insurance program to be actuarially sound. Before implementing a new insurance program, USDA requires documentation showing that a minimum of 10 percent of the crop's producers would be expected to participate in the insurance program. However, some new programs, once analyzed and properly rated to account for the risks involved, may be too expensive to obtain adequate producer participation. In such cases, USDA may suspend development activity. Furthermore, if a private sector insurance program is generally available, the Federal Crop Insurance Act of 1980 (P.L. 96-365, Sept. 26,

¹An agricultural statistics district is a contiguous group of counties with similar production practices within a state for which USDA's National Agricultural Statistics Service collects and reports various crop information.

Appendix III
Factors USDA Considers When Selecting
Crops to Review for Insurance

1980) as amended, prohibits USDA from implementing a competing insurance program.

In addition, sufficient data must be available to develop an insurance program, including production history, pricing information, an analysis of perils, an analysis of marketing channels, and other pertinent information. Generally, USDA obtains this information from producers, but it often obtains information from other sources, including producer associations and land grant universities. If this information is not available or cannot be created, the development of an actuarially sound insurance program may not be feasible.

Once crops are selected, the order in which new programs are ready for initial pilot testing can change because of the varying lengths of development cycles. For example, the development of an insurance program for aquaculture—a large and diverse national program for the commercial production of fish—began in 1994, and the development of an insurance program for wild rice began in early 1998. However, because of the complexity of developing the aquaculture program, it will not be ready for implementation until 2000, while the wild rice program, a relatively simple program, was approved for pilot testing for 1999.

The eight new crop insurance programs USDA is offering in 1999 meet various priority selection criteria. For example, three of the programs—cabbage, cherries, and watermelons—each exceed \$30 million in total U.S. economic value. Two other crop programs—crambe and mustard—are being offered because the crops can be included in a crop rotation cycle with wheat to lessen the impact of the scab disease occurring in North Dakota and surrounding areas. The remaining three crop programs meet other criteria, including legislative mandates and readily available data. In addition, many of the crops scheduled for pilot testing in 2000 or later years have a U.S. economic value exceeding \$30 million, such as aquaculture, cucumbers, and strawberries. Table III.1 shows the 31 crops USDA is considering for pilot testing as of March 1999.

**Appendix III
Factors USDA Considers When Selecting
Crops to Review for Insurance**

Table III.1: Crops Scheduled for Pilot Testing, by Year

Year pilot program estimated to begin			
		2002 and beyond	
2000^a	2001		
Aquaculture	Blackberries	Artichokes	Floriculture
Beans (fresh)	Raspberries	Asparagus	Garlic
Buckwheat		Bananas	Hazelnuts
Chile peppers		Beets (red)	Hops
Cucumbers		Broccoli	Lettuce
Mint		Carrots	Mushrooms
Strawberries		Cauliflower	Olives
		Celery	Pineapple
		Coffee	Sesame seed
		Dates	Spinach
		Eggplant	Timber

^aIn 2000, pumpkins will be added on a pilot basis to the already available winter squash crop insurance program and therefore, are not included in this list.

Source: GAO's analysis of USDA's data.

Furthermore, USDA has received requests for 10 additional crops for which development has not yet begun. These 10 crops are amaranth, chicory, kenaf, lupins, onion seed, ramie, bahia, spelt, turnip roots, and various herbs.

Characteristics of Specialty Crops Affect Insurance Risk

While the diverse nature of specialty crops makes describing their insurance risks difficult, they often tend to have several key characteristics in common that differentiate them from the insurance risks presented by nonspecialty crops. These key characteristics are (1) greater market price risk, (2) unique production risks, (3) a strong relationship between crop prices and farm-level yields, and (4) the manner in which risk has traditionally been managed. These characteristics often derive from the high perishability of many specialty crops.

Specialty Crops Often Experience Greater Market Price Risk Than Nonspecialty Crops

For many specialty crops, market price risk is a more important factor than production risk, which is not the case for most nonspecialty crops. Unlike nonspecialty crops, specialty crops are generally highly perishable, often do not store well, and frequently experience greater price volatility. Because of specialty crops' perishability, it is difficult for producers to adjust to short-run shifts in supply and demand other than by raising or lowering the price. Consequently, many specialty crops, such as fresh market fruits and vegetables, experience a greater degree of price volatility than nonspecialty crops during the growing season. Conversely, because producers can store nonspecialty crops, they can often sell their crop at the most opportune time. Furthermore, unlike most nonspecialty crops, most specialty crops are not traded on commodity exchanges, which precludes producers from using these markets to hedge price risk.

Production Risks for Many Specialty Crops Differ From Those of Nonspecialty Crops

While many specialty crops experience greater market price risk because they are more perishable than nonspecialty crops, other specialty crops have fewer production risks, decreasing the need for federal crop insurance. For instance, because many specialty crops are irrigated, they are not subject to drought, which is one of the most significant perils for nonspecialty crops. Certain crops, such as strawberries and tomatoes, can produce fruit for several weeks, reducing the risk that the producer may not be able to harvest because of excess moisture or other perils. Similarly, vegetable producers often tend to grow more than one kind of vegetable during the year or have multiple plantings of the same crop during the growing season. Furthermore, many specialty crops are perennials, such as tree and vine crops, which produce fruit or nuts year after year without replanting. Because a loss normally affects only the fruit or nuts and not the tree or vine, the producer need only to insure for the value of the crop, not the value of the trees or vines.

In terms of production costs, specialty crops have total production costs per acre that are higher than those for nonspecialty crops. Therefore, for specialty crops that have high production costs as well as high harvest costs, such as strawberries, insurance liability can be limited by insuring only those costs that are preharvest. As a result, if a loss occurs prior to harvest for a specialty crop, the producer has not yet incurred much of the production costs, reducing the need to be insured for the total value of the crop.

Relationship Between Price and Yield Is Stronger for Some Specialty Crops Than for Nonspecialty Crops

As we discussed in 1998,¹ the relationship between crop prices and farm-level yields is an important component of risk assessment because an increase in price caused by a decline in aggregate crop yields can compensate for the effects of decreased production. This tends to be the case when production areas are geographically concentrated. Although negative price-yield relationships are observed for both specialty and nonspecialty crops, for some specialty crops this negative price-yield relationship is much stronger. For example, for some specialty crops, 80 percent of production may be grown in one county in the United States. Therefore, if production in this county decreases, prices can rise dramatically and total revenues at the farm level may stay the same or even increase. That is, while the producer may face greater price variability for growing certain specialty crops, the producer may also experience a positive revenue effect because of the higher price-yield relationship. At the same time, other specialty crops, such as apples, do not have this strong negative relationship between prices and yields. For instance, for apples, because of the diversity in the location of production, a shortage in one part of the country can be replaced by greater production in another part, mitigating the strength of the price-yield relationship for this crop.

Specialty Crop Producers Manage Risk Through Various Types of Vertical Arrangements

The need for federal crop insurance for specialty crops is reduced because of another characteristic prevalent in their markets—the use of vertical arrangements such as “producer-processor” contracting to manage both price and production risk. In general, vertical arrangements are the result of market incentives, including risk reduction and the avoidance of processors’ market power,² that encourage producers to integrate their operations to include the processing and marketing of their own

¹Crop Revenue Insurance: Problems With New Plans Need to Be Addressed (GAO/RCED-98-111, Apr. 29, 1998).

²Market power in this case relates to the ability of large buyers or processors to influence the price that they pay to producers for specialty crops.

Appendix IV
Characteristics of Specialty Crops Affect
Insurance Risk

production. These “producer-processor” relationships can include producers owning marketing and shipping facilities, but they mainly consist of various types of contractual arrangements. For instance, the processing industry for tomatoes in California transacts nearly its entire production through producer-processor contracts. This arrangement reduces risk to the producer and the processor by predetermining a specific price, for a certain variety of tomato, at a specific delivery date. Such coordination of production and marketing is especially advantageous in terms of managing the flow of product in periods of oversupply and low prices, which are common in these industries. Moreover, because many specialty crop producers may not be able to integrate unilaterally, many integrate collectively by forming marketing cooperatives that are active in such functions as storage and processing. Examples of such marketing cooperatives include Sunkist (citrus), Sunsweet (prunes), Calavo (avocados), Sunmaid (raisins), Blue Diamond (almonds), and Diamond Walnut. In California, these marketing cooperatives control half or more of the market volume of these crops.

Major Specialty Crop Insurance Plans and Methods Used to Calculate Premiums

Although many variations exist, the three major categories of specialty crop insurance are (1) yield (production), (2) revenue insurance, and (3) percent-of-damage. In addition, USDA is piloting a new type of plan in 1999 known as the adjusted gross revenue plan. USDA also uses three types of rating methods to calculate premiums for specialty crops. The methods are comparative rating, statistical modeling, and experience rating. For each of these plans, as well as the rating methods, USDA has to customize the insurance for a given crop. For example, a yield plan for one specialty crop would have a different premium structure than the plan for another crop. This is generally not the case for nonspecialty crops covered by federal crop insurance.

Several Types of Crop Insurance Plans Are Available

This section discusses the types of crop insurance plans currently offered or being piloted by USDA. The plans are yield, revenue, and percent-of-damage.

Yield Insurance Is the Predominant Type of Plan

For specialty crops, USDA offers three types of yield plans—the actual production history, grower yield certification, and dollar plans. Together, these plans account for a majority of all specialty crop insurance offered by USDA. These three plans guarantee payments on the basis of lost yield.

The actual production history plan is the most widely used insurance for specialty crops. Generally, premiums under this plan are calculated similarly for both specialty and nonspecialty crops. The plan guarantees payments that are based on a percentage of the individual producer's historical yield multiplied by a percentage of a preestablished market price. As with actual production history plans for nonspecialty crops, the specialty crop producer's premium is generally calculated on the basis of one of nine categories for yield amounts (known as yield spans). The premium rate charged to the producer is based on the yield span in which the producer's actual production history yield falls and the chosen coverage level—the percent of production that is to be protected.

Like the actual production history plan, the grower yield certification plan—sometimes classified as a subset of the actual production history plan—is based on a certain yield per acre. However, in a grower yield certification plan, USDA has set up mapping areas—counties or larger areas—in which the yield guarantee is based on the average historic yield in the producer's geographic area, instead of a producer's individual average historic yield. Therefore, all insured producers in a county or

designated mapping area receive the same premium rate. Unlike an actual production history plan, a grower yield certification plan has no yield spans for determining premium rates. Under this plan, a claim is paid if a producer's yield falls short of the expected yield times the selected coverage level. For some crops, however, USDA found that there is enough variability in yields to establish a limited number of yield spans under this plan. In addition, these crops are being converted from grower yield certification plans to actual production history plans, as appropriate.

The dollar plan insures certain specialty crops that have fairly consistent costs of production for expenses that are incurred prior to harvest. Therefore, in the event of a crop failure, all producers in a county that participate in this program would be compensated for these preharvest expenses. For each type of crop in a county, the insured guarantee is a fixed dollar amount per acre, reflecting the USDA-calculated preharvest costs of production. USDA bases this fixed dollar amount on the cost of production, expected market prices, and yield information, and often obtains these data from university extension programs. Producers can insure their crop for between 50 and 75 percent of this fixed dollar amount. Because the price of some specialty crops fluctuates considerably, crop revenues are also taken into account to prevent insuring for more than the expected crop return.

When insurance claims are settled under the dollar plan, the fixed-dollar guarantee is compared with the dollar value of production, that is, the crop yield times the higher of a USDA price or a market price. If the dollar value of production is less than the fixed-dollar guarantee, the producer receives an insurance payment. In order to receive a payment under this plan, however, the producer must have had a crop loss. When claims are paid for losses, they are adjusted to reflect reduced protection if the crops are destroyed at a stage earlier than harvest. Examples of crops covered under the dollar plan are fresh market tomatoes, peppers and sweet corn.

While most specialty crops are insured under one of these three plans, certain crops can be insured under more than one, depending upon such factors as the availability of data in the area and the perceived risks by local USDA representatives.

**Revenue Insurance Plans
Protect Against Losses in
Revenue That Are Due to
Low Yields or Low Prices**

Unlike traditional yield coverage, the revenue insurance plan protects producers from declines in revenue caused by low prices, low yields, or both. In a revenue insurance plan, the guarantee is a producer-chosen percentage (coverage level) of the expected revenue for that particular crop in the market. To establish the preseason revenue guarantee, USDA collects information on the producer's individual production history and the county average price for the specialty crop.

While the revenue insurance plans for nonspecialty crops are more applicable to a broader range of crops, the plans for specialty crops have to be customized for the unique characteristics of each crop. For example, USDA has developed pilot revenue insurance plans of limited scope and duration for avocados and pecans.

In 1999, USDA began pilot testing a new type of revenue insurance policy, called adjusted gross revenue, in selected counties in Florida, Maine, Massachusetts, Michigan, and New Hampshire. This new insurance plan will provide a producer with a guaranteed level of income as determined by the producer's reported farm income for the past 5 years. It will also provide coverage for both specialty and nonspecialty crops as well as some livestock.

**Tree and Nursery Crops
Are Covered by
Percent-Of-Damage
Insurance Plans**

USDA insures certain fruit crops, trees, and nursery crops, or other perennial crops, with a percent-of-damage plan. There are two different versions of this plan—the “lost quantity” and the “lost value” plans. In both, payments are made when a measured amount of damage exceeds some predetermined deductible. The guarantee for the “lost quantity” plan is based on a percent of damage to the crop, such as damage to a whole tree or to limbs on a tree. USDA must pay an indemnity when the percent of damage, as evaluated by the quantity of totally or partially destroyed property (fruit crop or trees), exceeds the deductible. For the “lost value” plan, the guarantee is based on a dollar amount of protection times a coverage level. USDA pays indemnities when the percent of dollar damage exceeds a deductible. Examples of crops covered under variations of this plan include Florida citrus fruit, Florida and Texas citrus trees, macadamia trees, and nursery plants.

**Methods Used to Set
Premium Rates for
Specialty Crops**

Premium rate-setting methods used in the insurance plans for specialty crops include the comparative rating, experience rating, and statistical

modeling methods. In general, rating methods for specialty crops tend to be customized for each crop and location.

Comparative rating, also called judgmental rate setting, is used whenever the available data are thin or scanty. Generally, some amount of data can be found for a crop in an area, but the scope of the data are not adequate to measure the probable losses under a variety of weather conditions. In such cases, the available data are compared with the insurance experience for crops that have been insured in the area. A judgment as to the relative riskiness is needed: that is, is the crop in question relatively more or less risky than the crop with more adequate data? A premium rate is then established by using the existing premium rates for the reference crop or crops as a benchmark.

For the experience rating method, USDA considers only the actual insurance experience of a crop and uses only those data to compute the required premium rate. One example of this method is the calculation of loss-cost ratios to develop premium rates. Briefly, USDA uses average coverage and production data, among other things, to calculate a loss-cost ratio—claims payments divided by liabilities. In order to adequately reflect future losses, many years of historical loss data are typically needed.

Statistical modeling uses empirical or assumed probability distributions of key variables and draws thousands of observations from those distributions. At the end of the analysis, the events that resulted in a loss are totaled and divided by the total liability at risk. The result is an estimated premium rate. For example, USDA used statistical modeling to determine rates for the pilot revenue insurance plans for avocados and pecans. Simply put, the premium rates offered in these plans are developed through statistical models that construct a revenue distribution—a depiction of expected farm revenues—on the basis of actual price and yield data. In addition, USDA used statistical modeling in order to set rates for fruit trees in Florida, a program that provides insurance coverage for physical damage to the trees.

Comments From the U.S. Department of Agriculture

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



United States Department of Agriculture
Farm and Foreign Agricultural Services
Risk Management Agency

MAR 18 1999

Mr. Lawrence J. Dyckman, Director
Food and Agriculture Issues
Resources, Community and Economic Development Division
U.S. General Accounting Office
441 G Street NW
Washington, D.C. 20548

Dear Mr. Dyckman:

Attached are the Department's comments on the U.S. General Accounting Office's draft report RCED-99-67, "Crop Insurance, USDA's Progress in Expanding Insurance for Specialty Crops." If you should have any questions, please contact Tracey Mock, Director, Policy, Procedure, and Evaluation Division at (202) 690-6020.

Sincerely,

A handwritten signature in black ink, appearing to read "August Schumacher, Jr.".

August Schumacher, Jr.
Under Secretary for Farm and
Foreign Agricultural Services

Enclosure

**U.S. GENERAL ACCOUNTING OFFICE DRAFT REPORT
RCED-99-67: "CROP INSURANCE: USDA'S PROGRESS
IN EXPANDING INSURANCE FOR SPECIALTY CROPS"
(Job Code 150125)**

DEPARTMENT'S RESPONSE TO DRAFT REPORT

Now on p. 1.
See comment 1.

The first paragraph on page 3 discusses the producer-paid premium. The government pays a portion of the producer's premium (premium subsidy) which is discussed later in the report. The subsidy should also be discussed here since some of the audience may not read the entire report.

Now on pp. 2 and 4.
See comment 1.

Actuarial Soundness, mentioned on pages 4, 7 and possibly elsewhere, is required by Section 506 (o) of the Federal Crop Insurance Act (Act).

Now on p. 2.
Now on p. 6.
See comment 2.

The first paragraph on page 4 indicates that the process of insuring a new crop typically requires about 5 years, but, unlike a similar statement on page 12 of the report, does not indicate that pilot programs are in place and being tested for about 3 years of this 5-year period. The implication seems to be that about 5 years take place even before a pilot starts. Recently, the Risk Management Agency (RMA) developed the Adjusted Gross Revenue (AGR) program pilot within 14 months.

Now on p. 2.
See comment 3.
Now on p. 5.

Also in the first paragraph on page 4, the statement, that insurance coverage will not be available for about 300 crops is not entirely true. The AGR program, although a pilot program, covers all crops. These concerns likewise apply to the similar text at the bottom of page 8 and the top of page 9 of the draft.

Now on p. 3.
See comment 1.

Table 1 on page 6 should include a \$20 administrative fee per county and crop for buy-up policies with coverage equal to or greater than "65/100." Additionally, a \$50 per county and crop administrative fee should be included for buy-up policies with coverage above "50/100" but below the "65/100" level. The catastrophic risk protection (CAT) fee should be revised to \$60.

Now on p. 4.
Now app. I.
See comment 1.
Now on p. 5.
See comment 4.

On page 7, the last sentence of the first paragraph should indicate that appendix II shows the loss ratio experience by each crop since "the later of 1981 or the year the insurance program began."

The table on page 8 is misleading with respect to the level of program participation over time. In 1995, to ensure wide participation, producers were required to purchase crop insurance coverage at the CAT coverage level or above to participate in Federal commodity price support programs, certain Farmers Home Administration loans and the conservation reserve program. The Act was again amended in 1996 to allow producers to opt out of having to obtain CAT coverage in order to obtain Agricultural Market Transition Act payments and certain other U.S. Department of Agriculture assistance by waiving their eligibility for any emergency crop loss assistance. The one time 1995 event skews the trend from 1993 to 1997, which shows increasing participation.

**Appendix VI
Comments From the U.S. Department of
Agriculture**

Now on pp. 6-7.

It is recommended that the following text be added at the end of page 9 to reflect competing demands for RMA resources.

See comment 5.

Since 1994, USDA also developed a number of new non-specialty crop programs for both new and existing crops. Resources required to develop or support these programs could otherwise have been utilized to develop programs for specialty crops. These include programs such as canola/rapeseed and millet; Group Risk Plan (GRP) for corn, cotton, forage, grain sorghum, peanuts, soybeans, and wheat; and Income Protection (IP) for barley, corn, cotton, grain sorghum, soybeans, and wheat. While these programs do not cover specialty crops, experience gained from the insurance models used may lead to similar programs for specialty crops in the future.

Now on p. 9.
See comment 1.

The reference in the last paragraph on page 13 to the pilot revenue insurance policy for almonds in California should be revised to read as shown below. This is because the pilot program was not implemented in the field. The text now states that it was implemented and terminated after one year.

For example, the FCIC Board of Directors approved a pilot revenue insurance program for almonds in two California counties for the 1998 crop year before the final premium rates were developed, but because premium for the coverage was higher than premium for the currently available yield insurance, almond producers indicated they would be unwilling to purchase the revenue policies. Consequently, USDA never implemented the program.

Now on p. 12.
See comment 6.

On page 23, the studies cited in Appendix I support the concept that participation decreases as premiums increase. The timing of increases can influence the participation rate. Increases in the year following severe losses may be accepted, whereas the same increases following good production years may cause reduced participation.

Now on pp. 18 and 19.

Now app. I.
See comment 1.

The chart on page 26 should indicate "Avocado/mango trees" rather than "Florida tropical fruit trees." Also, "Bell peppers" should read "Fresh market peppers." The text introducing Tables II.1 and II.2 indicates that the table contains the loss ratio for each crop since that crop's insurance program began. However, while 1981 is the earliest year shown in the column identifying the first year insurance was offered for each crop, many crops listed in these tables were insured prior to 1981. Deletion of the column should be considered.

Now on p. 20.
See comment 1.

On page 28, the cumulative loss ratio for millet should read ".60."

Now app. III, p. 26.
See comment 1.

On page 34 (Appendix IV), line 3 of the first paragraph should indicate that requests for insurance for specific crops are "a major" factor, not "the primary" factor.

Now app. III, p. 26.
See comment 1.

On page 35 (Appendix IV), in the third sentence of the first full paragraph, we recommend deletion of "a requester of insurance for a particular crop to provide," because this is not required of the requester. In the same paragraph, change the next-to-last sentence to indicate that USDA may "suspend development activity or terminate a pilot program that has been

**Appendix VI
Comments From the U.S. Department of
Agriculture**

implemented,” because this decision will hopefully be made before a pilot program is implemented.

Now app. III, p. 27.
See comment 1.

On page 36 (Appendix IV), we recommend revising the last sentence to read “Table IV.1 shows 30 crops that have been given consideration for pilot testing as of February 1999.” This is because not all the listed crops are scheduled for pilot testing.

Now on p. 32.
See comment 1.

On page 44, in the third sentence of the first paragraph there is a reference to 9 spans used to establish the premium rate. Although this number of spans is used for the greatest number of crops, it is not the only structure employed.

Cotton has 13 spans. It would be more descriptive to state that for rate-span programs, the premium rate depends inversely on the producer’s average yield compared to the county average yield. Producers whose average yield exceeds the county average pay a lower than average rate and vice-versa. The actual rates are tabulated into several “yield spans” over the range from 50 percent of the county average yield to 150 percent of it.

Now app. V, p. 33.
See comment 1.

Also on page 44 (Appendix VI), the next-to-last sentence of the second paragraph should indicate that a grower yield certification (GYC) claim is payable if a producer’s actual yield falls short of his or her own expected yield times the coverage level. There should be no reference to an “expected area yield.” The last sentence should indicate that for some crops there is enough variability in yields “and available data” to establish a limited number of yield spans under this plan, and such crops have been graduated from the grower yield certification plan to the actual production history plan.

Now app. V, p. 34.
See comment 1.

On page 45 (Appendix VI), in the last sentence of the second full paragraph, cherries should be deleted from the list of pilot revenue insurance plans, because it is a dollar plan. In the first sentence of the third full paragraph, delete the text “was first made available to producers in 1991. It.” Dollar plans were in place many years prior to 1991.

Now on p. 34.
See comment 1.

Also, page 45 contains a section heading “Revenue Insurance Plan Protects Against Post-Harvest Losses in Revenue.” This is not correct. The plans protect against a decline in the expected revenue between the time the crop was planted (or insurance attached in the case of perennial crops) and the time of harvest which is during the growing season.

Now app. V, p. 33.
See comment 1.

On page 46 (Appendix VI), in the first full paragraph, replace “harvested revenue” with “the dollar value of production” in both locations. In the last sentence, replace “higher levels of coverage” with “lower minimum values to count in return.”

Now on p. 33.
See comment 1.

On page 46, in the second full paragraph, change “12” to “14,” and revise the second sentence to read as follows:

“The amount of insurance that is offered per acre is further adjusted by a stage factor (50, 75, 90, or 100 percent) representing one of the four progressive stages of the growing season. This provides reduced coverage for tomatoes destroyed at earlier growth stages.”

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

Now on p. 33.
See comment 1.

Now app. III, p. 34.
See comment 1.

Now app. III, p. 35.
See comment 1.

Now app. IV.
See comment 7.

Now app. V.
See comment 8.

Finally, on page 46, the second full paragraph implies that the producer may choose different amounts of insurance by stage. However, the producer chooses (and pays premium for) only the final stage amount. The remaining stages are percentages of that level as specified in the policy.

On page 47 (Appendix VI), in the last sentence of the first partial paragraph, replace “nuts” with “trees.”

On page 48 (Appendix VI), we recommend deletion of the first sentence of the first full paragraph and moving the rest of the paragraph to the end of the preceding paragraph.

GENERAL COMMENTS

Appendix V: Characteristics of Specialty Crops Affect Insurance Risk

This section appears to make fairly broad claims that may not be useful for decision makers if the claims are lacking in accuracy at the specific crop level. We suspect that the differences between perishable and non-perishable crops may be more significant than those posited for specialty and non-specialty crops, which were presented in the Appendix as follows:

1. That specialty crops often experience greater market price risk than nonspecialty crops;
2. That production risks for specialty crops differ from those of nonspecialty crops;
3. That the relationship between price and yield is stronger for some specialty crops than for nonspecialty crops; and
4. That specialty crop producers manage risks through various types of vertical arrangements.

We request that GAO review this section.

Appendix VI: Major Specialty Crop Insurance Plans and Methods used to Calculate Premiums

The draft report lists three methods to rate crops: loss cost, loss ratio, and revenue insurance rating method. It is more descriptive to use the terms comparative rating, experience rating, and stochastic modeling.

Comparative rating considers the actual or expected insurance performance of a crop and compares it to a crop for which there is a longer history or better data. The actual experience would be used when there are a few years of experience. The expected experience would be used for new crops for which there is no history.

Experience rating considers the actual insurance experience of a crop and uses only that data to compute the required rate.

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Stochastic modeling uses empirical or assumed probability distributions of key variables and draws thousands of observations from those distributions. At the end of the analysis, the events that resulted in a loss are totaled and divided by the total liability at risk. The result is an estimated premium rate.

This distinction is more descriptive because the term “revenue insurance rating method” implies this technique only is used when a yield is multiplied by a price. We have used stochastic modeling to set rates for fruit trees in Florida, a program that indemnifies the policyholder for physical damage to the trees. It will become more and more important for rating of other crops as we become more proficient in its use.

Loss ratio and loss cost ratio are two sides of the same coin-- loss ratio is merely loss cost divided by rate. The draft seems to make a distinction that the availability of data is a consideration in using one or the other. However, if the data are inadequate to make a reliable projection using loss cost, the data are also inadequate to make a projection with the loss ratio. If the data is standardized to current rate level and policy terms, the rate produced by either method will be the same.

Legislative Authority:

It may be useful to point out (possibly on page 45 of the report) that RMA’s authority for offering revenue products is limited in the Act. The Act gives RMA no authority to offer Income Protection or any other revenue insurance program on other than a pilot program basis.

The authority for a revenue insurance pilot program is for a limited number of counties for the 1997 through 2000 crop years. Legislative changes are necessary for RMA to offer revenue products on a permanent basis.

3/15/99

See comment 9.

GAO's Comments

1. We agree. The final report was revised to reflect USDA's comment, as appropriate.
2. We agree and have revised our report to state that the 5 years includes the testing phase of the development process. Also, while we recognize that USDA developed the adjusted gross revenue insurance plan for pilot testing in 14 months, other plans may require longer than 2 years to reach pilot testing, as we discuss in appendix III of our report. For example, the aquaculture plan is in its fifth year of development and has yet to begin testing.
3. We agree and acknowledge in our report that the adjusted gross revenue plan, if successful, will provide coverage for all specialty and nonspecialty crops.
4. We do not believe table 2 of our report is misleading. While crop insurance participation was required in 1995 as a condition of eligibility for certain federal farm programs, participation in recent years has declined, as table 2 shows. In October 1998, the Congress passed major ad hoc disaster assistance legislation because of losses in the Plains States but also because of insufficient participation in the crop insurance program.
5. We agree that since 1994, in addition to developing insurance programs for specialty crops, USDA's resources have also been used to develop insurance programs for nonspecialty crops. Thus, we have added this information to our report.
6. We agree that the timing of premium increases may influence their acceptance. However, this is one of many factors, such as the level of debt for the farm, held constant in our analysis.
7. We agree and have revised our report to reflect the fact that we are focusing on several key characteristics of specialty crops that differentiate them from the insurance risks presented by nonspecialty crops. These characteristics often derive from the perishable nature of most specialty crops.
8. We agree it is more appropriate to use the terms comparative rating, experience rating, and statistical modeling and have revised our report accordingly.

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Comments From the U.S. Department of
Agriculture

9. We agree that USDA's authority to offer revenue insurance plans is limited by the Federal Crop Insurance Act to a pilot program basis. Thus, we revised our report to reflect this limitation.

Major Contributors to This Report

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