



United States
Department of
Agriculture

Federal Grain
Inspection
Service

Annual Report to Congress, 1990



Authority

The United States Grain Standards Act, as amended, requires the Administrator of the Federal Grain Inspection Service to submit to the Senate and House Committees on Agriculture on December 1 of each year a report on the effectiveness of the official inspection and weighing system for the prior fiscal year and to develop recommendations for legislative changes to accomplish the objectives of the Act.

The Act also requires the Administrator to submit a summary of valid complaints received from foreign purchasers and prospective purchasers of United States grain and of their resolution by the U.S. Department of Agriculture during the prior fiscal year. That summary is included as part of the 1990 Annual Report.

Mission

The mission of the Federal Grain Inspection Service is to facilitate the marketing of grain, oilseeds, pulses, rice, and related commodities by establishing descriptive standards and terms; accurately and consistently certifying quality; providing for uniform official inspection and weighing; carrying out assigned regulatory and service responsibilities; and providing the framework for commodity quality improvement incentives to both domestic and foreign buyers.



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Honorable E (Kika) de la Garza
Chairman, Committee on Agriculture
House of Representatives
Washington, DC 20515

Honorable Patrick J. Leahy
Chairman, Committee on Agriculture,
Nutrition, and Forestry
United States Senate
Washington, DC 20510

Dear Mr. Chairmen:

In compliance with the United States Grain Standards Act, as amended, the Federal Grain Inspection Service (FGIS) is submitting its fiscal year 1990 Annual Report to Congress. This report summarizes the Agency's responsibilities, accomplishments, program activities, and financial status.

The 1990 Farm Bill's "Grain Quality Title" will have an impact on the Agency. The Administration's Farm Bill proposal included a recommendation that all corn exported from the United States be officially tested for aflatoxin. Currently, FGIS offers aflatoxin testing service under the authority of the Agricultural Marketing Act of 1946. Service is available upon request at export locations across the country.

During fiscal year 1990, FGIS implemented a number of initiatives to enhance the quality of services provided by the national grain inspection and weighing system and to provide the framework for commodity quality improvement incentives. A wide variety of accomplishments are addressed in this report. The Agency's achievements during the year included:

- o revising existing grain standards and developing new standards to facilitate the marketing of U.S. grain;
- o implementing programs, such as the revised Cu-Sum plan, which accurately and consistently certify the quality of U.S. grain;
- o providing uniform official inspection and weighing by working towards shifting from subjective to objective testing and automating the national inspection system;
- o carrying out regulatory responsibilities by ensuring compliance with the U.S. Grain Standards Act and the Agricultural Marketing Act of 1946; and
- o expanding service capabilities by integrating faster, more accurate, and safer testing methodologies into the national grain inspection system.



The Federal Grain Inspection Service
is an agency of the
United States Department of Agriculture

Honorable E (Kika) de la Garza
Honorable Patrick J. Leahy

FGIS' operating revenues from fees during fiscal year 1990 were \$30.6 million, with obligations of \$33.9 million, yielding a negative net operating margin of \$3.3 million. While the Agency decreased its obligations by \$851,000 from FY 1989, revenues decreased by \$3.8 million compared to the previous year.

Factors contributing to the decrease in revenues include the industry's increasing use of the most efficient export houses. This has resulted in reduced income per bushel of exported grain. It has also caused a decrease in revenue at some of our lower volume export field offices. In addition, the volume of truck inspections decreased during fiscal year 1990.

In light of decreased inspection revenues and to ensure that revenues sufficiently cover obligations, the Agency is working to further reduce its costs and to evaluate possible fee adjustments.

The total revenues included interest of \$838,811 on investments held in reserve. The revolving fund closed the fiscal year with an unobligated balance of \$10.5 million.

Administrative and supervision costs represented 32 percent of total program costs, which is below the statutory limit of 40 percent. Appropriated obligations of approximately \$8 million, plus revolving fund obligations of \$33.9 million totalled \$41.9 million, \$.3 million under fiscal year 1989 total program obligations. The fee-supported activities ended the fiscal year at 81 percent of the total obligations.

The FGIS Advisory Committee, which was legislatively reauthorized through September 30, 1993, continues to provide valuable advice to the Administrator regarding the implementation of the U.S. Grain Standards Act. During fiscal year 1990, the Committee met four times to address a variety of issues impacting the grain industry and the Agency. A Financial Subcommittee was formed to study funding options and budget strategies for the Agency.

During fiscal year 1990, FGIS continued to upgrade, modernize, and improve the national grain inspection and weighing system. The Agency remains committed to quality and to providing grain inspection and weighing services which are second to none.

Sincerely,



John C. Foltz
Administrator

Contents

Letter from the Administrator	i
Outlook 1991	1
Functions and Responsibilities	2
<i>Oversight Responsibilities</i>	
<i>U.S. Agricultural Exports</i>	
<i>Number of Inspections Performed</i>	
<i>Under the U.S. Grain Standards Act</i>	
<i>Performance of Weighing and Inspection Services</i>	
<i>Services -- By Agency Type and State</i>	
<i>Volume of U.S. Grain Inspected for Export By Area</i>	
Organizational Structure	10
<i>Organizational Chart</i>	
<i>Number of Employees Per Division</i>	
Activities and Accomplishments	
Inspection and Weighing	13
<i>Inspection Program Data</i>	
<i>Weighing Program Data</i>	
Research and Development	17
Standards and Procedures	19
Compliance	21
<i>Overview of Compliance Activities - FY 1990</i>	
International Relations	24
<i>Foreign Grain Complaints: Three-Year Summary</i>	
<i>Inspection and Weighing Foreign Complaints, FY 1990</i>	
<i>Briefings with Foreign Trade and Governmental Teams, FY 1990</i>	
<i>Activities Involving Foreign Travel</i>	
Education and Information	29
<i>Reported Grain Dust Explosion Data</i>	
Budget Information	31

Outlook 1991

Meeting the Challenges of the Future

FGIS is committed to meeting the challenges of the future. It is critical for the Agency to provide needed information about grain quality and quantity accurately, economically, quickly, and safely. To this end, FGIS is committed to shifting from inspector-based, subjective tests to instrument-based, objective tests. During fiscal year 1991 and beyond, the Agency will continue critical research on end-use, quality characteristics using state-of-the-art advances in computer technology, robotics, chemistry, image analysis, and electronics.

Each new inspection service offered implies a long-term commitment by FGIS. Procuring and implementing the use of modern equipment requires significant capital and personnel investments by both FGIS and its cooperator agencies. Inspectors need training to ensure proficiency in analytical instrumentation, chemical analysis, and computer-controlled operations. And, standards, procedures, reference samples, and monitoring programs must be developed, implemented, and maintained by the Agency.

The move from subjective to objective testing is critical to the future efficacy of FGIS. It is essential that adequate resources be available to ensure that the Agency can meet the challenges of the future.

Impact of Grain Quality Legislation

The grain quality provisions of the 1990 Farm Bill directly impact the operation and future direction of FGIS. The law clearly directs FGIS to evaluate and, if necessary, modify the grain standards and inspection procedures to enhance the quality of U.S. grain. FGIS must base such changes on available technology, marketing practices, and a complete analysis of the costs and benefits to the grain industry.

Specifically, the 1990 Farm Bill grain quality provisions:

- o provide further guidelines describing the purpose of the grain standards;
- o emphasize the need for economic analysis before establishing or amending the grain standards;
- o require grading factors to reflect levels of soundness and purity consistent with the end-use performance goals of major foreign and domestic users of grain;
- o permit FGIS to prohibit blending of sound and pure grain with nongrain substances, grain unfit for commercial purposes, or grain that exceeds Food and Drug Administration action limits;
- o require aflatoxin testing of corn export shipments;
- o require a comprehensive analysis of the costs and benefits of cleaning grain upon which a decision must be based as to whether cleanliness standards should be set; and
- o encourage increased efforts to standardize the equipment and procedures used by the commercial grain industry for measuring grain quality.

We are undertaking further research, an economic study, and regulatory actions to carry out these provisions of the 1990 Farm Bill.

Functions and Responsibilities

The Federal Grain Inspection Service (FGIS) was created by Congress in 1976 to manage the national grain inspection system and to establish a national weighing program for grain. The goal of creating a single Federal inspection entity was to ensure development and maintenance of uniform U.S. standards and weighing procedures for grain in domestic and export trade and to facilitate grain marketing.

FGIS administers uniform, national grain inspection and weighing programs as established by the U.S. Grain Standards Act, as amended (hereinafter, the "Act"). Services under the Act are performed on a fee basis for both export and domestic grain shipments. The Act requires generally that export grain be inspected and weighed; prohibits deceptive practices and criminal acts with respect to the inspection and weighing of grain; and provides penalties for violations.

In administering and enforcing the Act, FGIS:

- o establishes and maintains official U.S. grain standards for corn, wheat, soybeans, sorghum, barley, oats, rye, flaxseed, sunflower seed, triticale, and mixed grain;
- o promotes uniform application of official U.S. grain standards by official inspection personnel;
- o establishes methods and procedures, and approves equipment for the official inspection and weighing¹ of grain;
- o provides official inspection and weighing services at certain export port locations²; and official inspection of U.S. grain at certain export port locations in Eastern Canada;
- o delegates qualified State agencies to inspect and weigh grain at certain export port locations;
- o designates qualified State and private agencies to inspect and weigh grain at interior locations;



1. **Official Inspection.** The determination--by original inspection, reinspection, and appeal inspection--and the certification by official personnel of the kind, class, quality, or condition of grain under standards provided for in the Act; or the condition of vessels and other carriers or receptacles for the transportation of grain insofar as it may affect the quality of such grain under other criteria approved by the Administrator (the term "officially inspected" shall be construed accordingly).

Official Weighing. (Class X Weighing). The determination and certification by official personnel of the quantity of a lot of grain under standards provided for in the Act, based on the actual performance of weighing or the physical supervision thereof, including the physical inspection and testing for accuracy of the weights and scales, the physical inspection of the premises at which weighing is performed, and the monitoring of the discharge of grain into the elevator or conveyance. (The terms "official weight" and "officially weighed" shall be construed accordingly.)

2. **Export Port Locations.** Commonly recognized ports of export in the United States or Canada, as determined by the Administrator, from which grain produced in the United States is shipped to any place outside the United States. Such locations include any coastal or border location, or any site in the United States which contains one or more export elevators and is identified by FGIS as an export port location.

- o licenses qualified State and private agency personnel to perform inspection and weighing service;
- o provides Federal oversight and monitors the official inspection and weighing of grain by delegated States and designated agencies;
- o provides review inspection services³ of U.S. grain in the United States and at certain export port locations in Eastern Canada; and
- o investigates apparent violations of the Act in cooperation with the Office of Inspector General, and recommends and initiates appropriate action.

Mandatory Services

Under provisions of the Act, most grain exported from U.S. export port locations must be officially weighed. A similar requirement exists for inspection except for grain which is not sold or described by grade. The Act also requires that intercompany-barge grain received at export port locations be officially weighed. Grain exporters shipping less than 15,000 metric tons of grain abroad annually are exempt from mandatory official inspection and weighing requirements. Grain exported by train or truck to Canada or Mexico is exempt from official inspection and weighing requirements.

Mandatory official inspection and weighing services are provided by FGIS on a fee basis at 62 export elevators. Eight delegated States provide official services at an additional 26 export elevators under direct FGIS oversight.

Permissive Services

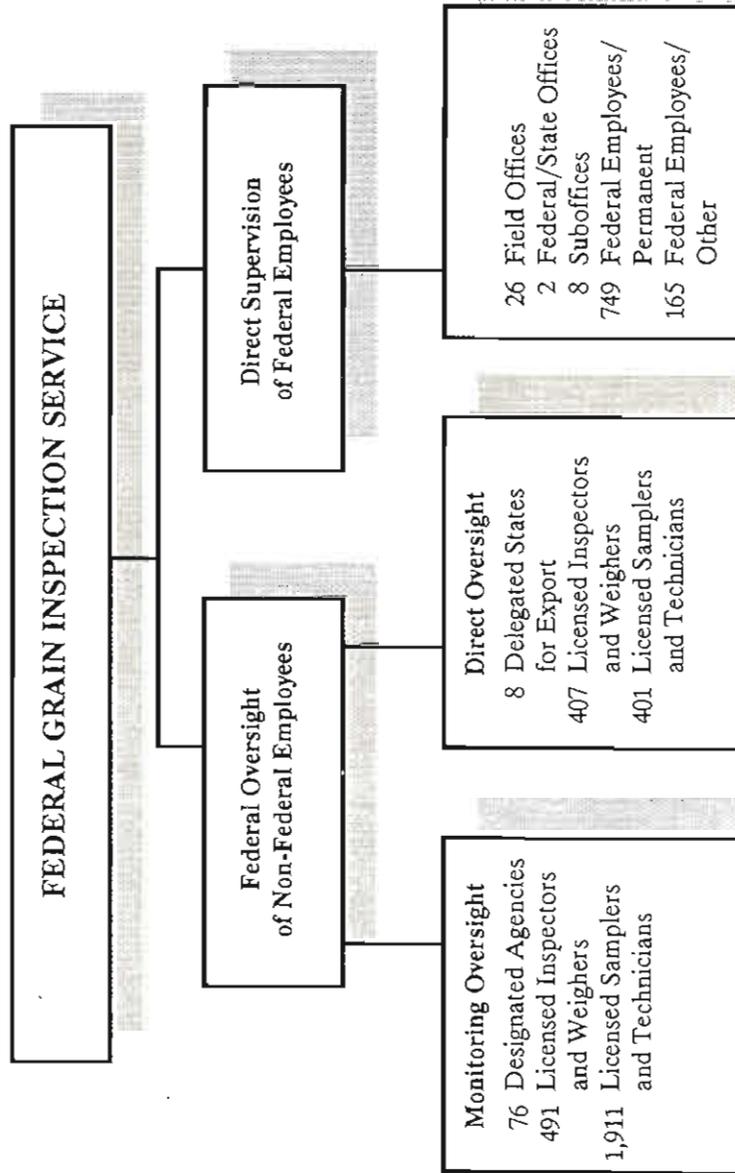
Official inspection and weighing of U.S. grain in domestic commerce, with few exceptions, are performed upon request and require payment of a fee by the applicant for services. Domestic inspection and weighing services are provided by 76 designated agencies that employ personnel licensed by FGIS to provide such services in accordance with regulations and instructions. FGIS supervisory and administrative costs have been funded by user fees since October 1, 1981.

Under the Agricultural Marketing Act of 1946 (hereinafter, the "AMA"), FGIS administers and enforces certain inspection and standardization activities related to rice, pulses, and grain products such as flour and corn meal, as well as other agricultural commodities. Services under the AMA are performed upon request on a fee basis for both domestic and export shipments either by FGIS employees, individual contractors, or through cooperative agreements with States.



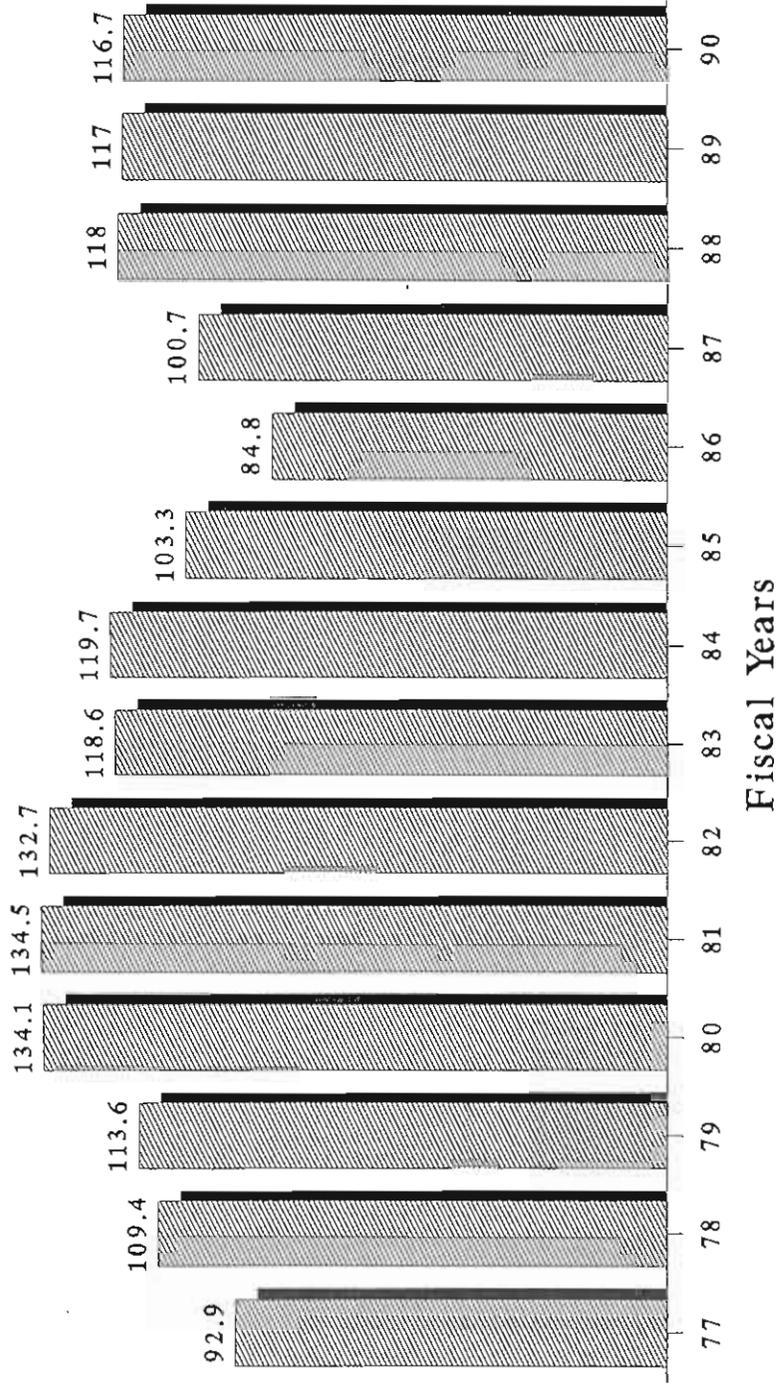
3. **Review Inspection Service.** Official review of the results of an original inspection service or reinspection service may be performed when discrepancies are alleged between the true quality of the grain and the inspection results.

Oversight Responsibilities



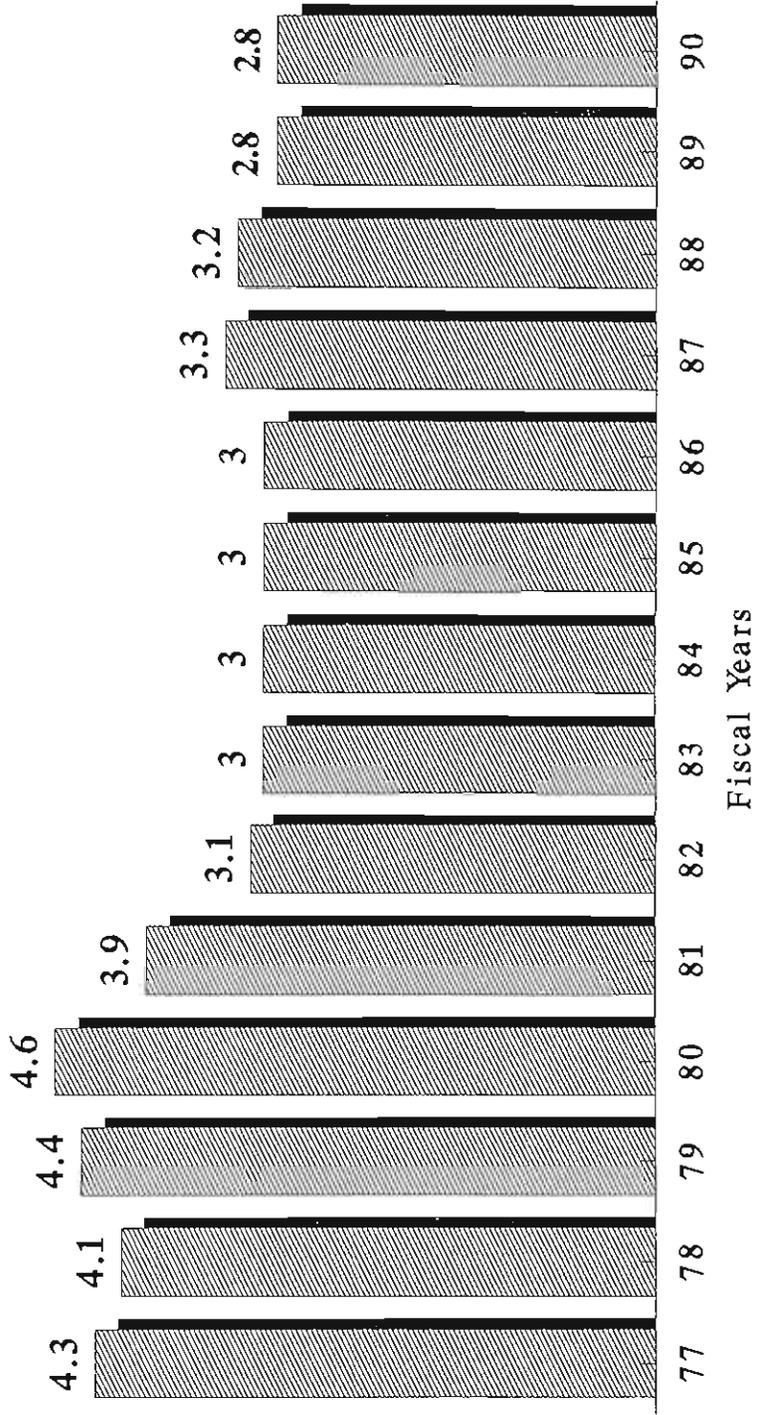
U.S. Agricultural Exports-Coarse Grains Wheat, Soybeans, Sunflower and Rice

Million Metric Tons



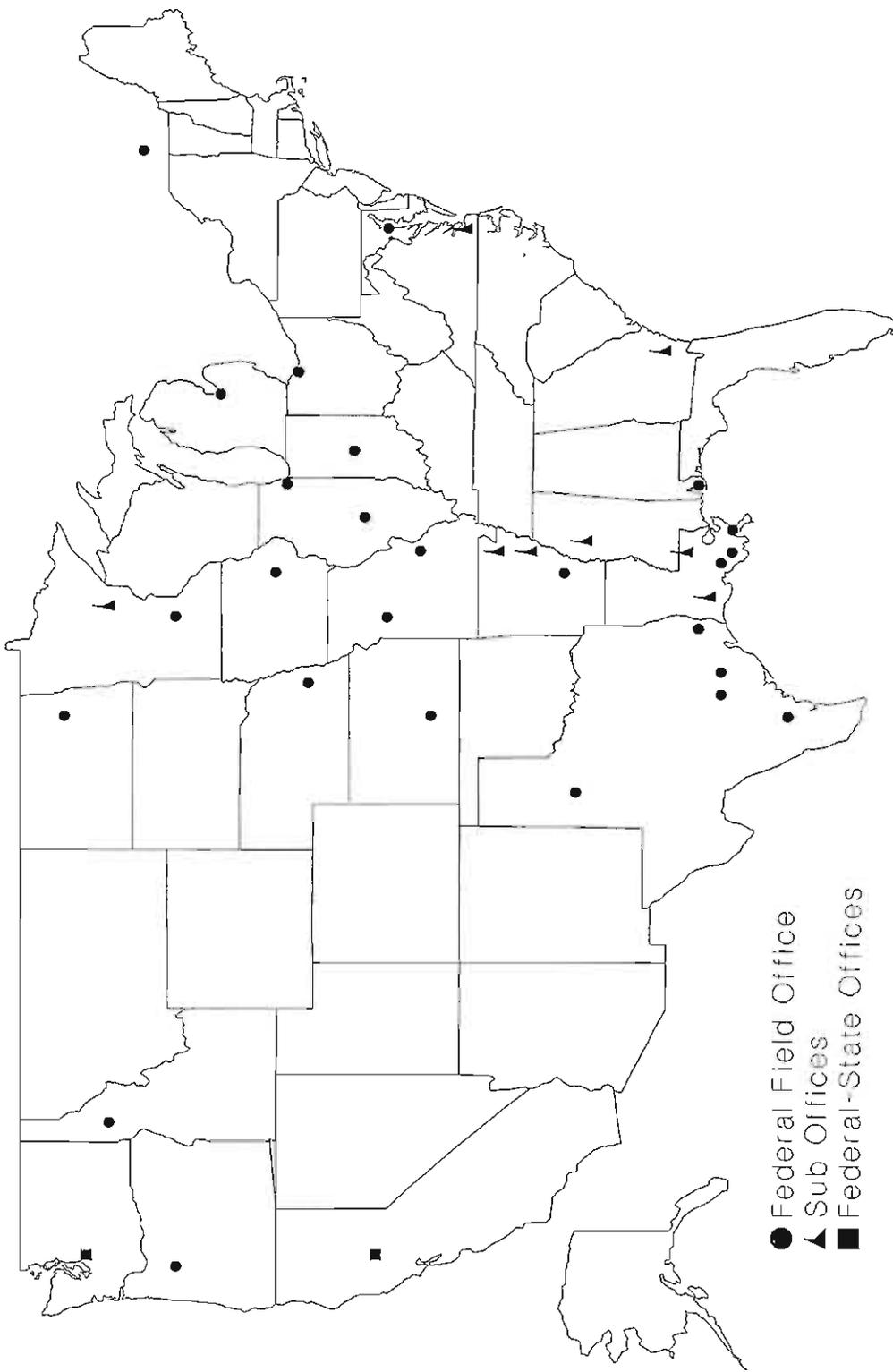
Number of Inspections Performed Under U.S. Grain Standards Act

Millions of Inspections



Federal Grain Inspection Service

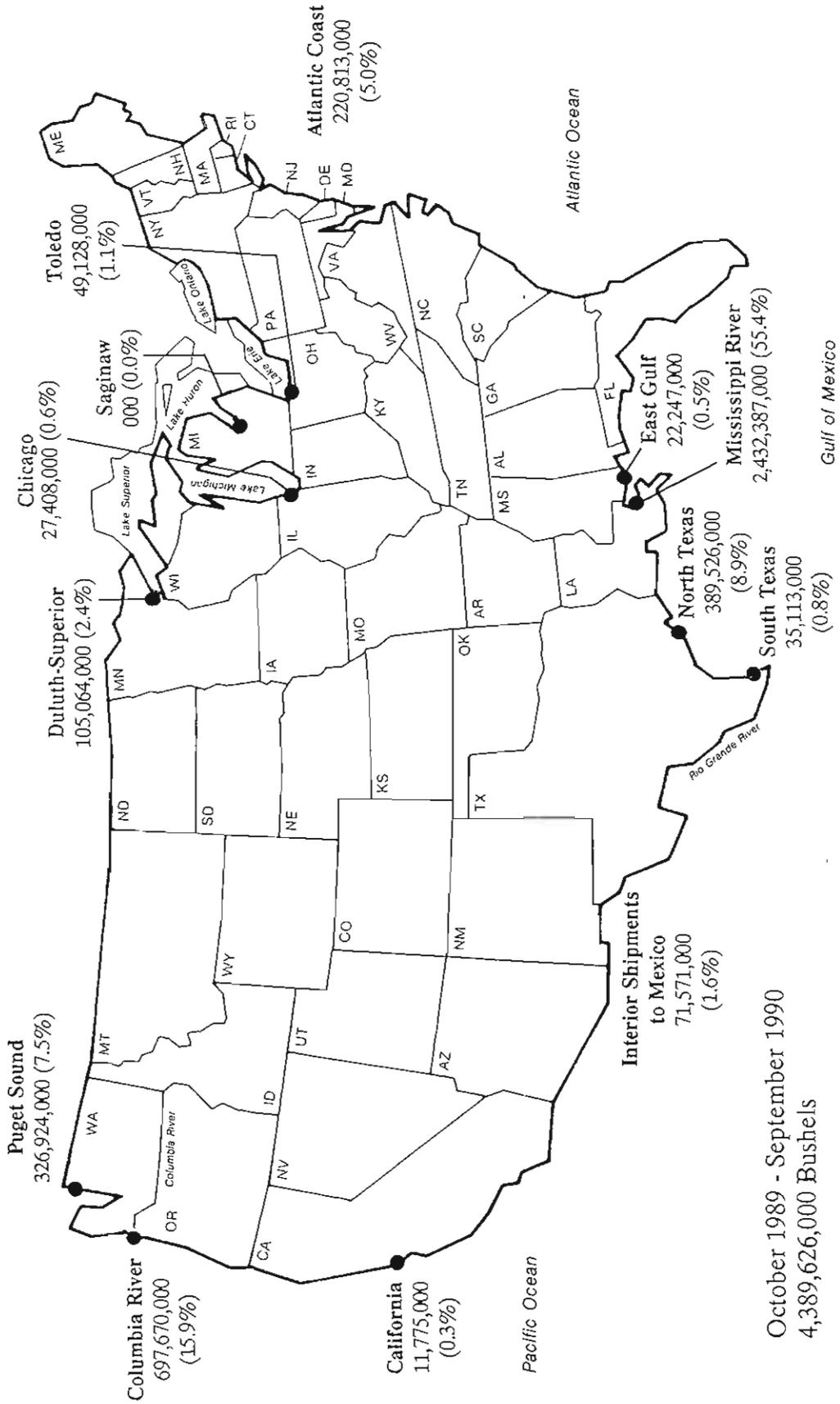
Performance of Weighing and Inspection Services



Services By State
and Agency Type

State	Federal or Federal/State	Delegated State	Designated State	Designated Private
Alabama		•	•	
Alaska			•	
Arizona				
Arkansas				•
California	•	•	•	•
Colorado				•
Connecticut				
Delaware				
Florida				
Georgia			•	
Hawaii				
Idaho				•
Illinois	•			•
Indiana				•
Iowa				•
Kansas			•	
Kentucky				•
Louisiana	•		•	
Maine			•	
Maryland	•			
Massachusetts				
Michigan	•			•
Minnesota		•	•	
Mississippi		•	•	
Missouri			•	
Montana			•	
Nebraska				•
Nevada				
New Hampshire				
New Jersey				
New Mexico				•
New York			•	
North Carolina			•	
North Dakota				•
Ohio	•			•
Oklahoma				•
Oregon	•		•	
Pennsylvania				
Rhode Island				
South Carolina		•	•	
South Dakota				•
Tennessee				•
Texas	•			•
Utah			•	
Vermont				
Virginia		•	•	
Washington	•	•	•	
West Virginia				
Wisconsin		•	•	
Wyoming			•	•

Volume of U.S. Grain Inspected for Export by Area Fiscal Year 1990

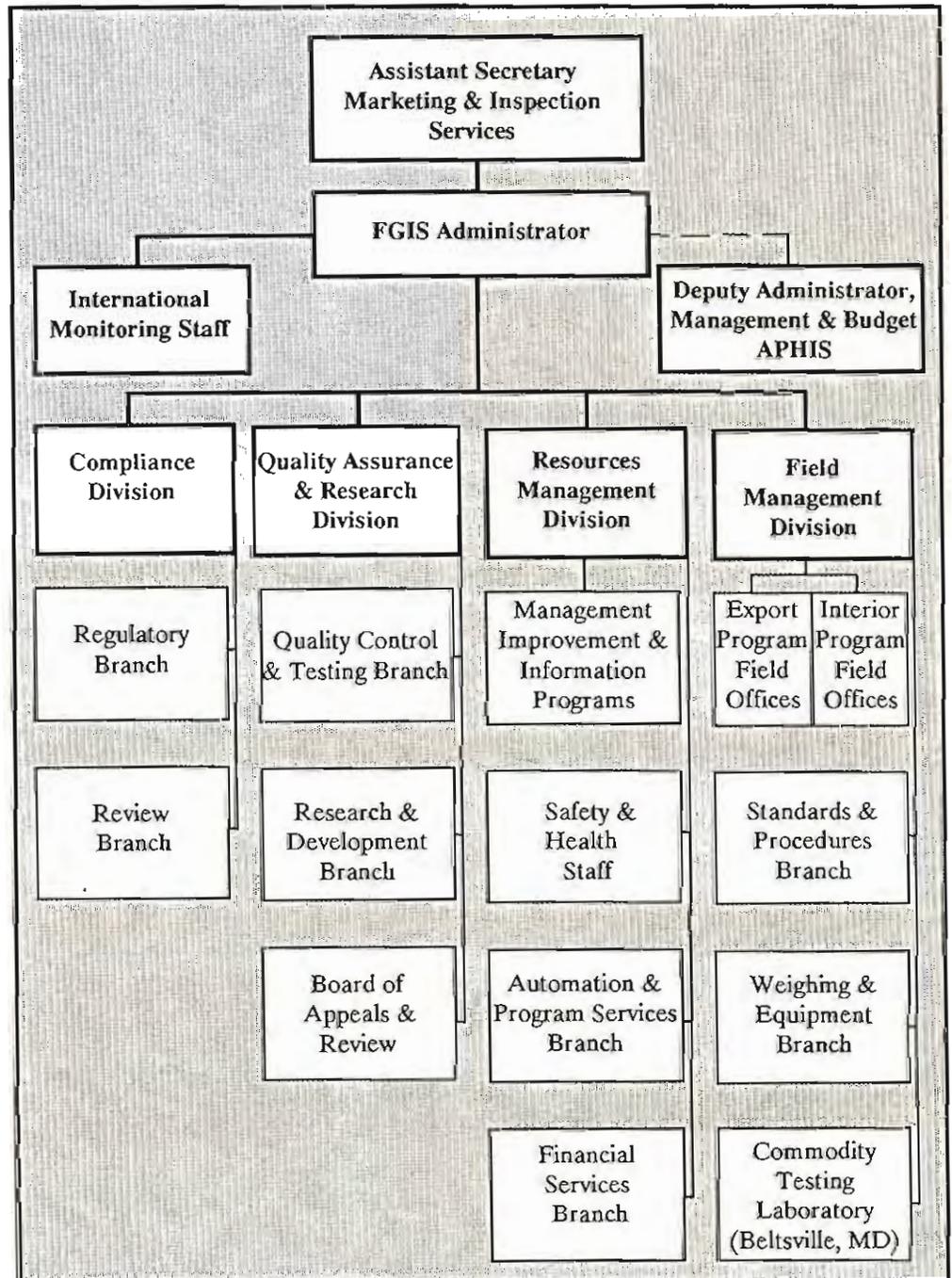


October 1989 - September 1990
4,389,626,000 Bushels

Organizational Structure

FGIS is an Agency which reports to the Assistant Secretary for Marketing and Inspection Services, U.S. Department of Agriculture. FGIS is comprised of a headquarters unit and 26 field offices.

Three of the Agency's four headquarters divisions -- Compliance, Field Management, and Resources Management -- are located in Washington, D.C. The fourth -- the Quality Assurance and Research Division -- is located in Kansas City, Missouri.



FGIS Divisions

The **Compliance Division** ensures that the Act, applicable provisions of the AMA, and applicable regulations are implemented accurately and uniformly. The Division evaluates alleged violations, conducts preliminary investigations, and initiates enforcement and administrative actions for violations. In addition, the Compliance Division administers the delegation of State agencies and designation of official agencies, and monitors their performance; coordinates litigation proceedings involving FGIS personnel and/or records; identifies and, as appropriate, exempts and monitors official agencies and licensee conflicts of interest; responds to audits and surveys of FGIS programs; and conducts management and technical reviews and initiates appropriate corrective actions.

The **Field Management Division**, the largest division within FGIS, directs and oversees the operation of all FGIS field offices, Federal/State offices, and delegated and designated agencies. The Division also establishes U.S. standards for grain, rice, and pulses; develops inspection and weighing policies and procedures; performs original inspection and weighing of export grain; licenses agency personnel; monitors the quality of grain as it moves through the market; samples and inspects processed products; and tests processed grain products for producers, school lunch programs, military rations, and shipments to needy countries throughout the world. FGIS field personnel are located across the nation and in Eastern Canada, thus ensuring the availability of official inspection and weighing services anywhere in the United States.

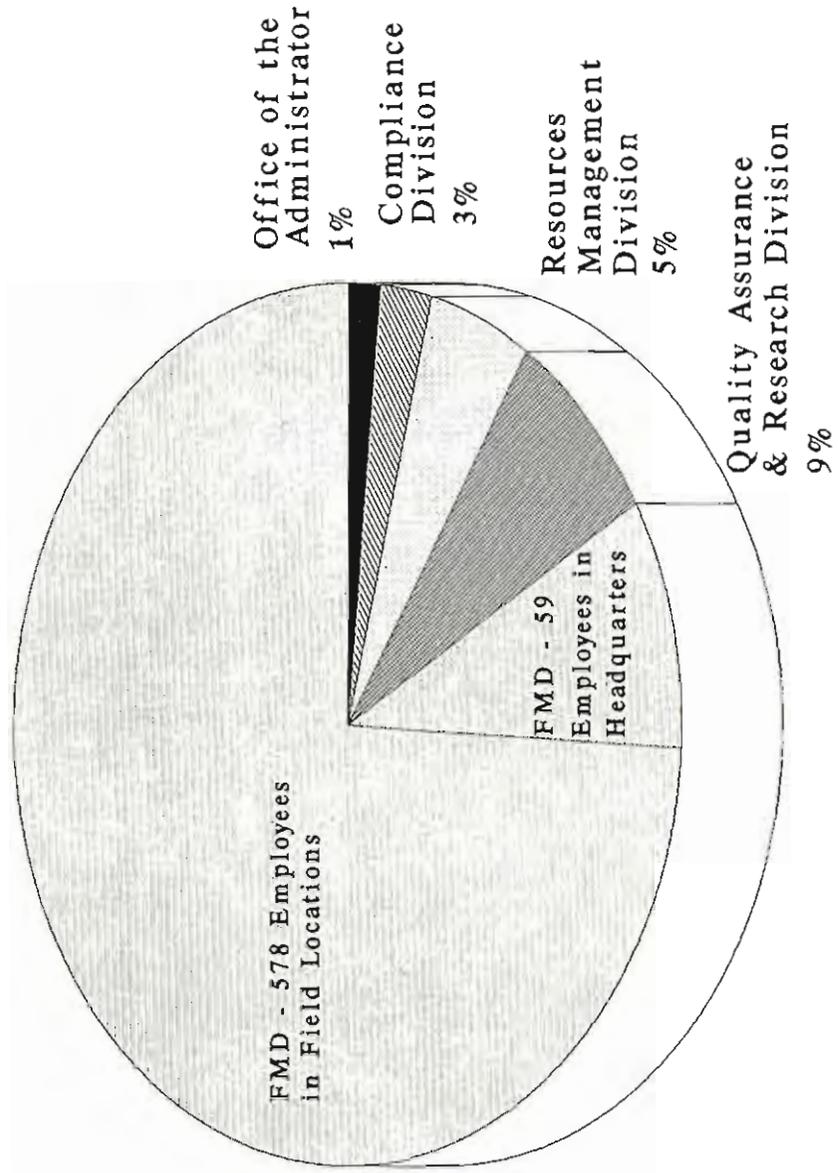
The **Quality Assurance and Research Division** develops new tests and methods for determining grain quality; provides reference standards for FGIS methods and develops new reference standards as required; develops criteria and recommends specifications for instruments to improve the reliability of grain inspection; develops and maintains an agencywide quality control program covering all aspects of grading and inspection; maintains uniform application of standards for grains and commodities; renders final decisions on inspection appeals; and conducts technical training for field personnel.

The **Resources Management Division** administers programs that provide budget, financial, automation, directives, regulatory, health, safety, public affairs, training, and management improvement services to the Agency. The Division coordinates, evaluates, and negotiates all resources needed to provide administrative support services for FGIS operations. In conjunction with budget responsibilities, the Division reviews and, as appropriate, approves official agency fee schedules.

The **International Monitoring Staff (IMS)** is an arm of the Office of the Administrator. IMS monitors grain shipments at destination ports to compare origin and destination quality; travels to foreign nations to explain FGIS inspection and weighing procedures; briefs visiting foreign agricultural officials and others on FGIS procedures for obtaining information on the quality of U.S. grain shipments; and prepares written or onsite responses to complaints about grain shipments received through the Foreign Agricultural Service and other sources.

FGIS Permanent Full-Time Employees

Field Management
Division - 82%



Inspection and Weighing

Crop Problems	<p>During fiscal year 1990, weather conditions caused problems with the wheat, soybean, and barley crops in several areas of the country. Soft Red Winter wheat grown in Arkansas, Illinois, Indiana, Missouri, and Ohio was harvested with low test weight and scab damage. The Soft White wheat crop in Michigan and Ohio, as well as barley and Hard Red Winter wheat harvested in the Pacific Northwest, contained sprout damage. Soybeans harvested in some portions of Kansas, Missouri, and Nebraska contained green damage. FGIS provided additional grading seminars to inspectors in affected areas. No complaints were received regarding the quality of the inspections performed.</p> <p>Unfavorable growing, harvesting, and storage conditions this year were the primary contributors to the occurrence of odor in sorghum samples from south Texas. In response to industry concerns about the marketability of the sorghum crop, FGIS met with the local industry representatives to discuss FGIS grading procedures regarding odor determination. Based on sample exchanges, a review of FGIS procedures, and a study conducted in 1989, the Agency determined that the national inspection system's odor determination is correct, consistent, and repeatable.</p>
Cu-Sum Implementation	<p>FGIS implemented a revised Cu-Sum plan, a statistical loading plan for export grain shipments, during fiscal year 1990. Specifically, FGIS improved the inspection process by revising the tolerances used; limiting the retesting allowed for unacceptable grain quality; providing for the averaging of subsequent inspection results with previous inspection results; including wheat protein under the plan; and offering an optional component sample inspection service. The revised plan provides the foreign buyer with assurance that the quality of grain loaded into the ship will meet or exceed the contracted limits and provides the shipper with an efficient method for determining quality. To ensure accurate implementation of the new plan, FGIS developed a video explaining changes to the plan, new inspection procedures, and revised tolerances. The video was distributed to FGIS field offices and the industry.</p>
Field Office Automation	<p>To meet the Agency's goal of integrating technology into the national inspection and weighing system, FGIS acquired microcomputers for each of its field offices. The Agency is developing information systems that will fully utilize the automation capabilities to: enhance information gathering and exchange capabilities; increase the usefulness and value of information collected by the national inspection and weighing system; and improve, streamline, and speed the delivery of inspection and weighing services to applicants.</p>
Office Consolidation	<p>In response to declining requests for FGIS services in the east Texas grain inspection market and to fulfill FGIS' commitment to providing cost-effective and timely inspection and weighing services, the Agency closed its Galveston, Texas, field office. The Agency's field office at Pasadena, Texas, is being relocated to a point between Galveston Island and Pasadena to ensure that official services remain available to both markets.</p>
Processed Commodity Program Automation	<p>To improve the quality of service provided to processed commodity testing customers, FGIS fully implemented the Laboratory Management Information Network (LABMIN). LABMIN is a computer-based system that provides rapid and precise sample tracking, validation of test results, and data transfer of all test results for all processed commodity samples inspected by the FGIS Commodity Testing Laboratory in Beltsville, Maryland.</p>

Safety Program

FGIS worked closely with the grain industry to use automation capabilities to move FGIS employees from within grain elevator facilities to safer locations. During the course of normal industry renovations, FGIS relocated employees at three facilities to safer work areas. The Agency will continue to pursue this initiative throughout the upcoming fiscal year.

Soybean Protein and Oil Testing

In response to a growing need for intrinsic quality information, FGIS began offering soybean protein and oil content testing as an official service of the national grain inspection system on Sept. 4, 1989. FGIS uses near-infrared reflectance (NIR) instruments to measure the protein and oil levels. The NIR instruments, located at export points and at the FGIS Technical Center, enable FGIS to provide more efficient and timely testing services.

Test Weight Reverification Service

In the course of developing the Agency's Scale Testing and Weighing Program, FGIS found that, due to the size and location of weights used for testing official scales, many weights were not being regularly reverified. Reverification of these 1,000- to 3,000-pound weights generally is performed by State weights and measures laboratories. FGIS testing revealed that the accuracy of many official test weights had deteriorated considerably. In response, FGIS developed, and recently expanded, a service which provides regular reverification of these weights. Certification equipment is now located at critical points in Baltimore, Maryland; Chicago, Illinois; New Orleans, Louisiana; and Portland, Oregon. The service is provided to applicants for a published fee which supports the program.

Weighing Training

FGIS implemented a new weighing training program for FGIS field offices. The training program covers the weighing of all types of grain and packaged commodity movements -- inbound, outbound, and export -- and explains basic scale applications and weighing principles. The program may be used for incremental weighing training as needed or required.

Inspection Program Data

Item	Fiscal Years		
	1988	1989	1990
Quantity of Grain Produced* (MMt) <u>1/</u>	262.3	252.4	340.3
Quantity of Grain Officially Inspected (MMt)			
Domestic	195.4	183.4	176.7
Export by FGIS	91.3	87.1	87.4
by Delegated States	<u>24.3</u>	<u>27.0</u>	<u>26.9</u>
Total	311.0	297.5	291.0
Number of Delegated States/Official Agencies	79	77	76
Number of Official Original Inspections and Reinspections			
FGIS	222,516	198,617	186,470
Delegated States/Official Agencies	<u>2,977,863</u>	<u>2,621,008</u>	<u>2,608,501</u>
Total	3,200,379	2,819,625	2,794,971
Number of Wheat Protein Inspections			
FGIS	70,435	45,918	53,813
Delegated States/Official Agencies	<u>620,552</u>	<u>482,679</u>	<u>458,563</u>
Total	690,987	528,597	512,376
Number of Soybean Protein and Oil Inspections			
FGIS	--	--	10,502
Delegated States/Official Agencies	<u>--</u>	<u>--</u>	<u>2,360</u>
Total	--	--	12,862
Number of Official Inspection Supervisions			
Field Office Grain Inspection Supervisions	43,485	39,238	44,000 *
BAR Grain Inspection Supervisions <u>2/</u>	10,351	14,152	10,047
Rice Free Fatty Acid	--	--	380
Soybean Protein and Oil	--	--	2,914
Sunflower Oil	--	--	1,862
Wheat Falling Number	--	--	308
Wheat Protein <u>3/</u>	37,634	41,486	45,124
Number of Grain Appeals			
Field Offices	12,095	15,311	8,400 *
BAR	2,176	1,226	550
Number of Aflatoxin Inspections	16,934	49,171	60,867
Quantity of Rice Inspected (MMt) (milled basis)	4.1	4.3	3.7

* Estimate.

1. Million metric tons.

2. Board of Appeals and Review.

3. Includes field office and QARD samples.

Weighing Program Data

Item	Fiscal Years		
	1988	1989	1990
Official Weight Certificates Issued			
FGIS			
Class X*	119,853	105,705	99,217
Class Y**	17,148	13,498	23,924
Total	<u>137,001</u>	<u>119,203</u>	<u>123,141</u>
Delegated States/Official Agencies			
Class X*	78,012	50,491	47,350
Class Y**	174,456	179,127	185,450
Total	<u>252,468</u>	<u>229,618</u>	<u>232,800</u>
Exported Grain Weighed (MMt)			
FGIS	89.1	85.1	85.6
Delegated States	24.3	27.0	26.9
Total	<u>113.4</u>	<u>112.1</u>	<u>112.5</u>
Number of Certified Scales in Service			
Export Elevators	475	408	388
Number of Railroad Track Scales Tested	120	110	131

* Class X involves 100 percent supervision.

** Class Y involves a minimum of 25 percent supervision.

Research and Development

Aflatoxin Testing	FGIS is continuing to integrate fast, accurate, and safe aflatoxin testing methodologies into the national inspection system. In 1990, the Agency initiated an evaluation of commercially available aflatoxin test kits which report the actual parts-per-billion of aflatoxin present. These kits were also evaluated for their ability to measure aflatoxin in grains other than corn and commodities. This study is scheduled to be completed in fiscal year 1991. The current study augments a similar evaluation conducted in 1989, which resulted in FGIS approving six test kits which provide qualitative results as screening methods in the national inspection system.
Corn Protein, Oil, and Starch Analysis	In an effort to provide end-use quality information to buyers and sellers of U.S. corn, FGIS is developing near-infrared reflectance (NIR) techniques for the measurement of the protein, oil, and starch content of corn. Ideally, FGIS intends to use the same whole-kernel NIR instrument that is currently approved for soybean protein and oil analysis.
Grain Cleaning Study	As part of its continuing effort to evaluate how grain standards interact with the marketplace, FGIS has engaged the Economic Research Service (ERS) to conduct a study to determine the economic feasibility of cleaning grains. The study, which is expected to be completed in approximately 3 years, will address corn, barley, sorghum, soybeans, and wheat.
Grain Dust Control	Grain dust at grain handling facilities presents health hazards for grain handlers and a potential for explosion. FGIS is funding research to evaluate the costs and benefits of retrofitting export elevators to prevent recirculated grain dust from being returned to the grain.
Grain Odor	To date, grain odor, an important indicator of grain quality, has been determined by subjective tests conducted by inspectors. FGIS is working with the Agricultural Research Service (ARS) to produce a simple mechanical "sniffer" which objectively detects odors in grain. The study has produced promising results. FGIS is also analyzing both sound grain and grain containing odors to determine the chemical compounds which cause specific odors. Many odors listed in the current grain standards such as "sour" or "musty" currently can be attributed to the presence of specific chemical compounds in the grain. In addition, commercially available odor sensors have been purchased and are being evaluated for their ability to detect grain odors.
Image Analysis	Advances in computer technology have allowed increased use of image analysis in the inspection of a wide variety of food products. Using this technique, items are examined for defects using a camera system linked to a computer. Both the type and the amount of damage can be determined. FGIS is supporting research by ARS to develop this technology as an important tool for use in the official inspection system.
Insect Infestation	FGIS continues to support research to measure insect infestation levels. The enzyme-linked immunosorbent assay (ELISA), which detects small amounts of insect muscle protein, measures total infestation including both live and dead insects. ELISA test results correlate highly with standard analytical techniques, including insect fragment counts and numbers of exit holes in kernels. FGIS, in conjunction with ARS, is also developing an acoustical detector which measures the number of live insects present in a sample of grain.

Mycotoxins Other Than Aflatoxin	Mycotoxins are toxic substances produced by a wide variety of molds and fungi. Aflatoxins are the most widely known mycotoxins, but there are others that may present problems to grain. FGIS is working with mycotoxin experts from the Food and Drug Administration (FDA) and ARS to determine the relative abundance of several mycotoxins. Preliminary studies were carried out to determine the ease of use and the performance capabilities of commercially available test kits for deoxynivalenol (vomitoxin), T-2 toxin, ochratoxin, and zearalenone in grain. Results of these studies will be available in late 1990.
Pesticide Residue Analysis	FGIS is currently developing a survey program for the measurement of pesticide levels in U.S. grains using a Gas Chromatograph/Liquid Chromatograph/Mass Spectrometer. The newly purchased spectrometer has been calibrated and is being used to analyze sample extracts that have been obtained using standard FDA extraction procedures. In an effort to use faster and safer testing procedures, FGIS purchased a supercritical fluid extraction apparatus that extracts pesticide residues from samples using liquefied carbon dioxide at high pressure. Use of this technique takes minutes rather than hours and lowers analysis costs by approximately 90 percent. FGIS is working with ARS to develop proper extraction conditions for removing pesticide residues from grain samples.
Sprout Damage	Sprout damage is currently measured by the Falling Number test. FGIS is comparing the Falling Number test with the Stirring Number test, a technique developed in Australia, to determine which of these methods provides the most reproducible results. Both techniques indirectly measure the amount of sprout damage in wheat. The Falling Number test measures the amount of time taken for a metal plunger to fall through a viscous starch solution. The Stirring Number test measures the resistance to stirring a propeller in a similar solution.
Weed Seed Toxicity	FGIS, with ARS, has evaluated the toxicity of jimson weed, morning glory, velvetleaf, and sicklepod. The information will be reported to FDA for a determination of whether defect action levels will be established for these weeds. FGIS is still analyzing the toxicity of black nightshade.
Wheat Classification	FGIS, ARS, the Agricultural Marketing Service, and the industry-sponsored Wheat Classification Working Group are working to develop a wheat classification system based on objective test results rather than kernel color and morphology. Wheat hardness information is potentially valuable to processors and handlers, and may provide a basis for classifying wheat. In 1990, FGIS initiated a field study to evaluate the variability associated with the near-infrared reflectance (NIR) method for determining wheat hardness. The Agency analyzed approximately 12,000 wheat samples using both single-kernel hardness testers and NIR instruments. To provide a basis for evaluating the variability of hardness testing data, FGIS is working to develop a standard reference method for the measurement of the hardness of a single kernel of wheat.

Standards and Procedures

Codex Alimentarius Commission

FGIS continues to participate in the Committee on Cereals, Pulses, and Legumes of the Codex Alimentarius Commission (Codex). Codex, a subsidiary body of the Food and Agriculture Organization of the United Nations and the World Health Organization, was established to facilitate world trade by developing internationally accepted food standards that foster consumer health. Thus far, the Committee has established standards for wheat flour, maize, whole maize meal, degermed maize meal, maize grits, certain pulses, and sorghum. The development of standards for oats, Durum wheat, soft wheat, rice, and peanuts is also under consideration.

Land Carrier Fumigation

In fiscal year 1990, FGIS published procedures for the in-transit fumigation of insect-infested grain shipped in land carriers. The fumigation procedures facilitate the marketing of grain by reducing demurrage costs for rail shipments requiring treatment. Receiver safety is also enhanced by a statement shown on the inspection certificate which indicates that the carrier was fumigated.

Standards

Canola

To facilitate the marketing of canola, and in response to interest expressed by the U.S. Canola Association and others in the canola industry, FGIS is preparing to publish a proposed rule that will recommend establishing U.S. Standards for Canola.

Rice

FGIS is proposing to revise the U.S. Standards for Rice to establish a special grade for Glutinous or Sweet rice, which is a specialty rice grown in California.

Sorghum

Based on an Economic Research Service impact study and discussions with the Grain Quality Workshop, an industry technical working group, FGIS is proposing to amend the U.S. Standards for Sorghum. Proposed modifications include: (1) changing the amount of Brown sorghum allowed in Yellow sorghum; (2) revising the classification terminology; (3) requiring the reporting of sorghum dockage to the nearest tenth percent; (4) separating the combined grading factor "broken kernels, foreign material, and other grains" into "broken kernels" (BK) and "foreign material" (FM); and (5) reducing the combined limits for BK and FM. The amendments are intended to more accurately describe the quality of sorghum and provide an incentive to improve quality.

Standards
(continued)

Soybeans

In accordance with the requirements for the periodic review of existing regulations, FGIS published a notice inviting comments and suggested changes to the U.S. Standards for Soybeans. The Agency is currently analyzing the submitted comments and will publish a proposal in fiscal year 1991.

Wheat

FGIS revised the wheat standards to subdivide the White wheat class into two separate classes: Hard White wheat and Soft White wheat. The reclassification, which became effective May 1, 1990, addressed market demands for separate classification of the White wheats. In fiscal year 1991, FGIS is considering proposing several other changes to the wheat standards, including: removing Red Durum wheat from the definition of unclassified wheat; tightening the limits for stones, glass, and ergot; and establishing dockage as a grading factor.

Compliance

Compliance is the conformance with all requirements and procedures established by statute, regulation, instruction, or directive so that the managerial, administrative, and technical functions of FGIS are accomplished effectively.

FGIS ensures, through reviews, evaluations, and, as necessary, enforcement actions, that the Act, applicable provisions of the Agricultural Marketing Act (AMA), and regulations, procedures, and policies issued thereunder are implemented accurately and uniformly.

Alleged Violations

At the end of fiscal year 1989, 18 cases involving alleged violations of the Act and the AMA were pending further action. In fiscal year 1990, 21 cases were opened and 20 cases were closed. Alleged violations during fiscal year 1990 involved deceptive practices; improper performance of official duties; improper sampling; falsification of documents; unauthorized computer use; and flour contamination. In investigating the 21 cases opened during fiscal year 1990, FGIS personnel conducted 9 onsite investigations; referred 5 cases to the Office of Inspector General, which accepted 3 and declined 2; and addressed the remainder by evaluating information submitted by field office personnel. Of the 20 cases closed, 15 were concluded after appropriate administrative actions were taken, and 5 were closed due to insufficient evidence to substantiate a violation.

Compliance Reviews

FGIS conducted compliance reviews of 11 field office circuits and 12 official agencies to evaluate management effectiveness and program compliance. Special reviews were also conducted of four official agencies experiencing problems. Although some problems were found, for the most part, field office circuits were found to be well managed, performing satisfactorily, and meeting the Agency's mission.

The compliance reviews, which included interviews both of applicants for service and of official personnel, determined that there were no instances of discrimination in the delivery of official services during fiscal year 1990.

Commodity Testing Laboratory Management Evaluation

During fiscal year 1990, FGIS conducted a management evaluation of the FGIS Commodity Testing Laboratory (CTL) to identify its operational effectiveness. The CTL provides testing and analysis, upon request, for a variety of customers. CTL tests samples from 22 FGIS field offices and approximately 300 commodity plants across the United States, and tests and analyzes processed commodities packed under Agricultural Stabilization and Conservation Service, Defense Logistics Agency, and Veterans' Administration contracts. During calendar year 1989, the CTL performed approximately 15,000 test determinations.

The management evaluation determined that the management and administration of the CTL have vastly improved compared to recent performance assessments. Improvement in both the timeliness and the quality of test results is apparent, and many administrative and safety issues have been corrected or are being addressed.

Conflicts of Interest

During fiscal year 1990, five of the six designated agencies granted discretionary conflict-of-interest waivers were operating satisfactorily under the conflict-of-interest provisions of the Act. One agency experienced supervision and management problems throughout the fiscal year. At the insistence of FGIS, this official agency implemented a major personnel change and is now operating under increased FGIS monitoring and oversight during an agreed-upon probationary period.

FGIS evaluated 17 conflict-of-interest situations involving official licensees. Exceptions, which are granted on the basis of an individual's agreement to comply with specific conditions, were granted to 13 licensees. The remaining four cases did not constitute a conflict of interest.

Enforcement Action

During fiscal year 1990, two convictions of criminal charges were obtained on cases related to violations of the Act. Two owners of a grain company pleaded guilty to three counts of adding urea to wheat shipments to increase the protein content. Each was placed on 3 years' probation and fined \$250,000. In the second case, two part-owners of a grain storage elevator pleaded guilty to mail fraud and to bribery of a licensed inspector. One was sentenced to 3 years in prison plus 4 years' probation after release from prison, and the other received 3 years' probation. They were ordered to pay over \$271,000 in restitution.

With the issuance of Final Decisions and Orders, FGIS revoked the licenses of three licensees for willfully failing to perform their duties properly.

**Implementation of the
Grain Quality
Improvement Act of 1986**

The Grain Quality Improvement Act (GQIA) amended Section 13 of the Act by prohibiting (1) the addition or recombination of dockage, dust, or foreign material to grain and (2) the blending of different kinds of grain, except when Mixed Grain is a contract requirement. As a proactive measure, FGIS formed a task force to conduct surveys at several grain elevators to determine the effectiveness of the FGIS field offices' monitoring plans and the level of compliance with the GQIA. This survey involved examining records, interviewing personnel, and reviewing grain handling systems. During fiscal year 1990, the task force visited export grain facilities in New Orleans, Houston, and Portland, and interior grain facilities in Minnesota, Iowa, Oklahoma, Washington, and Mississippi. Specific findings of the survey will be issued in calendar year 1991.

Litigation Proceedings

Eleven litigation proceedings during fiscal year 1990 involved requests for FGIS personnel to appear as witnesses in judicial and administrative proceedings, to give written or oral depositions, or to supply official records.

Several tort claim suits were filed against FGIS as a result of a shipment of Commodity Credit Corporation sorghum destined for Ecuador under the P.L. 480 program. An appeals review by the FGIS Board of Appeals and Review determined that FGIS personnel misgraded the sorghum on the original inspection. The appeal findings led to a discharge of the sorghum and subsequent delays. The owners of the vessel and the warehouse claimed they incurred financial damages as a result of the misgrading. FGIS submitted a reply to the complaint indicating that the misgrading error was corrected on appeal. The suits are still pending.

Official Agency Designations

Under triennial renewal procedures, 22 agency designations automatically terminated during fiscal year 1990. All were renewed after complete performance reviews. The designation for the Paris Illinois Grain Inspection Agency in Paris, Illinois, was canceled when the sole proprietor passed away. The geographic area serviced by the Paris Agency will be reassigned following established designation procedures. Seventy-six State and private agencies are currently designated to provide official services at interior locations. Of these, eight are States that are also delegated authority to perform official inspection and weighing services at export locations.

Registration

During calendar year 1990, 87 registration certificates were issued to persons engaged in the business of exporting grain.

Overview of Compliance Activities Fiscal Year 1990

Item	Fiscal Years		
	1988	1989	1990
Agency Delegations and Designations	79	77	76
Designations Renewed	29	27	22
State Delegations at Export Port Locations	8	8	8
Registration Certificates Issued to Grain Firms	92	96	87
Licensees:			
Inspectors	--	718	702
Weighers	--	95	107
AMA Inspectors	--	86	89
Samplers/Technicians (approximate)	--	1,528	2,312

International Relations

Foreign Complaints

In fiscal year 1990, FGIS received 22 quality complaints and no quantity complaints from foreign buyers on grains inspected under the U.S. Grain Standards Act, as amended. This is compared with 24 quality complaints and 1 quantity complaint in 1989. In 1990, the tonnage involved in foreign complaints was approximately 1.2 million metric tons, which represents 1.1 percent, by weight, of the total amount of grain exported during the year. The complaints involved 51 shiplots loaded aboard 44 vessels. By comparison, the 24 complaints received in 1989 represented approximately 0.9 percent of total grain exports.

Foreign Grain Complaints Three-Year Summary

	Fiscal Year 1988	Fiscal Year 1989	Fiscal Year 1990
Quality Complaints	34	24	22
Quantity Complaints	1	1	0
Total	35	25	22
Export Volume Inspected and Weighed (million metric tons)	115.8	114.1	114.3
Complaint Tonnage (million metric tons)	1.1	1.0	1.2
Complaint Percentage	1.0	0.9	1.1

The most common basis of complaints in fiscal year 1990 was protein in wheat. Seven complaints were received on this factor. Four complaints were received on wheat of other classes, and three on soybean foreign material. No complaints on aflatoxin in corn were received in 1990.

The number of foreign complaints has decreased every year since 1987.

Summaries of foreign complaints, briefings presented to foreign trade and governmental teams, and FGIS activities involving foreign travel during fiscal year 1990 appear on the following pages.

Summary of Inspection
and Weighing
Foreign Complaints
Fiscal Year 1990

Country	Grain	Number of Complaints	Nature of Complaint
Asia			
Japan	Corn	1	Darkened germs
	Wheat	1	Protein, Falling Numbers
Korea	Corn	1	Black spots in cornmeal
	Soybeans	1	Damaged kernels, splits, foreign material
Malaysia	Wheat	3	Protein
		1	Protein, wheat of other classes
Europe			
Italy	Wheat	1	Dockage, dust
Netherlands	Soybeans	1	Foreign material
United Kingdom	Wheat	1	Dockage, protein

Summary of Inspection
and Weighing
Foreign Complaints
Fiscal Year 1990

Country	Grain	Number of Complaints	Nature of Complaint
Latin America			
Bolivia	Wheat	1	Wheat of other classes
		1	Wheat of other classes, heat damage
Colombia	Soybeans	1	Foreign material
Ecuador	Wheat	1	Infestation
El Salvador	Wheat	1	Protein
Guatemala	Wheat	1	Wheat of other classes
Nicaragua	Corn	1	Moisture, damaged kernels, broken corn & foreign material
Venezuela	Corn	1	Moisture, damaged kernels, broken corn & foreign material
	Wheat	1	Shrunken & broken kernels
Near East			
Egypt	Corn	1	Weed seeds
	Wheat	1	Infestation, cottonseed
Total		22	

Summary of Briefings
with Foreign Trade and
Governmental Teams,
Fiscal Year 1990

	Number of Teams
Africa	
Cote d'Ivoire	1
South Africa	1
Asia	
Bangladesh	1
Japan	3
Korea	4
Pakistan	2
People's Republic of China	3
Philippines	1
Taiwan	1
Europe	
Bulgaria	1
European Community	1
Romania	1
Turkey	2
USSR	1
Latin American & Caribbean	
Caribbean (Jamaica, Dominican Republic, Barbados, Trinidad/Tobago)	1
Ecuador	1
Mexico	1
Near East	
Egypt	2
Morocco	1
Saudi Arabia	1
Tunisia	1
TOTAL	31

**Summary of Activities
Involving Foreign Travel
Fiscal Year 1990**

Purpose	Number	Country Visited	Dates
1. To discuss canola inspection procedures with Grain Commission officials.	3	Canada	12/05- 12/08/89
2. To investigate a soybean quality discrepancy at the request of the exporter.	1	The Netherlands	12/11- 12/19/89
3. To conduct followup training on grain inspection methods and procedures at the request of U.S. Wheat Associates.	1	Yemen	2/26- 3/09/90
4. To address rice quality discrepancies at the request of the USA Rice Council and the Agency for International Development.	1	Gabon, Guinea, Liberia	3/16- 3/30/90
5. To participate in a regional grain marketing seminar attended by 10 sub-Saharan African nations, at the request of U.S. Wheat Associates.	1	Kenya	5/18- 5/25/90
6. To conduct a wheat grading seminar for wheat importers, at the request of U.S. Wheat Associates.	1	Venezuela	6/11- 6/15/90
7. To make a presentation at the 25th International Grain Industry Course at the request of the Canadian International Grains Institute.	1	Canada	6/19- 6/21/90
8. To attend the International Working Conference on Stored-Product Protection and a workshop on trapping stored-product insects.	1	France	9/06- 9/17/90
9. To participate in a market development seminar at the request of the American Soybean Association.	1	Mexico	9/11- 9/14/90

Education and Information

Grain Dust Explosions

	Fiscal Years		
	1988	1989	1990
Number of Explosions	12	10	18
Number of Injuries	12	5	11
Number of Deaths	8	2	0

FGIS receives information regarding grain dust explosions through the cooperation of universities, insurers, trade groups, FGIS personnel, and a news clipping service. FGIS does not investigate grain dust explosions, and the public sector is not required to report explosions to FGIS.

Summary of Reported Grain Dust Explosions

Facility	Location	Date	Injuries	Deaths
Sandahl Farm Service	Cherry Valley, IL	11/10/89	0	0
Hubinger Company	Keokuk, IA	11/13/89	0	0
Ogilvie Mills	Keokuk, IA	11/22/89	0	0
Quad County Cooperative	Exter, NE	12/05/89	2	0
Shawnee Terminal Elevator	Topeka, KS	12/10/89	0	0
Harvest States Cooperative	Sherburn, MN	02/21/90	2	0
Riceland Foods	Jonesboro, AR	02/23/90	0	0
Delta Bulk Conveyor	Convent, LA	03/18/90	0	0
Ruehl & Arnstein Feed Mill	Granger, WA	03/28/90	0	0
Midwest Grain Products	Atchinson, KS	03/30/90	0	0
Cargill Elevator	Reserve, LA	04/16/90	2	0
Cargill Kansas Blvd. Elevator	Kansas City, MO	06/05/90	2	0
Andersons River Elevator	Toledo, OH	06/06/90	0	0
Shadowdale Elevator, Inc.	Houston, TX	06/25/90	0	0
Midwest Grain Products	Atchinson, KS	07/14/90	0	0
Midwest Grain Products	Pekin, IL	08/30/90	0	0
Farr Better Feeds	Hereford, TX	09/05/90	3	0
Farmers Coop Elevator	Hanover, KS	09/11/90	0	0

Publications

As part of the Agency's ongoing efforts to provide more and better information about the quality and end-use characteristics of U.S. grain, FGIS publishes annual reports on crop quality. Eleven reports were issued during fiscal year 1990.

1990 Preliminary Soft Red Winter Wheat Quality Report

1990 Preliminary Hard Red Winter Wheat Quality Report

1990 Preliminary Hard Red Spring Wheat Quality Report

1989 Preliminary Durum Wheat Quality Report

1989 Preliminary White Wheat Quality Report

1989 U.S. WHEAT CROP QUALITY REPORT

1989 Preliminary Corn Quality Report

1989 U.S. CORN CROP QUALITY REPORT

1989 Preliminary Soybean Quality Report

1989 U.S. SOYBEAN QUALITY REPORT

1989 U.S. GRAIN EXPORTS: QUALITY REPORT

Budget Information

Status of Fee-Supported Accounts
Fiscal Year 1990

Program	Revenue 9/30/90	Obligations 9/30/90	Profit/(Loss) 9/30/90	Unobligated Funds 9/30/90
U.S. Grain Standards Act				
Inspection and Weighing	\$ 19,410	\$ 21,963	\$ (2,553)	\$ 2,347
Canadian Operations	331	349	(18)	(556)
Official Agencies	2,085	2,067	18	4,229
Registration	16	11	5	30
USGSA Subtotal	21,842	24,390	(2,548)	6,050
Agricultural Marketing Act of 1946				
Rice Inspection	2,939	3,546	(607)	146
Commodity Inspection	5,889	6,007	(118)	4,273
AMA Subtotal	8,828	9,553	(725)	4,419
FGIS Total Fiscal Year 1990	30,670	33,943	(3,273)	10,469

(Dollars in Thousands)

10/30/90

Accounting History of FGIS
Appropriated and Fee Supported Funds

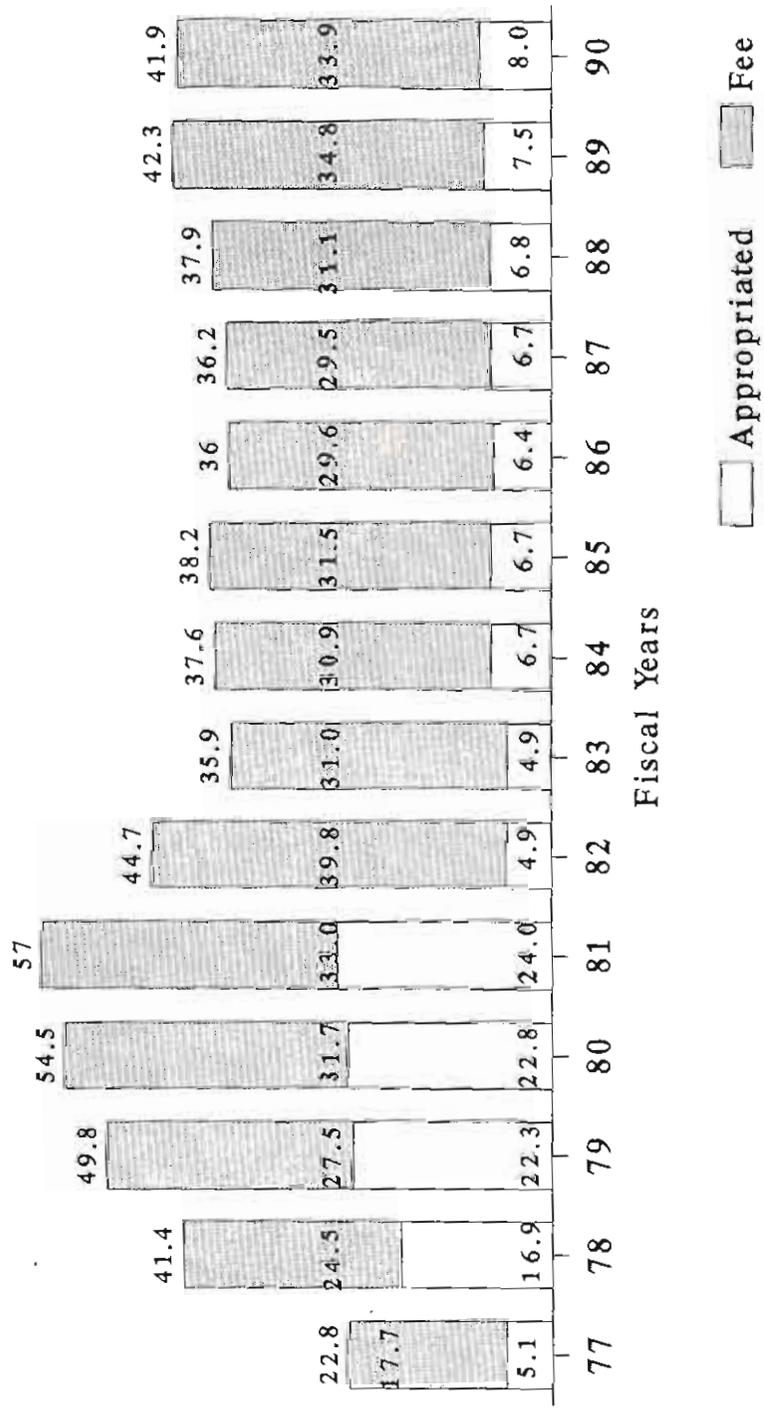
Description	FY 1984 Actual	FY 1985 Actual	FY 1986 Actual	FY 1987 Actual	FY 1988 Actual	FY 1989 Actual	FY 1990 Actual
APPROPRIATED FUNDS							
Budget Authority	6,681	6,994	6,702	6,826	7,020	8,115	8,185
Total Obligations	6,738	6,676	6,396	6,694	6,806	7,496	8,017
Difference	123	318	306	132	214	619	168
FEE SUPPORTED FUNDS							
Fund Limitation	34,777	36,856	36,856	36,856	36,856	36,856	36,856
Total Obligations	30,932	31,467	29,558	29,517	31,094	34,795	33,943
Total Revenue	32,905	31,731	27,506	32,382	34,538	34,472	30,670
Profit/(Loss)	1,973	264	(2,052)	2,865	3,444	(323)	(3,273)
TOTAL OBLIGATIONS	37,670	38,143	35,954	36,211	37,900	42,291	41,960
TOTAL CEILING	41,638	43,850	43,558	43,682	43,876	44,971	45,041

(Dollars in Thousands)

10/30/90

FGIS Expenditures Supported by Users' Fees and Appropriations

Millions of Dollars



□ Appropriated ▨ Fee

Code of Ethics

As a representative of the
United States Department of Agriculture
Federal Grain Inspection Service,
I pledge to:

Provide impartial, professional service to all applicants.

Make accurate, honest, and fair decisions.

Disclose no privileged information to unauthorized persons.

Decline all gifts and favors from persons in the industry and from those requesting services.

Ensure the highest level of efficiency and economy in agency operations.

Maintain a safe and healthy work environment.

Behave in a manner which reflects positively upon the Service and of which I can be proud.

Maintain loyalty to and pride in the Service.

Uphold these principles in the awareness that public office is a public trust.