

BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Federal Export Grain Inspection And Weighing Programs: Improvements Can Make Them More Effective And Less Costly

Since the Grain Standards Act of 1976 was passed, some improvements have been made in export grain inspection and weighing operations but more are needed. Some grain standards and inspection procedures are too lenient or not adequate and inspection certificates still do not always fully disclose insect infestation, low-quality grain, and foreign material in grain shipments.

The effectiveness of the new weight supervision program has been limited by a lack of adequate instructions and supervision and a lack of proper training and high turnover of weighing personnel. Also, improved efficiencies in staffing and program operations could reduce inspection and weighing costs.

The Department of Agriculture should further improve inspection and weighing program procedures and insure that personnel are properly trained and supervised.

To reduce weighing costs, the Congress should amend the Grain Standards Act, revising the requirement that all grain transferred into an export elevator be officially weighed.



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WASHINGTON, D.C. 20548

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

1 This is the first of two reports on the official grain inspection and weighing systems required by the Grain Standards Act of 1976 and administered by the Department of Agriculture's Federal Grain Inspection Service. This report evaluates the official inspection and weighing systems implemented at U.S. export locations. The second report will discuss the somewhat different systems used to officially inspect and weigh grain in the interior of the United States. ✓ 671

We made this review at the export locations to determine if the changes made pursuant to the 1976 act have resulted in more accurate inspection and weight certifications and if foreign buyers perceive an improvement in the quality and weights of U.S. grain shipments. Among the report's recommendations is that the Congress amend the Grain Standards Act to revise the requirement that all grain transferred into an export elevator be officially weighed.

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

A handwritten signature in black ink, reading "James B. Steeds".

Comptroller General
of the United States

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D I G E S T

Foreign buyers perceive some improvements in the quality and weights of U.S. grain shipments since the Grain Standards Act of 1976 was passed. The improvement in grain quality was generally attributed to the quality of U.S. grain harvests in the past few years. The improvement in weights was attributed, in part, to the new Federal weighing program implemented under the act.

Further changes to the export inspection and weighing programs are needed, however, to better satisfy the needs of foreign end-users, make the programs more efficient, and ensure that irregularities which occurred prior to the act do not recur.

NEED TO IMPROVE INSPECTION PROCEDURES
AND GRAIN STANDARDS

The Department of Agriculture's Federal Grain Inspection Service has taken steps to eliminate or minimize conflicts of interest of inspection personnel and agencies and has improved certain inspection procedures. (See pp. 7 and 8.) However, further improvements are needed in the U.S. inspection and certification system.

Most quality problems which foreign end-users have with U.S. grain are caused by grain standards and inspection procedures which are too lenient or do not adequately address the end-users' needs. For example, GAO found that:

--Infestation certifications were sometimes misleading. The proportion of grain tested for insects was not standardized and, even when detected, the infestation was not always declared on the inspection certificates because the standards allow the presence of some insects. When infested grain is received, not only does the foreign buyer have to pay the added costs of fumigation and demurrage, but the delay in unloading the ship

disrupts the distribution schedule along the entire marketing chain. (See pp. 9 to 11.)

--Some foreign buyers, particularly recipients of partial shipments, had sometimes received lower grade (quality) grain than specified on inspection certificates because Service procedures did not assure that all grain in a shipment was within grade requirements. Of 271 shiploading logs GAO reviewed, about 40 percent showed that portions of the individual shipments, ranging up to 24 percent, were lower quality grain than the grade specified. This can create a problem when a buyer receives grain only from that part of the shipment containing the lower quality grain. (See pp. 11 to 15.)

--The actual amount of dockage (lower quality grain and foreign material that is generally deducted from the shipment weight in determining the final sales price) can exceed the amount certified by up to 0.49 percent for wheat and 0.99 percent for sorghum because of rounding procedures prescribed by the grain standards. This inflates the sales prices, transportation costs, and import taxes paid by foreign buyers. (See pp. 15 to 18.)

--Quality problems, such as excessive sprout damage in wheat, foreign material in soybeans, and moisture in corn, resulted from what the foreign end-users consider to be too lenient grain standards. Department of Agriculture studies support these contentions. (See pp. 63 to 70.)

The Service should make certain changes to the grain standards and inspection procedures which would (1) result in inspection certificates more accurately reflecting grain quality, (2) provide foreign end-users with better information on certain quality factors, and (3) assure greater uniformity in grain quality within a shipment. (See recommendations on pp. 24, 25, and 80.)

WEIGHING PROGRAM IMPROVEMENTS NEEDED

The Service's new weighing program has resulted in some improvement in the accuracy of grain weights, particularly on export shipments. (See pp. 27 to 29.) But certain changes are needed.

The act requires that all grain transferred into and out of an export elevator be officially weighed. The per unit cost of providing weight supervision for arriving shipments can be high, particularly for truck and rail shipments, because of the small quantities of grain involved. Grain companies oppose paying for the high cost of inbound weight supervision, particularly when the elevator already owns the arriving grain.

The Service could reduce its level of weight supervision for truck and rail shipments arriving at export elevators and still maintain reasonable control over the accuracy of the weights. However, to do so will require legislation. (See pp. 38 to 43.)

The Congress should amend the act to authorize the Service Administrator to reduce the amount of weight monitoring required on rail and truck shipments arriving at export elevators. (See p. 44 for suggested language.) In the event the act is amended, the Service should develop and implement more cost-effective programs for monitoring the weighing of truck and rail shipments. (See p. 45.)

GAO and the Service's own staff noted many instances when Service personnel were not performing their weight monitoring or supervision duties properly. For example, proper adjustments were not always made for grain weighed for export but returned to storage and railcar conditions were not always properly checked and recorded although this is important in determining liability for weight shortages. Some personnel admitted to not knowing what they were supposed to be doing. (See pp. 33 to 38.)

Most weight program deficiencies can be attributed to the lack of proper training and the

high turnover of weighing personnel and to inadequate instructions and supervision.

--As of January 1979 less than half the Service's weight monitoring personnel had received formal weight training.

--In 1978 turnover rates of weighing personnel were as high as 50 percent at some locations.

--Instructions which the Service had to develop for its new weighing program did not cover all weighing areas adequately. For example, they did not cover field office supervision of delegated State agencies' activities.

--Field office supervisors, who had inspection but not weighing program backgrounds, had little knowledge of and had not devoted adequate attention to weighing activities.
(See pp. 30 to 36.)

The Service should issue additional instructions covering weight monitoring and supervision activities, and require that all weighing personnel be adequately trained before being assigned weight monitoring or supervision duties. (See pp. 44 and 45.)

MONITORING EXPORT SHIPMENTS

Agriculture's formal complaint system is not providing enough information for the Service to determine the magnitude, source, or cause of problems which foreign end-users are having with U.S. grain. Some foreign buyers had stopped submitting formal complaints because Agriculture could do little to help them settle disputes with U.S. exporters. Also, Agriculture was not contacting foreign end-users regularly to obtain their views on grain quality and to explain why the Service needs to know when they have problems. (See pp. 76 to 78.)

The most promising program for monitoring export shipments is one that would provide systematic feedback of destination quality and weight data. Although a number of importers had indicated that they would cooperate in such a program, the Service had not determined its data requirements, established a system for

gathering and analyzing the data, or requested the importers to periodically submit data they were already collecting. (See p. 78.)

The Service should give priority attention to developing this monitoring program, and the Service and the Foreign Agricultural Service should regularly contact major end-users to obtain their views on the quality of U.S. grain. (See pp. 80 and 81.)

SIC

This report also discusses:

--Problems foreign buyers are having with U.S. grain and grain products not covered by the act. (See pp. 72 to 76.)

--Certain costs associated with the inspection and weighing programs that could be reduced. (See pp. 47 to 60.)

AGENCY COMMENTS

The agencies generally agreed with most of GAO's recommendations and said that they were in the process of implementing some of them. The Service differed, however, with the recommendations that (1) inspection instructions be revised to prohibit the loading of offgrade grain when a shipment is destined for multiple buyers, (2) the act be amended to reduce the requirement for monitoring the weighing of grain transferred into an export elevator, and (3) the program developed to monitor elevator inventories be curtailed.

The agencies' comments and GAO's evaluation of them are discussed at the end of chapters 2, 3, 4, and 5.

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ABBREVIATIONS

APHIS	Animal and Plant Health Inspection Service
FAS	Foreign Agricultural Service
FGIS	Federal Grain Inspection Service
GAO	General Accounting Office
NIR	Near-infrared reflectance
OIG	Office of Inspector General
SEA	Science and Education Administration
USDA	Department of Agriculture

CHAPTER 1

INTRODUCTION

Following widespread disclosures of misgrading and shortweighing of grain, including our reports on our 1975-76 review of the national grain inspection system, 1/ the Congress enacted the U.S. Grain Standards Act of 1976 (7 U.S.C. 71-87(h)) to reform the system.

The act established the Federal Grain Inspection Service (FGIS) in the Department of Agriculture (USDA) and made the FGIS Administrator responsible for the national grain inspection and weighing systems. The act contains the following major provisions concerning inspection and weighing of grain at export locations.

- Federal export grain inspection and weighing systems were established with the FGIS Administrator authorized to delegate this authority to States involved in export inspections as of July 1, 1976, provided the States met certain criteria and conflict-of-interest provisions.
- Official inspection of all export grain 2/ is required, except that the Administrator shall waive the requirement when the parties to the contract mutually agree and the grain is not being sold, offered for sale, or consigned for sale, by grade.
- Official weighing is required for all grain transferred into or out of an export elevator at an export port location, except that the Administrator may provide otherwise in an emergency or other circumstances which would not impair the act's objectives.

1/"Assessment of the National Grain Inspection System," RED-76-71, Feb. 12, 1976, and "Supplemental Information on Assessment of the National Grain Inspection System," CED-76-132, July 16, 1976.

2/The act defines "grain" as corn, wheat, rye, oats, barley, flaxseed, sorghum, soybeans, mixed grain, and other food grains, feed grains, and oilseeds for which the FGIS Administrator establishes standards under the act. Such grains and grain products as rice, soybean meal, and flour are not covered by the act.

--The Administrator may revoke a State's delegated authority at any time without a hearing upon notice to the State agency.

--The changes which the act required at export locations were to be implemented by May 20, 1978.

This report discusses the improvements in export grain inspection and weighing resulting from the act and FGIS' implementation of it and the problems which should be addressed if continued progress is to be made in restoring integrity in the U.S. grain inspection and weighing systems.

GRAIN EXPORTS

The United States exported over 4 billion bushels of grain subject to the Grain Standards Act in fiscal year 1978. The value of this grain--\$14.3 billion--accounted for slightly more than half of the \$27.3 billion in U.S. agricultural products exported in fiscal year 1978. During this period more than 60 percent of the wheat, about 55 percent of the soybeans, and about 30 percent of the feed grains produced in the United States were exported. Maintaining and expanding this trade is important to grain merchandisers, farmers, and the U.S. economy.

FGIS employees inspected and weighed about 76 percent of the exported grain; the remainder was inspected and weighed by State agency personnel. The majority--62 percent--of the exported grain moved through gulf coast elevators.

<u>Area</u>	<u>Bushels</u> (000,000 omitted)	<u>Percent</u>
Gulf of Mexico	2,486	61.9
Atlantic coast	528	13.2
Pacific coast	467	11.6
Great Lakes	<u>533</u>	<u>13.3</u>
Total	<u>4,014</u>	<u>100.0</u>

Japan (\$2.5 billion), Russia (\$1.7 billion), and the Netherlands (\$1.4 billion) were major destinations, but not necessarily the final users, of fiscal year 1978 grain exports. A large quantity of grain shipped to the Netherlands, for example, was unloaded and transported to other

countries. Appendix I shows the values and quantities of export grain shipments to major original destinations in fiscal year 1978.

AGENCY FUNCTIONS AND OPERATIONS

FGIS' mission is to promote and facilitate the merchandising of U.S. grain and related commodities in an orderly, objective, and timely manner and to protect the general welfare of the people of the United States by

- establishing official U.S. standards and inspection procedures for grain quality and official standards for scale accuracy and weighing procedures,
- establishing official national grain inspection and weighing systems,
- uniformly and accurately applying the official U.S. standards or procedures, and
- officially certifying grain quality and weights.

FGIS also provides for the inspection and grading of rice- and grain-related products covered by the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621 et seq.).

FGIS carries out its mission through its headquarters in Washington, D.C.; 5 regional offices; and 41 field offices. The approximately 80 export elevators are under the jurisdiction of 23 field offices, while the remaining 18 field offices are mainly responsible for supervising domestic grain inspection activities. (See app. II for map showing FGIS regional office boundaries, the location of FGIS export field offices, and the eight States delegated to perform official inspection and weighing functions at export port locations.) One of the export field offices is in Montreal, Canada. It provides inspection services, on a request basis only, for U.S. grain being transferred to oceangoing vessels at Canadian export elevators.

FGIS had almost 1,500 full-time employees and about 200 intermittent and part-time employees at the end of fiscal year 1978. It incurred expenses of about \$41.4 million that year of which about \$24.5 million was recovered through fees. (See apps. III and IV for functional breakdowns of costs and staff years, respectively.)

To fulfill the 1976 act's requirements, FGIS was faced with accomplishing several major tasks within a relatively short time. FGIS has more than quadrupled the size of its

work force since 1976. This required a large-scale recruiting and training effort, particularly for the new weighing program. Other major undertakings included (1) developing regulations and instructions to implement the new and expanded program requirements and (2) performing studies of the grain standards and of grain inspection and weighing activities in the U.S. interior. Some and possibly many of the problems discussed in this report can be attributed at least in part to this rapid expansion of program requirements and personnel levels.

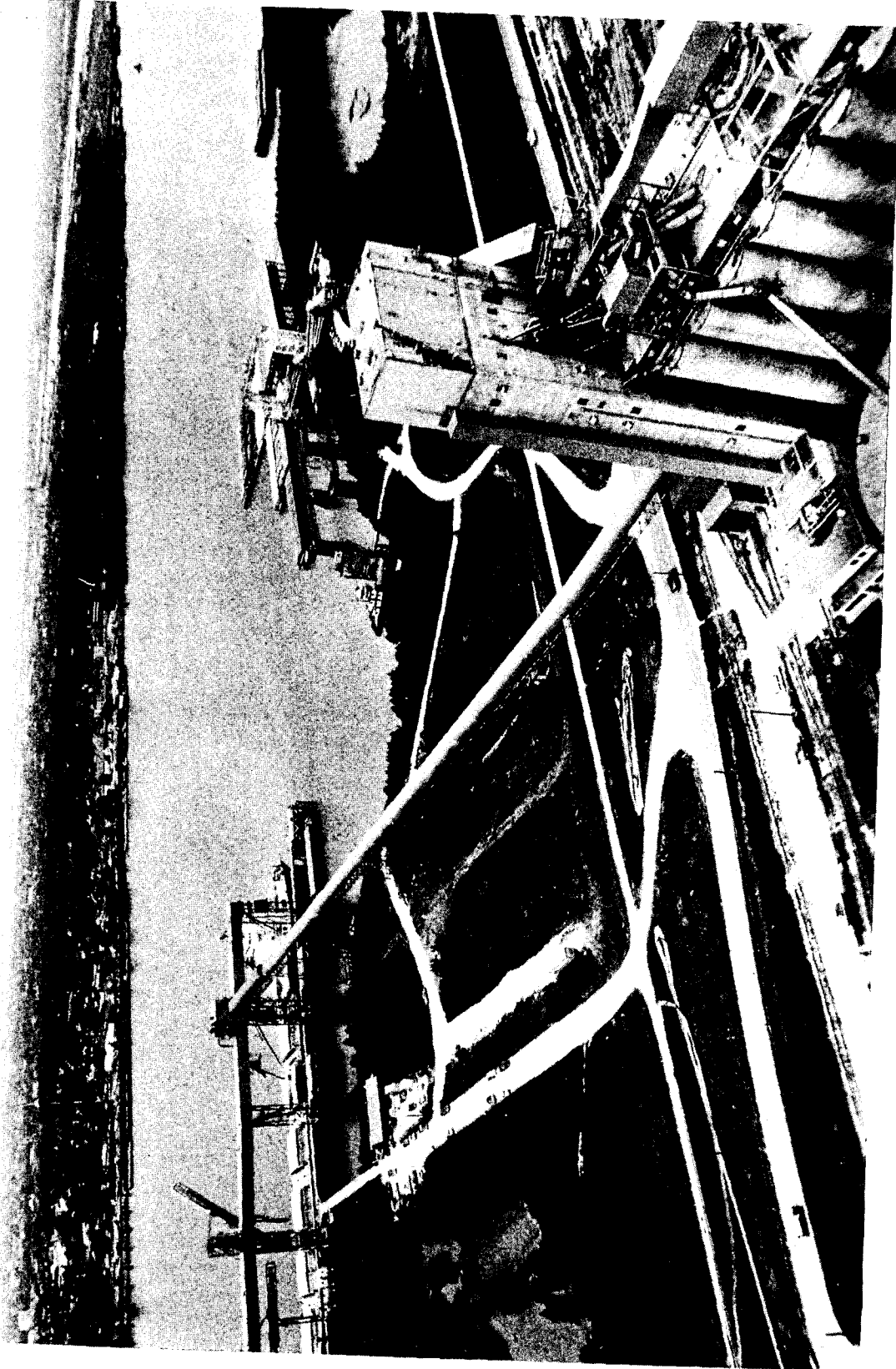
REVIEW OBJECTIVES AND SCOPE

Our review objectives were to evaluate the effectiveness of grain inspection and weighing at export elevators and the impact that changes required by the act and implemented by FGIS have had on foreign buyers' confidence in the U.S. grain marketing system. At export locations we (1) evaluated actions taken to correct problems discussed in our 1976 reports, (2) evaluated current inspection and weighing procedures and practices, and (3) analyzed certain FGIS actions having a major impact on the costs and funding of the inspection and weighing programs. We made the review at:

- FGIS field offices at Duluth, Minnesota; Toledo, Ohio; Baltimore, Maryland; Norfolk, Virginia; Mobile, Alabama; Destrehan and Lutcher, Louisiana; Beaumont, Houston, and Corpus Christi, Texas; Montreal, Canada; and selected export elevators within the field office circuits.
- FGIS headquarters in Washington, D.C.
- State inspection agency offices in Mobile, Alabama; Superior, Wisconsin; and Norfolk, Virginia.

We visited Japan, Korea, Italy, Spain, the United Kingdom, West Germany, and the Netherlands. In these countries we interviewed a total of 63 grain traders and end-users to obtain their perceptions of changes in the quality and weights of U.S. grain shipments since implementation of the act and to identify problems they still have with U.S. grain shipments. We also discussed with the U.S. agricultural attaches their role in handling foreign buyers' complaints.

We also reviewed reports and other documents of USDA's Office of Inspector General (OIG) and Foreign Agricultural Service (FAS).



SOURCE: USDA

EXPORT GRAIN ELEVATOR AND SHIPLOADING FACILITY.

CHAPTER 2

GRAIN INSPECTION IMPROVED

BUT FURTHER IMPROVEMENTS NEEDED

In implementing the 1976 Grain Standards Act, FGIS has taken steps to (1) eliminate or minimize conflicts-of-interest of grain inspection personnel and agencies at export locations, (2) improve the representativeness and maintain the integrity of grain samples used to determine export grain quality, and (3) install a system to check inspection activities at export locations for compliance with FGIS instructions. Such actions, we believe, have improved the integrity of the U.S. inspection system and have assisted in restoring foreign buyers' confidence in the system. They have also helped to reduce the frequency of appeal inspections on export shipments.

Although considerable progress has been made in restoring credibility to the inspection system, some major complaints from foreign buyers (see ch. 5) cannot be resolved until FGIS improves certain of its inspection and certification procedures. We found that:

- Infestation certifications were sometimes misleading because FGIS instructions did not require that (1) a standard proportion of grain be tested for infestation and (2) the certificate indicate the presence of insects if the number found did not exceed certain prescribed levels. About 25 percent of the 271 shiploading logs we examined showed that the shipments contained insects which were not disclosed on the inspection certificates.
- Some foreign buyers were not receiving the quality of grain specified on the inspection certificates because FGIS instructions and procedures did not require that all export grain in a shipment be within the grade requirements. About 40 percent of the 271 shiploading logs we examined showed that the shipments involved contained offgrade grain.
- Differences existed between actual and certified dockage amounts because of FGIS inspection procedures. (Dockage refers to lower quality grain and foreign material that is generally deducted from the shipment weight in determining the final sales price.)
- Inspection certificates issued by FGIS on U.S. grain transshipped from Canadian transfer elevators were

not annotated when the samples were obtained by means other than a mechanical diverter-type sampler because the regulation requiring this type of sampler pertained only to export elevators located in the United States.

FGIS has established a grain inspection monitoring system to improve the accuracy and uniformity of grain grading, but its effectiveness has been limited because sufficient data has not been gathered on individual inspectors, and system products have not been useful to those responsible for supervising and correcting inspection inaccuracies.

IMPROVEMENTS IN GRAIN INSPECTION SYSTEM

Numerous conflict-of-interest situations, which existed between grain merchandisers and inspection agencies before the 1976 act was implemented and which undermined the integrity of the U.S. grain inspection system, have been eliminated or minimized. Actual and apparent conflict situations were eliminated or minimized at export inspection sites by (1) ending private agency inspections, (2) investigating State agencies for conflicts-of-interest before delegating inspection authority to them, (3) requiring employee rotation where possible, and (4) requiring FGIS and State employees to certify that they have no conflicts-of-interest.

Grain samples used to determine export grain quality lacked credibility before the act was implemented. Reasons for this lack of credibility included a lack of assurance that the samples obtained were representative of the grain loaded, that the samples were properly secured until they were graded, and that all the grain represented by the samples was actually loaded. FGIS has substantially corrected these problems at export locations by requiring the use of approved diverter samplers for export grain; controlling access to samples and sampling equipment; securing grain diversion points by seal, lock, or other means; and observing the grain flow to assure sampling accuracy. (See app. V for illustration of the grain handling facilities of a typical export elevator.)

FGIS also created an export review team concept as a means of determining if inspection and weighing services complied with FGIS instructions. Teams of four or five representatives from various FGIS headquarters divisions make unannounced visits to export elevators. The teams observe inspection and weighing operations, interview officials, and examine records to identify technical and administrative problems and to offer viable solutions to FGIS officials.

The first export review team visit was in February 1978. In total, 29 visits were completed through mid-August 1979. These reviews disclosed problems in every aspect of operations at export sites, including grain grading, equipment testing, documentation, supervision, and safety. FGIS officials generally reacted positively and corrected deficiencies after receiving the review teams' reports.

Excessive numbers of inspections were being appealed before the 1976 act due in part to distrust of private agency inspection certificates. This duplication of effort increased inspection costs. However, export grain inspection appeals have decreased sharply since the act was implemented. The following table shows that, at certain export field office locations covered by our 1976 review, the number of appeal inspections declined significantly from 1975 to 1978.

Export Grain Inspection Appeals

<u>Location</u>	<u>Fiscal year</u>		<u>Decrease</u>	
	<u>1975</u>	<u>1978</u> <u>(note a)</u>	<u>Number</u>	<u>Percent</u>
Beaumont, Tex.	10	0	10	100
Houston, Tex. (note b)	663	18	645	97
New Orleans, La. (note c)	448	79	369	82
Philadelphia, Pa.	<u>25</u>	<u>d/ 11</u>	<u>14</u>	56
Total	<u><u>1,146</u></u>	<u><u>108</u></u>	<u><u>1,038</u></u>	89

a/Private inspection agencies operated until December 4, 1977, at New Orleans and Lutchter, and January 22, 1978, at Philadelphia.

b/Includes data from the Corpus Christi and Galveston, Texas, field offices.

c/Includes data from the Lutchter and Destrehan, Louisiana, field offices.

d/There were no export appeals after FGIS assumed original inspection duties.

INFESTATION NOT ALWAYS FULLY DISCLOSED IN CERTIFICATION

Insect infestation has been one of the most prevalent of the foreign buyers' formal complaints. The problem, however, may be of even greater magnitude than is indicated by formal complaints. For example, officials from one of our largest grain customers, Korea, said that they had received at least 12 infested shipments in 1978 but filed only one formal complaint covering 5 shipments. Also, grain officials from Poland said they received 17 infested shipments in 1978 but filed only one complaint covering 1 shipment. (See p. 64.)

FGIS officials blame much of the problem on hidden or latent infestation, but FGIS' instructions on testing for insects and certifying the extent of infestation also contribute to the problem.

Inconsistent testing for infestation

The probability of detecting infestation varies greatly from one inspection location to another because FGIS has not established a standard on the proportion of grain to be tested. FGIS specifies two types of infestation tests for export shipments: (1) periodic checks of the running grain stream as the grain is loaded and (2) a check of the subplot ^{1/} samples when they are graded to determine the quality. The proportions of grain checked under both procedures varied between elevators.

The subplot sample check consists of a visual examination of about 1,000 grams of grain, but the size of a subplot can range from 10,000 to 60,000 bushels. The grain-stream checks are also subject to wide variances in the amount of grain checked. Grain is taken from the stream at various intervals by automatic sampling devices. The amount of grain available for checking depends on the sampling interval, but FGIS instructions permit the sampling device to be set to collect a sample portion at intervals ranging from once every 200 bushels to once every 500 bushels. Also, FGIS has not standardized the quantity of grain in the sample that is to be checked for insects. As a result at some locations the entire grain-stream sample was checked while at others only part of the sample was checked. The wide variances in the amount of grain checked for infestation at seven elevators we visited are shown in the following table.

^{1/}A subplot is a portion of the total shipment.

Variances in Quantity Checked for Infestation

<u>Elevator</u>	<u>Normal subplot size in bushels</u>	<u>Grams per 10,000 bushels available for checking (note a)</u>	<u>Grams per 10,000 bushels checked</u>	<u>Percent checked</u>
A	10,000	1,000	1,000	100
B	24,000	6,667	3,542	53
C	40,000	5,250	2,650	50
D	40,000	8,250	2,250	27
E	50,000	8,200 to 10,200	8,200 to 10,200	100
F	60,000	10,292	10,292	100
G	60,000	16,167	2,167	13

a/Includes the check made at the time the subplot is graded.

FGIS instructions allow insects in exported grain without disclosure on inspection certificates

FGIS instructions define grain infestation as the presence of live weevils or other insects injurious to stored grain. The presence of a single live weevil or other insect is considered incidental. Under the instructions insects detected during sampling and grading are not disclosed on inspection certificates unless they exceed certain levels. For example, one live weevil is permitted in a single corn subsample 1/ or in alternate subsamples. Since each subsample contains about 1,000 to 2,000 grams, the grain could have an infestation density of one weevil per 2,000 to 4,000 grams and not be considered infested.

Before a subplot of grain is considered infested, the inspector has to find at least two live weevils, or a combination of one live weevil and other insects. Other live insects are permitted in the grain in numbers ranging from 4 to 14 per sample, depending on the type of insect.

We reviewed shiploading logs for 271 export grain shipments to determine the number of grain shipments in which live insects had been detected during inspection and which

1/A subsample represents part of the grain in a subplot (for example, 2,000 bushels of a 50,000-bushel subplot).

were exported without being fumigated or certificated as infested. Of the 271 shipments, 69 (25 percent) contained live insects at the time of inspection, including 53 that contained weevils.

In 13 of the 69 cases, the infested grain had been fumigated or rejected (returned to elevator storage). In the other 56 cases, or 81 percent of the total shipments with insects, the grain was shipped to foreign ports untreated and without separate certifications because, under FGIS instructions, these shipments were not considered to be infested.

FGIS' insect tolerances may be excessive and may not accurately reflect the condition of the grain, according to a study by FGIS and the research arm of USDA's Science and Education Administration (SEA). An interim report, dated June 1978, stated that the initial inspections of about 900 wheat and corn samples taken from export grain shipments revealed that 3 percent of the wheat samples and 5 percent of the corn samples contained insects. Inspection of the 900 samples following the incubation period showed that 16 percent of the wheat samples and 20 percent of the corn samples had insects. The study also showed that the presence of a single adult primary insect was rarely incidental--that when a sample contained a live weevil on first examination, additional weevils were usually found after the incubation period. The report stated that the infestation levels permitted by the FGIS tolerances, when combined with hidden infestation, could adversely affect the credibility of U.S. grain inspections, and suggested that insect tolerances be reevaluated.

FGIS actions

FGIS is experimenting with the use of carbon dioxide tests to detect the presence of hidden larvae or eggs. Although the test results are promising, the experiments have not yet produced a reliable method for detecting hidden infestation.

FGIS is considering changing its instructions to standardize the inspection procedures and to eliminate or reduce the allowances for live insects. However, these changes were still in the planning stages at the time of our review.

LACK OF UNIFORMITY IN GRAIN QUALITY

The lack of uniformity in grain quality throughout a shipment is another frequent complaint of foreign buyers. The problem arises when more than one buyer is involved and a buyer receives grain only from that part of the shipment

that is offgrade. The potential for this occurring is high because many of the shipments involve multiple buyers and FGIS instructions allow large quantities of offgrade grain to be loaded as long as the average shipment quality meets the standards for the declared grade. Divided original certificates, the type of certificate requested when there are multiple buyers involved, were issued on about 37 percent of the 271 shipments we reviewed; 42 percent of the shipments contained offgrade grain.

The lack of uniformity in grain quality throughout a shipment is also caused by export inspection procedures which allow grain samples to be combined before they are graded but do not require that the grain from which the samples are taken be combined during shiploading.

Allowances for offgrade grain

FGIS instructions allow a certain amount of offgrade grain in a shiplot without its being reflected on the official inspection certificate. Offgrade grain was contained in 42 percent of the shipments covered by our review. In some shiplots, sublots representing as much as 24 percent of the grain were one grade lower in quality than the officially certified grade.

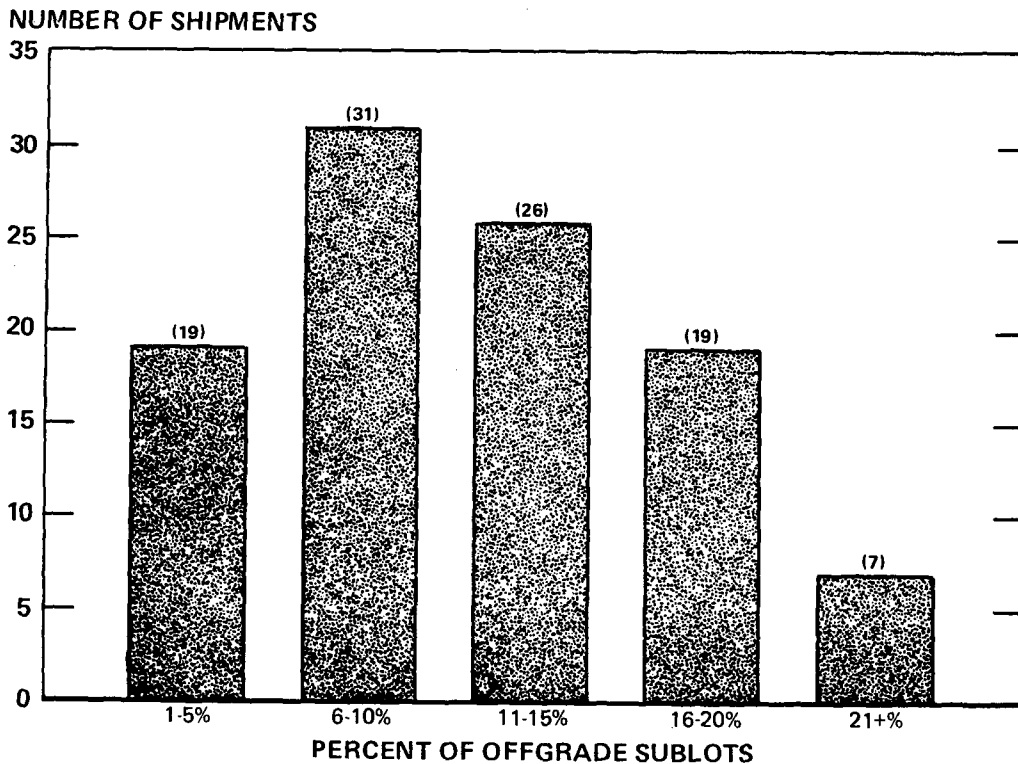
FGIS instructions permit exporters to select either of two plans approved for export inspections: the Ten Percent Plan or the Uniform Shiplot Inspection Plan. The Ten Percent Plan allows 10 percent of the sublots, and therefore about 10 percent of the grain loaded, to be one grade lower in quality than the certified grade. FGIS does not consider 10 percent to be a material amount and therefore does not note the presence of offgrade grain on the official certificate. This allowance has enabled exporters to ship large quantities of offgrade grain.

We analyzed the shiploading logs for 36 shipments inspected under the Ten Percent Plan and found that 11, or 31 percent, contained one or more offgrade sublots. Of the 11 shipments, 9 contained from 6 to 10 percent offgrade grain. For example, one shipment, certified as number 2 yellow corn, consisted of 51 sublots totaling 993,000 bushels. Four sublots, totaling 78,000 bushels, were actually number 3 yellow corn, but this offgrade grain was not disclosed on the inspection certificate that was issued for the entire shipment.

The Uniform Shiplot Inspection Plan provides tolerances designed to offset sampling errors. The tolerances restrict

the extent to which individual subplot factor results may exceed the grade limit and the shiplot still be considered uniform in quality. The tolerances are applied to each factor independently, however, which allows as many as 25 percent of the sublots to be offgrade on a single factor, such as moisture content or foreign material. To illustrate, a 1,245,625-bushel shipment comprised of 29 sublots was certified as number 2 yellow soybeans even though the foreign material in 4 sublots (14 percent) and the moisture content in 2 sublots (7 percent) exceeded the grade limit. None of the seven divided original certificates furnished on the shiplot, for issuance to multiple buyers, disclosed the presence of the six sublots of offgrade soybeans. Some of these buyers would have had a valid complaint if they received only the offgrade grain, but present inspection and certification procedures provide the buyer no effective recourse when problems are experienced with the quality of U.S. grain shipments.

One or more offgrade sublots were included in 102 (43 percent) of the 235 shipments we analyzed that were inspected under the Uniform Shiplot Inspection Plan. In about half of the 102 shipments, more than 10 percent of the grain was offgrade, as shown in the following graph.



In addition to including the tolerances for offgrade grain in the inspection plans, which is intended to recognize possible errors in the representativeness of subplot samples, FGIS has a second provision for offsetting sampling variations--the regrading of another sample portion when the grading results on the original sample exceed the grade limit. However, FGIS instructions provide for regrading and using tolerances only when it would benefit the exporter.

FGIS instructions state that, when a subplot factor analysis result exceeds the grade factor limit, a second portion of the sample shall be analyzed for the applicable factor and the average of the two results shall be used for determining whether the subplot meets the requirements of the inspection plan. For example, if an exporter were trying to load number 3 yellow corn and the first subplot sample graded contained 4.1 percent broken corn and foreign material, which is above the grade limit of 4 percent, a second sample portion would be graded. If the second portion contained 3.9 percent or less broken corn and foreign material, the average content would be within the grade limit and the subplot would not be considered offgrade.

The same procedure--grading of a second sample portion--is not applied when the grading results on the original sample are at or slightly below the grade limits. Thus, the grading procedures are not objective and their use always favors the exporter.

FGIS is developing a new inspection plan because the Uniform Shipment Inspection Plan is complex and difficult to use and the Ten Percent Plan is not a true indicator of uniformity since it is not based on statistical principles. The plan under study, however, would continue to allow shipments to contain offgrade grain without disclosure on official inspection certificates. The tolerances for offgrade grain under this plan had not been determined at the time of our review.

Combining samples

FGIS' practice of combining grain samples from two or more shipping belts, when the grain is not commingled during shiploading, can also result in a lack of uniformity in grain quality within shipments and increases the probability that buyers of partial shipments could receive lower quality grain than officially certified.

FGIS instructions permit the combining of samples from more than one belt if a licensed inspector or grader makes a cursory visual check to ensure that the samples are uniform

in quality. FGIS, however, considers the grain to be uniform even if a sample is one grade lower than the certified grade.

At many export elevators this procedure provides the potential for offgrade grain to be loaded into individual shipholds without detection and accurate certification. Multiple shipping belts were used for loading export grain at 9 of the 12 elevators where we studied shiplot loading. The grain was often loaded in separate shipholds using separate grain streams which were never blended, as shown in the picture on the following page. This occurred 73 percent of the time at these nine elevators. Grain quality was determined, however, from combined samples.

At four elevators we had samples graded before they were combined. In two of the four cases, the grain on one of the shipping belts was one grade lower than the certified quality. In both cases the offgrade grain was loaded into separate shipholds.

A similar test during our prior review showed that, in three out of four cases, one of the shipping belts contained offgrade grain. This problem was discussed in our February and July 1976 reports. USDA's Office of Audit also addressed the problem in reports it issued in May 1973 and July 1978.

In its response to the Office of Audit's July 1978 report, FGIS took the position that no significant problem existed because qualified personnel visually inspected the grain before combining samples. As our tests showed, however, this visual inspection cannot be relied on to disclose the offgrade grain; therefore, a serious problem results, particularly when a foreign buyer receives only that part of a grain shipment which contains the offgrade grain.

DOCKAGE CERTIFICATION

Dockage 1/ is one of FGIS' top certification problems even though it is not a grade-determining factor. The amount of dockage in a shiplot directly affects not only the sales price but also the buyer's import duties and transportation costs. Foreign buyers, especially those receiving only partial shiploads, have complained because the official certificates do not reflect the actual dockage they are receiving.

1/Lower quality grain and foreign material that is generally deducted from the shipment weight in determining the final sales price.



SOURCE: USDA

GRAIN BEING LOADED INTO TWO SHIPHOLDS AT SAME TIME.

(See pp. 65 and 66.) Our analysis of dockage certifications showed that differences between the actual and certified amounts are generally caused by (1) FGIS' procedures for rounding down inspection results and (2) nonuniform shiploading under what FGIS refers to as "or better" certification procedures.

Inspection results on dockage for wheat are always rounded down to the next lower half percent. For sorghum, they are rounded down to the next whole percent. For example, the inspection results of 0.99 percent dockage would be certified as 0.5 percent for wheat and 0 percent for sorghum. Inspection results of 1.49 percent dockage would be certified as 1 percent for both wheat and sorghum. Inspection results on other grading factors are rounded to the nearest 0.1 percent.

Although the percentages are small, the dollar effect can be very large. To illustrate, we analyzed the differences between the actual and certified dockage amounts for 41 wheat shipments and 30 sorghum shipments from one gulf coast elevator in fiscal year 1978. The differences amounted to 80,034 bushels and 130,411 bushels, respectively. On the basis of prices of \$3.50 a bushel for wheat and \$2.24 a bushel for sorghum, the value of the dockage not disclosed on the inspection certificates because of rounding would total about \$572,000.

Under the "or better" certification provision in FGIS instructions, an exporter can declare the intention to load a certain quality of grain, load the declared quality or better quality grain, and receive a certificate which reflects the average quality in the shiplot. For example, the loading of number 3 corn could be declared, the ship loaded in part with number 3 and in part with number 2 corn, and the certificate would reflect a grade of number 3 or better and factors based on the average quality. This provision was adopted to avoid issuing separate certificates on the better quality grain. Under previous instructions the shipment would have been considered nonuniform in quality if a significant amount of grain was better than the declared quality.

The intention of the "or better" provision is good, but it has been abused regarding the dockage certification. Exporters at some locations are declaring a high dockage percentage, loading sublots with wide variations of dockage but within the declaration, and receiving an official certificate which reflects the shiplot average as the actual dockage. For example, an exporter declared that wheat would be loaded with 1.5 percent dockage or better. The ship was loaded

using 17 sublots, of which 5 had over 1 percent dockage. The average dockage in the shiplot, however, was 0.9 percent and the official certificate reflected an "actual" dockage of 0.5 percent. In this case the dockage in 29 percent of the sublots exceeded 1 percent, but the entire shiplot was certified as 0.5 percent dockage.

This certification process can result in significant inequities when a shipment is divided among several foreign buyers with one or more of the buyers receiving grain from those sublots with dockage amounts higher than those shown on the certificate. As discussed in chapter 5, many foreign buyers who receive partial shiploads are dissatisfied with the accuracy of dockage certifications. (See pp. 65 and 66.) Also, after interviewing grain importers in Europe, an FGIS official reported:

"First receivers are confused by and dissatisfied with the 'U.S. No. or better than' designation. * * * This non-uniformity [in dockage] creates problems where the primary receiver divides the lot up and passes it on to secondary receivers. Some secondary receivers get a shipment that is extremely high in dockage and must also pay a heavy levy on it."

In responding to our draft report, FGIS said that it has drafted new procedures which will eliminate the showing of contradictory information on the certificates and ensure that the certificated percent of dockage is indicative of the level at which the shipment was uniformly loaded. FGIS also plans to revise the grain standards by May 1, 1981, with respect to the rounding of dockage results.

INSPECTION MONITORING SYSTEM

Accurate and consistent grain quality determinations are a prime component of a viable grain merchandising system. FGIS established a grain inspection monitoring system to help ensure that inspectors maintain competency in grain grading and that quality determinations are uniform among inspectors and inspection sites.

The monitoring system has been improved and is providing some useful information on an inspection site basis. It also could be a highly beneficial tool for overseeing the grading accuracy of individual inspectors, but its effectiveness has been limited because of insufficient monitoring data on individual inspectors and system products which are of limited use to those responsible for supervising and correcting the

grading problems of individual inspectors. As a result wide variations in the grading accuracy of individual inspectors have not been detected and corrected.

System approach

The grain inspection monitoring system consists of a two-tier approach: (1) FGIS field office personnel are to monitor the grading accuracy of individual inspectors, including those employed by delegated States, and (2) FGIS' Board of Appeals and Review is to monitor the field offices' grading accuracy.

The monitoring consists of regrading grain samples after the original inspection. This can be done either as a result of an appeal inspection or during supervision of an original inspection. For the regrading, a new sample is drawn from the same lot or a file sample is regraded to determine the accuracy of the original results.

Both the original and regrading results are then placed in an automated data system which compares the two on each grading factor (such as moisture, test weight, and foreign material) and matches the differences against set criteria or tolerances ^{1/} to determine if significant grading problems exist. The automated system produces monthly charts which present the comparisons by factor for each inspection site.

Insufficient data

The monitoring system's capability to disclose inspection problems depends on acquiring enough data to evaluate inspection accuracy and to identify inspectors who are grading grain improperly. FGIS has established criteria on the number of grading results that should be monitored and submitted for each inspection location. Sufficient data has not been gathered, however, because FGIS has not enforced its data submission requirements and established controls to assure collection of enough information to evaluate individual inspectors.

^{1/}Two statistical limits are used: the absolute limit and the tolerance limit. On the average, only 3 results in 1,000 should exceed the absolute limit due to sample variation alone; therefore, any additional results exceeding the absolute limit would involve grading errors, whereas 1 result in 10 may exceed the tolerance limit due to sample variation alone.

The number of samples each field office is to monitor and the number it is to submit to the Board of Appeals and Review for monitoring are based on the number of inspectors at an inspection site. For example, the field office is required to monitor and submit the results every month on 16 samples for inspection sites with 5 inspectors, while 80 would be required for inspection sites with 21 or more inspectors. FGIS, however, was not enforcing its requirements and many field offices were not monitoring and submitting a sufficient number of inspections. Half the field offices at export locations did not submit the required number of monitored samples in fiscal year 1978; three submitted less than 50 percent of the required number. Several of the offices failed to meet the submission requirements because inspection monitoring was given a low priority.

Even if FGIS' criteria were met, the monitoring system would not necessarily contain enough information to evaluate individual inspectors. FGIS has not established criteria on the minimum number of samples which should be monitored for each inspector to ensure they are accurately grading grain. Under current FGIS instructions the number of samples regraded for each inspector has varied widely. At 4 of the 10 field offices included in our review, 40 percent or more of the inspectors had 15 or fewer samples in the monitoring system for fiscal year 1978, as shown by the following table.

<u>Field office</u>	<u>Percent of inspectors with</u>		
	<u>15 or fewer samples</u>	<u>16 to 24 samples</u>	<u>25 to 120 samples</u>
Destrehan, La.	71	29	-
Houston, Tex.	82	15	3
Toledo, Ohio	44	25	31
Corpus Christi, Tex.	42	8	50

We believe that inaccuracies in individual inspectors' grading cannot be discovered in a timely manner when inspectors have an average of only one or two sample grading results placed in the monitoring system each month. FGIS should develop criteria on the minimum number of samples to be monitored periodically for each inspector and place adequate priority on the monitoring activities to assure compliance.

System products not useful

The inspection monitoring system can be effective only if its products are used to identify and correct inaccurate grading. The charts the system produces, however, were rarely being used for this purpose by the field offices, primarily because (1) the data was too old when the field offices received the charts and (2) the charts showed trends by inspection site rather than pinpointing problems of individual inspectors.

A major complaint of field office officials was that the monitoring system data was outdated by the time they received the charts. Data generally did not appear on a chart until 5 to 9 weeks after the original inspection. FGIS studied the procedures used to process the monitoring data and discovered that the delays were due to untimely submissions of data by the field offices and the time used for keypunching data for automatic processing. At the time of our review, FGIS was in the process of changing the procedures and chart production frequency with the goal of the data appearing on the charts from 2 to 4 weeks after the monitoring inspection.

Field officials monitor grading accuracy by checking each inspector's work. The monitoring system charts, however, are currently designed to present the collective results of all inspectors at each inspection site. Since the charts do not pinpoint problems of individual inspectors, field officials generally do not use them. About half the field offices we visited were manually charting results on each inspector because the automated system did not satisfy their needs.

Our analysis of data in the monitoring system for fiscal year 1978 for those inspectors with 50 or more factor analyses on record showed that grading accuracy differed greatly among inspectors and among field offices. For example, of the 61 inspectors at the Mobile field office with more than 50 factor analyses in the system, 12 had exceeded the absolute limit (see footnote on p. 19) from 10 to 17.2 percent of the time. At the Destrehan field office, which had 23 inspectors, none had exceeded the absolute limit more than 3.6 percent of the time. The following table shows, for each of the 10 field offices included in our review, the frequency that grading results of inspectors exceeded the absolute limit.

<u>Field office</u>	Number of inspectors (note a) whose results exceeded the absolute limit by					<u>Range</u> (percent)
	<u>0%</u>	<u>.1 to</u> <u>2.9%</u>	<u>3 to</u> <u>5.9%</u>	<u>6 to</u> <u>9.9%</u>	<u>10% or</u> <u>more</u>	
Baltimore, Md.	7	10	3	1	-	0 to 6.5
Beaumont, Tex.	0	3	6	-	-	1.2 to 5.6
Corpus Christi, Tex.	2	6	2	-	-	0 to 3.2
Destrehan, La.	5	15	3	-	-	0 to 3.6
Duluth, Minn. (note b)	1	20	23	3	-	0 to 7.4
Houston, Tex.	2	12	6	2	-	0 to 6.3
Lutcher, La.	4	22	4	2	-	0 to 7.4
Mobile, Ala. (note b)	1	8	17	23	12	0 to 17.2
Norfolk, Va. (note b)	0	19	7	1	-	0.3 to 6.6
Toledo, Ohio	1	9	3	-	-	0 to 3.6

a/Inspectors with fewer than 50 factor analyses on record in fiscal year 1978 were excluded to prevent distortion of statistics.

b/State inspection agency offices.

The large number of inspection personnel in the monitoring system makes it impractical to routinely produce reports (charts) on each inspector. However, such reports could be produced on an exception basis (that is, when an inspector's grading results exceed certain predetermined criteria, such as exceeding the absolute limit a certain number of times). Such a report would then serve as a notice to FGIS supervisors that the inspector's grading proficiency should be reviewed, causes of the problem identified, and corrective action initiated, if necessary.

FGIS OPERATIONS IN CANADA

FGIS corrected a problem we noted during our previous review by requiring that a qualifying statement be placed on certificates issued at Great Lakes ports to show that the certificates are not valid for transshipped grain. During this review we noted that (1) several of the Canadian transfer elevators did not have diverter-type samplers and the inspection certificates were not being annotated when other types of samplers were used and (2) a potential problem existed because FGIS did not monitor the elevators' use of the Great Lakes certificates to ensure that they matched the lots of grain being transshipped.

Method of sampling

Section 26.110 of FGIS' regulations requires that after May 1, 1976, all officially inspected bulk export cargo grain be sampled by means of approved diverter-type mechanical samplers. If the export elevator/loading facility does not have an approved diverter-type mechanical sampler, each official inspection certificate issued is required to contain the following statement:

"The lot of grain represented by this certificate was sampled by means of [type of sampling method] and samples obtained by such method may not be as representative as those obtained by approved diverter-type mechanical samplers."

Although several of the Canadian transfer elevators still did not have approved diverter-type mechanical samplers, the FGIS field office supervisor in Montreal told us that he was instructed not to use the preceding statement on certificates issued in Canada as the regulation pertained only to U.S. export inspection locations. FGIS' proposed regulations would make the requirement applicable to U.S. grain inspected at the Canadian ports as well.

Controls over the use of Great Lakes certificates

FGIS inspects most of the wheat but very little of the corn and soybeans transshipped in Canada. The grain which is not inspected is shipped overseas using the official inspection certificates issued at the Great Lakes ports. Under its current procedures, FGIS does not ascertain whether the identity of the U.S. grain brought into the transfer elevator is preserved and it does not control, or know, which certificate(s) the shipper uses when U.S. grain is shipped out of the elevator.

Under these conditions the shippers could misuse the certificates; for example, they could use a certificate from a Great Lakes shipment of number 2 yellow soybeans to accompany an overseas shipment of number 3 yellow soybeans. At present, however, there is little likelihood that this would occur because:

--Almost all the corn and soybeans handled by the transfer elevators are the same grade (number 3 corn and number 2 soybeans). These grains are generally transshipped without reinspection; none of the soybeans and only 65,200 metric tons of corn were inspected for grade during the 1978 shipping season.

--Most of the wheat, 1.7 of the 2 million metric tons shipped during calendar year 1978, was reinspected by FGIS, so there was no need to use the corresponding Great Lakes certificates with the transshipped wheat.

If the situation changes, however, whereby (1) a large portion of a grain (for example, half the corn) handled by a transfer elevator is reinspected but a sizable portion is not or (2) more than one grade of a grain is handled by the elevator, then this lack of FGIS control over the use of the Great Lakes certificates and the identity of the grain they cover could present a major problem.

CONCLUSIONS

FGIS has taken steps to enhance the integrity of the U.S. grain inspection system through actions to eliminate or minimize conflicts of interest at port locations, improve accuracy of the export grain sampling process, and install a system to check activities at port locations for compliance with FGIS instructions. However, foreign buyer confidence in the system cannot be fully restored until inspection procedures are changed to improve the accuracy of official inspection certificates regarding infestation, uniformity of shipment quality, and dockage.

The grain inspection monitoring system had been improved but its usefulness in monitoring the grading accuracy of individual inspectors could be further improved. The system currently has insufficient data on many inspectors and the system's products are of limited use to those responsible for supervising the inspectors and correcting any grading problems.

In Canada FGIS inspectors were instructed not to annotate inspection certificates when the sample was obtained by a device other than a diverter-type sampler. In the United States such annotations are required.

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

We recommend that the Secretary of Agriculture direct the Administrator, FGIS, to:

- Establish procedures to standardize the proportion of grain tested for infestation and require that all grain in which insects are found either be certified as infested or fumigated before shipment.

- Revise shiploading instructions to prohibit the loading of offgrade grain as part of a shipment destined for multiple buyers.
- Revise instructions to prohibit combining grain samples from multiple belts to determine subplot quality unless the grain represented by the samples is mixed properly during loading.
- Develop dockage certification instructions which assure uniform shipment quality and revise the grain standards to require that dockage grading results be certified to the nearest one-tenth of a percent.
- Modify the grain inspection monitoring system to define and maintain an adequate level of inspector monitoring and develop monitoring system products which better meet the needs of field office officials responsible for identifying and correcting grading problems.
- Require that inspection certificates issued in Canada be annotated, similar to those issued in the United States, when samples are obtained by means other than a diverter-type sampler.

AGENCY COMMENTS AND OUR EVALUATION

FGIS generally agreed with our recommendations and stated that it plans to revise, or make a determination as to the feasibility of revising, the inspection instructions and procedures that we recommended be changed. (See app. VI.)

- A change standardizing the proportion of grain tested for infestation is to be implemented by May 1, 1980.
- A review is underway to determine if present equipment and methodology will permit establishing a zero tolerance for infestation. FGIS planned to publish, by November 1, 1979, a request for comments from interested parties on whether the tolerance should be revised. These comments, along with the results of SEA's research, will be used to make the determination.
- A study will be conducted by March 1, 1980, to determine the cost effectiveness of a change prohibiting the combining of grain samples from multiple belts if the grain is not mixed properly during loading.

--A revised procedure has been drafted that will eliminate the showing of contradictory dockage information on the inspection certificate and assure that the certificated percentage of dockage is indicative of the level at which the lot was uniformly loaded.

--A change to the grain standards provision for rounding inspection results for dockage is planned by May 1, 1981.

--Regulations currently proposed by FGIS will require that U.S. grain inspected at Canadian ports be sampled by diverter samplers.

FGIS stated that a number of steps have been taken to improve the grain inspection monitoring system and as a result it is now able to identify and correct problems within a shorter timeframe. Other needed changes will be implemented as they are identified if they are deemed to be cost effective.

While FGIS did not agree that the loading of offgrade grain should be prohibited when a shipment is destined for multiple buyers, it did state that a new statistical export loading plan was being developed to replace the two plans currently used. According to FGIS, the new plan will result in greater uniformity of grain quality and reduce problems with shipments destined for multiple buyers. However, as pointed out on page 14, the plan would continue to allow shipments to contain offgrade grain without disclosure on official inspection certificates.

CHAPTER 3

GRAIN WEIGHING PROBLEMS AT EXPORT LOCATIONS

FGIS' weighing program established by the 1976 act and implemented at export locations has resulted in some improvement in the accuracy of grain weights, particularly on export shipments, as indicated by foreign buyers' comments. Certain changes are needed, however, to make the weighing program more efficient and to ensure that problems experienced before the 1976 act was passed do not recur.

In many cases FGIS personnel had not performed their weight monitoring or supervision duties properly. For example, at some locations the weight monitoring personnel had not made proper adjustments for grain weighed for export but returned to storage (weighbacks) or properly recorded the condition of railcars. Further, some personnel admitted to not knowing what they were supposed to be doing. These and other weighing program deficiencies can be attributed to the lack of proper training and experience of personnel performing weighing program functions and inadequate instructions and supervision.

Also, a controversy exists about the type and extent of weight monitoring needed on inbound grain shipments received by export elevators. The act requires that the weighing of all such shipments be performed by or completely supervised by official personnel. Grain companies contend that costs associated with providing such services on inbound shipments, particularly on grain the companies already own, exceed the benefits derived. We believe that FGIS could reduce its level of weight monitoring and related costs for inbound rail and truck shipments and still maintain reasonable controls over the accuracy of weights. The act would have to be amended, however, to allow monitoring of less than 100 percent of these shipments.

We recognize the difficulties FGIS has faced in trying to hire, train, and retain enough qualified staff to implement and carry out the weighing program--an area in which USDA had no prior experience. Nevertheless, because of its failure to properly carry out weight monitoring functions and the high cost of inbound weighing, FGIS has been slow in establishing credibility and confidence in its ability to properly carry out a cost-effective weighing program.

IMPROVEMENTS IN GRAIN WEIGHING

Before the 1976 act was passed, grain was being short-weighted at certain port locations through scale manipulations,

improper diversions of grain back to storage after weighing, and alterations of weight tapes. Generally only one individual was responsible for monitoring the weighing operations at a port location and, as a result, sufficient controls did not exist to ensure that all incoming grain was weighed or that all outgoing grain, once weighed, was loaded aboard the appointed conveyance.

FGIS has implemented a weighing program which includes (1) periodic, independent scale testing, (2) observations of grain weighing, and (3) observations of grain movements through the elevators. (See app. V for illustration of the grain handling facilities of a typical export elevator.)

Weight monitoring personnel are required to continuously observe grain weighing at the scales to help ensure that no improper manipulations occur and that weights are properly recorded. They are to independently validate the accumulation of totals and adjustments for grain spills, weighbacks, and additions of liquid fumigants. They also are to make periodic observations of grain movements through the elevators and check seals or locks placed on diversion points to detect improper grain handling. These observations, when performed properly, reduce the opportunity for improper weighing and grain handling.

Foreign buyers believe the weights of U.S. grain shipments have improved. (See pp. 62 and 63.) Also, the weight differences on shipments from interior locations to export elevators have improved according to our comparison of data on origin and destination weights on some 1978 barge and rail shipments with similar 1975 data contained in our 1976 report. The percentage of times that origin weights exceeded destination weights was better balanced and the frequency that overall differences exceeded 1 percent had decreased, as shown by the following table.

	<u>1975 percentages</u>		<u>1978 percentages</u>	
	<u>Origin</u> <u>weight</u> <u>greater</u>	<u>Destination</u> <u>weight</u> <u>greater</u>	<u>Origin</u> <u>weight</u> <u>greater</u>	<u>Destination</u> <u>weight</u> <u>greater</u>

Barge:

1% or less	42	20	40	27
More than 1%	<u>29</u>	<u>9</u>	<u>17</u>	<u>16</u>
Total	<u>71</u>	<u>29</u>	<u>57</u>	<u>43</u>

Rail:

1% or less	64	26	59	35
More than 1%	<u>8</u>	<u>2</u>	<u>3</u>	<u>3</u>
Total	<u>72</u>	<u>28</u>	<u>62</u>	<u>38</u>

ACCOMPLISHMENTS AND PROBLEMS ASSOCIATED
WITH SCALE TESTING

Before FGIS implemented its scale testing program, the scales at export elevators were not being tested uniformly. When the scales were tested using FGIS procedures, many did not meet established industry tolerances and some were in need of major repairs. Although the FGIS scale testing program had problems getting started, it has resulted in more accurate scales and much more uniform scale testing.

Previously, the scale testing procedures, frequency of testing, and tolerances permitted varied considerably because of the differing requirements of the four railroad weighing bureaus, the International Grain Weighing Association, (formerly the National Association of Terminal Grain Weighmasters), and the various State, county, and city weights and measures agencies. For example, some States tested scales annually while other States tested them on a 3- to 4-year cycle. At least two States had scale tolerance requirements which deviated materially from the tolerances permitted by Handbook 44 (a manual containing scale requirements and permitted tolerances agreed to by the National Conference on Weights and Measures).

FGIS compiled data on 1,037 scale tests performed under its supervision from January 1978 through February 1979. The data showed that 278 (27 percent) of the scales tested needed to be adjusted before they could meet testing requirements and another 88 (8 percent) could not meet requirements and had to be taken out of service. Some of these scales needed

major repairs before being returned to use, while some of the older weighbeam (manual) scales were replaced with new electronic scales. (See pictures of both types of scales on following page.)

FGIS' scale testing program has had its problems, however. Some scales have been tested much more frequently than the semiannual requirement, but not always in accordance with FGIS testing procedures, and some have not been tested to their normal operating capacities.

--Some scales in the New Orleans area were tested 10 to 12 times during calendar year 1978. The scales were approved each time even though the tests were incomplete and were not done in accordance with FGIS procedures.

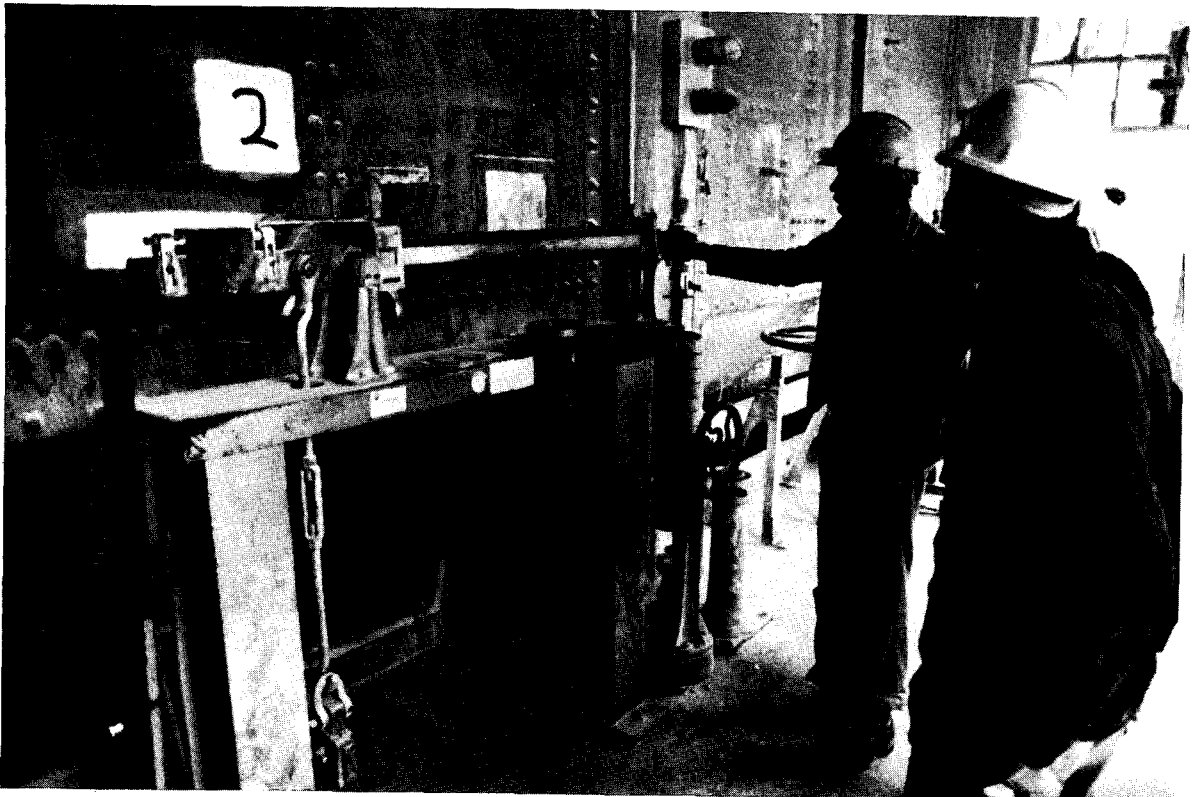
--Some scales, particularly truck and rail scales used for weighing grain received by export elevators, were approved after being tested at weight ranges far below their normal operating level. For example, a truck scale at one gulf coast elevator was tested three times under FGIS supervision. None of the tests exceeded 36,000 pounds, which was only 45 percent of the normal 80,000 pound weight of incoming truck shipments.

FGIS officials recognize the need to test truck and rail scales up through their normal operating weight levels but contend that the test vehicles needed for such tests were either not available or not available when needed. FGIS had no plans for acquiring test vehicles for testing truck scales as the cost was considered prohibitive. At the time of our review, however, negotiations were underway for FGIS to assume responsibility for the national rail scale testing program (and test vehicles) which the National Bureau of Standards had operated since 1913. Until FGIS started its scale testing program, the Bureau had been the only Federal agency actively involved in testing railroad truck scales.

In June 1979, 28 rail scales were used to officially weigh grain. FGIS plans to test these scales semiannually. In addition, the proposal to transfer the rail scale testing program from the Bureau to FGIS would require that FGIS annually test 18 master rail scales belonging to the Association of American Railroads.

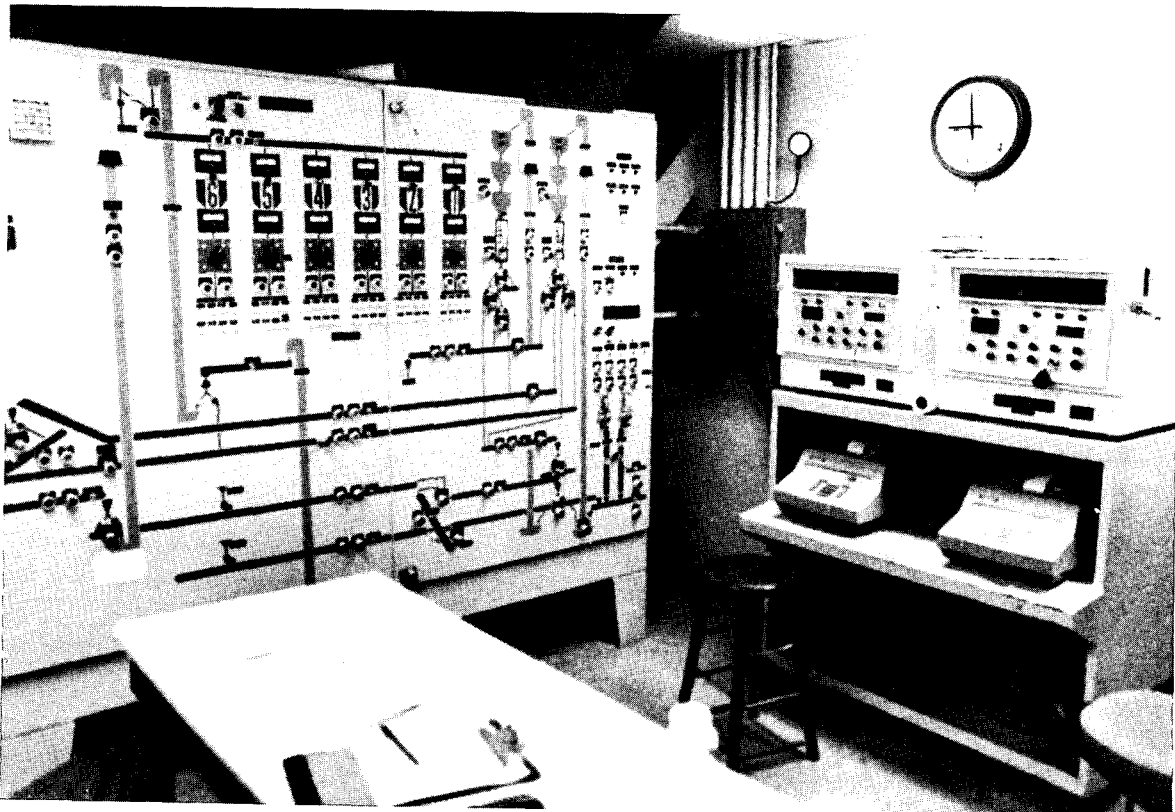
HIGH PERSONNEL TURNOVER AND INADEQUATE SUPERVISION

Inadequate supervision and FGIS' inability to hire, train, and retain qualified personnel have hampered the



SOURCE: USDA

MECHANICAL WEIGHTBEAM SCALES SIMILAR TO THESE HAVE BEEN USED SINCE THE TURN OF THE CENTURY.



SOURCE: USDA

ELECTRONIC SCALE CONSOLES (ON THE RIGHT) AND A CONTROL BOARD (ON THE LEFT) ARE LOCATED IN THE CONTROL ROOM OF A MODERN FACILITY.

establishment of a more effective weight monitoring program. Weight monitoring duties are being assigned to individuals who do not have sufficient training or experience, and the employees are not being properly supervised. As a result some important monitoring duties are not being performed correctly.

FGIS uses agricultural commodity aides, technicians, and less experienced agricultural commodity graders to monitor weighing functions at export elevators. The aides and technicians generally are General Schedule grades 2, 3, and 4 while the graders used for weight monitoring are grades 5 and 7. Both the aides and graders are hired without prior weighing experience. According to FGIS statistics, the nationwide turnover rate in 1978 was 18 percent for graders and 38 percent for aides and technicians. However, our study of turnover at five FGIS export field offices showed that some offices were experiencing much higher turnover rates, as shown by the following table.

<u>Field office</u>	<u>Employment category</u>	<u>Staff level</u>	<u>Separations in FY 1978</u>	<u>Turnover rate</u> (percent)
Houston	Aides & technicians	62	9	15
	Graders	72	28	39
Destrehan	Aides & technicians	7	3	43
	Graders	37	10	27
Lutcher	Aides & technicians	2	1	50
	Graders	56	23	41
Toledo	Aides & technicians	14	6	43
	Graders	10	5	50
Baltimore	Aides & technicians	18	21	117
	Graders	65	21	32

The high turnover rates have limited the effectiveness of formal and on-the-job training programs. New employees are often assigned weight monitoring duties at the elevators without any formal weight training. According to data provided by FGIS' training office, as of January 17, 1979, less

than 10 percent of the aides and about 50 percent of the graders used for weight monitoring had received formal weight training. FGIS, therefore, has relied heavily on on-the-job training to provide its personnel with the attributes necessary for competent performance of monitoring duties. The constant influx of new personnel, however, has hampered FGIS' ability to consistently staff functions with trained and experienced personnel.

In addition to the high turnover and insufficient training, inadequate supervision has compounded the problems in weight monitoring. When FGIS rapidly expanded its work force, employees were promoted into supervisory positions without proper training. According to a March 1979 FGIS study on employee turnover, a major complaint of prior employees was that many supervisory personnel in the field were ill-prepared for their positions, unsympathetic to the employees' needs, and incapable of making decisions or executing policy. The study also cited some field office officials as saying that too many incompetent supervisors and an undisciplined work environment contributed to employee turnover. We believe that the lack of proper supervision not only contributed to turnover, but also adversely affected the quality of weight monitoring services.

Following are situations we observed that illustrate the problems which have resulted from the use of inexperienced or insufficiently trained staff without adequate supervision.

- A weighman located in an elevator control room could not adequately fulfill his responsibility to monitor the grain flow because he did not understand the elevator's control board.
- A weighman assigned to an elevator's truck scales was transferring scale weights and vehicle identification numbers from elevator records to official certificates without verifying them.
- A weighman, whose duties included monitoring weighbacks, did not know the location of bin indicator lights which had to be observed to properly perform this function.
- A weighman did not properly inspect a shipping bin containing grain that had been weighed and charged to a ship being loaded. The shipment was shortweighed as the full bin of grain was not discovered until 4 days after the ship had departed.

FGIS review teams and individuals have observed similar situations at various export locations. For example, export review teams have noted instances in which grain spills were not documented, grain flows were not monitored, results of railcar seal examinations were not recorded on logs, and balances on weighbeam-type scales were not verified by FGIS personnel.

After visiting one export elevator, a member of FGIS' weighing division reported that:

"Upper Truck Dump. There were two * * * weighers on duty. I observed that they were doing nothing but sitting at a desk engaged in conversation while the elevator weigher was inserting * * * weight certificates into the scale printer, some 6 feet away * * * physically separated by a 4-foot high counter. The only thing * * * they did was to copy license information from the elevator record and sign the form. In my opinion, they were not supervising this weighing operation and did not know what they were even supposed to be doing.

"I specifically asked them their job function and was told by one, 'I'm an inspector and this is my first time here, so I really don't know, but about all we do is just sign the forms.' The other person said he was also new, a 30-day temporary employee, and figured about all he did was to shuffle the papers, which seemed like a waste of time. I then asked what weighing training they had received, and their response was, 'they had received some general orientation but didn't learn much.'"

FGIS made a study in 1978 which covered negative aspects of inspection and weighing work and another study in 1979 which addressed turnover of graders, aides, and technicians. The major complaints cited by employees and the reasons terminated employees cited for leaving were (1) poor working conditions, (2) excessive mandatory overtime, weekend, and holiday work assigned on short notice, and (3) poor supervision. In addition, the graders complained about the menial tasks which did not require college skills. The 1979 study included a survey of field office supervisors who confirmed that the employees' complaints related to valid problems.

The recommendations in the 1979 study called for (1) a careful review of supervisors' managerial ability and personal relations skills followed by training or demotion, where appropriate, (2) a manpower analysis to identify the

optimum staffing for each field office, (3) a management review of the requirements of each field office using overtime, (4) better screening of applicants before hiring, and (5) more emphasis on "people-oriented" management policies and actions. We agree, in general, with these recommendations, but we believe also that FGIS should encourage export elevator managers to install automated grain flow monitoring systems which will minimize the time personnel spend in undesirable work locations in grain elevators. (See pp. 49 to 51.)

INADEQUATE SUPERVISION OF DELEGATED STATES

FGIS field offices responsible for supervising the weighing programs of the delegated States had not instituted an effective supervision program. FGIS did not acquire the personnel needed to provide such supervision until several months after the States were delegated authority to perform official weighing services. Thereafter, field office supervision of the States continued to be inadequate because FGIS had not issued any written instructions on what the field office personnel were supposed to do, how they were to do it, or how often they were to do it. Further, some of the FGIS field office personnel felt they were not proficient enough in weighing duties to assume the responsibility of supervising State weight monitoring activities.

Between February 15 and May 12, 1978, all States authorized to perform original inspections of export grain were also given the authority to provide official weighing services. The Grain Standards Act states that all official inspection and weighing, whether performed by FGIS or official agencies, shall be supervised by representatives of the Administrator, FGIS. At the time the States were given the authority to provide weighing services, and for some time thereafter, the FGIS field offices responsible for supervising these State agencies did not have personnel with adequate experience and/or training to supervise the States. For example:

--Alabama and Mississippi were given weighing authority in mid-April 1978, but FGIS' Mobile, Alabama, field office, which is responsible for supervising the States' official weighing, did not initiate a full-time weight supervision program until January 1979, when a weighing specialist was hired and seven new employees, who had taken a 1-week FGIS weight program training course, came on board.

--Virginia was given weighing authority on May 1, 1978, but when we visited FGIS' Norfolk field office in

late November 1978, we found that little progress had been made in implementing a weight supervision program and that the field office did not have enough personnel with the experience needed to adequately supervise the State's program.

An FGIS compliance review team visiting the Norfolk field office in April 1979 reported that (1) even those FGIS employees who had attended the FGIS weight training classes felt they were not proficient enough in the weighing area to supervise the State's weighing activities and (2) FGIS needed to develop and issue procedural guidelines for field office use in supervising State weighing activities.

As of September 1979, FGIS was still developing its first comprehensive instruction covering field office supervision of State agencies' weighing activities. In the meantime, the field offices were using locally developed procedures which lacked uniformity as to the types and amounts of supervision to be provided. FGIS anticipated finalizing and implementing its agencywide instruction in fiscal year 1980.

PROPER ADJUSTMENTS NEEDED FOR EXPORT GRAIN RETURNED TO STORAGE

Accurate certifications of export weights require appropriate adjustments when grain is weighed for export but not loaded in the ship. However, FGIS instructions did not clearly define the procedures and controls necessary to make such adjustments, or weighbacks, in situations being encountered at export locations. Consequently, adjustments were not being made correctly at some locations.

The adjustments are generally needed when shipping bins are used to hold sublots of grain temporarily until FGIS furnishes grading results. If a subplot is declared offgrade, elevator officials can elect to return the grain to storage. The weight of all returned grain must be obtained and then deducted from the weight log to ensure that the cumulative weight of the entire shipload is correct.

At one gulf coast elevator, rejected grain was not being reweighed before it was returned to storage. Instead, FGIS personnel were simply subtracting the original weight of the subplot from the weight log. This procedure could result in certifying inaccurate weights, especially if a cushion of grain from the previous subplot is retained in the shipping bin. Elevators sometimes use these cushions of grain, which can range from 500 to 1,000 bushels, to reduce grain breakage.

When grain used as a cushion is returned to storage along with the offgrade subplot, the export weight certificate is overstated by the amount of the cushion.

FGIS was also permitting rejected grain to be returned to storage without reweighing at another gulf coast location because the elevator had bin indicator lights that showed when the bins were empty. FGIS personnel in the control room were supposed to observe the lights to verify that each bin was empty before the bin received a new subplot of grain. Thus, if a subplot was rejected, the original subplot weight could be used for the adjustment. However, FGIS personnel were not observing these lights at the time of our visit, and no other controls were being used to assure that proper adjustments were being made for rejected grain returned to storage.

The field offices responsible for the two elevators discussed above subsequently installed controls to assure proper adjustments. However, FGIS had not developed uniform procedures and controls to be followed at all locations in controlling and making proper adjustments for grain returned to storage.

In responding to our draft report, FGIS officials told us that a revision to the "Weighing Handbook," which gives more specific guidance on weighback procedures, was distributed to the field offices in August 1979.

RAILCAR CONDITIONS

The settlement of grain sales transactions often involves determining who was responsible for grain losses between origin and destination. When weight differences occur between origin and destination for rail shipments, the loss may be borne by the carrier if the loss was due to a leaking railcar or by the shipper if the car's condition was satisfactory at destination. Although a record of car condition is instrumental in settling grain transactions and FGIS' weight program includes monitoring all inbound weighing, railcars were not always checked for condition and, when exceptions were found, they were not always noted on the weight certificates.

FGIS instructions require the inspection of inbound railcars and the recording of exception data, such as leaks and spills. The instructions, however, are unclear as to how or where the information should be recorded. Weight monitoring personnel were not examining all railcars for condition at the Federal sites we visited, but personnel at two State agency sites were. The State agencies used a special form

for recording car condition data. They recorded such information as missing seals or leaks in doors, gates, and hatches. Other than noting grain spills during unloading, Federal and State weight personnel generally were not specifying on the weight certificates any railcar condition information which could be used to settle claims for grain losses.

Some regional rail weighing organizations have criticized FGIS' failure to check railcar conditions and note exceptions. On the gulf coast, for example, personnel from one such organization inspected 2,157 loaded railcars during a 9-month period in 1978 and noted 94 exceptions which FGIS personnel did not record. The exceptions included such items as missing seals and leaks in doors, hatches, and gates. Similar problems were also noted by the regional organization on the east coast.

In responding to our draft report, FGIS officials stated that revised instructions distributed to the field offices in August 1979 describe, in detail, the procedure to follow and the information to be shown when exceptions are observed. They said that a special form had been used to record exception data up until July 1978 when personnel were instructed to discontinue using the form and include pertinent information on the official weight certificates.

CONTROVERSY OVER INBOUND WEIGHING

Grain company officials have complained that inbound weight monitoring costs have been excessive and are not justified by the resulting benefits. FGIS contends that the 1976 act mandated a weighing service which could stand the test of outside scrutiny and that the costs are justified by the benefits of orderly grain marketing. However, we believe that the weight monitoring costs could be reduced and still provide all parties reasonable assurance of weight accuracy.

To support their position that the costs for 100-percent monitoring of inbound weights are excessive and that such monitoring provides little benefit, grain company officials cited one or more of the following factors.

- Less than 100-percent weight monitoring was previously provided by private agencies. Such monitoring was adequate and less expensive than the current level of monitoring.
- A large percentage of inbound weighing involves intra-company shipments; therefore, significant portions of the weight monitoring efforts and costs provide no benefit to the shipper or receiver.

- The current monitoring method is inefficient; one elevator employee performs the weighing while an FGIS or State employee just watches.
- A third party, the trucker, is available to make independent observations of grain weighing for truck shipments.
- Monitoring of inbound weighing is not necessary to protect foreign buyers on export weights.
- The cost of inbound weight monitoring is eventually borne by the country elevator and the farmer.

USDA's Inspector General addressed the grain companies' complaints on inbound weight monitoring in a May 21, 1979, report entitled "Study of Grain Inspection and Weighing at the Interior of the United States." The report presented the results of a survey on the nature of inbound grain shipments received by export elevators. The survey indicated that weight monitoring on about 40 percent of the grain received at export elevators was not producing significant benefits because 25 percent of all receipts were intracompany shipments and more than 15 percent were purchased on origin weights.

The report concluded that further study and reassessment of the mandatory requirement was needed and that, in doing so, consideration should be given to either removing all requirements for inbound official weighing of grain owned by the receiving elevator or changing the requirement from 100-percent monitoring to 25-percent monitoring.

FGIS believes the current weight monitoring program for inbound grain is necessary and reasonable. It contends that 100-percent monitoring of inbound weights provides several benefits, including (1) monitoring by an independent party, (2) observing grain flow to assure full accountability, and (3) deterring shortweighing through the constant presence of official personnel. FGIS contends that costs could be reduced and duplication of effort avoided if FGIS and delegated State personnel were to provide third-party weighing (official personnel actually perform rather than monitor weighing). (See app. VI, p. 94.) The act provides for this type of option, but grain companies have not chosen to use it.

We believe that third-party weighing is not a viable alternative at many export elevators. The weighing is often an integral part of the chain of operations which moves grain from carrier to storage bins and from storage bins through a possible series of cleaning, drying, sampling, and handling

activities before loading it for export. In a modern elevator these operations, along with the weighing, are coordinated in a single control room and any error by the individual operating the controls can have a major impact on grain movement throughout the elevator. We believe that FGIS does not have enough personnel who are qualified to operate the controls. Moreover, we believe that direct involvement in elevator operations would compromise FGIS employees' independence and could result in FGIS being liable for grain handling delays or mistakes.

Another way suggested to reduce costs--eliminating weight monitoring on intracompany shipments and origin weight purchases--also has its shortcomings. The potential reduction in personnel by eliminating weight monitoring on such shipments would depend on the timing of receipt of the shipments as compared with other workloads. Requiring personnel to be available to monitor weighing whenever a shipment requiring such services was received would be inefficient and the costs would be spread over a smaller number of shipments, creating a further imbalance between costs and benefits. Such a system also may not meet the railroads' needs in settling claims for grain losses between origin and destination. If it did not meet their needs, the railroads would probably have to install a weight monitoring program of their own.

We believe that the level of weight monitoring and related costs could be reduced and still provide all parties reasonable assurance of weight accuracy. Four elements we consider essential to assure the accuracy of weights are (1) testing scales for accuracy, (2) confirming proper grain transfer, (3) observing weighing to prevent scale manipulation, and (4) validating weight records. However, the procedures and numbers of personnel necessary to provide these elements of control and the magnitude of the risks involved in compromising the controls will vary according to the type of purchase (whether based on origin or destination weights), mode of shipment, and operational arrangement of the elevator.

The following table shows the wide differences that existed among five of the elevators we visited in the proportion of grain receipts which were (1) received by the different modes of transportation and (2) purchased based on destination weights. It also illustrates the effect that the mode of transportation has on the cost of providing weight monitoring services.

<u>Elevator</u>	<u>Type of carrier</u>	<u>Inbound volume</u>	<u>Purchases based on destination weights</u>	<u>Intra-company shipments</u>	<u>Monitoring costs per thousand bushels</u>
			----- (percent) -----		
A	Truck	20	<u>a/</u> 80	<u>a/</u> 20	<u>a/</u> \$2.92
	Rail	80			
B	Truck	20	100	0	<u>a/</u> 1.64
	Rail	80	10	0	
C	Truck	15	100	5	2.18
	Rail	85	90	75	1.06
D	Rail	15	<u>a/</u> 75	<u>a/</u> 25	<u>a/</u> 0.67
	Barge	85			
E	Rail	10	30	0	1.00
	Barge	90	100	0	0.75

a/Data combined for both types of carriers.

Our analysis of inbound weighing indicated that monitoring measures should be based primarily on the mode of transportation and secondarily on the operational arrangement of the elevator. The fact that the grain was company-owned prior to receipt may negate an elevator's need for weight monitoring, but we believe FGIS and the American Association of Railroads have valid reasons for having at least a portion of these shipments monitored.

Grain transported by truck has the highest weight monitoring cost per unit. The primary reason is that, individually, trucks haul a much smaller quantity of grain than railcars and barges and have the least efficient unloading operation. A truckload of grain is only about 750 bushels, compared with 3,000 bushels for hopper railcars and 50,000 bushels for barges. Truck shipments are weighed on scales at the truck dump or the grain is elevated and weighed in hopper scales inside the elevator.

Truck shipments also differ from the rail and barge shipments in that the truck driver is available as a representative of the shipper to observe weighing operations. With appropriate revision to weighing program provisions, the truck driver could perform some of the weight monitors' functions by observing grain unloading, observing weighing to prevent scale manipulation, and possibly validating the weight record. It would be practical for the truck driver

to do this, however, only when the scale is located at the truck dump. We believe that such an arrangement would provide reasonable assurance of weight accuracy and could hold weight monitoring costs to a minimum.

Barge shipment weight monitoring incurs the least cost per unit. Grain shipped by barge generally is sold based on destination weights, and no shipper's representative or third party, other than official weight monitoring personnel, are available to confirm weight accuracy. Considering the risk involved in these shipments and the relatively low cost per unit for monitoring, we believe FGIS should continue its current weight monitoring program for barge shipments but seek to reduce costs through other means, such as increased use of closed-circuit television equipment for monitoring some activities.

Grain shipped by rail has more diverse conditions affecting risks and benefits associated with monitoring inbound weights. Some export elevators receive no intracompany rail shipments, while at others more than half the grain received by rail represents intracompany shipments. The percentages of rail-shipped grain sold on destination weights also vary widely. Rail shipments, like truck shipments, are weighed on scales at the dump site at some elevators and at others it is elevated and weighed in hopper scales inside the elevator. Rail shipments differ from truck shipments in that no representative of the shipper is available to observe weighing.

Another factor relative to inbound rail weights is the American Association of Railroads' requirement that at least 25 percent of the weighing be monitored to provide a basis for assessing freight and settling claims for grain losses during transport. Because of the Association's requirements and the risks associated with sales transactions based on destination weights, we believe that FGIS should continue monitoring weighing for at least 25 percent of all rail shipments. However, we believe that reasonable assurance on the accuracy of all inbound weights cannot be provided unless the elevator weigher is unaware when observations are being made. This can be accomplished with little difficulty and at a minimum cost if weighing is done on hopper scales inside the elevator because weight monitoring personnel are already there to observe export weighing. However, closed-circuit television equipment or other means would be required at elevators where grain is weighed on scales at rail dumps.

On October 11, 1979, a bill was introduced in the House of Representatives (H.R. 5546) to amend the act to permit grain delivered to export elevators by any means of conveyance

other than barge to be transferred into such elevators without official weighing on mutual agreement of the shipper and the receiver. The bill would also eliminate the requirement for official weighing of intracompany shipments of grain into an export elevator by any mode of transportation and permit the official weighing requirements on grain transferred out of an export elevator to destinations within the United States to be waived by mutual agreement between the shipper and receiver.

WEIGHING OF U.S. GRAIN IN CANADA

A memorandum of understanding between FGIS and the Canadian Grain Commission allows FGIS to perform official weighing of U.S. grain at Canadian transfer elevators. As of September 1979, FGIS had performed no official weighing in Canada, had not received any requests to do so, and had not made any plans to do so in the immediate future. During the 1978 shipping season, the Canadian Government supervised the weighing of U.S. grain loaded out of the transfer elevators but only when requested by the shippers.

In December 1978 Canadian Grain Commission personnel told us that in 1979 they would be supervising the weights of all U.S. grain shipped out of the two transfer elevators which handle the largest volumes of U.S. grain. (In 1978 the Baie Comeau and Port Cartier elevators handled 82 percent of the transshipped U.S. grain.) Apparently, this is being done at the request of the elevator operators.

With one exception, the foreign importers we interviewed indicated no particular problems with the weights of U.S. grain shipments loaded or topped-off in Canada. The only exception was a European importer who commented that the weights of such shipments were "quite consistently disappointing."

CONCLUSIONS

FGIS has made considerable progress in establishing and implementing an official weighing program at export locations. The accuracy of grain weights has improved somewhat, particularly on export shipments. However, certain changes are needed to make the program more efficient and ensure that problems experienced previously do not recur.

The program, designed for comprehensive coverage of weighing operations, has not been fully effective because, in many instances, the weighing personnel have not performed their weight monitoring duties properly. The deficiencies

occurred because the written instructions were inadequate and many weighing personnel were inexperienced, lacked proper training, and received inadequate supervision.

Grain trade complaints that the cost of inbound weight monitoring far exceeds the benefits have some merit, particularly with regard to truck and rail shipments. However, FGIS and the railroads need a weight monitoring program which includes all types of shipments, including intracompany shipments. The level of weight monitoring and related costs could be reduced, under certain conditions, and still maintain reasonable controls over the accuracy of weights. However, to do so would require legislation.

RECOMMENDATION TO THE CONGRESS

We recommend that the Congress amend the Grain Standards Act to provide the FGIS Administrator with the authority to reduce the amount of weight monitoring required on truck and rail shipments arriving at export elevators. This could be accomplished by amending section 5(a)(2) of the United States Grain Standards Act (7 U.S.C. 77(a)(2)) to read as follows:

"except as the Administrator may provide in emergency or other circumstances which would not impair the objectives of this act, all other grain transferred out of and all grain transferred other than from a truck or railcar into an export elevator at an export port location shall be officially weighed in accordance with such standards or procedures; where grain is delivered to an export elevator at an export port location by truck or railcar, the Administrator shall provide for supervision of weighing as defined in section 3(y) of this act; and"

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

We recommend that the Secretary of Agriculture direct the Administrator, FGIS, to:

- Develop and implement, as soon as possible, detailed procedures and instructions for (1) those weight monitoring activities not covered adequately by current FGIS instructions and (2) supervising the weight monitoring activities performed by FGIS personnel and delegated State agencies at export locations.
- Require that personnel be adequately trained before they are assigned weight monitoring duties and that

they clearly understand what they are supposed to do and how they are to do it.

--Strengthen the program for developing supervisors and emphasize to them their responsibility to ensure that weight monitoring activities are properly carried out.

We also recommend that, in the event the Congress amends the act as recommended above, the Secretary of Agriculture direct the Administrator, FGIS, to revise the inbound weight monitoring program at export locations to make it more cost effective by (1) reducing the level of weight monitoring to a minimum of 25 percent on truck and rail shipments, particularly where closed-circuit television or other monitoring equipment can be used to observe conveyance unloading and scale operations and (2) possibly substituting observations by truck drivers for those of weight monitoring personnel where such actions are possible.

AGENCY COMMENTS AND OUR EVALUATION

Except for our recommendations on inbound weighing, FGIS generally agreed with the recommendations and said that corrective actions would be taken. (See app. VI.) In August 1979 FGIS sent revised instructions to its field offices on the inspection of railcar conditions and procedures to assure that proper adjustments are made for export grain returned to storage. An instruction covering FGIS field office supervision of official agencies is scheduled for implementation in fiscal year 1980. FGIS also stated that it planned to strengthen its fiscal year 1980 training programs for weight monitoring and supervisory personnel.

FGIS did not agree that the Grain Standards Act should be amended to provide the FGIS Administrator authority to reduce the amount of weight supervision required on truck and rail shipments arriving at export elevators. FGIS contended that (1) costs could be reduced and more accurate weight certification be provided without a change to the act if FGIS personnel were to actually perform the weighing rather than monitoring the weighing activities, (2) it is discriminatory for bargelot grain to receive a different level of monitoring than grains transported by rail and truck, and (3) substituting the observations of truck drivers for those of weight monitoring personnel would not add to the integrity of the weighing program.

We agree that weighing by FGIS personnel rather than weight monitoring is an option provided for in the act but, as discussed on pages 39 and 40, most exporters have not elected to use this alternative and FGIS has not demonstrated

that its personnel are qualified to perform actual weighing functions. We believe that requiring a different monitoring level for grain received by barge is not discriminatory because agencies often consider each type of carrier separately when establishing regulatory controls, freight rates, and other factors which affect the costs of transporting goods. Regarding the substitution of observations by truck drivers for those of official weight monitoring personnel, we did not mean to suggest that FGIS should rely totally on the truck drivers. We do believe, however, that the number of weight monitoring personnel could be reduced by relying on truck drivers to perform some of the observations now made by official personnel when the grain is weighed at the truck dump.

CHAPTER 4

OPPORTUNITIES TO REDUCE PROGRAM COSTS

FGIS costs could have been reduced, and in some instances still can be, without significantly affecting the quality of its services. This could be done with more efficient use of staff, greater use of closed-circuit television equipment and automated sample delivery systems, better determinations of both short- and long-range needs before making large equipment purchases, and eliminating or sharply curtailing grain weight monitoring programs.

Some of the inefficiencies we noted were due to the growing pains expected when an agency implements a major program or expands rapidly. (Before FGIS was created in November 1976, USDA's export grain inspection responsibilities were generally limited to supervising State and private inspection agencies and making appeal inspections. It had no responsibility for providing official weighing services and only performed original inspections in Canada. Field office staffing increased from about 270 in June 1975 to 1,321 as of December 31, 1978.) In other cases, however, we believe that costs could have been reduced without materially affecting the agency's ability to carry out its responsibilities under the Grain Standards Act.

Pursuant to the act, FGIS' administrative and field supervision costs and costs related to developing standards for grain are financed by appropriations. FGIS costs related to (1) original grain inspection, (2) Federal appeal inspections, (3) official weighing and supervision of weighing, (4) stowage examinations on conveyances used to transport grain, and (5) registration of grain firms exporting grain are financed from user fees deposited in revolving trust funds.

Also, FGIS provides certain other grading and inspection services, such as grading rice and processed grain commodities, pursuant to the Agricultural Marketing Act of 1946. The costs of providing these services, including an allocation of administrative costs and field supervision costs, are financed from user fees deposited in revolving trust funds. The cost of developing standards for commodities covered by the Agricultural Marketing Act are financed by appropriations.

In fiscal year 1978, appropriation-funded activities involved 464 staff years at a cost of \$16.9 million, while fee-supported activities involved 1,277 staff years at a cost of \$24.5 million. Appendixes III and IV contain breakdowns of 1978 costs and staff years, by type of activity, along with estimates for fiscal years 1979 and 1980.

STAFFING INEFFICIENCIES

FGIS has not assured that inspection and weighing tasks at each export elevator are properly defined and staffed at the most efficient and effective level. The number of FGIS personnel used at individual export elevators is based on estimates by various FGIS field office officials rather than on scientific work measurement determinations. As a result, inconsistencies have existed in the number of personnel used at various elevators to do the same volume and type of work.

The inefficient use of personnel was pointed out soon after FGIS began assuming inspection and weighing functions at export locations. A 1977 management consultant's report on FGIS' operations stated:

"At the export locations visited, * * * I noticed idle staff and extra bodies at most elevators. I recognize the rapidity with which FGIS assumed the export inspections and weighing and would expect initially that the emphasis would be on effectiveness (getting the right job done) rather than efficiency (getting the job done right). It appears that the agency has been successful in assuming the function 'at all costs'. And that's about what you're paying now."

We evaluated FGIS staff levels at several selected export elevators and found that the number of personnel used to do the same volume and type of work varied among export elevators. For example, as shown by the table below, the number of export inspection personnel per shift ranged from two to four at six gulf coast elevators where the inspection workloads and operational arrangements were essentially the same.

<u>Elevator</u>	<u>Number of export inspection personnel</u>		
	<u>Graders</u>	<u>Samplers or technicians</u>	<u>Total</u>
A	1	1	2
B	1	1	2
C	2	1	3
D	2	2	4
E	2	2	4
F	2	2	4

We made a similar comparison of FGIS weighing personnel who observed grain handling in the elevator and at the docks in order to monitor export shiploading at 23 export elevators. One person was used for this function at about half (12) the

export elevators and two people at the other (11) export locations.

The number of inspection and weighing personnel at each export location can be expected to vary when the volume and type of workload differ. The inconsistencies in the number of personnel used to perform the same workload, however, indicates a need for job analyses using a scientific work measurement approach to establish staffing levels which meet program needs with the most efficient use of personnel.

OPPORTUNITIES FOR MECHANIZATION

FGIS has not been effective in getting export elevator managements to install equipment which would enable a reduction in inspection and weight monitoring personnel. The best way to get elevator management to install such equipment is to illustrate that it will result in reduced costs by reducing the number of FGIS or State agency personnel required, therefore reducing the fees charged. The number of such personnel assigned to many export elevators could be reduced through the use of automatic sample delivery equipment and/or closed-circuit television equipment.

Closed-circuit television equipment

Closed-circuit television equipment, such as that pictured on page 50, can be effectively used to monitor grain flow in export elevators. Such equipment can also reduce FGIS weight monitoring personnel requirements thus resulting in a cost savings to the exporter. For example, at an Atlantic coast elevator a closed-circuit television system was installed to monitor shiploading and sampling equipment. The system, costing about \$32,000, eliminated the need for one FGIS weigher per shift and saved the elevator management about \$85,000 annually in fees. Only 4 of the 23 elevators covered by our review had closed-circuit television systems and two of the systems had not been approved by FGIS.

FGIS has not established closed-circuit television system performance standards or procedures for computing personnel reductions resulting from installing and using such equipment. FGIS would not make a commitment on personnel reductions until a system had been installed and tested by FGIS personnel. Without such a commitment, elevator managements have been reluctant to install closed-circuit television monitoring systems.

FGIS is developing a presentation which will be given to trade groups to illustrate the potential cost savings of closed-circuit television monitoring systems. To achieve widespread acceptance of monitoring equipment, however, FGIS



SOURCE: USDA

A CLOSED-CIRCUIT TELEVISION SYSTEM USED TO MONITOR THE WEIGHING, SAMPLING, AND FLOW OF GRAIN.

must develop equipment performance standards and guidelines for determining the related cost savings (personnel reductions) to be derived by installing such equipment.

Automatic sample delivery systems

Section 16(a) of the act authorizes the Administrator, FGIS, to require, as a condition for official inspection, that an elevator have specified sampling, handling, and monitoring equipment. Inspection personnel in 8 of the 23 elevators we visited manually received and handled grain from automatic samplers because the elevators did not have automatic sample delivery systems. At these elevators one to three more sampling personnel were required than at those elevators which had systems that automatically delivered samples to the inspection laboratory.

The increased use of mechanization would reduce inspection and weight monitoring costs. It would also produce other benefits such as minimizing the amount of time FGIS personnel would be required to spend in some of the most hazardous and unpleasant work areas in grain elevators.

In our draft report, we proposed that FGIS require export elevators to install automatic sample delivery systems. FGIS concurred with our proposal but expressed the opinion

that it could not require the installation of such sample delivery systems unless the systems were needed to provide adequate security over grain samples. FGIS pointed out, however, that on September 11, 1979, it announced a change in its method of charging inspection fees which should give elevator managements sufficient incentive to install sample delivery systems. Effective December 2, 1979, FGIS will assess certain inspection fees, including those for export grain inspections, on an hourly (per person assigned to inspection activities) basis instead of the unit (volume of grain inspected) basis it has been using.

We believe that the change in the method of assessing inspection fees will accomplish the purpose of our proposal.

OVERTIME

Employee overtime has been a major factor contributing to increased inspection and weighing costs. In fiscal year 1978 overtime costs were \$3.3 million, or 30 percent of the total cost of \$10.9 million for original inspection and weight monitoring.

Overtime at some export locations has been very high. In 1978 FGIS employees at five gulf coast field offices, for example, were working the equivalent of 1 to 1-1/2 days of overtime a week. An east coast field office assigned staff to work 7 days a week--2 days overtime a week--except when the elevator shut down. Most field office supervisors we interviewed attributed the overtime to not having enough personnel to cover continuous, around-the-clock elevator operations.

FGIS had a goal of reducing the amount of overtime worked in fiscal year 1979, below that of fiscal year 1978, by improved management of resources and the use of part-time employees. However, during the first half of fiscal year 1979, overtime use continued at a rate slightly higher than that of fiscal year 1978. This prompted FGIS headquarters to begin analyzing the field offices' use of overtime and requesting that certain field offices justify what appeared to be excessive amounts of overtime. For example, during the 12-week period February 25 through May 19, 1979, eight employees in one gulf coast field office had averaged 18 hours of overtime a week, including two who had averaged 27 and 30 hours a week.

In May 1979 overtime use nationwide declined 22 percent from the previous month. FGIS management attributed this reduction to the aggressive actions taken by the regional directors. By August 1979, however, overtime use had returned almost to the pre-May level.

We believe that the staffing inefficiencies discussed on pages 48 and 49 have also contributed to the high amount of overtime used and that greater use of closed-circuit television equipment and automated sample delivery systems would reduce the total workload and therefore could help reduce overtime.

GRAIN MONITORING PROGRAMS

FGIS has been developing two programs to check the accuracy of official weighing at export locations. The first, an inventory monitoring program, is intended to help identify possible shortweighing of individual grain shipments and determine the appropriateness of an elevator's inventory adjustments. This program will not be cost effective if implemented as envisioned in the proposal being developed at the time of our review. Development of the other, a draft survey program intended to check the accuracy of elevator scales and the weight of individual grain shipments, was discontinued after our review was completed.

Inventory monitoring program

FGIS officials contend that an inventory monitoring program is needed to confirm that elevator inventory records are correct and to help ensure early detection of any questionable inventory overages that might build up. They have also stated that (1) the program is needed to establish history files, so that reasonable shortages and overages can be projected, and (2) the data obtained from the program can serve as a check to prove the accuracy of the official weighing performed at export elevators.

To develop procedures and staffing requirements for the program and to determine if the program should be expanded to cover all 49 export elevators where FGIS directly monitored weights, FGIS initiated a pilot inventory monitoring program at five export elevators (three in New Orleans and two in Baltimore).

In January 1979, FGIS' weighing division prepared an evaluation report on the Baltimore field office program. This report indicated that much (about 75 percent) of the time charged to the project and most of the stated benefits were in areas beyond the program's initial scope; that is, checking on work done by FGIS personnel and answering questions regarding weighing procedures, weight complaints, and certificate errors.

The report concluded that expanding such a program nationwide would require approximately one field office person

working full-time for every two export elevators, even though the Baltimore pilot project had been using one person full-time and two persons part-time. The report recommended that the Baltimore project be retained for at least fiscal year 1979 and that a decision be made on whether the program's benefits justify the resources being used.

In March 1979, FGIS told the Senate Committee on Appropriations that the policy decision on whether to expand the inventory monitoring program to all of the 49 export elevators where it directly monitored weights was still pending. FGIS work plans for fiscal years 1979 and 1980 indicate, however, that it intends to develop a plan for implementing an inventory monitoring program at 83 export elevators and to finalize the necessary procedures by February 1980.

In its May 21, 1979, report (see p. 39), USDA's OIG concluded that field office monitoring of the elevators' inventories by maintaining perpetual inventory records is a wasteful practice. It said that certain entries to the inventory records, such as adjustments for drying, cleaning, and mixing of grain, were very difficult to control. It also pointed out that FGIS had been unable to determine the reasons for overages or shortages at certain elevators where it had been monitoring the inventories. The OIG recommended that the field offices' daily inventory monitoring program be discontinued but that a small inventory monitoring unit be retained within FGIS headquarters for checking situations whenever shortweighing at a particular elevator is suspected. We agree with these conclusions and recommendation.

Draft survey program

FGIS intended to use draft surveys 1/ to:

- Spot-check scale weights of export shipments on a random basis.
- Check scale weights on subsequent export shipments from an elevator involved in a foreign complaint to ascertain the need for monitoring the weighing of the grain when unloaded at overseas destinations and to provide information for replying to foreign complaints.

1/A means of estimating cargo weight based on the amount of water displaced by a ship before and after loading.

FGIS had a private ship surveyor make 63 draft surveys between October 1977 and October 1978 to ascertain the degree of confidence which could be placed in a draft survey. An analysis of the scale weights and draft survey weights from the first 51 shipments indicated that, to be 95 percent confident that the scales at a particular location were not off by more than 0.5 percent, 1/ it would be necessary to survey 15 ships, and that, to check a weight problem of 0.5 percent on a given ship, it would be necessary to perform 15 separate draft surveys of that ship. These statistics were considered conservative because the surveyor was (1) permitted to select most of the ships to be surveyed, thus providing an opportunity to select ships which could be surveyed with greater precision, and (2) able to learn the scale weight of the shipment and compare it with the draft survey estimate before finalizing the draft survey report.

After the final 12 draft surveys were completed, FGIS further analyzed the data with the intention of preparing a draft survey program proposal. By March 1979, three tentative alternative programs were being studied. The first alternative provided for a private surveyor to make 908 surveys each year, with FGIS having a representative observe each survey. The proposed number of surveys--908--was based on 6 surveys each 6 months at each of 74 elevators, plus 20 unscheduled surveys. (FGIS requires that scales be tested every 6 months and, according to an analysis of the 63 draft surveys, 6 draft surveys would provide a satisfactory level of confidence that the scales were accurate to within 0.75 percent of the actual weight.) The second alternative provided for two-man FGIS teams to make the 908 surveys described in the first alternative. The third alternative provided for the FGIS teams to make the surveys but only when requested by field or headquarters officials.

A preliminary estimate of the annual costs of these three alternatives indicated that the first would cost about \$415,000 (\$400 for each survey plus \$52,000 for annual FGIS monitoring costs); the second, about \$117,500; and the third, about \$79,000 (for 225 surveys).

In May 1979, the director of FGIS' weighing division told us that he had little confidence in draft surveys and believed that they would be of little value except in special, infrequent situations. He said the staff that was working

1/FGIS' own scale testing instruction for these scales permits a tolerance of only 0.05 percent.

on the draft survey program had been shifted to higher priority areas and development of the program had been postponed.

In commenting on our draft report, FGIS officials concurred in our proposal that draft surveys be used only in special situations when there is no other means of checking a suspected weight problem, and said that the draft survey program had been discontinued prior to receipt of our draft report.

PROCUREMENT AND USE OF PROTEIN-TESTING MACHINES

FGIS headquarters centrally purchased 102 protein-testing machines--called near-infrared reflectance (NIR) instruments--without adequately determining its requirements. As a result more instruments were purchased and assigned to the field offices than were needed. Additional resources have been used to checktest and maintain the unneeded instruments. Further, for some locations, the model purchased may not have adequate capacity to handle future program needs whereas models currently on the market do.

FGIS began offering official testing of protein content in hard red winter and hard red spring wheat, on a request basis, on May 1, 1978. To implement this program, FGIS purchased 102 NIR instruments at a cost of over \$1.25 million. Of the 102 instruments, 83 were sent to field offices involved in export inspections and 15 to interior field offices. Four were retained by headquarters.

Some export elevators handle very little hard red winter and hard red spring wheat and, at the time of our review, some instruments had been used very little or not at all, except for the instrument checktests required by FGIS instructions. For example:

- As of November 1978, the Toledo field office, which had five NIR instruments, had not been requested to perform any official protein tests. The Toledo elevators do not normally ship hard red winter or hard red spring wheat. For the required checktests, the field office had obtained samples from other FGIS field offices, such as Albany, Duluth, and Denver, which handle these grains.
- As of January 1979, the Duluth field office had made about 2,000 to 2,500 official protein tests but had used only one of its four instruments for the tests. All four instruments were located in the field office

because (1) the field office did not have enough instruments to place one in every elevator, so placing them in certain elevators would have been discriminatory, and (2) placing them in the elevators would have presented problems in making the required instrument checktests.

The State agencies in Minnesota and Wisconsin which had been delegated responsibility for original inspections of grain exported from these elevators also had NIR instruments. Minnesota had two and Wisconsin had one. None of these instruments were located in the elevators, either.

- The Corpus Christi field office had three NIR instruments--one at the field office and two at export elevators. One of the elevators also had an NIR instrument of its own. From May through December 1978, the three FGIS instruments had been used for a total of 1,576 tests, of which only 117 were official tests. The other 1,459 were made to monitor the operation of the instruments. The 117 official tests were all done at one elevator. The other elevator, which had its own NIR instrument, had run unofficial protein tests on it. The instrument at the field office was used as a "standard" for calibrating the two FGIS instruments at the elevators.
- Six instruments had been assigned to the Houston field office. As of the end of September 1978, two instruments still had not been used for official tests; the other four instruments had been used for 45, 63, 606, and 619 official tests, respectively.
- The Lutcher field office had five instruments. As of the end of September 1978, these instruments had been used to test the protein content of only three export shipments of wheat.

On the other hand, some instruments had been used extensively. For example, between May 1 and September 20, 1978, the Beaumont field office, which had four instruments, had made 8,102 tests, of which 7,242 were official tests. But even in this case, one instrument had been used for most--5,155--of the official tests.

An FGIS instruction requires that each NIR instrument be tested at the beginning and end of each work shift using two sealed samples having known protein content. The results are recorded on a log which is sent to FGIS' Board of Appeals and Review at the close of business each Friday. The data from

these logs is used to determine whether the NIR instruments are stable. Another FGIS instruction requires that each week the field offices prepare and test six samples of each class of wheat for each NIR instrument in their possession. The field office test results and an unprepared (unground) portion of each sample are then sent to the Board, which uses the samples and results to determine errors in the field offices' preparation of the samples, testing procedures, and instruments.

These checktest requirements have presented several problems. In field offices where instruments were placed in the export elevators, the FGIS personnel responsible for making the tests have had to travel to the elevators at the beginning and end of each work shift. Retaining the instruments in the field offices, however, defeats the purpose for which they were originally intended--maintaining the capability to provide a rapid determination of protein content of wheat during loading.

The mandatory checktests have required from 15 to 40 staff hours a week at each field office, depending on the number and location of the instruments, even when no official tests were being made. This time requirement could increase considerably when the protein testing program is expanded to include other classes of wheat on May 1, 1980.

Servicing the unneeded and underused instruments is also costly. The manufacturer's warranty expired in February 1979, and, on March 1, 1979, FGIS entered into a contract with the manufacturer for servicing the instruments for 7 months at a cost of \$502 for each instrument. The contract has a 1-year renewal option at an annual cost of \$925 for each instrument.

As is frequently the case with a product involving a rapidly developing technology, NIR instruments have improved considerably and the model that FGIS purchased now costs less than when FGIS made its purchase in December 1977. In April 1979, the manufacturer of the model FGIS purchased announced that it had reduced the list price of that particular model by nearly 40 percent. Newer models are also available which have greater capacity and reportedly require less check testing and adjustment to maintain their accuracy.

The instruments which FGIS has will hold a maximum of 12 calibrations, which may not be adequate at some locations to handle all the additional testing functions which FGIS plans to add in the future. Four calibrations are being used for the two classes of wheat (hard red winter and hard red spring) currently being tested for protein content. Seven other classes and subclasses of wheat are to be added to the

official protein testing program in May 1980. FGIS also plans to use NIR instruments for additional official inspection tests, such as determining the protein and oil content of soybeans and the protein content of barley.

Newer models of the NIR instruments will handle up to 99 calibrations and are advertised as being "drift free" (that is, they are more stable), which could eliminate or reduce the need for the frequent checktests that FGIS now requires.

CONCLUSIONS

FGIS costs could have been reduced, and in some instances still can be, without significantly affecting the quality of its services. FGIS needs to establish adequate criteria for determining the staffing requirements of individual elevators. This could reduce or eliminate the wide inconsistencies that existed in the number of staff assigned to perform similar workloads and the substantial amounts of overtime worked at some locations. In a number of locations FGIS could reduce staffing if the elevator managements would install closed-circuit television equipment and/or automatic sample delivery systems. However, FGIS needs to develop performance standards for closed-circuit television equipment and criteria for calculating personnel reductions when such equipment is installed.

Other savings can be obtained by eliminating or sharply curtailing the scope of the inventory monitoring program and by more adequately determining program requirements before purchasing and distributing costly equipment.

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE

We recommend that the Secretary of Agriculture direct the Administrator, FGIS, to:

- Use scientific work measurement techniques to determine staffing and skill levels required to perform essential inspection and weighing tasks and duties at export elevators and staff each elevator at the most efficient and effective level required to get the job done.
- Develop equipment performance standards for closed-circuit television systems (that is, items or areas in elevators to be monitored by such equipment and required clarity of picture on the system's monitor) and such other criteria as would be needed to make a

commitment on the number of official personnel that would be replaced if an elevator operator installs a closed-circuit television system meeting the specified equipment performance standards.

--Exercise greater care in determining equipment requirements before large purchases are made, particularly when new technology is involved.

--Revise the inventory monitoring program by discontinuing the maintenance of an independent set of elevator inventory records by FGIS personnel, requiring export elevators to maintain those records and data which FGIS needs, and developing and maintaining a capability within the headquarters staff to check the elevators' records and inventories when a problem is suspected.

AGENCY COMMENTS AND OUR EVALUATION

FGIS concurred in our recommendations except for the recommendation that its inventory monitoring program be curtailed. (See app. VI.) FGIS stated that it plans to complete a study of export elevator staffing requirements by May 1980. It also agreed to develop performance standards for closed-circuit television systems and procedures for making commitments to reduce personnel assigned to an elevator, prior to the installation of a system, provided the commitments are made on a case-by-case basis. We agree that commitments on personnel reductions would have to be determined for each elevator as the operational arrangements vary from elevator to elevator.

FGIS stated that it needs to maintain its own set of inventory records for each elevator because (1) most elevators do not maintain records suitable for an effective inventory monitoring program, (2) there were strong objections to FGIS' imposing extensive recordkeeping requirements on the elevators, and (3) other than visual monitoring of grain flow, the inventory monitoring program is its preferred method for detecting possible manipulations of the weighing system.

As we stated previously (see p. 53), we agree with the OIG's conclusion that there are too many unverifiable adjusting entries to the inventory records to use an independent inventory monitoring program for detecting manipulations of the weighing system. These adjusting entries also make it necessary for FGIS to continually reconcile its set of inventory records with those maintained by the elevator. Furthermore, if the manipulations caused inventory overages of such magnitude as to be identifiable using the inventory

monitoring program, they should also be identifiable by other existing monitoring procedures. (See p. 28.)

Section 12(d) of the act provides that the owners and operators of grain elevators shall maintain such records as the Administrator may prescribe for the purpose of administering and enforcing the act. FGIS' evaluation of the Baltimore pilot program (see pp. 52 and 53) indicated that it would require relatively little time for FGIS personnel to maintain a complete set of elevator inventory records. If this is true, any additional recordkeeping which FGIS would need to impose on the export elevators would not be extensive.

CHAPTER 5

FOREIGN BUYERS ARE HAVING FEWER PROBLEMS

WITH U.S. GRAIN BUT BELIEVE

FURTHER IMPROVEMENTS ARE NEEDED

Most foreign buyers we talked to perceived an improvement in the quality and weights of U.S. grain shipments since our last review in 1975-76. The improved quality was generally attributed to the quality of the U.S. grain harvests. The improvement in weights was attributed, in part, to the new Federal weighing programs implemented under the 1976 act. The foreign buyers included representatives of the major international grain trading companies and end-users of the U.S. grain.

The representatives of the grain trading companies had few complaints and did not want any major changes to the current U.S. grain standards or inspection and certification procedures. On the other hand, the end-users, although generally satisfied with U.S. grain, cited some quality problems, most of which they attributed to inadequate or excessively lenient U.S. grain standards and inspection procedures. Some of the more common grain quality problems involved infestation; low protein content; and excessive dockage, foreign material, and sprout damage. Other problems included the lack of uniformity in the quality of grain loaded and the possible misuse of inspection certificates. As discussed in chapter 2 and also later in this chapter, FGIS has made or is planning to make changes to correct some but not all of these problems.

Some of the more significant quality problems in recent years have involved grain and grain products, such as rice, flour, and soybean meal, which are not covered by the Grain Standards Act and for which there are no mandatory inspection requirements. FGIS inspects these products only when requested.

USDA's current system for handling foreign buyer complaints is ineffective. Buyers with problems are not submitting them to U.S. agricultural attaches or FGIS because USDA can do little to assist them in settling disputes with U.S. exporters. Without the complaint data, however, FGIS is not obtaining the information it needs to determine the magnitude or cause of problems which may exist. Other FGIS programs for monitoring the quality and weights of export shipments were not fully operational at the time of our review. Perhaps the

most promising program involves the systematic feedback of destination weight and quality data by the buyers and foreign government agencies that import U.S. grain.

We visited seven of the nine foreign countries included in our 1975-76 review--Japan, Korea, West Germany, Italy, Spain, United Kingdom, and the Netherlands. These 7 countries were among the 10 largest importers of U.S. grain in fiscal year 1978. (See app. I.) We did not visit India and Israel this time because of the large decline in exports to those countries. We interviewed a total of 63 foreign buyers, as well as representatives of the U.S. agricultural attache offices, U.S. market development cooperators, local trade associations, and governmental agencies.

FOREIGN BUYERS' COMMENTS

The foreign buyers we interviewed generally said that weights of U.S. grain shipments had improved. Several provided statistics which showed a definite improvement. They generally felt that the overall quality of U.S. grain had improved in recent years but attributed this more to the quality of the U.S. grain harvests than to FGIS' takeover of inspection. Most of their complaints about the quality of U.S. grain shipments involved problems caused by inadequate or excessively lenient U.S. grain standards and inspection procedures.

Improvement in weights

USDA still receives some occasional shortweight complaints--nine in fiscal year 1977 and two in fiscal year 1978--but most foreign buyers said they believed that the accuracy of weights of U.S. grain shipments had improved since the Federal takeover of weighing responsibility. Some of the buyers had maintained detailed records which supported the stated improvement. Others were unable to provide documentation substantiating the improvement because of inadequate weighing procedures and equipment or because they had not kept records of the origin and destination weights. Nevertheless, these buyers generally perceived that the weights had improved.

Buyers in Japan maintained some of the most comprehensive and reliable weight data. Their statistics showed a steady improvement in the weights of all the major grains since our last review, as shown in the following table.

<u>Year</u>	Average shortweight percentages on major U.S. grains imported into Japan (note a)			
	<u>Wheat</u>	<u>Corn</u>	<u>Soybeans</u>	<u>Sorghum</u>
1975	.57	.59	.37	.84
1976	.56	.57	.34	.66
1977	.44	.54	.35	.58
1978	.49	.45	.33	.44

a/Wheat statistics are based on Japan's fiscal year--April 1 through March 31. Statistics on the other grains are on a calendar year basis.

How much of this improvement was attributable to FGIS is unclear, since much of the improvement occurred before FGIS took over export weighing responsibility. However, because the improvement trend continued in 1977 and 1978, the Japanese attributed at least some of the improvement to FGIS.

In Europe we were unable to obtain much statistical data on weights, but most importers said that they thought the weights of U.S. grain shipments had improved. One buyer in the Netherlands was compiling weight data (comparisons of origin and destination weights) at FGIS' request, but, as of August 1, 1979, this data had not been forwarded to FGIS.

Some major European importers said that they were buying U.S. grains based on destination weights. This was not the case at the time of our 1975 visit when importers said that they were unable to buy U.S. grain on destination weights without paying a premium.

Quality of U.S. grain generally satisfactory but some problems remain

While the foreign buyers were generally satisfied with the quality of U.S. grain, some had complaints about the quality of individual shipments. The most frequent complaints involved infestation, the certification and lack of uniformity of dockage, excessive foreign material, excessive sprout damage, and low protein content. Other complaints concerned the moisture content of corn, the lack of uniformity of grain quality in loading grain, and the possible misuse of inspection certificates. In most cases these problems were attributable to inadequate or excessively lenient U.S. grain standards and inspection procedures.

Following our last review, we reported that foreign buyers were more interested in certain quality characteristics not included in the U.S. grain standards than they were in some of the characteristics which were included in the standards. We received similar comments this time. For example, soybean end-users are concerned about protein and oil content, while wheat end-users are concerned about protein quality (gluten strength) and sprout damage. Sprout damage is included in the standards but only as a part of the "total damage" grading factor. The other quality characteristics of interest to the foreign buyers are not covered by the standards. Some buyers also felt that the standards were too lenient on some factors, such as foreign material for soybeans, moisture for corn, and infestation for all major grains.

FGIS recently revised its inspection procedures to correct several of the problems, and it plans to make certain other changes in the near future. Our evaluation of current inspection procedures and FGIS' proposed changes to them are discussed in chapter 2. FGIS also recognizes that there are certain problems with the current U.S. grain standards and had several projects underway to determine whether the standards would be revised.

Infestation

According to several major foreign buyers, the most significant and prevalent quality problems with U.S. grains involve infestation and lack of adequate fumigation. Korean officials told us that infestation was the major problem they were having with U.S. grains. They said that at least 12 infested shipments of corn and wheat arrived between July 25 and November 1, 1978. Also, in a speech to the Farm Forum in Minneapolis, Minnesota, on February 13, 1979, the managing director of Poland's grain importing agency, Rolimpex, expressed great concern about the increase in weevil infestation of U.S. grain during the past 2 years. He said that in 1977 Poland had received 17 shipments of infested U.S. grain, mostly wheat. In 1978 Poland again received 17 shipments of infested U.S. grain--13 wheat, 3 corn, and 2 sorghum shipments.

Several countries (such as Russia, Japan, Korea, and Poland) have indicated that their quarantine rules do not allow importation of grain containing live insects and, when insects are found, the grain must be fumigated. Not only is fumigation costly but, more importantly, it disrupts the unloading and distribution schedules along the entire marketing chain.

One buyer pointed out that Canadian grain standards do not permit certification of grain with any live insects. If

any are found during inspection, the grain is placed under detention and must be fumigated under the supervision of Canadian Government inspectors.

Buyers in two countries also expressed dissatisfaction with the phytosanitary certificates issued by USDA's Animal and Plant Health Inspection Service (APHIS) and with USDA's lack of involvement in supervising and certifying the fumigation of grains. The phytosanitary certification program is a worldwide program carried out under the auspices of the United Nation's Food and Agriculture Organization. APHIS' certificates certify that the plants (in this case, grain) were thoroughly examined by an authorized representative of APHIS and that the shipment is believed to conform to the current phytosanitary regulations of the importing country.

In the continental United States, APHIS representatives generally did not examine the grain being shipped. Instead, APHIS was issuing phytosanitary certificates based on FGIS' inspection certificates even though FGIS' criteria for determining that grain is infested (see p. 10) differ from the criteria in some of the importing countries' phytosanitary regulations. Also, FGIS inspection records contain additional information on insects detected during inspection of the grains which APHIS was not considering before it prepared the phytosanitary certificates.

Currently, we are evaluating APHIS' policies and procedures for examining grain and issuing phytosanitary certificates. We plan to report separately on the results of our evaluation if significant problems are identified.

Dockage

Many buyers were confused by and dissatisfied with the way that FGIS was certifying dockage on wheat shipments. The problems they were experiencing involved the use of the "or better" grade certification option and rounding the calculated percentage of dockage down to the next lower one-half percent. (See pp. 15 to 18.) They also expressed concern about having to pay freight, import duties, and other levies on dockage amounts in excess of the certified percentages.

Use of the "or better" certification procedures was causing two problems. The first involved different dockage percentages being shown in two different blocks on the inspection certificates. For example, the maximum dockage level specified by the shipper--the load order requirement--was recorded in one block while the actual percentage of dockage computed by the inspector was recorded in another

block. Some buyers were confused by this and did not know which percentage to use when reselling the grain. The second problem involved the lack of uniformity in loading which was permitted by the procedure used to calculate dockage. The actual dockage was determined by averaging all subplot results, with no requirement as to uniformity.

In late 1978 and early 1979, foreign buyers made numerous complaints to FGIS about dockage certification problems. As a result FGIS is revising the procedure for calculating and certifying dockage. The new procedure will eliminate dockage from the "or better" certification option, assure that the certificated percentage of dockage is indicative of the level at which the lot of grain was uniformly loaded, and result in only one dockage percentage being shown on the certificate.

Some buyers also complained that they were receiving more dockage in wheat shipments than the inspection certificates stated. They were unaware that the rounding procedure permitted by U.S. grain standards allows the shipper to load nearly one-half percent more dockage than stated on the certificate. While other inspection results are rounded to the nearest tenth of a percent, wheat dockage results are always rounded down to the next lower one-half percent (for example, dockage ranging from 0.5 to 0.99 percent is shown on the certificate as 0.5 percent).

Buyers do not have to pay the U.S. exporter for that portion of the shipment which is certified as dockage. However, they generally do pay freight, import duties, taxes and/or levies on the total weight of the shipment. In some cases these charges are very high. For example, in West Germany the levy on imported wheat amounts to about \$3 a ton for each 1 percent of dockage.

Foreign material

Some buyers, particularly soybean buyers, claim that the U.S. grain standards permit excessive amounts of foreign material which encourages the blending of other grain and substances. USDA research studies and statistics provided by major European and Japanese importers show that the levels of foreign material in U.S. soybean shipments are consistently higher than those of the other major soybean exporters--Brazil and Argentina.

USDA's Science and Education Administration researchers have made several analyses of U.S. soybean shipments to overseas locations. A recent analysis, which covered both U.S. and Brazilian soybean shipments, indicated that Brazilian

soybeans contained 1 percent or less foreign material at destination, while U.S. soybeans had a weighted average of 1.6 percent at origin and 1.8 percent at destination.

Also, statistics obtained from a major European buyer, showed that from 1975 through 1978 the average amount of foreign material in U.S. soybeans fluctuated between 1.9 and 2.1 percent, while the foreign material in Brazilian soybeans ranged between 0.8 and 1 percent. One buyer said that Argentina's soybeans were even lower in foreign material, less than half a percent.

Some of the European and Asian buyers have stated that the foreign material levels which the U.S. grain standards permit for soybeans (for example, 2 percent foreign material is permitted for U.S. number 2 soybeans) are too lenient. We were told that the high price of soybeans provides an incentive for exporters to blend in corn, corn screenings, and other foreign matter. One buyer in Hong Kong also commented on the increasing amount of corn found in wheat shipments. As of July 31, 1979, at major U.S. grain terminals, the average selling price of soybeans was \$7.06 a bushel, wheat was \$4.11 a bushel, and corn was \$2.59 a bushel.

Sprout damage

In certain overseas markets, high-quality wheat is needed to blend with lower quality local wheat to produce flour having certain baking characteristics. Sprout damage in wheat affects the flour's rising quality. Because of extensive sprout damage in shipments of U.S. wheat, a number of buyers have stopped or threatened to stop buying U.S. wheat.

Under the European Economic Community's levy system, buyers there must pay a much higher price for the imported wheat which, if sprout damaged, cannot be used to upgrade the quality of local wheat. One Swiss miller complained to a visiting FGIS official that almost all the wheat he obtained under his 1978 import quota had high sprout damage, thereby creating an extreme hardship on the miller.

Factors that have contributed to the sprout damage problem include the following.

- The U.S. grain standards for wheat include sprout damage in the "total damage" factor. To be graded U.S. number 1, the maximum limit for total damage is 2 percent; for U.S. number 2, it is 4 percent. If much of the damage is sprout damage, the flour will not rise properly when used for baking.

--Inspection personnel are able to detect only the visible sprout damage, while much of the damage may not be visible. USDA is working with Japan to develop a rapid method to test for sprout damage, but more work is required.

--U.S. exporters have sometimes blended good wheat with sprout-damaged wheat to bring the total damage factor within the maximum limits permitted by the grain standards.

According to USDA, wheat producers and traders in the Pacific Northwest have been cooperating to keep sprout-damaged wheat out of shipments to Japan, after encountering problems in the latter part of 1977 and 1978, which were threatening the loss of this market. They are attempting to find markets where the rising quality of the flour is not important. In the meantime, they are selling the sprout-damaged wheat mostly for use as animal feed.

Protein

Some buyers complained about the lack of uniformity in protein levels within individual shiploads of wheat and about receiving grain with protein contents lower than certified. The problem with the lack of uniformity in protein percentages was similar to that of dockage. Protein is not a grade-determining factor, so it has not been subject to the uniform loading requirements of FGIS' shiplot inspection plans. Recognizing this problem, FGIS has developed a procedure to control the uniformity of protein levels during shiploading. The new procedure is to become effective May 1, 1980.

The foreign buyers' complaints about low protein levels appear to be due, in part, to the difference between the U.S. and Canadian methods for computing and stating protein content. Canada, the second largest exporter of wheat, requires that protein be computed and stated on a standard moisture (13.5 percent) basis, whereas U.S. inspection procedures permit protein content to be computed and stated on an "as is" moisture basis. Under the "as is" basis, the lower the moisture level, the higher the stated percentage of protein will be. Therefore, an importer who uniformly tests and compares the protein content of U.S. and Canadian wheat shipments, both having 12 percent moisture and certified at the same level of protein content, will find that the Canadian wheat actually has a higher protein content.

Calculating protein content on an "as is" moisture basis also requires a larger grain sample and is more time consuming

because the moisture content must be determined separately. If the standard moisture basis were used, only one grain sample and one test would be required.

In 1978 FGIS proposed to the U.S. grain industry that the United States change the method of computing protein content to the standard moisture basis. The change was not implemented because of opposition from the U.S. grain industry and the Grain Standards Act Advisory Committee. In commenting on our draft report FGIS said it concurred in our proposal to change to the standard moisture basis and it plans to solicit comments in fiscal year 1981 regarding how protein content should be computed and reported.

Moisture

The U.S. grain standards' limitations on the moisture content for corn graded U.S. number 2, 3, 4, or 5 are too high for safekeeping on long voyages during the summer or when shipped to warm climates at other times of the year. Also, when high- and low-moisture corn are mixed, the entire shipment may deteriorate in quality even though the average moisture content is at an acceptable level.

The maximum moisture limit for U.S. number 2 corn is 15.5 percent; for number 3, it is 17.5 percent. A number of foreign buyers told us that, when they purchase U.S. number 3 corn, they require (contractually) that the moisture content not exceed 15 or 15.5 percent. An SEA study concluded that even these moisture levels may be too high to avoid damage when the corn is shipped during the summer or to warm climates.

The researchers analyzed the microbial activity in 935 samples--639 corn and 296 wheat--taken from U.S. export shipments in 1977. The analyses indicated that storage fungi (mold) in the corn were more than 10 times as abundant as in the wheat. The high amounts of mold in the corn were attributed to the fact that much of the corn was exported with 15 to 15.5 percent moisture which made it vulnerable to mold growth, heating, and spoilage at warm temperatures.

Mold can grow in corn at moisture levels around 14 percent. Although such growth is usually slow at such levels, the rates of growth increase markedly as the moisture content increases and as the temperature increases. The researchers concluded that, because small differences in moisture content in the 15 to 15.5 percent range can make such large differences in the rate of mold growth, a slight reduction (0.5 or 1 percent) in maximum moisture limits for U.S. export corn could greatly increase its keeping quality.

In responding to several corn quality complaints in 1977, USDA stated that the average moisture levels were within contract specifications (for example, 14.3 percent versus a requirement of 15.5 percent or less) but that the problems may have been caused by blending high- and low-moisture corn. Several European buyers told us that some of the quality problems occurring in 1974-75 corn shipments had been caused by such blending.

Lack of uniformity in loading

Buyers from both Europe and Asia complained about the lack of uniformity in the quality of the grain loaded in the various holds of a ship. This lack of uniformity, in such things as protein, foreign material, and dockage, may not present a problem if one end-user takes the entire shipment. In many cases, however, several buyers receive portions of the shipment and, in such cases, some can receive grain which is substantially offgrade.

Misuse of inspection certificates

Some end-users believe that, when foreign buyers resell grain, they do not always use the certificates issued on lower quality grain, which is stowed with higher quality and separately certificated grain. U.S. inspection procedures require that, when a material portion of grain being loaded fails to meet load order specifications, that portion must be offloaded or separately certificated. When two or more certificates are issued, each must be annotated to show that the grain has been loaded with grain of another grade.

There is no assurance that the buyer will present all certificates, including those representing the offgrade grain, when reselling the grain. Even if the certificate is annotated that grain of another grade has been loaded in the same shiphold, there is the problem of preserving the identity of the offgrade grain when no physical separation of the grain is made. As with nonuniformity in loading, this situation becomes a problem primarily when multiple buyers are involved and one or more receive deliveries from the shiphold containing the offgrade grain.

Another potential problem of misrepresenting U.S. certificates was alleged to occur at European transshipment elevators. One European buyer alleged that an elevator in Rotterdam received shipments of both number 3 yellow corn and Sample Grade corn but only shipped out number 3 corn. He suspected that the Sample Grade corn was being blended with the number 3 corn and then sold as number 3 on the basis of the U.S. number 3 corn certificate. Other buyers

voiced similar suspicions about quality and weight improprieties at European elevators. None of these buyers furnished specific documentation, however, to support their suspicions.

Other complaints

Frequently, foreign buyers complain that U.S. grain is dirtier or dustier than grain from other origins. This is because some countries, such as Canada, clean their grain and may not handle it as much before loading it on a ship. Some buyers must remove the dust at the destination port and use or sell it for purposes which result in less return for the buyer. A buyer in Hong Kong told FGIS that his firm had been placed on notice for environmental problems caused by dust from U.S. grain. Another in Singapore mentioned that the strict air quality mandates there make it necessary to collect, bag, and sell the dust as fertilizer.

Some foreign buyers also complained about sclerotinia (a fungus) in food soybeans and excessive broken corn and foreign material in corn.

FGIS REVIEW AND REVISION OF THE GRAIN STANDARDS

The Grain Standards Act of 1976 required FGIS to study the existing grain standards to (1) assure that producers, handlers, and transporters of grain are encouraged and rewarded for the production, maintenance, and delivery of high-quality grain and grain of the type needed to meet the end-use requirements of domestic and foreign buyers and (2) determine the items of concern to buyers, both foreign and domestic. On the basis of the study results, the Administrator was to make such changes in the grain standards as he determined necessary and appropriate and, not later than 2 years after enactment of the act, submit a report to the Congress setting forth the study findings and the resultant action.

In its November 1978 report to the Congress, FGIS concluded that the existing standards do not provide adequate measures of the end-use properties of grain and that changes are needed. The report listed the following major problem areas.

- The existing standards are not constructed so that all potentially adverse conditions are routinely identified and made known to inspection service users. Examples are (1) moldy kernels, currently included in total damaged kernels and not separately identified, and (2) insect infestation, for which a tolerance is

allowed before the condition is required to be reported. Infested grain could be blended with other grain, causing contamination of the entire mix without the user being aware of the situation.

- Under the existing standards, grain assigned the same numerical grade can have different market prices. This occurs because grain markets (domestic) use discount and premium scales for the various inspection factors, and these vary by individual factor. Thus, the market has demonstrated that information concerning the level of individual factors is important to it.
- Under the existing standards, it would be possible to assign a high grade to a sample having poor or undesirable end-use properties. For example, a lot of wheat could be graded U.S. No. 1, yet produce flour having long dough mixing times and low water absorption and produce bread having small loaf volume and poor color and crumb texture. Such a situation is not desirable.
- Existing standards are based largely on subjective criteria for inspection. Development and use of more objective criteria are desirable.

At the time of our review, FGIS was working on projects which it intended to use to determine whether the grain standards should be revised with respect to

- the definition of the term weevily;
- the procedure for rounding dockage results to the nearest tenth percent; and
- making sprout damage either a separate grading factor, a subfactor similar to heat damage, or a special factor similar to protein.

FGIS plans to solicit comments in fiscal year 1981 on whether protein content in wheat should be stated on a "standard moisture" basis. It had no specific plans for revising other areas of the standards, such as limits on foreign material in soybeans and moisture in corn, but its fiscal year 1980 work plans do include a complete evaluation of all factors in the corn and soybean standards.

PROBLEMS WITH QUALITY OF GRAIN AND GRAIN PRODUCTS NOT COVERED BY GRAIN STANDARDS ACT

Some of the foreign buyers' most serious complaints about U.S. agricultural commodities in recent years have involved

grain and grain products, such as rice; soybean meal, and flour, which are not covered by the Grain Standards Act and for which FGIS inspection and weighing is not mandatory. As provided by the Agricultural Marketing Act of 1946, as amended, however, FGIS will inspect such commodities but only when and to the extent requested by the exporter.

Most rice is officially graded but this is generally done at the mill or on the docks prior to loading the export vessel. Concerning other commodities, FGIS has not been inspecting soybean meal and, except for flour sold to one country (see p. 74) and a small amount of bulgur sold to another country, has limited its inspections of flour and other processed grain products to checking shipments of U.S. Government-donated commodities for compliance with USDA's purchase contract specifications. (For example, checking to see that the proper type of bag is used, that the bags are sealed properly, and that the net weight of the bags' contents are within an allowable tolerance.)

The commodity inspection services available from FGIS did not include such things as determining if minimum requirements for quality factors (such as protein, oil, fiber, and fat content) were met, if samples used to determine quality were representative of the entire lot they were taken from, and if soybean meal and hulls were mixed properly. In August 1979, the Administrator asked his staff to develop a fact sheet on services that FGIS could provide on soybean meal exports. As of October 15, 1979, the fact sheet had not been completed but we were told that it will include procedures for obtaining representative samples, provisions for analytical testing of the meal for quality factors, and supervision of weighing.

The major exporters of grains covered by the Grain Standards Act are also large exporters of these other commodities. On the basis of the problems discussed below, it is apparent that the U.S. export grain trade is not self-policing with respect to these other commodities and, as a result, U.S. agricultural export markets are being adversely affected.

Infested flour

Sales to the largest foreign buyer of U.S. flour were interrupted in fiscal year 1979 because of infestation problems experienced in fiscal year 1978. The problem began when insect infestation was discovered in flour, financed under title I of the Agricultural Trade and Development Act of 1954, as amended--Public Law 480 (7 U.S.C. 1701 et seq.), being loaded at a gulf port in the late spring of 1978. Subsequent fumigation delayed shiploading and led to costly demurrage charges for the buyer. As a result the buyer

began requiring condition inspections and shiphold examinations by FGIS before loading.

USDA officials and the buyer met periodically thereafter but encountered problems in developing "condition inspection" procedures acceptable to both the buyer and the exporter. Issuance of the first purchase authorization for fiscal year 1979 was delayed until December 20, 1978. Then on February 6, 1979, the buyer withdrew its invitation for bid against the second purchase authorization. The invitation was retendered on March 19, 1979, but only after further discussions between USDA and the buyer on wording of the condition inspection requirement.

Soybean meal quality

Problems with soybean meal have been widespread. Countries throughout Eastern and Western Europe have complained about quality problems with U.S. soybean meal, such as low protein, too much fiber, and inadequate mixing of hulls and meal. Some have indicated that they buy U.S. meal only when Brazilian meal is unavailable. Several buyers also complained that shortweights on soybean meal shipments generally were much higher than shortweights on grain shipments.

In 1977 U.S. soybean meal exports to Europe declined by 41 percent from their 1976 level--4,173,799 metric tons to 2,956,793 metric tons. Import statistics for selected countries were as follows.

<u>Country</u>	<u>U.S. soybean meal imported</u>		
	<u>1976</u>	<u>1977</u>	<u>Decrease</u>
	----- (metric tons) -----		
France	590,283	113,111	477,172
Poland	391,593	177,521	214,072
Belgium	192,415	63,738	128,677
Czechoslovakia	178,805	102,276	76,529
Hungary	70,358	46,623	23,735

Due to the gravity of the situation, the National Soybean Processors Association began a project in 1978 to determine the nature and extent of the problem and what could be done to correct the situation. In August 1978 the Association announced several major actions that would be taken to improve U.S. soybean meal exports, including:

- Establishing minimum standards for soybean meal blending and sampling procedures at U.S. ports.
- Improving soybean meal sampling at foreign ports, including allowing composite sampling of each shiphold instead of sampling on a whole-vessel basis.
- Encouraging research to improve methods of determining primary soybean meal quality factors, such as protein, fiber, fat, and moisture, in order to permit instantaneous quality monitoring during export loading in the United States.

The Association has stated that its members do not want Government control in any aspect of the soybean meal trade as this would raise their costs and limit their flexibility. However, in a meeting of U.S. agricultural attaches from Europe, the Near East, and Africa in January 1979, an FGIS official said that soybean meal quality is still a problem with little or no evidence that the trade has done much to solve it.

Rice infestation and contamination

Two large Asian importers have complained about infestation and contamination of U.S. rice shipments. One told a visiting FGIS team that it did not intend to buy any more U.S. rice because of the infestation problems.

Shiphold conditions

In 1978 two cases of contamination were reported on commodities being exported under title II (donation) of Public Law 480, as amended (7 U.S.C. 1721 et seq.). In one case about 37,000 bags of soy-fortified bread flour were contaminated when several barrels of a chemical fumigant shifted and spilled during the voyage overseas. In the other case, about 23,000 bags of flour were contaminated by oil well drilling mud which had been stored in the same shiphold.

Because of these reported problems, FGIS and USDA's OIG made a joint investigative survey to determine the extent and care afforded USDA foodstuffs, especially title II donated commodities, during lifting and stowing aboard ocean carriers. In examining 52 ships, FGIS commodity inspectors found (1) 13 ships in which one or more holds were unacceptable for stowing foodstuffs due to various factors ranging from standing water to remnants of human and rat excreta, (2) 11 cases where questionable items, such as insecticide, hydraulic fluid, and lube oil, were stored close to the foodstuffs, and (3) 4 cases where either the foodstuffs were used

as packing around other items being shipped or their own packaging was torn and leaking.

Due to the seriousness of these problems, USDA began requiring, effective July 1, 1979, that an FGIS inspection be made of all shipholds into which title II processed grain products and nonfat dry milk were to be loaded and that the shiphold conditions be certified. (Earlier, in March 1979, a large U.S. shipping company had notified FGIS that effective immediately the company would be requesting shiphold inspections on all its ships transporting processed grain products. This action was taken after the company learned that some title II shipments were infested on arrival at foreign destinations.)

In addition to the shiphold certification, an agent of the carrier must certify on the ocean bill of lading that the title II commodities will not be stowed in a hold being used to carry insecticides or other toxic materials. These new requirements apply only to title II donated commodities. Shiphold inspections are not required for similar commodities exported under title I sales or commercial sales agreements, except in those instances when an official inspection is requested.

HANDLING OF FOREIGN COMPLAINTS

Although USDA has a formal complaint system, foreign buyers who receive problem shipments do not, for the most part, use the system. Their primary reasons for not using the system are that (1) the buyers recognize no immediate benefit, because USDA cannot assist in settling a dispute between the importer and the U.S. exporter, and (2) the system and its objectives have not been fully explained to the buyers so they do not understand the importance of filing complaints with USDA.

In some countries the agricultural attaches have not maintained regular contact with the buyers, particularly the end-users, regarding quality and weight problems. As a result of this and the nonuse of the complaint system, FGIS is not receiving the necessary feedback for identifying and solving problems.

In the first half of fiscal year 1979, USDA received 25 foreign complaints--17 on grain quality and 8 on grain weight. This compared with 29 complaints (20 quality and 9 weight) in fiscal year 1977 and 23 complaints (21 quality and 2 weight) in fiscal year 1978. The quality problems most frequently reported were as follows.

	<u>FY 1977</u>	<u>FY 1978</u>	<u>FY 1979</u> <u>(through</u> <u>March 1979)</u>
Excessive foreign material (soybeans and wheat)	5	6	3
Excessive broken corn and foreign material	3	3	2
Infestation (corn and wheat)	4	5	4
Low protein content (wheat)	2	-	3

Formal complaint procedures

During our 1975-76 review, most of the foreign buyers we interviewed said that they generally did not report their complaints to USDA. They believed it was useless to file formal complaints because USDA could do nothing to help them resolve disputes with U.S. exporters. At that time we concluded that USDA's role in dealing with foreign complaints was generally inadequate and that its agricultural attaches, in most cases, were not fully aware of the extent of foreign buyers' problems.

Our current review, and a recent review of agricultural attache activities in five Asian countries by USDA's OIG, indicated that these problems persist. In addition, some foreign buyers told us that USDA personnel had not contacted them to explain complaint procedures. Others said that they would not submit complaints to USDA because they were dissatisfied with USDA responses to past complaints.

In a November 1978 letter to the Administrators of FGIS and the Foreign Agricultural Service, the OIG commented that importers were reluctant to file formal complaints. Although the OIG attributed this partially to a reluctance to complete the necessary paperwork and a fear of reprisal for filing "formal" complaints, it said that it believed that an equal or possibly greater reason was the disenchantment with what is seen as a lack of action by USDA. The OIG said that, right or wrong, the USDA reports of complaint followup are seen by the importers as inconclusive, perfunctory, and insufficient to assist in problem resolution.

One of the largest European buyers of U.S. soybeans told us that he had stopped filing formal complaints because of

dissatisfaction with USDA's responses. Instead the buyer was making his own study to compare origin and destination quality of soybeans.

Other export monitoring programs

FGIS had implemented or planned to implement several programs intended to monitor the integrity of U.S. grain exports. Two of these programs, an inventory monitoring program at U.S. export elevators and a draft survey program, were discussed in chapter 4. In addition, FGIS' international monitoring staff has a program for sending teams to foreign ports to check the quality and weights of U.S. grain shipments. Some shipments are to be randomly selected, while others are to be selected for specific reasons. Foreign buyers are also being asked if they would be willing to submit destination grain quality and weight data which FGIS could use for monitoring purposes.

FGIS has canceled the draft survey program. We question the cost-effectiveness of the inventory monitoring program (see ch. 4), but we believe the other programs can be effective if they are properly carried out.

At the time of our review, FGIS had sent several advance teams overseas to (1) meet with foreign buyers and government authorities whose cooperation is necessary for implementing the international monitoring programs and (2) obtain technical data on the unloading facilities for use as reference material for future trips or for responding to complaints. In October and November 1978, a team visited nine Asian countries; in February 1979, a team visited three Central American countries; and in March and April 1979, a team visited eight countries in the Mediterranean area.

These teams reported that foreign buyers and government authorities had been extremely cooperative. They provided the technical data requested and agreed to cooperate with monitoring teams (if given adequate advance notice), and some agreed to provide FGIS with destination quality and/or weight data on shipments of U.S. grain they receive.

FGIS has not developed a system for gathering, recording, analyzing, and using the buyers' destination quality/weight data to identify and correct problems at specific U.S. ports. Nor has it arranged to obtain this data on a regular basis. However, FGIS officials told us that this would be done following completion of the advance team visits when they will have a better idea of how much and what type of data is available.

CONCLUSIONS

Foreign buyers, although having some complaints, perceive a general improvement in the quality and weights of U.S. grain shipments since our 1975-76 review. The improvement in weights was attributed, at least in part, to FGIS. The improved quality was attributed more to the condition of the U.S. grain harvests, however, than to FGIS' takeover of export inspections.

Many of the foreign buyers' complaints involved problems caused by inadequate or excessively lenient U.S. grain standards and inspection procedures. FGIS acknowledges that the current grain standards do not adequately consider end-user needs and that the inspection procedures need to be improved. However, its current work plans do not address some of the problems commonly mentioned by foreign buyers, such as excessive allowances for foreign material in soybeans and moisture in corn. The foreign buyers also expressed a need for programs to test wheat for gluten strength and a need to restrict certain blending practices. Use of the "as is" moisture basis for calculating and reporting protein content in wheat seemed to be causing some of the "low protein content" complaints being submitted by foreign buyers.

Some of the foreign buyers' more significant problems involved grain and grain products not covered by the Grain Standards Act and therefore not subject to mandatory official inspection and weighing. USDA recently began requiring FGIS inspection of shipholds used for stowing grain products exported under the U.S. Government's donation program. Other inspection and weighing services for such products are provided strictly on a request basis, however, and one major U.S. grain trade association has specifically stated that it does not want U.S. Government involvement in the export of its products not covered by the Grain Standards Act.

USDA's system for handling foreign buyers' complaints is of very little use to foreign buyers and of only limited value to FGIS. The buyers might use the system more if FGIS' need for the information was more adequately explained. More emphasis needs to be placed on contacting the end-users as they are generally more concerned about grain quality than those importers which act only as brokers. Possibly the most useful and cost-effective system for monitoring U.S. grain exports, however, is the systematic feedback of quality and weight data from foreign buyers.

RECOMMENDATIONS TO THE SECRETARY
OF AGRICULTURE

We recommend that the Secretary of Agriculture direct the Administrator, FGIS, to continue efforts to revise the U.S. grain standards to better meet end-user requirements. The Administrator should consider (1) reducing the maximum limitations on foreign material in soybeans and moisture in corn, (2) treating sprout damage either as a separate grading factor, as a subfactor similar to heat damage, or as a special quality determination item similar to protein content, and (3) adding a program for official testing of wheat for quality (gluten strength). Also, the Secretary should direct FGIS to research the need for restricting certain blending practices, such as adding grain screenings or different types of grains to good quality grain, blending wheat with known sprout damage with wheat that does not contain such damage, or blending high- and low-moisture corn.

In addition, we recommend that the Secretary direct:

- FGIS to revise its inspection procedures to require that protein content be computed and reported on a standard moisture basis. (Other recommended changes in inspection procedures are in ch. 2.)
- FAS and FGIS to use existing export monitoring programs to monitor the efforts of the U.S. grain trade to improve the quality of exports of grain and grain products--primarily soybean meal, flour, and rice--not covered by the Grain Standards Act; and if problems sufficient to affect U.S. foreign markets are found, FGIS should develop (1) a voluntary inspection program for grain products and inform foreign buyers that such a service is available on request and/or (2) a legislative proposal to make rice export shipments subject to the inspection and weighing requirements of the Grain Standards Act.
- FGIS to give priority attention to further developing the system for collecting and analyzing quality and weight data obtained from foreign buyers. For the system to be effective, the data should be submitted on a regular schedule (such as quarterly) and all submissions should include comparable information (such as loading port, unloading port, origin weight, and destination weight). FGIS should also work with the cooperating foreign buyers to improve the buyers' sampling techniques and grain analyses capabilities so that FGIS can place greater reliance on the data submitted.

--FGIS and FAS to develop a program for contacting major end-users on a regular basis to obtain their views as to the quality of U.S. grain and which quality factors are of greatest use to them for consideration in making future revisions to the grain standards.

AGENCY COMMENTS AND OUR EVALUATION

FGIS and FAS generally concurred in our recommendations and stated that they were in the process of taking or plan to take actions to either implement or study the feasibility of implementing the recommended changes. (See app. VI and VII.) Regarding the U.S. Grain Standards, FGIS said that it:

- Plans to perform a complete evaluation of the soybean and corn standards in fiscal year 1980. This evaluation would include the maximum limitations on foreign material in soybeans and moisture in corn.
- Is developing an objective test to determine the amount of damage to grain caused by sprouting and by November 1, 1979, plans to solicit comments from potential users of the testing service regarding certification of sprout damage.
- Plans to review the need for adding official programs to test wheat for gluten strength and other quality factors, and in fiscal year 1980 plans to evaluate possible objective tests for classifying wheat according to end-use properties. It added, however, that new testing procedures will be needed before changes can be considered.
- Agrees that research on grain blending practices is needed but believes that (1) prohibiting such blending practices could significantly increase marketing costs and (2) by identifying "bad" blending practices and assessing fault, FGIS would be involved with many difficult problems.

Also, FGIS agreed that protein content should be computed and reported on a standard moisture basis and during fiscal year 1981 it plans to solicit comments on how protein content should be computed and reported. It also agreed that priority attention should be given to further developing the system for collecting and analyzing quality and weight data obtained from foreign buyers and that voluntary inspection programs should be developed for grain products.

FGIS and FAS concurred in the recommendation that they monitor efforts of the U.S. grain trade to improve the quality of exports of grain and grain products not covered by the act. FAS said that it would attempt to devise a more systematic method of checking on quality improvement. Agricultural attaches will be asked to inquire, during regular trade calls, about the extent of any recent improvements in the delivered quality and report the results to FGIS through FAS/Washington.

FGIS said that sufficient evidence is not available at this time to support a legislative proposal to include rice under the U.S. Grain Standards Act. We agree and recommend that a legislative proposal be developed only when and if USDA monitoring efforts determine that there are problems sufficient to affect the U.S. export market for rice.

FGIS and FAS agreed that a need exists for obtaining end-users' views on the quality factors of greatest use to them. FGIS said that its international monitoring staff is obtaining some information but that it will work with FAS to develop an effective system for obtaining such information. FAS said that it was developing a program for gathering better marketing information, including quality considerations, when its marketing specialists travel overseas. FAS is also considering having its agricultural attaches do more contact work with end-users as part of an FAS effort to have the attaches do more indepth analysis of market demand factors.

If FGIS and FAS carry out the changes they have planned and implement other changes that their planned studies and monitoring efforts indicate are needed and cost effective, the problems discussed in this chapter should be substantially corrected.

GRAIN EXPORTS BY COUNTRY OF ORIGINAL DESTINATION

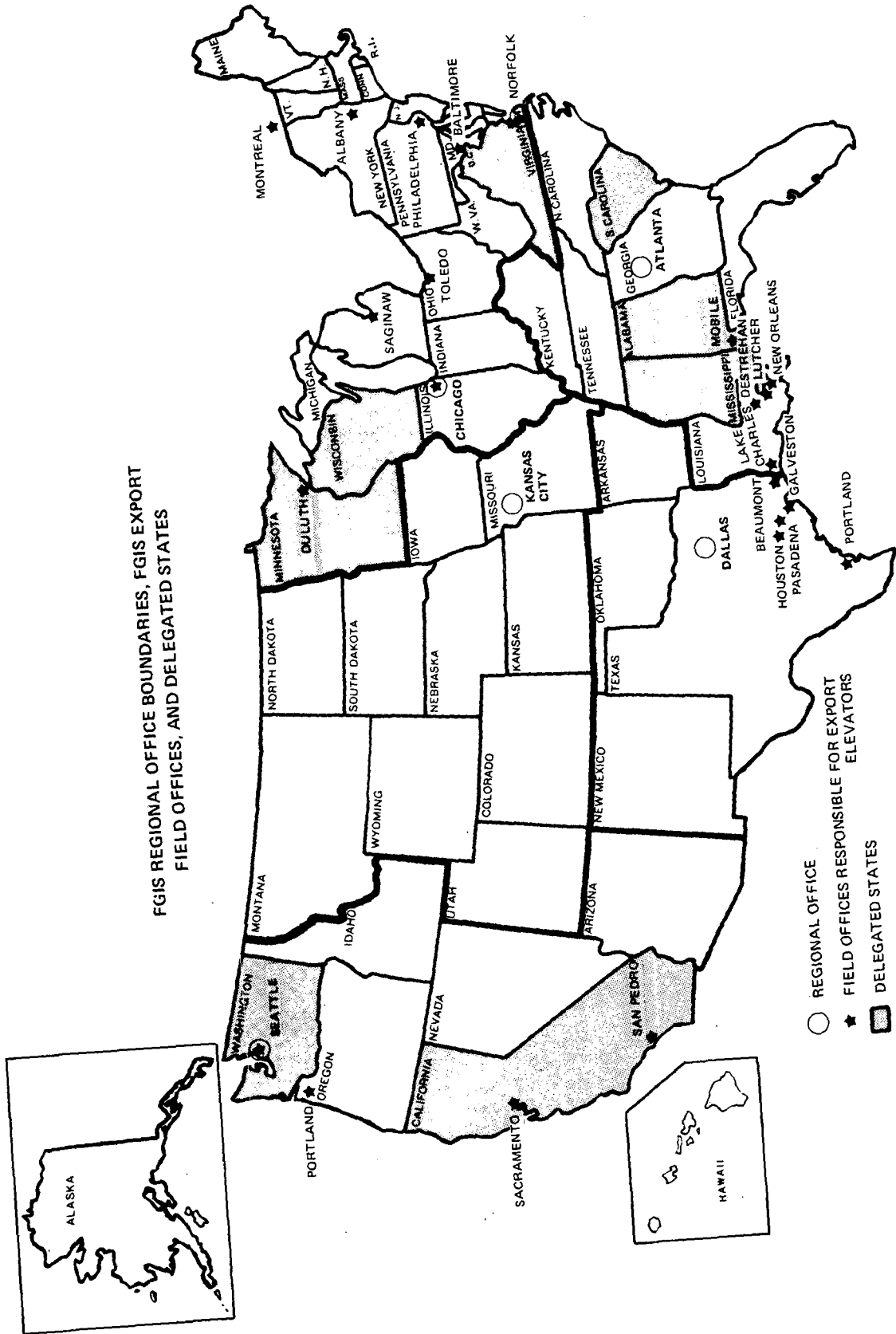
FISCAL YEAR 1978

Country	Value (000,000 omitted)	Metric tons (note a)				Other (note c)
		Total (note b)	Wheat	Corn	Soybeans	
		----- (000 omitted) -----				
Japan	\$ 2,470	18,115	3,175	8,608	3,798	2,535
Russia	1,713	14,616	3,414	10,458	744	-
Netherlands	1,406	7,969	865	2,870	4,203	31
West Germany	618	4,172	-	2,500	1,514	158
Spain	572	3,491	-	1,669	1,564	258
Italy	430	2,955	-	2,063	882	10
Republic of Korea	398	3,517	1,629	1,761	-	126
Republic of China (Taiwan)	390	2,546	-	1,489	927	130
Mexico	383	2,759	-	1,723	580	456
United Kingdom	377	2,773	-	2,031	742	-
Brazil	322	2,693	2,693	-	-	-
Poland	301	2,935	578	1,828	-	529
Belgium-Luxembourg	292	2,195	-	1,601	500	95
Israel	206	1,477	425	-	418	634
Portugal	182	1,820	-	1,564	-	255
Egypt	148	1,274	1,274	-	-	-
France	142	602	-	-	602	-
Iran	142	1,164	1,130	-	-	34
Pakistan	131	1,064	1,064	-	-	-
Venezuela	124	1,015	722	-	-	293
Peoples Republic of China	118	914	914	-	-	-
Chile	108	873	873	-	-	-
Greece	105	1,046	-	1,046	-	-
Other countries	<u>3,239</u>	<u>25,057</u>	<u>13,056</u>	<u>7,898</u>	<u>3,213</u>	<u>890</u>
Total (note b)	<u>\$14,321</u>	<u>107,043</u>	<u>31,813</u>	<u>49,108</u>	<u>19,686</u>	<u>6,437</u>

a/One metric ton of wheat and soybeans equals 36.7437 bu.; 1 metric ton of corn equals 39.368 bu.

b/Totals may not add due to rounding.

c/Other: Oats, sorghum, and barley.



FEDERAL GRAIN INSPECTION SERVICE
FUNDING FOR FISCAL YEARS 1978-80

	<u>1978</u> <u>actual</u>	<u>1979</u> <u>estimate</u>	<u>1980</u> <u>estimate</u>
----- (000 omitted) -----			
Appropriations:			
Grain Standards Act			
Inspection supervision	\$ 5,476	\$ 7,249	\$ 7,477
Weighing supervision	1,310	2,745	2,824
Program management (note a)	9,995	12,538	12,919
Agricultural Marketing Act			
Standardization	<u>149</u>	<u>148</u>	<u>152</u>
Total	<u>16,930</u>	<u>22,680</u>	<u>23,372</u>
Fee-supported activities:			
Grain Standards Act			
Original inspection	10,010	13,704	13,704
U.S. appeals	1,396	1,217	1,217
Canadian operations	358	347	347
Original weighing	7,807	11,614	11,614
Registration	8	22	22
Agricultural Marketing Act			
Grading	4,849	5,955	5,955
Standardization	36	-	-
Compliance	<u>2</u>	<u>-</u>	<u>-</u>
Total	<u>24,466</u>	<u>32,859</u>	<u>32,859</u>
Total	<u>\$41,396</u>	<u>\$55,539</u>	<u>\$56,231</u>

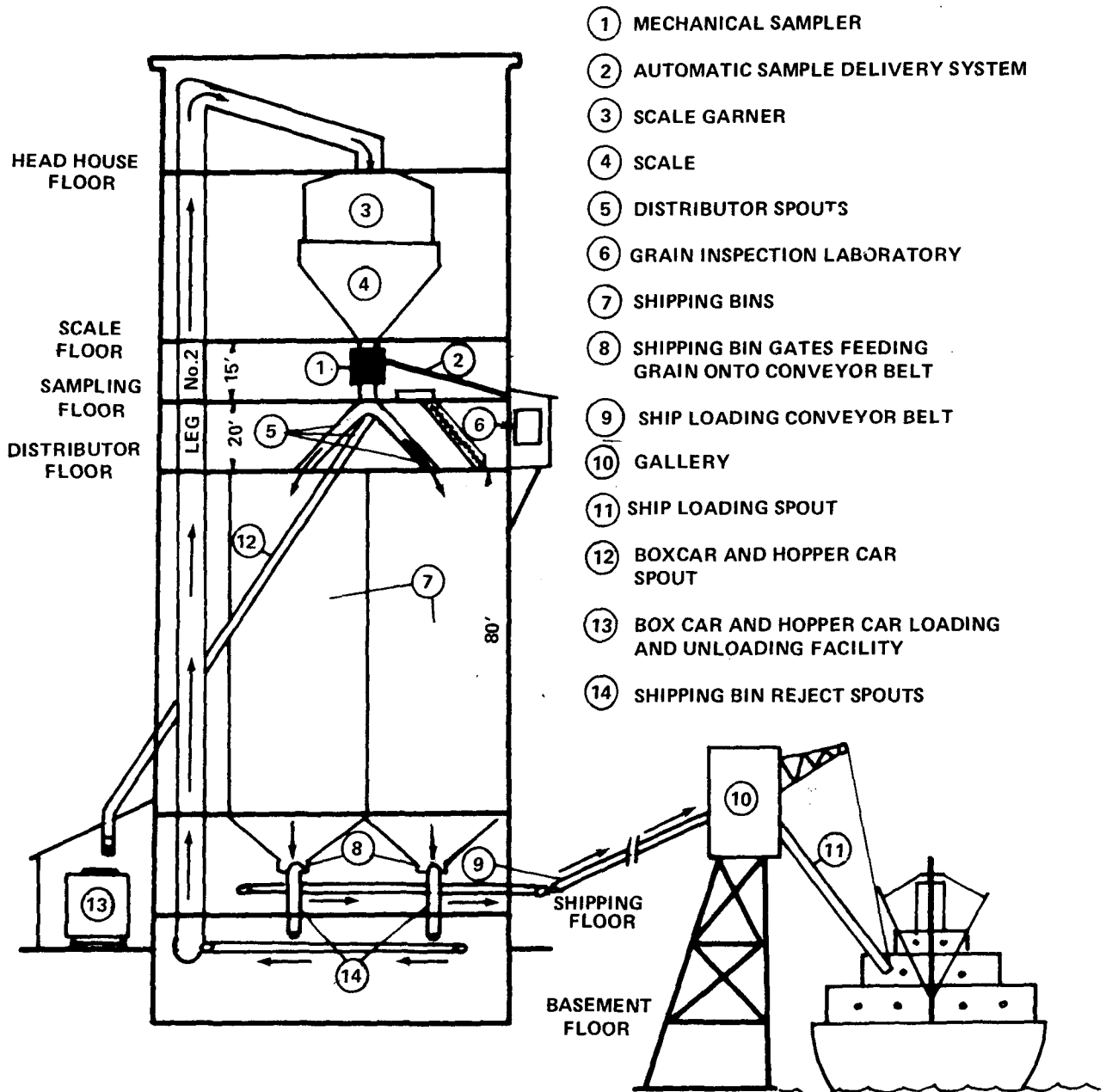
a/Program management includes headquarters administration.

FEDERAL GRAIN INSPECTION SERVICESTAFF YEARS FOR FISCAL YEARS 1978-80

	<u>1978</u> <u>actual</u>	<u>1979</u> <u>estimate</u>	<u>1980</u> <u>estimate</u>
Appropriations:			
Grain Standards Act			
Inspection supervision	217	280	319
Weighing supervision	55	90	101
Program management (note a)	189	256	256
Agricultural Marketing Act			
Standardization	<u>3</u>	<u>3</u>	<u>3</u>
Total	<u>464</u>	<u>629</u>	<u>679</u>
Fee-supported activities:			
Grain Standards Act			
Original inspection	515	576	576
U.S. appeals	63	62	62
Canadian operations	10	10	10
Original weighing	509	514	514
Agricultural Marketing Act			
Grading	<u>180</u>	<u>184</u>	<u>184</u>
Total	<u>1,277</u>	<u>1,346</u>	<u>1,346</u>
Total	<u>1,741</u>	<u>1,975</u>	<u>2,025</u>

a/Program management includes headquarters administration.

ILLUSTRATION OF AN EXPORT ELEVATOR
GRAIN HANDLING SYSTEM





**UNITED STATES
DEPARTMENT OF
AGRICULTURE**

**FEDERAL GRAIN
INSPECTION
SERVICE**

**WASHINGTON,
D.C.
20250**

October 10, 1979

Honorable Elmer B. Staats
Comptroller General of the
United States
General Accounting Office
Washington, D.C. 20548

Dear Mr. Staats:

Thank you for providing us the opportunity to review and discuss with your staff members the draft of the proposed report "Further Improvements to Federal Export Grain Inspection and Weighing Programs Are Needed." We believe that the draft report is objective and its authors are to be commended on the professional manner in which they conducted the study.

The discussions about the report took place in an air of candor. We have a difference of opinion with some of the recommendations in the draft as shown in our enclosed response. In other instances we are in the process of implementing some of those recommended changes. We wish to assure you that the Federal Grain Inspection Service will move aggressively in implementing the agreed upon recommendations and will continue its efforts toward improving the national inspection and weighing program.

Sincerely,

L. E. Bartelt
Administrator

Enclosure

FGIS RESPONSE TO "DRAFT
OF PROPOSED GAO EXPORT REPORT"

SEPTEMBER 26, 1979

FGIS RESPONSE TO PROPOSED
GAO EXPORT REPORT

CHAPTER 2 - pp. 24-25

<u>GAO Recommendation</u>	<u>FGIS Response</u>
1) (A) Establish procedures to standardize the proportion of grain tested for infestation and (B) require that all grain in which insects are found either be certified as infested or fumigated prior to shipment.	1) (A) FGIS concurs with the first part of the recommendation and plans to implement the change in procedures by May 1, 1980. (B) The basis of determination for the "weevily" and the tolerances now employed are under review to determine: (1) the cost-effectiveness of the recommendation and (2) whether a zero tolerance for insects in grain or similar raw materials is statistically feasible. By November 1, 1979, FGIS plans to publish a "Notice of Intent" in the <u>Federal Register</u> to advise interested parties that a review of the special grade "weevily" is underway. Comments received in response to this notice will be evaluated together with the results of FGIS sponsored research performed by the Science and Education Administration to determine if present equipment and methodology will permit establishing a zero tolerance for infestation.

CHAPTER 2 CON.

GAO RecommendationFGIS Response

- 2) Revise shiploading instructions to prohibit the loading of off-grade grain as a part of a shipment when it is destined for multiple buyers.

- 2) FGIS does not agree with the recommendation. However, we are currently developing a statistical export loading plan that is easier to follow and will require grain to be loaded in a more uniform manner than our current plans. We believe the new plan will reduce problems with shipments destined for multiple buyers.

CHAPTER 2 CON.

GAO Recommendation

- 3) Revise instructions to prohibit combining grain samples from multiple belts to determine subplot quality unless the grain represented by the samples is mixed properly during loading.
- 4) Develop dockage certification instructions which assure uniform shipment quality and revise the grain standards to require that the rounding of dockage grading results be performed in the same manner as for other grade factors.
- 5) Modify the grain inspection monitoring system to define and maintain an adequate level of inspector monitoring, and develop monitoring system products which better meet the needs of field office officials responsible for identifying and correcting grading problems.

FGIS Response

- 3) FGIS plans to conduct a study by March 1, 1980, to determine the cost-effectiveness of the recommendation.
- 4) FGIS concurs with the recommendation. We have developed new procedures which will (1) eliminate the showing of contradictory dockage information on export certificates and (2) assure that the certificated percent of dockage is indicative of the level at which the lot was uniformly loaded. See GAO note 1, p. 103.
In addition, we plan to revise the grain standards by May 1, 1981, with respect to the recording of dockage.
- 5) FGIS concurs with the recommendation in principle, and has taken several steps to improve the system. Other needed changes will be implemented as they are identified if they are deemed to be cost effective.

The report indicates that the inspection monitoring system's products were rarely being used by the field offices. We have instituted a disciplined monthly review and use of the information from GIMS which is resulting in identifying and correcting problems within a shorter timeframe.

Control charts for individual inspectors are currently being used. For example, the Licensing Branch of the Compliance

CHAPTER 2 CON.

GAO RecommendationFGIS Response

- 6) Require that inspection certificates issued in Canada be annotated, similar to those issued in the United States, when samples are obtained by means other than a diverter-type sampler.

- Division analyzes each licensed inspector's control charts extracted from the GIMS prior to tri-annually renewing the license. In addition, field offices may request control charts for individual inspectors when they determine such are needed.
- 6) FGIS concurs with the recommendation and regulations proposed by FGIS would require that when inspected, U.S. grain be sampled by a diverter sampler at the Canadian ports.

CHAPTER 3 - pp. 44-45

- | <u>GAO Recommendation</u> | <u>FGIS Response</u> |
|---|--|
| 7) We recommend that the Congress amend the Grain Standards Act to provide the FGIS Administrator authority to reduce the amount of weight supervision required on truck and rail shipments arriving at export elevators to a minimum of 25 percent. | 7) FGIS does not concur with the recommendation. We believe that a better approach is true third party weighing. The USGSA provides that official weighing of grain may be performed by FGIS employees or by elevators under the physical supervision of FGIS employees. All elevators could reduce their weighing costs by using FGIS employees to perform weighing services rather than using elevator employees under FGIS supervision. The Service would prefer utilizing FGIS employees as weighers instead of supervisors. The direct involvement in the weighing program would result in more concern about providing accurate and unbiased weights, would keep weighers more alert and aware of what was taking place, would make it more difficult for any fraudulent weighing practices to exist, reduce friction between elevator weighers and the FGIS supervisors, ensure more uniform application of national weighing procedures and techniques, would assist in providing better trained FGIS employees, and allow quicker reaction to weighing problems and malfunctioning equipment. |
| 8) Develop and implement, as soon as possible, detailed procedures and instructions for (1) those weight monitoring activities not covered adequately by current FGIS instructions and (2) supervising the weight program activities performed by FGIS and delegated State personnel at export locations. | 8) FGIS concurs with the recommendation. Interim instructions have been developed pending final regulations. Preparation and implementation of the supervision instruction is scheduled for FY-1980. |

CHAPTER 3 CON.

GAO RecommendationFGIS Response

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| 9) Ensure that weighing personnel are adequately trained before they are assigned weight supervision duties and that they clearly understand what they are supposed to do and how they are to do it. | 9) FGIS concurs with the recommendation. Approximately 1,700 FGIS personnel have been given formal training in weighing procedures. This includes personnel trained by individual field offices. An additional 200 employees of delegated State agencies have received formal weighing training.
<u>See GAO note 2, p. 1037</u> |
| 10) Strengthen the program for developing supervisors and emphasize to them their responsibility to ensure that weight supervision activities are properly carried out. | 10) FGIS concurs with the recommendation and is proceeding to implement it. Supervisory or management training is scheduled for many supervisors during FY-1980. Also, implementation of the supervision instruction is scheduled for FY-1980. |
| 11) We also recommend that, if the Congress amends the Act as recommended above, the Secretary of Agriculture direct FGIS to revise the inbound weight monitoring program at export locations to make it more cost effective by (1) reducing the level of weight supervision to a minimum of 25 percent on truck and rail shipments, particularly where surreptitious observations of scale operations are possible, and (2) possibly substituting observations by truck drivers for weight monitoring personnel where such actions are possible. | 11) FGIS does not concur with the recommendation because it is discriminatory with respect to bargelot grain. We do not believe that substituting the observations of truck drivers for weight monitoring personnel will add to the integrity of the weighing program. |

CHAPTER 3 CON.

GAO Recommendation

- 11a) FGIS needs to develop uniform procedures and controls to be followed at all locations in controlling and making proper adjustments for grain returned to storage. (p. 53)

FGIS Response

- 11a) The wording on page 37 regarding proper adjustments made for export grain returned to storage should reflect that the Weighing Handbook was revised and reissued in August 1979, to provide more detailed instructions on the procedure to follow in weighing grain returned to storage.

CHAPTER 4 - pp. 58-59

<u>GAO Recommendation</u>	<u>FGIS Response</u>
12) Perform a study to determine staffing and skill levels required to perform essential inspection and weighing tasks and duties at export elevators, and use the results to staff each elevator at the most efficient and effective level required to get the job done.	12) FGIS concurs with the recommendation and plans to complete the study by May 1980.
13) Develop performance standards for electronic surveillance systems and criteria for ascertaining the cost savings that would be derived by installing equipment that meets the performance standards (i.e., the number of FGIS or delegated State personnel which would be replaced compared to the cost of installing the systems).	13) FGIS concurs with the recommendation as long as each elevator is addressed separately. Because of the unique design and operation of export elevators, commitments to reduce personnel must be made on a case-by-case basis. By addressing each individually, we can identify where manpower savings would result.
14) Require that export elevators install automatic sample delivery systems. [See GAO note 3, p. 103.]	14) FGIS concurs with the recommendation where required for sample security. Otherwise, each export elevator must determine whether it is more cost effective for them to install sample delivery systems or to pay for official inspection personnel to monitor security of the samples and deliver them to the laboratory. The revision of the FGIS inspection fees published September 11, 1979, may encourage applicants for inspection to install automatic sample delivery systems to reduce personnel costs.
15) Exercise greater care in determining equipment requirements before large purchases are made, particularly when new technology is involved.	15) FGIS concurs with the recommendation. The NIR purchases were made in December 1977, at which time FGIS was expecting to perform inbound inspections at export port locations. In many markets, these voluntary inbound inspections did not materialize.

CHAPTER 4 CON.

<u>GAO Recommendation</u>	<u>FGIS Response</u>
16) Revise the inventory monitoring program by discontinuing the maintenance of elevator inventory records and reports by FGIS personnel, requiring export elevators to maintain those records and data which FGIS needs, and developing and maintaining a capability within the headquarters staff to check the elevator's records and inventories when a problem is suspected.	16) FGIS does not concur with the recommendation. There was strong objection to the extensive recordkeeping requirements imposed on elevators in the study draft of the regulations. Our experience has shown us most elevator companies do not maintain records suitable for an effective inventory monitoring program. Other than visual monitoring of grain flow, the inventory monitoring method is the currently preferred method of warning. Therefore, it is necessary that these records be kept by FGIS.
17) Cancel plans for using draft surveys for routine checking of elevator scales or official weights, and use the draft surveys only in special situations where there is no other means of checking a suspected weight problem.	17) FGIS concurs with the recommendation. The program was discontinued several months ago.

See GAO note 4, p. 103.

CHAPTER 5 - pp. 80-81

GAO RecommendationFGIS Response

- 18) Reduce the maximum limitations on foreign material in soybeans and moisture in corn.
- 18) FGIS fiscal year 1980 work plans include major efforts on soybean and corn standards evaluations. A complete evaluation of every factor in these standards is planned. If the evaluation indicates that the standards should be changed, we will publish proposed changes for public comment and consider comments received in determining whether to revise the standards.
- 19) Treat sprout damage either as a separate grading factor, a sub-factor similar to heat damage, or as a special quality determination item similar to protein content.
- 19) FGIS concurs with the recommendation as it relates to objective testing. We are developing an objective test to determine the amount of damage caused by the kernel sprouting. By November 1, we plan to publish a "Notice of Intent" soliciting comments from users of the service regarding certification of sprout damage. The recommendation includes three of the four possible approaches to certification (the fourth being no change from present). Buyers now can contractually specify that actual sprout damage be shown under remarks on the certificate and we believe this approach is adequate pending final evaluation of the objective tests.

CHAPTER 5 CON.

<u>GAO Recommendation</u>	<u>FGIS Response</u>
<p>20) Adding programs for official testing of wheat for quality (gluten strength) and ash content.</p> <p>[See GAO note 5, p. 103.]</p>	<p>20) FGIS concurs with the recommendation regarding gluten strength or other quality factors subject to the development and adoption of needed methodology. In fiscal year 1980, a review of wheat classing will be undertaken. Possible objective tests to classify wheat according to end use properties will be evaluated. New testing procedures will be needed before changes can be considered.</p> <p>FGIS does not concur that ash content of whole kernels of wheat is a significant quality criterion. Ash content is most commonly used as an indicator of milling degree of white flour. Its value as an indicator of baking quality ranks well below other quality measures. Currently the domestic milling and baking industry is moving away from ash measurement and towards direct measurement of color.</p>
<p>21) FGIS to research the need for restricting certain blending practices, such as adding low-quality grain screenings, or different types of grain, to good quality grain; blending wheat with known sprout damage with wheat that does not contain such damage; or blending high-moisture corn (16-17 percent moisture) with low-moisture corn.</p>	<p>21) FGIS concurs that such research is needed. However blending practices such as these, provide a market for occasional low-quality grain during harvest. To discontinue such blending practices could significantly increase marketing costs by decreasing marketing channels. In addition, by identifying "bad" blending practices and assessing "fault" FGIS would be involved with many difficult problems.</p>
<p>22) FGIS to revise its inspection procedures to require that protein content be computed and reported on a standardized moisture basis.</p>	<p>22) FGIS concurs with the recommendation, but did not implement a standardized moisture basis because of opposition from U.S. industry and the FGIS Advisory Committee. We plan to publish a "Notice of Intent" during fiscal year 1981, soliciting comments as to how protein content should be computed and reported.</p>

CHAPTER 5 CON.

GAO RecommendationFGIS Response

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| <p>23) FAS and FGIS to monitor efforts of the U.S. grain trade to improve the quality of exports of grain and grain products--primarily rice, soybean meal, and flour--not covered by the Grain Standards Act.</p> | <p>23) FGIS concurs with the recommendation and will continue to make the inspection services available upon request. We are encouraging official testing of soybean meal and are informing the importers through the attaches of the value of such testing. Most rice exported from the U.S. is officially inspected under the Agricultural Marketing Act of 1946. In addition, flour is tested under the AMA of 1946 when sold under PL 480 or similar programs.
 <u>[See GAO note 6, p. 103.]</u></p> |
| <p>24) FGIS to develop (1) a voluntary inspection program for grain products, and inform foreign buyers that such a service is available, upon request, and (2) a legislative proposal to make rice export shipments subject to the inspection and weighing requirements of the Grain Standards Act if significant problems persist with the quality of these exports.</p> | <p>24) FGIS concurs with the first part of the recommendation and will continue to publicize available services. FGIS does not believe there is sufficient evidence available to support a legislative proposal to include rice under the USGSA.</p> |
| <p>25) FGIS to give priority attention to further developing the system for collecting and analyzing quality and weight data obtained from foreign buyers. For the system to be effective, the data should be submitted on a regular schedule (such as quarterly) and all submissions should include comparable information (such as loading port, unloading port, origin weight, destination weight, etc.). FGIS should also work with the cooperating foreign buyers to improve their sampling techniques and grain analyses capabilities so that FGIS can place greater reliance on the data submitted.</p> | <p>25) FGIS concurs with the recommendation but the lack of effective, reliable sampling and weighing systems at many overseas locations could seriously reduce the value of the data. We will be exploring ways to obtain the data, including meeting with foreign teams, and trips made by the International Monitoring Staff. We are presently receiving such information from some countries.</p> |

CHAPTER 5 CON.

GAO RecommendationFGIS Response

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| 26) FGIS and FAS to develop a program for contacting major end-users on a regular basis to obtain their views as to the quality of U.S. grain and which quality factors are of greatest use to them. | 26) FGIS concurs with the recommendation with respect to the usefulness of quality factors. Since most end-users receive only transshipped grain, the quality information which they furnish is of limited value. We are presently obtaining some information through the International Monitoring Staff but beyond this approach we will be working with FAS in developing an effective system. |
|--|--|

- GAO notes:
1. New procedures had been drafted but had not been issued as of October 1979.
 2. These are cumulative totals. FGIS was unable to provide data on the number or percentage of current employees who have been given formal training in weighing procedures.
 3. This proposed recommendation was deleted because FGIS has taken an alternative action that should accomplish the same purpose. (See p. 51.)
 4. This proposed recommendation was deleted as FGIS indicated that it had already carried out the recommendation.
 5. Ash content was deleted from the recommendation and elsewhere in the report because of the additional information provided.
 6. As we have indicated in the report (see p. 73), the available commodity inspection services referred to here by FGIS are very limited and do not include some important inspection procedures.



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREIGN AGRICULTURAL SERVICE
WASHINGTON, D.C. 20250

SEP 20 1979

Mr. Henry Eschwege
Director, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

We appreciate the extensive job that GAO has done in reviewing the system for grain inspection procedures and the small role that FAS plays in this system. Since only two of the recommendations concern FAS, we will direct this response to those areas.

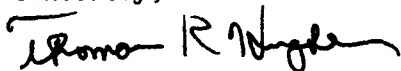
FAS and FGIS--along with OGSM, ASCS, and SEA--have made an effort to monitor actions of the U.S. grain trade to improve the quality of exported products not covered by the Grain Standards Act. Probably additional work can be done in this area, and we will attempt to devise a more systematic method of checking on quality improvement. We will request that agricultural attaches, during the course of regular trade calls, inquire as to the extent of any recent improvements in the delivered quality of rice, soybean meal, dry beans, and flour--and that they report the results of these conversations to FGIS through FAS/Washington.

FAS cannot accept the recommendation to develop a system for contacting end-users on a regular basis to obtain their views on the quality of U.S. grain, and which quality factors are of the greatest use to them. We do, however, agree that a better job needs to be done in contacting end-users of U.S. agricultural products to determine a wide range of marketing facts. We are in the process of developing a program for marketing specialists to gather better marketing information, including quality considerations, when they travel. We are also thinking of having agricultural attaches do more contact work with end-users. This could include, but should not be limited to, a discussion of the quality of U.S. farm products used by the companies. This approach would be integrated with our efforts to have agricultural attaches do more indepth analysis of demand factors in preparing reports for use by FAS/Washington analysts. See GAO note on p. 105.

FAS has worked closely with FGIS in helping to support FGIS personnel travel overseas, and we feel that they are doing a good job of expanding overseas contacts with end-users. Further, FAS, in cooperation with the market development cooperators, will have

foreign teams with probably more than 100 end-users visit the United States this year. With each team we try to schedule a visit in Washington with FGIS personnel. This has been a highly successful attempt to discuss problems as well as FGIS procedures.

Sincerely,



Thomas R. Hughes
Administrator

GAO note: The Deputy Assistant Administrator for Foreign Market Development explained that, while FAS was against setting up a separate system for this purpose, it did agree that these items should be included as part of a larger program that FAS is developing to gather a wide range of marketing information.

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