

MINUTES OF THE Senate COMMITTEE ON Agriculture

The meeting was called to order by Senator Allen at
Chairperson

10:09 a.m./~~p.m.~~ on March 17, 1987 in room 423-S of the Capitol.

All members were present ~~except~~

Committee staff present: Raney Gilliland, Legislative Research Department
Jill Wolters, Revisor of Statutes Department

Conferees appearing before the committee: Sam Reda, State Grain Inspection Department
Chris Wilson, Kansas Grain and Feed Dealers
Association
Representative Susan Roenbaugh
Brenda Braden, Attorney General's Office
Paul Fleener, Kansas Farm Bureau
Joe Lieber, Kansas Cooperative Council
James Clark, Kansas County and District
Attorneys Association

Senator Allen called the Committee to order and called attention to SB 359; he then called on Sam Reda to discuss the bill.

Mr. Reda explained the bill was written as a clarification of legislation of the last session. Mr. Reda stated the new wording is to clarify that bonds be nonaccumulative, that stacking of bonds not occur.

The Chairman thanked Mr. Reda and called on Chris Wilson to testify.

Ms. Wilson gave copies of her testimony to the Committee (attachment 1) and expressed support for SB 359. Ms. Wilson requested an amendment to the bill which would add in line 60, after the words 'that stacking of bonds not occur', the words 'beyond, or above or in excess of the face value of the current bond'.

The Chairman thanked Ms. Wilson and declared the hearing completed for SB 359; he then turned Committee attention to HB 2173 and called on Susan Roenbaugh to testify.

Representative Roenbaugh explained that HB 2173 makes a class E felony for the addition of foreign material to grain. She explained the wording of the bill was written to conform with federal regulations that go into affect on May 1, 1987. Representative Roenbaugh stated that this bill was a step in the right direction to expect clean grain from beginning to end.

During Committee discussion it was discussed whether or not the word dockage needed to be defined. It was stated that the addition of foreign material will not happen as often if this bill is passed because of the class E penalty that will be in effect if this bill is passed. The question was proposed as to whether this bill should take affect upon publication in the Register rather than in the statute book.

The Chairman thanked Representative Roenbaugh and called on Brenda Braden to testify.

Ms. Braden stated this bill had been written because, after knowing of dirt being added to grain, the Attorney General was unable to prosecute because Kansas had no law covering that concern. Ms. Braden expressed the need for Kansas to have a law to tie in with the federal law. Ms. Braden stated that probably dockage should be defined in the bill.

The Chairman thanked Ms. Braden and called on Paul Fleener to testify.

CONTINUATION SHEET

MINUTES OF THE Senate COMMITTEE ON Agriculture

room 423-S, Statehouse, at 10:09 a.m. ~~xxx~~ on March 17, 19 87

Mr. Fleener gave copies of his testimony to the Committee (attachment 2) and expressed support for HB 2173. Mr. Fleener stated this bill for Kansas, if passed, will dovetail with the federal Grain Improvement Act of 1986; also this bill, if passed, will help the Attorney General prosecute cases concerning foreign material in grain. Mr. Fleener urged the Committee support HB 2173 favorably for passage.

During discussion Mr. Fleener stated the word dockage should not be used and that we are the only country in the world that uses that term.

The Chairman thanked Mr. Fleener and called on Joe Lieber to testify.

Mr. Lieber gave the Committee copies of his testimony (attachment 3) and expressed support for HB 2173. Mr. Lieber expressed concern for the use of the words 'after harvest' in the bill. Mr. Lieber expressed support for the intent of the bill.

The Chairman thanked Mr. Lieber and called on Chris Wilson to testify.

Ms. Wilson gave copies of her testimony to the Committee (attachment 4) and expressed support for HB 2173. Ms. Wilson stated there is a need to have international regulations for grains. She stated that adulteration is rare but expressed support for legislation that would punish anyone, at whatever stage in the marketing of grain, that adulterates grain.

The Chairman thanked Ms. Wilson and called on James Clark to testify.

Mr. Clark expressed support for HB 2173 and also support if the words after harvesting are deleted. Mr. Clark stated farmers would not be hurt if the words after harvesting are deleted from the bill and that deletion would not hinder prosecution of the bill either.

The Chairman thanked Mr. Clark and called for Committee action on SB 359.

Senator Arasmith made a conceptional motion that the Committee accept the amendments to SB 359. Senator Warren seconded the motion. Motion carried.

Senator Karr made a motion the Committee recommend SB 359 favorably for passage as amended. Senator Montgomery seconded the motion. Motion carried.

The Chairman called for action on HB 2173.

Senator Kerr made a motion the words 'after harvesting' be deleted in lines 28 and 39. Senator Karr seconded the motion. Motion carried.

Committee discussion centered around the word 'knowingly' in line 39. It was suggested that maybe a better word would be intentionally.

Due to time, the Chairman announced that Committee discussion of HB 2173 would continue at a later Committee meeting; he then called for action on Committee minutes.

Senator Gordon made a motion the minutes of March 4, 5, 6 and 9 be approved. Senator Warren seconded the motion. Motion carried.

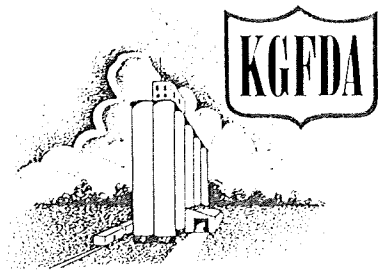
The Chairman adjourned the Committee at 11:00 a.m.

GUEST LIST

COMMITTEE: SENATE AGRICULTURE

DATE: March 17, 1987

NAME (PLEASE PRINT)	ADDRESS	COMPANY/ORGANIZATION
Howard Tice	Hutchinson	KAWG
Bob Bentley	Shields	KAWG
Brenda Braden	Topeka	AG
Greg Smith	Minneapolis	
Mike Harris	Minneapolis	High School
GLEN DAVIS	Delfhos	HS
Tom Shiple	Minneapolis	HS
Eldon Lamban	Mound City	Linn Co Farm Bureau
Janet Wabbit	Prescott	Linn Co Farm Bureau
Edwin McWilliam	Pleasanton	Linn Co Farm Bureau
Wayne Wabbit	Prescott	Linn Co Farm Bureau
Alvin Shaw	Venillion	Farmer
Chris Wilson	Hutchinson	KGFDA
Willie Leonard	Topeka	Comm of Ks Farm Org
John J. Hultsch	Wamego	Pott Co Farm Bureau
Gretchen Story		Div of Budget
Gary M. Bothwell	Topeka	KSGIP
S. J. Reda	- -	- - -
Joe Lieber	Topeka	Ks Cong Council
Paul E. Fleener	Manhattan	Kansas Farm Bureau
Susan Rauhauge	Lewis	Leg.
Dice Miller	Manhattan	Kansas Farm Bureau



KANSAS GRAIN & FEED DEALERS

Association

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HUTCHINSON, KANSAS 67504-0949

STATEMENT OF THE KANSAS GRAIN AND FEED DEALERS ASSOCIATION

TO THE

SENATE AGRICULTURE COMMITTEE

JIM ALLEN, CHAIRMAN

REGARDING SENATE BILL 359

MARCH 17, 1987

Mr. Chairman and Members of the Committee, I am Chris Wilson, Director of Governmental Relations of the Kansas Grain and Feed Dealers Association (KGFDA), a professional and trade association of over 1100 members. KGFDA is comprised of the state's grain warehousemen and related agribusinessmen.

KGFDA requested the introduction of this bill as a follow-up to last year's S.B. 518, which made warehouse bonds continuous rather than accumulative. This step was taken by the Legislature, as you will recall, in conformity with the federal government and all other states, to encourage bonding companies to continue to issue bonds in Kansas. The language in S.B. 359 is offered at the suggestion of the Attorney General, who issued an opinion indicating that unless legislative intent was clarified in this area, the law under S.B. 518 might not hold up in court.

The intent of S.B. 518 was to limit the stacking of bonds to the par value or face value of the current bond. In other words, bonds are to be continuous rather than accumulative. A bonding

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company may be liable for a previous year's loss, but not for more than the value of the current bond. In order to make this legislative intent quite clear, we suggest that the words, "beyond the face value of the current bond", be added on line 0060 in S.B. 359, after the words "that stacking of bonds not occur".

This legislation is important to all Kansas warehouses, because bonding companies are hesitant to write bonds in the state due to the Attorney General's statements. Clarification of the legislative intent of the original legislation is needed. We therefore urge your favorable recommendation of S.B. 359.

I will be happy to respond to any questions you may have.

attachment 1

3-17-87



PUBLIC POLICY STATEMENT

SENATE COMMITTEE ON AGRICULTURE

RE: H.B. 2173 - **Classifying the Crime of Adding Dockage
or Foreign Material to Grain**

March 17, 1987
Topeka, Kansas

Presented by:
Paul E. Fleener, Director
Public Affairs Division
Kansas Farm Bureau

Mr. Chairman and Members of the Committee:

We are **very supportive** of H.B. 2173. So was the House of Representatives which passed this bill 120-0. Grain quality, grain grading, and inspection services on our grains have been and continue to be of **vital** interest to Farm Bureau members throughout this state and nation. Our organization has spent a great deal of time and effort seeking improvement in grain quality standards at the federal level. We urge the Kansas Legislature to take the steps proposed in **H.B. 2173**, putting the State of Kansas on record in the grain quality area.

The number one goal of my organization is improving net farm income for farmers and ranchers. Assurance of grain quality is one small **BUT SIGNIFICANT** step to assist in improvement of the income of farmers. Frankly, we are growing weary of the **obstruction** to grain quality improvements by those who insult the intelligence of our producers and our grain customers by saying of foreign buyers: "Oh, they get what they pay for."

We told the Federal Grain Inspection Service (FGIS) our concerns about dockage and foreign material at a meeting in

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Denver, Colorado in January of 1986. We had an opportunity in July, 1986 to address a Joint Subcommittee hearing of the House Agriculture Committee held in Urbana, Illinois. The Subcommittees on Department Operations, Research and Foreign Agriculture, and Wheat, Soybeans and Feed Grains met to review grain quality issues and the federal grain quality standards.

Our urgings, from our testimony in Denver and our testimony in Urbana were favorably received. Most of them were acted on by the U.S. House of Representatives and the U.S. Senate in the development of the Grain Quality Improvement Act of 1986. Some things remain to be done. We will continue our efforts in Washington as well as here in Topeka to assure customers and potential customers that it is our desire to provide clean, quality grains to them.

We told the Congress and we would share with you as well, the term "dockage" should be eliminated from grain standards. It is used **only** in the United States. It is **not** understood by our customers or potential customers.

We believe there should be a tighter definition of "foreign materials." The definition is one which, for wheat, says: **"All matter other than wheat which remains in the sample after the removal of dockage and shrunken and broken kernels."** There is no similar definition for corn. There is a separate definition for "foreign material" as relates to soybeans. Federal regulations also contain a definition for "dockage." It applies only to wheat, and says this: **"All matter other than wheat which can be**

*attachment 2
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removed readily from a test portion of the original sample by use of an approved device in accordance with procedures prescribed in the Grain Inspection Handbook. Also underdeveloped, shriveled, and small pieces of wheat kernels removed in properly separating the material other than wheat and which cannot be recovered by properly rescreening or recleaning."

Mr. Chairman, and Members of the Committee, a market price for a quality product is what our farmers want and something we believe our buyers, present and potential, would provide if all of us are clear in what we mean by grain quality ... if we have understandable grain standards, grading procedures, and inspection practices. We appreciate the opportunity to speak in **support of** H.B. 2173. We would be pleased to respond to any questions.

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Testimony on HB 2173
Senate Agriculture Committee
March 17, 1987
Prepared by Joe Lieber
Kansas Cooperative Council

Mr. Chairman and members of the Committee: I'm Joe Lieber, Executive Vice President of the Kansas Cooperative Council.

The Council supports the intent of HB 2173.

Even though we feel that the problem of dirty grain has been exaggerated, we feel it is important that Kansas serves notice that it will not tolerate the adding of foreign materials to grain.

We did have concerns about whether previously removed grain dust could be added back in. However, we feel that lines 49 to 53 address that question, and this bill parallels the existing Federal law.

Mr. Chairman and members of the Committee, we do have a concern over the term "after harvesting" located in lines 25 and 35.

It would seem that this is a contradiction to Section 1 that discusses the production of high quality grain.

We are not sure why "after harvest" was added but feel if it is kept in the bill, then HB 2173 is not serving notice that Kansas will not tolerate the adding of foreign material to grain.

attachment 3
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STATEMENT OF THE KANSAS GRAIN AND FEED ASSOCIATION

TO THE SENATE AGRICULTURE COMMITTEE

JIM ALLEN, CHAIRMAN

REGARDING H.B. 2173

MARCH 17, 1987

Mr. Chairman and Members of the Committee, I am Chris Wilson, Director of Governmental Relations of the Kansas Grain and Feed Dealers Association (KGFDA). KGFDA is a voluntary trade and professional association, comprised of the state's grain warehousing and merchandising industry. Our cooperative and private grain firms annually market about \$2 billion worth of grain and have over 900 million bushels of state and federally licensed storage space.

Because of the vital role we play in the marketing of grain, we are acutely aware of the importance of grain quality. We are, therefore, pleased to appear before you in support of H.B. 2173. This bill is in keeping with the federal Grain Quality Improvement Act of 1986. We support also having legislation at the state level, because it empowers state agencies to act as well as the Federal Grain Inspection Service in the event of an incident of adulteration of grain.

However, we do think it is important to note that the subject of grain quality is a very broad and complex one and that the scope of the federal law, and therefore this bill, is limited in its ability to address the total situation. Grain quality is a subject we have all heard more about in the past couple of

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years, and complaints from foreign customers prompted the federal legislation to be passed last year. As the U. S. has heard these complaints, some have accused the grain trade of being at fault. Everyone in agriculture has wondered if these complaints are valid, and if they are, how our grain quality deteriorates from the field to the end customer.

There are several reasons which I believe have precipitated our grain quality complaints. First, we all must recognize that grain quality begins on the farm. There are vast differences in the quality of grain delivered to the elevator. The warehouseman must do the best job possible of blending the varying qualities he receives to deliver the quality of product purchased by the customer. Secondly, our grain industry has evolved from being a solely domestic supplier to also being a major exporter. When we supplied grain for domestic use only, the end users (millers) cleaned the grain of the bugs, dirt, damaged kernels and trash it contained from harvest, handling and transport. Our millers, of course, still clean our grain. Our complaints have not come from them, but from our foreign customers. Our domestic system has never developed a cleaning stage to accomodate foreign buyers. Some of our competitors have instituted cleaning steps in their countries, such as Canada, where the government's wheat board cleans the grain at the export terminal. So it is no wonder that our customers would like for us to follow suit.

There have been other changes in American agriculture which

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can affect quality. When our exports were stronger, grain moved much faster from the farm to internal elevators to export terminals to the customer countries. As exports have declined, grain may be stored for up to several years before being used. This increased storage time makes it very difficult to maintain the grain's quality.

Also, our system of rapid grain handling necessitates grain being dropped long distances into warehouses, onto rail cars and onto ships. Every time the grain is moved, the number of broken and damaged kernels increases, and dust is created. As former Secretary of Agriculture John R. Block has said, "We all look around for someone to blame for any quality problems, when really they result from our system as a whole."

We should also keep in mind some other facts regarding this situation. The Foreign Agriculture Service (FAS) reports that there were 45 total grain quality complaints received in 1986. Of those, 16 pertained to wheat. Of those 16, 6 were related to protein content. However, the Federal Grain Inspection Service (FGIS) and FAS found none of those complaints to be valid. In 1985, 74 complaints were registered. That is the year that FGIS went to foreign countries looking for complaints and that number includes both formal and informal complaints. Of those 74, only one was substantiated. In 1984, three out of 21 complaints were substantiated.

Documented samples and grades prove that our customers are

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shipped grain of at least, often better, quality than they pay for. During the economic times of the past few years, and with other countries dramatically increasing their competitiveness and production, it is no wonder that some of our customers would just as soon buy elsewhere. They can likely do so at a lesser cost. Perhaps there is less of a quality problem than some would like us to think.

However, I am definitely not saying that we cannot or should not improve our quality. We can, should, and must. Quality is particularly critical with the prolonged storage situation we have at this time. The grain industry has developed a number of suggestions for improving quality. Several positive changes are already in motion. As a result of FGIS changes in regulations which go into effect on May 1, 1987, and the new federal law, to a large extent, the situation is being addressed. But we as a nation have still not answered the questions of how clean we want to make our grain, at what cost, who will pay that cost, and will we be rewarded economically for paying the cost. Producers must recognize that quality begins on the farm and that they will bear a cost in improving grain quality. The situation is not totally resolved simply by passing state and federal legislation such as you have before you.

H.B. 2173 makes it illegal to adulterate grain in Kansas, and warehousemen do not oppose this bill, because that is simply not an industry practice. Good quality grain is in the best

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interest of the grain warehouseman. The more dirty grain he takes into his elevator, the more difficulties he has in storing and merchandising the grain. Letting grain go out of condition, allowing its quality to deteriorate, or adulterating the grain in any way could mean financial ruin for a grain firm. Warehousemen simply must deliver the best product possible. Maintaining quality is more necessary to a warehouseman than to the producer, because the warehouseman is most often responsible for the harvested grain for a longer period of time. And good quality is a matter of pride to a warehouseman as it is to the producer. As I said, adulteration of grain simply is not a practice in our industry, and our members greatly resent the very few in the industry whose practices would give the whole industry a negative image. So, we are pleased to support this bill which would punish anyone--at whatever stage in the marketing of grain--who would adulterate the product.

Thank you for the opportunity to offer our comments on H.B. 2173. I would be happy to respond to any questions you may have.

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FGIS Launches Flurry of Regulatory Activity in Response to Grain Quality Improvement Act

The Federal Grain Inspection Service made it clear last month that it is moving rapidly to enact rules to interpret the Grain Quality Improvement Act passed in the last session of Congress. Areas to be affected include grain dust, dockage and foreign material, and insect tolerances; along with proposed changes in the fumigation handbook and the Cu-Sum loading plan.

FGIS officials met January 8 with representatives of farm and trade groups, previewing several proposals planned for release later in the month. Among those present were GEAPS' representative Jerry Cotter, Grades and Weights committee chairman and South Texas chapter member; and GEAPS members Arvid Hawk, Minneapolis chapter; Maynard Huddleston, Mid-Atlantic chapter; and Max Spencer, Non-chapter member.

At press-time, proposed rulemaking was expected to be published in the *Federal Register* by February 1. Follow-

ing are highlights from planned activity in areas which most affect GEAPS members.

Reintroduction of Dust

FGIS Administrator Kirk Miller — allowing that legislative intent was to *exclude* interior facilities from prohibitions — told the meeting that *all facilities* are included in FGIS proposed regulations, due to the "very clear" language in the Act. While holding the strict interpretation, he said, FGIS will be looking for ways to minimize the impact on interior facilities. Miller may request that FGIS mandate the strict interpretation at export facilities, but not in the interior.

Miller is seeking administrative approval for a compromise which would provide that dust removed from grain and at rest in a facility cannot be introduced to the grain at export locations or at those interior locations where it is now removed and placed at rest. At interior locations where dust is removed from the stream and reintroduced before coming to rest, that practice may continue.

"Unless some relief can be gained," Cotter predicts, "the economic impact on the grain handling industry will be significant. Additional costs — perhaps as much as several hundred million dollars — in operational expenditures for equipment modification and disposal of dust will have to be absorbed."

Regulations

The Grain Quality Improvement Act affects all grain handling facilities — not just those using official inspection and weighing services. As of May 1, 1987, FGIS will amend its regulations, adding a new section as follows:

800.61 Prohibited Grain Handling Practices

a) Prohibited Practices

1. Cannot add or recombine dockage, foreign material or dust.
2. Cannot blend different kinds of grain or add back broken kernels of one type of grain to another type of grain (this includes dust). Export facilities will have until December 31, 1987 to comply.

b) Exemptions

1. Administrator may grant exemptions from above on case-by-case basis after request from domestic end user.

c) Exceptions

1. Blending different qualities of the same grain.
2. Insect or fungi control.
3. Marketing dockage and foreign material.
4. IP material. (*IDENTITY PRESERVED*)
5. Dust suppressants.

800.162 will be amended by adding:

(b) Corn and sorghum will have broken corn, broken kernels and foreign material reported in the remarks section of all certificates. They will not be grading factors.

(d) Dockage and foreign material for all other grains not now reported in 1/10 percents will be shown in the remarks section of all certificates in 1/10 percents.

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Senate Ag Committee Members Take Issue With Inclusion of All Elevators Under GQIA

In a December 16 letter to Secretary of Agriculture Richard Lyng, six Republican members of the Senate Agriculture Committee stated that it was "clearly not the intent of the conferees" to have the Grain Quality Improvement Act prohibit recombination of dust at "all elevators." Rather, they wrote, their intent was for the prohibition to apply only to export elevators. The letter concludes by urging USDA to implement the grain quality provisions in a manner that reflects the intent of Congress and thereby avoid any unintended effect on thousands of interior elevators."

ON THE INSIDE

- FGIS Revises Fumigation Handbook ... see "Government Affairs," page 4.
- Suspect Atmospheric Problems? Turn to page 6 for tips.
- "What's New/Why Don't They ... I Did" honorees announced on page 3.
- Call for Presentations for 1988 Conference — see insert.

FGIS Launches Regulatory Activity

(from previous page)

Standards

Gail Jackson, FGIS director of standardization, reported that foreign material and broken kernels in corn and sorghum would be redefined as follows:

Corn

Broken Corn: All material passing through a 12/64" round-hole sieve and going over an 8/64" round-hole sieve.

Foreign Material: All material through an 8/64" round-hole sieve, plus hand-picked FM on corn passing over a 12/64" round-hole sieve.

Sorghum

Broken Kernels: All material passing through a 5/64" triangular sieve and over a 2-1/2/64" round-hole sieve.

Foreign Material: All material other than sorghum passing over a 5/64" triangular sieve, plus FM over a #6 riddle.

Insects

FGIS is tightening tolerances, with the goal of 0 tolerance by 1992. Tolerances will be the same for all grains, and all insects will have equal weight against the tolerance.

"Sample grade" will be assessed when the grain contains 10 or more live or dead insects per 1,000 grams. This provision is primarily targeted for export locations which utilize in-transit insect control programs. For wheat, "Sample Grade" will

Timetable For FGIS Regulatory and Procedural Actions

Docket	Proposal	Comment Period	Final	Effective Date
Grain Standards (Standard Format)	10/86	3/87	3/87	5/87
Barley Standards	11/86	12/86		
Grain Handling Practices (Parts 800 & 810)	1/87	3/87		
*Weighing Provisions & Procedures (Additives)	11/84	1/85	1/87	2/87
Insect Infestation	1/87	3/87	4/87	5/88
Optimal Grain Grading (Request for Public Comment)	1/87	3/87	5/87	(Report to Congress)
Cu-Sum Plan (Request for Public Comment)	6/87	8/87	11/87	12/87

*Must be published final before the "Grain Handling Practices" can be proposed.

be assessed when more than 32 insect-damaged kernels are present in 100 grams.

Tolerances are proposed as follows: Effective May 1, 1988, stationary lots will be graded "Infested" for three or more live insects. Moving lots will be so graded with three or more live insects in the barge or in 60,000 bushels. Sample size must be at least 500 grams per 2,000 bushels. In or around the lot, "Infested" will apply for three or more live insects.

Effective May 1, 1990, the three-insect limit will be reduced to two; in 1992 the number will drop to one (e.g., "0" tolerance).

GEAPS Executive Vice President John Healy notes that, "A zero tolerance will have a significant impact on grain handling operations — both in terms of increased cost for insect control and flexibility for shipping."

Cu-Sum

FGIS plans to publish in the *Federal Register* this summer proposed revisions to the Cu-Sum. The proposed plan would:

1. Revise some break points. Most significant changes would be in moisture and BCFM for corn; moisture, FM and splits in soybeans.

2. Limit review inspections to one in the same area. Only reinspection or an appeal would be allowed at the location of the original inspection. The next level of review would be a Board Appeal. This

provision would be applied to interior locations, as well.

3. Average review inspections with the original result if the review inspection does not indicate a material error. If a material error is indicated, the review inspection will stand alone. A material error will be defined as plus or minus two standard deviations.

4. Adopt an absolute limit for all factors.


5. Define off-grade grain as all grain in the material portion sequence, back to a zero Cu-Sum.

Protein

Protein will go under the Cu-Sum for lots requiring a minimum or maximum. A starting value of .1, breakpoint of .3 and absolute limit of .2 will be used. The plan may include a range limit, but FGIS is still studying this requirement.

Average and ordinary protein will not be under the Cu-Sum, but will have a range limit applied. A statement will be shown on the certificate if the range is exceeded.

A timetable for the regulatory and procedural actions proposed by FGIS appears adjacent to this article. All individuals and companies are requested to respond to the proposed regulations as soon as possible. The GEAPS Grades and Weights committee is reviewing the proposals and will comment on behalf of the membership.



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The Truth About Dirty Grain

United States wheat is dirtier on the farm than at export terminals.

A new U.S. Wheat Associates study of wheat quality shows that, generally, there is more dockage and foreign material in wheat in on-farm bins and country elevators than in grain loaded on ships for export.

The nationwide study, made public for the first time at the Nov. 26 annual convention of South Dakota Wheat, Inc., refutes the common belief that terminal and grain elevator operators reduce the quality of U.S. wheat by blending and reintroducing

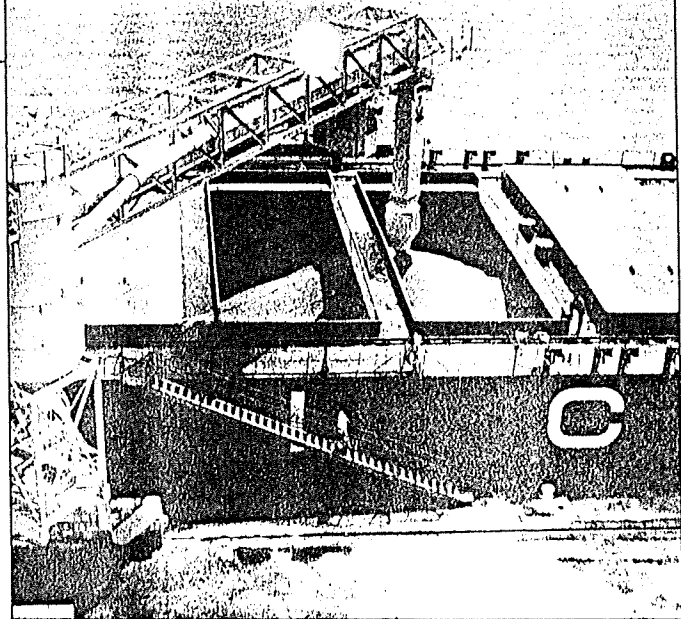
grain dust into export cargoes.

Rather, the study indicates, some dockage and foreign material — the two main sources of complaints about U.S. grain quality — are removed in the marketing channel, though shriveled and broken kernels increase.

"It's not what the press wants to hear because it's more dramatic to blame exporters than farmers. And, frankly, it's not what some of my bosses may want to hear," says Jim Frahm, director of planning for U.S. Wheat Associates, a farmer-directed market development group.

The source of dockage and foreign material is important because it determines how U.S. wheat might be cleaned up to meet foreign competition, notes Frahm.

If terminal elevator operators



A new study refutes the claim that grain loaded on export vessels is dirtier than when it leaves the farm or elevator.

were mishandling grain, then strict clean-grain legislation, as was passed in 1986, may have solved the problem. It's now illegal to put dust back into grain once it's taken out.

However, if grain has more dockage and foreign material on the farm than at the port, the legislation does not completely solve the problem. In fact, it may make it worse, since dust would not be removed to begin with.

The Federal Grain Inspection Service (FGIS) has long contended that the problem with dirty grain lies in the country. The U.S. Wheat Associate's study is the first from a farm group that confirms that position.

Frahm says the new study, conducted in 1985 and 1986, is scientifically sound and accurate. Results were obtained by comparing 2,000 on-farm wheat samples taken at harvest to FGIS samples taken as vessels were being loaded.

Winter wheat samples were collected by a private laboratory that

usually checks quality for the domestic milling industry. Spring wheat samples were taken by North Dakota State University. White wheat samples were taken by the Pacific Northwest Grain Growers Assn.

Each obtained samples from country elevator dump bins, which hold the grain taken off trucks for sampling. Spring wheat samples also were taken from on-farm storage bins.

Cargo information came from 500 FGIS samples set aside to determine milling and baking quality of wheat exports. During three six-week periods annually, FGIS sets aside for U.S. Wheat Associates one sample in every 10 it takes of grain being loaded for export.

The new study is large enough to conclude that, in general, terminal operators aren't adding dockage and foreign material to U.S. wheat; dirty wheat originates on the farm, states Frahm. □

BY LON TONNESON

Dirty Grain Puts U.S. on Verge of Losing Major Markets

No matter who is responsible, lower quality wheat is a growing export problem.

"U.S. Wheat Associates feels as if we're on the verge of losing all Southeast Asia exports over protein complaints," says Jim Frahm, the group's director of planning. "And we're in the process of giving away the Venezuelan market."

However, it's hard to pin down the exact impact grain quality has had on U.S. sales. Frahm notes that the number of complaints really isn't a good measure, because most dissatisfied buyers don't complain.

"Complaining really doesn't do them any good," continues Frahm. "Usually, all they get back is a report from the Federal Grain Inspection Service (FGIS) saying that proper grading procedures were followed."

Bill Wilson, North Dakota State University ag economist and member of a national grain quality committee, points to oversupply as another big reason U.S. exports have fallen. "The competition is great and buyers can afford to be quality conscious," he says.

According to Wilson, there are two

basic grain quality problems:

- Canada and Australia sell much cleaner grain than does the U.S. But, if the U.S. were to install the Canadian cleaning system, the estimated cleaning cost would run 13-17¢/bu.

- Some buyers don't always get the grain quality ordered. FGIS sampling techniques are complex and buyers sometimes don't understand how much the cargo may vary from the order and still meet standards.

Also, high-quality grain tends to move to the outside of the vessel, while poor-quality grain, dockage and foreign material gather in the center. As the vessel is unloaded, one miller may get high-quality grain while another gets lower quality.

Wilson notes two solutions:

One, clean the export grain. Two, make FGIS reports mean exactly what they say.

"The basic question is whether or not we want to pass a law saying that every bushel of grain for export must be cleaned," states Wilson. "There are arguments on both sides. But I feel farmers would end up paying for cleaning without knowing how much it would increase exports." □

What's Being Done to Clean Export Grain

Two things now are being done to clean up U.S. export grain.

Beginning next May, protein content will be reported at 12% moisture, rather than "as is." Because protein varies with moisture content, many buyers were confused about "as is" protein measurements, says Jim Frahm, planning director for U.S. Wheat Associates.

Also beginning in May, dockage will be rounded off to the nearest 0.1%, rather than to the lowest 0.5%. For example, under present rules, 2.9% dockage is reported as 2.5%. By May, 2.9% dockage will be reported as 2.9%.

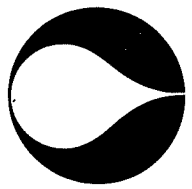
The change may not seem significant, but rounding off the dockage is a major source of dirty grain com-

plaints, Frahm says. "Changing the reporting system will make terminal operators refigure the economics of cleaning out dockage," he adds.

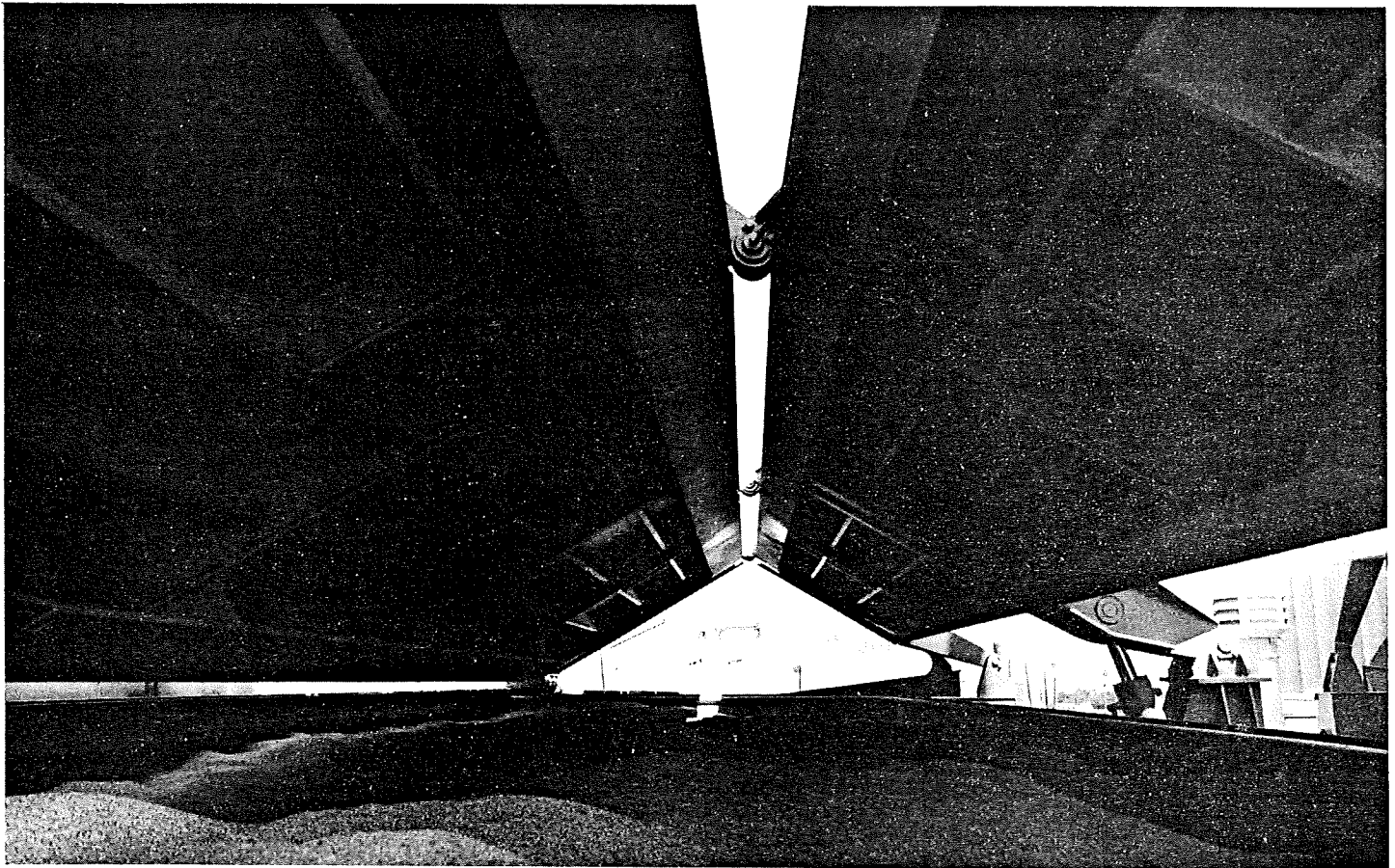
U.S. Wheat Associates also suggests that FGIS tighten tolerances and statistical methods to make the U.S. grades fairer for the buyer.

For example, if a buyer orders minimum 12% protein wheat, FGIS rules permit a portion of the grain with protein as low as 11.5% to be loaded — as long as the whole vessel averages 12%. But, when the grain is retested by the buyer, it can test as low as 11.3% protein — due to the "give" allowed for the testing equipment — and still make the grade.

Similar problems exist for insect infestations and total defect measurements. "We need new rules for sampling and we need to redefine exactly what qualifies for the grade. It's a matter of integrity," he adds. □



Cargill Bulletin



Focus on Grain Quality

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Grain Quality: Complex Issue Defies Easy Answers

While most of the agricultural community remains focused on the continuing debate surrounding farm-program legislation, there's another issue of importance to U.S. agriculture gaining increasing visibility.

The issue is grain quality. A growing number of legislators, agricultural interests and others are questioning the role quality may be playing in U.S. agriculture's current position in world markets.

The United States has lost more than a quarter of its export market in the past five years. Many reasons have been cited for the decline: increased competition following a surge in world grain production; the lingering effects of a worldwide recession and a series of U.S. grain embargoes; federal policies that have priced U.S. commodities above world prices; reduced credit for major importers; and a strong dollar.

But the grain-quality debate asks additional, important questions about the decline. Has quality played a role in the downturn, and perhaps more important, can quality play a role in helping rebuild export sales?

The debate has been carried out in the press, in industry-sponsored conferences, in coffee shops in farm communities and on Capitol Hill, prompting legislative proposals aimed at improving "grain quality." But while many agree that the issue deserves close scrutiny, there is considerable disagreement over the extent of the problem and the appropriate response to so complicated an issue.

Politics and Economics

Grain quality has been and always will be a political issue with broad economic implications for every segment of the marketing chain from producers to exporters and importers.

But as U.S. agriculture's competitive position declines, those implications have sometimes been overshadowed by vocal cries for quick and decisive action. For many critics of the present system, it has become easier to blame "quality problems" for agriculture's export decline than to accept other explanations.

"Improved grain quality is one way the United States can begin to reverse its world-market performance," Charles Hurburgh, Jr., associate professor in the Agricultural Engineering Department at Iowa State University, said at a grain-quality conference sponsored by the American Farm Bureau Federation (AFBF).

"We have to provide greater value for the price, regardless of what that price is. The traditional get-what-you-pay-for argument is not acceptable in our deteriorating competitive position," Hurburgh said.

But to many others actively involved in the debate, those sorts of assertions don't carry much weight.

Federal grain inspectors and many grain-industry spokesmen, for example, contend that the problems with U.S. grain quality today have been grossly exaggerated.

"Quality is not the primary reason for declining exports. Price is the primary cause of the decline in exports," Dr. Kenneth Gilles, then administrator of the Federal Grain Inspection Service (FGIS), said in remarks before the AFBF grain-quality conference.

Simple economics have prompted importers to shift from the United States to other suppliers, he said. "While quality may be a real factor on a few occasions, in a buyer's market, quality is more of an excuse than a reason for slow exports," he said.

Gilles also suggested that complaints about the quality of U.S. exports may be a convenient excuse for importers seeking to diversify suppliers for political reasons.

FGIS officials concede that formal and informal complaints about U.S. grain quality more than doubled in the 1984-85 marketing year, but they still represented only a small fraction of U.S. exports. In the fiscal year ending Sept. 30, 1985, FGIS received 74 complaints from foreign customers. Those complaints concerned about 2 percent of all U.S. exports. Of the complaints investigated by FGIS, only one was deemed valid, Gilles said.

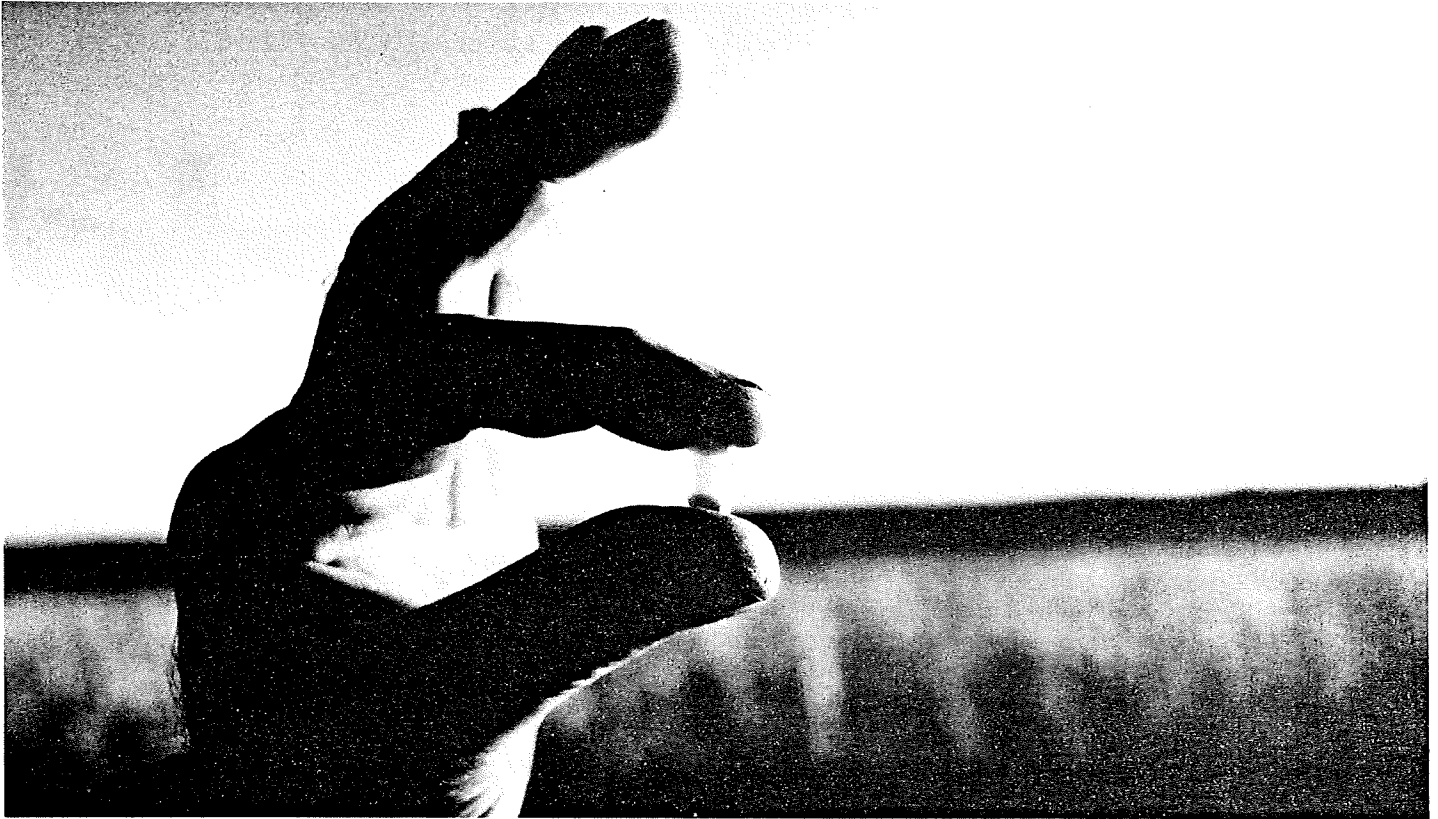
Export-quality reports released by FGIS for 1984 showed that "with rare exception, all of the grain shipped was within the federal grade specifications and met contract conditions," Gilles said.

But representatives of several commodity and export-promotion groups contend that the relatively low number of "official" complaints does not accurately reflect the level of dissatisfaction with U.S. exports. Many importers, they argue, have given up registering their complaints through official channels because investigations of those complaints will only verify whether the grain met U.S. grade standards when inspected.

Standards to Blame?

Critics of the U.S. grain-inspection system argue that the standards themselves are partly to blame for customer complaints. The standards, they say, have not kept pace with the changing world marketplace and frequently are misunderstood by U.S. customers.

Others in the grain industry maintain that while some fine-tuning of the standards may be useful, the standards remain a predictable, familiar means of



matching what is produced to what buyers want.

Improving the quality of U.S. grain — or even the perception of quality — will be a good deal more complicated than tinkering with the criteria for determining grades of grain.

Grain is a living, fungible organism, vulnerable to quality deterioration at virtually every stage of the production and marketing process. Before any systematic changes to the standards or other aspects of grain quality begin, there must be a thorough understanding of a lengthy list of issues. For example, in the push toward higher yields, have farmers and researchers sacrificed quality for quantity?

What are the appropriate storage practices needed to maintain grain quality? How can those techniques be applied to the growing on-farm stocks in the United States, and what are the costs involved?

How can the quality of grain best be preserved through the numerous handlings between farm gate and the customer's door? Is there new grain-handling technology that would help improve quality, or does it simply complicate the argument over what constitutes quality? And what will be the economic implications of adapting to that new technology for smaller grain operations? Will the new technology help or hurt U.S. price competitiveness?

What role will increasingly stringent health and safety regulatory standards — particularly for pesticides and fumigants — play in the determination of quality? Or

should those standards have any role at all in the quality debate?

The Need for Change

Legislators, industry officials and others with an interest in quality have only begun to ask the many questions raised by the debate over quality. And in many respects, the debate is still focused on the first set of questions inherent in the quality debate: Is the grain-quality debate serious enough to command revisions in the way we view grain quality? Is the marketplace demanding changes, and if so, what are the costs of that change and who will pay for them?

The answers to those questions can't be found without first understanding all the elements of the quality issue and their interrelationships. That means a thorough review of a wide range of topics, from genetics and cultivation practices to grain-handling techniques and marketing economics.

The following articles examine some of the major issues involved in the quality debate, including such topics as the development of current grain standards, specific grain-quality problems, the role of quality determinations in the marketing process, problems confronting the grain industry and the farmer in improving and maintaining grain quality, and industry and government efforts to address the issue.

Grain Standards: When Are Changes Justified?

Less than 100 years ago, a farmer or local elevator selling grain to a distant terminal market was taking some chances. Boards of trade in markets such as Kansas City, Chicago or Minneapolis had their own, often different ideas about what constituted quality and grades for grain. And in some cases, those individual standards were bent a bit to the financial advantage of interests at the terminal locations.

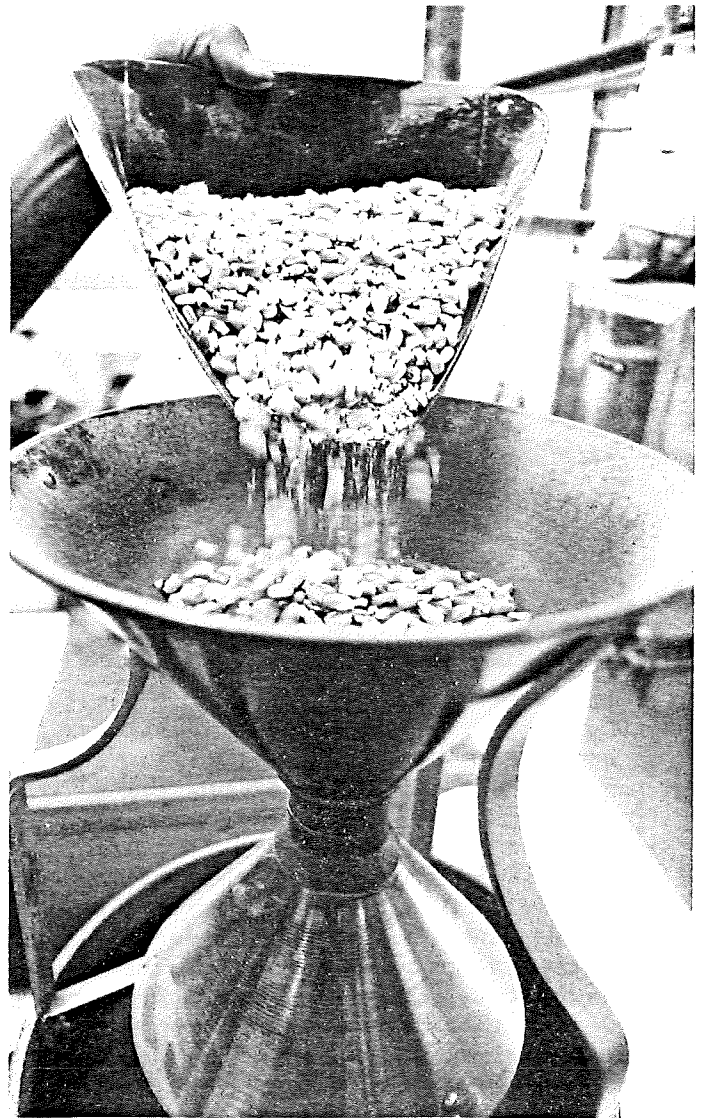
Today's grain standards exist to remedy that situation. Beginning with passage of the Grain Standards and Warehouse Acts in 1916, the federal government and members of the agricultural community have drawn up a complex, constantly evolving system of uniform guidelines covering inspection, sampling, grading and weighing grain. Under that system, all participants in the grain-marketing process are able to operate under a uniform set of standards administered by impartial, independent judges.

By most measures, the system has been enormously successful. The value of U.S. agricultural exports between 1981 and 1984 totaled over \$153 billion. Agriculture's contribution to the U.S. balance of trade in that period reached \$85.8 billion, representing the largest single positive contribution to the U.S. balance of payments.

Despite this track record, the grain standards that rest as the cornerstone of the export industry have not escaped controversy. Critics of the system argue that the standards do not adequately reflect the importance of grain quality, nor do they provide farmers with incentive to produce higher-quality grain.

Many members of the grain industry respond that the attacks fail to recognize the primary purpose of the U.S. Grain Standards Act (GSA). The GSA and all its subsequent amendments, they note, are aimed at providing the framework necessary for a workable marketing process — not at reflecting the end use of grain. Without those standards and the workable marketing process they make possible, industry members point out, the task of marketing the enormous volume of grain and oilseeds produced by U.S. farmers would be a much more difficult and costly process — costly for everyone involved in the marketing process, from the farm to the consumer.

So where do the GSA and the guidelines used to determine grain grades fit into the controversy surrounding grain quality? What was the GSA intended to do, and how has it evolved in the past 70 years? What factors are and are not used in grade determinations? Are grain grades responsive to changing



demands in the marketplace? The answers to these questions are first steps in the intelligent resolution of grain-quality disputes.

GSA History

Prior to enactment of the GSA in 1916, grain grades represented a patchwork quilt of different, often contradictory state and local standards and regulations. The lack of uniformity invited abuses in grading, to the detriment of both buyers and sellers.

Passage of the GSA largely ended that situation. Official inspection and certification of grain became the norm, coupled with specific prohibitions against certain actions and imposition of severe penalties for their violation.

Initially, the federal government served only as supervisor of the inspection and certification process. Amendments to the GSA in 1931 and 1968 did not fundamentally alter that approach. But in the wake of well-publicized episodes of GSA violations in the mid-1970s, the law was amended further to provide for more stringent federal involvement in the inspection and weighing process.

Today, the Federal Grain Inspection Service (FGIS) inspects and weighs (or supervises the inspection and weighing of) all U.S. grain exported from the United States by vessels. It also oversees similar activities carried out by state agencies at interior locations. Exports of U.S. grain by vessel may be exempted from official inspection only if both parties in a sales transaction agree contractually and the sale is not made with reference to U.S standards or factors contained in the standards. Intracompany barge shipments of grain and rail and truck grain shipments into export facilities also are exempted from inspection and weighing requirements.

The objectives of this complex system, according to the law's declaration of policy, are "that grain may be marketed in an orderly and timely manner and that trading in grain may be facilitated." To meet those objectives, the law adds, the government may establish standards "of kind, class, quality and condition" for commodities.

The law also provides for a rulemaking procedure for any changes to the standards. The administrator of FGIS may make changes in the standards only after proposals for change have been published, commented upon by interested parties and evaluated. Changes to the standards can be implemented one year after the proposals are put forward, unless the administrator deems that public health, safety or interest dictates otherwise.

This provision to allow evolution in grain standards has been used often. Regulations involving wheat, for example, have been modified nearly 20 times since they were first established in 1917. Regulations covering corn have been modified 14 times in essentially the same period.

Quality Determinants

Grade determinations for major commodities are based on numerous factors, such as test weight, the presence of foreign material, damage to the commodity and the

number of shrunken and broken kernels in the test sample. Federal officials note that the standards are intended to provide a concise, well-defined and well-understood description of the biological and physiological condition of the grain at the time of the grade determination.

Members of the grain industry point out that many of the grade-determining factors involve grain characteristics normally associated with quality. Additional considerations such as the designations "weevily" or "garlicky," while not a determinant of grade, also are evaluated as part of the inspection and certification process.

Furthermore, industry members note, a substantial portion of the numerous changes to grain standards over the years involve quality considerations.

But critics of the system argue that many additional factors related to quality should be included in the standards. For example, the current regulations do not reflect the susceptibility of corn to breakage. Nor do they reflect protein content for corn, despite the importance of protein to animal feeders. Similarly, the standards do not provide for the oil and protein content of soybeans, even though those qualities are important to users.

A Timing Question?

Many members of the grain industry accept the importance of such quality considerations to buyers of grain and oilseeds. But many also note that these considerations most often are accommodated through specific requirements in individual sales arrangements.

It's only when the market demand for special quality considerations becomes the norm rather than the exception that changes in the standards are merited, they argue. When the market demands such special considerations, they will be incorporated, they point out. The extensive changes to existing regulations are evidence of the system's responsiveness to changing demands in the marketplace.

Rather than rush into changes to the standards on the basis of what may prove to be short-term considerations, they add, the industry must thoroughly examine proposed changes for their effects on all aspects of the marketing process. Precipitous action could have unforeseen, and possibly adverse, effects for everyone from the farm to the consumer's table.

Measuring Quality: Cu-Sum Plan Faces Examination

Are U.S. grain customers getting what they pay for? That is one of the key questions in the mounting debate over grain quality.

Federal Grain Inspection Service (FGIS) reports answer that question with a resounding "yes." In a summary of U.S. grain exports in 1984, FGIS reported that "with rare exception, all of the grain shipped was within federal grade specifications and met contract conditions."

But some critics of the U.S. grain-grading and inspection system are resurrecting questions about the way in which U.S. grain standards are applied. The focus of much of that attention is on a statistically based sampling technique called the cu-sum loading plan.

The cu-sum loading plan uses a statistical formula to determine the average grade of a shipment of U.S. grain based on samples drawn at various intervals as the grain is being loaded. It's a method that is used almost universally in the export of U.S. grain and can be applied to grain shipped by barge or unit train within the United States.

Critics of the system contend that because the cu-sum loading plan uses a moving average of grade measurement, it opens up the possibility that portions of a particular shipment of grain may exceed U.S. grain standards.

The cu-sum loading plan's proponents, however, counter that the system simply takes into account the limitations of existing grain-testing technology and sampling techniques. It provides a reasonable assurance, they say, that producers and exporters will not be unfairly penalized by those limitations.

The debate over the cu-sum loading plan illustrates the complexity of grain-quality issues. It illustrates some of the problems inherent in applying numerical standards to real-world situations as well as some of the potential costs of what may appear, at first glance, to be proposals for moderate changes in U.S. grain standards.

Quality Consistency

The cu-sum loading plan has been in effect since May 1, 1980. It replaced an earlier method called plan A, which used a series of regulations to ensure consistency of grade between various sublots in a shipment of grain. Among those regulations were rules regulating the number of sublots that could exceed grade standards. For example, no more than three sublots in a row could exceed the grade line or maximum allowed for a particular grading factor.

Plan A, in turn, replaced an earlier program called the 10-percent plan. Under that plan, up to 10 percent of all sublots could exceed the grade line by as much as one grade.

Through each change in loading plans, an effort was made to ensure that the grade standards themselves did not change. A shipment of #2 yellow corn loaded under plan A should be the same as a shipment of #2 yellow corn loaded under the cu-sum loading plan. The advantage to the cu-sum loading plan, its supporters say, is that it decreased the potential for wide variations in grain quality between sublots.

The accompanying chart describes how the cu-sum loading plan would be applied to BCFM (broken corn and foreign material), one of the grading factors, in a shipment of #3 yellow corn. The same process is followed for each factor FGIS notes on the export certificate.

The cu-sum loading plan is designed to take into account known variabilities in sampling and analysis. For example, getting a reading of 4-percent BCFM on a single sample of grain may not mean that the entire lot contains 4-percent BCFM. The cu-sum loading plan uses a series of readings to arrive at a moving-average reading.

In addition, there are problems with the testing technology itself. The testing instrument for moisture, for example, has a known variability of 0.4 percent. It may either overstate moisture by 0.2 percent or understate moisture content by 0.2 percent. A series of readings of the same sample of grain will not necessarily produce a consistent measurement of moisture.

Absolute Maximums

Critics of the cu-sum loading plan have proposed setting an absolute maximum on grading factors instead of relying on a moving average. For example, since the maximum BCFM allowed for #3 yellow corn is 4 percent, then no portion of any sublot would be allowed to be even a fraction of a percent over 4.0.

The practical effect would be to force exporters to load grain at better than grade-line levels to avoid taking the chance that an inaccurate reading would lead to the rejection of a sublot. Such miscalculations can be costly. The costs involved in having to discharge a sublot of grain if it misgrades can range from about \$20,000 to \$75,000 or more, depending on the type and size of the vessel, the type and quantity of grain to be discharged, the number of holds involved and whether it is possible to continue loading into other holds at the same time.

For example, when loading corn to meet a contract specification of 15-percent moisture, a grain superintendent may have to attempt to load corn with 14.7-percent moisture to compensate for sampling and analysis variability. The cost of loading corn with 14.7 instead of 15-percent moisture on a 2-million-bushel shipment would be approximately \$17,000. That is assuming a price of \$2.50 per bushel for corn.

The economic burden becomes even more apparent when that same cost-estimating formula is extended to total U.S. exports. According to FGIS records, the United States exported 1.646 billion bushels of corn in 1984. For just one factor alone — corn moisture — the estimated cost would have been nearly \$14 million if the cu-sum loading plan had been replaced by an absolute maximum.

In addition, the change would raise operating costs by reducing efficiency. Without the ability to use a moving-average reading, it is estimated that a typical shipment of grain would take about 10 percent longer to load.

Who Pays?

How would the pass through of these additional costs work? The most likely scenario is that the increased costs would ultimately be passed on to the producer. If an exporter has to ship better-quality grain to meet grade and contract specifications, the exporter will have to adjust what is bought from the producer by the same amount.

In the meantime, the U.S. grain customer gets a bonus — a slightly higher quality of grain than he purchased.

The question being asked within the grain industry is whether the costs involved in attempting to force an improvement in grain quality — by tightening the way grain standards are applied — will be justified by increased sales or the ability to command a higher price for U.S. grain.

Many industry observers and industry representatives are skeptical. The United States can no longer set world grain prices. Sales of U.S. grain are not likely to increase, they say, until U.S. grain is once again competitive in terms of price with grain of similar quality from other origins.

Grade Factor: BCFM

The following inspection log shows how the cu-sum loading plan would be applied to BCFM in a shipment of #3 yellow corn. The grade line or maximum is 4.0. Each grade factor has its own starting value and break point, and the cu-sum is calculated separately for each. The starting value is the cu-sum value an exporter must start with on the first subplot. The break point is the maximum cu-sum level an exporter can reach before misgrading. A typical subplot is usually 40-60,000 bushels.

Sublot No.	Grade Line	Break Point: 0.6 Start Value: 0.2	Comments
Start		0.2	
1	4.4	0.6	This is the maximum BCFM allowed on this subplot.
2	4.0	0.6	Because the cu-sum is at the break point, this subplot must be at or below 4.0.
3	3.8	0.4	To get the cu-sum below the break point, the exporter must load below the grade line. For each 0.1 below the grade line, the cu-sum reduces 0.1 until zero is reached. Sublot No. 3, however, could be loaded at the grade line.
4	3.8	0.2	
5	3.6	0	The cu-sum cannot go below zero.
6	4.6	0.6	This is the highest any subplot can go if the previous cu-sum was zero. The cu-sum is now at the break point.
7	4.1	0.7	The exporter has now exceeded the break point. The shipment has misgraded even though this subplot is only at 4.1. At this point, either this subplot or another subplot could be removed if it is more accessible. If this subplot were removed, the break point would be set back to 0.6 so the next subplot would have to be at or below grade line.

The weighted average of the subplot results must not exceed the grade line or contract level, in this case 4.0.

Grain Fumigation: Pesticide Bans Limit Options

Farmers and U.S. grain handlers from the local elevator operator to the exporter are engaged in an increasingly delicate balancing act between two often conflicting concerns of grain consumers.

On one hand, there is a rising concern about the effect of residual pesticides in grain products. But at the same time, the consumer also demands that the U.S. grain industry effectively control insect infestation.

Domestic and overseas customers are growing increasingly sensitive to infestation and pesticide issues. Many foreign customers have established widely differing infestation and pesticide standards that are extremely difficult to meet, or standards that appear contradictory. For example, one customer has a list of tolerances on 21 chemicals that must be met, yet contracts for sales to that customer require zero infestation at discharge. A second customer requires zero infestation at the time of shipment.

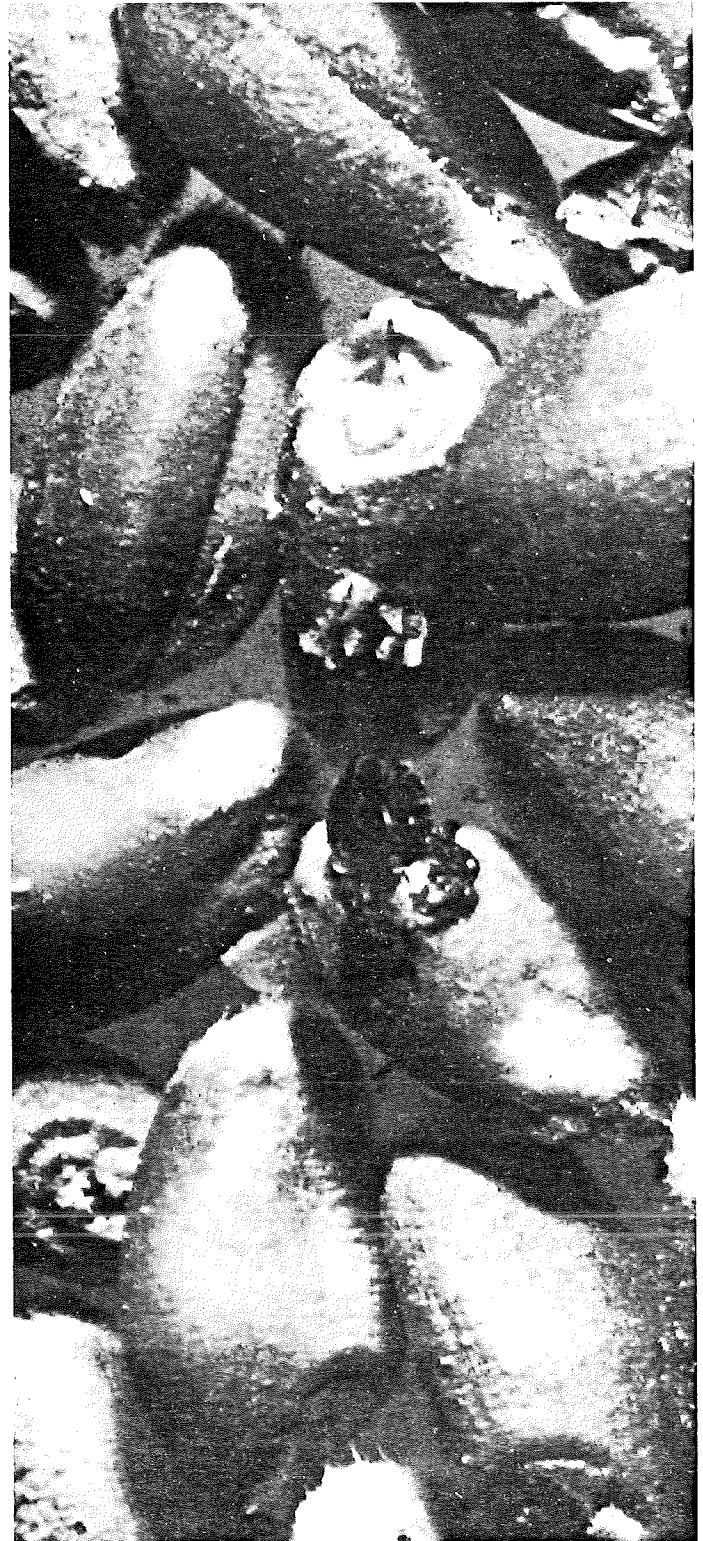
The need to control infestation has been one of the thorniest and most divisive grain-quality issues. Infestation, particularly in wheat, has been a source of complaints from both the domestic flour-milling industry, which has argued for more-restrictive standards, and by foreign buyers.

But in the face of rising consumer expectations, the grain industry is losing many of the tools it has traditionally used to guard against infestation. And it is losing these tools at a time when large carryover stocks resulting in long-term storage and more on-farm storage make the need to control insects even more critical.

Declining Options

The use of many of the liquid fumigants such as ethylene dibromide (EDB), carbon tetrachloride and carbon disulfide already have been banned. Until the past two or three years, these fumigants were widely used by both farmers and grain handlers to control insects. They were fairly inexpensive, easy to use and considered an effective way to control insects.

With the loss of these liquid fumigants, the options available to solve an infestation problem in storage are limited. Three fumigants are still available for use — methyl bromide, aluminum phosphide and chloropicrin, or “tear gas” — but can be difficult to handle.



The first two fumigants are more cumbersome to use and require an airtight structure to be effective, making them of limited use for on-farm storage. In addition, a commercial applicator's license is required to purchase and apply the remaining fumigants. Methyl bromide, in particular, can be extremely toxic.

With the loss of the more practical fumigants, farmers may be relying more heavily on chloropicrin in the future. But an increased use of chloropicrin presents additional health and safety considerations. Humans react to the chemical at extremely low levels — in fact, at lower levels than are needed to be effective as a grain fumigant. In addition, the use of chloropicrin may create other problems, such as the potential that the grain may be graded lower during inspection because of odor.

But insect control is an effort that must begin on the farm. With the use of fumigants effectively blocked for most farmers, the most practical alternative is to use a combination of chemical and non-chemical techniques to try to stop insect infestation before it starts. That means thoroughly cleaning all harvesting equipment and storage bins and spraying them with a residual pesticide before each harvest.

Efforts to control insects also are closely tied to a number of other quality and storage issues such as moisture levels, temperature of stored grain and the level of dockage in the grain. Storing only clean, dry, insect-free grain reduces the likelihood of infestation, and reducing the temperature of stored grain through proper use of an aeration system can be one of the best non-chemical methods of controlling insects.

Another on-farm defense against infestation is the use of a residual pesticide such as Malathion or Reldan. Both are organophosphate products that have a low toxicity to mammals but a fairly high toxicity to grain insects. But unlike the liquid fumigants, the protectants do not expand to fill the storage area and have to be uniformly applied, since an insect must come in direct contact with it to be affected. Malathion and Reldan will not work on insects already inside the kernel. In addition, some insects are developing an immunity to Malathion, the less costly of the two pesticides.

Many of these same techniques can and are being used throughout the U.S. grain-handling system. Insect control must be a joint effort among all segments of the grain industry if it is to be effective.

Export Customer Concerns

Infestation has been a persistent concern of foreign

buyers and a source of formal and informal complaints to the Federal Grain Inspection Service (FGIS).

"Our response has been to encourage people to use in-transit fumigation," said Dr. Ken Gilles, FGIS administrator. "It's a program that we think has been very successful."

While improved in-transit fumigation techniques can go a long way toward eliminating live infestation in U.S. export shipments, those techniques are not universally accepted by foreign customers.

With in-transit shipboard fumigation, the fumigant is applied after the grain has been loaded. The hold is then sealed, and the two or more weeks that normally are required to reach a foreign port give the fumigant enough time to kill all insects, from the eggs to the adults.

However, the technique cannot be used on all vessels, and some major customers have had reservations. While countries such as China and Chile routinely have required in-transit fumigation, other major customers such as West Germany and the Soviet Union have questioned its safety.

Within the past several months, however, the Soviet Union has begun permitting the use of in-transit fumigation on non-Soviet vessels, and joint tests were conducted in 1986 to experiment with the technology on Soviet vessels.

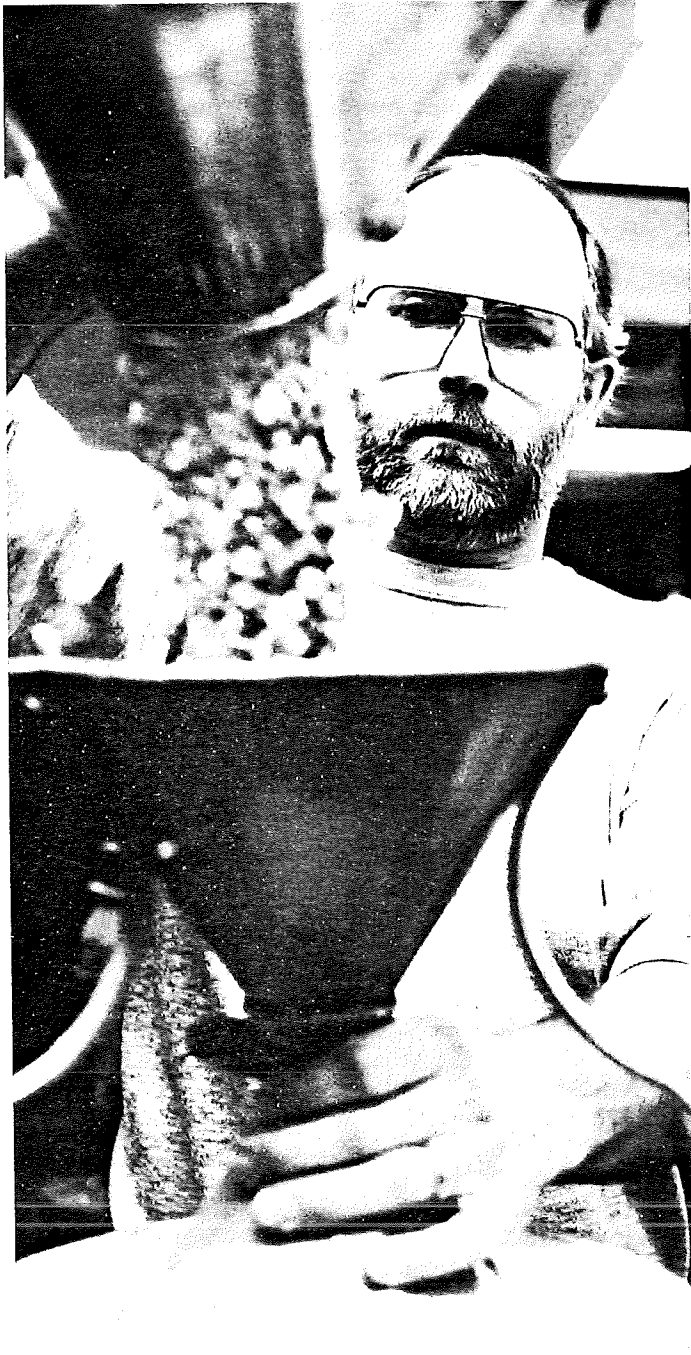
Challenges Ahead

Facing the prospect of lengthy storage periods and a decreasing number of approved pesticides, grain industry representatives expect the next few years will be extremely challenging for farmers and grain handlers in their attempts to control insect infestation.

New chemical answers to the problems of insect infestation are not likely. The rate at which new pesticides have been introduced began dropping sharply during the 1970s and fell to virtually zero by 1980. The cost of introducing new agricultural chemicals, estimated at about \$1.2 million in the mid-1950s, had jumped to about \$20 million by 1981. Chemical companies complained that it was becoming increasingly difficult to get a return on their investment in developing those chemicals.

While "quick fix" solutions are unlikely, several government and industry groups are involved in research into alternative methods of controlling insects. FGIS tolerances for insects also are under review.

Infestation: Role of Standards Stirs Heated Debate



U.S. efforts to identify and control insect infestation in grain have long been the focus of intense and sometimes rancorous debate within the agricultural community.

One of the major points of contention has been the way in which the U.S. grain-handling and -inspection system defines "weevily" or infested grain. Some critics contend that the current Federal Grain Inspection Service (FGIS) definition is inconsistent. Others argue that the system is outdated and difficult to support with scientific data. Other critics say current guidelines are too lenient and provide little incentive to encourage sound pest-management practices.

Complicating the debate over FGIS rules are problems associated with larger stocks of U.S. grain being stored for longer periods of time and the loss of some of the pesticides producers and grain handlers traditionally have used to control insects in stored grain.

But part of the debate over FGIS rules on infestation also involves the appropriate role of federal rules and standards in the U.S. grain-marketing system. Traditionally, U.S. grain standards have been seen as a way to classify grain on the basis of its physical and biological characteristics. The standards provide buyers and sellers with a common language and a way of describing a particular lot of grain. Decisions about the type of grain a buyer wants and what he is willing to pay for it are left to the marketplace.

But some critics of the current system argue that the federal grain standards should go beyond providing a common language for buyer and seller. They argue that the standards should become a tool to force an improvement in the quality of U.S. grain.

Millers National Federation (MNF), a national trade association representing the domestic flour-milling industry, has been one of the most persistent critics of the way FGIS defines "weevily" or infested grain.

The millers' group argues that current FGIS rules do not provide adequate incentives to control insects throughout the grain-handling system. There are a number of steps that farmers and grain handlers can take to control infestation, but it means more work and more expense, said Tom Klevay, director of regulatory affairs for MNF.

"Many farmers already do it, but others don't," he said. Without proper incentives, "we penalize the good farmers," he said.

The millers say their problems with infestation in wheat intensified in 1980 when the federal Food and Drug Administration (FDA) reduced the maximum allowable number of insect fragments in flour by 50 percent. According to milling-industry representatives, the change in FDA regulations has meant that millers can no longer buy U.S. #1 wheat and still be assured that the flour milled from that wheat will meet FDA requirements.

Representatives of the grain industry counter that the federal grain standards are not the appropriate vehicle for addressing the concerns of the domestic milling industry about infestation. FDA, not FGIS, is charged

with setting standards for grain products that are processed for human consumption and is a more appropriate forum for handling food-safety issues, they say. Grain that does not meet FDA tolerances for insect-damaged kernels can be seized by that agency.

The market for U.S. grain is large and diverse, reflecting a variety of end uses. Federal grain standards, grain-handlers say, should retain the flexibility to serve the needs of the entire market, not just one sector. The specific needs of a specific industry, they say, are best met through sales contracts and trade practices. If millers don't want insects in the grain, they can contract that way or heavily discount for insects.



Infestation: Changes in Rules, Procedures Debated

While infestation can occur in all types of grain, most of the attention has focused on wheat. Unlike most other major commodities, wheat is usually processed for direct human consumption.

Although the presence of insects is not a grading factor, tolerances have been set, and grain that exceeds those tolerances receives a designation of "special grade weevily."

Only the presence of live insects is considered in determining whether a shipment of grain is weevily. The distinction between live and dead insects is supported by some segments of the grain industry because it recognizes the fact that farmers or grain handlers have taken the appropriate steps to resolve the problem. Dead insects can't do any further damage to the grain during subsequent shipment or storage, eliminating what exporters say is the major insect-related concern of foreign buyers.

Many members of the Millers' National Federation (MNF) dispute that point and maintain that their overseas counterparts share many of the same concerns. Dead insects can be just as troublesome and sometimes even more bothersome in the milling process than live insects, the millers say.

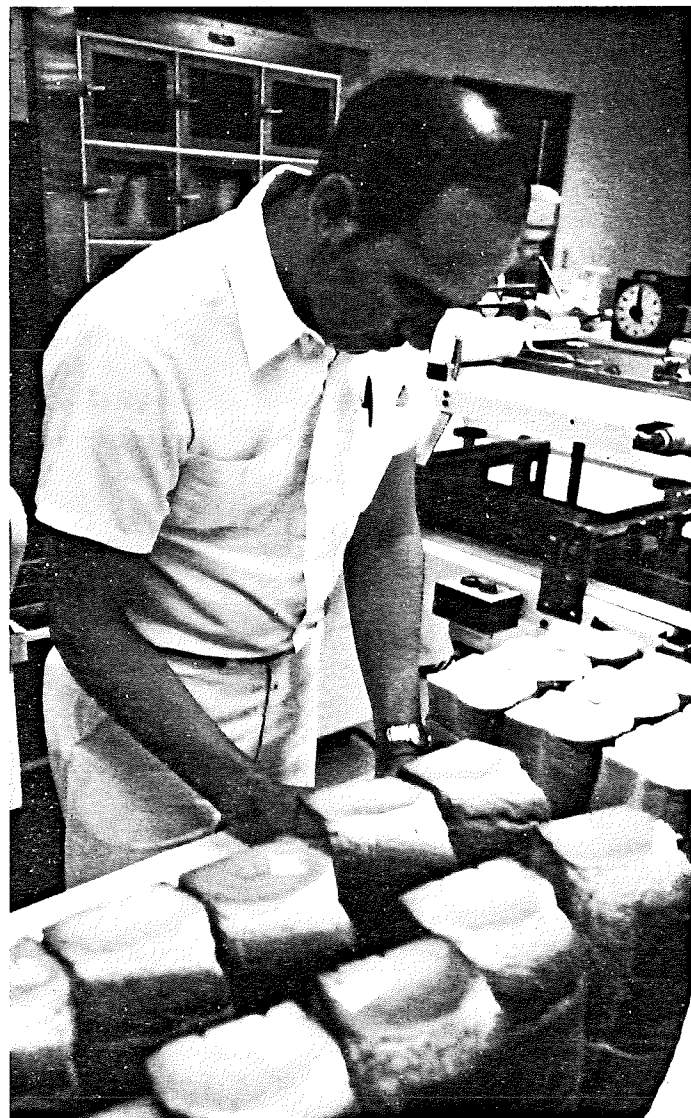
Other critics of the current system suggest that including dead insects in the tolerances would shift the emphasis from treatment to prevention. Those critics also contend that the presence of dead insects may indicate problems with hidden infestation.

Hidden infestation has been a problem for U.S. exporters. Minute insect eggs are extremely difficult to detect. And while a shipment of grain may be certified insect-free during loading, eggs may hatch in transit, creating problems for foreign customers.

There currently is no reliable and cost-effective method for detecting hidden infestation. However, the use of in-transit shipboard fumigation, if proper procedures are followed, will kill both live adult insects and eggs.

Millers' Complaints

The domestic milling industry also has complained about problems with hidden infestation. MNF has suggested that Federal Grain Inspection Service measure the extent of insect damage rather than the number of live insects in an effort to uncover the extent of internal infestation. Insect-damaged kernels are now included



with damaged kernels from any source on FGIS inspection certificates.

MNF contends that millers cannot rely on FGIS definitions of infested grain and still meet FDA standards. The FDA sets a limit of 32 insect-damaged kernels per 100 grams of wheat.

Grain merchants counter that the millers' needs can be met through existing regulations and contracts. The standard contract stipulates that the grain must be

“merchantable” and therefore must meet FDA standards.

FGIS determines the total damage to the wheat and, if requested, will certify the amount of insect damage to the grain as well. If the insect damage exceeds 1 percent, the buyer can reject the shipment. Grain industry representatives contend that the test should remain available at the request of individual buyers and not be made mandatory which would force all segments of the industry to pay for a test that they may not need.

Critics of the present system also have questioned the way insects are now classified. FGIS rules make a distinction between the tolerances for live weevils and live bran bugs. The presence of live weevils is considered more injurious to wheat because the weevils bore into the kernel and can deposit their eggs in the kernel. Weevils also feed on the endosperm and consume more of the grain than do other types of insects. Bran bugs, a generic term for other classes of insects that can injure grain, don't eat the actual kernel but live on the bran, grain dust and mold. In addition, bran bugs do not leave a residue.

Although weevils can cause more immediate damage to the grain, bran bugs, which tend to concentrate in small areas, can build up moisture in the grain and create longer-term problems.

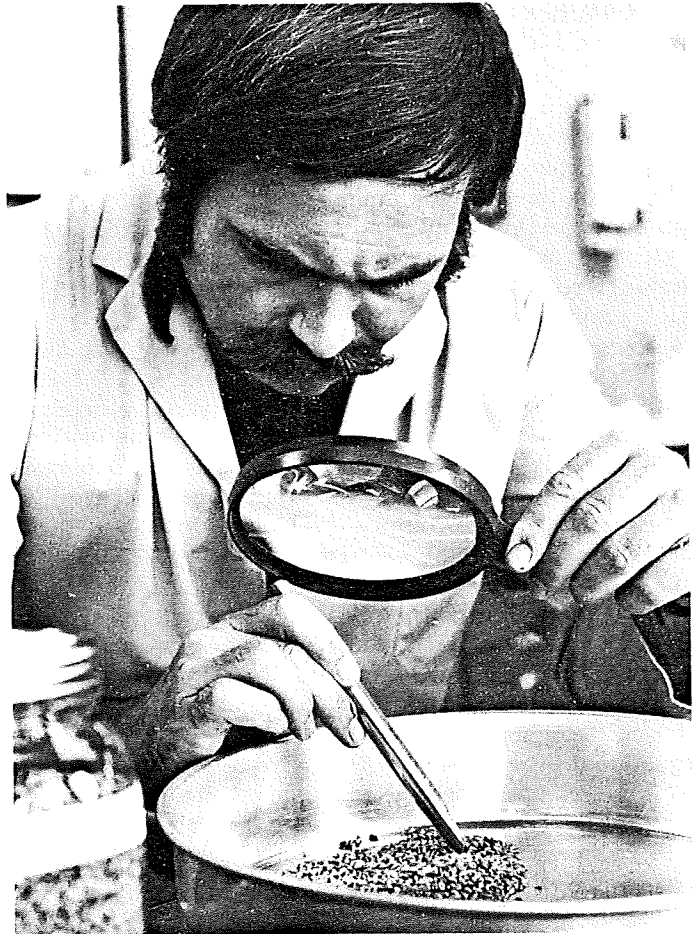
Sample Considerations

The rules for determining whether a lot of grain is weevily also depend upon how the lot is inspected — as a whole, with a representative sample or with periodic samples taken as the lot is being loaded.

If a diverter-type sampler is used, a component sample is taken for every 2,000 bushels on barges and unit trains and 5,000 bushels on vessels. The sample size is a standard 500 grams for each 2,000 bushels or 1,250 grams for each 5,000 bushels. Each component may contain one live weevil and up to four other live insects and still be designated not weevily.

When looking at the lot as a whole in a truck, rail car or barge sampled by a probe, the lot is determined to be weevily if two or more live weevils are found in, on or about the lot, or if 15 or more live bran bugs are found in, on or about the lot.

With a representative sample, the lot is considered weevily if the work sample (about 1,200 grams) contains one live weevil and any other insect injurious to stored grain, or if the work sample contains one live weevil and the balance of the sample (about another 1,200 grams) contains one live weevil or any other live insect injurious to stored grain. The lot also may be



designated weevily if the sample contains five or more live bran bugs.

The continuing debate over appropriate limits on infestation has prompted some industry observers to suggest that the special grade weevily be dropped altogether. Instead, FGIS would be asked to report the number of insects found during the inspection and certification process, leaving the ultimate decisions about acceptable tolerances to the marketplace.

Although vast differences of opinion still exist, government and industry groups are striving to reach a consensus on what, if any, changes should be made in the federal rules and regulations involving infestation.

FGIS is now in the process of reviewing its guidelines and procedures. An agency task force identified 33 areas for further study in a report completed last summer. FGIS already has taken steps to address some of the problems identified in that report that involved the way current regulations are applied in the field.

Dockage, Foreign Material: Grain Cleanup Debated

One of the common misconceptions rising out of the current debate over grain quality is the suspicion that U.S. grain handlers are intentionally adulterating grain produced in this country.

It is a charge that is vehemently denied by grain-industry representatives and others familiar with the U.S. grain-handling system.

The grain industry's assertion is borne out by studies conducted by government grain inspectors. In 1984 and 1985, Federal Grain Inspection Service (FGIS) officials compared the level of dockage in wheat coming off the farm at harvest and as it was being loaded for export. FGIS found that not only was the range in dockage levels greater at the country level, but dockage averages actually were lower at export than averages reported in state surveys and domestic truck inspections.

"This may indicate that cleaning and blending reduce dockage in wheat by the time it reaches export," FGIS concluded in its 1984 U.S. Export Wheat Quality report.

In analyzing more than 60,000 wheat samples taken during the first three weeks of harvest in 1984, FGIS found that dockage ranged from zero to nearly 47 percent for hard red winter wheat, and from zero to 42 percent for soft red winter wheat. The average, however, was 1 percent for hard red winter and 0.9 percent for soft red winter wheat, with about 93 percent of all trucklots sampled falling within the range of 0-2 percent.

In 1985, FGIS found dockage as high as 44.5 percent in hard red winter wheat and 16.9 percent in soft red winter wheat at selected interior locations during harvest.

The average dockage at export was 0.6 percent for hard red winter and 0.7 percent for soft red winter

wheat in 1984. The 1985 export averages were 0.7 percent for hard red winter and 0.8 percent for soft red winter wheat.

Weed control, harvesting techniques and storage and handling practices both on the farm and throughout the grain-handling system are the major factors behind the levels of dockage and foreign material in U.S. wheat.

Because of the physical properties of grain itself, some level of dockage and foreign material is inevitable. But questions are being raised about the appropriate tolerances for dockage and foreign material, the way those factors are measured and recorded and even the terminology used to describe those factors. Some have argued that changes in the U.S. grain-handling and inspection system should be made to make the system more responsive to the concerns of foreign and domestic customers.

Former FGIS Administrator Ken Gilles argued that efforts to control dockage and foreign material must begin on the farm.

"The system seems to be working," he said. "Average dockage is higher at the farm than at export, and the range is far greater at the country level. But more pressure should be turned on that relatively small percentage of farmers bringing in dirty grain. If the grain industry would put more pressure on that 5 percent or fewer farmers, we could clear up a lot of the problem."

Alternatives Considered

FGIS officials, industry groups and producers also are studying alternatives to the current system of measuring

Domestic Trucklot Dockage, 1984 and 1985

Class	1984			1985		
	No. of Samples	Range	Average	No. of Samples	Range	Average
Hard Red Winter	29,342	0-46.8	1.0	2,765	0-44.5	1.1
Soft Red Winter	7,831	0-42.0	0.9	916	0-16.9	0.6
White Wheat	12,765	0-20.5	1.0	412	0-7.4	0.9
Hard Red Spring	8,793	0-17.6	1.0	769	0-10.0	1.0
Durum	2,025	0-10.7	1.1	125	0-3.4	0.6

Export Wheat Dockage, 1984 and 1985

Class	1984		1985	
	Range	Average	Range	Average
Hard Red Winter	0.0-1.4	0.6	0.2-1.8	0.7
Soft Red Winter	0.0-1.7	0.7	0.0-2.6	0.8
White Wheat	0.2-1.8	0.6	0.2-1.4	0.7
Hard Red Spring	0.1-1.9	0.9	0.3-5.1	0.8
Durum	0.4-2.0	1.1	0.5-1.5	0.9

Source: FGIS

and recording dockage and foreign material in wheat.

Some have questioned the need to distinguish between dockage and foreign material in the U.S. grain-inspection system. Wheat is the only major crop in which that distinction is made, and the United States is the only country that uses the term dockage.

Supporters of a separate measurement for dockage and foreign material point out that they are distinctly different materials. Buyers receive more and better information about a shipment of grain if both elements are measured, they say.

Dockage includes grain dust, chaff, straw, corn, soybeans or other grains and items that can be removed from a sample by an initial screening with a dockage tester. Foreign material is all matter other than wheat that remains after dockage and shrunken and broken kernels have been removed. Foreign material may include weed seeds or kernels of rye or other grains that are roughly the same size and shape as wheat kernels.

While foreign material is a grade-determining factor under current grain standards, dockage is not. Most contracts, however, specify the maximum amount of dockage acceptable to that buyer, and FGIS records the percentage of dockage found on the inspection certificate.

Foreign and domestic grain buyers have argued that the U.S. system of recording dockage in increments of 0.5 percent underreports the actual amount of dockage present. Under the current system, for example, grain samples that have 0-0.49 percent dockage are recorded as having zero dockage on the inspection certificates and anything with 0.5-0.99 percent dockage is reported as 0.5 percent dockage.

One of the proposals that is receiving serious consideration would change the dockage reporting system to increments of 0.1 percent instead of 0.5 percent. Under that proposal when dockage tests give a reading of 1.14 percent, for example, it would be recorded as 1.1 percent dockage on the inspection certificate instead of 1 percent as would be recorded under the current system.

At an FGIS public meeting on the dockage issue last January, representatives of both the domestic milling industry and foreign grain-buying concerns threw their support behind the proposal to measure dockage in tenths of a percent.

Some proponents have argued that the change would create additional incentives for farmers to deliver cleaner wheat and removes the incentive for farmers and grain handlers to blend lots of grain with different levels of dockage. Others argue that the change probably would not have a great effect on the amount of dockage present in U.S. wheat but would provide a more accurate measurement of dockage to foreign and domestic grain customers. The economic effect is estimated at about three-quarters of a cent per bushel.

Others who contend that U.S. grain standards should be changed to force a significant reduction in dockage and foreign material in wheat have proposed another

option. Under that option, dockage and foreign material would be combined and the total would be applied to what is now the maximum allowable levels for foreign material.

FGIS Study

A study conducted by FGIS' Field Management Division reviewed recent shiplot and subplot inspection results to determine the effect of combining dockage and foreign material for U.S. #2 wheat, the most common export grade for wheat. The study concluded that "if this option were adopted, a significant reduction in dockage and/or foreign material would be necessary to meet the U.S. #2 grade limit for sublots."

The first part of the study looked at the average amount of dockage and foreign material in export shiplots and found when the two factors were combined, the average shipment of hard red spring wheat exceeded the current grade limit, while the average shipments of hard red winter and white wheat remained just below the grade limit. The maximum allowable level of foreign material for U.S. #2 wheat is 1 percent.

A more extensive review of the inspection results showed that while the average subplot of hard red winter wheat had 0.3 percent foreign material and more than 98 percent of the results were within the grade limit, approximately 36 percent of the sublots would have exceeded the grade limit if dockage and foreign material had been combined.

In the case of hard red spring wheat, nearly 60 percent of the sublots would have exceeded the grade limit if dockage and foreign material had been combined. Foreign material alone, however, averaged only 0.3 percent, well below the grade limit.

FGIS' review of white-wheat inspection results showed a 0.2 percent average for foreign material. But when foreign material was combined with dockage, the average rose to 0.86 percent, with approximately 32 percent of the sublots exceeding the grade limit.

Proponents argue that in addition to forcing a reduction in dockage and foreign material, this option would eliminate the term dockage from the U.S. grain standards.

Opponents contend that the economic effects of shifting a significant portion of what is now considered #2 wheat to a lower grade would be substantial. The expected trade-off in increased sales of U.S. wheat is just wishful thinking, opponents say, as long as the United States is not price competitive with other suppliers. And in a market burdened by a massive oversupply of wheat worldwide, it would be virtually impossible to recoup the additional cleaning costs needed to meet the more stringent standards.

(Editor's note: The proposal to change the reporting of dockage to increments of 0.1 percent will be implemented May 1, 1987.)

Blending: Impractical Restrictions Limit Marketing

In the continuing debate over grain quality, few areas have been the subject of as much rhetorical excess as the issue of blending.

Some critics of the U.S. grain-handling and marketing system have tried to portray blending as a scheme that allows grain handlers and exporters to profit at the expense of U.S. producers and customers.

Blending grain with varying quality characteristics serves to lower the overall quality of U.S. exports, they say, and contributes to a perception of unreliability among overseas buyers.

Grain handlers, exporters and others familiar with the

U.S. grain-marketing system dispute those claims with equal vigor.

But aside from the emotional rhetoric, the debate raises an important question. How can the U.S. grain-marketing system best handle grain of widely divergent quality produced in the United States and still meet the needs of all segments of the industry from the producer to the consumer?

Those who see blending practices as detrimental to U.S. grain-marketing efforts have proposed the adoption of mandatory limits on the types of grain that may be blended.

But others argue that the proposal is impractical if not impossible to administer, and that it ignores the realities of both the international marketplace and the physical and biological nature of grain itself.

Marketing Strengths

One of the strengths of the U.S. agricultural system is the great variety of grades and classes of grain it can offer the marketplace. But that variety also creates significant challenges for the U.S. grain-handling system.

Grain is not a homogeneous commodity, and not all grain produced in the United States meets U.S. #1 grade standards. Much of the attention in the debate over blending has focused on moisture levels in corn, and corn provides a useful illustration of some of the problems inherent in trying to achieve complete uniformity in U.S. grain shipments.

Corn represented nearly half of all U.S. grain exports in 1985. Although moisture is not a quality characteristic and is no longer a grade-determining factor, it is an important condition factor and has long been a concern of producers, grain handlers and customers.

Nearly all U.S. corn is harvested at moisture levels that are too high for safe storage. Corn that is too wet is subject to spoilage, and corn that is too dry is susceptible to breakage that can increase the amount of grain dust in the corn.

Moisture levels at harvest generally range from about 21-28 percent, and in most years will average about 24 percent. The corn is then dried through mechanical means to remove the excess moisture. But even that will not assure kernel-to-kernel uniformity. The most widely used grain drying systems tend to underdry some kernels and overdry others.

Temperature, length of storage and other factors all play a role in determining at what moisture level corn can be safely stored. But generally, anytime the



Corn kernels may vary significantly in moisture content, complicating the task of drying and storing. Kernels left too wet will be subject to spoilage, and kernels too dry will tend to break more easily.

moisture content of a significant number of kernels exceeds 17.5 percent, some of those kernels may begin to spoil before the moisture can migrate to the drier kernels.

The blending of corn with varying moisture levels begins on the farm. Recent studies indicate that moisture can vary by as much as 6 percent from one end of an ear of corn to the other. And corn harvested at the top of a rise may be significantly drier than corn harvested at the lowest point in a particular field.

Some degree of blending continues as each truck is loaded at the farm, as grain is elevated into bins at the local elevator and at each step in the marketing chain. The situation is similar for every quality and condition factor in every type of grain.

Given the number of players involved and the variety of grains entering the marketing system, trying to achieve complete uniformity in U.S. grain exports is at best an inexact science.

Avoiding Crop Loss

But in addition to technical considerations, there is a philosophical side to the debate as well.

Through blending, the grain-marketing system is able to provide markets for a much greater portion of total crops produced than would otherwise be possible.

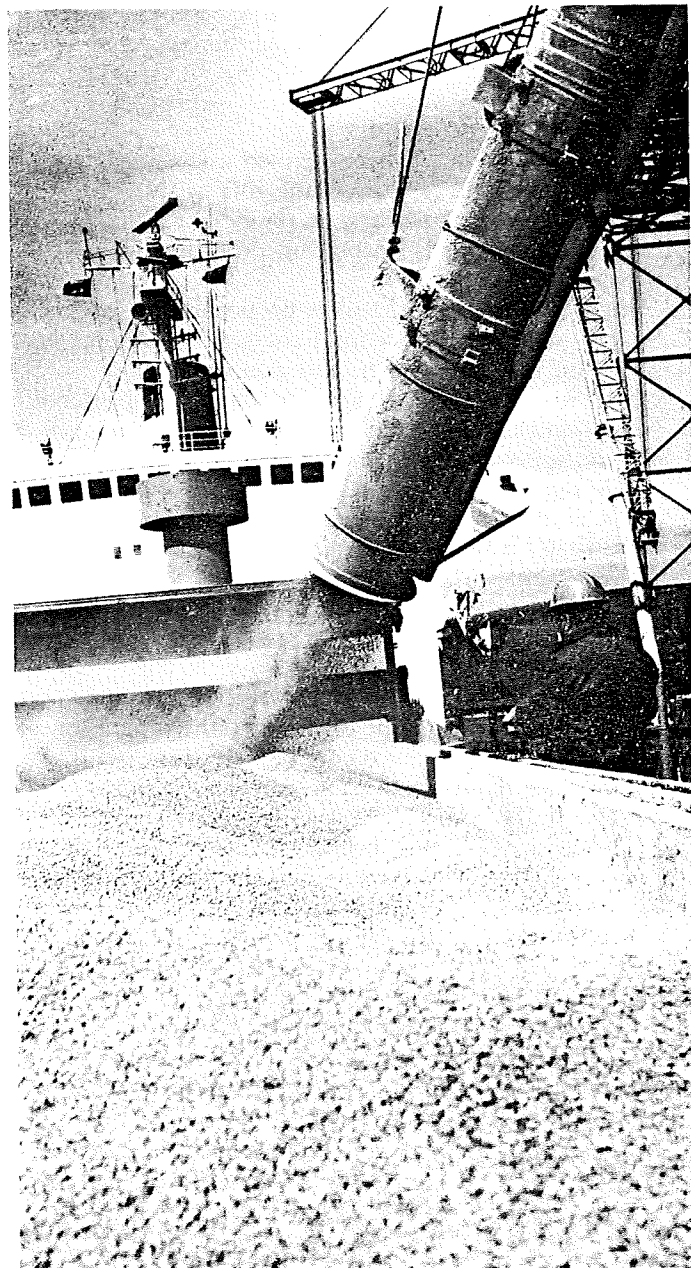
Weather is a critical factor in U.S. agricultural production and the element that has the single greatest influence on quality characteristics. Crop damage can occur in any area at any time.

Blending allows the marketing system to absorb smaller amounts of weather-damaged grain that can be mixed with higher quality grain under the scrutiny of the Federal Grain Inspection Service (FGIS). Instead of having to write off an entire season's work as a loss, producers are able to recover a portion of their production costs.

The ability to blend also allows the marketing system to pay a premium for grain on the other end of the quality spectrum. There is little or no demand for grain that meets U.S. #1 grade standards in the international marketplace. For example, more than three-quarters of the corn purchased for export last year was U.S. #3 yellow corn. Foreign buyers only rarely are willing to pay a premium for the premium-grade grain.

Buyers have different needs with varying cost and quality considerations. Blending provides the grain-marketing system with the flexibility necessary to meet both the general quality level required by each buyer as well as any special contract specifications.

Efforts to sharply restrict blending practices would



limit the grain-marketing system's ability to serve the needs of both producers and customers.

In the next articles in this series, In-Focus will examine the controversy surrounding the reintroduction of grain dust into the marketing stream and review the findings and recommendations of an industry task force organized under the auspices of the North American Export Grain Association (NAEGA).

Commitment to Quality: Industry Tackles Issues

An industry-wide workshop issued a wide-ranging report in June 1986 examining the role quality plays in U.S. marketing efforts and recommending changes in U.S. grain standards, inspection procedures and trade practices.

Included in the report were proposals for six specific grade-standard or procedural changes involving wheat, sorghum, soybeans, corn, and sampling and certification. The report also identified 13 additional items requiring further study and discussion as well as specific suggestions for changes in administrative areas.

The report, "Commitment to Quality," was the result of six months of intense discussion and study involving more than 75 individuals representing grain-trade organizations, producer groups, commodity-promotion groups and several universities. The workshop was organized under the aegis of the North American Export Grain Association.

While workshop participants said the recommended changes were an attempt to enhance the reputation of U.S. grain exports, the report quickly dispelled the notion that quality is the sole or even the primary reason for the recent decline in U.S. exports.

The reasons for the decline, the report said, "are complex and often political. The workshop believes that quality does play a role in the foreign buyer's choice, but more often his decision is based on price, credit terms, availability of foreign exchange, reliability of supply and promptness of execution of his contract."

But, the report added, quality can represent a "market opportunity," and the workshop's recommendations were an attempt to capture that opportunity.

Specific Proposals

- **Separation of Broken Kernels and Foreign Material:** Perhaps the most controversial of the six specific proposals was the recommendation that broken corn and foreign material be separated for grading purposes. Under the proposal, broken corn would continue to be a grade-determining factor while foreign material would be recorded separately as a dockage or discount factor.

Because foreign material is less valuable than broken corn, the proposal is "intended to offer buyers substantially more information to assure that their needs are met at a mutually agreeable price," according to the report.

Another objective of the proposal is to provide incentives to encourage better combining practices on the farm, better handling to reduce breakage throughout the marketing chain and the removal of foreign material at U.S. elevators.

The report cautioned, however, that the workshop's recommendation is contingent upon the results of an in-depth impact study that would include the costs and benefits to producers, traders and exporters; the value and marketability of screenings; the capital and investment costs necessary for cleaning; the increase in value and demand for corn with reduced dockage levels; and safety and health issues associated with the removal and storage of dockage.

"The effects of this change would be substantial because it would affect handling operations at every market point," the report said. Few elevators currently are equipped to separate broken corn and foreign material or to dispose of dockage.

The report also noted the potential economic loss to farmers if the recommendation would be implemented. Broken corn and foreign material average about 1-2 percent of all farm deliveries.

"Splitting the factors would undoubtedly produce discounts at the farm level, discounts necessary to promote higher quality, but discounts likely to be resisted at least initially," the report said.

- **Wheat Dockage and Protein:** The workshop also recommended changes in reporting procedures for wheat exports including a proposal that dockage be reported in increments of 0.1 percent instead of 0.5 percent. The change would address concerns that the current U.S. method of rounding down to the nearest half percent tends to understate the amount of dockage that may actually be present, the report said.

In addition, the workshop recommended that protein in wheat be reported on a fixed moisture basis of 12 percent. The change would provide a more accurate measurement of protein and would make U.S. practices more consistent with those of its competitors.

(Editor's note: Both proposals have been through the rulemaking process and will be implemented May 1, 1987.)

- **Sorghum Grade Changes:** The workshop recommended two specific grade changes for sorghum exports. The first would reduce the limit on "brown" sorghum kernels from 10 percent to 3 percent. In actual practice, the report noted, the presence of "brown" kernels usually is less than 1 percent and often is as low as 0.2-0.3 percent. The 3-percent limit would "assure buyers that the levels are well within acceptable limits," the report said.

U.S. standards for sorghum also contain much higher limits for broken kernels and foreign material than do the standards for other grains, the report said. The workshop recommended that broken kernels and foreign material be separated for grading purposes and that the

maximum allowable limits for each factor in each grade be lowered. For example, the grade limit for broken kernels and foreign material for U.S. #2 sorghum currently is 8 percent. Under the proposal, the limit would be 4-percent broken kernels and 2-percent foreign material.

- Soybean Damage: Unusually high levels of weather-damaged soybeans during the past two years have pointed up differences of interpretation in the way U.S. inspectors and many foreign customers identify damage.

"The foreign customer holds a more stringent view of damage, which has been given some credence by the poor quality of oil extracted from those soybeans identified as damaged by the customer," the report said.

"Quality does play a role in the foreign buyer's choice, but more often his decision is based on price, credit terms, availability of foreign exchange, reliability of supply and promptness of execution of his contract."

The workshop recommended that Federal Grain Inspection Service (FGIS) review and, if necessary, change the interpretive line slides that serve as the basis for identifying damaged soybeans in the United States. FGIS' interpretation of damage should mirror that of the soybean crushing industry, both domestic and foreign, the report said.

(Editor's note: FGIS has reviewed and changed its criteria for identifying damage. The new interpretive line slides went into effect Sept. 1, 1986.)

- Representative Sampling and Barge Loading Plan: The workshop also recommended that official white certificates be issued only when based on samples that are representative of the entire container being inspected and that are collected by approved methods. In addition, the workshop recommended that an industry-acceptable uniform barge loading plan be developed.

The proposal is an attempt to encourage uniform loading practices. Significant quality differences between sampled and unsampled sections of a barge can cause substantial in-transit deterioration, the report said.

Recommendations

The report also addressed industry practices such as blending, in particular, the blending of grain with varying moisture levels. The workshop concluded that "absolute limits to fit all marketing situations are hard to set and would be impossible to enforce."

But the report also noted that excessive spreads in moisture can create problems during subsequent storage, handling and shipping. The workshop recommended that producers and grain handlers address the problem by adopting operating guidelines and trading rules that would limit the moisture spread in blending to a maximum of 4 percentage points, with the higher end of the spread no more than 2 percentage points over the contract limit.

The workshop also concluded that the "blending of other quality factors under existing standards is an effort to establish uniformity relative to contract specifications and does not normally affect end-user economics adversely."

The report touched on a number of other grain-quality issues. It endorsed current FGIS efforts to review the statistical basis for the cu-sum loading plan and to reexamine the inspection procedures and tolerances for insect infestation in grain.

The workshop also suggested that further study may be necessary in several areas: the disposition of grain dust, methods of determining test weight, the development of end-use value tests and methods of controlling corn breakage.

The report strongly urged that Congress "appropriate sufficient funding to conduct necessary research and to collect and provide historical data on inspection results."

A Continuing Effort

The "Commitment to Quality" report represented a consensus of opinion within the group, and not all of its recommendations will be embraced by all segments of the marketing system.

The workshop's efforts, however, are a reflection of the heightened attention to quality issues throughout the U.S. grain-marketing system. It also represented one of the first opportunities for producers, academicians and grain-handlers to get together to discuss mutual concerns and attempt to reach a consensus on some of the more controversial and normally divisive aspects of grain-quality issues.

Originally organized to produce a single report, workshop participants have decided to continue to meet under the auspices of the National Grain and Feed Association.

"This report is a beginning, not an end. The ultimate test of its success will come in the determination of all in the U.S. market to make the quality commitment work, to establish quality as one of many positive reasons for purchasing U.S. grain," the "Commitment to Quality" report concluded.

'Dirty Grain': Charges Misread Industry Practices

Repeated allegations that the United States exports "dirty grain" conjure up a cartoon image of grain companies hauling truckloads of dirt and debris into their elevators to mix with grain.

But numerous government studies have consistently reported that the image is just that — pure fabrication.

Industry representatives have sharply condemned the practice of adulteration. An FGIS advisory subcommittee in a report last year found that the "grain industry fully supports" a prohibition against adulteration. "We regard such a practice as morally, ethically and legally objectionable and devastating to maintaining and expanding U.S. grain exports," the report said.

Perhaps part of the problem arises from terms normally used in the trade that can be misleading to a layman. Grain dust, for example, is not dirt in the ordinary sense of the word but minute particles of the grain itself. Dust is created during normal handling as kernels are scraped or broken. For example, some experts estimate that each handling increases breakage in corn by about 1 percent. In some instances, depending upon the end use, grain dust and broken kernels may have nearly the same nutritional and economic value as whole kernels.

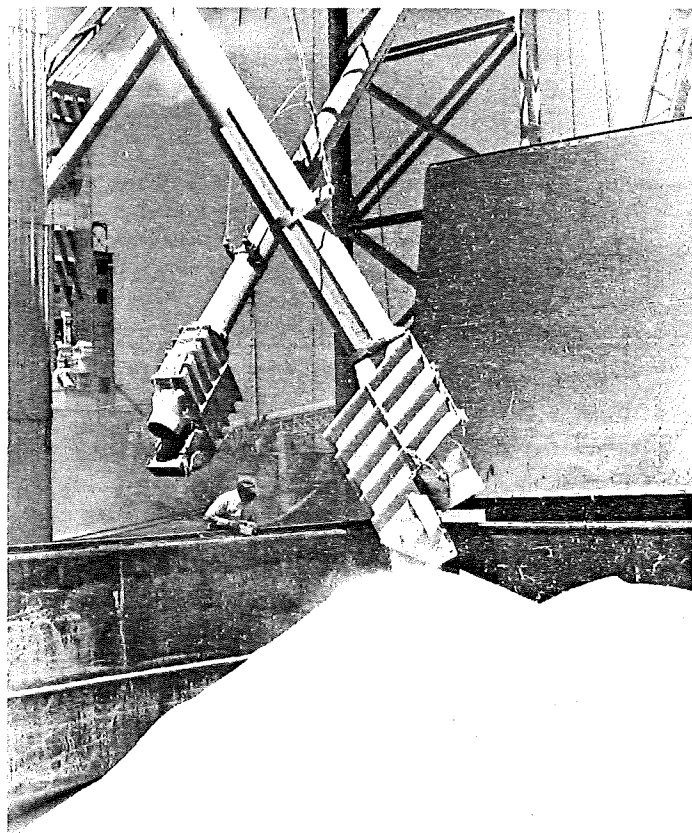
Segregation

But regardless of the source, some industry observers maintain that grain dust affects the appearance and uniformity of U.S. exports and may have contributed to perceptions of quality problems on the part of foreign customers.

Uniformity becomes an issue because of the physical properties of grain. Even if an export house achieves total uniformity as a vessel is being loaded, grain naturally segregates in the loading process, with whole kernels flowing to the outside. The broken kernels, "fines" and grain dust that result from normal handling tend to become concentrated along the spout lines in the center of the hold or float to the surface.

The segregation problem becomes particularly acute if the shipment is subdivided among several buyers without being reblended. A few buyers may receive grain with disproportionately high broken kernels or fines while the majority of buyers will receive grain that is well within the limits for the grade purchased.

Those who believe that appearance and segregation have hurt U.S. exports have proposed a number of plans for "cleaning up" American grain. Those plans have ranged from proposals to lower the tolerances for dockage and foreign material in the grade standards to prohibitions on certain handling practices.



Recombination of Grain Dust

The Grain Quality Improvement Act of 1986 prohibits the recombination of dust or foreign material with grain once it has been removed. The legislation will prohibit two practices: the reintroduction of grain dust that is collected through an elevator's dust-collection systems, and the practice of overcleaning grain to give an elevator better control over uniformity of the final product. The first prohibition becomes effective May 1, 1987, the second on Dec. 31, 1987.

An elevator's dust-control system is designed to capture airborne dust as a way of protecting the health and safety of elevator employees and to prevent dust created through normal grain-handling from being emitted into the atmosphere.

The dust that is collected through these systems is an insignificant amount — usually representing about one-tenth of a percent of the weight of a shipment of grain — and is only a small portion of the grain dust that actually is present in the grain. In some elevators, the dust is returned to the grain stream before being loaded for export.

Grain-industry experts maintain that prohibiting the recombination of dust with grain will have little discernible effect on the level of dockage or foreign material in the grain or its appearance. But it will increase the costs of doing business through an elevator. Industry experts contend that the increased costs will not be offset by any recognizable benefit.

The costs of installing equipment to handle and dispose of grain dust can run as high as \$250,000 per system. A typical elevator may need as many as four or five systems or more.

Some elevators are using oil additives to suppress dust. If properly used, the additives will not affect quality characteristics of the grain. The Food and Drug Administration has set a tolerance of 200 parts per million on oil additives. The disadvantages are that the additives may decrease test weight slightly, and they are very costly to apply.

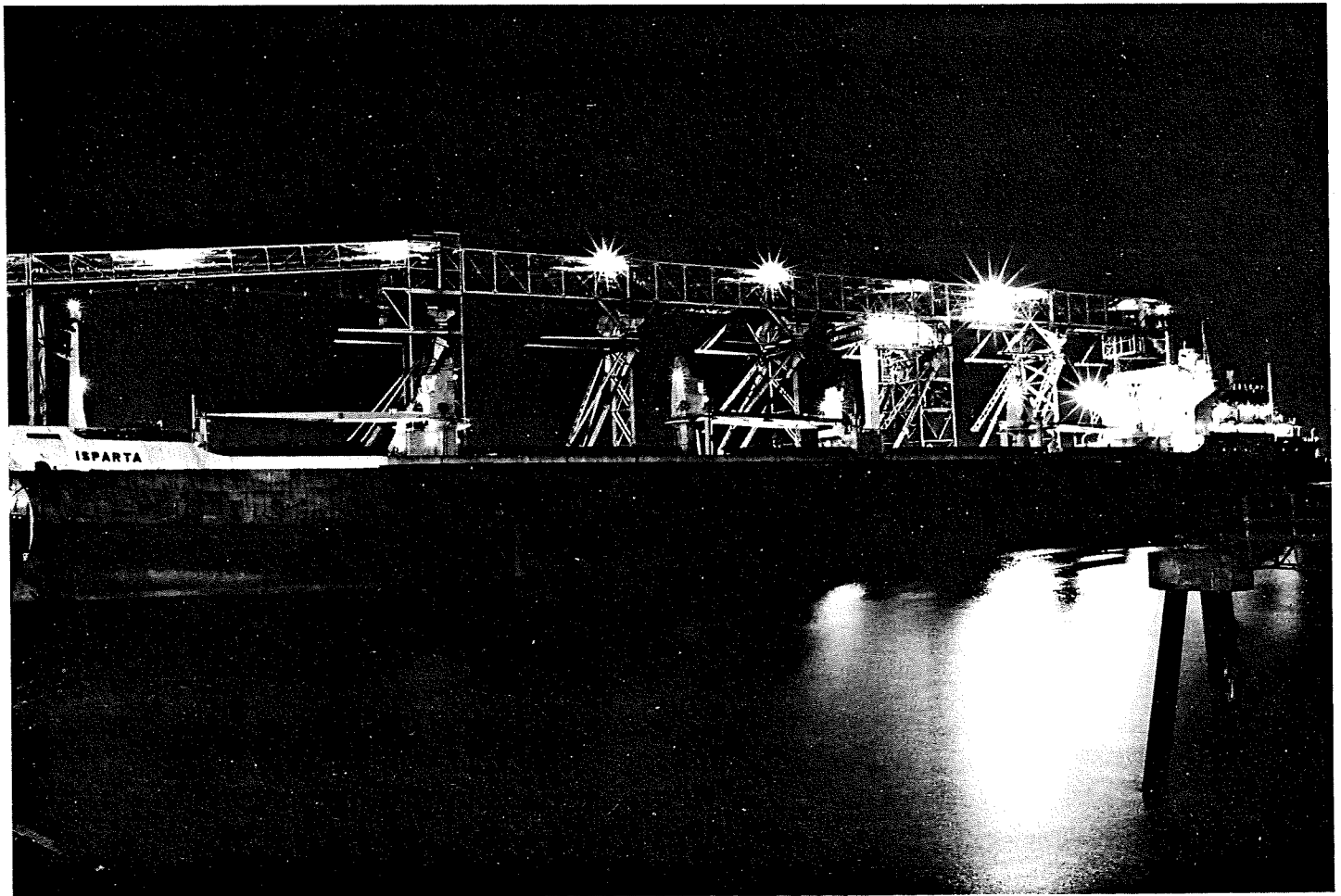
The second practice that will be prohibited is overcleaning. Some elevators now "overclean" the grain and then reintroduce portions of the screenings to meet contract specifications. Some elevator superintendents believe the practice gives them better control over the

uniformity of the final product.

Exporters maintain that the costs of lowering the tolerances for dockage and foreign material in the grade standards or prohibiting current handling practices don't appear to be justified by actual buying practices.

Foreign customers are already in a position to restrict the level of dockage and foreign material in grain, exporters say. If there was, in reality, a strong desire to reduce the level of dockage and foreign material in grain, that desire would be reflected in buyers' contract specifications. The decision not to take advantage of those special contract terms, exporters say, represents a conscious choice, a weighing of costs and benefits to the importer.

Methods of handling and loading also can be contracted. For example, a buyer who does not wish to purchase an entire shipment of grain can avoid some of the potential problems created by segregation by requesting that his portion of the shipment be physically separated from the rest of the cargo during loading and transport. While this option provides an added degree of protection, it does involve additional costs to the buyer.



Barge Sampling Certification: Are Changes Needed?

The continued debate over grain quality has helped to refocus attention on the reliability of grain sampling and certification procedures at interior points.

In particular, the reliability of official white certificates indicating the grade of grain loaded on barges has been a persistent concern of grain buyers and exporters. It is an issue that has been discussed and debated at numerous industry forums during the past several years.

More recently, both the "Commitment to Quality" report of the North American Export Grain Association quality workshops and the National Grain and Feed Association's Grain Grades and Weights Committee have adopted resolutions calling for an industry-developed and approved uniform barge loading plan or representative sampling plan.

Despite the support of major exporters and some producer groups, efforts to develop some type of representative sampling or uniform loading plan have stirred up considerable controversy.

Under current procedures, barges can be sampled using a number of different methods and still receive a white certificate establishing that the sample was collected and the grade determined by a licensed inspector.

The reliability of the white certificate comes into question when the barge has been sampled by a probe. Because probes don't reach all sections or to the bottom of a barge, buyers cannot always be certain that the grain loaded on that barge is of uniform quality or even that the certified grade actually reflects the average quality of the shipment.

Most of the grain that is exported from Gulf locations arrives at the export point by barge. Because of the need to handle grain quickly and efficiently at export houses, an exporter has to be reasonably certain that the sample that has been collected and graded is truly representative of the barge shipment as a whole.

Barge shipments also may be traded several times while enroute to the Gulf so the sampling method used may not be known until several days after the shipment has been received.

Exporters say that the uniformity or lack of uniformity on interior barge shipments can have a direct bearing on the uniformity and potential for quality deterioration in export shipments.

Substantial differences in quality or condition factors such as moisture between the sampled and unsampled portions of the barge can create the potential for in-transit deterioration either before the barge reaches its final destination or in later shipment overseas. For example, a single truckload or about 1,000 bushels of corn with 20-percent moisture could be enough to create



condition problems in a 50,000-bushel barge shipment.

Incomplete sampling of barge shipments has created other problems for exporters as well. In one instance, an exporter did not discover that the bottom of a particular barge of corn had been loaded with treated seed until after the grain had been loaded on a vessel for shipment overseas. The cost of removing the contaminated grain from the vessel and isolating it until it could be retested was about \$150,000.

Alternatives

Much of the opposition to the development of a uniform loading plan has come from smaller shippers who fear that the costs of moving toward such a plan would fall particularly hard on their operations. Some say they would object to any plan that required the use

of diverter-type samplers because of the costs of equipment and installation — about \$25-30,000 at a typical river operation. Diverter-type samplers, however, can more easily obtain a representative sample.

Some also fear that the costs to the small shipper would be exorbitant if the plan required on-site analysis by a licensed inspector. Others say they would object to any plan in which the tolerances would be as narrow as the tolerances applied to export shipments under the cumsum loading plan. Still others contend that any plan that does not extend to intracompany shipments would be discriminatory.

Some of those concerns could be alleviated, supporters say, by carefully structuring a representative sampling plan. For example, samples collected according to the plan could be sent to an inspection lab for analysis, eliminating the need for on-site analysis.

Some industry representatives have suggested that a two-tiered certificate system be developed. Official white certificates would be issued only if the barge shipment was appropriately sampled and the grain was within the tolerances. Grain which did not meet those tolerances would receive a certificate of another color.

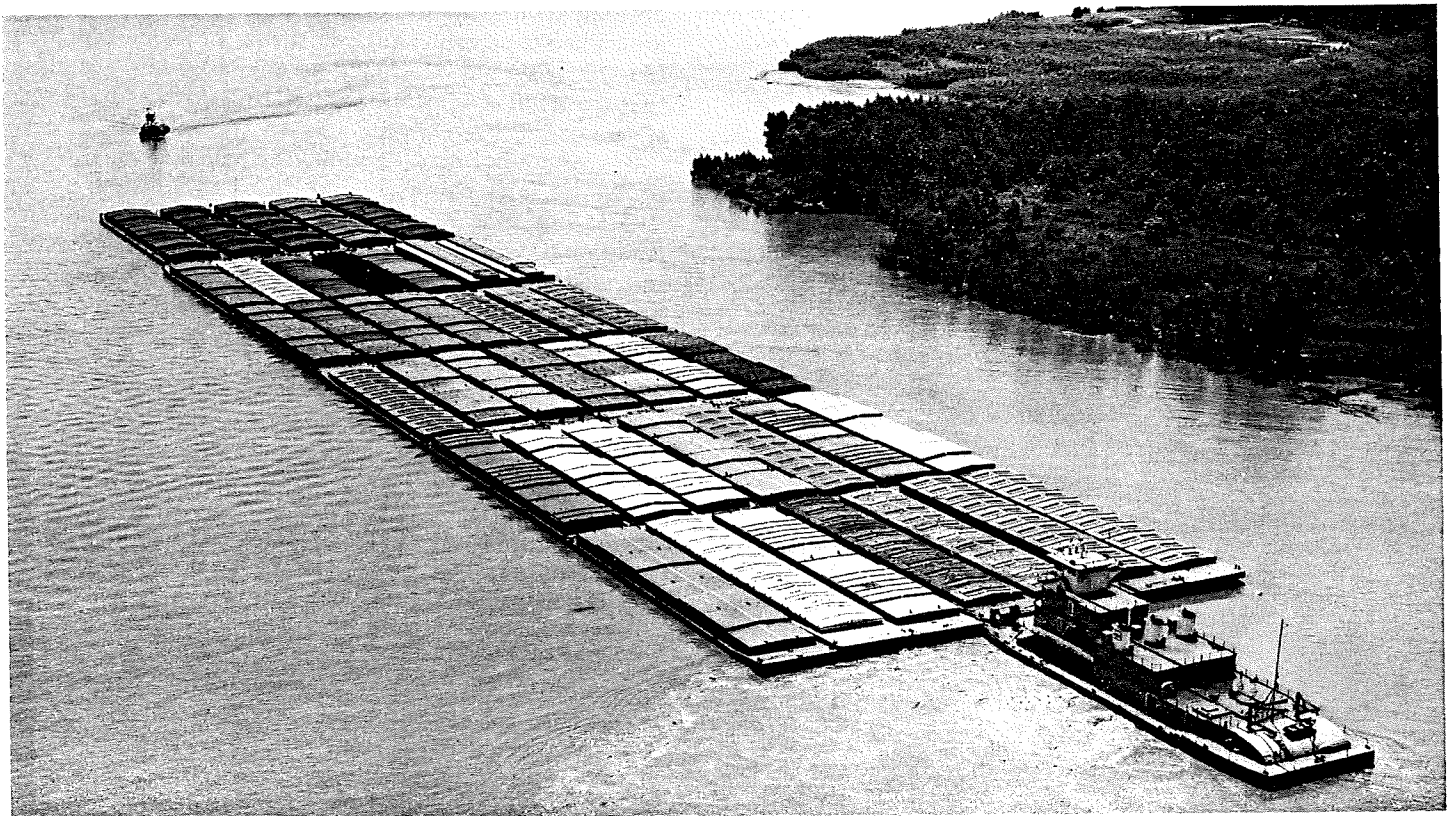
Shippers who did not want to assume the additional costs of following a representative sampling plan would have the option of accepting a certificate that is not an official white certificate and negotiating with the buyer over any price adjustments. Another option for these

shippers would be to accept grain grades determined at destination.

Another issue is whether any changes in rules and procedures involving barge sampling and certification should be applied to both intracompany and intercompany shipments. Exporters maintain that there is little reason for additional regulation of grain that a company ships from one of its own interior elevators to one of its export elevators.

The objective of a representative sampling or uniform barge-loading plan should be to provide buyers and sellers with an accurate description of grain quality and condition and to provide buyers with a reasonable degree of protection against unethical shippers, the exporters say. Any company that would choose to ship barges of grain with substantial differences in quality or condition factors to its own export facilities would only be hurting itself.

Several groups, including the NGFA Grain Grades and Weights Committee, and the industry-wide quality workshops are in the process of trying to develop a workable plan, but there are several issues that must still be resolved. Some of the central issues are appropriate tolerance levels for barge shipments, the types of sampling devices that could be used, procedures for ensuring that a representative sample is obtained, and the degree of official supervision that would be required.



Wheat Classification: Searching for Solutions

Although not generally considered a quality problem, wheat classification is presenting a significant challenge to the U.S. grain-grading and marketing system.

But what began as a search for a technical solution to the problems of identifying the various classes of wheat has been broadened in recent months as segments of the industry have begun reevaluating the way the U.S. marketing system defines and measures wheat quality.

The wheat-classification problem also illustrates the complex interplay of factors that must be considered when attempting to redesign a grading system to meet the needs of all segments of the market — producers, merchandisers and end users.

Classification System

Wheat is grouped into seven classes in the U.S. marketing system, based on visual appearance, hardness and growing season. Those seven classes are hard red winter, hard red spring, soft red winter, white wheat, durum, unclassified and mixed wheat. Each of those classes traditionally has been marketed to different segments of the milling and baking industry for different purposes.



But visual methods of identification are no longer effective, particularly for red wheats. There currently is no other practical method of identifying wheat by class.

The problem is that some of the newer varieties, developed through extensive cross-breeding between classes, are almost impossible to distinguish by visual means. For example, only 33 of the 80 most common varieties of hard red spring wheat are traditional varieties.

Some varieties that are grown as hard red winter wheat look like hard red spring wheat. Others look like one or the other depending on location and growing conditions, and still others vary in visual appearance within a single field.

Adding to the classification problem has been a gradual shift in regional production patterns as winter-wheat production has edged northward into traditional spring-wheat production areas, occasionally causing physical intermingling of spring and winter wheats in a field.

Although the classification problem had been developing for a number of years, last summer Federal Grain Inspection Service (FGIS) officials finally threw up their hands and announced that wheat that did not look like 90 percent hard red spring or 90 percent hard red winter would be graded as mixed wheat — a class that trades at a substantial discount to either hard red spring or hard red winter wheat.

The announcement definitely caught the attention of producers, merchandisers and the seed industry.

As an interim measure, FGIS agreed to class non-traditional hard wheats based on marketing area and intended class rather than on kernel characteristics for the 1986 marketing year. A Wheat Classification Working Group, representing producers, merchandisers and wheat users, has been charged with researching and recommending a new method of classification for implementation in the 1988 marketing year.

Alternatives

Several options have been considered, but nearly all have the potential to affect adversely the production and marketing of U.S. wheat.

One alternative would be to limit the types of varieties that could be produced and be classed as hard red spring or hard red winter. But producers and seed researchers object to that kind of proposal, saying that it would have the effect of severely limiting the base of genetic material that could be used to develop new varieties and would hamper efforts to resolve other problems such as disease resistance. Producers who chose not to plant traditional varieties would risk price



discounts if the kernel characteristics of the final product did not meet the traditional criteria.

Customer Concerns

Hard red spring wheat traditionally has traded at a premium to hard red winter wheat because hard red spring generally has been recognized as having higher protein levels and higher gluten strength. But some argue that extensive cross-breeding has blurred those distinctions and that there is little reason to continue separate classes.

Some overseas customers as well as representatives of the domestic milling industry and the grain trade strongly disagree. The milling and baking industry says that there still is a significant difference between hard red spring and hard red winter in terms of baking qualities.

With the increasing importance of specialty breads and other wheat-based products and the growing sophistication of the baking industry and their customers, the millers say they must be able to identify and have access to high-quality wheat of both classes. The milling industry says a single class of hard red wheat would make it nearly impossible to meet all the needs of their baking customers. The millers also worry that any liberalizing of the criteria used to identify

traditional classes will make it more difficult to obtain high-quality hard red spring wheat, an essential ingredient in some flour products.

In addition to potential problems in the domestic market, producers and exporters also worry that the United States would lose overseas markets to competitors such as Canada if the United States could no longer provide hard red spring as well as hard red winter wheat.

A third alternative that has been suggested is to maintain the current three-class system for red wheats (hard red spring, hard red winter and soft red winter), while adding an additional class or classes for the non-traditional varieties.

Producers and grain merchants, however, worry that under such a system most wheat would be classed in the new categories. Those new classes would likely be subject to severe discounting unless a new market can be developed.

Representatives of the industry's Wheat Classification Working Group say the group is committed to maintaining a three-class system for red wheat. They are concentrating their search on technological answers to the classification dilemma.

The working group conducted a two-day session with researchers from across the country last fall to try to determine the most promising technologies. While many are confident that a hardness test to help inspectors distinguish between hard red and soft red winter wheats may be feasible soon, the problem of distinguishing between spring and winter wheats may be more difficult to resolve.

Any test that is developed must meet several challenging criteria. The test or tests must be fast, accurate, reasonably priced and be able to be implemented at all levels of the marketing chain.

Other Considerations

The classification issue is forcing the industry to reexamine the way quality is defined and measured in order to develop a test or series of tests that will give producers, merchants and wheat users the information they need. As yet, there does not appear to be a firm consensus on which wheat kernel characteristics are the most critical measurements of quality and how those characteristics translate into specific baking properties.

But the classification problem also is resurrecting other questions about the relationship between federal farm programs and the quality of U.S. grain. Many in the industry are arguing that the classification dilemma is only a symptom of potentially deeper problems. Federal farm programs, which reward yield over quality, the argument goes, have been sending both producers and the seed industry the wrong signals, and those incentives have accelerated the drive to increase yields at the expense of other quality considerations.

Grain Quality: Part of a Complex Marketing Equation

Dozens of questions, comments and criticisms of U.S. grain quality and the U.S. grain-grading and inspection system have been aired during the past several months.

At times, the debate has been reduced to simple sloganeering and finger pointing. But at other times, it also has been characterized by sincere attempts to take a hard look at the advantages the U.S. grain-marketing system offers as well as where adjustments could be made to help the system keep pace with a changing marketplace.

The debate also has set in motion a number of changes in U.S. grain-grading and inspection procedures and has set the stage for continued discussion of the issues. Administrative changes in the way dockage and protein in wheat are measured and reported are set for implementation this spring. Both measures are in direct response to concerns of U.S. customers. The Federal Grain Inspection Service (FGIS) also has revised its procedures for responding to complaints from overseas customers and has revised its criteria for measuring soybean damage.

In addition, FGIS is studying a review of the cu-sum loading plan and is expected to discuss the agency's recommendations for modifying cu-sum procedures with the industry within the next few weeks. A Wheat Classification Working Group has been established to research and recommend new methods of identifying wheat by class, and work continues on appropriate methods of identifying and dealing with infestation.

Legislation also has been passed that prohibits the addition or re-addition of dockage and foreign material to U.S. grain.

But with all the feverish attention to grain quality in recent months, there still is no clear consensus on many of the central issues in the debate. Has quality played a significant role in the decline in U.S. exports, and more

importantly, can quality play a role in helping to rebuild export sales? What's the price of changing the system? Can those costs be justified, and who will pay?

Some argue that the quality debate has been a costly exercise that has served only to divert attention from the more critical and fundamental problems hindering U.S. agriculture's competitive position in world markets.

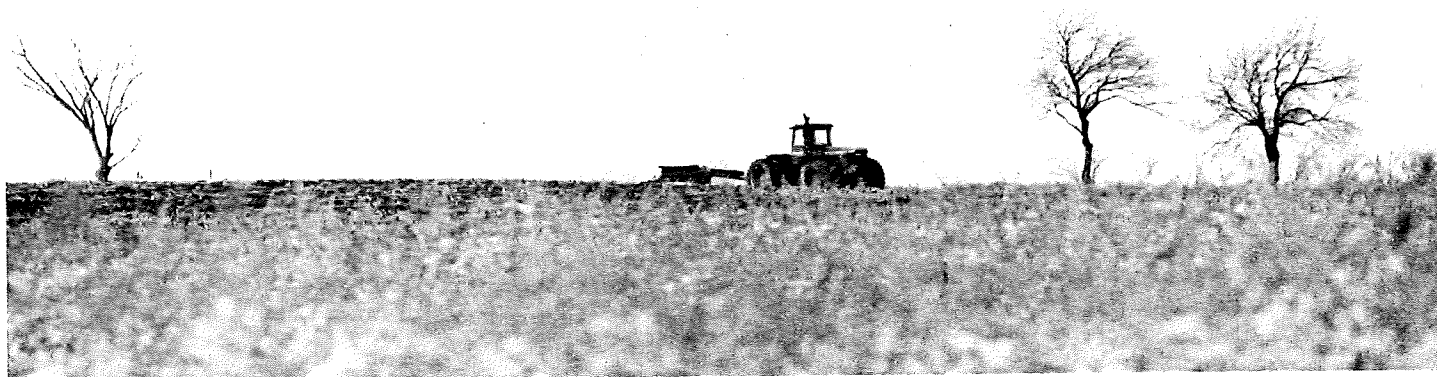
Others, who see the quality issue as a tool for recapturing export markets, argue that further changes are both justified and necessary.

But nearly all sides of the larger issue concede that one of the most significant accomplishments of the past few months is an increased recognition of the fact that responsibility for preserving the quality of U.S. grain is not limited to a single sector of the industry.

That understanding led to the formation of what may be the first industry-wide forum for monitoring quality concerns, sharing expertise between the various segments of the industry and attempting to reach consensus on when and if changes are needed in the U.S. grain-grading system.

The grain-quality workshops, originally organized by the North American Export Grain Association, began by focusing on concerns about the export market. That group now has expanded both its focus and its membership to include domestic users of U.S. agricultural products.

Participants in the workshops say their continuing focus on quality issues is not an indictment of the current system so much as a recognition of the fact that the system must remain flexible enough to serve the needs of a marketplace that is constantly changing. And because of the nature of the product, preserving the quality of U.S. grain requires the cooperative efforts of all segments of the marketplace — seed researchers, farmers, grain handlers and end users.



A Complex Equation

U.S. grain merchants caution against the notion that quality is some kind of magic prescription for reversing the decline in U.S. grain exports. Quality is just one element of a complex marketing equation that also involves price and service. Grain quality is not an absolute that can override technical limitations, economics or broad shifts in the world's grain economy.

Proposals for changing the current system in the name of quality must be viewed within the broader context of the marketplace, industry experts say. Grain is not a homogeneous commodity, and not all grain produced in the United States meet U.S. #1 grade standards. Differences in quality exist because growing conditions vary by location and from season to season. Buyers' needs also vary by intended use.

There also are technical factors that affect the accuracy of how quality characteristics can be measured and how grain is grown, handled, stored and processed. Changes in standards affect both the value of the product and the costs of providing it, and buyers' interests and attitudes change as the overall world grain-supply situation changes.

Even the most rigorous standards and inspection procedures would not be able to eliminate completely the risk involved in buying and selling grain, merchants say. Buyers purchase grain based on inspections at a particular place and time to meet their needs at a later time as economically as possible. While the system can reflect grain quality and condition at the time of inspection, it cannot necessarily predict quality and condition at a future date or place.

But market judgments about future quality and condition are made. Most of the time those predictions are made with accuracy and dependability based on the experience and competence of both buyer and seller.

Normally things work out — but not always, industry experts say. But they add that those failures may have nothing to do with the U.S. system of grade standards or the accuracy of their application. Instead, they are likely to stem from other causes — unexpected delays in shipping, sudden changes in temperature or other factors that affect the condition of grain, or miscalculations about the type or quality of grain best suited to a particular end use.

Industry representatives also point out that many of the situations that can adversely affect an end user's perception of U.S. grain quality occur after export inspections and after the grain has left the U.S. exporter's control.

Numerous studies document the increase in breakage that occurs in the various stages of handling after the grain is loaded for export — during transport in the ocean vessel; during off-loading, handling and transfer

to trucks, rail or barges in the importing country; and in handling for final delivery to end users.

Other factors also affect quality at the point of final use. Grain segregates in vessel holds, resulting in cargoes that are less uniform than the grain flowing out of the export elevator's spout. This can create inequities when the grain is not rebled before being subdivided among several small buyers.

Length of voyage, relative humidity, temperature, buyers' policies with respect to fumigation, delays in unloading, internal storage and handling systems in importing countries — all of these also can affect the quality of the grain received by the end user abroad.

The use by foreign customers of less sophisticated or different grain-handling equipment and practices, sampling techniques and methods of analyzing quality characteristics also can lead to perceptions of quality problems with U.S. grain shipments.

Price Considerations


U.S. grain merchants also caution against the assumption that quality somehow can be divorced from price considerations. The ability to offer different grades of grain at different prices gives the buyer more options in determining the most economical way to meet quality and end-use needs, they say.

Every buying decision reflects a conscious weighing of the costs and benefits of varying quality levels. In fact, the most commonly traded commodities are not those that meet U.S. #1 grade standards, but U.S. #2 for wheat and soybeans and U.S. #3 for corn.

Buyers also are not limited to the specifications contained in the U.S. grain standards. The use of special contract terms can enable a buyer to apply more stringent criteria to those factors that have the more significant effect on his individual end-use needs. For example, a corn miller in Europe may contract for #3 yellow corn with a special stipulation that broken corn and foreign material (BCFM) not exceed 3 percent. U.S. grade standards for #3 yellow corn allow a maximum of 4 percent BCFM.

Although industry representatives and analysts say changes in the marketplace occasionally may dictate changes in the U.S. grain standards and inspection system, there is much in the system worth preserving — the flexibility to meet a wide range of customer needs in the most economical manner possible, the ability to move large volumes of grain efficiently and economically, and the advantages of a reliable, government-controlled inspection system that provides both buyers and sellers with an objective verification of grain quality.

attachment 4



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