

Approved _____

Date

3/3/84

MINUTES OF THE SENATE COMMITTEE ON AGRICULTURE AND SMALL BUSINESS

The meeting was called to order by Senator Fred Kerr at _____
Chairperson

10:00 a.m./~~p.m.~~ on Thursday, February 2, 1984, 19__ in room 423-S of the Capitol.

All members were present except: Senator Ed Reilly (E)

Committee staff present: Raney Gilliland, Research Department

Conferees appearing before the committee:

John Blythe, Kansas Farm Bureau
Russ Daly, Vice President, Southwest Regional Manager
Commodity Marketing Division, Cargill, Inc., K.C., Mo.
Garland Rice, Atchison Co. Coop

Senator Thiessen moved the February 1, 1984 minutes be approved, seconded by Senator Allen. Motion carried.

Senator Kerr called attention to the January 27 letter from William Leshar relative to his visit with the joint committee early in the session and the FGIS presentations regarding a red wheat classification.

Senator Kerr stated he had visited with Representative Fuller and the House Agriculture and Livestock Committee will introduce a bill specifying there should not be fees charged to the elevators for air quality inspections--that the burden should be on the general public.

Senator Kerr referred to a joint meeting in Manhattan last fall addressing the problem of dirty or contaminated grains exported from the U.S., and he questions if Kansas should get more active in having an investigation as to whether or not this occurs.

John Blythe feels there is no evidence that foreign matter is intentionally placed in shipments. The Farm Bureau would like to cooperate with the committee in making recommendations to FGIS for improvement in the handling and transporting of grain. He feels qualified people visit foreign countries and perhaps they could visit the terminals at those ports and report back as to their findings. It may be that a concurrent resolution would be advisable. He feels inspections should be strictly enforced.

Russ Daly quoted from his presentation (Attachment 1). Four billion bushels of wheat is grown in the U.S.; one-quarter of this amount is used domestically and one-quarter exported. A Houston elevator spent \$19 million in improvements but operates only at 42% of its capacity. He called particular attention to page 4 of his presentation setting out the U.S. Wheat Supply and Distribution. We now have a buyer's market; there are price buyers and quality buyers, and we must ship what is wanted. Consideration has to be given to the grain grade standards. He distributed Grain Grade Standards (Attachment 2). The Uniform Grain Standards of 1914 were passed at the request of the trade and are reviewed every five years for each grain. These include FGIS/private lab/documentation and discharge at destination. What goes on the certificate at the time of loading is done by FGIS.

Mr. Daly assured the committee that complaints to them by receivers of U.S. grain are exceedingly few. Humans and machines can make errors but if found they are remedied. He feels by "saying an exporter can and would ship sub-standard grain is ignoring some facts of our controls, casting relection on a whole lot more segments of the process than the

CONTINUATION SHEET

MINUTES OF THE SENATE COMMITTEE ON AGRICULTURE AND SMALL BUSINESS

room 423-S Statehouse, at 10:00 a.m.~~a.m.~~ on Thursday, February 2, 1984, 19

exporter..." It is a competitive business and exporters do all they can to do an equal if not a better job than his competitor.

Garland Rice stated he is opposed to a red wheat classification. He enumerated items which would be helpful in understanding contaminated or dirty wheat:

1. Farmers should set their combines better.
2. In the course of business, there is some deterioration taking place--human errors. Some accidental mixings occur.
3. There is grading at every handling point. The quality shipped is what was bought. The grading records could be investigated at the farm, elevator and terminal.
4. The restrictions on adding moisture does not permit adding moisture even when needed on dry grain.
5. Grain inspection is an art, not mechanical. Inspections differ from one point to another.
6. In inspecting, it is hard to tell difference between soft and hard wheat.
7. U.S. inventory is kept from year to year--too much carryover and grain is bound to deteriorate.

Mr. Rice feels the only solution is to make mechanical inspections.

The meeting was adjourned.

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SENATE

AGRICULTURE AND SMALL BUSINESS COMMITTEE

10:00 a.m., Room 423-S

Thurs., Feb. 2, 1984

Date

NAME	ADDRESS	ORGANIZATION
P. R. Daly	Leawood Ks	Kans Grain + Feed (Cargill)
Chris Walker	Maryetta	Kans NFD
Herbert Miles	Lebo, Mo	Visitor
Gary M. Bothwell	Topeka	KS SID
Sam Roda		
Tom Tunnell	Hutchinson	KANS GRAIN & FEED ASSN.
John Blythe	Manhattan	Ks Farm Bureau
Michael Fine	Stechusen Ks.	Stechusen Co Coop
Harvey Pantala	Topeka	Wissas Co-op Council
Kim Anderson	Wichita	Seay Farm Bureau
Ronald Baker	Wichita, Ks	K.A.W.C.
Robert W. Snow	Manhattan	KSU

Attachment 1, 2/2

COMMENTS BEFORE KANSAS SENATE COMMITTEE
ON AGRICULTURE AND SMALL BUSINESS
FEBRUARY 2, 1984

MY NAME IS P. R. DALY OF 2326 WEST 95TH STREET, LEAWOOD, KANSAS AND AM APPEARING HERE AT THE REQUEST OF THE K.G.F.A. I HAVE BEEN EMPLOYED BY CARGILL, INC. FOR 34 YEARS. THE PAST 20 YEARS HAVE BEEN INVOLVED HEAVILY IN EXPORTS AND I FEEL QUALIFIED TO COMMENT ON YOUR QUESTIONS AND CONCERNS ON THE QUALITY OF U.S. EXPORTS OF GRAIN.

THE CONCERN IS A VALID ONE AS WE WILL ILLUSTRATE. FIRST, WE'D LIKE TO CALL ATTENTION TO SOME OF THE MANY FACTORS WHICH HAVE A BEARING ON OUR AGRICULTURAL EXPORTS:

ECONOMY - WORLD RECOVERY SLOW.

- DOLLAR AT RECORD HIGH - SOME WHO WOULD BUY SIMPLY CAN'T PAY.

GOVERNMENT RELATIONS - MIDDLE EAST SITUATION USSR/USA AND PRC/USA RELATIONS IMPROVED BUT SENSITIVE.

- EEC TRADE RELATIONS STRAINED - PARTICULARLY OVER PROTECTIONISM.

WORLD TRADE - STAGNATED, BASICALLY UNCHANGED SINCE 1979.

Atch. 1

SUPPLY & DEMAND - SUPPLY MANAGEMENT EMPLOYED IN USA.

- MAJOR COMPETITION FROM CANADA, AUSTRALIA, ARGENTINA, EEC, (BRAZIL. Soybeans)
- USA GRAIN EXPORTS DOWN 20% FROM 1980.
- SOUTHERN HEMISPHERE WEATHER CONDITIONS UNCHANGED.

THE U.S. IS THE RESIDUAL SUPPLIER TO THE WORLD - THAT IS, WE HAVE THE BURDEN OF MOST OF THE CARRYOVER FROM ONE CROP YEAR TO ANOTHER. SOME EXPORTING COUNTRIES AREN'T CONCERNED ABOUT COMPARATIVE INCOMES OR STANDARDS OF LIVING OF THEIR RURAL VERSUS URBAN POPULATIONS.

IT'S INTERESTING TO LOOK AT A HISTORY OF WORLD STOCKS AS A PERCENT OF UTILIZATION AND WHAT TENDS TO HAPPEN IN SUBSEQUENT YEARS:

1972/73	11.9
1974/75	10.8
1978/79	15.3
1979/80	13.6
1980/81	12.8
1981/82	15.2
1982/83	16.5
1983/84	11.9
1984/85	13.4 (PROJECTED)

OF MORE INTEREST HERE IN KANSAS MIGHT BE THESE U.S. WHEAT SUPPLY AND DISTRIBUTION FIGURES - IN MILLIONS OF BUSHELS.

(SEE CHART)

WE CAN ALL READILY AGREE THAT WE'RE HAVING TROUBLE PRODUCING WHAT WE HAVE THE BLESSING TO OF OVER 4 BILLION BUSHELS OF WHEAT AND GETTING A FAIR RETURN WHEN DOMESTIC CONSUMPTION IS UNDERSTANDABLY NOT MUCH OVER 1/4 OF THAT AND COMPETING FORCES PLUS THE OTHER PROBLEMS HAVE STAGNATED EXPORTS IN THE 1.3 BILLION BUSHEL AREA.

FURTHER ALARM HAS TO BE REGISTERED WHEN WE CONSIDER THESE FACTS AND PROJECTIONS AS CONCERN KANSAS - PARTICULARLY ON HWW.

U.S. WORLD MARKET SHARE REACHED 60% IN 1979/80 ERODING TO 51% IN 1982/83. WE CAN SEE IT SLIPPING FURTHER. IN FACT, WHEAT DRAGS DOWN THE TOTAL BEING ONLY APPROXIMATELY 39 MILLION TONS OF ALMOST 100 MILLION IN WORLD TRADE. WE PROJECT THE U.S. SHARE COULD SLIP TO 34-37% OF THE TOTAL. CANADA IS DOING ABOUT 22% VERSUS 11-17% 1973/81; AUSTRALIA 11-12% VERSUS 5-15%; ARGENTINA 9% VERSUS 1-5%; EEC 13-16% VERSUS 5-10% AND OTHER COUNTRIES 5-6% VERSUS 2-7% IN THE 1973/81 PERIOD.

U.S. WHEAT SUPPLY AND DISTRIBUTION

MILLION BUSHELS

4 Billion crop

	1971 USDA	1973 USDA	1974 USDA	1978 USDA	1979 USDA	1980 USDA	1981 USDA	1982 USDA	1983 CGL	1984 CGL	1985 CGL
ALLOT/BASE ACRES	19.7	18.7	55.0	58.5				90.7	90.8		
SET ASIDE	13.5	7.4		9.6	8.2			5.8	28.0		
PLANTED ACRES	53.8	59.3	71.0	66.0	71.4	80.4	88.9	87.3	76.6	85.0	70.7
HARVESTED ACRES	47.7	54.1	65.4	56.5	62.5	71.0	80.9	78.8	61.0	75.6	62.9
YIELD	33.9	31.7	27.3	31.5	34.2	33.5	34.6	35.2	39.3	36.8	37.4
BEGINNING STOX PRODUCTION	823.0 1,619.0	597.0 1,714.0	340.0 1,785.0	1,178.0 1,778.0	924.0 2,136.0	903.0 2,375.0	989.0 2,799.0	1,164.0 2,776.0	1,543.0 2,396.0	1,329.0 2,782.0	1,690.0 2,355.0
TOTAL SUPPLY	2,443.0	2,311.0	2,125.0	2,956.0	3,060.0	3,278.0	3,788.0	3,940.0	3,939.0	4,111.0	4,045.0
FEED & RESIDUAL FOOD & FLR XPTS SEED	262.0 587.0	139.0 576.0	59.0 567.0	159.0 653.0	86.0 665.0	48.0 695.0	140.0 676.0	187.0 685.0	459.0 705.0	330.0 695.0	301.0 705.0
TOTAL DOMESTIC USE	849.0	799.0	718.0	899.0	853.0	857.0	928.0	956.0	1,263.0	1,121.0	1,102.0
EXPORTS	610.0	1,172.0	972.0	1,133.0	1,304.0	1,432.0	1,696.0	1,441.0	1,347.0	1,300.0	1,253.0
TOTAL USE	1,459.0	1,971.0	1,690.0	2,032.0	2,157.0	2,289.0	2,624.0	2,397.0	2,610.0	2,421.0	2,355.0
CARRYOUT STOX	984.0	340.0	435.0	924.0	903.0	989.0	1,164.0	1,543.0	1,329.0	1,690.0	1,690.0
FARMER RESERVE CCC/SPEC RESERVE				393.0 50.0	257.0 205.0	353.0 203.0	560.0 189.0	1,061.0 181.0	600.0 173.0	700.0 200.0	700.0 200.0
FREE STOX	984.0	340.0	435.0	481.0	441.0	433.0	415.0	301.0	556.0	790.0	790.0
SEASON AVG PX.BU	1.34	3.95	4.09	2.97	3.78	3.91	3.65	3.53			
C/O AS % OF USAGE	67.4	17.3	25.7	45.5	41.9	43.2	44.4	64.4	50.9	69.8	71.8

A FURTHER ILLUSTRATION OF THIS IS WHAT HAS HAPPENED IN TOTAL EXPORTS AND PARTICULARLY TO THE TEXAS GULF IN RECENT YEARS. I MENTION THIS BECAUSE A GREAT PART OF KANSAS IS TRIBUTARY TO THIS SHIPPING RANGE OR COAST THAN TO OTHERS.

(SEE CHART)

SO WE'VE RECOGNIZED THAT THERE IS A PROBLEM AND PERHAPS CAN AGREE ON THE MANY REASONS. TODAY YOU HAVE ASKED US TO CONCENTRATE ACCORDING TO MR. TUNNELL ON HOW PERHAPS COMPARATIVE QUALITY AND ACTIONS EFFECTING IT MIGHT WELL HAVE AN AFFECT ON OUR MARKET SHARE. IT'S NATURAL TO LOOK FOR REASONS IN ORDER TO MAKE CORRECTIONS AND IT'S GOOD THAT WE DISCUSS THIS.

WE'LL NEED TO COVER THE FOLLOWING SUBJECTS:

- GRAIN GRADE STANDARDS
- MIXING AND BLENDING
- BUYERS SPECIFICATIONS AND HOW THEY BUY
- F.G.I.S./PRIVATE LABS/DOCUMENTATION
- DISCHARGE AT DESTINATION

See Comments

AGAIN, AN IMPROVED SHARE OF THE WORLD MARKET IS A MUST. SINCE THERE ARE "PRICE" BUYERS AND "QUALITY" BUYERS WE MUST ASCERTAIN THAT WE HAVE AND SHIP WHAT IS WANTED BY INSURING THAT QUALITY FROM THE SEED PLANTING ALL THE WAY TO THE END USER.

WHEN OUR EXPORTS AND PRICES DROP WE LOOK FOR REASONS AND ONE OF THE CONVENIENT AND NATURAL GUYS TO LOOK AT IS THE EXPORTER. WHILE WE HEAR SECOND AND THIRD HAND STORIES AND ALLEGATIONS I CAN ASSURE YOU THAT COMPLAINTS TO US BY RECEIVERS OF U.S. GRAIN ARE EXCEEDINGLY FEW. HUMANS AND MACHINES ARE SUBJECT TO ERROR AND WE HAVE FOUND SOME AND WILLINGLY CORRECTED THEM. I DON'T NEED TO REMIND YOU THAT IT IS A BUYERS MARKET; DOLLARS FOR PAYMENT ARE ROUGH TO COME BY AND THEREFORE ONE CAN EXPECT THE BUYER/USER TO TALK DOWN BOTH THE QUALITY AND QUANTITY OF YOUR PRODUCT. IT DOESN'T MEAN WE SHOULDN'T STRIVE TO IMPROVE AND IN FACT, WE WILL INVEST IN WHATEVER IS NEEDED TO MARKET U.S. GRAIN. TO SAY AN EXPORTER CAN OR WOULD SHIP SUB-STANDARD GRAIN IS IGNORING SOME FACTS OF OUR CONTROLS, CASTING REFLECTION ON A WHOLE LOT MORE SEGMENTS OF THE PROCESS THAN THE EXPORTER AND MAKING AN EXPORTER LOOK MUCH DUMBER THAN HE IS. A MODERN EXPORT FACILITY TODAY COSTS WELL IN EXCESS OF \$100 MILLION. MARGINS ARE EXTREMELY NARROW WHEN YOU CONSIDER THAT WE ARE OPERATING AT LESS THAN 60% OF U.S. SEABOARD ELEVATOR CAPACITY. THIS COMPETITION FORCES ONE TO COMPETE HARD FOR THE AVAILABLE BUSINESS AND THIS INCLUDES DOING AN EQUAL IF NOT BETTER JOB THAN HIS COMPETITOR - OR NOT SHARE IN FUTURE BUSINESS.

I THANK YOU FOR THE OPPORTUNITY TO DISCUSS THIS AND AM MOST ANXIOUS TO ANSWER QUESTIONS, OBTAIN INFORMATION OR TO ASSIST YOU IN ANY WAY NOW AND IN THE FUTURE.

COMMENTS

ON GRAIN GRADE STANDARDS I HAVE SEVERAL BOOKLETS WHICH YOU MAY WANT TO LOOK THROUGH. THERE ARE CHARTS IN THEM EXPLAINING THE REQUIREMENTS FOR ALL GRAINS. UNIFORM GRAIN STANDARDS ACT OF 1914 WAS PASSED AT THE REQUEST OF THE TRADE SO THAT WE HAD UNDERSTANDING IN PORTLAND, OREGON OF WHAT THE FELLOW IN PORTLAND, MAINE MEANT BY A CAR OF 2 YELLOW CORN. THESE STANDARDS HAVE BEEN REVISED OVER THE YEARS, AND IN FACT ARE REQUIRED BY LAW TO BE REVIEWED EVERY FIVE YEARS. IF YOU WILL TURN TO PAGE 1.7 YOU WILL SEE THE REQUIREMENTS FOR WHEAT. YOU WILL NOTICE THAT THE DEFECTS INDIVIDUALLY ALLOWED TOTAL MORE THAN THE ALLOWABLE IN TOTAL DEFECTS. BESIDES THESE MAXIMUMS ALLOWED FOR DEFECTS THERE ARE PRESCRIBED PERCENTAGES ALLOWED FOR CONTRASTING CLASSES OF WHEAT AND FOR WHEAT OF OTHER CLASSES AND MINIMUM REQUIREMENT FOR TEST WEIGHT.

I AM GOING TO SKIP TO BUYERS SPECIFICATIONS AND HOW THEY BUY. MANY BUYERS BUY BY PUBLIC TENDER WHILE OTHERS MIGHT BE PRIVATELY, JUST AS A FLOUR MILL HERE WOULD BUY FROM SOMEONE IN THE TRADE. THE TENDERS HAVE ALL KINDS OF TERMS TO MEET AND IF ONE DOES NOT MEET THEM HE IS NORMALLY THROWN OUT. EACH BUYER BUYS DIFFERENTLY. FOR EXAMPLE, BRAZIL DOES NOT JUST BUY #2 HARD WHEAT BUT REQUIRES A TEST WEIGHT OF 60.6 POUNDS, 13.0 MAXIMUM MOISTURE AND 11.0 PROTEIN. THERE ARE ALSO SPECIAL REQUIREMENTS SUCH AS A LIMIT ON SCAB DAMAGE, AND IN SEVERAL CASES THIS IS .2 OF 1% AND THERE IS CERTAIN CERTIFICATION FOR SUCH AS PHYTOSANITARY. IN FACT, THE BUYER MAY REQUIRE CERTAIN LAB TESTS FOR HIS VARIOUS NEEDS AND THE TERMS OF THE CONTRACT

*revised for
Standardization
Review - see spec
for each grain*

*+ 40
D.H.V.*

WILL PRESCRIBE THIS. AS YOU KNOW, ALL GRAIN, EXCEPT IN VERY UNUSUAL CIRCUMSTANCES, MUST BE GRADED BY THE FEDERAL GRAIN INSPECTION SERVICE TO GO INTO EXPORT. SOME FACTORS IN GRAIN ARE DETERMINED MECHANICALLY AND MACHINES CAN VARY, WHILE OTHER FACTORS ARE DETERMINED BY A HUMAN EYE OR NOSE. THESE CAN VARY TOO. THUS WE HAVE CONSIDERABLE PROBLEM WITH INTER-MARKET GRADES. THE DETERMINATION OF THE F.G.I.S. AT TIME OF LOADING IS WHAT GOES ON THE CERTIFICATE. THEY ARE, OF COURSE, AN INDEPENDENT THIRD PARTY. THE SAMPLE THEY INSPECT IS OBTAINED BY THEM FROM MECHANICAL EQUIPMENT APPROVED BY THEM BEFORE USAGE.

LET'S DISCUSS MIXING AND BLENDING. THIS SUBJECT SEEMS TO TAKE ON AN AIR OF DISTASTE, BUT IN FACT WHEN YOU CONSIDER THAT GRAIN COULD NOT BE MARKETED UNLESS THE NATURAL FUNCTION OF BLENDING AND MIXING WERE PERFORMED YOU CAN BETTER UNDERSTAND IT. FOR EXAMPLE, ALL QUALITY IS NOT PRODUCED THE SAME. IF A BUYER WANTS 12.0 PROTEIN THEN BLENDS ARE USED AND THE SAME APPLIES TO TEST WEIGHT AND ANY OTHER FACTORS. THIS DOESN'T DIFFER WHETHER YOU'RE TALKING DOMESTIC OR EXPORT. A FLOUR MILL BUYS MANY DIFFERENT QUALITY LOTS AND BLENDS FOR THE PARTICULAR FLOUR THAT HE HAS SOLD THE BAKER.

I WOULD LIKE TO TOUCH A BIT ON DISCHARGE AT DESTINATION. THERE ARE MANY WAYS THAT THIS IS PERFORMED AND CAN HAVE AN EFFECT ON OUT-TURNED WEIGHTS OR GRADES. OFT TIMES VESSELS ARE DISCHARGED AT MULTIPLE PORTS AND THE GRAIN TRUCKED OR RAILED A DISTANCE TO A SCALE. PERHAPS A CLAM SHELL IS USED AND SHRINKAGE CAN RESULT.

-3- (COMMENTS)

MULTIPLE HANDLINGS ARE GOING TO CAUSE SOME BREAKAGE. SO IT IS ALWAYS WORTH WHILE TO EXAMINE METHOD AND DETAILS OF DISCHARGE WHEN ONE IS CONSIDERING A QUALITY OR QUANTITY CLAIM.

OFFICIAL GRAIN STANDARDS

9

Hard Red Winter Wheat

Grade and grade requirements for the subclass Dark Hard Winter Wheat, Hard Winter Wheat and Yellow Hard Winter Wheat of the class Hard Red Winter Wheat.

Grade	Maximum Limits Of					
	Minimum Test Weight	Damaged Kernels		Foreign Matl	Wheat of Other Classes	
		Total	Heat Damage		Total	Durum
1	%	%	%	%	%	%
2	60	2	.1	.5	5.0	.5
3	58	4	.2	1.0	5.0	1.0
4	56	7	.5	2.0	10.0	2.0
5	54	10	1.0	3.0	10.0	10.0
Sample Grade	51	15	3.0	5.0	10.0	10.0

Sample grades shall be wheat which does not meet the requirements of any of the grades from #1 through #5 or which contains more than 15.5% of moisture or which contains stones or which is musty or sour or heating or which has any commercially objectionable foreign order except of smut or garlic or which contains a quantity of smut so great that any one or more of the grade requirements cannot be applied accurately or which is otherwise of distinctly low quality.

The wheat in grades #1 and #2 of this class may contain not more than 5% and in grade #3 not more than 8% of shrunken and broken kernels.

IN EFFECTIVE UNTIL 1964

IN EFFECT PRESENTLY

Grade	Minimum test weight per bushel (pounds)	Percent maximum limits of—							
		Hard Red Spring wheat White Club wheat	All other classes and sub-classes	Heat damaged kernels	Damaged kernels (total) ¹	Foreign material	Shrunken and broken kernels	Wheat of other classes ³	
								Defects (total) ²	Constrasting classes (total) ⁴
U.S. No. 1 ..	58.0	60.0	0.2	2.0	0.5	3.0	3.0	1.0	3.0
U.S. No. 2 ..	57.0	58.0	0.2	4.0	1.0	5.0	5.0	2.0	5.0
U.S. No. 3 ..	55.0	56.0	0.5	7.0	2.0	8.0	8.0	3.0	10.0
U.S. No. 4 ..	53.0	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0
U.S. No. 5 ..	50.0	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0
U.S. Sample grade									

U.S. sample grade shall be wheat which:
 (1) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or
 (2) Contains a quantity of smut so great that 1 or more of the grade requirements cannot be determined accurately; or
 (3) Contains 8 or more stones, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 3 or more castor beans (*Ricinus communis*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), or 2 or more rodent pellets, bird droppings, or an equivalent quantity of other animal filth per 1,000 g of wheat; or
 (4) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
 (5) Is heating or otherwise of distinctly low quality.

¹Includes heat-damaged kernels.

²Defects (total) include damaged kernels (total), foreign material, and shrunken and broken kernels. The sum of these 3 factors may not exceed the limit for defects.

³Unclassed wheat of any grade may contain not more than 10 percent of wheat of other classes.

⁴Includes contrasting classes.

CORN*

Grade requirements for Yellow Corn, White Corn, and Mixed Corn

Grade No.	Minimum test weight per bushel	Maximum limits of —			
		Moisture	Broken corn and foreign material	Damaged kernels	
				Total	Heat-damaged
Pounds	Percent	Percent	Percent	Percent	
U.S. No. 1 . . .	56.0	14.0	2.0	3.0	0.1
U.S. No. 2 . . .	54	15.5	3.0	5.0	0.2
U.S. No. 3 . . .	52	17.5	4.0	7.0	0.5
U.S. No. 4 . . .	49	20.0	5.0	10.0	1.0
U.S. No. 5 . . .	46	23.0	7.0	15.0	3.0

U.S. Sample Grade U.S. sample grade shall be corn which does not meet requirements for any of the grades from U.S. No. 1 to U.S. No. 5, inclusive; or which contains stones; or which is musty, or sour, or heating; or which has any commercially objectionable foreign odor; or which is otherwise of distinctly low quality.

SOYBEANS*

Grade requirements for Soybeans

Grade	Minimum test weight per bushel	Maximum limits of —					
		Moisture	Splits	Damaged kernels		Foreign material	Brown, black, and/or bicolored soybeans in yellow or green soybeans
				Total	Heat-damaged		
Pounds	Percent	Percent	Percent	Percent	Percent	Percent	
U.S. No. 1 . . .	56.0	13.0	10.0	2.0	0.2	1.0	1.0
U.S. No. 2 . . .	54.0	14.0	20.0	3.0	0.5	2.0	2.0
U.S. No. 3 ¹ . . .	52.0	16.0	30.0	5.0	1.0	3.0	5.0
U.S. No. 4 ² . . .	49.0	18.0	40.0	8.0	3.0	5.0	10.0

U.S. Sample Grade U.S. sample grade shall be soybeans which do not meet the requirements for any of the grades from U.S. No. 1 to U.S. No. 4, inclusive; or which are musty, sour or heating; or which have any commercially objectionable foreign odor; or which contain stones, or which are otherwise of distinctly low quality.

¹Soybeans which are purple mottled or stained shall be graded not higher than U.S. No. 3.

²Soybeans which are materially weathered shall be graded not higher than U.S. No. 4.

Foreign Material. Foreign material shall be all matter, including soybeans and pieces of soybeans, which will pass readily through a sieve 0.032 inch thick with round perforations 0.125 (8/64) inch in diameter, and all matter other than soybeans remaining on such sieve after sieving.

SORGHUM*

Grade requirements for Sorghum
Grades and grade requirements for the classes Yellow Sorghum, White Sorghum, Brown Sorghum, and Mixed Sorghum.

Grade	Minimum test weight per bushel	Maximum limits of —			
		Moisture	Damaged kernels		Broken kernels, foreign material, and other grains
			Total	Heat-damaged kernels	
Pounds	Percent	Percent	Percent	Percent	
U.S. No. 1 . . .	57.0	13.0	2.0	0.2	4.0
U.S. No. 2 . . .	55.0	14.0	5.0	0.5	8.0
U.S. No. 3 ¹ . . .	53.0	15.0	10.0	1.0	12.0
U.S. No. 4 . . .	51.0	18.0	15.0	3.0	15.0

U.S. Sample Grade U.S. sample grade shall be sorghum which —
(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, or 4.
(b) Contains more than 7 stones which have an aggregate weight in excess of 0.2 percent of the sample weight or more than 2 crotalaria seeds (*Crotalaria* spp.) per 1,000 grams of sorghum.
(c) Has a musty, sour, or commercially objectionable foreign odor (except smut odor), or
(d) Is badly weathered, heating, or distinctly low quality (see 26.552 (d)).

¹Sorghum which is distinctly discolored shall not be graded higher than U.S. No. 3.

FLAXSEED*

Grade requirements for Flaxseed

Grade	Minimum test weight per bushel	Maximum limits of —	
		Heat-damaged flaxseed	Damaged flaxseed (total)
		Percent	Percent
U.S. No. 1	49.0	0.2	10.0
U.S. No. 2	47.0	.5	15.0

U.S. Sample Grade U.S. sample grade shall be flaxseed which does not meet the requirements for grade U.S. No. 1 or U.S. No. 2; or which contains more than 9.5 percent of moisture; or which contains castor beans (*Ricinus communis*), crotalaria seeds (*Crotalaria* spp.), stones, unknown foreign substances, or commonly recognized harmful or toxic substances; or which is musty, sour, or heating; or which has any commercially objectionable foreign odor; or which is otherwise of distinctly low quality.

BARLEY

26.208 — Grades and grade requirements for the subclasses Six-rowed Barley, Two-rowed Barley, and the class Barley. (See also 26.202(c) (1) (iii), (2) (ii); 26.210 (a) through (h) and 26.211.)

Grade	Minimum limits of —		Maximum limits of —					
	Test weight per bushel	Sound barley	Damaged kernels ¹	Heat-damaged kernels (Major)	Foreign material	Broken kernels	Thin barley	Black barley ²
U.S. No. 1 . . .	47.0	97.0	2.0	0.2	1.0	4.0	10.0	0.5
U.S. No. 2 . . .	45.0	94.0	4.0	0.3	2.0	8.0	15.0	1.0
U.S. No. 3 . . .	43.0	90.0	6.0	0.5	3.0	12.0	25.0	2.0
U.S. No. 4 ³ . . .	40.0	85.0	8.0	1.0	4.0	18.0	35.0	5.0
U.S. No. 5 . . .	36.0	75.0	10.0	3.0	5.0	28.0	75.0	10.0

U.S. Sample Grade U.S. Sample grade shall be barley which —
(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5.
(b) Contains a quantity of smut so great that one or more of the grade requirements cannot be determined accurately.
(c) Contains more than 7 stones or more than 2 crotalaria seeds (*Crotalaria* spp.) per 1,000 grams of barley.
(d) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor), or
(e) Contains the seeds of wild brome grasses, or
(f) Is heating or otherwise of distinctly low quality.

¹Includes heat-damaged kernels (major). Frost-damaged kernels (minor) and mold-damaged kernels (minor) shall not be considered as damaged kernels.

²These units do not apply to the class Barley.

³Barley that is badly stained or materially weathered shall be graded not higher than U.S. No. 4.

OATS*

Grades and grade requirements for oats (see also 26.258.)

Grade	Minimum limits		Maximum limits		
	Test Weight per bushel	Sound Oats	Heat damaged kernels	Foreign material	Wild Oats
			Percent	Percent	Percent
U.S. No. 1 . . .	Pounds 36.0	Percent 97.0	0.1	2.0	2.0
U.S. No. 2 . . .	33.0	94.0	.3	3.0	3.0
U.S. No. 3 ¹ . . .	30.0	90.0	1.0	4.0	5.0
U.S. No. 4 ² . . .	27.0	80.0	3.0	5.0	10.0

U.S. Sample Grade U.S. Sample grade shall be oats which —
(a) Do not meet the requirements for the grades U.S. No. 1, 2, 3 or 4.
(b) Contain more than 7 stones which have an aggregate weight in excess of 0.2 percent of the sample weight or more than 2 crotalaria seeds (*Crotalaria* spp.) per 1,000 grams of oats or more than 16 percent of moisture.
(c) Have a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor) or
(d) Are heating or otherwise of distinctly low quality.

¹Oats that are slightly weathered shall be graded not higher than U.S. No. 3.

²Oats that are badly stained or materially weathered shall be graded not higher than U.S. No. 4.

RYE*

Grade requirements for Rye

Grade No.	Minimum test weight per bushel	Maximum limits of —			
		Damaged kernels (rye and other grains)		Foreign material	
		Total	Heat-damaged	Total	Foreign matter other than wheat
Pounds	Percent	Percent	Percent	Percent	
U.S. No. 1 . . .	56.0	2.0	0.1	3.0	1.0
U.S. No. 2 ¹ . . .	54.0	4.0	0.2	6.0	2.0
U.S. No. 3 ¹ . . .	52.0	7.0	0.5	10.0	4.0
U.S. No. 4 . . .	49.0	15.0	3.0	10.0	6.0

U.S. Sample Grade U.S. Sample grade shall include rye which does not come within the requirements of any of the grades from U.S. No. 1 to U.S. No. 4, inclusive; or which contains more than 16 percent of moisture; or which contains inseparable stones and/or cinders; or which is musty, or sour, or heating, or hot; or which has any commercially objectionable foreign odor except of smut or garlic; or which contains a quantity of smut so great that any one or more of the grade requirements cannot be applied accurately; or which is otherwise of distinctly low quality.

¹The rye in grade U.S. No. 1 may contain not more than 10.0 percent, in grade U.S. No. 2 not more than 15.0 percent, and in grade U.S. No. 3 not more than 25.0 of "thin" rye shall consist of rye and other matter that will pass readily through a sieve 0.0032-inch thick with perforations 0.064 x 0.375-inch.

MALTING BARLEY

26.206 — Grades and grade requirements for the subclasses Six-rowed Malting Barley and Six-rowed Blue Malting Barley. (See also 26.202(c) (1) (i) and (ii); 26.210 (a) through (h); and 26.211.)

Grade ¹	Minimum limits of —			Maximum limits of —					
	Test weight per bushel	Suitable malting type	Sound barley	Damaged kernels ²	Foreign material	Other grains	Skinned and broken kernels	Thin barley	Black barley
U.S. No. 1	47.0	95.0	97.0	2.0	1.0	2.0	4.0	7.0	0.5
U.S. No. 2	45.0	95.0	94.0	3.0	2.0	3.0	6.0	10.0	1.0
U.S. No. 3	43.0	95.0	90.0	4.0	3.0	5.0	8.0	15.0	2.0

¹Six-rowed Malting Barley and Six-rowed Blue Malting Barley may contain a maximum of 1.9 percent of frost-damaged kernels of which not more than 0.4 percent may be frost-damaged (major), may contain a maximum of 0.2 percent of heat-damaged kernels of which not more than 0.1 percent may be heat-damaged (major), and may contain unlimited amounts of mold-damaged kernels (minor); however, mold-damaged kernels (major) shall function as "damaged kernels" and against "sound barley".

²Frost-damaged kernels (minor) and mold-damaged kernels (minor) shall not be included as damaged kernels or scored against sound barley.

Note: Six-rowed barley that meets the requirements of U.S. No. 1 to U.S. No. 3, inclusive, for the subclasses Six-rowed Malting Barley and Six-rowed Blue Malting shall be classified and graded according to the requirements in this section. Otherwise, it shall be graded according to the requirements in 26.208.

MALTING BARLEY

26.207 — Grades and grade requirements for the subclass Two-rowed Malting Barley. (See also 26.202 (c) (2) (i); 26.210 (a) through (h); and 26.211.)

Grade ¹	Minimum limits of —			Maximum limits of —					
	Test weight per bushel	Suitable malting types	Sound barley ²	Wild oats	Foreign material	Skinned and broken kernels	Thin barley	Black barley	
									Percent
U.S. No. 1 choice .	50.0	97.0	98.0	1.0	0.5	5.0	5.0		
U.S. No. 1	48.0	97.0	98.0	1.0	0.5	7.0	7.0		
U.S. No. 2	48.0	95.0	96.0	2.0	1.0	10.0	10.0	1.0	
U.S. No. 3	48.0	95.0	93.0	3.0	2.0	10.0	10.0	2.0	

¹Two-rowed Malting Barley may contain a maximum of 1.9 percent of frost-damaged kernels of which not more than 0.4 percent may be frost-damaged (major), may contain a maximum of 0.2 percent of heat-damaged kernels of which not more than 0.1 percent may be heat-damaged (major), and may contain a maximum of 1.9 percent of mold-damaged kernels of which not more than 0.4 percent may be mold-damaged (major).

²Frost-damaged kernels (minor) and mold-damaged kernels (minor) shall not be scored against sound barley.

Note: Two-rowed barley that meets the requirements of U.S. No. 1 Choice to U.S. No. 3, inclusive, for the subclass Two-rowed Malting Barley shall be classified and graded according to the requirements in this section. Otherwise, it shall be graded according to the requirements in 26.208.

(w) *Test weight per bushel.* (1) Test weight per bushel shall be the weight per Winchester bushel (2,150.42 cubic inch capacity) as determined on a test portion of the original sample by an approved device in accordance with instructions in the Grain Inspection Manual. For the purpose of this paragraph "approved device" shall include the Fairbanks-Morse or Ohaus Test Weight Per Bushel apparatus and any other equipment that is approved by the Administrator as giving equivalent results.

(2) Test weight per bushel shall be stated in terms of whole and half pounds; a fraction of a pound when equal to or greater than one-half shall be stated as one-half and when less than one-half shall be disregarded; e.g., 51.1 through 51.4 shall be 51.0 and 51.5 through 51.9 shall be 51.5.

(x) *Thin barley.* Barley and other matter which may be removed from a test portion of the original sample by an approved device in accordance with procedures prescribed in the Grain Inspection Manual. For the purpose of this paragraph "approved device" shall be the 5 1/2/64 x 3/4 slotted-hole sieve for the class Two-rowed Barley and the 5/64 x 3/4 slotted-hole sieve for the class Six-rowed Barley.

(y) *Wild brome grasses.* Seeds of brome grasses such as *Bromus rigidus* which have harsh awns and which are injurious when fed to livestock.

(z) *Wild oats.* Seeds of *Avena fatua* and *A. sterilis*.

(aa) *Whole kernels.* Barley with 1/4 or less of the kernel removed.

SEE OFFICIAL STDS. FOR SPECIAL GRADES & GRADE REQUIREMENTS.

26.209 GRADE DESIGNATIONS.

The grade designation for barley shall include, in the following order: (a) The letters "U.S.," (b) the number of the grade or the words "Sample grade," (c) the special grade "Bright," if applicable (see 26.210 (b)), the name of the applicable subclass, or in the case of the class Barley, the name of the class; (5) the name of each applicable special grade (see 26.210) when applicable, the word "dockage" together with the percentage thereof; and (7) for malting barley, the words "Plump Barley" together with the applicable percentage range. If requested by the applicant, the grade designation for the class Barley shall include, following the word "Barley," the approximate percentage of each class and of black barley in the mixture, in order of predominance.

SEE OFFICIAL STDS. FOR SPECIAL GRADES & GRADE REQUIREMENTS.

*This chart is not the complete standards. For more details see the Handbook of the Official Standards.

rain Grading Charts**

WHEAT — ALL CLASSES*

Grade	Minimum test weight per bushel (pounds)		Percent maximum limits of —						Wheat of other classes ³	
	Hard Red Spring wheat or White Club wheat	All other classes and sub-classes	Heat damaged kernels	Damaged kernels (total) ¹	Foreign material	Shrunken and broken kernels	Defects (total) ²	Contrasting classes	Wheat of other classes (total) ⁴	
U.S. No. 1	58.0	60.0	0.2	2.0	0.5	3.0	3.0	1.0	3.0	
U.S. No. 2	57.0	58.0	0.2	4.0	1.0	5.0	5.0	2.0	5.0	
U.S. No. 3	55.0	56.0	0.5	7.0	2.0	8.0	8.0	3.0	10.0	
U.S. No. 4	53.0	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0	
U.S. No. 5	50.0	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0	

U.S. Sample grade . . .

U.S. sample grade shall be wheat which:

- (1) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or
- (2) Contains a quantity of smut so great that 1 or more of the grade requirements cannot be determined accurately; or
- (3) Contains 8 or more stones, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 3 or more castor beans (*Ricinus communis*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), or 2 or more rodent pellets, bird droppings, or an equivalent quantity of other animal filth per 1,000 g of wheat; or
- (4) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
- (5) Is heating or otherwise of distinctly low quality.

¹Includes heat-damaged kernels.

²Defects (total) include damaged kernels (total), foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit for defects.

³Unclassed wheat of any grade may contain not more than 10 percent of wheat of other classes.

⁴Includes contrasting classes.

26.302 (l) MOISTURE.

Moisture shall be ascertained by use of the equipment and procedure prescribed by the Federal Grain Insp. Service, United States Department of Agriculture.

26.302 (m) TEST WEIGHT PER BUSHEL.

Test weight per bushel shall be the weight per Winchester bushel as determined by the method prescribed by the USDA, as described in Chap. 11, GR Instruction 916.6, issued 11/10/69. Test weight per bushel shall be expressed to the nearest tenth of a pound.

26.301 CLASSES.

Wheat shall be divided into the following seven classes: Hard Red Spring Wheat, Durum Wheat, Hard Red Winter Wheat, Soft Red Winter Wheat, White Wheat, Mixed Wheat, and Unclassed Wheat.

26.301 (a) HARD RED SPRING WHEAT.

The class Hard Red Spring Wheat shall include all varieties of hard red spring wheat. This class shall be divided into the following three subclasses:

(a) *Dark Northern Spring Wheat.* The subclass Dark Northern Spring Wheat shall be Hard Red Spring Wheat with 75 percent or more of dark, hard and vitreous kernels.

(b) *Northern Spring Wheat.* The subclass Northern Spring Wheat shall be hard Red Spring Wheat with 25 percent or more but less than 75 percent of dark hard, and vitreous kernels.

(c) *Red Spring Wheat.* The subclass Red Spring Wheat shall be Hard Red Spring Wheat with less than 25 percent of dark, hard, and vitreous kernels.

26.301 (b) DURUM WHEAT.

The Class Durum Wheat shall include all varieties of white (amber) Durum Wheat. This class shall be divided into the following three subclasses:

(a) *Hard Amber Durum Wheat.* The subclass Hard Amber Durum Wheat shall be Durum Wheat with 75 percent or more of hard and vitreous kernels of amber color.

(b) *Amber Durum Wheat.* The subclass Amber Durum Wheat shall be Durum Wheat with 60 percent or more but less than 75 percent of hard and vitreous kernels of amber color.

(c) *Durum Wheat.* The subclass Durum Wheat shall be Durum Wheat with less than 60 percent of hard and vitreous kernels of amber color.

26.301 (c) HARD RED WINTER WHEAT.

The class Hard Red Winter Wheat shall include all varieties of hard red winter wheat. There are no subclasses in this class.

26.301 (d) SOFT RED WINTER WHEAT.

The class Soft Red Winter Wheat shall include all varieties of soft red winter wheat. There are no subclasses in this class.

26.301 (e) WHITE WHEAT.

The class White Wheat shall include all varieties of white wheat. This class shall be divided into the following four sub-classes:

(a) *Hard White Wheat.* The subclass Hard White Wheat shall be White Wheat with 75 percent or more of hard kernels and may contain not more than 10.0 percent of wheat of the white club varieties.

(b) *Soft White Wheat.* The subclass Soft White Wheat shall be White Wheat with less than 75 percent of hard kernels and may contain not more than 10.0 percent of wheat of the white club varieties.

(c) *White Club Wheat.* The subclass White Club Wheat shall be White Wheat consisting of wheat of the white club varieties and may contain not more than 10.0 percent of other white wheat.

(d) *Western White Wheat.* The subclass Western White Wheat shall be White Wheat containing more than 10.0 percent of wheat of the white club varieties and more than 10.0 percent of other white wheat.

26.301 (f) UNCLASSED WHEAT.

Any variety of wheat which is not classifiable under other criteria provided in the wheat standards. There are no subclasses in this class. This class shall include:

- (1) Red durum wheat.
- (2) Any wheat which is other than red or white in color.

26.301 (g) MIXED WHEAT.

The class Mixed Wheat shall be any mixture of wheat which consists of one of the following:

(a) Two or more classes each of which constitutes more than 10.0 percent of the mixture; or

(b) One class that constitutes more than 10.0 percent and two more other classes in combination that exceed 10.0 percent of the mixture; or

(c) Several classes none of which constitutes 10.0 percent or more of the mixture but which combined meet the definition for wheat.

MINIMUM ANALYTICAL PORTIONS RECOMMENDED FOR INSPECTION WORK

Determination for —	Wheat	Corn	Oats	Rye	Barley	Grain Sorg.	Flax-seed	Soybeans
	grams	grams	grams	grams	grams	grams	grams	grams
Blight					25			
Class	25	250			25	25		125 FM-free
Color and texture	15							
Ergot	250		250	250	250			
Foreign material ¹	50	1000	30	50	25	30		125
Garlic	1000		500	1000	500			
Heat damage	50	250	30	30	250	30	20	
Kind of grain	50	250	30	50	25	30	25	125
Non-grain sorghums						30		
Skinned and broken					25			
Smut	250		500	250	500	250		
Sound			30		25			
Stones and cinders	1000	1000	1000	1000	1000	1000	1000	1000
Total damaged	30	250		30	25	15	20	125 FM-free
Tanned					25			
Wheat brome grass					1000			
Wild oats			30		25			
Splits								125 FM-free

¹Refers to additional foreign material and other grains in Grain Sorghums.

²Weight before pearling.

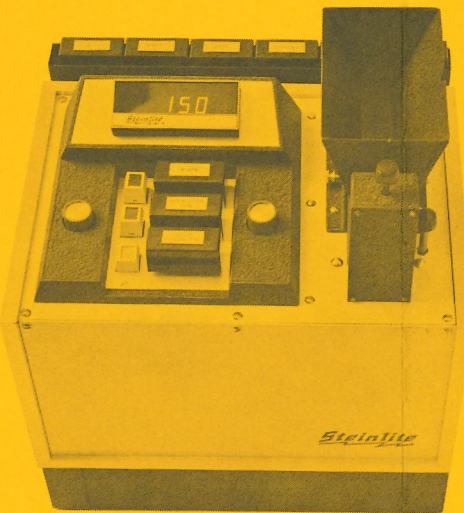
RECOMMENDED SIEVES

DETERMINATION FOR—	SIEVE USED	
	Size or Dimension of Perforation	Type of Perforation
Shrunken and Broken Kernels in Wheat	0.064 x 3/8"	Slotted
Cracked Corn and Foreign Material in Corn	12/64"	Round Hole
Sizing Barley — Six-rowed	5/64 x 3/4"	Slotted
Sizing Barley — Two-rowed	5 1/2/64 x 3/4"	Slotted
Thin Oats	0.064 x 3/8"	Slotted
Fine Seeds in Oats	8/64" TRI on 5/64" I.C.	Triangular
Pump and Thin Rye	0.064 x 3/8"	Slotted
Cracked Kernels and Foreign Material and Foreign Grain in Grain Sorghums	8/64" TRI on 5/64" I.C.	Triangular
"Splits" in Soybeans*	8/64, 9/64 or 10/64 x 3/4"	Slotted
Foreign material in Soybeans	8/64"	Round
Pump Barley	6/64 x 3/4"	Slotted

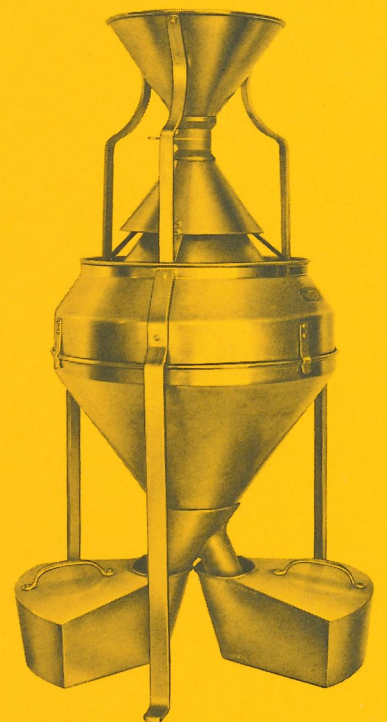
*To determine "Splits" in Soybeans the sieves are used only to facilitate the test and must be supplemented by hand picking.

**Charts taken from U.S.D.A. Grain Standards.

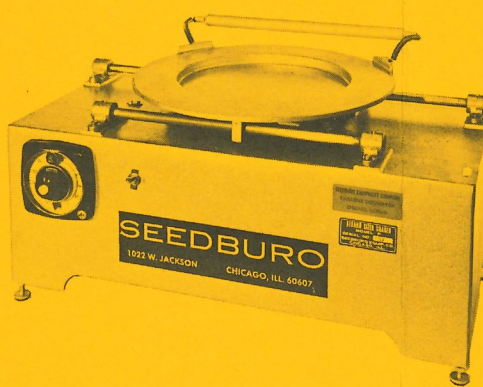
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