Approved _____
Date

MINUTES OF THE Sebate COMMITTEE ON Agriculture.

The meeting was called to order by Senator Allen at
Chairperson

10:10 a.m./p.m. on January 27, 1987 in room 423-S of the Capitol.

All members were present except: Senator Arasmith (excused)

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

Conferees appearing before the committee: Alan Alderson, Western Retail Implement and Hardware Association
Jim Maag, Kansas Bankers Association
Dr. Charles Deyoe, Director, International Grains Program

Senator Allen called the Committee to order and called attention to Committee minutes for approval.

Senator Thiessen made a motion the minutes for January 21 be approved; Senator Gordon seconded the motion. Motion carried.

The Chairman called for requests for bills from organizations present. He then called on Alan Alderson.

Mr. Alderson gave copies (attachment 1) of proposed amendments to legislation concerning contracts to maintain stocks of farm equipment by retailers.

Senator Montgomery made a motion the Committee introduce this legislation as a Committee bill. Senator Gordon seconded the motion. Motion carried.

The Chairman called on Jim Maag to present a request for a bill.

Mr. Maag requested the Committee accept the request for legislation for central filing of effective financing statements (attachment 2).

Senator Karr made a motion the Committee introduce this proposed legislation. Senator Gannon seconded the motion. Motion carried.

The Chairman announced the hearing for this proposed legislation would be held on February 4 and February 5. He then welcomed Dr. Charles Deyoe to update the Committee on the International Grains Program.

Dr. Deyoe discussed future plans and activities of the International Grains Program; he gave handouts which explained in detail the activities he discussed (attachment 3).

In answer to Committee questions, Dr. Deyoe explained that a staff vacancy had not been filled in order to reduce the budget of the department by 3.8%. He also stressed the need to have the budget reinstated so that all work of the department could be carried out. Dr. Deyoe stated that part of the problems with dirt in grains is because the standards of other countries vary from the U.S. Standards. He suggested that maybe we need to change our definitions for grades and dockages. It was suggested that a lot of areas are gaining from the Grains Program and that more should be helping finance the Grains Program.

Senator Allen thanked Dr. Deyoe for his time and effort to inform the Committee about the International Grains Program. He then adjourned the Committee at 11:00 a.m.

GUEST LIST

COMMITTEE: SENATE AGRICULTURE DATE: January 27, 1987

NAME (PLEASE PRINT)	ADDRESS	COMPANY/ORGANIZATION
Jim Maag	Topeka	KBA
Chuck Stones	Topeka	KS Bankers Assoc.
Kenneth M. Wilke	Topeka	KSBA
Julie Andsager	Topeka	Ks. Cooperative Council
Alan Steppat	Topeka	
Brent Anderson	Wichita	Secretary of State
Charles Dreyer	Manhattan	Kansas State University
Leah M Kee	Topeka	Kansas Livestock Assoc.
Ivan W. Wyatt	McPherson	Kans Farmers Union
Chris Wilson	Hutchinson	KS Grain & Feed

_____ BILL NO. _____

By

AN ACT concerning contracts to maintain stocks of farm equipment by retailers; amending K.S.A. 16-1002 and 16-1003; and repealing the existing sections.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF KANSAS:

Section 1. K.S.A. 16-1002 is hereby amended to read as follows: 16-1002. (a) Whenever any person, firm or corporation engaged in the business of selling and retailing farm implements, machinery, attachments or repair parts therefor enters into a written or parol contract sales agreement or security agreement whereby such retailer agrees to maintain a stock of parts or complete or whole implements, machines or attachments with any wholesaler, manufacturer or distributor of such implements, machinery, attachments or repair parts, and either such wholesaler, manufacturer or distributor or the retailer desires to cancel or discontinue the contract, such wholesaler, manufacturer or distributor shall pay to such retailer or credit to such retailer's account, if the retailer has outstanding any sums owing the wholesaler, manufacturer or distributor, unless the retailer should desire to keep such merchandise, a sum equal to one hundred percent (100%) of the net cost of all new unused, undamaged, complete farm implements, machinery and attachments and eighty-five percent (85%) of the current net prices on new, unused, undamaged repair parts, including superseded parts, which implements, machinery, attachments and parts had previously been purchased from such wholesaler manufacturer or distributor or transferee of such wholesaler, manufacturer or distributor if the transferee acquired substantially all of the assets of such wholesaler, manufacturer or distributor, and held by such retailer on the date of the cancellation or discontinuance of such contract. The wholesaler, manufacturer, or distributor shall also pay such retailer a sum equal to five percent (5%) of the current net price of all parts returned for the handling, packing and loading of such parts for return to the wholesaler, manufacturer or distributor, except that such five percent (5%) shall not be paid or credited to the retailer if the wholesaler, manufacturer or

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distributor elects to perform the handling, packing, loading and transportation of the parts itself. Upon the payment or allowance of credit to the retailer's account of the sum required by this section, the title to such farm, implements, machinery, attachments and repair parts therefor shall pass to the manufacturer, wholesaler or distributor making such payment, and such manufacturer, wholesaler or distributor shall be entitled to the possession of such farm implements, machinery attachments or repair parts. All payments or allowances of credit due retailers shall be paid or credited within sixty (60) days after the return of implements, machinery, attachments or repair parts. After the sixty (60) days, all payments or allowances shall include interest at the rate prescribed by K.S.A. 16-204, and amendments thereto.

(b) The provisions of this section relating to a retailer's right to cancel or discontinue a contract and receive payment for implements, machines, attachments and parts returned shall apply to all contracts now in effect which have no expiration date and are a continuing contract, and all other contracts entered into or renewed after July 1, 1976. The provisions for a retailer to receive payment for implements, machines, attachments and parts returned shall apply only to implements, machines, attachments and parts purchased after the effective date of this act. Any contract in force and effect on July 1, 1976, which by its own terms will terminate on a date subsequent thereto shall be governed by the law as it existed prior to this act.

(c) The provision of this section shall not be construed to affect in any way any security interest which the wholesaler, manufacturer or distributor may have in the inventory of the retailer, and any repurchase hereunder shall not be subject to the provisions of the bulk sales law.

Sec. 2. K.S.A. 16-1003 is hereby amended to read as follows: 16-1003. The provisions of this act shall not require the repurchase from a retailer of: (a) Any repair part which has a limited storage life or is otherwise subject to deterioration, such as rubber items, gaskets or batteries; (b) any repair party which is in a broken or damaged package; (c) any single repair part which is priced as a set of two (2) or more items; (d) any repair part which because of its condition is not resalable as a new part without repackaging or reconditioning; (e) any farm implements, machinery,

attachments or repair parts for which the retailer is unable to furnish evidence, satisfactory to the wholesaler, manufacturer or distributor, of clear title, free and clear of all claims, liens and encumbrances; (f) any farm implements, machinery, attachments or repair parts which the retailer desires to keep, provided the retailer has a contractual right to do so; (g) any farm implements, machinery and attachments which are not current models or which are not in new, unused, undamaged, complete condition; (h) any repair parts which are not in new, unused, undamaged condition; (i) any farm implements, machinery or attachments which were purchased prior to the beginning of the twenty-four (24) month period immediately preceding the date of notification of termination; (j) any farm implements, machinery, attachments or repair parts which were ordered by retailer on or after the date of notification of termination; or (k) any farm implements, machinery, attachments or repair parts which were acquired by retailer from any source other than the wholesaler, manufacturer or distributor or transferee of such wholesaler, manufacturer or distributor.

Sec. 3 K.S.A. 16-1002 and 16-1003 are hereby repealed.

Sec. 4. The act shall take effect and be in force from and after its publication in the statute book.

PROPOSED LEGISLATION FOR CENTRAL FILING OF EFFECTIVE FINANCING STATEMENTS

AN ACT establishing a system for effective financing statements; amending K.S.A. 84-9-307 and K.S.A. 1986 Supp. 84-9-401.

Be it enacted by the Legislature of the State of Kansas:

Section 1. Name. This Act shall be known as the Kansas Act for Filing of Effective Financing Statements.

Section 2. Purpose. The purpose of this Act is to establish a system for the central filing of effective financing statements for certification by the Secretary of Agriculture pursuant to Section 1324 of the Food Security Act of 1985, P.L. 99-198, and to enact conforming amendments to Article 9 of the Kansas Uniform Commercial Code.

Section 3. Definitions. For purposes of this Act, unless the context otherwise requires, the following definitions shall apply:

(a) "Buyer in the ordinary course of business" means a person who, in the ordinary course of business, buys farm products from a person engaged in farming operations who is in the business of selling farm products.

(b) "Central filing system" means a system for filing effective financing statements and related statements as provided by this Act.

(c) "Commission merchant" means any person engaged in the business of receiving any farm product for sale, on commission, or for or on behalf of another person.

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(d) "Crop year" means

(1) for a crop grown in soil, the calendar year in which it is harvested or to be harvested;

(2) for animals, the calendar year in which they are born or acquired;

(3) for poultry or eggs, the calendar year in which they are sold or to be sold.

(e) "Debtor" means a person who owns a product and subjects it to a security interest, whether or not that person owes a debt to the secured party.

(f) "Effective financing statement" means a statement that

(1) is an original or reproduced copy thereof;

(2) is signed and filed with the secretary of state by the secured party;

(3) is signed by the debtor;

(4) contains

(A) The name and address of the secured party;

(B) The name and address of the debtor;

(C) The social security number of the debtor or, in the case of a debtor doing business other than as an individual, the Internal Revenue Service Taxpayer Identification Number of such debtor;

(D) A description of the farm product, by category included in subsection (g), subject to the security interest created by the debtor, including: the amount of such product where applicable; a reasonable description of the property, including each county in Kansas where the farm product is

produced or to be produced; and the crop year, unless every crop of the farm product for the duration of the effective financing statement is subject to the particular security interest;

(E) Further details of the farm product subject to the security interest if needed to distinguish it from other such product owned by the same person but not subject to the particular security interest; and

(F) Such other additional information as the secretary of state may require by regulation to comply with Section 1324 of the Food Security Act of 1985, P.L. 99-198, and amendments thereto, or to more effectively carry out duties under this Act.

(5) shall be amended in writing, within three (3) months, similarly signed and filed, to reflect material changes;

(6) remains effective for a period of five (5) years from the date of filing, subject to extensions for additional periods of five (5) years each by filing a continuation statement within six (6) months before the expiration of the current five-year period;

(7) lapses on either the expiration of the effective period of the statement or the filing of a notice of termination signed by the secured party that the statement has lapsed, whichever occurs first;

(8) may apply to one or more debtors;

(9) may for any given debtor or debtors, cover more than one farm product located in more than one county;

(10) is accompanied by the requisite filing fee set pursuant to Section 19 of this Act;

(11) is on a form prescribed by or acceptable to the secretary of state; and

(12) substantially complies with the requirements of this subparagraph even though it contains minor errors that are not seriously misleading.

(g) "Farm product" means an agricultural commodity or species of livestock used or produced in farming operations, or a product of such crop or livestock in its unmanufactured state, that is in the possession of a person engaged in farming operations and which is identified in an effective financial statement as (1) apples; (2) barley; (3) cattle and calves; (4) chicken; (5) corn; (6) cotton; (7) eggs; (8) fish; (9) fur bearing animals; (10) grapes; (11) hay; (12) hogs; (13) honey; (14) horses; (15) legumes; (16) milk; (17) oats; (18) pecans; (19) popcorn; (20) potatoes; (21) rye; (22) seed alfalfa; (23) seed corn; (24) seed fescue; (25) seed lespedoza; (26) seed sorghum; (27) seed soybeans; (28) seed wheat; (29) sheep and lambs; (30) silage; (31) sorghum grain; (32) soybeans; (33) sugar beets; (34) sunflower seeds; (35) sweet corn; (36) tomatoes; (37) trees; (38) triticale; (39) turkeys; (40) vetch; (41) walnuts; (42) watermelon; (43) wheat; and (44) wool; and such additional products as the secretary of state may by regulation designate as farm products.

(h) "Person" means any individual, partnership, corporation, trust, or any other business entity.

(i) "Receipt" and other forms of the word "receive" for purposes of this Act and of the Food Security Act of 1985, P.L. 99-198, and amendments thereto, means actual receipt or presumed receipt, if applicable, whichever is earlier.

(j) "Registrant" means any buyer of farm products, commission merchant or selling agent, who has registered with the Kansas secretary of state pursuant to Section 5.

(k) "Security interest" means an interest in farm products that secures payment or performance of an obligation.

(l) "Selling agent" means any person, other than a commission merchant, who is engaged in the business of negotiating the sale and purchase of any farm product on behalf of a person engaged in farming operations.

Section 4. Central Filing System. The secretary of state shall design and implement a central filing system whereby

(a) Effective financing statements may be filed with the office of the secretary of state.

(b) The secretary of state records the date and hour of the filing of such statements.

(c) The secretary of state assigns a file number to each such statement.

(d) The secretary of state compiles all such statements into a master list

(1) organized according to farm products as enumerated in subsection (g) of Section 3.

(2) arranged within each such product--

(A) in alphabetical order according to the last name of the individual debtors, or in the case of debtors doing business other than as individuals, the first word in the name of such debtor;

(B) in numerical order according to the social security number of the individual debtors or, in the case of debtors doing business other than as individuals, the Internal Revenue Service taxpayer identification number of such debtor;

(C) geographically by county of production; and

(D) by crop year;

(3) containing the information included on the effective financing statement defined in subsection (f) of Section 3.

Section 5. Registration. The secretary of state shall maintain a list of all buyers of farm products, commission merchants, and selling agents who register under this Act, as follows:

(a) Each buyer, commission merchant, or selling agent who registers with the secretary of state shall annually provide the secretary of state a statement providing:

(1) the name and address of the buyer, commission merchant, or selling agent;

(2) the interest of such buyer, commission merchant, or selling agent in receiving the lists described in Section 7;

(3) the farm products in which such buyer, commission merchant, or selling agent has an interest, limited by county of production or crop year if desired;

(4) the desired arrangement of the list, whether alphabetical by debtor or numerical by debtor's social security number or, if the debtor is doing business other than as an individual, by the debtor's Internal Revenue Service taxpayer identification number.

(5) unless the list is desired in written or printed form, a statement of the desired alternate form of transmittal selected from among those forms provided by regulation of the secretary of state.

(b) The information shall be provided to the secretary of state on a form approved by or acceptable to the secretary of state.

(c) The Secretary of state shall record the date and hour of the filing of such statement or amendment.

(d) A fee for submission of a statment or amendment as determined as provided by Section 18 shall be remitted to the secretary of state.

(e) A statement or amendment shall be deemed to be in compliance with the requirements of this section even though it contains minor errors that are not seriously misleading.

Section 6. Effectiveness of Registration.

(a) Registration and an amendment of registration shall be effective on the date and hour accepted by the secretary of state.

(b) Registration shall be effective for one (1) year from the date of acceptance by the secretary of state.

(c) Amendment shall not extend the effectiveness of the registration.

Section 7. Quarterly Lists.

(a) The secretary of state shall quarterly, commencing on December 15, 1987, distribute to registrants a copy of those portions of the master list described in Section 4, as of the first day of the month of mailing or such later date as shall be stated on the quarterly list, that cover the farm products in which such registrant has registered an interest.

(b) Registrants shall be included in a quarterly mailing if their registration is effective on or before the first day of the month of mailing.

(c) If a registration becomes effective more than fifteen (15) days prior to the next scheduled mailing of quarterly lists and a copy of those portions of the master list described in Section 4 covering the farm products in which such registrant has registered an interest were not sent to the registrant in the immediately preceding quarterly mailing, the secretary of state shall prepare and mail to the registrant an interim list comprised of a copy of those portions of the master list in which such registrant has registered an interest.

(d) Mailings shall be by United States mail, first class, postage prepaid.

(e) Mailed portions of the master list shall be presumed to have been received by the registrant five (5) days after the date of mailing.

(f) The secretary of state shall maintain a record of the registrants and contents of lists mailed to registrants for a period of five (5) years.

Section 8. Oral Confirmations.

(a) On and after December 20, 1987, the secretary of state shall furnish oral confirmation of any effective financing statement on request, followed by written confirmation, to any buyer of farm products buying from a debtor, or commission merchant or selling agent selling for a seller covered by such statement.

(b) Requests for oral confirmation shall be accepted at the office of the secretary of state during regular business hours and between 8:00 a.m. and 5:00 p.m. on Saturdays, except those Saturdays which follow an official state holiday.

(c) Oral reply will be available not later than the regular business day following the day on which the query is received, at or before the time of day when it was received.

(d) Written confirmation shall be given by the secretary of state by United States mail, first class postage prepaid, not later than two (2) full business days following the availability of oral reply.

(e) The secretary of state shall assign and identify a number to each inquiry made pursuant to this section. Such number shall be given to the inquiring party at the time of the oral response and shall be included in the written confirmation. The secretary of state shall maintain a record of inquiries made under this section for a period of five (5) years, identifying

the subject of the inquiry, who made the inquiry, the date of the inquiry, and the dates and content of oral and written responses.

(f) A fee for oral request and confirmation determined as provided by Section 18 shall be remitted to the secretary of state.

Section 9. Name of Debtor. The name of debtor on a statement filed with the secretary of state and on a list created by the secretary of state shall appear as follows:

(1) in the case of a natural person, the surname (last name or family name) must appear first; and

(2) in the case of a corporation or other entity not a natural person, the name must appear beginning with the first word or character not an article or punctuation mark.

Section 10. Continuation Statements. A continuation statement may be filed by the secured party within six (6) months prior to the expiration of the five-year period specified in subsection (f)(6) of Section 3 of this Act. Any such continuation statement shall be signed by the secured party and the debtor or debtors, identify the statement by file number, and state that the statement is still effective. Upon timely filing of the continuation statement, the effectiveness of the statement shall be continued for five (5) years after the last date to which the filing was effective, whereupon it shall lapse unless another continuation statement is filed prior to such lapse. If an effective financing statement exists at the time insolvency proceedings are commenced by or against the debtor, the effective financing statement shall remain effective until termination of

the insolvency proceedings and thereafter for a period of sixty (60) days or until the expiration of the five-year period, whichever occurs later. Succeeding continuation statements may be filed in the same manner to continue the effectiveness of the original statement. A fee for the filing of a continuation statement determined as provided by Section 18 shall be remitted to the secretary of state.

Section 11. Amendments of Effective Financing Statements. Amendments of effective financing statements shall be signed by the secured party and the debtor or debtors, identify the effective financing statement subject to amendment by file number, and state the manner in which the statement is amended. An amendment does not extend the period of effectiveness of the effective financing statement. The amendment is effective from the filing date of the amendment. A fee for the filing of an amendment determined as provided by Section 18 shall be remitted to the secretary of state.

Section 12. Requests for Termination. Whenever there is no outstanding secured obligation and no commitment to make advances, incur obligations, or otherwise give value, the secured party must, on written demand by the debtor or debtors, file with the secretary of state notice of termination of the effective financing statement and provide notice to the debtor of such filing.

Section 13. Termination Statement. The notice of termination of effective financing statement shall be signed by the secured party, identify the effective financing statement to be

terminated by file number, and state that the effective financing statement is to be removed from the master list. The termination shall be effective as of the date and hour of filing its notice with the secretary of state. The secretary of state shall not charge a fee for the filing of a termination statement.

Section 14. Procedure for Filing Continuation Statements, Amendments, and Termination Statements. The secretary of state shall accept continuation statements, amendments, and termination statements for filing during regular business hours. The secretary of state shall record the date and hour of the filing of such statements and shall update the master list to reflect such statements. If the secretary of state receives the statement in duplicate, one copy of the statement shall be returned to the filing party stamped to show the time of receipt thereof. Termination statements, amendments, and continuation statements shall be submitted for filing on forms approved by or acceptable to the secretary of state.

Section 15. Buyers Taking Subject to Security Interest. Whether a buyer in the ordinary course of business buying farm products covered by the central filing system established pursuant to this Act takes subject to a security interest is determined by Section 1324 of the Foods Security Act of 1985, P.L. 99-198, and amendments thereto. Notwithstanding the provisions of this Act, effective financing statements and statements of registration filed prior to December 20, 1987 shall be deemed effective as of December 20, 1987 for the purposes of such determination.

Section 16. Certification. The Secretary of State shall request certification of the central filing system established pursuant to this Act by the Secretary of Agriculture, as provided by Section 1324 of the Food Security Act of 1985, P.L. 99-198, and amendments thereto, and the regulations promulgated thereunder. The Secretary of State shall take all steps necessary to obtain and maintain certification.

Section 17. Liability. Except with respect to willful misconduct, the Secretary of State and his or her designees, agents, and employees are immune from liability for damages resulting from errors and omissions with respect to actions taken pursuant to this Act.

Section 18. Fees. The Secretary of State by regulation shall establish the fees for filings, oral requests and confirmations, and registrations under this Act.

Section 19. Disposition of Fees Collected Pursuant to This Act. Funds collected by the Secretary of State pursuant to this Act shall be remitted to the State Treasurer at least monthly. The State Treasurer shall deposit such funds as provided by K.S.A. 1986 Supp. 84-9-413.

Section 20. Regulations. The Secretary of State is hereby authorized to adopt such rules and regulations as are necessary to carry out the provisions of this Act.

Section 21. K.S.A. 84-9-307 is hereby amended to read as follows: 84-9-307. (1) A buyer in ordinary course of business (subseciton (9) of section 84-1-201) other than a person engaged in farming operations takes free of a security interest created

by his seller even though the security interest is perfected and even though the security interest is perfected and even though the buyer knows of its existence. For purposes of this section only, "farm products" does not include milk, cream and eggs.

(2) A buyer other than a buyer in ordinary course of business (subsection (1) of this section) takes free of a security interest to the extent that it secures future advances made after the secured party acquires knowledge of the purchase, or more than forty-five (45) days after the purchase, whichever first occurs, unless made pursuant to a commitment entered into without knowledge of the purchase and before the expiration of the forty-five day period.

(3) Notwithstanding subsection (1), a buyer of farm products may take free of or subject to a security interest to the extent subsection (1) is preempted by Section 1324 of the Food Security Act of 1985, P.L. 99-198, and amendments thereto.

Section 22. K.S.A. 1986 Supp. 84-9-401 is hereby amended to read as follows: 84-9-401. (1) The proper place to file in order to perfect a security interest is as follows:

(a) When the collateral is consumer goods, then in the office of the register of deeds in the county of the debtor's residence or if the debtor is not a resident of this state then in the office of the register of deeds in the county where the goods are kept;

(b) when the collateral is timber to be cut or is minerals or the like (including oil and gas) or accounts subject to subsection (5) of K.S.A. 84-9-103 and amendments thereto, or when

the financing statement is filed as a fixture filing (K.S.A. 84-9-313 and amendments thereto) and the collateral is goods which are or are to become fixtures, then in the office where a mortgage on the real estate would be filed or recorded;

(c) in all other cases, in the office of the secretary of state.

(2) A filing which is made in good faith in an improper place or not in all of the places required by this section is nevertheless effective with regard to collateral covered by the financing statement against any person who has knowledge of the contents of such financing statement.

(3) A filing which is made in the proper place in this state continues effective even though the debtor's residence or place of business or the location of the collateral or its use, whichever controlled the original filing, is thereafter changed.

(4) The rules stated in K.S.A. 84-9-103 and amendments thereto determine whether filing is necessary in this state.

(5) Notwithstanding the preceding subsections, and subject to subsection (3) of K.S.A. 84-9-302 and amendments thereto, the proper place to file in order to perfect a security interest in collateral, including fixtures, of a transmitting utility is the office of the secretary of state. This filing constitutes a fixture filing (K.S.A. 84-9-313 and amendments thereto) as to the collateral described therein which is or is to become fixtures.

(6) For the purposes of this seciton, the residence of an organization is its place of business if it has one or its chief executive office if it has more than one place of business.

(7) The central filing of effective financing statements pursuant to Section 1324 of the Food Security Act of 1985, P.L. 99-198, and amendments thereto, is governed by the Kansas Act for Filing of Effective Financing Statements and amendments thereto, and not by this Article.

Section 23. K.S.A. 84-9-307 and K.S.A. 1986 Supp. 84-9-401 are hereby repealed.

Section 24. This Act shall take effect and be in force from and after November 1, 1987 and its publication in the statute book.

MESSAGE FROM THE DIRECTOR

The scope of activities of the International Grains Program has increased steadily since the program was initiated by the Kansas Legislature in 1978. Our goal from the beginning has been to provide a meaningful and applicable educational experience to individuals and organizations who have sought information through the IGP.

Initially the International Grains Program offered short courses in flour milling and feed manufacturing technology. At the present time IGP offers those courses as well as new short courses and seminars in grain marketing, grain grading, and grain storage and handling.

In 1986 the International Grains Program presented 28 short courses, workshops, and seminars abroad and at the IGP Center in Manhattan as support activity for the marketing of U.S. grain and grain products. Participants were top-level administrators, grain buyers, marketing specialists, production management personnel, and government representatives.

Also in 1986, IGP was the host for 25 grains teams and delegations, totaling more than 130 people plus another 60 individual visitors and speakers concerned in some manner with grain processing, storage, and/or purchasing. IGP faculty also participated in foreign grain quality tours and seminars.

This report includes appendices with material from several short courses, seminars and programs presented to IGP visitors. The appendices also contain examples of trip reports made by the IGP faculty traveling throughout the world to help promote the use of U.S. corn, sorghum, soybeans and wheat and their products.

Programs promoting U.S. wheat, corn, sorghum, and soybeans presented by IGP have been sponsored by various organizations such as U.S. Wheat Associates, the U.S. Feed Grains Council, and the American Soybean Association. Additional support came from the Foreign Agricultural Service of the U.S. Department of Agriculture, the Kansas Corn, Sorghum, Soybean and Wheat Commissions, and the Kansas State Board of Agriculture.

All supporters of the International Grains Program can take pride in their contributions and their accomplishment. International visitors to IGP receive new insight into the efforts of U.S. farmers to produce, store and market grains worldwide. Supporters of IGP can also take credit for contributing to the participants' knowledge of the United States, its land and its people. Through these interactions with international visitors, the IGP enhances the potential for increased sales of U.S. grains in global markets.

Charles W. Deyoe, Director

attachment 3
Senate agriculture 1-27-86

REPORT OF ACTIVITIES
1986

INTERNATIONAL GRAINS PROGRAM
MANHATTAN, KANSAS U.S.A. 66506

attachment 3
Senate agriculture
1-27-86

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Charles W. Deyoe

Charles W. Deyoe, Director

NEW PERSONNEL

Dr. Roger T. Johnson joined the International Grains Program on October 1 as Associate Director. He comes to IGP after seven years as Associate Editor of "Milling and Baking News" and "World Grain." His areas of expertise include market analysis and economic outlook, world grain trade and federal farm policy. Dr. Johnson has a B.A. degree from Oberlin College, and M.A. and Ph.D. degrees from the University of Wisconsin.

****

Dr. Ulysses Acasio joined the IGP faculty July 1. He is an agricultural engineer specializing in the area of grain storage and handling. Dr. Acasio comes to IGP after two years in Central and South America. He has a B.S. in Agriculture from Mindanao Institute of Technology, 1959; M.S., Agriculture Engineering, University of the Philippines, 1972; Ph.D., Department of Grain Science, Kansas State University, 1979.


GREENLAND
ICELAND
US
CANADA
UNITED STATES
MEXICO
Atlantic
Ocean
Pacific
Ocean
BRAZIL
PERU
BOLIVIA
PARAGUAY
CHILE
ARGENTINA
URUGUAY
COLOMBIA
ECUADOR
VENEZUELA
GUYANA
SURINAM
FRENCH GUIANA
TRINIDAD AND TOBAGO
BARBADOS
DOMINICAN REPUBLIC
PUERTO RICO
JAMAICA
CUBA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
GUATEMALA
EL SALVADOR
NORWAY
SWEDEN
FINLAND
UNION OF SOVIET SOCIALIST REPUBLICS
IRELAND
UNITED KINGDOM
DENMARK
POLAND
FRANCE
PORTUGAL
SPAIN
TURKEY
GREECE
MOROCCO
TUNISIA
ALGERIA
LIBYA
EGYPT
MAURITANIA
MALI
NIGER
CHAD
SUDAN
NIGERIA
ETHIOPIA
SOMALIA
ZAIRE
ANGOLA
ZAMBIA
SOUTH AFRICA
SOUTHERN RHODESIA
MOZAMBIQUE
SWAZILAND
LESOTHO
MADAGASCAR
Atlantic
Ocean
Indian
Ocean
MONGOLIA
PEOPLE'S REPUBLIC OF CHINA
KOREA
JAPAN
Pacific
Ocean
IRAN
IRAQ
SAUDI ARABIA
AFGHANISTAN
PAKISTAN
INDIA
NEPAL
BURMA
THAILAND
VIETNAM
CAMBODIA
PHILIPPINES
INDONESIA
MALAYSIA
AUSTRALIA
NEW ZEALAND

1986 PARTICIPANTS AND VISITORS CAME FROM THESE COUNTRIES

Australia
Bangladesh
Barbados
Bolivia
Brazil
Cameroon
Canada
Chile
Costa Rica
Colombia
Curacao
Cyprus
Dominican Republic
Ecuador
Egypt
El Salvador
German Democratic Republic
Great Britain
Grenada
Guatemala
Haiti
Honduras
Hungary
India
Indonesia
Israel
Jamaica
Japan
Jordan
Kenya
Korea
Lethsotho
Malta
Mexico
Morocco
Netherlands
Nigeria
Pakistan
Peru
Philippines
Peoples Republic of China
Portugal
Republic of China
Romania
Spain
Sri Lanka
Sudan
Syria
Thailand
Turkey
Uganda
United States
Venezuela
Yugoslavia
Zimbabwe

Total = 55

TABLE OF CONTENTS

1986 ACTIVITY SUMMARY

IGP SHORT COURSES

FLOUR MILLING

IGP flour milling short courses are designed to provide instruction in operative milling at basic and advanced levels for individuals with some experience in the milling industry. The courses provide a comprehensive insight into the complexities of flour milling and into the best ways of using U.S. grains.

U.S. GRAIN MARKETING SYSTEM

The complexity of the U.S. grain marketing system in all its facets is examined in order to increase the understanding of how the system operates to the benefit of buyer and seller alike.

FEED MANUFACTURING

Feed courses are designed to provide information and training in modern feed manufacturing technology for industry personnel. Course content can be specifically tailored to fit the needs of particular groups.

MILL MANAGEMENT

The purpose of this short course is to bring mill managers up to date on the latest, state-of-the-art equipment, as well as to provide information on the latest marketing techniques and the most innovative methods of controlling costs.

U.S. GRAIN MARKETING SEMINARS

These periodic seminars are aimed at people who have the responsibility for buying or selling U.S. grain in the world market, or who have the responsibility for analyzing and monitoring U.S. and global grain markets. Participants, including executives in agribusiness, producers, farm lenders and government officials, gain greater insight into the forces at work in the global grain economy and the prospects for the years ahead.

Short Courses at Manhattan

Purpose: To establish a link between U.S. and international grain buyers and users through refresher courses, presentations of new technology and field trips. To promote understanding of terminology and of the milling properties of U.S. food and feed grains, feed manufacturing processes and the U.S. grain marketing system. To provide personal contacts and to encourage opportunities for continued exchange of information in the future.

****

April 7-18. U.S. Grain Marketing System. Participants came from Bangladesh, Bolivia, China, Costa Rica, Colombia, Ecuador, Guatemala, Indonesia, Israel, Jamaica, South Korea, Mexico, The Netherlands, Pakistan, Peru, Spain, Sri Lanka, and the United States. This short course was presented in English and translated into Spanish.

****

April 21- May 2. Grain Storage, Drying, and Sanitation. Participants were from Egypt, Cyprus, Portugal, Peoples Republic of China and The Sudan. This course included Arabic translation.

****

May 12 - 23. Advanced Flour Milling. With twelve Brazilians attending this short course, English lectures were translated into Portuguese. Other participants came from Malta and Peoples Republic of China.

****

June 2-13. Advanced Flour Milling. Participants were from The Dominican Republic, Haiti, India, Indonesia, Jamaica, South Korea, Leeward-Windward Islands, Peoples Republic of China and The Republic of China (Taiwan).

****

August 4-15. Basic Flour Milling. Participants were from Egypt, The Sudan, Syria, Lethsotho, Romania, Yugoslavia, and India.

****

September 8 -19. Mill Management. Participants came from Bolivia, Colombia, Chile, Ecuador, Peru, Barbados, Haiti, Jamaica, Grenada, Curacao, El Salvador, Honduras, Guatemala, The Philippines, and Spain. The course was translated into Spanish. Some individuals were sponsored by U.S. Wheat Associates while others were self-sponsored.

****

September 22-26. Grain Grading. Participants came from Cyprus, Egypt, India, The Sudan, Turkey, and Brazil, and interpreters translated the sessions into Portuguese and Arabic. U.S. Wheat Associates was the sponsor.

****

September 29-October 10. Feed Manufacturing. Participants were sponsored by U.S. Feed Grains Council or were self-sponsored, and came from Indonesia, South Korea, Republic of China (Taiwan), Hungary, Mexico, Nigeria, Yugoslavia, Cameroon, and Turkey.

****

September 29-October 31. IGP conducted a special short course on a wide range of topics for participants from Pakistan, Uganda and USAID-Cairo. The course included computer instruction, marketing, milling, and storage, and was sponsored by USDA/OICD and by the Agricultural Cooperative for Development International.

****

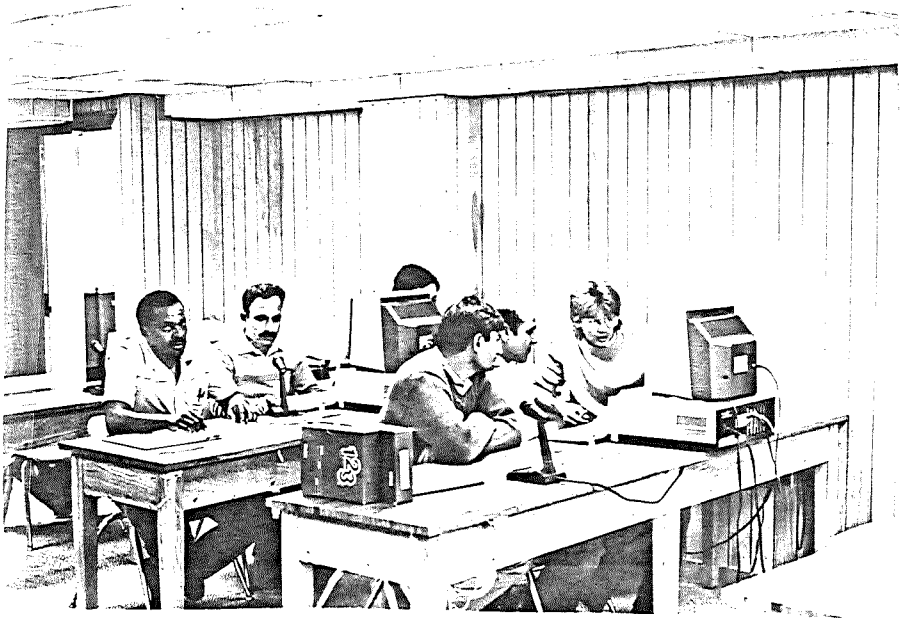
December 16-17. Grain Export Marketing Seminar.

IGP WAS THE HOST FOR THE FOLLOWING TRADE TEAMS AND DELEGATIONS IN 1986

January 10	Beijing Feedstuff Corp (Peoples Republic of China), sponsored by MEC Company.
January 28	Indian Study Applications Delegation, escorted by the International Agriculture Program.
February 4	Peoples Republic of China, Henan Agricultural University; Jiang Jian Ping, Shen Li, Zhu Yang Da, Wang Zhen Xun.
March 7	Korean Corn Processing Team; Bong Hee Lee, Duk Rim Lee, Chou Chan Kim, Bong Sup Chun, Chang Kwan Won, and Bong Ryol Min. Sponsored by U.S. Feed Grains Council.
March 10	Japanese Trade Team: M. Syoji, Y. Satoh, H. Ban, and T. Miyauchi. Sponsored by Agrex.
April 21	Iraqi Poultry Management Team: Kahtan Abdul Hussain Omran, Mufeed Sada Mandoo, O-Rahman Mohamed Abdullah, Tharwat Abdullah Abdul Rahman, Fadhil Saleem Sadik, Aboul Khalig Hussain, and Hussan Saleh Mohamed. Escorted by Kansas State Board of Agriculture.
May 1	Taiwan Beef Study Team: T. L. Yang, Edward Chiang, and Clover Chang. Sponsored by U.S. Feed Grains Council.
May 21	Portuguese Sorghum Delegation: Joao Manuel Fragoso de Almeida, Alberto Santos Araujo de Campos, Luis de Sousa Campos Cabral, Jose Oliveira Santos, and Ruilherme Pinto Dias. Sponsored by U.S. Feed Grains Council.
May 27	East Germany Technical Mission: Hans Jacobi, H. D. Tscheuschner, Joachim Gerngross, Manfred Siegel, and Fred Hejduk. Sponsored by U.S. Wheat Associates.
June 5	Peruvian Trade Mission: Rafael Saco, Enrique Tipacti, Jose Mendoza, Huberto Delgado, and Lewis Stockard. Sponsored by U.S. Wheat Associates.

August 22	Japanese Food Agency, Eto and Gungi Noguchi, escorted by Kansas Wheat Commission.
August 26	Republic of China, Microscopy Team. Sponsored by U.S. Feed Grains Council.
August 27	European Bread Wheat Team: Hidde H. Thomsen, Stefan Van Der Zande, David A. Wright, Peter Jones, and Ron Fraase. Sponsored by U.S. Wheat Associates.
September 4	Japanese Food Agency: Hiroshi Yoneda, Tomonari Osumi, Hiroyuki Matsumoto, Yoshiichiro Chishad and Robert Bratland. Sponsored by U.S. Wheat Associates.
September 12	Peoples Republic of China, Henan Province Delegation: Tijun Hu, Jiaan Yuan, Dia Baoxing, Lianxing Ma, Ping Yu, and Ping Wang. Sponsored by the Kansas State Board of Agriculture.
September 22-23	Turkish State Grain Agency: Ergin Erzurmulu, Hayri Guner, Metin Arioma, and Thomas Hegadorn. Sponsored by American Soybean Association.
September 24	Annual Governor's Tour hosted by Kansas Farm Bureau.
September 24	House and Senate Agriculture and Small Business Committees.
September 25-26	State of Kansas Economic Development Committee.
October 2	Moroccan Trade Mission: Ahmed El Jaouhari, Redouane Boujemaa, El Khatir Badii, Ramdane Ouassini, Brahim Balafrej, and Omar Amrhar. Sponsored by U.S. Wheat Associates.
October 6	Peoples Republic of China, Industrial Corn Processing Team: Peng Qi Fu, Shen Hui Zi, Zhang Guo Cun, and Mao Yueh. Sponsored by the U.S. Feed Grains Council.
November 3	Peoples Republic of China. Shanxi Delegation. Miao Peifang, Wang Shan, Zhang Changzhen, Liang Tongfang, Yang Bin, Li Haijan, Wang Zhenchun, and Feng Jianping. Sponsored by Kansas State Board of Agriculture.

November 17	Charoen Pokphand International Team from Indonesia, Thailand, Taiwan. Sponsored by Kansas State Board of Agriculture.
November 17	Kansas Wheat Commission Marketing Tour. Glenn Cole, Greg Babcock, Tracy Harlow, Dana Belshe, Merrill Nielsen and Jim Bair.
November 24	Japanese Feed Manufacturers from Mitsubishi: Takehide Hama, Ted Kubo, and Shigebazu Okamoto. Sponsored by Agrex, Inc.



INDIVIDUAL VISITORS

Karen Bender and Jean Bailey, University of Illinois.

Bernie Duenwald of the Washington State Barley Commission.

Hussein Ashour, Egypt.

Frank Naylor, Acting Secretary of Agriculture, U.S.D.A.

Shango H. K. Peng, Sr., and Mr. Shou Yih Lee - Republic of China (Taiwan).

Mr. Wang of Lee Tah.

Ken Hobbie, U.S. Feed Grains Council

George Mwai, Elliot's Bakery Limited, Kenya.

David Thomason, American Soybean Association.

Glenn Samson, U.S. Wheat Associates.

John Crosbie, Australian Wheat Board.

Bill Childerhose, Saskatchewan, Canada.

Smiljan Slanic, Yugoslavian Feed Industry.

Dale Minnick, Oklahoma Wheat Commission

Ivo Karik R., Plant Manager for Molino Andino of La Paz, Bolivia.

INVITED SPEAKERS-1986

Hans Amme, Buhler Miag Company
Dennis Avery, U.S. Department of State
James Bair, Kansas Wheat Commission
Roy Becker, Central Bank for Cooperatives
Richard Blew, Federal Grain Inspection Service
Ted Bownik, ADM Milling Company
Melissa Cordonier, Kansas City Board of Trade
Jean Dallas, Riley County Historical Museum
Sharon Davis, Kansas Wheat Commission
Joel Dick, Northern Crops Institute
Mark Drabenstott, Federal Reserve Bank of Kansas City
Robert Drynan, California Wheat Commission
Richard Ferrell, The Pillsbury Company
Paul Fleener, Kansas Farm Bureau
Ron Flock, Koppers Company
James Frahm, U.S. Wheat Associates
David Frey, Kansas Wheat Commission
Jim Frost, Kansas City Board of Trade
John Gaverson, Continental Grain Company
Steven Graham, Kansas Wheat Commission
Paul Green, Millers' National Federation
Fritz Gwin, National Commission on Agricultural Trade and Export
Richard R. Hahn, A.E. Staley Manufacturing Company
Bill Hawkins, Federal Grain Inspection Service
Lee Hamm, State Representative, Kansas Dist. No. 108
Steven Hoy, Federal Grain Inspection Service
Ben Johnson, Federal Grain Inspection Service
Roger T. Johnson, International Grains Program
Dave Kerr, State Senator, Kansas Dist. No. 34
Fred Kerr, State Senator, Kansas Dist. No. 33
Jack Kice, Kice Metal Products Company
Leo Mayer, Foreign Agricultural Service, USDA
George Minor, ConAgra
Dale Phetteplace, Federal Grain Inspection Service
L.E. Poling, Federal Grain Inspection Service
Harland Priddle, Kansas State Board of Agriculture
A. Rudge, Cargill, Inc.
David Sauer, USDA Grain Marketing Research Laborabory
Dave Sheldon, Northern Crops Institute
Dale Walters, ConAgra

OTHER ACTIVITIES

TRAVELS AND MEETINGS

Jan. 3-Feb. 3 - Henry Stevens to Cyprus, consultant on flour milling for UNCTAD.

Jan. 7 - Harvey Kiser, FGIS Public Meeting on Wheat Dockage Certification, Denver.

Jan. 7-8 - Kansas State Board of Agriculture, Farm Legislative and Marketing Panels, Topeka.

Jan. 17-19 - Charles Deyoe and Harvey Kiser, U.S. Wheat Associates Meeting, Reno, Nevada.

Jan. 23-24 - AOM Technical and Education Committee Meetings, Long Beach, California.

Feb. 5-6 - Charles Deyoe and Robert Pudden, Wheat Quality Council Meeting, Wichita.
Feb. 8-21 - Ralph Wolffing, U.S. Wheat Associates consultant to Africa--Ghana, Nigeria, and Ivory Coast.

Feb. 12-13 - Henry Stevens, North American Export Grain Association Meeting, Kansas City.

Feb. 20-Mar. 6 - Henry Stevens, U.S. Wheat Associates consultant to India, Thailand, Malaysia, and Singapore.

Mar. 6 - Downlink Satellite Program on "U.S. Ag Export Trade Conference." Presentations by Charles Deyoe and Harvey Kiser.

Mar. 10 - Kansas Association of Wheat Growers hosted by IGP.

Mar. 13 - Henry Stevens and Harvey Kiser, North American Export Grain Association Meeting, Kansas City.

Mar. 17-20 - Charles Deyoe, Robert Pudden, U.S. Wheat Associates Board Meeting, Washington, D.C.

Mar. 25 - IGP Advisory Board Meeting.

Mar. 26-27 - Kansas Wheat Commission Meeting.

Apr. 11 - 29 - James Balding to U.S.S.R., consultant for American Soybean Association feed seminars in Moscow, Minsk, and Krasnodar.

Apr. 17-18 - Henry Stevens, North American Export Grain Association Meeting, Kansas City.

April 19-30 - Joseph Ponte to Hamburg to attend International Baking Exhibition, to Paris to visit French School of Milling and Baking, and other milling and baking establishments. Consultant for U.S. Wheat Associates.

Apr. 19-23 - AOM Technical Meetings, San Antonio, Texas.

Apr. 30 - Wheat Quality Council Crop Tour, Wichita, Harvey Kiser presented Wheat Outlook information.

May 5-11 - Southern Bakers' Meeting, Palm Beach, Florida.

May 7 - Harvey Kiser, Met with Directors of Kansas National Farmers' Organization.

May 7-9 - Charles Deyoe and Robert Pudden, AACC Annual Meeting, Tempe, Arizona.

May 28-30 - Kansas Wheat Commission Meeting and WHIP Council Meeting, Kansas City.

May 29-30 - Henry Stevens, North American Export Grain Association Meeting, New Orleans.

June 7-30 - James Balding and Robert McEllhiney to Turkey and Yugoslavia for feed technology seminars and consultations, sponsored by American Soybean Association.

June 8 - IGP Advisory Council Meeting.

June 13 - Wheat Classification Meeting, sponsored by Kansas Wheat Commission.

June 16-27 - Robert Pudden and Henry Stevens, Milling and Quality Control Short Course, Manila, The Philippines. Sponsored by U.S. Wheat Associates.

June 28-July 4 - Henry Stevens to Taiwan for milling consultations. Sponsored by U.S. Wheat Asssociates.

July 14-15 - Robert Pudden and Harvey Kiser, Kansas Wheat Commission Board Meeting.

July 16 - Harvey Kiser and Kansas Wheat Commission staff meeting with Abdel-Kaleem Hashen of Egypt.

July 25 - Robert Pudden, Steve Curren, and Ralph Wolffing attended Wheat Quality Council Meeting, Wichita.

August 1 - Wheat Classification Meeting, hosted by Kansas Grain and Feed Dealers'Association, and Kansas Wheat Commission.

August 7 - Henry Stevens to Washington, D.C. NAEGA Meeting.

August 7-8 - Various faculty to Fall Cereal Conference, Kansas City.

August 17-23 - Henry Stevens to Venezuela for consultations on flour milling. Sponsored by U.S. Wheat Associates.

August 19 - U.S. Wheat Associates Board Meeting, Manhattan, Kansas.

August 19-20 - AOM Technical and Education Committee Meetings, Winnipeg, Manitoba.

Oct. 5-9 - AACC Annual Meeting, Toronto. Robert Pudden Chairman of Milling and Baking Symposia.

Oct. 10-16 - Robert Pudden to Houston with special tour for Agricultural Cooperative Development International.

Oct. 15-18 - Henry Stevens to Panama for meeting with Association of Latin American Industrial Millers.

Oct. 22 - IGP Advisory Board Meeting.

Oct. 31-Nov. 17 - Henry Stevens on Wheat Quality Report Tour to Algeria, France, Japan, South Korea, and the Philippines. Sponsored by U.S. Wheat Associates.

Nov. 6-7 - Roger Johnson attended WHIP council meeting, Kansas City.

Nov. 7 - Charles Deyoe meeting with Charles Reagan, Office of KSU President on international programs.

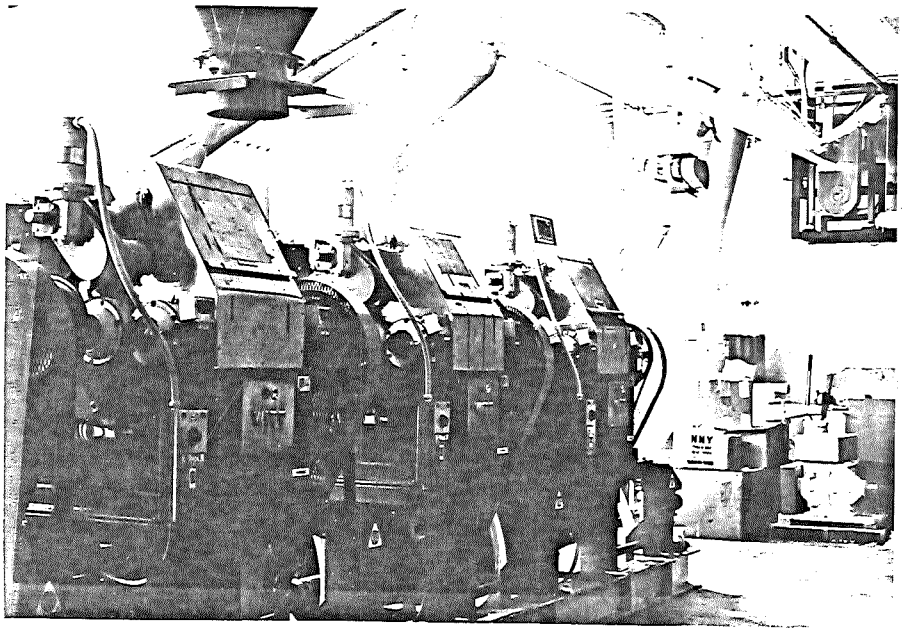
Nov. 12-13 - Roger Johnson and Robert Pudden attended Kansas Wheat Commission Meeting and KAWG Meeting, Ulysses.

Nov. 24 - Charles Deyoe Meeting with French Chamber of Commerce and Jon Wefald.

December 7-9 - Robert Pudden attended Annual KAWG Meeting, Wichita.

December 12-13 - AOM and AACC District Meetings, Wichita.

Dec. 16 - IGP Advisory Board Meeting.



1986 IGP KSU INSTRUCTORS

INTERNATIONAL GRAINS PROGRAM
FULL TIME APPOINTMENTS

Ulysses Acasio
Roger T. Johnson
Robert Pudden
Janee Roche
Carl Stevens
Henry Stevens
Ralph Wolffing

DEPARTMENT OF GRAIN SCIENCE AND INDUSTRY WITH JOINT APPOINTMENTS INCLUDING INTERNATIONAL GRAINS PROGRAM

Keith Behnke
Steve Curran
Charles Deyoe
Dale Eustace
Robert McEllhiney
Joe Ponte
Elieser Posner
John Wingfield

DEPARTMENT OF GRAIN SCIENCE AND INDUSTRY

Rosemary Burroughs
Arthur Davis
Gene Farrell
Jon Faubion
Carol Klopfenstein
John Pedersen
Carl Reed
Kwang Lae Rho
Paul Seib

DEPARTMENT OF ENTOMOLOGY

Robert Mills
Valerie Wright

DIVISION OF COOPERATIVE EXTENSION

James Balding*
Art Barnaby
Robert Schoeff
Fred Sobering
William Tierney
Robert Wilcox

DEAN OF AGRICULTURE

Kurt Feltner
David Mugler
Walter Woods

DEPARTMENT OF AGRICULTURAL ECONOMICS

Harvey Kiser*
Chris Mikesell
Richard Phillips

DEPARTMENT OF AGRICULTURAL ENGINEERING

Do Sup Chung
Ekramul Haque

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*Joint appointment including IGP.

FINANCIAL REPORT, INTERNATIONAL GRAINS PROGRAM
FY 1985-86 and 1986-87 (estimated)

December 12, 1986

	1985-86	1986-87
SOURCE OF FUNDS		
State Funding	$316,453.00	$314,091.00***
Kansas Wheat Commission	180,000.00	125,000.00
KWC carryover, 1985-86	---	55,060.81
Kansas Sorghum Commission	10,000.00	10,700.00
Kansas Soybean Commission	7,130.00	7,620.00
Kansas Corn Commission	6,500.00	6,955.00
Funding, storage specialist	n/a	30,000.00
Fees for short courses, etc.	56,771.98	72,151.36
Per diem payments		104,743.57*
Total funds	576,854.98	726,321.74
EXPENSES		
Salaries and Wages	477,971.38	515,474.87
Contractual Services	68,665.51	37.735.62
Commodities	13,144.26	23,163.79
Capital Equipment	4,688.00	17,000.00
Official hospitality	1,750.91	5,000.00
Per diem payments		104,743.57*
TOTAL	566,220.06	703,118.17

* Per diem provided to short course participants. Following instructions from U.S. Wheat Associates, these payments were not handled by IGP in 1985-86.
** Estimates based on first four months of fiscal year.
*** Reduced $12,243,00 due to budget reductions and mandated 3.8% cut.

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HARD RED WINTER WHEAT
CROP REPORT 1986

compiled by

Henry H. Stevens

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1986 MIDWESTERN HARD RED WINTER WHEA

Doty Laboratories, Kansas City, Missouri, a division of Caleb Brett U.S.A., Inc., collected the harvest samples and performed the laboratory analyses on which this report is based. The resultant data was compiled for presentation by the International Grains Program, Kansas State University, Manhattan, Kansas. Approximately 700 samples of Hard Red Winter wheat were collected at grain elevators throughout the seven state midwestern growing region. These samples represent the first stages of harvest activity for the area as the sampling team continued to move north to follow the harvest. The analyses performed at Doty Laboratories conform to the official methods of the American Association of Cereal Chemists.

Since this report describes harvest samples only, a cautionary note is required. There is a large carry-over of Hard Red Winter wheat from prior years' harvests. Thus, wheat that is obtained through normal commercial channels may contain some admixture of wheat from prior years. For this reason the data presented here should not be used to make absolute predictions about the characteristics of any single export cargo. However, these data should prove valuable as a predictor of trends in quality that will be seen during the 1986/1987 shipping season. The prudent buyer will always make contract specifications to insure the characteristics of his wheat purchases.

1986 Gulf Exportable Hard Red Winter — Summary

The 1986 Gulf exportable samples exhibit a return to more traditional levels of protein and a marked improvement in gluten quality. Despite the lower than normal Farinograph absorption exhibited by this year's crop, commercial bakers are pleased with the sharply increased strength and loaf volume. Crumb grain and texture have remained at the levels that bakers have come to depend upon. Mixing time has increased slightly from last year, reflecting the increased gluten strength.

Agronomic problems caused a continuation of last year's lower than normal test weights. This should not, however, cause any problems with respect to the supply of available wheat for US #2 grade standards. Millers are finding that despite the lower than normal test weights and slightly higher than normal moistures, overall milling performance of this year's crop is comparable to last year's. This is reflected by improved thousand kernel weights and a continuation of lower than normal ash results of experimentally milled flour.

In short, both millers and bakers are very pleased with the gluten characteristics of this year's Gulf exportable Hard Red Winter Wheat. The improved baking performance plus a continuation of good milling performance cause this portion of the crop to be rated "Good" overall.

1986 Pacific Northwest (PNW) Exportable Hard Red Winter — Summary

While the PNW exportable samples for 1986 showed many of the same trends as the Gulf exportable samples, the differences from last year are not as drastic for most characteristics. Gluten strength indicators and protein levels are up, causing a noticeable increase in loaf volume and mixing times, but absorptions are sharply lower than last year. Thus bakers tend to view the performance of this year's PNW exportable Hard Red Winter Wheat as equivalent to last year's crop.

Test weights and thousand kernel weights in this portion of the crop returned to normal levels after two consecutive years of very high values. Similarly, wheat moistures reflected better growing conditions by returning to normal after the two previous years' pre-harvest droughts. A drop in the experimentally milled flour ashes has helped to counter these trends an the associated slight drop in Buhler experimental mill extraction. Thus commercial millers have been able to obtain the normal good performance with this portion of the crop. In summary, the Hard Red Winter Wheat available for export from PNW ports has maintained its good reputation with millers and bakers. This continuation of normally expected performance allows the PNW exportable portion of the 1986 crop to repeat its overall evaluation of "Fair to Good".

HARD RED WINTER PRODUCTION BY CROP YEAR
for the major HRW growing region
(in million metric tonnes)

	1986	1985	1984	1983	1982
KANSAS	8.89	11.79	11.74	12.20	12.48
OKLAHOMA	4.11	4.49	5.19	4.10	6.20
TEXAS	3.14	5.10	4.08	4.38	3.92
COLORADO	2.68	3.66	3.01	3.19	2.31
NEBRASKA	2.12	2.44	2.21	2.69	2.76
MONTANA	1.85	0.61	1.82	2.15	2.18
SOUTH DAKOTA	1.75	1.20	1.67	1.40	0.99
7 STATE TOTAL	24.53	29.30	29.72	30.11	30.84
US TOTAL	28.00	33.49	33.07	32.47	33.85

Average yield for the 7-state region was 2.12 MT/HA

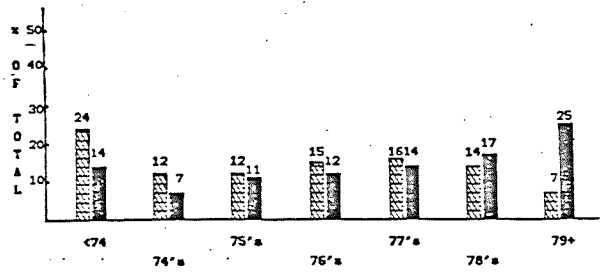
Based on USDA Crop Estimates of September 15, 1986

1986 MIDWESTERN HARD RED WINTER WHEAT

MIDWESTERN HARD RED WINTER WHEAT

TEST WEIGHT (KILOGRAMS PER HECTOLITER)

1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 75.6
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 77.0



TEST WEIGHT IN KILOGRAMS PER HECTOLITER

MIDWEST RD NTER WHEAT

1000 KERNAL WT. (...S)

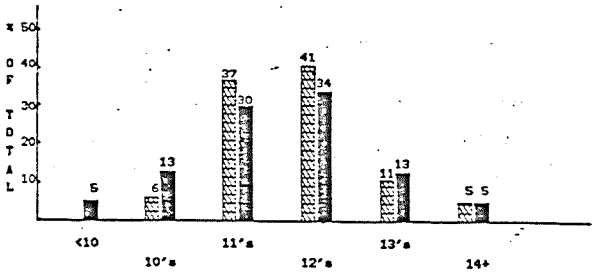
1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 25.8
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 25.7

1000 KERNAL WT. IN GRAMS

MIDWESTERN HARD RED WINTER WHEAT

AS IS PROTEIN (PERCENT)

1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 12.2
1986 CROP NORMALLY AVAILABLE TO PNW. PORTS - AVERAGE = 12.0

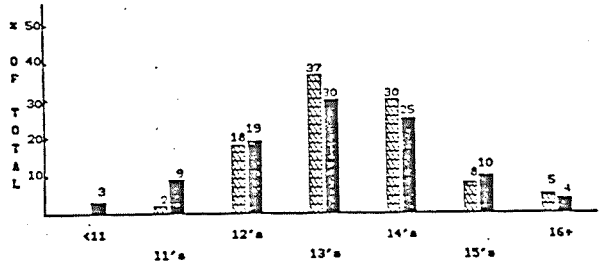


AS IS PROTEIN IN PERCENT

MIDWESTERN HARD RED WINTER WHEAT

DRY BASIS PROTEIN (PERCENT)

1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 13.9
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 13.6

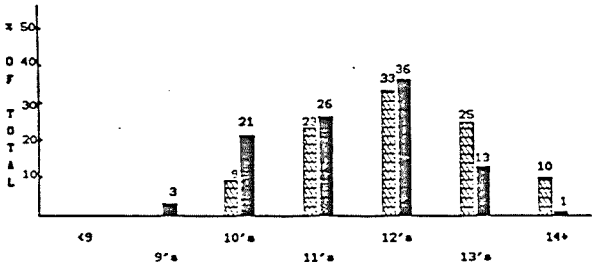


DRY BASIS PROTEIN IN PERCENT

MIDWESTERN HARD RED WINTER WHEAT

WHEAT MOISTURE (PERCENT)

1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 12.5
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 11.8

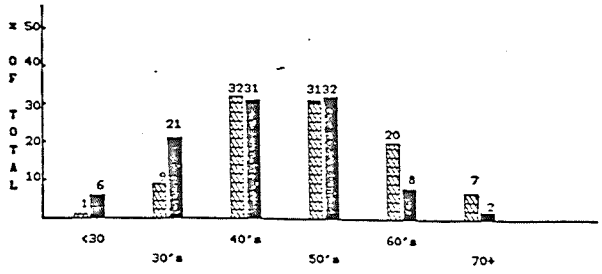


WHEAT MOISTURE IN PERCENT

MIDWESTERN HARD RED WINTER WHEAT

SEDIMENTATION VALUE

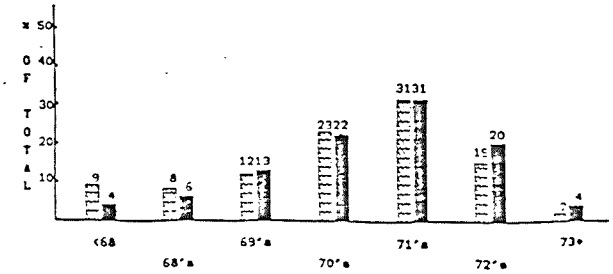
1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 52.7
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 46.8



MIDWESTERN HARD RED WINTER WHEAT

FLOUR YIELD (% OF CONDITIONED WHEAT USING BUHLER TEST MILL)

1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 70.9
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 71.3

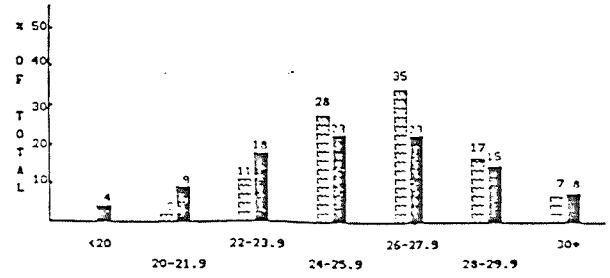


FLOUR YIELD IN % OF CONDITIONED WHEAT USING BUHLER TEST MILL

MIDWESTERN HARD RED WINTER WHEAT

WET GLUTEN (PERCENT)

1986 CROP NORMALLY AVAILABLE TO GULF PORTS - AVERAGE = 26.3
1986 CROP NORMALLY AVAILABLE TO PNW PORTS - AVERAGE = 25.9

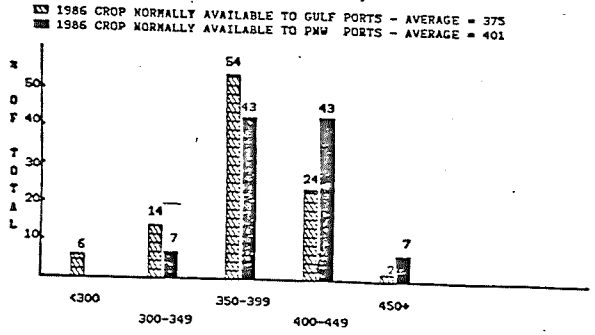


WET GLUTEN IN PERCENT

1986 MIDWESTERN HARD RED WINTER WHEAT

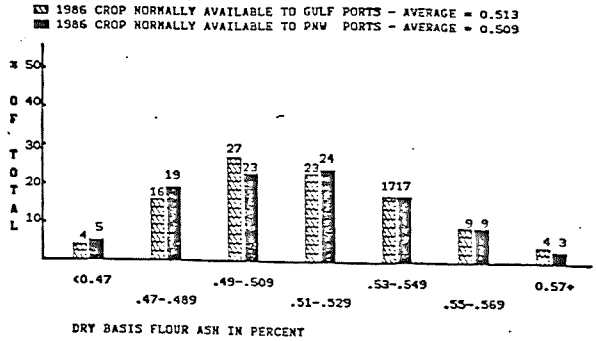
MIDWESTERN HARD RED WINTER WHEAT

FALLING NUMBER (SECONDS)



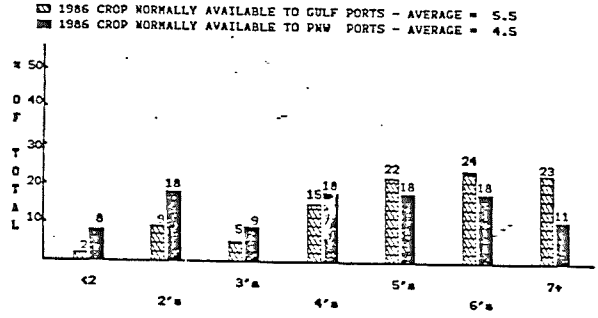
WEST: HARD RED WINTER WHEAT

DRY BASIS FLOUR ASH (PERCENT)



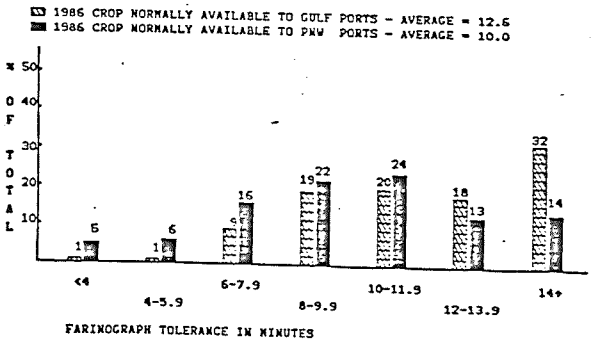
MIDWESTERN HARD RED WINTER WHEAT

FARINOGRAPH PEAK TIME (MINUTES)



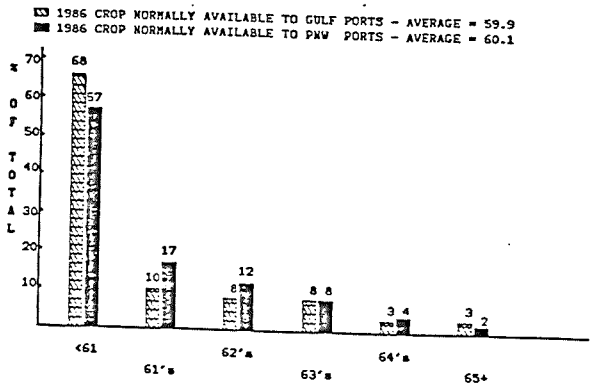
MIDWESTERN HARD RED WINTER WHEAT

FARINOGRAPH TOLERANCE (MINUTES)



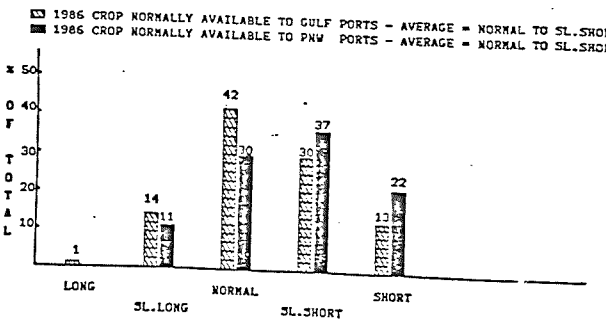
MIDWESTERN HARD RED WINTER WHEAT

FARINOGRAPH ABSORPTION (PERCENT)



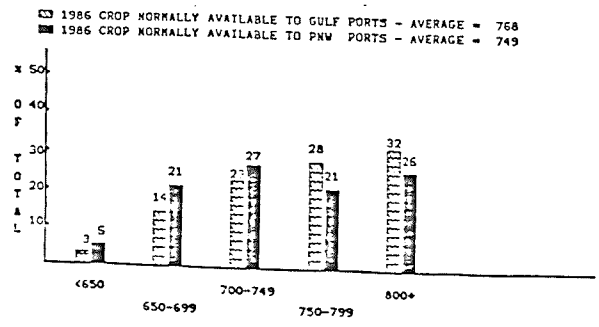
MIDWESTERN HARD RED WINTER WHEAT

MIXING STRENGTH



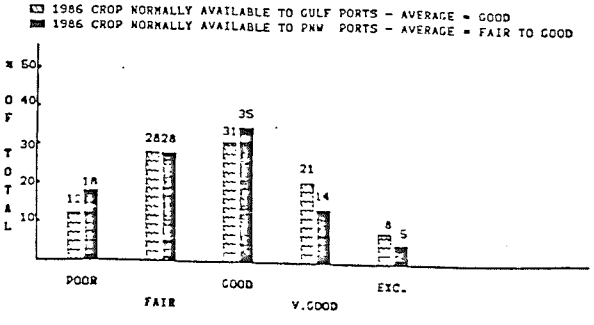
MIDWESTERN HARD RED WINTER WHEAT

LOAF VOLUME (CUBIC CENTIMETERS)



MIDWESTERN HARD RED WINTER WHEAT

OVERALL EVALUATION



1986 MIDWESTERN HARD RED WINTER WHEAT HARVEST DATA

	COMPOSITE AVERAGES			GULF EXPORTABLE AVERAGES			PNW EXPORTABLE AVERAGES		
–	1986	1985	3-yr (1)	1986	1985	3-yr (1)	1986	1985	3-yr (1)
WHEAT DATA:									
Test Weight (kg/hl)	76.1	76.6	77.5	75.6	75.7	76.9	77.0	78.3	78.5
Moisture (%)	12.3	11.4	12.0	12.5	11.6	11.7	11.8	10.9	11.2
Protein: (%)									
As Is	12.1	11.7	11.9	12.2	11.7	11.5	12.0	11.8	11.8
Dry Basis	13.8	13.2	13.5	13.9	13.2	13.0	13.6	13.3	13.3
@ 14% Moisture	12.1	11.6	11.8	12.2	11.6	11.4	11.9	11.7	11.7
1000 Kernel Wt. (gm)	25.8	25.1	26.0	25.8	24.5	25.8	25.7	26.2	26.5
Sed. Value (cc)	50.8	42.1	50.0	52.7	40.8	44.4	46.8	44.5	47.3
FLOUR DATA: (2)									
Flour Yield (% of wet wheat)	71.1	71.1	71.8	70.9	70.7	71.6	71.3	71.9	72.2
Flour Ash: (%)									
Dry Basis	0.512	0.514	0.517	0.513	0.512	0.519	0.509	0.518	0.519
@ 14% Moisture	0.440	0.442	0.445	0.442	0.441	0.446	0.438	0.446	0.447
Wet Gluten (3)	26.2	25.1	25.5	26.3	25.0	25.1	25.9	25.4	25.9
Falling Number	384	387	388	375	381	379	401	398	395
FARINOGRAPH: (2)									
Peak Time (minutes)	5.2	3.9	4.0	5.5	3.9	3.8	4.5	4.0	4.0
Tolerance (minutes)	11.7	8.1	9.4	12.6	8.4	8.6	10.0	7.5	7.9
Valorimeter	61.7	56.0	56.7	63.4	56.2	55.4	58.4	55.6	55.8
Absorption (%)	60.0	63.4	62.0	59.9	62.6	62.5	60.1	64.9	64.1
BAKE EVALUATION: (2)									
Mixing Strength (4)	N-SS	SS	N-SS	N-SS	SS	SS	N-SS	SS	N-SS
Crumb Grain (5)	SO-CE	SO-CE	SO-CE	SO-CE	SO-CE	SO-CE	SO-CE	SO-CE	SO-CE
Crumb Texture (6)	SH-SG	SH-SG	SH-SG	SH-SG	SH-SG	SH-SG	SH-SG	SH	SH-SG
Loaf Volume (cc)	762	718	709	768	719	700	749	716	718
Overall Eval. (7)	G	F-G	F-G	G	F-G	F-G	F-G	F-G	F-G

(1) – 1983, 1984, 1985 -- weighted by production
(2) – All flour, farinograph, & bake tests use flour from the BUHLER experimental mill
(3) – Wet Gluten was not measured prior to 1984; Average is for 2 years only

(4) Mixing Strength
L = Long
SL = Slightly Long
N = Normal
SS = Slightly Short
S = Short

(5) Crumb Grain
VO = Very Open
O = Open
SO = Slightly Open
CE = Close-Even
ST = Slightly Tight

(6) Crumb Texture
HS = Harsh-Stressed
H = Harsh
SH = Slightly Harsh
SG = Silky Good
SE = Silky Excellent

(7) Overall Eval.
P = Poor
F = Fair
G = Good
VG = Very Good
E = Excellent

THE FUTURE OF U.S. GRAIN EXPORTS: ARE WE PRISONERS OF OUR EXPECTATIONS?

by

Dr. Roger T. Johnson
Associate Director
International Grains Program

December 16, 1986

For the U.S. economy as a whole, the 1980's have been fairly good, as inflation has subsided, interest rates have tumbled and the stock market has soared to record levels. Yet, for the grain industry, the 1980's have been a disaster that has appeared to worsen with each passing year. Exports have fallen to the lowest levels in years and the immediate prospect for improvement is hardly bright with promise. Yet, as we try to gaze into and anticipate the future, we must avoid becoming prisoners of our expectations, expectations that in many cases reflect our recent experience rather than an appreciation of the longer sweep of history.

After all, the present is never permanent, and the one constant about the course of human history is that it is constantly changing. For every generation that has ever lived the future has always been the great unknown, hitting each one in turn with those shocks and surprises and sudden twists that are almost never anticipated. In our own lifetimes this has been truer than ever before, as the pace of historical change has accelerated. The norm is no longer just change, but rapid, wrenching change. In our own lifetimes we do not face just a future filled with the unexpected; rather, we constantly confront future shock.

Therefore, as we look at the recent trend of dwindling agricultural exports, we must realize that this trend, like all trends, is bound to change. We must fight that natural human tendency of projecting current trends unbroken into the future. When things are going well, it is easy to assume that they will continue to go well. By the same token, when we face bad times it is difficult to imagine that those bad times will disappear. Almost all of us project the present onto the future almost all of the time, and that is why almost all of us are blindsided by the normal course of events -- namely, the unanticipated and the unexpected.

One man, in running for President of the United States, said during his campaign: "We in America are nearer to the final triumph over poverty than ever before in the history of any land. The poorhouse is vanishing from among us. We shall soon with the help of God be in sight of the day when poverty will be banished from this nation." His campaign was based on these optimistic themes. and he was elected by an overwhelming majority. In his inaugural address, he said: "I have no fears for the future of our country. It is bright with hope." That Herbert Hoover uttered those words in 1928 and 1929, just before the worst economic catastrophe in our history, shows that even the best and brightest among us can be caught completely offguard

by the sudden and unexpected unfolding of events. The future that Herbert Hoover faced, just like the future that we face, is likely not only to be different from the present we now know but also quite different from the future we now anticipate.

In the late 1970's, our nation faced almost the opposite situation from that confronting Herbert Hoover in the 1920's. We were overwhelmed by skyrocketing oil and gas prices, rampant inflation and double-digit interest rates. Prophets of gloom appeared to be the only ones who knew the secret of prosperity, but of course they made their money by selling us books telling us how much worse things would get. We were worried about these baleful economic trends, and we saw no end to the pain. Just as the prosperity of the 1920's did not prepare us for the depression of the 1930's, so the strength in oil prices, the forces of inflation and spiraling interest rates in the 1970's did not prepare us for the profound reversal of those trends in the 1980's.

Shorter-term economic and political trends especially generate forces that cause those trends to change. For example, higher oil prices in the 1970's triggered searches for new energy sources and encouraged conservation; the result was lower oil prices and a severe slump in an industry that just a few years ago was booming. In the same manner, higher grain prices in the 1970's stimulated grain production worldwide and have contributed significantly to the current problem of burdensome surpluses. And that problem of surpluses, for we now appear to be a world awash in grain, does not appear to be easily or quickly resolvable.

Taking a longer look at the sweep of events, not just the past few years but indeed the past several decades, we can see that the major trend has been for increased volumes of grain exports, yet the important point is that this trend has not followed a smooth, linear progression. Rather, grain exports have experienced dramatic ebbs and flows from one year to another and from one decade to another, even as the long-term trend was one of growth. But at no period in our history has a sustained boom in exports lasted for more than a few years without a break; in the same way, those periodic slumps in exports have never meant that the game was over. While we can project the recent trend of dwindling exports into the future and estimate that at some time around June 1993 we would be loading the very last bushel of grain we would ever ship to a foreign buyer, that scenario will not happen. At some point the trend of decreasing exports will come to an end, perhaps with another dramatic boom in world trade, perhaps with a stability in trade at much smaller volumes, or perhaps somewhere in between. Indeed, the scenario we least expect may be the one most likely to occur.

Recently I came across one interesting solution to the problem of diminishing grain exports. A businessman, very concerned about the economic implications of the situation, noted that the major reason for the economic depression in rural America was the low price of grain, and that low prices were the natural result of surplus production. He went on to suggest that in order to reduce these burdensome surpluses there should be an outright export subsidy, which he said could be financed by an additional tax on land, or by taxes on imported alcohol. An export subsidy, he said, was the only means to boost the price of grain, which had been so low that farmers were being driven to the brink of ruin. And, he said, if the farmer went under, many other businesses would not be able to survive. We'll come back to this later.

Despite the recent sharp decrease in the volume of wheat, corn and soybeans shipped abroad, and despite this nation's diminishing share of global grain trade, the U.S. is still the world's largest grain exporter. Wheat exports last year, at 915 million bushels, were the smallest since 1971-72, but larger than any year before then. This year, wheat exports are expected to be only marginally larger than last year, and thus considerably smaller than the volumes to which we had been accustomed in the 1970's and early 1980's.

Looking back over more than a century, or to the era of the Civil War, the longer-term trend has been for exports of all grains to represent an ever-increasing share of total production. As for wheat, from the Civil War through the 1920's, exports normally accounted for between 20 to 40% of the crop, but there were occasional dips to 10%. During the 1930's and World War II, wheat exports were normally less than 10% of production, and occasionally less than 1%; in fact, in one or two years during that period the U.S. was actually a net wheat importer. From 1945 to the early 1960's, wheat exports represented generally from 20 to 40% of our production, but in two of those years exports surged to nearly 50% of the crop. In almost every year from 1961 to 1985, the U.S. has exported more than half its wheat crop, reaching a peak of 77% in 1972-73. Last year, however, exports fell back to only 38% of production. Still, 38% is a sizable chunk of total output and shows that, even at these reduced levels, exports are vital to the wheat industry.

For corn, as for wheat, exports this year are expected to be the smallest since 1971-72, but larger than in any year before then. Unlike wheat, however, a smaller share of our corn crop enters the export markets. From the Civil War through the 1950's, corn exports always represented less than 10% of production, and sometimes less than 1%. In the 1960's, the share exported increased to between 10 and 20% of each year's output. In the 1970's and early 1980's, corn exports normally represented between 20 and 30% of production. Last year and this year, we have faced a throwback to the 1960's, as corn exports accounted for just under 15% of the crop.

Soybean exports were negligible before World War II, but have risen steadily since then, both in volume and as a percentage of production. In the late 1940's, soybean exports accounted for less than 10% of the crop, but that share increased to between 10 and 20% during the 1950's and to more than 30% in the 1960's and early 1970's. From 1976 to 1984, soybean exports represented more than 40% of production, but that share has dropped below 40% in each of the last three years.

Major customers for U.S. grains have shifted in recent years, especially in the case of wheat, as the U.S. share of global grain markets has diminished. Wheat exports reached record levels in 1981-82, but the largest buyers of that year are no longer on the list. In 1981-82, the three most populous nations in the world -- China, India and the Soviet Union -- were all major buyers, with China and the U.S.S.R. ranked number one and two. Last year and this year, however, all three are notable by their absence from the U.S. market. And our major buyer last year, Japan, took smaller amounts than it did in our record export year of 1981-82.

In the decade from 1972 to 1982, the U.S. share of world wheat trade ranged from a low of 41% to a high of 53%. Last year, the U.S. share fell to 29%, the lowest percentage in at least three decades.

In corn and soybeans, unlike wheat, the list of major buyers has not

changed significantly, as the largest customers during the export boom of the late 1970's are still among the largest buyers. In virtually all cases, however, those buyers are taking less now than they did a few years ago. In corn, this is especially true for buyers in Western Europe, such as Spain, West Germany and the Netherlands. Japan remains America's largest single customer for corn, but last year that country's purchases were 25% smaller than just six years earlier.

The U.S. share of the global corn market has been above 50% in every year but two since 1960-61, and more than 70% in every year from 1974 to 1984. In the last two years, however, the U.S. share has fallen to just over 50%.

While the U.S. dominates global trade in corn, this country plays an even more commanding role in world soybean markets. In the past two decades, the U.S. share of world soybean trade has fallen below 74% only once, and that was two years ago when our proportion slipped to 65%. Last year and this year, the U.S. share of the world soybean market has been more than 75%.

Important as exports are to the U.S. grain and soybean industries, it must be noted that in export markets we are at the mercy of forces that are largely beyond our control. At the very best, the U.S. can only marginally influence the levels of overseas production and foreign demand. Moreover, it can be argued that a buyer-seller relationship is inherently unequal, for this relationship naturally favors the buyer and not the seller. The buyer is in command because it is the buyer who has the ultimate power of making the final decision. A seller by definition is there to make a sale, but no transaction will be completed until the buyer gives the go-ahead. Go to any book store and you will find several volumes on the art of successful selling, for selling is inherently more difficult than buying. But seek a book on the skills of a successful buyer and you will find very thin pickings indeed; seeking such a book is much like trying to find a book on how to gain weight.

As a seller of grain on world markets, therefore, the United States lacks the power to compel foreign buyers to take our grain. Yet, this nation is hardly without power and influence in global grain markets, and we can do a number of things to stimulate the global demand for grain.

One of the most important steps this country can take is to be truly price competitive. Another crucial step is to avoid forever self-defeating actions such as grain embargoes, which almost always harm us more than the nation we seek to punish. (Another way to support the notion that buyers generally have the upper hand in a buyer-seller relationship is to note that the most effective embargoes are almost always those embargoes imposed by buyers and not by sellers.) And third, and perhaps most important, the U.S. can contribute to increased grain trade by stimulating economic growth abroad, especially in the developing nations. As the economies of these countries expand, the demand from their people for improved diets will also increase.

As we have already seen, one of the most significant factors in the decrease in U.S. exports, especially wheat, is the absence of the three most populous nations on Earth -- China, India and the Soviet Union. China has made dramatic strides in grain production in the past decade, with wheat output up more than 70% in just the past seven years. At the same time, China has cut its grain imports to less than half of what they were only

four years ago. Per capita wheat use in China is only about two-thirds as large as in the U.S., so there is considerable room for growth of wheat consumption in the nation that now accounts for one of every four people on this planet.

India has made solid gains in grain production in recent years, though less dramatic than in China. When India imports grain, those imports are almost exclusively wheat, but that country's imports have been nil in the last three years. Indeed, India has actually been selling wheat to the Soviet Union. Per capita wheat use in India is even smaller than in China, and less than half as large as in the U.S., offering even better prospects than in China of significant increases in demand. This is especially impressive in light of demographic factors that suggest that sometime early in the next century India will overtake China as the world's most populous nation.

Grain production in the U.S.S.R. is limited by climate and technology, though significant improvements in the latter appeared to have been accomplished last year. In the past 15 years, the U.S.S.R. has been the key to global grain markets. That country's buying spree in the early 1970's ignited the boom in grain exports, and its record pace of buying in the early 1980's offset in some measure the decrease in buying by other nations. With only about six per cent of the world's population, the Soviet Union two years ago accounted for as much as 27% of global grain trade. This year, however, the U.S.S.R. is expected to take only about 15% of global grain trade; still, that 15% of world grain imports is considerably larger than its 6% of world population.

One of the most revealing indicators of global grain markets is the ratio of carryovers to annual utilization. At the end of this year, stocks of all grains (including wheat, coarse grains and rice) are expected to represent 24% of global use, the largest percentage since 1960-61. This is impressive statistical evidence that the world is awash in grain. Hence, the sense of urgency in this country to do something about our burdensome surpluses has brought back the idea of export subsidies.

At the outset of this talk, I cited one such proposal for an export subsidy -- a subsidy that would be paid for by a tax on land or a tax on alcohol. But what I did not tell you was the most interesting thing of all, namely that businessman who came up with this idea came up with it more than 250 years ago. The author of this proposal was a man named Francis Rawle, a prominent Philadelphia merchant, and the wheat surplus he was referring to was the surplus in the Delaware River Valley in the 1720's. We have hardly ever considered that region the breadbasket of America.

Thus, the problem of grain surpluses we face today is hardly new. In the years ahead we are likely to see more peaks and valleys, periods of increased demand for grain followed by slumps in trade and followed in turn by surges of activity in global markets. Over the longer term, perhaps four broad factors can be identified which suggest that the future will provide more rather than less global grain trade.

For one thing, world population continues to grow. Today, December 16, 1986, this planet is setting a record; more people are alive on Earth today than ever before. We broke yesterday's record, and tomorrow we will break today's. Every year we add another 80 million people, or another Bangladesh, to the world's population; every three years we had another United States, or another Soviet Union. Ours is literally the first

generation since Adam and Eve begat Cain and Abel in which global population has doubled within one generation.

A second factor holding out the promise of increased grain trade is the growth in the world economy, especially in the developing nations. As those countries increase their economic activity and their industrial potential, the demand from their people for improved diets will be almost impossible to resist.

Third, impressive as have been the gains in production in China and India, it is likely that those countries have already made the easiest gains in output, and that additional improvements in yields or total output will be harder to achieve. But the increased production in those countries has contributed to increased demand for food and feed grains, and that demand is likely to persist come good weather or bad.

Fourth, weather and the potential of even significant climatic changes could have especially significant consequences. In the past few decades the major grain growing regions of the planet have generally enjoyed good to very good weather. During this period we have had one bad year or another, but these bad years have generally come only one at a time and not in bunches. In the U.S., for example, a very good 1982 in the corn belt was followed by a horrible 1983 -- the worst drought in half a century -- but that very bad year in turn was followed by a very good 1984 and an excellent 1985. More broadly, adverse changes in climate could occur naturally, or derive from the still unforeseen consequences on the environment of the rapid industrialization on this planet in the past few decades. For example, the depletion of the tropical rain forests in Africa and especially in South America could have a dramatic and as yet unimagined impact on global wind patterns and on global climate, and any such change could have profound implications for world grain production.

As we look at all the surprises the world grain market has provided us in the past two decades, we can hardly expect the next two decades to be free of those sudden and unexpected twists and turns that have always marked human history. In planning for the years ahead we must always be prepared for the unexpected, for no matter what it is we imagine is likely to happen, the future will almost certainly turn out differently.

APPENDIX A

International Grains Program Short Courses

Purpose: To establish a link between U.S. and international grain buyers and users through refresher courses, presentations of new technology and field trips. To promote understanding of terminology and of the milling properties of U.S. food and feed grains, feed manufacturing processes and the U.S. grain marketing system. To encourage personal contacts and to provide the opportunities for continued exchange of information in the future.

A typical short course includes lectures and discussion from IGP faculty, Kansas State University faculty from other departments, and industry representatives. Most courses also include laboratories where participants spend time in the pilot flour mill, feed mill, and/or the bakery. Many participants receive actual hands-on experience in grain grading and performing physical and chemical tests on grain. Field trips and tours of local flour mills, feed manufacturing plants, grain elevators, and handling facilities are often included to provide practical observation of the material covered in classroom lecture.

The presentation of some short courses is tailored to the needs of the participants. Other short courses are organized for general information presentations to participants with diverse interests. Simultaneous translation is available to participants who request the service in advance.

The following pages include programs of the 1986 short course offerings at Manhattan. Also included are photographs of the participants to the various short courses.

U.S. GRAIN MARKETING SYSTEM SHORT COURSE

APRIL 7 - 18, 1986

Location: Waters Hall Annex Classroom
International Grains Program Center

Presented by
International Grains Program
Shellenberger Hall
Manhattan, Kansas 66506
USA

****

Sunday - April 6, 1986

8:00 p.m. Welcome and Get Acquainted Social Time

Ramada Inn
State Parlor Room

Hosts: Dr. & Mrs. Harvey L. Kiser

Monday -April 7

8:30 Welcome & A Look at Kansas Wheat Commission
*Steven Graham, Administrator, Kansas Wheat Commission, Manhattan, KS
Review of Program & Introduction of Participants
*Dr. Harvey L. Kiser, Associate Professor, Dept. of Ag. Econ., KSU

10:30 Organization of U.S. Grain Marketing System
*Dr. Harvey L. Kiser, Associate Professor, Dept. of Ag. Econ., KSU

12:00 Lunch

1:30 Tour of Manhattan - Bus at Ramada Inn, Return to campus classroom
*Jean Dallas, Director, Riley County Historical Museum

3:45 Welcome to IGP
*Dr. Charles Deyoe, Director of IGP & Head, Dept. of Grain Science & Industry, KSU

4:00 Tour of Pilot Facilities
*Flour Mill, Feed Mill, & Bakery

Tuesday - April 8

8:00 Grain Futures Market
Purpose of Futures Market, Role of Speculation & Hedging; What is basis? Purpose of options.
*Dr. Harvey L. Kiser, Associate Professor, Dept. of Ag. Econ., KSU

12:00 Lunch

1:45 Commercial Financing of Imports
Role of Importer & Exporter Banks, Bid/Performance Bonds, Documentation, Risk Evaluation, L/C Cycle, FCIA, Eximbank, GSM-102
*Roy Becker, Assistant Vice President, Central Bank for Cooperatives, Denver, CO

5:00 Recess - Dinner on your own

Wednesday - April 9

8:00 Ocean Transportation
Explanation of Charter Parties, Pros & Cons of fob & cif arrangements, Documentation, Marine Insurance, Freight Futures
*A. Rudge, Exec. Vice President, Greenwich Marine, Cargill, Inc. New York, NY

12:00 Lunch

1:45 U.S. Farm Program
Loans. Price support, PIK, Reserve program
*Dr. Harvey L. Kiser, Associate Professor, Dept. of Ag. Econ., KSU

3:00 Photographer to take group picture

5:00 Recess - Dinner on your own

7-9 Reception - Home of Dr. Charles Deyoe, 2220 Browning Avenue

Thursday - April 10

8:00 Wheat and Feed Grains Market Analysis
Key important supply & demand factors affecting prices
*Dr. William I. Tierney, Jr., Associate Professor, Dept. of Ag. Econ., KSU

12:00 Lunch

1:30 Field Trip
Depart for Kansas-Oklahoma

Friday - April 11

9:30 Leave Hotel

10:00 Grain Marketing-Union Equity Cooperative Exchange, Enid, Oklahoma

12:00 Lunch—on your own
Visit Oklahoma State University Wheat Variety Test Plots, Kildare, OK
Visit wheat farmer, Don Schieber, Kildare, OK, Vice President, Oklahoma Wheat Growers Association and other wheat farmers and Bar-B-Q dinner, courtesy of Oklahoma Wheat Commission

Saturday - April 12

Return to Manhattan

Sunday - April 13

Breakfast, Lunch and Dinner on your own. Consider Ramada Inn's late morning Brunch Buffet.

Your Day's Activities - Your Choice

-Church
-See Zoo
-Rest and Relaxation
-Shopping

Monday - April 14

8:00 Preserving Grain Quality in Storage
*Robert Mills, Professor, Dept. of Entomology, KSU

10:30 Milling of Wheat and Other Grains
*Elieser (Eli) Posner, Instructor, Dept. of Grain Science & Industry, KSU

12:00 Lunch

1:45 Milling of Grain
* Ralph Wolffing, Senior Milling Engineer, Chemist, IGP

3:30 Overseas Point of View Buying Wheat from U.S.A.
*Robert Drynan, Executive Director, California Wheat Commission, Woodland,CA

Tuesday - April 15

8:00 U.S. Grain Inspection and Grading
Purpose of Federal Grain Inspection Service (FGIS), Grading and Weighing procedures, Sampling, Uniform loading, Certification
*Bill Hawkins, Marketing Specialist, Federal Grain Inspection Service
*Rich Blew, Member Board of Appeals and Review, FGIS, USDA

12:00 Lunch

1:45 Grading of Grain
(Laboratory - In Waters Annex)
-See test weight & dockage measured
-Hands-on-grading wheat
-Grade for different quality factors

5:00 Recess - Dinner on your own

Wednesday - April 16

8:00 International Grain Contracts
Tendering terms, NAEGA & GAFTA Contracts, Arbitration
*John Graverson, Commodity Manager, Continental Grain Company, Kansas City, MO

12:00 Lunch

3:45 Wrap-Up, Questions and Answer Evaluation
Recess
Reception and Graduation Dinner

Manhattan Country Club
Transportation will be provided

Thursday - April 17

8:00 Leave Ramada Inn by bus for Field Trip

8:30 Kansas Country Elevator Operation
*Steve Eck, Manager
*Bob May, Grain Merchandiser, Farmers Union Co-op Business Association, St. Marys, KS

9:45 Leave for Kansas City Board of Trade KCBOT

11:45 Check in at hotel

12:20 Reboard bus to KCBOT

12:30 Film about KCBOT

1:00 Observe closing of market

1:15 Discussion about Futures Markets
*KCBOT Officials

Friday - April 18

9:00 Discussion with a panel of export company executives - export and trade policies

12:00 Recess for Morning
Lunch on your own

Row 1 - Bashir Ahmed Bhatti, Rosa Ines Sanchez de Rodriguez, Alicia Opheim, Lic. Libertad Garcia De Rondon, Carol Lopez, Abdur Rouf, Bar-El Meir,

Row 2 - Denis Richards, Simon Grunbaum, Frank David, Carlos Holguin T., Jose Luis Torres Borea, Luis Aragon L., Ing. Mario Mendizabal L., Pedro Joy Way Rojas,

Row 3 - Javier Francisco Vargas Rojas, Adolfo Leon Pizarro, Juan Lovera Sanchez De Puerta, Egodage Amarasena Nanayakkara, Mitchel J. Skalick, Kramer Moshe, Yeshayahu Laor,

Row 4 - Goris van Lit, Zvi Beith Yosseph, Eduardo Arias, Roberto Antonio Caceres Zegarra, Dr. Harvey Kiser, Eduardo F. Herrerias,

Row 5 - Ibnu Subroto, M. A. Satter, Jang-Shik Shim, Chen Hou-ji, Juan Antonio Marcos Munoz, Robert F. Pudden, Jose-Julian Sanchez Catala

INTERNATIONAL
GRAINS PROGRAM

Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

Grain Storage, Drying, and Sanitation Short Course
Translated in Arabic

On-Campus: April 21-May 2, 1986
Travel on Field Trip: April 25, 1986
May 1, 1986
May 2, 1986

Monday, April 21, 1986

8:00 a.m.	Welcome and Introduction of Participants	
8:30 a.m.	Grain Postharvest Systems	Reed
10:00 a.m.	Break	
10:30 a.m.	Structure of Grain	Burroughs
12:00 noon	Lunch	
1:30 p.m.	Moisture annd Temperature	Chung
3:00 p.m.	Break	
3:30 p.m.	Moisture Lab	Burroughs/Wright

Tuesday, April 22, 1986

8:30 a.m.	Stored Grain Insects	Wright
10:00 a.m.	Break	
10:30 a.m.	Continue - StoredGrain Insects	Wright
12:00 noon	Lunch	
1:30 p.m.	Microorganisms	Burroughs
3:00 p.m.	Break	
3:30 p.m.	Rodent and Bird Biology	Burroughs

Wednesday, April 23, 1986

8:30 a.m.	Handling Facilities	Haque
10:00 a.m.	Pictures taken - Break	
10:30 a.m.	Continue - Handling Facilities	Haque
12:00 noon	Lunch	
1:30 p.m.	Handling Procedures, Bulk/Bag	C. Stevens
3:00 p.m.	Break	
3:30 p.m.	Stored Grain Insects	Wright

Thursday, April 24, 1986

8:30 a.m.	Handling Procedures: Rice/Corn	Haque
10:00 a.m.	Break	
10:30 a.m.	Facilities Planning	Haque
12:00 noon	Lunch	
1:30 p.m.	Grain Sampling, Inspection,and Grading	H. Stevens/Reed
3:00 p.m.	Break	
3:30 p.m.	Continue-Grain Sampling, Inspection, and Grading	H. Stevens/Reed

Friday, April 25, 1986

Field Trip

Monday, April 28, 1986

8:30 a.m.	Grain Cleaning	C. Stevens
10:00 a.m.	Break	
10:30 a.m.	Aeration of Stored Grain	Chung
12:00 noon	Lunch	
1:30 p.m.	Continue - Aeration of Stored Grain	Chung
3:00 p.m.	Break	
3:30 p.m.	U.S. Grain Marketing System	Kiser

Tuesday, April 29, 1986

8:30 a.m.	Drying of Grain	Chung
10:00 a.m.	Break	
10:30 a.m.	Inspection and Housekeeping of Facilities	Pedersen
12:00 noon	Lunch	
1:30 p.m.	Physical and Mechanical Control of Pests: Insect/Rodent Applications	Pedersen/Reed
3:00 p.m.	Break	
3:30 p.m.	Continue - Insect/Rodent Applications	Pedersen/Reed

Wednesday, April 30, 1986

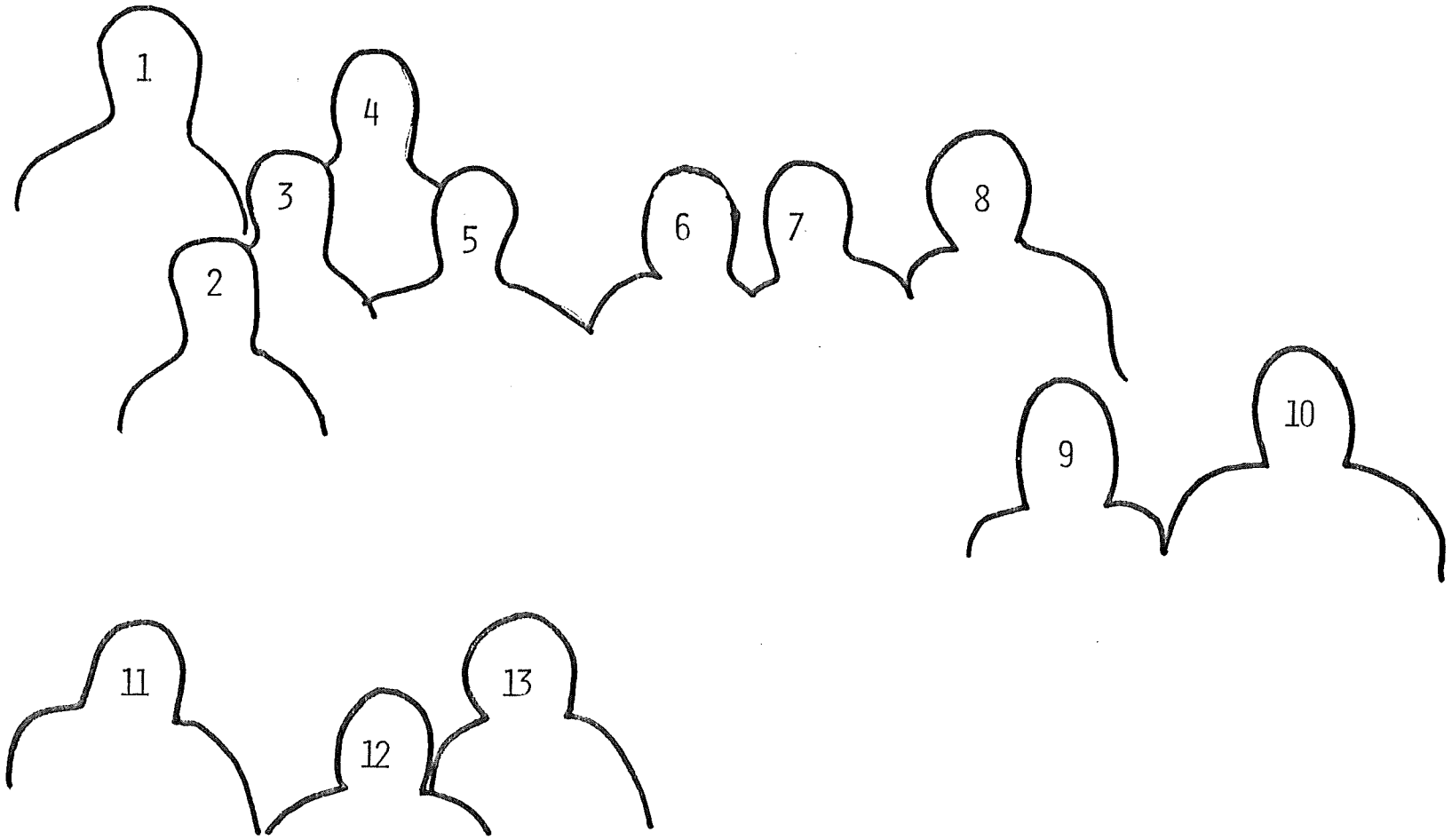
8:30 a.m.	Chemical Control of Pests: Insecticides, Fumigants, Rodenticides	Pedersen/Reed
10:00 a.m.	Break	
10:30 a.m.	Continue - Insecticides, Fumigants, Rodenticides	Pedersen/Reed
12:00 noon	Lunch	
1:30 p.m.	Mill and Elevator Safety	Balding
3:00 p.m.	Break	
3:30 p.m.	Grain Processes Handbook	IGP Milling Faculty

Thursday, May 1, 1986

Field Trip

Friday, May 2, 1986

Field Trip



1. Mohamed Talaat Shoukry 2. Chen Hou-ji 3. Dr. Ekramul Haque
4. Mr. Robert Pudden 5. Mohamed Suhail Mohamed Hassan Mulki
6. Jackie Thomas 7. Mohie El-Din Hassan Moustafa
8. Varnavas L. Sophocleous 9. Maria Cristina R.V.D.B. Sousa
10. Mohamed Abdelsalam Khairalla 11. Hassan M.W. Hassan
12. El Sayed Mohamed Badawi 13. Jang-Shik Shim

IGP Advanced Milling Short Course
May 12-23, 1986

Room Number		Lecture Title	Instuctor	# Hours
WAX104	A	-Welcome and Introductions		1
	B	-Tour of Facilities		1
WAX104	C	-Proper Care and Storage of Wheat	Chung	1.75
WAX104	D	-Principles of Milling	Eustace	2
WAX104	E	-Overview of U.S. Wheat Production and Uses	H. Stevens	.75
SH110	F	-Tests for and Determination of Flour Quality. Blending-Problems and Benefits	Pudden	4
SH110	G	-Bake Lab Tests	Dibben	4
WAX104	H	-Air Handling Systems	Kice	1.75
WAX104	I	-Pneumatics and Dust Control	Kice	1.75
WAX104	J	-Flour Mill Maintenance Program	Hoshor	2
WAX104	K	-What's New in Milling	Wingfield	1.75
WAX104	L	-Roller Mills and Grinding	Simon Co.	2
WAX104	M	-Sieves and Sifting	H. Stevens	1.75
WAX104	N	-Specifications on Contracts for Wheat	Kiser	2
WAX104	P	-Laboratory Procedures	Wetzel	2
WAX104	Q	-Energy Management	McEllhiney	1.75
WAX104	R	-U.S. Grain Marketing System	Kiser	2
	S	-American Institute of Baking		3.75
WAX104	T	-Flour Mill Management	Bownik	2
WAX104	U	-Flow Sheets	Wolffing	1.75
WAX104	V	-Flour Mill Construction	Ocrim Co.	2
WAX104	W	-Flour Mill Control and Automation	Wingfield	1.75
WAX104	X	-Mill Byproduct Manufacturing	Koppers	2
WAX104	Y	-Dust Explosion Program	Schoeff	1.75
WAX104	Z	-Mill Sanitation	H. Stevens	2
WAX104	AA	-Corn and Specialty Milling	Eustace	1.75
WAX104	BB	-Federal Grain Inspection Service		3.75
WAX104	CC	-Northern Crops Institute	Dick	2
SH105	DD	-Milling Demonstration	Staff	3
WAX104	EE	-Mill Practice Lecture	Curran	1
SH115	FF	-Moisture Tests	Eustace	1
SH	GG	-Pilot Mill	Staff	6
SH101	HH	-Lab Mill	Staff	6
SH105	II	-Grain Tests	Curran	1
WAX104	JJ	-Air Classification and Particle Size Lecture	Posner	1
SH115	KK	-Air Classification Lab	Posner	3
WAX104	AM	-Amazing Art of Milling - Movie	Wolffing	1
	TM	-Tour of Manhattan		
	RS	-Reception and Social At Pudden Residence		
	SH	-Social Hour and Banquet at the Country Club		

Day	Group	8:00-9:00	9:00-10:00	10:00-10:15	10:15-11:00	11:00-12:00	12:00-1:00	1:00-2:00	2:00-3:00	3:00-3:15	3:15-4:00	4:00-5:00	
Monday May 12	1	A	B	BREAK	C		LUNCH	D		BREAK	E	AM	TM
	2	A	B		C			D			E	AM	TM
Tuesday May 13	1	F			G			H			I		
	2	G			F			H			I		
Wednesday May 14	1	J			K			U			M		RS
	2	J			K			U			M		RS
Thursday May 15	1	N			R			P			Q		
	2	N			R			P			Q		
Friday May 16		Field trip to Kansas City T - 9:00am											
Monday May 19	1	V			W			X			Y		
	2	V			W			X			Y		
Tuesday May 20	1	Z			AA			BB			BB		
	2	Z			AA			BB			BB		
Wednesday May 21	1	CC		BREAK	D		LUNCH	DD		BREAK	DD	L	
	2	CC			D			DD			DD	L	
Thursday May 22	1	EE	FF		GG			GG	HH		HH		
	2	EE	FF		HH			HH	GG		GG		
Friday May 23	1	II	JJ		KK			KK	HH		HH		SH
	2	II	JJ		HH			HH	KK		KK		SH

FIELD TRIP
FOR
IGP ADVANCED FLOUR MILLING SHORT COURSE
JUNE 6-7, 1986

Friday - June 6, 1986

10:30 a.m.	Bus departs from IGP Lunch enroute
2:00 p.m.	Arrive Dixie Portland Flour Mill Box 698 Arkansas City, KS 67005 PH: 316-442-6200 - Ralph Broadrick Plant Superintendent
4:00 p.m.	Observe wheat harvest activity Host - Steve Frazier KWC Commissioner
7:00 p.m.	Dinner - the "Green Door" - Mexican-American cuisine Arkansas City, Kansas Lodging: Regency Court Motel Arkansas City, KS PH: 316-442-7700

Saturday - June 7, 1986

9:00 a.m.	Weather permitting. . . Observe wheat harvest activity Host - Steve Frazier KWC Commissioner
12:00 Noon	Lunch enroute to Manhattan
5:00 p.m. (approximately)	Arrive at the Holiday Inn - Manhattan

THANK YOU FOR VISITING KANSAS
KANSAS WHEAT COMMISSION

The Kansas Wheat Commission is a state agency and is funded by the wheat producing farmers of the state. The purpose of the commission is to increase the marketing of wheat and wheat products through education, public relations, technical assistance and research.

STAFF: Steven M. Graham, Administrator; David E. Frey, Assistant Administrator; Jim Bair, Marketing Specialist; Becky Koch, Communications Director; Sharon Patterson, Nutritionist

COMMISSIONERS: Donald H. Turnquist, Chairman; Steve Frazier, Vice Chairman; Winston Peterson, Secretary; Vernon V. Schraeder, Keith Nelson, Hal Judy, Adrian Polansky

Row 1 Jair Seytiro Suquiomoto, Lewis Stockard, Rosani Goncalves, Daniel Marcelo Rachman, Valdecir Biazin, Stephanos Stephanides

Row 2 Anthony Attard, Martinho Silveira, Fernando Da Silva Faria, Chen Hou-ji, Italo Joao Franzoi, Franco Scarabottolo, Sylvia Lopes

Row 3 Harvey Kiser, Edgard Alves Da Silva Filho, Henry Stevens, Luis Fett, Vitor Bing

Row 4 Robert Pudden, Robert McEllhiney, Ralph Wolffing, Amauri Stelle

IGP ADVANCED MILLING SHORT COURSE
June 2-13, 1986

Room Number	Lecture	Instructor	#Hours
WAX104	A - Welcome and Introductions		1
	B - Tour of Facilities		1
WAX104	C - Proper Care and Storage of Wheat	Chung	1.75
WAX104	D - Principles of Milling	Eustace	1.75
WAX104	E - Overview of U.S. Wheat Production and Uses	H. Stevens	.75
SH110	F - Tests for and Determination of Flour Quality, Blending-Problems and Benefits	Pudden	2
SH110	G - Bake Lab Tests	Dibben	2
WAX104	H - Air Handling Systems	Kice	2
WAX104	I - Pneumatics and Dust Control	Kice	1.75
WAX104	J - Soft Wheat Milling	Wolffing	2
WAX104	K - What's New in Milling	Wingfield	1.75
WAX104	L - Roller Mills and Grinding	Simon Co.	2
WAX104	M - Sieves and Sifting & Sifter Movie	H. Stevens	2
WAX104	N - Specifications on Contracts for Wheat	Kiser	1.75
WAX104	P - Project Flour Mill Engineering	Amme;Buhler	2.75
WAX104	RM - Movie, Roller Mills	Staff	1
WAX104	Q - Energy Management	McEllhiney	1.75
WAX104	R - U.S. Grain Marketing System	Kiser	2
WAX104	T - Flour Mill Management	Bownik	1.75
WAX104	U - Flow Sheets	Wolffing	1.75
WAX104	W - Flour Mill Control and Automation	Wingfield	1.75
WAX104	X - Mill Byproduct Manufacturing	Flock;Koppers	2
WAX104	Y - Dust Explosion Program	Pudden	1.75
WAX104	Z - Mill Sanitation	H. Stevens	2
WAX104	AA - Corn and Specialty Milling	Eustace	1.75
WAX104	BB - Federal Grain Inspection Service		3.75
WAX104	CC - Northern Crops Institute	Dick	2
SH101	DD - Milling Demonstration	Staff	3
WAX104	EE - Mill Practice Lecture	Curran	1
SH115	FF - Moisture Tests	Eustace	1
SH	GG - Pilot Mill	Staff	6
SH101	HH - Lab Mill	Staff	6
SH101	II - Grain Tests	Curran	1
WAX104	JJ - Air Classification and Particle Size Lecture	Posner	1
SH115	KK - Air Classification Lab	Posner	3
WAX104	AM - Amazing Art of Milling - Movie	Wolffing	1

RS - Reception and Social At Roche Residence
SH - Social Hour and Banquet at the Country Club

Day	Group	8:00-9:00	9:00-10:00	10:00-10:15	10:15-11:00	11:00-12:00	12:00-1:00	1:00-2:00	2:00-3:00	3:00-3:15	3:15-4:00	4:00-5:00	
Monday June 2	1	A	B	X	C--	---	X	D--	----	X	E	AM	
	2	A	B	X	C--	---	X	D--	----	X	E	AM	
Tuesday June 3	1	Q--	---	X	D--	---	X	DD-	----	X	DD	II	
	2	Q--	---	X	D--	---	X	DD-	----	X	DD	II	
Wednesday June 4	1	EE	GG	X	GG-	---	X	HH-	----	X	HH	FF	RS
	2	EE	HH	X	HH-	---	X	GG-	----	X	GG	FF	RS
Thursday June 5	1	JJ	KK	X	KK-	---	X	HH-	----	X	HH	RM	
	2	JJ	HH	X	HH-	---	X	KK-	----	X	KK	RM	
Friday June 6	1	CC-	---	X	---	---	X	FIEI	D TRI	X	---	---	---
	2	CC-	---	X	---	---	X	---	---	X	---	---	---
				X			X			X			
Monday June 9	1	Y--	---	X	F	G	X	H--	----	X	I--	--	
	2	Y--	---	X	F	G	X	H--	----	X	I--	--	
Tuesday June 10	1	M--	---	X	U--	---	X	BB-	----	X	BB-	--	
	2	M--	---	X	U--	---	X	BB-	----	X	BB-	--	
Wednesday June 11	1	J--	---	X	N--	---	X	R--	----	X	L--	--	
	2	J--	---	X	N--	---	X	R--	----	X	L--	--	
Thursday June 12	1			X	W--	---	X	X--	----	X	T--	--	
	2			X	W--	---	X	X--	----	X	T--	--	
Friday June 13	1	Z--	---	X	AA-	---	X	P--	----	X	P	Q & A	SH
	2	Z--	---	X	AA-	---	X	P--	----	X	P		SH

FIELD TRIP
FOR
IGP ADVANCED FLOUR MILLING SHORT COURSE
JUNE 6-7, 1986

Friday - June 6, 1986

10:30 a.m.	Bus departs from IGP Lunch enroute
2:00 p.m.	Arrive Dixie Portland Flour Mill Box 698 Arkansas City, KS 67005 PH: 316-442-6200 - Ralph Broadrick Plant Superintendent
4:00 p.m.	Observe wheat harvest activity Host - Steve Frazier KWC Commissioner
7:00 p.m.	Dinner - the "Green Door" - Mexican-American cuisine Arkansas City, Kansas Lodging: Regency Court Motel Arkansas City, KS PH: 316-442-7700

Saturday - June 7, 1986

9:00 a.m.	Weather permitting. . . Observe wheat harvest activity Host - Steve Frazier KWC Commissioner
12:00 Noon	Lunch enroute to Manhattan
5:00 p.m. (approximately)	Arrive at the Holiday Inn - Manhattan

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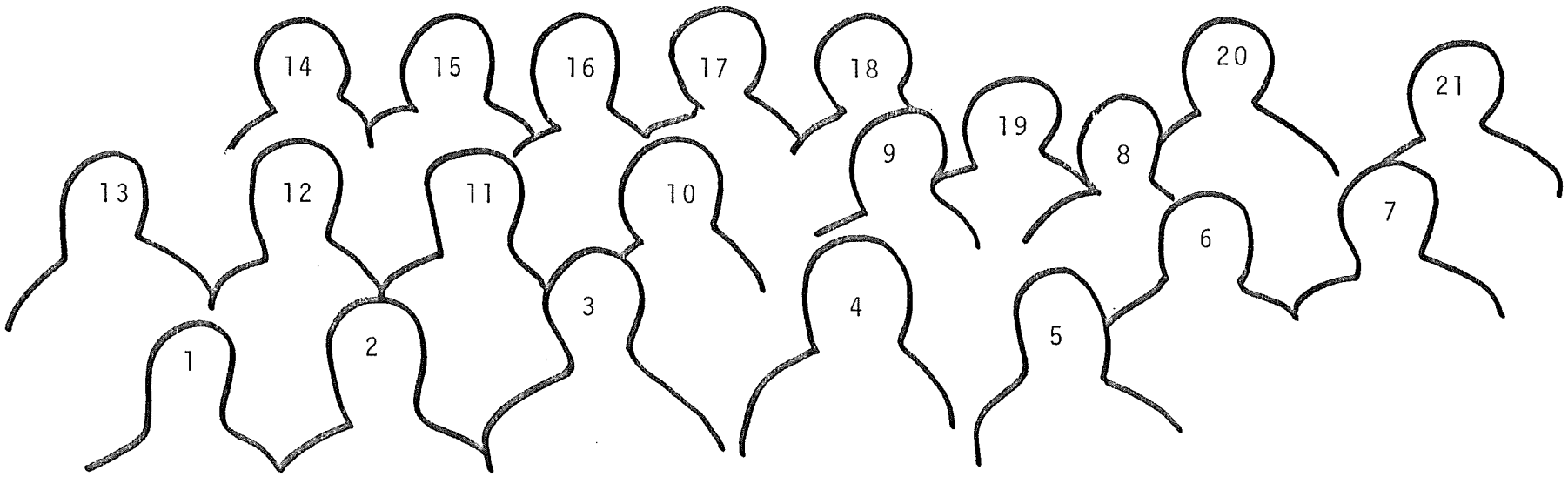


1. Mei-Jiun Hung
2. Kwang L. Rho
3. Bee Ryong, Bae
4. Eui-Suk, Chung
5. Joseph Liben
6. R. Rangaswamy
7. Raoul Perpignan
8. Dong Soo, Kim
9. Jung Jin, Kim
10. Kyu Chan, Chung
11. S. Y. Lin
12. K. S. Hung
13. Fitzroy Bennett
14. C. H. Wang
15. Ronald L. J. Lu
16. Chron-Si Lai
17. C. K. Chung
18. Chu-Sen Yeh
19. Oscar Ernesto Villalobos
20. Ralph Wolffing
21. Dr. Elieser Posner

INTERNATIONAL GRAINS PROGRAM
Shellenberger Hall, Manhattan, Kansas 66506 U.S.A.

GRAIN GRADING SHORT COURSE
June 23-27, 1986

Monday, June 23

8:30 am -10:00	Introductions, Dr. Charles Deyoe, Director, IGP. Tour of Facilities, Mr. Ralph Wolffing, Miller, IGP.
10:00 - 10:15	Break
10:15 - 11:00	Crop Quality, Mr. Ralph Wolffing.
11:00 - 12:00	Structure and Properties of the Wheat and Corn Kernels, Ms. Rosemary Burroughs, Mycologist, Dept. of Grain Science and Industry.
12:00 - 1:00	Lunch
1:00 - 3:00	Contracting and Ocean Transportation, Dr. Harvey Kiser, Agricultural Economist, IGP.
3:00 - 3:15	Break Group Photograph
3:15 - 5:00	Uses of Damaged Grain and Grain By-Products, Dr. Keith Behnke, Feed Technology, IGP.

Tuesday, June 24 Conducted by the Federal Grain Inspection Service

8:00 - 10:00	Standardization Presentation--Certification (Grade & Protein), Grain Movement.
10:00 - 10:15	Break--Coffee/Tea/Juice
10:15 - 12:00	Segregation of Granular Material, Film Questions and Answers
12:00 - 1:00	Lunch
1:00 - 3:00	Wheat Standards Sample Breakdown File-Work Sample Foreign Material Moisture, Odor, TW Dockage, Insects Shrunken-Broken Foreign Material Lighting Requirements Picking Surface Requirements Picking Procedures ILS System ILS Damages
3:00 - 3:15	Break
3:15 - 5:00	Hands-on Grading - WHEAT Foreign Material Damages

Wednesday, June 25 Conducted by the Federal Grain Inspection Service

8:00 - 10:00	Continuation - Wheat
10:00 - 10:15	Break
10:15 - 12:00	Corn Standards Sample Breakdown Moisture BCFM - Machine BCFM - Handpicked-Total File-Work-Sample Odor Insects ILS Damages
12:00 - 1:00	Lunch
1:00 - 3:00	Corn Grading - Hands on
3:00 - 3:15	Break
3:15 - 5:00	Cu-Sum
7:00 - 9:00 pm	Informal Reception, Home of David Frey.

Thursday, June 26 - FIELD TRIP

8:00 am Depart Manhattan for Clay Center

Friday, June 27

8:00 - 9:00	Types of Wheat and Corn and Their Uses, Dr. Dale Eustace, Miller, IGP.
9:00 - 10:00	Laboratory Tests for Physical and Chemical Properties of Grains, Dr. Jon Faubion, Dept. of Grain Science and Industry.
10:00 - 10:15	Break
10:15 - 11:00	Oriental Noodles, Dr. Kwan Rho, Dept. of Grain Science and Industry.
11:00 - 12:00	Soft Wheat Milling and Products, Mr. Ralph Wolffing, Miller, IGP.
12:00 - 1:00	Lunch
1:00 - 2:00	Storage of Wheat and Corn under Tropical and Subtropical Conditions, Dr. Ulysses Acasio, Grain Storage Technology, IGP.
2:00 - 3:00	Effect of Handling and Processing on the Quality of Wheat and Corn, Dr. Ekramul Haque, Agricultural Engineer.

Row 1: Carlos Enrique Duque, Chen Hou-ji, Alicia Opheim, Helvia Rodriguez, Dalmarys Bracho, Pedro Rojas

Row 2: Ulysses Acasio, Harvey Kiser, Jose Canseco, Luz Maria Montero, Richard Kuske, Leonardo Rubin

Row 3: Javier Guiulfo, Carol Rose Lopez, Lewis Stockard, Omar Zilbert, Janee Roche, Ivan Ovalle, Miguel Quiros, Arturo Herrero

Flour Milling Short Course

August 4 - 15, 1986

Room No.		Course Name	Instructor	No. of Hours
WX104	A-	Tour, Welcome, and Introductions		1.0
WX104B	B-	Grain Grading	FGIS	4.0
WX104	C-	Grain Marketing	H. Kiser	2.0
WX104	D-	Wheat Mixes	R. Pudden	1.0
WX104	E-	Moisture Testing	Staff	2.0
WX104	F-	Grain Cleaning Methods	H. Stevens	1.0
WX104	G-	Principles of Milling	D. Eustace	2.0
SH101	GG-	Principles of Milling Lab	Staff	16.0
WX104	H-	Milling Practice Lecture	S. Curran	1.0
SH105	HH-	Milling Practice Lab	Staff	12.0
WX104	I-	Flow Sheets	R. Wolffing	2.0
WX104	J-	Flour Mill Construction	H. Amme	3.0
WX104	K-	Grain and Mill Sanitation	H. Stevens	2.0
WX104	L-	Flour Functionality/Quality	R. Pudden	2.0
WX104	M-	Mill Control	J. Wingfield	2.0
WX104	N-	Sieves and Sifters and SM	H. Stevens	2.0
SH115	O-	Experimental Milling Lab	Staff	4.0
WX104	P-	Analysis of Mill Operation	R. Pudden	1.0
WX104	Q-	Fine Grinding & Air Classification	E. Posner	1.0
SH115	QQ-	Fine Grinding Lab	E. Posner	4.0
WX104	R-	Nutritional Values/Wheat Products	S. Davis	1.0
SH110	S-	Physical Dough Testing Lab	R. Pudden	4.0
WX104	SW-	Soft Wheat Milling	R. Wolffing	1.0
WX104	T-	Air Measurement/Pneumatic Conveying	J. Kice	3.0
WX104	U-	Mill By Product Use	R. Wilcox	2.0
WX104B	V-	Mill Steam Microscopy	S. Curran	2.0
WX104	W-	Specialty Milling	D. Eustace	1.0
WX104	ND-	North Dakota Guest Speakers	J. Dick	4.0
WX104	DM-	Dust Explosion-Program	R. Schoeff	2.0
WX104	Z-	Grain Handling & Storage	U. Acasio	

*AM-Movie-"Amazing Art of Milling"
*SM-Movie-"Sifting Study"
*RM-Movie-"Roller Mills in Action"
*SOC-Informal Reception 7:00 p.m. at Wingfield's
*BAN-Social Hour and Dinner at the Country Club

Day	Group	8:00-9:00	9:00-10:00	10:00-10:15	10:15-11:00	11:00-12:00	12:00-1:15	1:15-2:15	2:15-3:15	3:15-3:30	3:30-4:30	4:30-5:30	
Monday August 4	1	A	AM		E----	----		C----	----		F	D	
	2	A	AM		E----	----		C----	----		F	D	
Tuesday August 5	1	G----	----		GG----	----		O----	----		W		
	2	G----	----		O----	----		GG----	----		W		
Wednesday August 6	1	H	GG----		----	----		HH----	----		----		SOC
	2	H	HH----		----	----		GG----	----		----		
Thursday August 7	1	DM----	----		SW	Q		QQ----	----		S----	----	
	2	DM----	----		SW	Q		S----	----		QQ----	----	
Friday August 8	1	FIELD TRIP----------											
	2												
Monday August 11	1	M----	----		N	SM		V----	----		K----	----	
	2	M----	----		N	SM		V----	----		K----	----	
Tuesday August 12	1	I----	----		L----	----		B----	----		B----	----	
	2	I----	----		L----	----		B----	----		B----	----	
Wednesday August 13	1		RM----		Z	Z		GG----	----		----		
	2		GG----		----	----		RM	Z		Z		
Thursday August 14	1	R	T		T----	----		J----	----		J		BAN
	2	R	T		T----	----		J----	----		J		
Friday August 15	1	ND----	----		ND----	----		U----	----		P		
	2	ND----	----		ND----	----		U----	----		P		

Row 1: Lekhooa Absiar Mpholo, Busuioc Ion, Marwan Foad Al-Shawaf, Hamdi El-Samanoudi, Hassan M.W. Hassan Goris van Lit, Dinko Meskovic, M.M. Krishnaiah

Row 2: Ralph Wolffing, John Wingfield, Mohamed Naqeeb Farahat, Rachid Munim, Yakoub Yakoub, Mahmoud R. Lamadanie, Gamal Al Chikha, Samir Mohamed Ibrahim Gado, Elieser Posner, Rabeie Klaie Mohamed, Ali Mohamed Taha, Baciu Constantin, Dale Eustace

Row 3: Robert F. Pudden, Rafik Ibrahim Shalaby, Louis Legge Loku

INTERNATIONAL
GRAINS PROGRAM
Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

MILL MANAGEMENT SHORT COURSE
September 8-19, 1986

Monday, September 8

8:30-10:00am	Welcome, Introductions and Tour
10:00-10:15	Break
10:15-11:00	1986 Crop Quality, Professor Henry Stevens
11:00-12:00	Management Decision Making, Dr. Richard Phillips
12:00-1:30pm	Lunch
1:30-3:15	Continue-Management Decision Making
3:15-3:30	Break
3:30-5:00	International Grain Contracts, Dr. Harvey Kiser

Tuesday, September 9

8:30-10:00am	Ocean Transportation, Dr. Harvey Kiser
10:00-10:15	Break
10:15-12:00	Hedging Concepts, Dr. Bill Tierney
12:00-1:30pm	Lunch
1:30-3:00	Safety Program, Dr. Robert Schoeff
3:00-3:15	Break
3:15-5:00	Introduction to Feasibility Study Using Computers, Dr. Eli Posner

Wednesday, September 10

8:30-10:00am	Sanitation Program, Professor Henry Stevens
10:00-10:15	Break - Group Photograph
10:15-12:00	Grain Storage and Handling, Dr. Ulysses Acasio
12:00-1:30pm	Lunch
1:30-3:15	Energy Utilization, Professor Robert McEllhiney
3:15-3:30	Break
3:30-5:00	Employee Training, Professor Robert McEllhiney
7:00-9:00pm	Informal Reception - Dr. Charles Deyoe

Thursday, Friday, Saturday, September 11-13, Field Trip to Oklahoma City, Wichita, Hutchinson

INTERNATIONAL
GRAINS PROGRAM
Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

CURSO INTENSIVO DE ADMINISTRACION DE MOLINOS
del 8 al 19 de septiembre de 1986

lunes, 8 de septiembre

8:30-10:00am	Bienvenida, presentaciones y gira
10:00-10:15	Descanso
10:15-11:00	Calidad de la cosecha de 1986, Profesor Henry Stevens
11:00-12:00	Toma de decisiones administrativas, Dr. Richard Phillips
12:00-1:30pm	Almuerzo
1:30-3:15	Continuación-Toma de decisiones administrativas
3:15-3:30	Descanso
3:30-5:00	Contratos internacionales de granos, Dr. Harvey Kiser

martes, 9 de septiembre

8:30-10:00am	Transporte oceánico, Dr. Harvey Kiser
10:00-10:15	Descanso
10:15-12:00	Conceptos de cobertura, Dr. Bill Tierney
12:00-1:30pm	Almuerzo
1:30-3:00	Programa de seguridad, Dr. Robert Schoeff
3:00-3:15	Descanso
3:15-5:00	Introducción al estudio de factibilidad usando computadoras, Dr. Eli Posner

miercoles, 10 de septiembre

8:30-10:00am	Programa de saneamiento, Profesor Henry Stevens
10:00-10:15	Descanso - Foto del grupo
10:15-12:00	Almacenaje y manejo de granos, Dr. Ulysses Acasio
12:00-1:30pm	Almuerzo
1:30-3:15	Utilización de energiá, Profesor Robert McEllhiney
3:15-3:30	Descanso
3:30-5:00	Capacitación de los empleados, Profesor Robert McEllhiney
7:00-9:00pm	Recepción informal - Dr. Charles Deyoe

Jueves, viernes, sábado, 11-13 de septiembre, gira a Oklahoma City, Wichita, Hutchinson

Monday, September 15

8:30-10:00am	Mill Modernization - Electronics and Computer Dick Ferrell, Pillsbury
10:00-10:15	Break
10:15-12:00	Mill Modernization Continued
12:00-1:30pm	Lunch
1:30-3:15	Mill Cost Accounting, ConAgra Executive
3:15-3:30	Break
3:30-5:00	Customer Utilization of Flour, George Minor, ConAgra

Tuesday, September 16

8:30-10:00am	Mill Control, Professor Ralph Wolffing
10:00-10:15	Break
10:15-12:00	Production Scheduling and Inventory Control Dr. Stanley Lee, KSU, Department of Industrial Engineering
12:00-1:30pm	Lunch
1:30-3:15	FGIS, Cu Sum, Particle Segregation
3:15-3:30	Break
3:30-5:00	FGIS, Wheat Grading Lecture

Wednesday, September 17

8:30-10:00am	Cost Accounting - Flour Cards, Professor John Wingfield
10:00-10:15	Break
10:15-12:00	Mill Maintenance, Professor Carl Stevens
12:00-1:30pm	Lunch
1:30-3:00	Familiarization with Computers, Professor Henry Stevens
3:00-3:15	Break
3:15-5:00	Computer Applications, Aeration, Dr. Ulysses Acasio

Thursday, September 18

8:30-10:00	Milling By Product Use, Dr. Keith Behnke
10:00-10:15	Break
10:15-12:00	Analysis of Mill Operation, Professor Robert Pudden
12:00-1:30pm	Lunch
1:30-5:00	Computer Applications, Wordprocessing, Spreadsheets, Maintenance Records
7:00pm	Social Hour and Banquet, Country Club

Friday, September 19 field trip to Kansas City, visit ADM and Kansas City Board of Trade.

lunes, 15 de septiembre

8:30-10:00am	Modernización del molino - electrónica y computadoras Sr. Dick Ferrell, Pillsbury
10:00-10:15	Descanso
10:15-12:00	Modernización del molino, continuacion
12:00-1:30pm	Almuerzo
1:30-3:15	Contabilidad de costos en el molino, ejecutivo de ConAgra
3:15-3:30	Descanso
3:30-5:00	Utilización de la harina por los clientes, Sr. George Minor, ConAgra

martes, 16 de septiembre

8:30-10:00am	Control del molino, Profesor Ralph Wolffing
10:00-10:15	Descanso
10:15-12:00	Horario de producción y control del inventario, Dr. Stanley Lee, KSU, Department of Industrial Engineering
12:00-1:30pm	Almuerzo
1:30-3:15	FGIS, Cu Sum, Separación de particulas
3:15-3:30	Descanso
3:30-5:00	FGIS, Conferencia sobre la tipificación de trigo

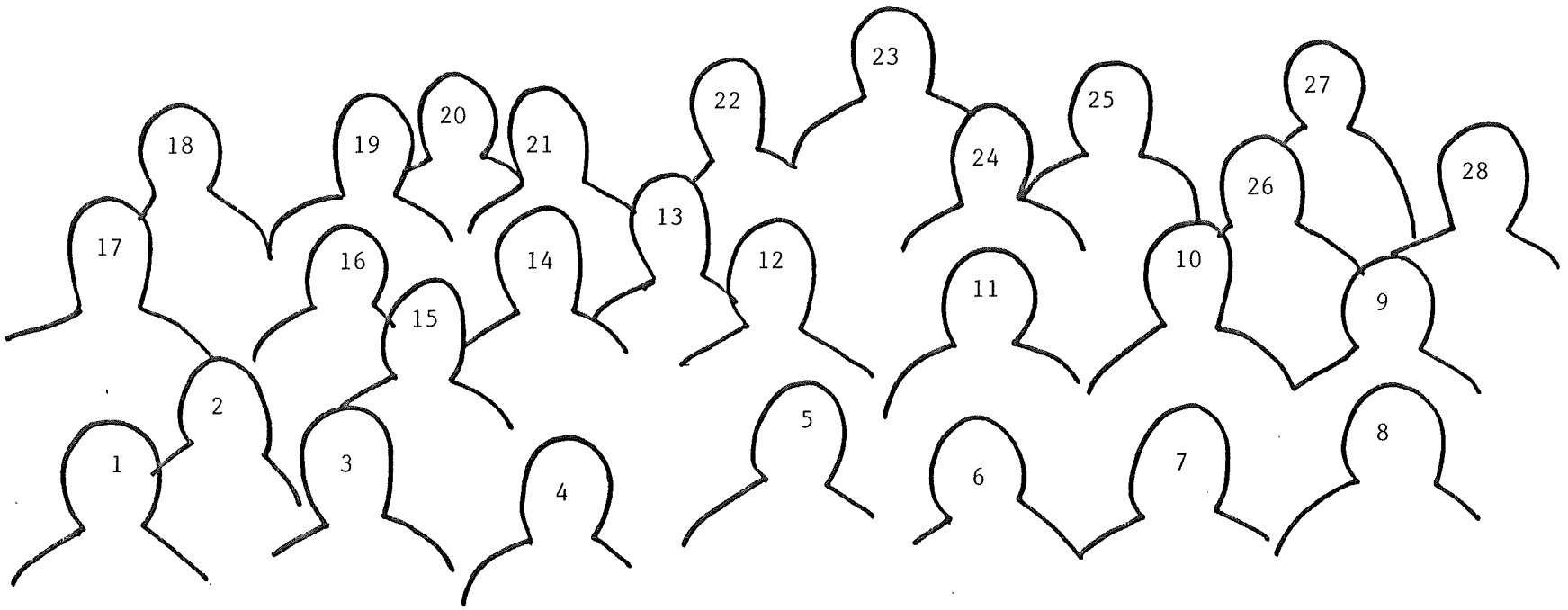
miercoles, 17 de septiembre

8:30-10:00am	Contabilidad de costos - Tarjetas de harina, Profesor John Wingfield
10:00-10:15	Descanso
10:15-12:00	Mantenimiento del molino, Profesor Carl Stevens
12:00-1:30	Almuerzo
1:30-3:00	Familiarizarse con las computadoras, Profesor Henry Stevens
3:00-3:15	Descanso
3:15-5:00	Aplicaciones para computadoras, aeración, Dr. Ulysses Acasio

jueves, 18 de septiembre

8:30-10:00am	Molienda según el uso final del producto, Dr. Keith Behnke
10:00-10:15	Descanso
10:15-12:00	Analisis de ha operación del molino, Profesor Robert Pudden
12:00-1:30pm	Almuerzo
1:30-5:00	Aplicaciones para computadoras, procesamiento de textos, hojas electronicas, registros de mantenimiento
7:00pm	Reunión informal y banquete, Country Club

Viernes el 19 de septiembre gira a Kansas City para visitar ADM y la Bolsa de Comercio de Kansas City.



1. Camilo H. Vargas Fernandez
2. Alicia Opheim
3. Emilio C. Soliven
4. Rafael Suarez Velasquez
5. Hubert K. Heinke
6. Dennis A. McGee
7. Carlos Guzman Aree
8. Luis Ricardo Saauedra Salas
9. Francisco Jose DeLeon Barrientos
10. Ricardo A. Lopez
11. Heriberto Reye V.
12. Damian Galan Baleonero
13. Carol Lopez
14. Karel A.M. Haal
15. Carlos G. Martinez Murillo
16. Jose A. Brito
17. Cecil Hypolite
18. Henry Stevens
19. Gonzalo Eguren Elguera
20. Gonzalo Cordoba N.
21. Jose Luis Achirice
22. Manuel Castano Bernain
23. Gerald Jean Voley
24. Mitchell Skalieky
25. Humbert Delgado Castro
26. Rene Kappeler
27. Robert F. Pudden
28. Ulysses Acasio

INTERNATIONAL
GRAINS PROGRAM
Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

GRAIN GRADING SHORT COURSE

September 22-26, 1986

Monday, September 22

8:30 am -10:00	Introductions, Dr. Charles Deyoe, Director, IGP. Tour of Facilities, Mr. Robert Pudden, IGP.
10:00 - 10:15	Break - Group Photo
10:15 - 11:00	Crop Quality, Mr. Henry Stevens, Miller, IGP.
11:00 - 12:00	Ocean Transportation, Dr. Harvey Kiser Agricultural Economist, IGP.
12:00 - 1:30	Lunch
1:30 - 3:00	Structure and Properties of the Wheat Kernel, Ms. Rosemary Burroughs, Mycologist, Dept. of Grain Science and Industry.
3:15 - 5:00	International Contracting Dr. Harvey Kiser, Agricultural Economist, IGP.

Tuesday, September 23 Conducted by the Federal Grain Inspection Service

8:30 - 10:00	Standardization Presentation--Certification (Grade & Protein), Grain Movement.
10:00 - 10:15	Break
10:15 - 12:00	Segregation of Granular Material, Film Questions and Answers
12:00 - 1:30	Lunch
1:30 - 3:00	Wheat Standards Sample Breakdown File-Work Sample Foreign Material Moisture, Odor, TW Dockage, Insects Shrunken-Broken Foreign Material Lighting Requirements Picking Surface Requirements Picking Procedures ILS System ILS Damages
3:00 - 3:15	Break
3:15 - 5:00	Hands-on Grading - WHEAT Foreign Material Damages
7:00 - 9:00pm	Informal Reception, Home of Robert Pudden

Wednesday, September 24

8:00 - 10:00	Continuation - Wheat
10:00 - 10:15	Break
10:15 - 12:00	Cu-Sum
12:00 - 1:30	Lunch
1:30 - 3:00	Molds and Mycotoxins Ms. Rosemary Burroughs
3:00 - 3:15	Break
3:15 - 5:00	Grain Storage and Integrated Sanitation Management, Dr. John Pedersen, Dept. of Grain Science and Industry-KSU.

Thursday, September 25

8:30 am - 9:30	Pasta from Kansas Wheats Dr. Paul Seib, Dept. of Grain Science and Industry
9:30 - 10:15	Processing and Uses of the Types of Wheat Mr. Ralph Wolffing, Miller, IGP.
10:15 - 10:30	Break
10:30 - 12:00	Continue Wheat Processing

12:00 Luncheon and presentation of course certificates

GRAIN GRADING SHORT COURSE (September 22-26, 1986)

(left to right)

ROW 1: *Mr. El-Talib Eissa Mustamhil, Mr. Izzeldin Hamza Ahmed, Mr. Hassan Abdelmohsen Aldakouni, Mr. Mohamed Taha Mohamed Osman, Dr. Ioannis G. Karis, Mr. A. S. Sundara Rajan, Mr. Paulo Roberto Mello Godoy, Mr. Mahmoud R. Lamadanie*

ROW 2: *Mr. John Alves, Mr. Huseyin Emir Oztarhan, Mr. Romeu Jose Massignan, Mr. Ricardo Cesar Porto Montenegro, Mr. Carlos Alberto De Vasconcelos, Mr. Armando Gomes Tavares, Mr. João José de Aguiar, Mr. Robert Pudden*

ROW 3: *Mr. Hassan M. Wagieh Hassan, Mr. Henry Stevens, Mr. Alvaro de la Fuente, Mr. Sergio Da Costa E Silva Santos, Mr. Lucas Haralambous, Mr. Ralph Wolffing, Mr. Alberto Abreu*

INTERNATIONAL
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Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

First Week - ACDI Grain Storage and Marketing 5 week short course
September 29-October 31
Meeting Room Waters 03K

September 29, Monday
8:30 Welcome and Introductions
9:00 Principles of Management, Richard Phillips
10:00 Break
10:15 Continue-Management
12:00 Lunch
1:30 Using Fundamental and Technical Analysis to Make Procurement Decisions, William Tierney
3:00 Break
3:15 Continue Fundamental and Technical Analysis

September 30, Tuesday
8:30 Grain Processing, Ralph Wolffing
10:00 Break
10:15 Grain Processing Continued
11:00 Film-Amazing Art of Milling
12:00 Lunch
1:30 Buying Micros and Software to Meet Your Needs, Art Barnaby
3:00 Break
3:15 Introduction to Using Computers, Chris Mikesell
5:00 Dismiss

October 1, Wednesday
Instructor for Wednesday, Thursday, and Friday is Mr. Mikesell.
8:30 Computer Applications - Word Processing
10:00 Break
10:15 Continue
12:00 Lunch
1:30 Computer Applications - Spreadsheets
3:00 Break
3:15 Continue
5:00 Dismiss

October 2, Thursday
8:30 Computer Applications - Spreadsheets
10:00 Break
10:15 Continue
12:00 Lunch
1:30 Computer Applications - Spreadsheets
3:00 Break
3:15 Continue
5:00 Dismiss

October 3, Friday
8:30 Computer Applications - Database Management
10:00 Break
10:15 Continue
12:00 Lunch
1:30 Computer Applications - Database Management
3:00 Break
3:15 Continue
5:00 Dismiss

Sunday, October 5 Drive to Kansas City to Sheraton Hotel.
Monday, October 6 On-Site Training Federal Grain Inspection Service
Tuesday, October 7 KC-FGIS
Wednesday, October 8 KC-FGIS
Thursday, October 9, visit Cargill Terminal Elevator, Kansas City.
Friday, October 10, join Feed Manufacturing Short Course Field Trip at Farmland Industries Research Farm 10:00 am.
Return to Manhattan late Friday on chartered bus.
Saturday, October 11 is not yet set.
Sunday, October 12 is free time
Monday, October 13, Leave Manhattan for Houston
Tuesday, October 14 and Wednesday, October 15, tour port facilities, watch loading of vessels, etc. Return to Manhattan late October 15.
Thursday-October 16, Friday-October 17, Saturday-October 18, On-site at country receiving stations around Manhattan. contact person is Don Gudenkauf.
Sunday, October 19 is free time
Monday, October 20 start Grain Storage and Marketing sessions.

INTERNATIONAL
GRAINS PROGRAM

Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

Feed Manufacturing Short Course

September 29-October 10, 1986

Monday, September 29

9:00am	Registration and Orientation, Ramada Inn Room 621
10:15	Walk from Ramada to IGP Center
10:30	Welcome, Introductions, Charles Deyoe
11:00	Tour of the Department of Grain Science & Industry, Robert Pudden, Ralph Wolffing
12:00	Lunch
3:00	World Feed Industry, Robert Schoeff
4:00	International Markets, Harvey Kiser
5:30	Dismiss

Tuesday, September 30

8:30	Process Flows, James Balding
10:00	Break - Group Photograph
10:30	Plant Management, Robert McEllhiney
12:00	Lunch
1:30	Particle Size Lecture, Carl Stevens
3:00	Break
3:30	Particle Size Lab, Carl Stevens/Keith Behnke
5:30	Dismiss

Wednesday, October 1, 1986

8:30	Feed Plant Design, Dunnley Mattke
10:00	Break
10:30	Continue Feed Plant Design
12:00	Lunch
1:30	Equipment Selection, Fred Fairchild
3:00	Break
3:30	Continue Equipment Selection
5:00	Dismiss
7:00 - 9:00	Informal Reception - Janee Roche

Thursday, October 2

8:30	Premixing, Robert McEllhiney
10:00	Break
10:30	Mixing, Keith Behnke
12:00	Lunch
1:30	Pelleting Before the Die, James Balding
3:00	Break
3:30	Qualities of Feed Ingredients, Arthur Davis
5:00	Dismiss

Friday, October 3

8:30	Pelleting After the Die, Carl Stevens
10:00	Break
10:30	Mixing Lab Group I/Pelleting Lab Group II, Behnke/Stevens/Balding
11:15	Pelleting Lab Group I/Mixing Lab Group II, Balding/Stevens/Behnke
12:00	Lunch
1:30	Packaging, Warehousing, Loadout, Robert McEllhiney
3:00	Break
3:30	Microscopy, Lynn Bates
5:30	Dismiss

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Saturday and Sunday, October 4 and 5 Free Time

Monday, October 6

8:30	Inventory Control and Production Scheduling, Robert McEllhiney
10:00	Break
10:30	Quality Control, Robert Wilcox
12:00	Lunch
1:30	Plant Maintenance, Carl Stevens
3:00	Break
3:30	Plant Sanitation, John Pedersen
5:00	Dismiss
7:00	Optional - Thermal Processing, Keith Behnke

Tuesday, October 7

8:30	Plant Steam Systems, Carl Stevens
10:00	Break
10:30	Energy Management, Robert McEllhiney
12:00	Lunch
1:30	Safety Lab, James Balding
3:00	Break
3:30	Sanitation Lab, John Pedersen
5:30	Dismiss
7:00	Reception sponsored by KSBOA - Ramada Inn

Wednesday, October 8

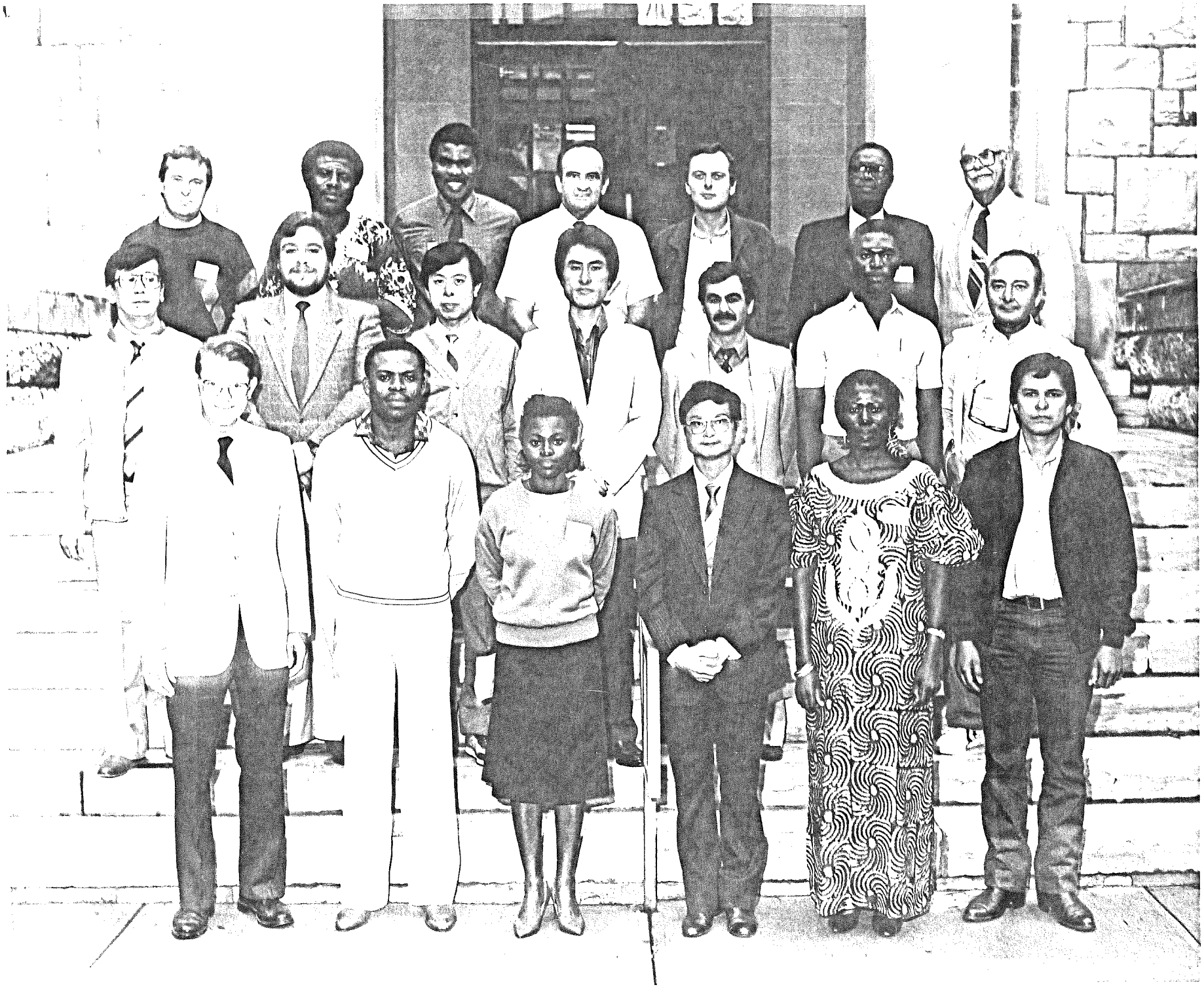
8:30	Feed Plant Process Controls, Ronald Harrison
10:00	Break
10:30	Continue-Feed Plant Process Controls
12:00	Lunch
1:30	Manufacturing Cost Control, Robert McEllhiney
3:00	Break
3:30	Shrink Control, Robert McEllhiney
5:00	Dismiss

Thursday, October 9

8:30	Feed Formulation, Keith Behnke
10:00	Break
10:30	Bin Design, Carl Stevens
12:00	Lunch
1:30	Linear Programming, Keith Behnke
3:30	Break
4:00	Quality Control, Robert Wilcox
5:00	Dismiss
7:00	Social Hour and Banquet, Country Club

Friday, October 10

Field Trip to Kansas City, Robert Schoeff



Row 1: Harvey Kiser, Funsho Ogunshina, I. A. Adebanjo, Frank L. Hsu, Susan Allo Elango, Guillermo Mejia.

Row 2: Montri Vichienwanitchkul, Jorge Ponce De Leon, Paisal Chongbanyatcharoen, Kyung Shin Lim, Yavuz Senel, Solomon Forsisi, Ferenc Lakatos.

Row 3: Slanic Smiljan, Yuh Evaristus Yoh, Olufemi Oyinsan, James Balding, Sandor Nogradi, Lawrence A. Ogunleye, Robert Pudden.

INTERNATIONAL
GRAINS PROGRAM

Shellenberger Hall Manhattan, Kansas 66506 USA (913) 532-6161

GRAIN STORAGE AND MARKETING SHORT COURSE
October 20 - 31, 1986

Monday, October 20
8:30 Introductions, Roger Johnson
8:45 World Grain Production and Consumption, Harvey Kiser
10:00 Break
10:30 Post Harvest Systems, Carl Reed
12:00 Lunch
1:30 Tour, Ralph Wolffing
2:15 Grain Structure, John Pedersen
3:00 Break
3:30 Grain Moisture and Its Measurement, Do Sup Chung
5:00 Dismiss

Tuesday, October 21
8:30 Microorganisms, Dave Sauer
10:00 Break
10:30 Insects of Stored Products, Valerie Wright
12:00 Lunch
1:30 Insects (continued)
3:00 Break
3:30 Rodents, John Pedersen
5:00 Dismiss

Wednesday, October 22
8:30 Insects (continued), Valerie Wright
10:00 Break
10:30 Inspection Systems and Standards for Developing Countries, Carl Reed
12:00 Lunch
1:30 Laboratory: Moisture Measurement, Ulysses Acasio, Valerie Wright
3:00 Break
3:30 Laboratory (continued)
5:00 Dismiss

Thursday, October 23
8:30 U.S. Grain Marketing System, Harvey Kiser
10:00 Break
10:30 Handling Facilities, Carl Stevens
12:00 Lunch
1:30 Practicum - Grain Sampling, Carl Reed, Ulysses Acasio
3:00 Break
3:30 Practicum (continued)
5:00 Dismiss

Friday, October 24
8:30 Storage Costs, Harvey Kiser
10:00 Break
10:30 Grain Cleaning (for storage), Carl Stevens
12:00 Lunch
1:30 Handling Procedures, Carl Stevens
3:00 Break
3:30 Handling Procedures (continued)
5:00 Dismiss

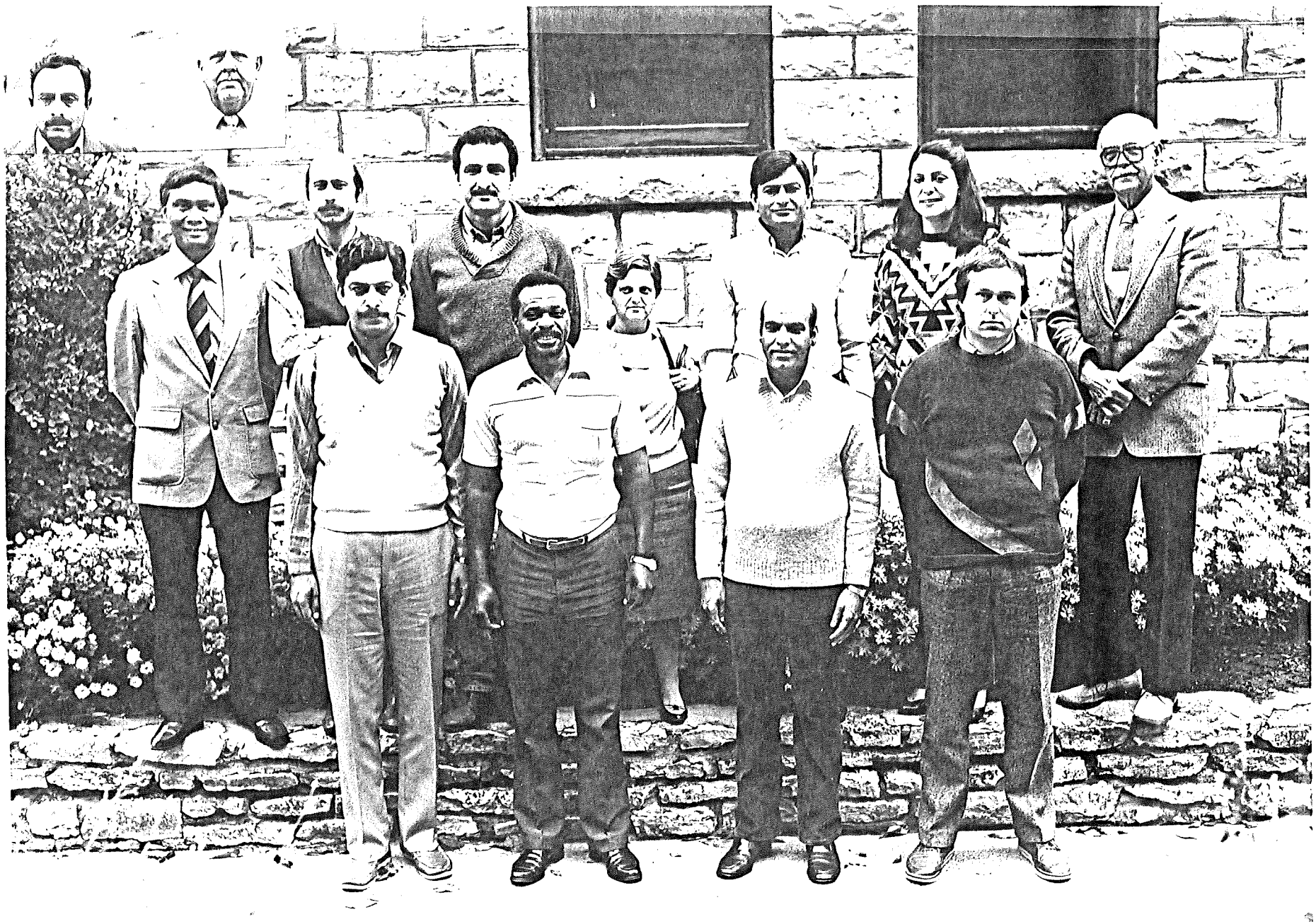
Monday, October 27
8:30 Aeration, Ulysses Acasio
10:00 Break
10:30 Aeration (continued)
12:00 Lunch
1:30 Principles of Grain Drying, Do Sup Chung
3:00 Break
3:30 Pest Control: Inspection and Housekeeping, John Pedersen
5:00 Dismiss

Tuesday, October 28
8:30 Wheat Quality 1986, Henry Stevens
10:00 Break
10:30 Energy Management, Carl Stevens
12:00 Lunch
1:30 Practicum - Grain Drying, Do Sup Chung
3:00 Break
3:30 Practicum (continued)
5:00 Dismiss

Wednesday, October 29
8:30 International Grain Contracts, Harvey Kiser
10:00 Break
10:30 Pest Control: Physical and Mechanical Methods, John Pedersen
12:00 Lunch
1:30 Ocean Transportation of Grains, Harvey Kiser
3:00 Break
3:30 Commodity Future Markets and the Export Outlook, Roger Johnson
5:00 Dismiss

Thursday, October 30
8:30 Pest Control: Physical/Mechanical Methods (continued), John Pederson
10:00 Break
10:30 U.S. Government Export Program, Jim Bair
12:00 Lunch
1:30 Safety in Grain Handling/Processing Facilities, James Balding
3:00 Break
3:30 Pest Control: Chemical Methods, John Pedersen
5:00 Dismiss

Friday, October 31
8:30 Pest Control: Chemical Methods (continued), John Pedersen
10:00 Break
10:30 Questions and Answers Session
12:00 Luncheon at K-State Union



Bottom Row: Masood Abbas, Eric Nydamureba, Muhammad Sharif, Smiljan Slanic
Top Row: Ulysses Acasio, Sabit Sumer, Fikret Erginer, Fugen Ozugur, Abdullah Yusaf, Terry Hardt, Robert Pudden
Insert: Anwar Khan, Ralph Wolffing

APPENDIX B

Grain Teams and Delegations-1986

Purpose: To promote the use and sales of U.S. corn, sorghum, soybeans and wheat by providing information on their use in flour milling, feed manufacturing, their processing requirements, and their nutritional and baking qualities, as well as information on the U.S. grain marketing system.

Kansas State University's international reputation for outstanding training, research, and wheat evaluation makes a visit to IGP a priority for many grain teams. IGP often serves as a resource for team members to obtain information on grain prducts and new processing and milling equipment as well as Agricultural Experiment Station Bulletins and grain industry publications.

The program for each trade team is tailored to specific needs and requests. Presentations are given by members of the International Grains Program faculty, as well as by faculty members from Kansas State University's Department of Grain Science and Industry. In addition, professors in other department in the College of Agriculture, such Agricultural Economics, Agricultural Engineering, Entomology and Agronomy, also participate in IGP programs. The faculty emphasize the continuous efforts the United States makes to provide competitive, marketable grains that meet the requirements of the visiting team's country.

The following pages present examples of the programs that are planned following requests from the various organizations that sponsor and/or host the grain teams.

Tentative Itinerary
Representatives for Henan Agricultural University
Henan Province, The Peoples Republic of China

Jiang Jian Ping, President, Henan Agricultural University
Shen Li, English and General Education
Zhu Yang Da, Associate Professor of Farm Machinery
Wang Zhen Xun, Deputy Chief of Training Center in Agronomy

Feb. 1	Arrival	Manhattan, KS	9:45 AM
Feb. 2		Open Schedule	
Feb. 3	9:00 - 10:00	Administrative Visit	President Duane Acker Provost Owen Koeppe
	10:00 - 12:00	Graduate School	Dean Robert Kruh Asst. Provost Vernon Larson
	12:00	Lunch	Key Rooms
	1:30 - 3:00	Overview, College of Agriculture	Dean Walter Woods Dr. Robert Johnson Dr. Stanley Leland Dr. David Mugler Dr. Vernon Larson
	3:30 - 5:00	Dept. of Animal Science & International Livestock Program	Dr. Bill Able
	7:00	Dinner	
Feb. 4	8:30 - 10:00	College of Veterinary Medicine	Dean James Coffman
	10:30 - 11:45	Evapotranspiration Laboratory	Dr. Edward Kanemasu
	12:00	International Luncheon	K-State Union
	1:30 - 3:00	Dept. of Agronomy	Dr. George Ham
	3:30 - 5:00	Dept. of Grain Science & Industry	Dr. Charles Deyoe
	6:30	Reception	President Duane Acker
	8:00	Dinner	

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U.S. FEED GRAINS COUNCIL
KOREAN CORN PROCESSING TEAM
March 7, 1986

March 6

Arrive in Manhattan evening of March 6, 1986
Ramada Inn March 6 and 7
Leave Manhattan March 8

March 7

8:00-9:30	Welcome and tour of facilities
9:30-12:00	Specialty Products of Corn Wet Milling Dr. Richard R. Hahn - V.P. of Research and Development A. E. Staley Mfg. Co.
12:00-1:30	Luncheon - Sunflower Room
1:30-3:00	Dry Corn Milling Dr. Dale Eustace and Dr. Arthur B. Davis Faculty Grain Science and Industry K.S.U.
3:00-3:15	Break
3:15-5:00	Experimental Milling on Pilot Corn Mill Professor Emeritus Eugene P. Farrell and Staff

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March 10, 1986

Welcome To

Mr. M. Syoji, Sunny Maize Co., Japan
Mr. Y. Satoh, Sunny Maize Co., Japan
Mr. H. Ban, Mitsubishi Corp., Japan
Mr. T. Miyauchi, Mitsubishi Corp, Japan

Meeting Room WA 03G

9:30 a.m.	Welcome and Overview of IGP and Department of Grain Science and Industry, Kansas State University Mr. Ralph Wolffing.
10:30 a.m.	Specialty Milling Professor Emeritus Eugene Farrell.
11:30 a.m.	Lunch.

Sponsored by Agrex Corporation

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Kansas Association of Wheat Growers

March 10, 1986

12:00-12:30	Presentation "Grain Exporting Misconceptions" by Dr. Harvey Kiser, Associate Professor, Department of Agriculture Economics
12:30-1:00	Luncheon - Student Union, Sunflower Room. Courtesy Kansas Wheat Commission
1:00-2:00	Tour American Institute of Baking
2:30-3:15	Pro - Cleaning Wheat - Computer Programmed Mary Knapp - Harvey Kiser Room 311.
3:15-	Tour mill at Grain Science and hands on experience in milling laboratory. By staff.

3/3/86

IRAQI POULTRY MANAGEMENT TEAM
MEA-86-B003B-P
April 10-24, 1986

TEAM ROSTER

Mr. Kahtan Abdul Hussain Omran, manager, Babil Poultry Farm

Mr. Mufeed Sada Mandoo, manager, Tarmia Poultry Farm

Mr. O-Rahman Mohamed Abdullah, manager, Sulaymania Poultry Farm

Mr. Tharwat Abdullah Abdul Rahman, manager, Arbil Poultry Farm

Mr. Fadhil Saleem Sadik, director general, State Establishment for for Poultry , Northern Zone

Mr. Aboul Khalig Hussain, import manager, Ministry of Agriculture and Agrarian Reform

TEAM LEADER: Mr. Hussam Saleh Mohamed, director general, State Establishment for Poultry Central Zone

April 21, 1986 - Kansas State University, International Grains Program and International Livestock Program

Escorted by Kansas State Board of Agriculture

KANSAS STATE UNIVERSITY

Department of Grain Science and Industry
Shellenberger Hall
Manhattan, Kansas 66506
913-532-6161

28 April 1986

TO: IGP Feed Faculty
Behnke, C. Stevens, Balding, Wilcox, Shoeff

FROM: Bob McEllhiney

SUBJECT: Taiwanese Beef Study Team

A three person beef team from Taiwan will be on campus Wed. April 30 through Friday, May 2. Team members are:

Mr. T.L. Yang - Taiwan Sugar Company
Mr. Edward Kiang - Cathay Farm
Mr. Clover Chang - USFGC, Interpreter/Escort

On Thursday, May 1, they will meet with the IGP Feed Faculty from 9:00 a.m. until noon in Room 03G to discuss feed manufacturing technology, primarily for beef feeding.

The following program is quite tentative; and if anyone has a conflict, we can rearrange the schedule - just let me know.

9:00 - Brief introduction to IGP, GS&I, etc. - Deyoe/Pudden
9:15 - Tour of Pilot Feed Plant - McEllhiney
9:30 - Modern Feed Plant Design - McEllhiney
10:30 - Grain Processing for Beef Feeds - Behnke
11:30 - Question/Answer Session - Faculty
12:00 - Adjourn

KANSAS STATE UNIVERSITY

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913-532-6161

15 May 1986

TO: IGP Faculty

FROM: Bob McEllhiney

SUBJECT: Portuguese Feed Grain Delegation

On Wednesday, May 21, we will conduct a half day seminar for six members of a Portuguese feed grain delegation on the general subject of grain sorghum. The seminar will be held in Room 03G.

Program

8:30	Welcome and Introductions	- Deyoe/Pudden
8:45	Tour of GSI Department	- McEllhiney
9:00	Grain Sorghum as a Feed Grain	- Behnke
9:30	Tannin in Grain Sorghums	- Burroughs
10:00	Break	
10:15	Nutritional Qualities of Grain Sorghum	- Klopfenstein
10:45	Grain Processing and Feed Manufacturing	- McEllhiney/Faculty
11:30	Adjourn	

Team Leader/ Escort: Pinto Dias, U.S. Feed Grains Council/Portugal, consultant

Team Composition: Artur Martins Mogueira, director and general manager, Sapropor

Joao Manuel Fragoso de Almeida, general director, E.P.A.C.

Alberto Joaquin Santos Araujo de Campo, manager, Soja de Portugal

Luis Rui de Sousa, general manager, Fabrica de Racoes do Alentjo, LDA.

Jose Oliveira Santos, manager, Racoes Sorraia

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May 27, 1986

Welcome to

GDR TECHNICAL MISSION

Mr. Hans Jacobi, Director Scientific Institute for Grain Industries
Dr. H. D. T. Scheuschner, Grain Processing Division, Technical University of Dresden
Mr. Joachim Gerngross, Director VEB Nahrungsmittelverke
Mr. Manfred Siegel, First Sec. Embassy of the GDR
Mr. Fred Hejduk, U.S. Wheat Associates, Rotterdam

Waters 03G

9:30 a.m.	Welcome and Introduction to IGP Dr. Charles Deyoe, Director, International Grains Program.
9:45 a.m.	Roundtable Discussion, Henry Stevens, Ralph Wolffing, Robert Pudden.
12:00	Dismiss

We thank you for visiting the International Grains Program at Kansas State University and hope you have an enjoyable stay in the United States.

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June 2, 1986

Memo
Re: Peruvian Trade Team - Hosted by Kansas Wheat Comm.
On June 5, 1986 Room 03k

10:30 a.m. to 12:00 noon

Welcome .....Dr. C.W. Deyoe
Transportation, Marketing, Contracting,
Overview of U.S. Marketing System..Dr. H. Kiser

12:00 noon to 1:00 p.m.

Luncheon to be arranged by Kansas Wheat Comm.

1:00 p.m. to ?

Slides of wheat crop and brief tour of facilities.
By Henry Stevens

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August 22, 1986

Japanese Food Agency
Escorted by Kansas Wheat Commission
Mr. Eto - Japanese Food Agency trainee
Dr. Gungi Noguchi - Nisshin Flour Mills

Meeting Room 03G : 8:30 - 12:00

8:30 - 9:15 a.m.	Welcome and overview of International Grains Program and Grain Science and Industry Department -Dr. Charles W. Deyoe.
9:15 - 10:15 a.m.	Baking properties of U.S. wheats -Professor Joe Ponte
10:15 - 10:30 a.m.	Break
10:30 - 11:30 a.m.	Classes of wheats and uses in U.S.A. Milling Industry -Mr. Ralph Wolffing
11:30 - 12:00 a.m.	Hard wheat flours for use in noodles -Dr. Paul Seib

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August 27, 1986

European Bread quality Team
Escorted by Kansas Wheat Commission

Mr. Hidde H. Thomsen
Mr. David A. Wright
Mr. Ronald Fraase
Mr. Stefan Van Der Zande
Mr. Peter Jones

Meeting Room 03G: 9:00 - 12:30

9:00-9:15 a.m.	Welcome and Overview of International Grains Program and Grain Science and Industry Department -Dr. Deyoe
9:15-9:45 a.m.	Tour of Facilities -Staff
9:45-10:00 a.m.	Break
10:00-10:45 a.m.	Review of Function of Wheat Quality Council -Mr. Tom Roberts
10:45-11:40 a.m.	Classes of Wheat and Uses in U.S.A. Milling Industry -Mr. Ralph Wolffing
11:40-12:30 a.m.	Uses of Flour for Specialty Breads -Professor Joe Ponte

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Welcome to
Japan Food Agency Team

Mr. Hiroshi Yoneda
Mr. Tomonari Osumi
Mr. Hiroyuki Matsumoto
Mr. Yoshiichiro Chishada
Mr. Robert Bratland

September 4, 1986
Room 03G, Waters

9:00-9:15am	Welcome and Overview of the International Grains Program, Dr. Charles Deyoe, Director
9:15-10:00	Review of Function of Wheat Quality Council, Mr. Tom Roberts
10:00-10:15	Break
10:15-11:15	Overview of Feed Science and Management Curriculum, Professor Robert McEllhiney
11:15-12:00	Classes of Wheat and Uses in U.S.A. Milling Industry, Mr. Ralph Wolffing
12:00-1:30	Luncheon
1:30-2:00	Hard Wheat Flour for Use in Noodles, Dr. Paul Seib
2:00-3:00	Overview of Baking Science Curriculum, and Uses of Different Types of Flour, Professor Joe Ponte
3:00-3:15	Break
3:15-4:15	Overview and Tour of Milling Science Department, Staff
4:15-4:45	Wheat Classification, Proposals and Goals for Better Identification of Wheat Classes, Professor John Wingfield

We hope you have enjoyed your visit to the International Grains Program at Kansas State University

ITINERARY - September 12, 1986

Kansas State University, Manhattan, Kansas

Delegation of the People's Republic of China, Henan Province

Hu, Tijun - Vice Governor of Henan Province

Yuan, Jiaan - Deputy Director of the Foreign Affairs Office, Henan Province

Dia, Baoxing - Mayor of Xuchang City

Ma, Lianxing - Vice Mayor of Pingdingshan City

Yu, Ping - Deputy Director of Zhumadian Prefecture

Wang, Ping - Foreign Affairs Office, Henan Province

Delegation accompanied by:

Don Jacka, Acting Secretary, Kansas State Board of Agriculture

Harry Salisbury, Manager, Market Analyst Section, Kansas State Board of Agriculture

****

8:45 a.m.	Arrival Manhattan Airport	
9:00 a.m.	Welcome - Dr. Jon Wefald, President KSU	Anderson Hall
9:15 - 9:40 a.m.	KSU Programs	Key Room-K.State Union
9:20 a.m.	College of Business Administration Dr. Randolph Pohlman	
9:30 a.m.	International Livestock Programs Dr. Bill Able	
9:40 - 10:00 a.m.	Reception	Key Room
10:00 a.m.	International Grains Program & Grain Science & Industry Tour Dr. Charles Deyoe	Shellenberger Hall
10:30 a.m.	Campus Tour and return to airport	

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Welcome to

Turkish State Grain Agency
September 22-23, 1986

SH 204
Monday, September 22

8:30 am	Welcome and Tour of the Department of Grain Science and Industry, Mr. Ralph Wolffing
9:30 am	Film "Deadly Dust"
10:15 am	Coffee Break
10:30	Design of Dust Collection Systems, Mr. Carl Stevens
12:00	Lunch
1:30pm	Visit USDA Grain Marketing Research Laboratory, Mr. Carl Stevens, Mr. Charles Martin
3:00	Return to Shellenberger
3:15	Operation of Dust Systems - Mr. Carl Stevens
5:00	Dismiss

Tuesday, September 23

To be arranged after arrival.

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Welcome to

MOROCCAN TRADE MISSION

October 2, 1986

Ahmed El Jaouhari
Redouane Boujemaa
El Khatir Badii
Ramdane Ouassini
Brahim Balafrej
Omar Amrhar

Waters 03G

1:00 pm Overview of the IGP-- Charles Deyoe, Director

1:15 Tour Department of Grain Science and Industry--
Ralph Wolffing

2:00 1986 HRWW Quality --Henry Stevens

3:00 U.S. Grain Marketing System--Harvey Kiser

The International Grains Program is pleased to have hosted your visit to Kansas State University.

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WELCOME TO

PRC INDUSTRIAL CORN TEAM

SPONSORED BY U.S. FEED GRAINS COUNCIL

OCTOBER 6, 1986

Mr. Pen Qi Fu
Mr. Shen Huizi
Mr. Zhang Guo Cun
Dr. Mao Yueh

Room 03G Waters

8:30 a.m.	Welcome, Overview of IGP and Tour of Facilities, Mr. Ralph Wolffing
9:30 a.m.	Overview of U.S. Feed Industry, Dr. Robert Schoeff
10:15 a.m.	Coffee/Tea Break
10:30 a.m.	Corn Processing, Dr. Dale Eustace
12:00 p.m.	Luncheon - K-State Union

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Welcome to
PRC Team from Shanxi Province
Sponsored by Kansas Board Of Agriculture

Waters Hall 03G

Monday, November 3

8:30 am Introduction to K-State, R. Johnson

8:45 am Feed Manufacturing and Feed Mill Tour, R. McEllhiney

10:00 am Break

10:15 am Plant Diseases, Bill Willis

11:15 am International Livestock Program

团 长		*Head of the Delegation:*	
苗佩芳	山西省农牧厅 厅长	Miao Peifang	*Director of Shanxi Agricultural & Animal Husbandry Department of Shanxi Province*
副团长		*Deputy-Head of the Delegation:*	
王 善	山西省外事办公室 主任	Wang Shan	*Director of Shanxi Provincial Foreign Affairs Office*
顾 问		*Advisor of the Delegation:*	
张长珍	山西省农村发展研究中心 顾问	Zhang Changzhen	*Adviser of Community Development Research Centre of Shanxi Province*
团 员		*Members:*	
梁桐芳	农业技术推广站 站长	Liang Tongfang	*Director of Agricultural Technique Popularization Station of Shanxi Province*
杨 彬	草原工作站 站长	Yang Bin	*Director of Grassland Work Station of Shanxi Province*
李海军	山西省外事办公室接待处 副处长	Li Haijun	*Deputy-Head of Reception Division of Shanxi Provincial Foreign Affairs Office*
翻 译		*Interpreters:*	
王振春	山西省人民政府侨务办公室	Wang Zhenchun	*Staff Member of Shanxi Overseas Chinese Affairs Office*
冯剑平	山西省人民政府外事办公室	Feng Jianping	*Staff Member of Shanxi Provincial Foreign Affairs Office*

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Welcome To

Charoen Pokphand International Team from Indonesia,

Thailand and Taiwan

Sponsored by Kansas Board of Agriculture

November 17, 1986

Waters Hall 03G

8:30 am Welcome, R. Johnson

8:45 am Quality Control, R. Wilcox

10:30 am Break

10:45 am Quality Control Continued, R. Wilcox

12:00 pm Lunch

1:30 pm Tour of Department

2:30 pm Feed Mill Management, J. Balding

3:30 pm Break

3:45 pm Dog Food Production, K. Behnke

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Welcome To

Agrex, Inc. and Japanese Feed Manufacturers

November 24, 1986

Waters Hall 03G

10:30 am Tour of Feed Mill, James Balding

11:30 am Visit with Dean Walter Woods

12:00 pm Lunch at the Bluemont Room (includes Balding, Behnke and Johnson

1:00 pm Feed Manufacturing, James Balding, Keith Behnke and Bob McEllhiney

2:30 pm Tour of swine feeding operations

3:30 pm Depart

APPENDIX C

IGP Travel Reports

Purpose: To present short courses, seminars, and symposia on various aspects of U.S. corn, sorghum, soybeans and wheat utilization, milling, feed manufacturing, and the U.S. marketing system. IGP faculty also consult on specific concerns of the grain and related industries.

At the request of U.S. Wheat Associates, U.S. Feed Grains Council, the American Soybean Association, and other organizations and associations, International Grains Program faculty travel throughout the year to all parts of the world. Presentations during these travels are varied. They include short courses, consultations on milling, baking or feed manufacturing problems, and promoting the use of U.S. grains.

These faculty in the field are often able to encourage the acceptance, purchase and use of U.S. grains. IGP staff members have suggested changes in milling or baking procedures that have improved the quality of products gained from the use of U.S. grains. Sometimes a slight variation in the handling of grain can make the difference between a superior product and one that is marginally acceptable. They are also able to suggest use of U.S. grains in products where such grains are not normally used. By providing short courses and seminars for participants in their own countries, IGP representatives are sometimes able to oversee fine tuning of methods or equipment that might not be possible from the courses taught to those same participants in the United States.

The following pages provide examples of reports from trips in which IGP faculty have participated during 1986.

TRIP REPORT

MILLING CONSULTANT 8608/M34/B003B

WEST AFRICA FEBRUARY 8 THRU FEBRUARY 21, 1986

RALPH H. WOLFFING, I.G.P.

Prepared At: International Grains Program
Kansas State University
Manhattan, Kansas, U.S.A.
C. W. Deyoe, Director

The writer accompanied Mr. John Howard, U.S. Wheat Casablanca on visits to Ghana, Nigeria, and Ivory Coast during the period of February 10 through February 20, 1986 for the purpose of Wheat Market Development in these countries.

Ghana – February 10, 11, 12

Visits were made to three flour mills operating in Ghana:
Irani Brothers and Others Ltd.
Takoradi Flour Mill
Tema Food Complex

Irani Brothers and Others Ltd.

At Irani Brothers, only the 1960 French Machinery Mill (150T/Day) was operating. A recurring problem in Ghana is a shortage of Wheat resulting from government policies and foreign exchange difficulties.

We were shown the idle 1968 Simon Machinery Mill (150T/Day) as well as the quality control laboratory.

It was noted at this mill as well as another Ghana mill that government purchased wheat had a very low H.F.N. We were unable to determine if this low quality being specified, was the result of a lack of knowledge on the part of the state procurement agency, whether the purchase was a "Good Buy" or was supplied for some other reason.

Apparently protein level is not specified or known, with wheat originating from Canada, U.S.A., France and Germany. Wheat is ground as received with little opportunity for making objective blends to achieve uniformity. Flour improvers were being used to assist in better bread baking performance.

In discussions with mill management it was stated that it was difficult to obtain import license for operating and spare parts. This was evidenced by machines cut out of the production system, cannibalized equipment, substitute sifterclothing and the general plant appearance.

It was questioned by the mill whether purchases and shipments of wheat could include flour improvers and additives as well as operational and maintenance parts. It would appear this would further complicate existing problems of communications and prudent purchasing practices. If it is in fact a problem it could better be handled as an ongoing budget commitment to plant well being when requisitioning wheat supplies through the state.

Takoradi Mill

This (200T/Day) mill built in 1974 was operated by a talented management team. The plant was clean, well maintained, and operating smoothly. There seemed to be no problem with obtaing the necessary supplies to maintain the plant in good condition even though it was "off the beaten path".

The plant superintedent had received several years training and experience with the Henry Simon Co. (England) and was extremely capable.

Tema Mill

This Czechoslovakian mill (Built in the 1960's) is partially obsolete and operates with many problems. We were advised that due to a re-elevation limitation in the wheat cleaning section the plant was operating at 95T/Day rather than its 200T/Day design. It was also stated that machinery to modernize the wheat cleaning system with new Buhler equipment was on hand but funds were not available to complete the installation.

The plant showed the need for an ongoing maintenance and upgrading program as equipment was by passed, cannibalized, or in poor operating condition. There may be some problems with obtaining replacement parts from iron curtain countries. The mill air filters were of the obsolete mechanical cleaning design and the plan sifters utilized track-brush cleaning devices which tax mill efficiency.

The management decision to continue the use of air elevation of wheat and to operate the plant at less than one-half design capacity is a wasteful practice of resources and energy in this third world country.

Nigeria February 13, 14, 15, 16

We were able to visit the new Standard flour mill complex operating two 600T/Day Buhler milling units. A second building to double this production is currently being constructed along side the new mill. This plant is self-sufficient with electrical power generated on site, has ocean vessel unloading berthing, 450T/HR wheat unloading which is reversible to load out pelleted feed, wheat storage, bulk tanks for finished products, sack packing, and sack warehousing.

The mill is the latest state of the art and the entire complex well designed.

A luncheon for all available representatives of local flour mill companies was held at the home of John DeCourcy, Embassy A.T.O where the major topic of discussion was the current uncertainty of obtaining import license for wheat supplies.

Basis a prior request, a search was made for available information on the blending of maize flour with wheat flour (Composite Flour). Literature on test work and baking evaluations and a short discussion of the subject was presented to luncheon attendees for possible use in the event that composite flour should become a requirement in Nigeria.

Ivory Coast February 18, 19

Discussions were held with management of Grans Moulins D'Abidjon on February 18 and a tour of the mill was conducted the following day.

The mill was built in 1963 and consists of two Golfetto (Italian) 400T/Day milling units grinding French soft wheats. The millfeed was being pelleted for sale in Europe.

The mill has gone through some modernization primarily in the wheat cleaning area as well as feed dusting for good extraction and partial conversion from plansifters to square sifters.

The original mill design, modern process control systems, efficient conversion results, and the well maintained clean plant all point to sound management maintaining good connections to European technology.

There is a continuing interest by the mill in utilizing a percentage blend of stronger H.R.W. wheats to Bolster baking results, but the indicated amount in small high freight cost shipments continiues to be a deterrant.

Upon our learning that the "New" San Pedro Flour Mill was not operating, contact was made with Mr. E. T. Hunt Talmage,III for possible knowledge and details which might aid in the marketing of U.S. Wheat in the area. Information is to be supplied to Mr. Howard.

Summary and Recommendations

This opportunity to visit and observe the milling conditions in overseas countries has been beneficial in providing first hand exposure and knowledge on their operating problems. As a result of this we expect to incorporate the coverage on maintenance and maintenace management in our future I.G.P. Short Courses.

There was a noticable reluctance by mill management to discuss concerns or problems regarding operations, efficiency, energy conservation, improvements, etc. This may be due to a feeling of a lack of confidence or trust, which may be developed through further contact, it may be considered a low priority, or there may be a lack of awareness that improvements or savings are possible.

In any case, a first stage of help that we can offer is that which is currently available, the opportunity to attend the I.G.P. programs and with program content addressing expected needs.

Persons Contacted

Ghana–

Mr. Bill Polick – Embassy Economic Officer
Mr. Sammy Suka – Braimah Ag. Econ. Asst.

Irani Brothers and Others Ltd.
Mr. Anthony Irani – Chairman
Mr. Elie Irani – Plant Manager
Mr. Peter Holbrook Smith – General Manager
Mr. Ryiad Helwani – Mill Manager

Takoradi Flour Mill
Mr. Samir Faris – Managing Director Mr. O. H. Kwesi-Brew – Resident Director
Mr. Joseph Teye – Factory Manager
Mr. E. K. Asare – Acct.
Mr. Richard Collins Brew Bilson – Welfare Manager

Tema Food Complex
Mr. Seth A. Adjetey – Managing Director
Mr. L. K. Tribbek – Commercial Director
Mr. Eric Kloba – Mill Manager
Mr. James W. Haarhoff U.N.D.P. Advisor
Mr. Joe Omari – Factory Manager

Nigeria–
Mr. John S. Decoury – Embassy A.T.O.
Mr. Chris Goldthwaite – Ag. Counselor
Mr. Chas Alexander – Asst. Ag. Att.

Standard Flour Mills Ltd.
Chief Akindele – Chairman
Mr. Christian R. Risse – Group Finanace Coord.
Mr. Graf – Mill Manager
Mr. Walter Wirth – Production Mgr.

Seaboard Enterprises
Mr. Bob Fleming – Consultant
Mr. Joe Dean –

Flour Mills of Nigeria
Chief Fagbemi – Managing Director

Dangil Holding Nigeria Ltd.
Mr. Rene Antoine – Director

Crown Flour Mills
Mr. Alaan Lababidi – Managing Director

Ivory Coast–
Mr. Paul Blakeburn – Embassy Econ. Officer

Grans Moulins D'Abidjan
Mr. Jean Jacques Granvaud – Director
Mr. Kouassi Kouadio – Admin. Dir. Gen.
Mr. Georges Bernoit – Mill Mgr.

Mr. E. T. Hunt Talmage, III – Duncan, Allen and Mitchez, Washington D.C.

TRIP REPORT:

TITLE: Milling Consultations in South Asia
TRAVELER: Henry H. Stevens
TRAVEL DATES: February 19, 1986 through March 25, 1986
COUNTRIES: India, Thailand, Malaysia, Singapore
ACTIVITY NUMBER: 8603/M34/B005B/40

Submitted By: Henry H. Stevens
International Grains Program
Kansas State University
Charles W. Deyoe - Director

APRIL 28, 1986

SUMMARY

During the period February 19, 1986, through March 27, 1986, a series of technical milling seminars were presented in India, Thailand, Malaysia, and Singapore. These seminars were presented by Henry Stevens of The International Grains Program, Kansas State University and were attended by approximately 180 millers, mill owners, wage employees, students and allied tradesmen.

In India the seminar topics included energy cost management, optimum extraction of fines through mangement of the breaking system, germ extraction and utilization, and the implications of the ongoing trend of deregulation in the milling industry. Diverse other topics were discussed at wide-ranging question-and-answer sessions following the main topics. The Indian seminars were presented in Delhi, Khapoli (near Bombay), Mysore, and Madras. During this trip Mr. Stevens noted changed attitudes of the milling industry due to recent liberalizations and increased competition.

In Thailand a two-day seminar was presented to the millers and management of United Flour Mill and Siam Flour Trading Company. The seminar topics included energy cost management and break system control. Again, there was a lengthy quesiton-and-answer session. The second day included in-mill demonstrations of how a supervisor makes an inspection tour of the mill.

In Malaysia two seminars were conducted for wage and management employees at United Malayan Flour Mills (Butterworth) and at Sabbah Flour and Feed Mills (Labuan). Topics included mill sanitation and, again, general questions-and-answers. At Butterworth considerable time was spent evaluating mill performance with various wheat blends. At Labuan trouble-shooting was performed on a new moisture control system.

In Singapore, Khong Guan Flour Mill was inspected, followed by discussions with the chief miller with respect to possible design modifications to facilitate pest control. The next day a seminar was conducted on the topics of mill sanitation, dust explosions, and flour additives. In attendance were wage employees as well as upper management of the company.

INDIA-SEMINARS

Since all four seminars presented in India had the same lectures, these will be summarized only once instead of repeating a summary along with the description of activites for each location in India. In December of 1985 a list of proposed topics for the Indian seminar series was received at IGP. These topics included 1) Developments in monitoring and control of flour milling machines and process, 2) energy saving devices for improving productivity, 3) production of quality products, 4) optimum extraction of maida and suji, 5) usage of germ, 6) types of low cost materials for consumer packaging.

Preparation for the seminars included extensive contacts with packaging equipment suppliers, literature research, and compilation of notes and ideas. During this process it was decided that it would be better to trim the topic list and do a more thorough job with the remaining topics rather than skim over each topic. In addition at least one topic had to be modified somewhat in thrust in order to be of significance with respect to currently available technology. Finally, after arrival in India and discussing the current and proposed liberalizations in the milling industry, it was decided to include some discussions on how to deal with increased competition.

The final topics for the Indian seminar series were: 1) optimum extraction of maida and suji through management of the mill break system, 2) extraction and utilization of germ, 3) energy cost control, 4) implications of the liberalization of the milling industry (including a short discussion of flour packaging). To round out the program, USW/Delhi presented the film on dust explosions. Thus, it can be seen that the seminar topics covered items of interest to apprentice millers, millers, mill engineers, and mill owners. Initial reactions to the seminars indicated that this attempt to appeal to such a diverse group was successful.

Mr. Stevens has agreed to write up the contents of these seminars so that they may be distributed to additional millers in India. This will be done following completion of this report as time permits.

INDIA-OVERALL ACTIVITES

Although the weekend after arrival in New Delhi was not officially working days, this time was used to finalize the content and structure of the seminar series. Discussion of the current state of the milling industry resulted in significant modification of at least one topic and a change in tone of some of the others.

On Monday, February 24, 1986, Vickram Flour Mills was visited and consultations were held with the miller and mill owner. Maintenance practices, sanitation, and mill control were among the topics of discussion. The following day, Vickram Flour Mills hosted approximately 30 to 35 millers, mill owners, and allied tradesmen for the seminar. Some of the attendees at this seminar traveled rather extensively in order to participate.

Wednesday, February 26, 1986, was devoted primarily to travel to Khapoli, which was accomplished rather smoothly in spite of (or perhaps because of) a nationwide strike protesting certain governmental pricing policies. An inspection of West Coast Roller Flour Mills was followed with discussions with the miller, mill engineer, and mill owner. It was obvious that many improvements had been made since Mr. Stevens' last visit (February 1984). A need for improved dust collection was noted; the miller was already aware of the need and discussions ensued on the merits of various dust collection equipment schemes.

West Coast Roller Flour Mills has diversified since two years previously by adding a sandwich bread bakery, a pasta production line, and an expanded snack food line. The owner feels he has positioned himself at the front of a growing consumer demand for wheat-based processed foods. Incidentally, Khapoli has become quite a milling center. Despite its location outside the Bombay market, nine mills have been erected here to take advantage of more dependable labor and power supplies.

The seminar at Khapoli was hosted by West Coast Flour Mills the following day and was well attended by about 40 millers from Bombay and other cities of Maharashtra. Mr. Singhee, owner of the host mill, was instrumental in helping organize and publicize this seminar. He also appeared to be proud to show off his facilities and to elicit the well deserved comments from his peers.

Friday was devoted to individual discussions with some of the Khapoli millers with respect to maintenance, sanitation, and the future of the Indian milling industry. Following a brief visit to one other local mill (name unknown), there was a rather memorable automobile journey back to Bombay.

Saturday was a travel day to Bangalore and Sunday was a day of rest. However, Mr. Stevens was very pleased to have the opportunity to visit the USW-sponsored bakery exhibition in Bangalore. Bangalore bakers and consumers are very demanding and it was interesting to see the variety of baked goods and noodles being shown. In addition, there was at least one exhibitor showing flour additives for special products. Such additives were not available two years ago on Mr. Stevens' prior visit; nor was there much interest for them.

Monday, March 3, 1986, saw travel to Mysore and an address to the students of the International School of Milling Technology (ISMT). This short lecture concerned the changing role of the operative miller in India and how to take advantage of the opportunities being presented at ISMT. Following the lecture there was a visit to Brindaven Flour Mills and a discussion with the owner. Primary topics of discussion were the need for a cleaning mechanism for purifier sieves and how to extend the life of indented disc-style separators.

The following day brought a repeat of the seminar. In this case the turnout of about forty was comprised mostly of ISMT staff and students. Some of the students proved to be very astute and probing with their questions. Following the seminar, there was a very interesting visit to a manufacturer of a high energy snack food to be distributed to children. The primary ingredients include ground, roasted wheat and raw sugar. The manufacturer anticipates a large demand from schools and government feeding programs.

Wednesday was spent in Bangalore visiting Krishna Flour Mills and in discussions of technical milling topics with the chief miller. The topics of discussion were relatively advanced and reflected the growing concern of millers with flour quality. Mr. Stevens discussed the nature of water absorption and how to increase it through milling techniques, increasing extraction of coarse semolina, and flour stream selection for a specialty bread flour. Following the discussions was continued travel to Madras.

Thursday began with a visit to South India Flour Mills, the host for the afternoon's seminar. This large two-unit mill has one older Simon unit (- 1955 vintage) and a newer Buhler unit (- 1965). Both mills appeared to be under-loaded, probably to avoid chokes while there were visitors in the mill. The Simon unit is probably using a very large amount of power due to its older, less efficient pneumatic system. The mill owner is aware of this and has been investigating eventual rennovation of the pneumatics. In addition, many grooved rollers were rather dull. The miller apparantly was unable to obtain an import license for new rollers until recently, so this problem should be alleviated soon. This 330 tonne mill has a very nicely equipped laboratory and the miller is apparantly making good use of it for quality control. In addition, unlike most mills in India, this mill has extensive wheat storage, both sacked and in bulk. The miller is using the bulk storage as a blending unit for wheat uniformity.

The afternoon was devoted to the seminar; approximately 25 local millers attended. As usual, the question-and-answer session was lively. Friday, February 7, 1986, was devoted to informal discussions with millers and partners of South India Flour Mills. The primary topics had to do with U.S. milling practices and customer service. Friday evening saw Mr. Stevens travelling to Mahanagur (Calcutta) to catch the following days' flight to Bangkok.

INDIA - GENERAL COMMENTS

Recent deregulation of the milling industry (and further proposed liberalizations) are having a profound impact on the industry, its practices, and its markets. The government is now allowing millers to grind at capacities far exceeding their licensed capacity, extraction rate regulations have been loosened or abolished, the government is allowing direct sale to bakers at non-fixed prices, and the government is no longer the sole supplier of wheat. In addition, the government appears to be persuing a course toward complete de-licensing of the industry and towards turning it into a completely free market. The former regulated industry in effect protected some very inefficient millers and provideed no incentive for the miller to be concerned about quality.

All over India Mr. Stevens observed that the bakers are beginning to make demands for quality and that the millers are scrambling to establish market positions based on quality or price. This is quite different from the situation two years ago. Millers are now worried about satisfying their customers. They are much more interested in quality and in production efficiency. They are expressing an interest in the marketing of their products to consumers. Some millers are scared by the situation, but the more efficient millers welcome it. The next two years will see many changes in the industry itself and will be challenging for each individual miller.

Mr. Stevens observed a growing consciousness of wheat-based processed foods (snacks, bread, pastries, noodles, etc.) among the consumers of India. This should be a signal of continuing growth of the wheat and/or flour market. Mr. Stevens agrees with USW that even though India currently has a small suplus of wheat, any small growth of the wheat food market could quickly convert India into a large importer. The encouragement of millers to improve quality (and of bakers to demand it) can only enhance the growth of the wheat market here. Thus, USW is laying valuable ground work for the future by its continued market development activities in this wheat producing country.

THAILAND

The two days in Bangkok February 10, 1986 and February 11, 1986 were primarily devoted to a round-table seminar conducted at United Flour Mills. In attendence were about 15 millers, production managers, and apprentice millers from United Flour Mill and its sister company, Siam Flour Trading Company. The formal lectures included the extraction of germ and the structural differences between hard and soft wheat flours. The first day was concluded with a rather extensive question-and-answer session.

The second day included more general discussions on such topics as how to grain the most from one's apprenticeship in the mill. At one point the UFM mill was toured to illustrate how a miller should make a quick inspection to verify good operation of the mill. In the afternoon, the same type of tour was taken at the SFTC mill.

Although UFM and SFTC say they are doing farily well, it is apparant that demand is dropping due to the luxury tax imposed on imported wheat. Since in this market the four mills have an effective monopoly and cartel structure, this implies that UFM and perhaps SFTC are helping to prop up a market for Lamtheong and/or Thai Silo. Running times are reportedly down to three or four days per week.

UNITED MALAYAN FLOUR MILLS - BUTTERWORTH, MALAYSIA

Mr. Stevens was at UMFM for a week (February 12 through February 19, 1986)--longer than originally scheduled, but the time was used to good advantage. During this extended visit he was able to evaluate the performance of the mill while it was grinding soft wheat, a blend of hard and soft wheats, and hard wheat. This in turn allowed a detailed analysis of the mill flow diagram and recommendations for modifications.

The major production problem in the mill at this time is a dust collector that repeatedly chokes. After considerable investigation Mr. Stevens finally agreed that the problem was probably a design defect. He then discussed with the chief miller various possibilities to try to overcome the problem. (He has since heard from other owners of the same model dust collector - they report similar problems).

Housokeeping has improved in this mill since the last visit but insects are still thriving. Many engineering modifications were discussed which would make the mill easier to clean and subject to less intense insect activity. Other systems and strategies were discussed to insulate the customer from possible insect problems deriving from the mill.

The final day of the visit included a seminar for wage and management employees of the mill, laboratory, maintenance, and sales departments. There were about 25 attendees, all from UMFM. Most of the seminar was concerned with mill sanitation, with specific references to problems currently being experienced by UMFM. The seminar was concluded with a presentation on the structural characteristics of soft and hard wheats and flours.

UMFM is still running at seven days per week due to the market development and servicing done by the UMFM lab staff. This may change in the near future, however. Sometime this summer, a new mill is scheduled to open in Kuantan. UMFM is apparantly selling at least some of its production to the owner of this new mill, which he is resacking and selling under his own brand. Kuantan appears to be out of position for the major population centers of Malaysia. Thus it will be interesting to see how it manoevres in order to survive.

SABBAH FLOUR AND FEED MILLS-LABUAN, MALAYSIA

Following the lengthy stay and analysis at Butterworth, the two days in Labuan seemed rather short in comparison. During this time Mr. Stevens performed some troubleshooting on a new, computerized moisture control system that was giving erratic results. It was determined that the system was being operated beyond its design capacity. The wheat-flow scale has a maximum measuring capability of only 11 tons per hour. The cleaning system of the mill frequently exceeds ths figure since the milling capacity is 10 to 11 tons.

The solution to the problem is straightforward. The manufacturer who quoted the system to Sabbah should be approached with respect to rectifying its error in specification for the necessary equipment. The nominal capacity of SFFM is 10 tons per hour. This means that the cleaning system is operating normally at 11 to 12 tons per hour in order to stay ahead of the mill. Thus any system installed on the dry-wheat supply system (such as this moisture control system) must be capable of operating at 11 to 12 tons per hour plus occasional surges and variations. The control system proposed by the supplier (and subsequently purchased) has a maximum rated capacity of 10 tons per hour with surge capacity up to 11 tons per hour. The supplier should bear at least part, if not all, of the responsiblity for this misdetermination of equipment needs, especially since the supplier is also the designer and builder of the existing mill.

In the meantime SFFM is doing the only thing it can do under the circumstances (other than lowering the grinding capacity of the mill) - it is using its old manual moisture control system with the expensive automatic equipment bypassed.

In addition to the troubleshooting work, Mr. Stevens conducted a half-day seminar with shift millers at SFFM. The topics were mill sanitation, the effect of good wheat cleaning on finished product qualilty, and the effect of good wheat conditioning on extraction and quality. Following the seminar, a short meeting was held with the new general manager, Mr. Tay.

KHONG GUAN FLOUR MILLS - SINGAPORE

On Monday, February 24, 1986, Mr. Stevens inspected the mill and then had meetings with the chief miller and the general manager. The following day, a seminar was conducted at which the following topics were discussed: mill sanitation, the causes and prevention of dust explosions, and the importance of correct dosage of flour additives. The seminar was attended by shift millers, wage employees, and members of management and sales — a total of about 15 people.

Khong Guan is still suffering from lack of business. Over the years it gained a poor reputation for customer service and flour quality and must now work very hard to overcome it. It is currently operating the mill about two days a week. Feedback from customers indicate that flour quality is improving and that customer service is much better. Unfortunately, it will take some time before its new image is accepted by the market and sales start increasing. In the meantime it must concentrate on "cultivating" its image through improvements in product quality and through continued responsiveness to customer problems.

The primary improvements that should be made fall within the category of infestation control. The mill is currently so badly infested that certain portions of the mill process are no longer functioning due to being clogged with insects and their by-products. Unfortunately, this mill was not designed with sanitation in mind. Thus there are many peices of equipment which provide a natural home for insects. Many of these are simultaneously very difficult to dismantle for cleaning and placed in almost inaccessible locations.

The mill has a "safety" rebolt sifter, but unfortunately it is itself infested and it is placed ahead of the flour storage system which is also extensively infested. Since there is no safety sifter immediately prior to packing, the mill rebolt sifter does little good. One of the major recommendations to Khong Guan is to provide a safety sifter prior to packing, even if it means using the existing mill safety sifter.

In addition, many modifications in equipment setup and design were discussed to allow easier cleanout. The need for increased manpower for downtime cleaning was emphasized, as was the usefulness of a master cleaning schedule for the entire process. Finally, it was noted that better insect control would allow the purifiers to do the job they were designed to do, thus resulting in better extraction of patent flour, reduced speckiness, and better color. Currently all purifiers are acting solely as conveyors due to being clogged with insect webbing.

It should be noted that Khong Guan's sanitary condition has improved during the last two years(!). The chief miller realizes he has a problem and has concentrated so far on cleaning up the interior of the mill building, with good results. The building structure is now relatively free of infestation; attention must now be turned to the interior of the milling process while maintaining the sanitation effort now being exerted on the structure.

TRIP REPORT

Traveler: Robert F. Pudden
Travel Dates: 6/18-6/28/86
Project: 8604/M34/B011B

Philippine Flour Production and Quality Control Seminar

Submitted by:

Robert F. Pudden
International Grains Program
Kansas State University

C.W. Deyoe, Director

Signed: Robert F. Pudden Date: 7/16/86
Robert F. Pudden

ACTIVITIES SUMMARY

This report is for assignment to Manila, Philippines per request of U.S.W.A. Purpose of trip was to present an IGP seminar on Flour Production and Quality Control. I arrived in Manila late in the evening on June 18, 1986. The next day was spent in the company of Mr. Ron Maas, Vice President U.S.W.A. in Manila, Mr. Henry Stevens of I.G.P., visiting Universal Robina Manila, and the U.S. Embassy. The next day I visited the N.F.A. facilities where we were to conduct our seminar.

The following week we conducted a seminar at N.F.A. (National Food Authority). My impression of the seminar was quite favorable. I felt that the inclusion of Millers and Quality Control personnel in a group seminar was quite useful from the standpoint of exchange of ideas between two groups who quite universally tend to be adversaries to some extent at present, considering the quality of flour being produced. Quality Control personnel have a limited impact on improving quality. Hopefully both the millers and mill chemists can better understand the problems each has. Considering the apparent desire of flour users for some changes in quality of flour for some product lines, the information presented could be of benefit in future change in product lines. I feel that this joint meeting is at least a starting point for improved dialogue between production and quality control and that it will instigate some movement towards providing specific products to special specifications for end users. It seems to me that under the aegis of a more open and competitive marketplace, that if some of these needs are not met by the mills, that other more sophisticated flour producers in the South East Asia Area might intrude on what has been essentially a captive market.

VISITATION SCHEDULE IN THE PHILIPPINES

June 19, 1986 - Universal Robina, Manila
Mr. Nazario Ompad, Mr. Romeo T. Tan

This is the only mill I visited in the Philippines. It was a two unit mill. One unit of ca. 300 mt/day being used primarily for D.N.S. Another unit of ca. 200 mt/day being used for soft wheat. They also have integrated into their operation a corn mill. From observation they seem to have an infestation problem, but from the odor they apparently had fumigated some areas quite recently with phostoxin. The fact that they had just recently been on strike and were just getting back into operation may have contributed to some of the conditions. It should be recognized that the climate is very conducive to insect build up. The laboratory seemed to be relatively well organized. It certainly was not as modern or well equiped as the mill but considering the current manufacturing of about an 80-82% extraction is probably adequate at present.

They apparently were running at present moisture, proteins, bakes, and gassing powers (diastatic activity). I noticed on lab reports they were not running ash but were reporting flour slick comments. They also seemed to be doing some inspections of incoming wheat. Baking equipment was adequate but did not have closely controlled fermentation of proofing equipment. Chemical tests were being done for $KBrO_3$ addition, which I found from later conversations, was pretty universal in the Philippines. In my conversation with Mr. Tan, in Quality Control, I was impressed by his desire to learn of other methods and feel that if changes are needed to meet new product line specifications that he will accomodate his laboratory to the needs.

June 19, 1986 - U.S. Embassy - Mr. Verle Lanier

Visited for some time with Mr. Lanier, Ag. Counselor, concerning the state of the milling and baking industry.

June 20, 1986 - N.F.A. (National Food Authority)

Visited laboratory for the purposes of evaluating the facilities for the seminar. They have generally good equipment. It was quite scattered about in different rooms and levels, but Ms. Maria Luisa Hernandez and her staff were quite helpful and made arrangements for milling a wheat sample of D.N.S. and flour commercially milled from the same wheat. The wheat and flour were furnished,compliments of Mr. Ong of Wellington Flour Mill, Manila.

Flour Mill Quality Control and Production Seminar

Miller and quality control personnel from all of the mills, except Wellington Flour Mill, were in attendance at the seminar. There were also technicians in attendance from the National Food Authority. As mentioned previously, the course was held at the N.F.A. headquarters in Quezon. The conference room and audio-visual equipment was quite good. The only problems were because of electrical "brownouts". However, there was back up emergency power sufficient to operate lights and audio equipment.

As stated earlier, the lab was quite well equipped,though the space available was quite limited. As a result, much that might have been done was handled through overhead transparencies, slides, video tapes, and 16mm movies. Milling demonstration was held using the Buhler pneumatic laboratory mill. Using the flour from the commercial mill and the x-mill, a laboratory baking demonstration was also conducted.

An opening ceremony was conducted by the Deputy Minister for Food and Agriculture. Mr. Emil L. Ong, U.S. Ag Counselor, Mr. Verle Lanier, and U.S.W. Vice President, Ron Maas. There was coverage by national television and the press, (attached photo copy of picture from News-Herald). The seminar was concluded with presentation of certificates by Mr. Ron Mass.

Seminar Schedule

Mon 6/23	Opening Ceremonies Wheat and wheat characteristics - Pudden Wheat Cleaning - Stevens Sieves and Sifting - Stevens
Tue 6/24	Wheat Structure and Microscopy - Stevens Flour Functionality - Pudden Flour QC Lab Instruments and Methods - Pudden
Wed 6/25	Grinding - Stevens Purification - Stevens Flow Sheet Design - Stevens Experimental Milling Demo - Pudden Farinograph Demo - Pudden
Thu 6/26	Sanitation - Stevens Flour Additives - Pudden Test Baking Methods - Pudden
Fri 6/27	Dust Explosion & Fire Safety - Stevens Energy Cost Control - Stevens Wheat Conditioning Theory - Stevens Test Baking Demo - Pudden Cake Test Baking Methods - Pudden Closing Ceremony

EVALUATION OF SEMINAR

Since the primary objective of the course was to instigate a rapport between quality control and production personnel, the instruction as provided by Mr. Stevens and myself was geared to both disciplines. The attempt was made in all presentations to provide something of substantial nature on each topic and still present it in a manner that could be understood by the other discipline. The aim being to let each in some way to understand the problems of one another so that hopefully they can communicate and produce good quality products as their markets change.

It was very interesting at times, especially during the milling and baking demonstrations. I found that in many cases tests were being carried out by rote. It is my hope that in some small way this was overcome and an inquisitive approach may be tried by some of the participants.

I do feel that we did impart a common thread of knowledge to the participants. I think our presentations were pretty much on target from this respect. In summation I think it was well received, and I enjoyed the opportunity to help.

Trip Report

Traveler: Henry H. Stevens
Travel Dates: 6/13/86 - 7/5/86
Projects: 8604/M34/B011B - Philippines
8604/M34/B209B - Taiwan

Philippine Flour Production & Quality Control Seminar
Philippine Mill Consultations
- and -
Taiwan Millers Correspondence Course Graduation Lecture
Taiwan Mill Consultations

Submitted by:

Henry H. Stevens
International Grains Program
Kansas State University
Manhattan, Kansas

C.W. Deyoe, Director

Signed: Henry H. Stevens Date: 7/11/86
Henry H. Stevens

Summary of Activities

During the period June 13, 1986, through July 5, 1986, I was on assignment for USWA in Taiwan and the Philippines. From June 16 to June 20, I visited five flour mills in Manila and Batangas, the Philippines. The purpose of those visits was to give in-plant technical help and consultation. The National Food Authority quality labs and conference rooms were also visited during that week to check the facilities available for the upcoming IGP seminar on Flour Production and Quality Control. The following week Mr. Robert Pudden and I presented a one-week seminar covering the above-mentioned topics to about twenty-five millers and quality control personnel from eight of the nine Philippine mills (General Milling, of Cebu, could not send representatives because of a strike at the plant). Also attending were various technical people from the National Food Authority.

On June 29, I departed from Manila to Taipei, Taiwan (Republic of China). While in Taiwan I visited six mills and provided in-plant consultations with the millers. In addition, I presented five hours of lecture on technical milling topics to a group of millers receiving certificates for completing the Chinese translation of the AOM Correspondence Course. On July 5, I departed from Taipei to Kansas (USA).

My evaluation of the Philippine seminar was that it provided a valuable "cross-fertilization" between millers and QC personnel — two groups which usually never see eye-to-eye. The millers found the milling topics to be a good refresher, or update; they found the QC topics to be valuable as an explanation of the meaning and necessity of various laboratory tests. The converse was also true of the QC personnel present — they probably now understand a little better why millers can be so crabby at times. In any event the flour being sold in the Philippines is not of outstanding quality; the millers see no reason at present to lower extraction rates from the high levels they went to when all flour was distributed by the NFA. The bakers are not powerful enough to be successful in any quality demands. My mill visits showed that the millers know the basics; thus, such dialogs between millers and QC people may be one way to bring about improved flour quality (and thus hopefully an expansion of demand for baked products).

In Taiwan I found mills that were in very good condition and others that were in very poor condition. The technical topics I discussed in my mill-visits therefore ranged from the very basic to quite advanced. It is apparent that some mills (whether they wish to acknowledge it or not) are badly in need of a trained or (or at least knowledgeable) miller. Thus it is truly a great service to the milling industry for USWA (specifically Ron Lu) to have made the AOM Correspondence Course available in Chinese. I know the Chinese milling industry appreciates this help. The graduation ceremony for the Correspondence Course graduates was taken quite seriously -- certificates were presented to the nineteen graduates who attended by the Chairman of the flour millers' association, Mr. Miow. I was grateful to be allowed to participate in the occasion.

Mill Visits in the Philippines

June 16 -- Liberty Flour Mills, Manila — Mr. Danny Maramba

This older Robinson mill has been reflowed to grind about 25.5 tons per day. Thus the flow is considerable shorter than the original 1950's English flow. It produces four flours: a 5% patent flour and a straight grade flour from WW -- the same from DNS. The clears from the short patents are regarded as identical to a straight grade. The two patent flours are sold as "Softasilk" and "Gold Medal" under license from General Mills Inc. The Softasilk is chlorinated.

A quick look at the lab showed it was quite well equipped. Test bakes were being done at the time of the visit. Most of the equipment showed signs of recent use (which is encouraging).

After the tour, the following topics were discussed — some resulting from observations of conditions in the mill:

- proposed changes in U.S. wheat standards;
- conversion of worn receiving scales to load cell scales for improved accuracy;
- fumigation with methyl bromide versus phostoxin;
- the improved efficiencies possible with modern dust collectors instead of existing mechanical type, also conversion of mechanical dust collectors to reverse jet cleaning mechanisms;
- improvements in maintenance practices for the dry stoner;
- the potential market for blended flours.

June 16 — National Food Authority

The labs and conference room available for next week's seminar were inspected. The labs were very small but the conference room was quite adequate. Most of the lab facilities show signs of not being fully operational but A/V equipment appears to be quite adequate for our uses. Incidentally, the role of the NFA with respect to the milling industry now appears to be virtually non-existent.

June 17 — Wellington Flour Mills, Manila — Mr. Andreas Ang

The mill was not operating due to lack of wheat; thus Mr. Ang did not invite me to inspect the mill. Discussions were held in a conference room which was obviously used for mill operator training. Some very good training materials were observed on whiteboards in the room. Discussions revealed that he valued training for operators, but could not afford to pay them enough to keep them from occasionally leaving for Saudi Arabia. This is a common problem in the Philippines.

On my visit last year, they were awaiting delivery of chlorination equipment so they could make a cake flour. The equipment has been on-site for a year now and is not yet installed; they do not know correct application rates for chlorine. We discussed laboratory methods to determine correct dosages. I also gave the address of a PennWalt Corporation technical representative who has vast experience in the field of chlorination and loaned a book to Mr. Ang on soft wheat milling and applications. A rough sketch of a laboratory chlorination unit for testing different application rates was drawn which would facilitate lab work. Mr. Ang agreed to supply wheat and flour for demonstration purposes in next week's seminar.

June 18 — Republic Flour Mills, Manila — Mssrs. LaForteza & Reamon

A round-table question-and-answer discussion lasting several hours was conducted with head miller (Mr. Reamon) and his staff of junior millers. After discussions, there was a quick tour of mill. At 1200 tons/day, this is the largest mill in Philippines. The mill was recently reflowed by Buhler. Mr. Reamon is quite proud of his new electronic extraction rate monitoring system — he says he can now see exactly how the mill is operating while sitting in his office. I doubt it - there was no paper in the printout on the monitor. These machines should not be used to replace constant personal monitoring of individual processes within the mill; but he'll find that out sooner or later.

The mill was having problems with dust collection in both the mill proper and in the cleaning section. Mr. Reamon attributed that to two factors: high humidity during the wet season causing decreased capacity of dust collectors due to stickiness of the dust; and too much dust in U.S. wheat. The first factor may have some validity; if so, he needs more dust collection capacity. The second factor is completely erroneous - the dustiness of the wheat has no relationship to the performance of a dust collector unless the dust content is extremely high. My evaluation is that all of the dust collection systems in the mill are undersized. Unfortunately, Mr. Reamon has no formal education or milling training; in addition he is not very open to suggestions. I suspect that my tour of the mill was quick by design.

Topics discussed at the round-table m with the milling staff included:

- Cake flour production;
- industrial flours;
- wheat conditioning and effects on yield;
- semolina (farina) quality;
- US milling practices;
- dust collection (probably not coincidentally).

June 19 (AM) — Universal Robina, Manila — Mr. Nazario Ompad

This mill has two Buhler units - the older unit at 300 tons per day is used primarily for DNS; the newer at 200 tons for soft wheat. There is also a corn mill on the premises. The lab is quite well equipped and appears to be in regular use. They do not appear to be checking flour ash regularly but do inspect flour slicks for each shift in addition to running proteins and moistures.

The mill did not appear to be running very well during the visit; there were several choke problems resulting in a few shutdowns. In addition, the mill has a fair degree of insect infestation inside the equipment. After the inspection we held discussions about these problems: I recommended better mill control through the use of a test sifter on the grinding floor and a regularly scheduled program of internal cleaning of mill equipment. In addition, I gave some tips on improving destoner performance. Finally we discussed the current climate for capital investment in milling in the Philippines; this topic will be covered in the an evaluation of the industry (following).

June 19 (PM) — U.S. Embassy — Mr. Verle Lanier

Mr. Lanier (Ag Counselor) discussed current problems in the milling and baking industry with Bob Pudden (who had arrived the previous night) and I. Many of the topics we discussed are presented in the following section of this report, "Evaluation ...".

June 20 — Pacific Flour Mills, Batangas — Mr. Manfred Ching

Mr. Ching met Ron Maas and I at the hotel and drove us to Batangas. After inspecting the mill I spent the full day in discussions with him and/or his chief miller. I also looked over the lab.

The laboratory appears to be well utilized and complete, with the exception of a non-functional falling number apparatus. This unit was not working on my last visit here and at that time I suggested discussing the problem with Burt D'Appolonia , who would be visiting the following month. Apparently the problem was not solved, so I suggested writing the manufacturer and inquiring about repairs.

The mill was in quite good sanitary and operational condition - far above average for the Philippines. After the mill inspection the following topics were discussed:

- A solution to the problem of wheat overtailing the milling separator.
- Problems with the cleaning cycle of two reverse jet dust collectors.
- The need for inspection holes in spouts coming from two disc-type cleaning machines hung from the ceiling. They were obviously not being adjusted due to the difficulty of reaching them.
- The importance of good maintenance of purifiers.
- Magnet protection at the 1BK rolls. I felt that the mill already had good protection from ferrous objects, but Mr. Ching wanted more. The equipment layout prevents use of magnets directly ahead of 1BK, so I suggested an alternative form of protection that should be very nearly as effective.

I was very impressed with the management and operation of this mill. Mr. Ching appears to be aggressive in his pursuit of improved performance and sanitation. He and his miller seemed to be very eager to make the most use of my time and experience possible. They were very open for suggestions. If USWA wants to work with a mill to crack open the doors of improved flour quality and customer service, this would be the one most open to try something new.

Evaluation of the Philippine Milling Industry

The baking industry of the Philippines consists almost entirely of small scale hand bake shops. There are no automated bakeries and very, very few bakeries of what would be considered even a medium size in the U.S. There is almost no flour sold directly to the consumer. In addition the nine mills are organized into a loose but effective syndicate which limits competition somewhat by assigning wheat quotas to the mills. Thus there is little pressure on the mills to improve flour quality.

The bakers have attempted to organize into a similar syndicate to protect their common interests, but they have not been effective in dealing with the millers. So far all they have managed is bitter attacks against the millers conducted in the Philippine press. The bakers know that the millers are economically and politically stronger than they are. Recently, the president of the bakers organization was forced out and it appears there may be a rapprochement between the millers and bakers organization. This could be good for the expansion of the bakery product market if these two groups could lay down their swords and talk about what is needed for growth. Of course, any growth in the market for wheat products will depend on government approval of increased wheat imports in the face of large rice surpluses, large foreign debt, and a deficit in balance of payments.

The millers are going to have to wake up soon to the fact that their 80% extraction flour may produce plenty of profits, but is not of extremely good quality. The market is ripe and poised for an enterprising baker to set himself up to import Japanese flour and sell it at prices below what the millers are now charging. Unless the Philippine millers can sell their product based on quality and service, they will not be able to compete except by "blackballing" Japanese flour users. That might have been an effective threat under the previous government, but such a practice might not work now - especially if the baker doesn't see any difference in quality between imported and domestic flours.

One thing that illers could do to help prevent an invasion of their market by i ted flour would be to begin doing some customer service. As long as the millers remain aloof from the bakers' problems, the bakers will blame those problems on the flour — rightly or wrongly. If the millers let it be known that they want to help their customers and then follow up by having a technical person available, they will go a long way toward generating customer loyalty. A byproduct of this activity will be internal pressure to improve product quality.

Discussions with several millers about capital investment were interesting. The general consensus was that many of them held back on investment during the latter part of the former government because of uncertainty about the future. I get the feeling that millers now are awaiting a strong signal from the new government in support of free enterprise coupled with signs of long term stability of government. When that happens, I believe there will be some investment in renovation; I suspect that at least one mill may attempt to break from the syndicate and expand. The syndicate was comfortable during uncertain times — but there are millers who have noticed that the only reason they are shutdown is that they are out of wheat; when this happens other millers seem to have enough wheat to pick up the slack. Now I wonder how that can be?

Incidentally, one of the reasons the millers are not too interested in developing a market for a lower ash flour (other than not wanting to sacrifice their 80% extraction) is that they do not see a market for clear flours. I seem to remember a discussion about imported gluten being used as a binder for aquacultural feeds in the Philippines. In Taiwan, the millers are getting a quite good price for DNS clear flour for ... you guessed it ... shrimp feed binder. Their overall extraction is about 78%; from this flour they take a patent flour of about .40 ash and sell the balance for aquacultural feed binder. They get nearly as much for the clear as they do for straight flour plus a healthy premium for the patent. This might be worth checking out more thoroughly between the Taiwan and Manila offices.

Flour Mill Quality Control and Production Seminar

As was previously mentioned, millers and QC technicians from eight of the nine Philippine mills attended the week-long seminar. Also in attendance were technicians from the National Food Authority. Attendance varied a little from day to day but averaged around twenty-five. The course was conducted at the NFA headquarters in Quezon City, where there was a good conference room and access to laboratories for demonstrations. The labs, in general, were too small for many of the demonstrations that could have been conducted, so we compensated with more lecture material. Audio-visual equipment was also available at NFA and it was used extensively for overhead transparencies, 35mm slides, video tapes, and 16mm movies. Mr. Pudden and I shared the available time almost equally between milling topics and QC topics. There were some unavoidable problems with power outages throughout the week, but we all took them in stride and managed to work around them.

The opening ceremony was conducted by the Deputy Minister for Food and Agriculture, Emil Ong; U.S. Agricultural Counselor, Verle Lanier; and USWA Vice President, Ron Maas. It was covered by national television and press (see attached photo from the Manila News-Herald business page). The conclusion ceremony featured awarding of certificates by Mr. Maas. The seminar started at 0900 and finished at 1600 every day.

Seminar Schedule

Mon 6/23	Opening Ceremonies Wheat and wheat characteristics - Pudden Wheat Cleaning - Stevens Sieves and Sifting - Stevens
Tue 6/24	Wheat Structure and Microscopy - Stevens Flour Functionality - Pudden Flour QC Lab Instruments and Methods - Pudden
Wed 6/25	Grinding - Stevens Purification - Stevens Flow Sheet Design - Stevens Experimental Milling Demo - Pudden Farinograph Demo - Pudden
Thu 6/26	Sanitation - Stevens Flour Additives - Pudden Test Baking Methods - Pudden
Fri 6/27	Dust Explosion & Fire Safety - Stevens Energy Cost Control - Stevens Wheat Conditioning Theory - Stevens Test Baking Demo - Pudden Cake Test Baking Methods - Pudden Closing Ceremony

Evaluation of Seminar

The intent of the seminar was primarily to get production and quality control people talking to each other. In this goal, I believe we succeeded. We did not attempt to create a course that would turn all attendees into "super-millers" and "super-chemists." What we did attempt was to provide material that was deep enough to act as a refresher for each discipline while simultaneously being understandable to the other. We hoped that these two normally adversarial groups would then be better equipped to communicate problems to each other in a common language. A common understanding of each group's problems by the other can lead to cooperation in the effort toward quality goals.

I did receive some feedback during the course from one of the better millers in attendance: he felt that portions of the milling topics were rather basic but he found the QC portions very interesting. I am glad he found at least some of the topics basic since they were that way by design. If he did not find them basic, then I would have been way over the head of many in the room. Anyway, on Friday I gave a lecture that was a little more advanced; it went over his head. So, I think we both (Bob and I) gauged the level of presentation about right. We put the lectures at a level that was able to be understood by members of both groups. Hopefully each group should now have better insight into the problems of the other.

Taiwan Mill Consultations and (ion Seminar

On June 29, I flew to Taipei, Taiwan, Republic of China from Manila. I started out the week with briefings at the USWA Taipei office with the resident staff. It seems that the Taiwanese Millers Association recently decided to refigure the wheat quotas for each mill. A complex formula was used, apparently based at least in part on mill capacity and market share. This formula was never fully explained to me but some mills that do not have much market were able to continue obtaining about the same amount of wheat as before by exploiting loophole provisions. Some of these mills are actually wheat brokers; the ownership of a mill is merely the price for doing business.

June 30 (PM) — Keelung Flour Mill, Keelung — Mr. Mei-Tang Shaw

This Buhler mill was quite clean, well maintained, and well adjusted. It was grinding about 7.5 tons per hour. The tour of the mill showed up relatively few conditions to discuss. The gear drives on two of the roll stands were overheating very badly despite having plenty of oil. After asking several questions and eliminating several possible causes Mr. Shaw and I decided that the gears probably were simply worn beyond their life expectancy and should be replaced.

Despite the relative cleanliness of the mill, I noticed a problem with flat grain beetles inside the processing equipment. I offered several suggestions on where the source of these insects might be and a cleaning strategy to eliminate their harborage if my guesses as to source were correct.

One need of this mill is a better system for the addition of conditioning water. When I pointed this out, Mr. Shaw explained that a new Buhler conditioning mixer is on order. We concluded our discussions by talking about maximizing the extraction of germ and the detrimental effect of using a non-standard screen inside a Buhler destoner.

July 1 — Lectures to Milling Correspondence Course Graduates

The group of about twenty-five who attended the lectures and graduation ceremony include nineteen of the twenty-four graduates plus several mill managers and Mr. Miow, chairman of the Taiwan Flour Millers Association. In the morning I gave lectures on flow diagram design and mill control. At lunch, Mr. Miow presented the certificates to the graduates. After lunch, I gave a lecture covering Dr. E. Posner's excellent paper on germ extraction. The ceremony closed at 4 PM after a session of questions and answers.

USWA, and especially Ron Lu, are to be commended for their efforts in making the AOM Correspondence Course accessible for the Taiwanese millers. The millers greatly appreciate this huge undertaking. I am sure this effort has already paid off handsomely in the form of goodwill toward the US wheat farmer and USWA.

July 2 (AM) — Shin Sheng Flour Mill, Taoyuan — Mr. Wei-Kong Chen

This Miag mill was also fairly clean. Unfortunately it was showing the effects of hard service in years past. I believe it is receiving fairly good care under the present management, but may have been neglected some time ago. Anyway, the purifiers, which should have still been in good condition, were badly deteriorated. When I mentioned some problems with the purifiers, Mr. Chen told me that they were scheduled to be replaced within two weeks.

This mill is being operated in such a way that they must grind very hard on 1 and 2 BK. I recommended investigating their flow diagram to see if they could shift some of the work down to 3 and 4 BK. This would not only improve their flour quality and patent extraction but also improve their germ extraction and quality.

Other items discussed with regard to my inspection were the advisability of drop-bottom conveyers in the flour transport system, tips for improved performance of the destoner, and the need for a good quality mixer for the conditioning system.

Prior to my inspection of the mill many topics of a more general nature were discussed. These included the merits of blending of wheats vs. the blending of flours; protein problems with this past year's soft white wheat crop; the feasibility of adding starch to the soft wheat flour (I advised against it since I felt their next shipment would be new crop wheat — if the new crop was still presenting problems then perhaps starch could be used in cookie flours but not in cake flours — I also advised the millers to specify a maximum protein on the soft wheat imports). Also discussed were origin of the browning reaction in cracker baking, and quality characteristics of aquacultural feed binder flour.

July 2 (PM) — Tai-I Flour Mills, Taoyuan — Mr. J.Y. Peng

This mill was down for repair when I visited and thus I was unable to judge its performance. From the looks of the equipment, however, I am willing to bet that it is not operating very well. The equipment has not been well cared for. In addition, the mill was in rather poor sanitary condition. One packing line was operating with a rebolt sifter above the packer. The tailovers of the rebolt indicated torn flour cloths somewhere in the mill, but there appeared to be no activity directed at correcting the problem. In addition the rebolt sifter itself was infested; thus it was sending insects down into the packer along with the flour.

Examination of the break rolls indicated that the corrugations were very dull. I recommended regrooving some of the break rolls as soon as possible to improve flour quality and extraction. However, the most alarming thing I saw was employees smoking in the mill and packing areas. In addition, many examples of exposed wiring were seen in the mill. I spent some time explaining dust explosions and how they occur. I think Mr. Peng was not aware of the timebomb he was sitting on -- I hope I impressed him with the seriousness of the situation.

July 3 (AM) — Taoyuan Enterprises Mill, Taoyuan — Mr.Wen Shyong Chen

This 180 ton per day Buhler mill appeared to be in a little better condition than Tai-I mill. The mill was rather lightly loaded; I mentioned that it might be possible to increase its capacity fairly easily. I also looked over their germ system and felt that with a few minor flow changes, germ production could be improved quite a bit. These proposed changes were outlined using their flow diagram as a guide.

This mill also showed considerable infestation between the rebolt sifter and the packers. I outlined a cleaning strategy for the flour system and recommended the use of entoleters above the packing bins. Finally I pointed out the necessity of keeping the destoner bottom deck clean to get good performance from the machine.

July 3 (PM) — Chia Ho Flour Mill, Taoyuan — Mr. S.T. Peng

The lab for this mill looks very nice. There is one of each machine that Brabender makes, brand new. I was very impressed until I looked closer and noticed that most of it had never been turned on. Later questions revealed that they had not yet learned how to use most of the equipment — but then, very few other people have ever found a use for the Brabender Fermentograph ,either. The only other one I have seen in operational condition was in the Brabender factory. Could this equipment be a means of getting a higher wheat quota? – Ron Lu and I both think so.

The mill itself was in poor condition. One purifier was bypassed and not running, the other two had defects which defeated their proper function. Two pair of rolls were not operating because they were "broken". Mr. Hou, factory manager, said that a new rollstand was on order. The poor balance of the mill told me that the miller was really only a machine tender — despite his age he had no knowledge of milling technology. I stressed the importance of balancing the mill and of maintaining the good operating condition of all the equipment. Unfortunately, a great deal of time could be spent here by an on-site milling technician in order to get the mill back to reasonable operation -- several months work would show results. I did not say so, but Mr. Peng desperately needs a miller. In my discussions I tried to be diplomatic while politely mentioning that perhaps some improvements could be made. Enough said.

July 4 — Hong Ming Enterprise Co., Tainan — Mr. Hsin-Hong Kuo

This Buhler mill was very clean, well maintained, and well balanced upon my visit. The inspection of the mill revealed no basic operating problems, but a few fine points of milling technique were discussed based on my observations. The mill is producing a good quality germ at a better extraction rate than most Taiwanese mills, but we talked about strategies for improving the yield through careful control of the subsystems that process the germ-containing streams prior to extraction. Another fine point discussed was modification of purifier clothing and/or minor flow changes with respect to one purifier that appeared to be mis-classifying its output stocks.

Most of the discussions were about milling philosophies with respect to attacking the small details of the process. In this vein, we talked about such topics as: how does a miller decide how to divide the job of weed seed removal between the trieurs and the grain separator; how much purification is enough for stocks going to the C1A grinding passage; the benefits and drawbacks of water-cooled rolls; the use of sifter clothing specifications to estimate sifting capacities.

At this mill I received the distinct impression that the management was eager to get my impressions and recommendations, and also looked forward to the opportunity to "pick my brain." As was the case in this mill, such an attitude is usually exhibited by the millers who have the best running mills. My visits to millers in this category are usually the most enjoyable and at the same time the visits that test my skills the most.

Evaluation of the Taiwanese Milling Industry

There is a very wide range in the milling skills and facilities of Taiwan. In only five days I saw the full range of operational technique -- from "wheat grinding factory" to very technically skilled milling. Thus USWA is filling a very real need with its Chinese language version of the milling correspondence course. There were three common topics of discussion at almost every mill; germ extraction being perhaps number one. A lucrative market for food-quality germ has developed in Taiwan recently, but most mills were set up without germ extraction in mind. Thus I spent a large share of each mill visit examining germ extraction sub-systems.

Another common topic was the high strength and protein content of the 1985 crop soft white wheat. I tried to avoid the topic of blending starches into the flour. My emphasis was on the fact that the 1985 crop was considered abnormal and that the 1986 crop would probably return to normal strength. But I also added that a maximum protein specification on import contracts could protect against an abnormal shipment, even during a "normal" year. When I was asked point-blank about the use of starches for blending I answered truthfully as to what I felt they could, and could not, be used for. And I tried to emphasize alternatives to blending starches and the need for very careful laboratory evaluation of the results of starch blending.

Finally, everyone was interested in the shrimp-feed binder flour market. One mill had done some analysis and decided that they needed to improve the binder flour by shortening the farinograph arrival time and lengthening the farinograph departure time. This suggests that the important ingredient in binder flour is the gluten content. Thus, the shorter the patent flour extracted, the better will be the resulting clear flour for aquacultural feed. This is not a practical solution, since binder flour is a byproduct -- not the primary objective of production. However, some of the less efficient mills may discover this fact; if binder flour commands a high enough price, it may be more effective for them to make a high extraction DNS straight flour purely for aquacultural feeds than to compete with the more efficient mills in the bakery flour business. I do not know if this scenario would be justifiable economically; but if it is, it could have some interesting ramifications with respect to bakery flour production economics, bakery flour quality, the types of wheat imported, and the "under the table" brokerage of wheat between mills.

TRIP REPORT

YUGOSLAVIA FEED MANUFACTURING

June 9-20, 1986

Robert R. McEllhiney

Feed Manufacturing Consultant

American Soybean Association

YUGOSLAVIA FEED MANUFACTURING

The purpose of our trip (Balding, McEllhiney and Dr. Nichols) to Yugoslavia was to visit feed manufacturing plants and animal feeding units. Assistance was provided to clientele through information and suggestions for improvements, principally in the areas of processing, management, safety, quality control, formulation and nutrition. A secondary purpose was to visit and consult with firms that had personnel attending the Feed Manufacturing Short Course at Kansas State University in 1984.

The following report will primarily be a summary of the operating conditions observed during field visits and areas of concern that the managers and/or staff brought to our attention during plant tours, farm visits or during the various meetings conducted during our visit to Yugoslavia.

The narrative report will include the names of contacts made at each plant visit. We (Balding, McEllhiney and Nichols) were accompanied on each plant visit by Dr. Krunoslav Kos (Associate Director of PZISH). Dr. Zvonko Katic, Zagreb University, traveled with our team during the first week.

Mr. Aleksandar Cerne (Associate Director, East Europe, American Soybean Association) traveled with us from June 12-20. Mr. Petar Delic (Director of PZISH) and Vitomir Todorovic (Associate Director of PZISH) participated in most team activities in the Belgrade area from June 13-20, 1986.

This report will cover only the activities and comments of Robert R. McEllhiney since a separate trip report is being written by James L. Balding and Dr. David A. Nichols.

Monday, June 9, 1986

AIK VALJEVO, RO EFSH UNIP, Valjevo, Yugoslavia

Contact: Zivorad Lazarevic, Director (Attended '84 KSU Short Course)

Feed production was started in 1961 - new plant in 1975.
Plant employs 45 people.
60,000 MT capacity, presently producing 50,000 MT/yr (1 shift).
Silo capacity of 20,000 MT, drying capacity of 13 MT/Hr (reduce moisture from 32% to 14% in one pass).
Most equipment is Yugoslavian (Buhler panel).
Using 3 scales in mixing systems (10 kg, 250 kg, 1000 kg) with 2000 kg horizontal mixer. Mixing time of 5 minutes.
Production consists of 60% poultry, 20% swine, 10% cattle and 10% premix. Pellet 20% of total (fish, piglets, some broiler feeds, have recommended pellets for broilers, but not used due to added costs). Pelleting capacity of 10 MT/hr, using 4 mm die.
Grinding 4 mm for mash feed and pellets.
Fat being added at mixer (up to 4.5%). Molasses at pellet mill.
Separate systems for producing feeds and premixes.
Importing soybean meal, fish meal and vitamins.
30% finished feed delivered in bulk (increase expected), using 8 MT trucks, delivering 20-25 km (average distance from plant), have 30 customers within 10 km of plant.

Problem Areas Discussed with Plant Personnel:

1. Particle size for mash feeds and pellets. This operation is achieving increased efficiency through use of one size screen (4 mm) for hammermills.
2. Mixer testing procedures, not presently running mixer tests, but are interested in procedure. PZISH is planning on publishing mixer testing procedures for Yugoslavian feed manufacturers (KSU publication).
3. Housekeeping practices, plant was generally clean, but methods of dust control were discussed.
4. Pelleting efficiency was discussed, although pellet demand for broiler feeds is quite low.

Director Zivorad also arranged the following four brief farm visits to customers of the UNIP, Valjevo feed manufacturing plant. These visits were very informative as to types of feeding operations in Yugoslavia.

1. Cage layer operations (Valjevo Petrovic, owner). This operation was a single house, 5,700 layers (4 hens/cage). Mr. Petrovic was a private egg producer with 10 hectares of land. Bulk feed was delivered by pneumatic bulk truck (50,000 kg) and feed supplied to cages from bulk tank by mechanical feeding arrangement. UNIP supplies 30-40 farms like this operation.
2. Layer pullet farm operated by a private farmer (Ratko Voinovic). Fifteenth year of operation, growing 10,000 pullets to 18 weeks of age. Feeding bagged meal feed (15% protein), presently consuming 75 g/day, consume average of 6.5 kg feed during 126 day growing period. Using Amprolium for first 60 days, non medicated feed for remainder of feed period.
3. Baby beef confined feeding operation. Operated by UNIP. Feeding 1,400 animals in open sided concrete structure. Cattle raised locally, purchased for placement in feed lot. Starting weights of 200-300 kg, slaughter at 480-500 kg. Ration consists of silage (8-9 kg), corn (6 kg), and 35% concentrate (1 kg) per day. Feeding 60% bulls (not dehorned). Average gain of 1-1.2 kg/day. Use a conditioning program when animals brought into lot.
4. Trout farm consisted of two ponds, 10,000 fish per pond. Starting weight of 3 g, produce 250 g/yr. Sells fish at $4/kg. Conversion is 2 1/2:1. Owner reported a $6,000 profit for last year. Disease is a constant problem (one pond feeds into the other, since both are on a common stream).

Tuesday, June 10, 1986

Primarily travel to Pristina and Istok. Our group did have a late lunch in Pristina with OPPB SOUR AGROKOSVA, Pristina personnel, continued on to Istok for overnight lodging. The motel was located at a trout farm operated by AGROKOSVA. Farm produces 450 MT/yr, 1.3 hectare of water. 1.6:1 feed conversion. 250 g harvest weight after one year.

Wednesday, June 11, 1986

KLINA PREMIX, Klina, Yugoslavia

Contacts: Director, Plant Engineer, Nutritionist (names not available)

New plant, began operations in 1985 (pelleting system not completed), producing mash feeds.
Plant designed and built by NOVI SAD. Walter equipment.
60,000 MT/yr (2 shifts).
Production is 80% bag, 20% bulk. 70% poultry, 30% swine-cattle (will produce fish feed).
61 workers, 30 employed directly in feed production.
2 MT horizontal ribbon mixers (7 minute mix time) adding fat at mixer.
Separate line for premix production (will produce premix for this mill and mill at Kosovo Pole). Presently purchasing premix (contains feed additives).
Separate line for fish food production (will extrude for fish food).
One 160 kw pellet mill, 2, 80 kw hammermills (10 MT/hr each, using 30 kw fans to convey ground material), using 3-4 mm screens for small animal diets, 6-7 mm screens for larger animals. Regrinding soybean meal.
14,000 MT ingredient storage (13,000 MT bulk, 1,000 MT bagged). New silos will hold 3,000 MT. 30 MT/hr dryer capacity (using fuel oil) for drying corn (32% to 14%).
Quality control lab not completed, but will be able to run moisture, protein, ash, calcium, etc. when finished.

Problem Areas Discussed with Plant Personnel:

1. Operation of extruders for producing fish feed. Plant personnel have not operated extrusion equipment, so special efforts will be needed to make efficient use of this operation.
2. Housekeeping was discussed and efforts made to illustrate the importance of a clean mill to safety and production of a quality feed.
3. Discussed the improved efficiency (energy & maintenance) of conveying ground material from the hammermills by mechanical (bucket elevator) versus pneumatic conveying being used in this plant.
4. Mixing studies were discussed since mixing times have not been established by actual tests of mixing capability.
5. Die size for fingerling (trout) feeds. Will send info.

Thursday, June 12, 1986

ZIVINARSKA FARMA BELIMBEGOVO, Skopje, Yugoslavia

Contacts: Minovski Miladin, Director
Dondeiv Metodi, Veterinarian
Miodrag Stamenkovski, Veterinarian
Atanas Surdovski, Engineer ('84 KSU Short Course)

This part of the kombinant deals with poultry (feed mill produces feed for poultry operation). Poultry farm started in 1948.
Second largest layer farm in Yugoslavia (believe they are number one in technology). Twenty farms, averaging 100-400 thousand birds each, located within 20 km of this main farm. Provide day old chicks and pullets to these farms.
Farm has reproduction center (70,000 parent stock, 3-4 million day old chicks/yr., egg production from 14 facilities, producing 65-110 million table eggs/yr.
Farm employs 350 people. 100 hectares in main farm, other farms with 60 km radius.
Layer farm and egg packing unit. Cage layers, bulk feed storage and mechanical feed system (Big Dutchman). Replace layers at 12 months (approximately 50% production). Eggs are mechanically gathered. Conversion 170-175 kgm feed/egg. 1-126 day period, conserve 7.5 kg/pullet. Feed is 40% of total costs of egg production. Layer feed is 15% protein, 2700 me/kgm. Birds are a Frace hybrid, produces brown egg (only color produced in Yugoslavia). Eggs are not washed, damaged eggs used for liquid bulk or dried eggs. Fresh eggs purchased and sent directly to stores.
Feed Mill. 40,000 Mt/yr capacity, 90% bulk, 10% bag. Producing mash feed only (do not anticipate pelleting any feed in the future).
Utva Panchevo control panel for mixing system. Separate premix unit for manufacturing premix which was stored in bulk bin for use as needed, then added through 1000 kg scale to mixer. Mixing time was reported as 4 min, 55 seconds, but not established by any mixer test. No liquids added to mix.
Grinding accomplished with 2 hammermills (5 MT/hr each) equipped with 55 KW drive motors, pneumatic conveying of ground material, using 6-7 mm screens.
Bulk silo storage for corn, soybean meal, sunflower meal (8 silos, 1000 MT each). Large bag ingredient storage (transferred to mixing unit bulk bins as needed).

Problem Areas Discussed with Plant Personne

This feed mill had a number of serious problems. The following areas were discussed during a meeting following the plant tour.

1. This plant was being operated in an extremely dusty condition (accumulated dust and feed materials on floors, walls, ledges and equipment) which created very serious safety and quality control hazards. The methods used to improve housekeeping and the necessity to operate a clean plant were discussed with plant management personnel.
2. Mixing tests and procedures for running such tests were discussed.
3. Inventory control of bagged ingredients in the warehouse were discussed, particularly proper storage to prevent cross contamination and old stock.
4. Segregation of finished feed could probably be reduced through use of liquid addition at the mixer and smaller particle size (smaller screen size in hammermills).
5. Water problems in warehouse and silos can probably be corrected only by redesign (raise floor levels in mill and silos).
6. Plant maintenance requirements were discussed at length, stressing that older plants can still be operated with efficiency and without safety hazards to employees.
7. Discussed plans for new, replacement feed plant.

Friday, June 13, 1986

SOUR AIK ZAJECAR, PD Salas, Salas, Yugoslavia

Contacts: Feed Mill Director (Mr. Stojanovic)
Cventanka Stankovic ('84 KSU Short Course)

Feed mill capacity is 40,000 MT/yr (2 shifts).

Current production is 36,000 MT/yr. Built in 1974. 40% bulk (90% pelleted), 60% bag.

60 people employed, 30 production personnel.

50% of production used in own feeding operations, 50% is for sale.

Producing part of ingredients, operating grain dryer (13-14 MT/hr) and alfalfa dehydrator. Buying corn, importing some soybean meal, sunflower meal and rape seed meal.

Just completing construction of silos (10,000 MT, equipped with aeration and temperature monitors). Total of 30,000 MT ingredient storage.

Presently buying premix, but plan to produce their own in near future.

Operate a small, but apparently adequate, quality control laboratory. Have program for routinely running moisture, protein, ash, etc. on ingredients and finished feed. Are keeping finished feed samples for two months.

Housekeeping was very good, ingredient storage appeared to be well managed.

The mill was equipped with Utva, Panchevo control panel (1000 kg main scale, 500 kg minor ingredient scale), hand scale for premixes and additives directly to mixer (with verification procedure being used), horizontal ribbon mixer, surge bin for mixing feeds. Mixing complete feeds for 3 minutes and concentrates for 4 minutes (not actually running mixing tests, but are monitoring protein and salt on finished feeds). Adding 4% fat at mixer. Buhler pellet mill (plan to pellet broiler feeds, plan to add all fat at mixer).

Problem Areas Discussed with Plant Personnel:

1. Mixing studies were discussed in detail.
2. Pelleting of broiler feeds, including pellet size, crumble rolls, fat addition effect on pellet quality, fat application to finished pellet, etc.

Cventanka Stankovic conducted our team on a tour of two associated animal feeding operations (described below).

Broiler farm. 12 houses, 16,000 birds/house. Conversion of 2.1-2.2. Using straw litter and steam heat. Bulk feed bins for each house.

Sheep farm. 6 barns, 1,000 head/barn. Feeding whole corn silage and hay. Barn cost $150/meter^2 (space per lamb).

Saturday, June 14, 1986

Free time, Belgrade, Yugoslavia

Sunday, June 15, 1986

Free time, Belgrade, Yugoslavia

Monday, June 16, 1986

SOUR PIK AGROPANONIJA, Vlajkovac, Yugoslavia

Contacts: Sturza Bozidar, Director, Ro Agrouljma
Vujatovic Savo, Director, Odur Jedinstvo

Kombinant contains 4,350 hectares.

Operates a flour mill (10,000 MT of wheat/yr), alfalfa dehydrating plant (60-70,000 MT/yr), feed mill (70,000 MT/yr, presently remodeling, unable to visit) and winery. 1,600 hectares under irrigation (used primarily for alfalfa production).

Kombinant employs 400 laborers, 20 specialist and 40-50 technicians.

Total gross sales of ten million U.S.$/year.

Crops produced include wheat, corn, alfalfa, soybeans, sunflower, rape seed, sugar beets, vegetables.

Kombinant personnel conducted our team on tours of the following facilities.

Alfalfa Dehydrating Plant (located in Vrsac). Plant built in 1966-67. Three dehydrating lines, produce 20 MT/hr on each line. Equipped with hammermills (air conveying), pellet mills, coolers, bagging equipment, bulk-bag storage (30,000 MT capacity).

Plant operating costs (not including investment, depreciation, etc.) are 5-8 cents/kilogram. Pellet 70% of production, 50% bulk, 50% bag.

Alfalfa is 70-82% moisture as cut, final product has 12% moisture.

Using natural gas for dehydration.

Average 3-4 cuttings per year. Yield 100-120 MT/hectare on irrigated land, 60-85 MT/hectare on dry land. Produce alfalfa on land for 3-4 years, then rotate crops. Soybean yield is 2-2 1/2 MT/hectare.

Problem Areas Discussed with Plant Personnel:

1. Efficient operation of pelleting systems used in pelleting dehydrated alfalfa meal.
2. Energy (fuel and electricity) conservation.
3. Noise and air pollution problems.

Inex Hemofarm Pharmaceutical Plant, Vrsac, Yugoslavia

Contacts: Moidrag Babis, General Manager
Technical Staff

Presently successful in broad field of pharmaceutical-chemical production and sales. Have number of joint ventures with companies throughout the world (Upjohn, Merck, etc.).

Currently interested in investigation of producing feed additive premixes (perhaps produced in Sour Pik Agropanonija remodeled feed plant).

Discussed animal premix manufacturing with technical staff and toured facilities.

Tuesday, June 17, 1986

IAK SERVO MIHALJ, Zrenjanin, Yugoslavia

Contacts: Radomir Popov, Director ('84 KSU Short Course)

Kombinant utilizes 200,000 hectares (90,000 state, 110,000 private). Engaged in producing vegetable oil, sugar, animal feeds, meat, beer, wine, pharmacy products and various feed products.

Operates large animal production units (swine, broilers).

Director and our team traveled 36 KM to Srpski Itebej, Yugoslavia (very near Rumania border) for a tour of feed mill.

New feed mill, built January 1986 (all of plant not complete). Mill is part of integrated poultry operations, serves all of kombinant and some private feeders.

Mill capacity is 30,000 MT/yr (1 shift). Eighty percent bulk, 20% bag. Presently producing all meal feeds (plan to pellet next year, pellet all broiler feeds, some layer).

All equipment is manufactured in Yugoslavia. Using 2,000 kg scale for major ingredients, 500 kg hopper scale for minor ingredients, two MT horizontal ribbon mixer, adding soybean oil at mixer (3-5%), mixing time is 4 minutes (not running mixer tests).

Feed mill employs 35 people in production activities.

Computer used for mixing, formulation, inventory records (are also presently computing formula and inventory control manually, due to problems with computer). Not using computers for least cost formulation. Presently, nutritionist is formulating 100 rations. Do not change formula during year due to 1 year ingredient storage capacity (doesn't make sense, but this is what technicians told us.)

Inbound ingredients and finished feeds are sampled and some analysis work scheduled (does not appear to be a defined program).

The plant was quite massive for tonnage being produced. Good dust control equipment and housekeeping was excellent.

Two 120 Ks hammermills - screen sizes: pigs - 3 mm; poultry - 4 + 5 mm; and fat swine - 6 mm.

Problem Areas Discussed with Plant Personnel:

1. Least cost formulation, inventory control and formula changes by computer.
2. Pelleting of broiler rations and fat application equipment.
3. Mixer testing procedure.
4. Equipment maintenance, safety devices and equipment guards.

Wednesday, June 18, 1986

SOUR POLJOPRIVRENDNI KOMBINANT Belgrade (PKB), Belgrade, Yugoslavia

Contacts: Bosko Popovic, General Manager ('84 KSU Short Course)
Mihailo Milosevic, Vice President, Business Board
Rajko Latinovic, Swine Farm Director

PKB cooperated in a special effort to arrange a visit to their partially completed new swine farm. This visit was primarily arranged to benefit ASA consultant Dr. David Nichols (who was unfortunately unable to go on this tour due to a family emergency in the U.S.).

PKB Swine Farm. Complex is still under construction. Farm will eventually produce 32,000 fat hogs/yr. PKB will have three farms like this one. One farm for breeding, one for replacement stock, and one for meat production.

Meat swine will be a 3-4 breed cross. Using Swedish Landrace and Large White as primary breeds, with Hampshire and Duroc for some of the cross breeding.

Have testing units for meat-fat ratio, daily growth, feed conversion, pigs in litter, resistance to disease. Livestock Research Department of PKB in charge of testing program. Also program for measuring meat-fat ratio, back fat at slaughter houses.

Complex designed by PKB specialist and built by independent contractor (Yugoslavian contractor).

Total building space of 155 hectares. Six buildings devoted to reproduction. Sows and guilts kept in individual pens until 5-6 days before farrowing, then transferred to farrowing house. Pigs weaned 25 days (6 kg), pigs placed in cages (reach 27 kg within 56 days), transferred to feed lots. Fattened to 100 kgs (120 days). Feed lots are divided lengthwise, one side fed 27-60 kg weight, transfered to other side until 100 kg. Feed ration changed when pigs moved.

Pens equipped with slotted floors, flush pens every 1-2 days, subject waste to biological treatment, produce biogas (Italian technology) using forced ventilation, air channels on roof, use fans. Fans used to exhaust ammonia during winter (pull air below slotted floors). Summer, pull air in windows, exhaust from roof.

Complete feed produced by PKB feed mill. Fattening ration uses high moisture corn (ground into silo at harvest time and packed). Ground corn (31% moisture) and super concentrate are mixed (final ration moisture is 23-25% moisture, 15% protein). This ration used for 27-60 kg weight period. High moisture corn also used for 60-100 kg feeding period, but adjust protein level. Conversion rates are approximately 3.6, but vary considerably. Pigs/litter = 8.8 (after 6 kg). 2.05 litters per year. Using Tylan as growth promoter and disease prevention. Cannot use hormones.

PKB Feed Mill. This mill was visited in 1985 (complete description in 1985 trip report), was not toured since no major changes. 11,000 MT of silo storage for ingredients have been added. Used only for corn, but can handle other ingredients. Silos are able to receive by rail or truck, transfer to mill by conveyor. Tanks are equipped with dust control, aeration and temperature monitors. Drying capacity of 16 MT/hr (32% to 13% moisture).

Thursday, June 19, 1986

Yugoslavian Feed Manufacturers (PZISH) Seminar, Belgrade, Yugoslavia

A seminar was conducted for approximately 50 Yugoslavian feed manufacturing personnel. Most of the persons attending were from feed mills visited during the previous two weeks.

Seminar presentations were made by Mr. Peter Delic, Robert McEllhiney and James Balding. Mr. Alex Cerne handled the translation.

McEllhiney discussed plant management practices and mill design. He also presented information on the Feed Manufacturing Technology book and the KSU-IGP Feed Manufacturing Technology Short Course that will be offered in Manhattan, Kansas on September 29-October 10, 1986.

Balding discussed in plant quality control procedures, maintenance and safety.

A question-answer session followed the formal presentations. Areas discussed included the following areas:

1. Particle size for feeds, primarily hammer mill screen sizes.
2. Particle size for premixes.
3. Post grinding systems vs. pregrinding systems.
4. Procedures for preventing cross contamination in feed mills.
5. Rapid methods for testing mixer capability.
6. Screw conveyors vs. drag conveyors with respect to operating cost, damage to finished feed, self cleaning capability, etc.
7. Inspection of mixers for mixing action, clean out and material build up on housing and ribbons.
8. Coarse particle size of salt being used in Yugoslavia was discussed relative to segregation problems.

GENERAL OBSERVATIONS AND SUGGESTIONS FOR FUTURE ACTIVITIES WITH THE YUGOSLAVIAN FEED INDUSTRY

The trip was quite successful in allowing the team to make in depth observations of Yugoslavia feed manufacturing plants (particularly of plants not visited in 1984 or 1985) and to follow up with a number of the individuals that attended the 1984 Feed Manufacturing Technology Short Course.

Discussions were held with plant management and technical personnel during the individual plant visits, but in general, there are a number of areas where additional emphasis should be placed to improved plant efficiency and feed perfomance.

1. It appeared that most of the feed mills visited had capable managers, but there should be more delegation of responsibility (and authority) to technical staff to implement actual mill programs to improve such areas as quality control, housekeeping, safety, shrink control and maintenance. These same areas would be very good subjects to cover in future seminars with the feed industry, particularly if technical specialists from operating mills would participate in such activities.
2. It is evident that all plants should become involved in monitoring mixing capability (none of the plants visited were testing mixers) and in testing batching and bagging scales for accurancy.
3. All plants that are engaged in premixing activities should review these systems to correct cross contamination problems, incorporate liquids to reduce segregation, review material handling systems and storage units to reduce segregation, incorporate procedures to insure weighing accurancy and inventory control of premix ingredients.

In summary, I believe the team was able to make some valuable contributions towards improved feed manufacturing technology. I enjoyed participating in these activities and would like to thank Aleksandar Cerne (ASA), Peter Delic, Dr. Krunoslav Kos, Vitomic Todorovic (all of PZISH), Dr. Zvonko Katic (Zagreb University) and all the participating industry groups for hosting us and making the trip enjoyable and successful.

TRIP REPORT

TURKEY FEED MANUFACTURING

June 22-27, 1986

Robert R. McEllhiney

Feed Manufacturing Consultant

American Soybean Association

TURKEY FEED MANUFACTURING

The purpose of our trip (Balding and McEllhiney) to Turkey was to visit feed manufacturing plants and animal feeding units. Assistance was provided to clientele through information and suggestions for improvements, principally in the areas of processing, management, safety and quality control. A secondary purpose was to visit and consult with firms that had personnel attending the Feed Manufacturing Short Course at Kansas State University in 1985.

The following report will primarily be a summary of the operating conditions observed during field visits and areas of concern that the managers and/or staff brought to our attention during plant tours, farm visits or during the various meetings conducted during our visit to Turkey.

The narrative report will include the names of contacts made at each plant visit. We were accompanied on each plant visit by Michael Martin (American Soybean Association), Dogan Gurbuz (Secretary General, Turkey Feed Manufacturers Association) and Mrs. Dilek Onay (Interpreter).

This report will cover only the comments of Robert R. McEllhiney since a separate trip report is being written by James L. Balding.

Sunday, June 22, 1986

Imal Eden Yem (Bandirma Yem Fabrikasi) Bandirma, Turkey

Contact: Nazmi Tatli, Feed Mill Manager ('85 KSU Short Course)

This is the oldest feed plant in Turkey - started 1959.

Produced 74,000 MT in 1985. Manufacturing poultry (no broiler, only layer), sheep and cattle feeds. Not pelleting poultry feeds (only dairy pellets and lamb-calf rations).

Manufacture 8-10 MT/hr dairy feeds. Will begin producing broiler feeds next year (probably meal form).

Not using least cost formulation, seldom change formula.

The mill tour was abbreviated since it was Sunday evening and mill was not operating. Mill building and equipment was in poor repair, equipment very poorly located, resulting in undesirable cross conveying of material and complicated flow. Grinding salt through an attrition mill.

Was using 2 MT horizontal mixer with surge bin, ingredients preground, weighed by batch, with additional ingredients weighed by hand or weigh buggy and added via floor dump. Adding sunflower oil at mixer (2%). Four minute mix time. All feed was bagged (50 kgm).

Housekeeping was a major problem due to lack of dust control and storage of bags and bulk ingredients in numerous sections of flat storage. Evidence of employee smoking, insects and rodents. Manager reported a very serious problem with rats. Many employee safety hazards from dust, electrical wiring-controls and unguarded equipment drives, etc.

Ingredient inventory control appears impossible, since bulk ingredients are piled in many sections of flat storage (delivered by truck) making first in, first out usage very difficulty.

Manager stated that his major problem was availability and quality of ingredients - especially soybean meal.

Plant has a union labor contract. Seventy employees, average 1985 pay was 100-130,000 dinar/month (reported as very good in Turkey).

Problem Areas Discussed with Plant Personnel:

1. Housekeeping practices and equipment to assist in improving mill cleanliness.
2. Rodent control (clean up of grounds, screening openings, housekeeping, water source, etc.).
3. Inventory control of ingredients.
4. Storage of bagged ingredients, premixes, etc. to prevent cross contamination and proper usage.
5. Mixer testing.

Monday, June 23, 1986 (First Visit)

Yem Sanayii ve Ticaret A.S., Balikesir, Turkey

Contacts: Burhan N. Erdayi, Owner ('85 KSU Short Course)
Cemal Kasarcioglu, Manager
Turan Artun, Chief of Operations

Feed mill built in 1971, 30 MT/hr capacity, mill has been expanded 4 times (original capacity of 6-8 MT/hr). Present pelleting capacity of 20-25 MT/hr (operates 2 pellet mills, 12-14 MT/hr and 5-6 MT/hr).

Major problem stressed by staff is availability and variability of ingredients (particularly high protein ingredients).

Production is 50% cattle (dairy), 50% poultry (10% broiler, 40% layer). Operates 3 bagging lines (no bulk feed at present, but are investigating bulk feed operation), 50 kg bags.

1985 production was 74,000 MT, 26,000 MT pelleted (major feeds pelleted were dairy, lambs-calves, not pelleting broiler feed). Of total '85 production, approximately 47% calf-lamb, dairy, meat animal, sheep and 43% layer feeds, 10% other poultry feeds.

1986 target production is 90-100,000 MT.

Mixing system is computer controlled, can store 16 formulas, may operate auto or manual, Buhler mixer (2 MT), surge bin and bagging system. Not running mixer tests (mix 4 minutes). Manufacturing a premix, stored in bulk bin over batching scale (are adding some by hand direct to mixer). Not using any liquids in premix production.

Total bulk ingredient storage (1,000 MT silo, 14,000 MT flat storage) is 16,000 MT.

Ingredients were stored in bulk in a series of flat storage buildings (seemed to be very well managed, housekeeping excellent), with transfer to mill mixing bins as needed (used front end loader, bucket elevator). Bagged ingredients storage also managed well.

Does not have quality control laboratory, but do sample ingredients and feeds, send to a nearby reliable veterinary lab for analysis (not planning to add quality control lab since have confidence in present set up).

Company have own sales personnel and outlet-dealers. Salesmen are on commission.

Problem Areas Discussed with Plant Personnel:

1. Production and handling of premixes (handling to reduce segregation, problems of premix bulk storage bin, use of liquids, etc.).
2. Storage of minor ingredients (vitamins, minerals, feed additives) to promote proper use and prevent cross-contamination.
3. Procedures for testing mixer.
4. Maintenance of batching scales.

Monday, June 23, 1986 (Second Visit)

Kula Yem, Balikesir, Turkey

Contacts: Atay Kula, Owner ('85 KSU Short Course)
Ahmet Kula, Engineer (Owner's son)
Aytac Kula, Technical Specialist (Owner's son)

Feed mill finished in 1983, designed by Turkish firm. 55,000 MT in 1985. Operates 2 shifts, 6 day week. 35 people in feed production.

Computer batching (YILMAZ system), mill equipment is ALPSAN, 2 batching scales, double ribbon mixer (3000 kgm), add up to 5% fat or molasses at mixer. Mix time is 4 minutes (mixer not tested).

Two pellet mills, using 16, 10 and 5 mm dies. Steam from coal fired boiler (2 boilers, operates one boiler for year, switch to second boiler, perform major maintenance on first boiler). Maintain steam pressure at approximately 90 PSI (6 atmospheres).

Four bagging scales, 1 bulk load out bin (very little bulk feed produced at present). Manufactures premix, add to mixer at hand dump.

Housekeeping is a problem (no dust control equipment, poor manual clean up). Presently building ingredient silos (concrete), but no provision for dust control equipment.

Ten silos are presently used (2,000 MT) for primarily grain, but also bulk cottonseed, sunflower meal at times. Two, 80 MT hydraulic lifts for receiving bulk truck ingredients. Three flat storage ingredient buildings (50,000 MT). Large maintenance shop, firm does major building projects.

Problem Areas Discussed with Plant Personnel:

1. Molasses build up on equipment (mixer and handling equipment). Suggested regular clean out procedures (steam cleaning, manual cleaning, etc.). Six percent is probably too much to add at mixer.
2. Methods for dust control, mill housekeeping and prevention of smoking in the mill.
3. Mixer testing procedures.
4. Steam flaking of grain - will send information.
5. Magnetic protection at receiving bucket elevators and ahead of processing equipment.
6. Noise control, particularly noise from hammer mills - will send info.
7. Company is very seriously considering Dickey-John type of automatic analysis equipment for protein, fat, fiber (estimated cost at 17,000 U.S.$).

Tuesday, June 24, 1986

Yu-Pi Yem Fabrikasi, Izmur, Turkey

Contacts: M. Munif Ucgul, Manager ('85 KSU Short Course)

40,000 Mt in 1985, 1986 target is 70,000 MT.

Main mill in one large cinder block building which contains all milling equipment in single large room (does have small basement area in "new additon").

Mill really consists of an "old" section (original mill) and a "new" section which was added in the last 12-18 months.

Old Mill. Capacity of 16 MT/hr. Three vertical mixers (2 MT each, 14-15 min. mix time) discharge to a common screw conveyor. Ingredients are added via weigh buggies and hand dump. One hammermill, one bagging scale (no check scale).

New Mill. Capacity of 20 MT/hr. Manual weighing system, major ingredients are weighed from 12 overhead bins (into batching scale), 2 MT horizontal ribbon mixer, surge bin, bagging bins or bulk. Minor ingredients added to mixer (weigh buggy used for collection). A "Whirley" type feed dresser was used after mixing. (A large amount of sunflower meal was being removed from the ration by this equipment.) Mix time of 4 minutes (no tests of mixer). New expansion cost approx. 100,000 U.S.$.

Problem Areas Discussed with Plant Personnel:

1. Manager made the comment that they did not have any "technology" problems, but a major problem with availability and quality of ingredients. Our discussion dealt primarily in areas where "technology" could be improved.
2. Prevention of fires and grain dust explosions (welding on equipment was taking place while mill was operating).
3. Reasons why "new" mill was producing a more homogenious feed than "old" mill.
4. Mixing test procedures.

Note: A special visit was arranged (earlier in the day, prior to the feed mill visit) to the following poultry breeding farm.

Yu-Pi Poultry Company, Izmur, Turkey.

Contact: Dr. Alberto Hazan, Director R & D.

Feed for this unit is produced by Yu-Pi Yem Fabrikasi.

Breeder pullets are transferred to this farm at 18 weeks of age (litter transferred with birds), kept in egg production until 68 weeks, then moved out, houses remain empty (cleaned) for 4 weeks. Farm contains 34 houses (7,500 birds each).

Feed bulk mash feed, feed is weighed during transfer from bulk bin to mechanical feeding system. Birds fed between 4-10 a.m. (less mortality with this feeding system).

Dr. Hazan formulates rations, has Yu-Pi Yem Fabrikasi manufacture and deliver in bulk. He believes that there is a separation problem in feed being delivered (particularly when mixed in "old" mill.

Wednesday, June 25, 1986 (Also part of 6-26-86)

Abalioglu Yem Sanayi, S.A., Denizli, Turkey

Contacts: Orhan Abalioglu, Owner
Yavuz Şenel, Consulting Engineer

Feed mill is reported as the largest feed manufacturing plant in Turkey. Produced 143,000 MT in 1985 (bulk 5-6%, bagged 94-95%, 55% poultry, 45% cattle & sheep, 10% pelleted). Operate 10 hours per day.

Plant began (old plant, present plant built in 1980) operation in 1970, was the first private sector plant in Turkey.

Present plant completely equipped with Buhler equipment (Buhler design, with some modification), post grind system. Five MT mixer, post grind (with sifter separation of fine material). Premix is transferred (after mixing) to one of three bulk bins (40-60 MT) over batching scale (makes 3 major premixes). Three scales (major ingredients, minor ingredients, vitamin-additive).

Three hammermills (125 KW each) use 4 1/2 mm screen for poultry and 5 1/2 mm for cattle. Mix after grinding (usual post grind system). Mixing time is 4 minutes (not tested).

Mixer-blender for applying fat or molasses.

Two pellet mills, 2 vertical coolers (equipping one with crumble rolls), 4 pellet mash bins. Presently pelleting very small quantity.

Four bagging scales (50 kgm bags).

Ingredient storage is both silo and flat. Presently installing grain silos, grain drying system.

Mill operates a quality control lab, uses a Dickey John Instalab 800 NIR Product Analyzer. Analyze for protein, fiber, ash and moisture of ingredients and mixed feed.

Problem Areas Discussed with Plant Personnel:

1. Premix system, problems of possible segregation in bulk bin, proper mixing, etc.
2. Discussion of post grind vs. pre grind (reasons why "post grind" is not used in U.S., but popular in Europe).
3. Problems with molasses in feeds, from an equipment viewpoint.
4. Hammermill screen size selection, encourage investigation to determine if one screen size could be used (possibly not a problem if mill is willing to follow present schedule of poultry rations one day, cattle rations the next day and extra milling capacity continues to be available).
5. Discussed grain dryer equipment problems, will attempt to contact "Grain Man Company" on return to U.S. for assistance on obtaining automatic control system.

Thursday, June 26, 1986

Afyon Yem Sanayi, A.S., Afyon, Turkey

Contact: Sukru Samdan, Manager

1985 production - 25,000 MT. Production started in 1974.
50% meat animal feed (no dairy).
50% poultry (layers only).
Bulk 15%, bag 85%. Bulk truck (10 MT combination).
Miag equipment in mill.

Two scales (2000 kg and 200 kg), mechanical system (uses a unique large size scale hopper and slide gate arrangement), 2 MT double ribbon horizontal mixer (4 minute mix time, not tested), surge bin, molasses mixer. Manufacturers a premix (stores in bulk bin over batch scale), also uses a purchased vitamin premix.

Two pellet mills (90 KW each), 4 pellet mash bins, 2 vertical coolers. Uses 2.8, 6, 12 and 16 mm dies. Presently pelleting very little (too costly for customers).

Bagging scale (50 kg), bulk load out bin.

Vitamin-feed additive storage was unorderly and dirty. Mill housekeeping and dust control poor. Safety hazards from unprotected floor openings, missing guards and substandard electrical controls and wiring.

Problem Areas Discussed with Plant Personnel:

1. Manager reported that raw material availability and variability were his major problems.
2. Anti-foaming agent for molasses - will send info.
3. Methods to assist in maintaining particle size consistency from hammer mills.
4. Pelleting, particularly problems in making crumbles.
5. Testing mixers and maintenance of scales.
6. Government regulations (Turkey) pertaining to plant safety.

Friday, June 27, 1986 (First visit)

Turkish Feed Industrial Corporation, Ankara, Turkey

Contacts: Izmet Tan, Deputy Director General
Tanju Coruh, Sales Manager ('85 KSU Short Course)

Twenty-five feed plants in the organization. Sale prices are centrally controlled, but do have variation depending on region.

Central purchasing of soybean meal, sunflower meal, etc. Purchasing of local grains and ingredients is done by individual mill.

Feed formulas are set by central technological department (each plant provides information on ingredient availability, formulas are based on this information where possible).

Public feed mills target is to increase production, reduce inventory and increase turnover of inventory.

In 1958 there were no private feed mills in Turkey. Government got involved to develop feed industry.

During 1986, public contribution is 20%, private contribution is 80%. Plan to consider turning over feed industry to private interests.

Public is still heavily involved in eastern Turkey, reducing involvement in western Turkey.

Feed Mill, Ankara.
40,000 MT/yr. Began production in 1972.
10-15% bulk, 85-90% bag.
Mill is Buhler design and contains Buhler equipment.

Buhler manual control panel, 2 scale (2000 kg, 100 kg) batching system. Weighed ingredients are conveyed by air to horizontal ribbon mixer, mixed feed conveyed by air to finished feed bins. Fat is added at mixer, molasses at a molasses blender.

Hammermills are used for grinding, equipped with pneumatic conveying.

Two pellet mills (100 kw each), horizontal coolers (crumble rolls on one). Using 4, 10 and 16 mm dies. Pelleting only about 2% of production.

Twelve finished feed bins, 2 bagging scales (50 kg).

Discussion with feed mill staff was very limited due to lack of time for our tour.

Friday, June 27, 1986 (Second visit)

Murat Yem, Ankara, Turkey.

Contact: Savas Haksever, General Director ('85 KSU Short Course)

Feed mill built in 1982 with 20 MT/hr capacity. 1985 production was 31,000 MT.

Production nearly 100% bagged, 12-13% pelleted.

Post grind system (Buhler designed and equipped) with screen used to by-pass fine material to mixer. Two hammer mills (110 HP each), use 5, 6, 7, and 8 mm screens, depending on ration being produced.

2,000 kg batching scale, minor ingredients added to mixer. Fat is added to mixer.

One pellet mill (110 hp), bagging scale (50 kg), bulk loadout.

Discussion with feed mill staff was limited due to lack of time for our tour. The major area discussed was the possibility of improving grinding methods being used in the mill's "post-grinding" system to improve energy usage.

1987 SHORT COURSE SCHEDULE

March 30-April 10, U.S. Grain Marketing System.

May 11-22, Grain Grading, Storage and Handling.

June 29-July 10, Basic Flour Milling.

July 20-31, Advanced Flour Milling.

August 3-14, Advanced Flour Milling.

September 14-25, Flour Mill Management.

September 28-October 9, Feed Manufacturing Technology.

The International Grains Program

Purpose

The International Grains Program (IGP) is designed to provide participants with training in the processing and handling of U.S. food and feed grain commodities and utilization of their end products, and with information on the U.S. marketing system.

The program also is intended to encourage the expansion of existing markets and the development of new markets for U.S. agricultural grain commodities (especially wheat, corn, soybeans and sorghum).

Location

IGP is located at Kansas State University in Manhattan, Kansas, 120 miles west of Kansas City. It is accessible by both air and ground transportation. IGP was located at KSU because of the expertise in milling, feed science, baking and agricultural marketing available and the unique pilot flour mill and feed mill in the KSU Department of Grain Science.

Manhattan also is the home of the United States Department of Agriculture's Grain Marketing Research Laboratory and the American Institute of Baking.

Why Established

IGP was established with funds provided by the 1978 Kansas Legislature to promote the marketing of wheat, corn, soybeans and sorghum. It officially opened in June of 1978.

Work on the program was begun a number of years ago when the Kansas Wheat Commission asked the Department of Grain Science and Industry to make a feasibility study of methods that might be used to improve the supply of technical information for wheat marketing activities. Then later, with the participation of the Kansas corn, grain sorghum and soybean commissions, this was modified to develop a program for a marketing institute for all major U.S. grains.

International Grains Program courses, seminars and workshops are supported by the Kansas corn, sorghum, soybean and wheat commissions, U.S. Wheat Associates, the U.S. Feed Grains Council, the American Soybean Association and the U.S. Foreign Agriculture Service of the U.S. Department of Agriculture.

Types of Activities

The International Grains Program provides long and short-term courses, workshops and seminars on various phases of grain processing, handling, utilization and marketing.

These programs can be presented on the KSU campus or on an availability basis in countries requesting the program.

Programs of nine months or more can be developed for a limited number of visiting scholars interested in obtaining specific training in milling, baking or feed manufacturing.

As time and personnel permit, IGP can provide experts to travel with marketing teams, develop training aids and provide resource information. In addition, the program also can train special students from other countries in the use of U.S. grains.

General Areas of Study

Courses, seminars and workshops are available on request as time and facilities permit. They can include such areas as milling, feed processing, baking, nutrition related to cereal processing, grain sanitation, pelleting, extruding, feed mill design, feed and flour mill management, storage fundamentals and management, safety and other subjects involved in grain utilization and marketing.

The presentations can be tailored to needs of individual groups as time and space allow. Simultaneous translation is available for participants.

Meals and housing for participants can be provided in university dormitories or in nearby hotels, depending on needs and available space.

Types of Training Available

Milling Short Courses

IGP milling courses are designed to provide operative milling information for individuals with some experience in the milling industry. The courses provide a comprehensive insight into the complexities of operative milling and into the best ways of using U.S. grains.

U.S. Grain Marketing System Course

Periodically IGP provides courses on the U.S. grain market system. The purpose of the course is to increase the understanding of the U.S. grain marketing system, its benefits and how it can be used.

Feed Courses

Feed courses are designed to provide information and training in modern feed manufacturing technology for industry personnel. Course content can be specifically oriented to fit groups requesting programs.

Oilseed Courses

IGP courses cover the latest developments in corn and soybean processing, including solvent extraction, equipment efficiency, energy utilization and product utilization.

U.S. Grain Marketing System Seminars

These seminars are held periodically to help agribusiness executives, farm leaders, farmers and government officials better understand the way the U.S. grain marketing system operates and how it can best be utilized by the various segments of the agribusiness sector.

In addition to the specific courses IGP offers training and programs:

- Milling
- Feed Manufacturing Technology
- Grain Marketing and Merchandising
- Fundamentals of Soybean Processing
- Soybean Processing and Utilization
- Grain Storage, Drying and Sanitation
- Wheat Teams
- Feed Teams
- Soybean Teams

Courses can be developed to fit specific groups interested in an area of milling, baking, marketing or feed technology.

Facilities

IGP utilizes the unique milling, feed manufacturing, and baking facilities of Kansas State University's Department of Grain Science and Industry.

Facilities include a complete pilot (small-scale commercial) flour mill and a small-scale commercial feed manufacturing plant along with a small-scale bakery.

In addition, the programs utilize special classrooms equipped for simultaneous translation. Special laboratories are also used which were developed specifically for teaching such skills as grain grading, stored product insect identification, contaminant analysis and feed microscopy.

attachment 3

1986 IGP Programs

Beijing Feedstuff Corporation
Korean Corn Processing Team
Kansas Association of Wheat Growers
Japanese Trade Team
U.S. Grain Marketing System Short Course—Participants from Bangladesh, Bolivia, China (PRC), Costa Rica, Colombia, Ecuador, Guatemala, Indonesia, Israel, Jamaica, Korea, Mexico, Netherlands, Pakistan, Peru, Spain, Sri Lanka, and USA
Grain Storage, Drying, and Sanitation Short Courses (two sessions)—Participants from Egypt, Cyprus, Portugal, Sudan, Yugoslavia, Pakistan, Egypt, and Nigeria
Advanced Flour Milling Short Courses (two sessions)—Participants from Brazil, China (PRC), Dominican Republic, Haiti, India, Indonesia, Jamaica, Korea, Leeward-Windward Islands, Malta, and Taiwan
Portuguese Sorghum Delegation
Turkish Trade Team
German Democratic Republic Technical Mission
Peruvian Wheat Trade Mission
Grain Grading Short Courses (two sessions)—Participants from South and Central America, Portugal, Cyprus and Middle East
Japanese Food Agency Team
European Hard Bread Wheat Team
Japanese Food Agency Team
Flour Mill Management Short Course—Participants from Bolivia, Colombia, Chile, Ecuador, Peru, Barbados, Haiti, Jamaica, Leeward-Windward Islands, Antilles, Surinam, Trinidad-Tobago, Spain
Advanced Feed Manufacturing Short Course—Participants from Indonesia, Korea, Hungary, Mexico, Colombia, Nigeria, Yugoslavia

1987 IGP Short Course Calendar

(Set as of August 1986)

U.S. Grain Marketing System	March 30-April 10
Grain Grading, Storage and Handling	May 11-22
Basic Flour Milling	June 29-July 10
Advanced Flour Milling	July 20-31 and August 3-14
Flour Mill Management	September 14-25
Feed Manufacturing Technology	September 28-October 9

Sample Program

A typical milling short course includes class sessions, laboratories, and actual hands-on milling experience. Following is a list of topics covered by a recent milling short course.

Principles of milling
Milling practice lecture
Milling practice laboratory
Flour mill engineering
Grain marketing
Flow sheets
Grain grading
Mathematics
Engineering drawing
Sanitation and fumigation
Moisture testing
Cleaning house operation
Sieves and sifters
Experimental milling
Specialty milling
Corn milling
Wheat blending
Baking
Grain structure
Particle size determination
Air separation
Flour supplementation
Feed milling
Mill control
Pasta
Air
Analytical laboratories
Bread nutrition

IGP
INTERNATIONAL GRAINS PROGRAM

What Does the International Grains Program Do?

U.S. Grain Marketing System Short Course

The U.S. system of merchandising grain is at once unique and complex, handling larger volumes year-in and year-out than any other marketing system in the world. In order to operate profitably and efficiently, buyers and sellers of U.S. grain must understand how this unique and complex marketing system works. This short course, presented by the International Grains Program, is designed to make the U.S. grain marketing system more understandable so that those who use it can do so with greater efficiency and effectiveness.

Purpose of the Course

The course is designed to benefit individuals who have the responsibility for buying or selling U.S. grains in the world market. As these professionals gain greater understanding of the U.S. grain marketing system, they will be able to merchandise grain far more knowledgeably and efficiently.

Objectives

To gain skills in and to increase understanding of:

- The pricing of U.S. grains and soybeans in the cash and futures markets.
- The methods of market analysis in order to understand past market performance and to project probable future price trends.
- The effect of U.S. agricultural programs on grain marketing.
- The procedures and terms of grain contracts.
- The chartering of ocean vessels.
- The buying of grain under straight commercial terms.
- The buying of grain under government assistance programs, such as P.L.480, GSM-102 and export enhancement.
- The quality, grading and end uses of each kind and class of U.S. grain and soybeans.

Course Content

Grain Production and Distribution — Description of the production and major uses of wheat, corn, sorghum, soybeans, oats and barley; explanation of the functions of grain elevators, including country elevators, inland terminals and port facilities; and analysis of the impact of U.S. farm programs on the production, distribution and marketing of grain.

Grain Standards and Grading — Explanation of grain standards and weights used in the U.S.; laboratory work on inspection and grading of grain.

Grain Storage and Quality Preservation — Control of insect infestation; fumigation and other procedures for monitoring quality of stored grain.

Grain Milling and Processing — Milling characteristics of wheat, corn, grain sorghum, soybeans, oats and barley; quality specifications of milled products; milling processes and equipment.

Cash and Futures Markets — Role and function of futures markets in grain pricing; relation of futures to cash markets ("basis"); use of cash and futures markets by farmers, warehousemen, processors, exporters and importers.

Grain Prices — Fundamentals of supply and demand; impact of government policies on farmers' planning, and on the storage, transportation and export of grain.

Contracts and Financing — International tender and contract terms; arbitration procedures; commercial transactions; credit purchases under P.L. 480, GSM-102, export enhancement and other programs.

Ocean transportation — Chartering terms; costs of chartering; various types and registry of vessels; marine insurance.

Field trips — Tours of farming operations, a country grain elevator, an inland terminal, and the Kansas City Board of Trade.

Course Schedule

The course begins at 9:00 A.M. on Monday, March 30, in Manhattan, Kansas, and will conclude at 12:00 noon in Kansas City, Missouri on Friday, April 10.

Who Should Attend?

This course is designed for individuals with direct responsibility for the merchandising of U.S. grain either in this country or abroad. Private grain merchants, officials of government agencies, bankers and others interested in market development will find this intensive two-week course to be especially valuable.

In addition, this course will serve persons who have experience in some phase of the process of buying grain, such as financing, but not in other areas, such as contracting, price analysis or chartering of ocean vessels.

Enrollment is also open to individuals from countries that use U.S. grains or are targeted as market development areas by groups such as U.S. Wheat Associates, U.S. Feed Grains Council and the American Soybean Association.

The course will be presented in English with simultaneous translation into Spanish.

Costs And Enrollment

Enrollment fee of $900 covers the direct costs of the course, including books, equipment, supplies, coffee breaks, a banquet on the final Thursday evening in Manhattan, transportation on field trips, and the course service costs for non-sponsored participants. The fee does not include costs for lodging and meals.

For further information, contact:

International Grains Program
Shellenberger Hall
Kansas State University
Manhattan, Kansas 66506
Phone: 913-532-6161
Telex: 510-6000-752-KSU GRAINS

Persons interested in enrolling should fill out the attached form and return it to the International Grains Program. Reservations will be made on a first come, first served basis, and will be limited to 48 persons.

Registrants canceling after February 28 will be subject to a $200 cancellation fee. After March 15, no return of the deposit will be made.

attachment-3

Application for Admission

U.S. Grain Marketing System Short Course

March 30 - April 10, 1987

Name (Please Print) _____

Firm Name _____

Firm Address _____
Street or P.O. Box City State Zip Code Country

Home Address _____
Street or P.O. Box City State Zip Code Country

Present Position _____

Mail this form and
U.S. $450 tuition deposit to:
International Grains Program
Shellenberger Hall
Kansas State University
Manhattan, Kansas 66506
USA

Detach this application and enclose U.S. $450.00 certified check or money order payable to the KSU Foundation — International Grains Program.

Registration should be received by February 1 to ensure sufficient time to obtain visa documents.

Cancellation Policy: Registrants cancelling after February 28 will be subject to a U.S. $200.00 cancellation fee. After March 15, no return of deposit will be made.

Faculty

Short course instructors include several professionals on the faculty of Kansas State University with extensive knowledge of grain markets and experience in grain merchandising, including Charles W. Deyoe, Harvey L. Kiser, William I. Tierney, Jr., John Pedersen and Roger T. Johnson.

In addition, the seminar will feature several speakers from the grain export industry, financial institutions and U.S. government agencies.

General Information

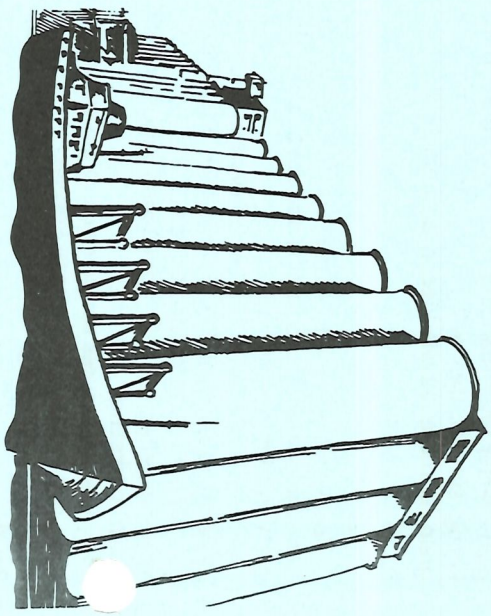
The U.S. Grain Marketing System Short Course is presented by the International Grains Program (IGP) at Kansas State University in Manhattan, Kansas, about 125 miles west of Kansas City. IGP provides participants with training in the processing and handling of U.S. food and feed grains, in the utilization of their end products, and in the workings of the U.S. marketing system. The International Grains Program was established by the Kansas legislature to promote the use and export of wheat, corn, soybeans and grain sorghum.

IGP

INTERNATIONAL GRAINS PROGRAM
Shellenberger Hall, Manhattan, KS 66506 U.S.A.

U.S. Grain Marketing System Short Course

March 30-April 10, 198



International Grains Program
Shellenberger Hall
Manhattan, Kansas
USA

IGP Courses Provide Essential Training and Information on U.S. Grains

Throughout the world the International Grains Program is recognized as a top source for effective training and relevant information on U.S. food and feed grain commodities.

IGP provides courses and seminars for foreign and domestic grain buyers, processors and government officials on the processing, handling, utilization and marketing of U.S. grains.

Last year more than 1,500 national and international participants from 58 countries attended IGP courses. . . . And, here's why. . .

▶***Specially developed courses. . .***
Each IGP course is designed and developed by the faculty to help improve your professional skills. In every course a significant amount of time is devoted to question and answer sessions allowing you to get answers to specific problems and concerns about your own particular business.

▶***Some of the best instructors in the world. . .***
With IGP courses you get practical training that will help you with your concerns and answer your questions. You learn, not only from the faculty, but also from the first-hand experiences of other participants. . .sharing and discussing in a dynamic group setting.

▶***Outstanding facilities for training. . .***
IGP facilities include a flour mill, a feed manufacturing plant, a bakery, specialty milling laboratories, dough rheology laboratories, a grain grading laboratory, and various other cereal chemistry laboratories. All were built specifically for use in teaching and research.

▶***Simultaneous translation. . .***
All IGP sessions are taught in English. However, classrooms are equipped for simultaneous translation, and translation is provided when demand is sufficient.

▶***Located in the middle of the U.S. grain belt. . .***
Based at Kansas State University in Manhattan, about 120 miles west of Kansas City, a visit to IGP provides you with an opportunity to see more of the U.S. grain belt. Kansas is the largest wheat producer in the United States and alternates with Texas as the leading producer of sorghum. Large amounts of corn and soybeans also are grown in Kansas.

▶***University atmosphere. . .***
Participants often remark on the peaceful campus setting and the pleasant atmosphere at Kansas State. This environment contributes to an enjoyable learning experience.

▶***Industry focused courses. . .***
IGP courses are based upon advanced technologies and techniques needed by professionals. Details on IGP courses scheduled for 1987 are included in this brochure.

Costs and Enrollment

Costs of IGP short courses vary according to subject matter, sponsorship, and length. For information on costs and enrollment information contact:

U.S. Wheat Associates
1620 Eye Street, NW
Suite 801
Washington, D.C. 20006
USA
Telex:440565 US Wheat

or any of U.S. Wheat's regional marketing representatives in the various countries throughout the world.

Information is also available from:

Director
International Grains Program
Kansas State University
Manhattan, KS 66506
USA
Telex: 5106000752 KSU Grains

Courses Available

U.S. Grain Marketing System

Date: March 30-April 10, 1987
Purpose: To increase participants' understanding of the U.S. grain marketing system and the milling and feed processing industries as they relate to it.
Maximum Number of Participants: 48
Topics Covered: Futures markets, contracts and financing, ocean transportation, factors affecting grain prices, grain standards and grading, grain storage and quality preservation, grain milling and processing, feed manufacturing, and grain production and distribution.
Who Should Attend: Individuals involved in all aspects of purchasing, handling, shipping, and use of U.S. wheat and other grains.

Grain Grading, Storage, and Handling

Date: May 11-22, 1987
Purpose: To help participants understand the way U.S. grain is graded and how the grading system operates, including the issuing of quality certificates for grain in the international market. In addition, the course will cover proper handling and storage procedures. One week will be spent on grain grading and one week on storage and handling.
Maximum Number of Participants: 24
Topics Covered: U.S. wheat quality, market classes of wheat, kernel structure, standardization, grain grading, protein, rheological measurements, sample evaluation, hands-on laboratory practice, grain handling, U.S. grain marketing system, contract writing, grain storage facilities, storage methods and procedures, planning storage facilities, maintenance, sanitation, housekeeping, and control of stored grain insects and pests.
Who Should Attend: Individuals interested in learning how the U.S. grain grading system operates and in improving their knowledge of grain storage and handling. Interested persons would include grain buyers, mill managers, owners, and warehouse managers.

Basic Flour Milling

Date: June 29-July 10, 1987
Purpose: To familiarize millers with the basic principles of operating procedures and methods of improving milling efficiency.
Maximum Number of Participants: 24
Topics Covered: Grain grading, marketing, testing, cleaning and conditioning; principles of milling; flow sheets; flour mill construction; grain and mill sanitation; flour microscopy and functionality; mill control; sieves and sifters; analysis of milling operation; experimental milling; fine grinding and air classification; baking and dough testing; and specialty and feed milling.
Who Should Attend: Practicing millers with 1-5 years experience who have experience in most mill operations.

attachment 3

Advanced Flour Milling

Dates: July 20-July 31, 1987 and August 3-14. 1987
Purpose: To provide advanced information on recent developments in flour milling.
Maximum Number of Participants: 24
Topics Covered: Grain storage and drying, flow sheets, principles of wheat cleaning, sieve clothing, mill sanitation, integrated sanitation programs, soft wheat milling versus hard wheat milling, wheat/grain grading, flour mill control, contracting, loading and discharging, mill by-product manufacturing, impurities separation, energy management, improving grain quality for long storage, use of aspirated grains in feed products, flour mill project engineering, safety, U.S. bread industry, and properties and preparation of hard red winter wheat noodles.
Who Should Attend: Mill managers and owners with more than five years experience in the milling industry and/or university degrees in related areas. This course requires more participant knowledge of milling than the basic course because the pace is rapid and the material is presented in considerable depth.

Mill Management

Date: September 14-25, 1987
Purpose: To bring mill managers up to date on the latest, state-of-the-art equipment, the latest marketing techniques in milling, and to provide innovative methods to determine costs.
Maximum Number of Participants: 48
Topics Covered: Management decision making; introduction to feasibility study using computers; purchasing management; hedging, grain contracts and ocean transportation; particle segregation; storage of grains; energy utilization; employee training; cost accounting; cost cards for flour; sanitation program; plant safety program; mill control; production scheduling and inventory control; mill automation; plant maintenance; customer utilization of flour; mill modernization; computer applications; and milling by-product use.
Who Should Attend: Mill managers and mill owners who have been involved in the business for 10 years or more, are involved in all aspects of mill management and/or have university degrees in related areas.

Other Seminars

Additional seminars on milling, feed manufacturing, and grain storage are available. They may be presented on the KSU campus orin-country on sufficient demand depending on faculty availability and planning time.

IGP

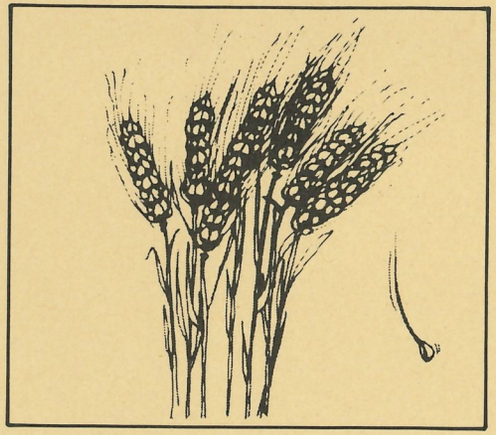
For information write:

International Grains Program
Shellenberger Hall
Kansas State University
Manhattan, Kansas 66506
U.S.A.
Telex: 510 6000 752 KSU GRAINS

Focus:

Wheat

Special short courses on the processing, handling and utilization of U.S. wheat



IGP

International
Grains Program
Manhattan, Kansas
USA

List of Short Courses Planned for 1987

International Grains Program

Manhattan, Kansas USA

attachment 3
Senate agriculture
1-27-87

IGP Provides Information and Training on U.S. Grains

Throughout the world the International Grains Program at Kansas State University is recognized as one of the top sources for training and information on the processing, handling, utilization, and marketing of U.S. food and feed grain commodities. IGP programs are available for interested foreign and domestic grain buyers, processors, and government officials.

The program, which was the first of its kind, was established in 1978. It was an outgrowth of programs in milling, baking, feed manufacturing, and wheat quality which the Department of Grain Science and Industry at Kansas State University had been providing for visiting grain and marketing groups from all over the world since the early 1960's.

That year (1978) the Kansas Legislature, taking note of the activities of the KSU grain science program and of recommendations from the Kansas Wheat Commission and also the Kansas Corn, Soybean, and Sorghum Commissions, established IGP.

Since that time the program has grown. Last year IGP presented 26 short courses, workshops and invited seminars abroad and at the IGP Center on the KSU campus for more than 1,500 national and international participants. In addition, the program hosted 20 grain teams with 118 members plus 61 individual visitors and speakers involved with grain processing, storage, and/or purchasing. Faculty also participated in a number of foreign grain

quality tours and seminars in Europe, Asia, the Far East, Africa, and South and Central America.

What's Available

IGP courses are available on all areas of processing, handling, storage, marketing, and grading of U.S. food and feed grain commodities.

The Institute offers a number of standard classes on a regular basis each year. In addition it provides other courses relating to food and feed grains on request whenever time, facilities, and personnel are available.

All IGP courses are tailored as closely as possible to match the needs and interests of participants in each individual session.

A list of standard IGP courses begins on page 6 of this brochure.

Facilities

Participants in International Grains Program short courses use the facilities of the Kansas State University Department of Grain Science and Industry and the IGP Center. The comprehensive facilities include a flour mill, feed manufacturing plant, bakery, specialty milling laboratory for grains other than wheat, dough rheology laboratories, grain grading laboratory, several milling laboratories, and various other cereal chemistry laboratories. All of these facilities were built specifically for use in teaching and research.

Location

The International Grains Program is located on the Kansas State University campus in Manhattan, Kansas, 120 miles west of Kansas City. It is accessible by both air and ground transportation. The campus is located on the northern edge of the city of some 35,000 deep in the Flint Hills of Kansas.

Language

All IGP sessions are taught in English. Simultaneous translation for several languages is

available when demand is sufficient. Translation costs are prorated among participants requiring the service.

Enrollment and Information

Individuals interested in attending any IGP course may receive more specific information, or enroll by contacting a marketing group such as:

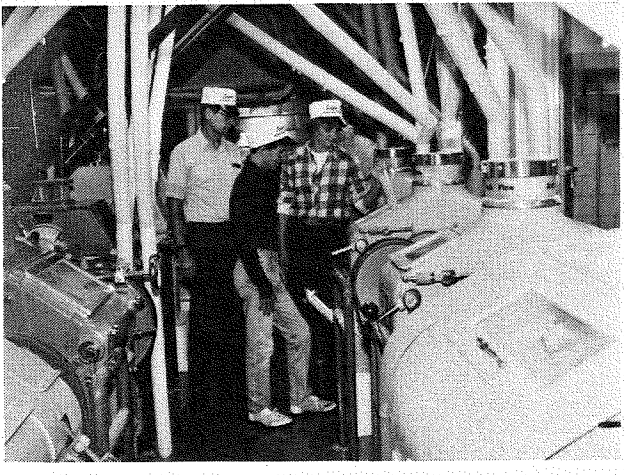
U.S. Feeds Grains Council
1400 K Street, N.W.
Suite 1200
Washington, D.C. 20005

The American Soybean Association
777 Craig Road
St. Louis, MO 63141

U.S. Wheat Associates
1620 Eye Street N.W., Suite 801
Washington, D.C. 20005

or by contacting the director:

International Grains Program
Shellenberger Hall
Kansas State University
Manhattan, KS 66506
USA
Telex: 510 6000 752 KSU GRAINS



Participants in some IGP milling short courses spend time in the pilot commercial flour mill.

Information is also available from any of the marketing groups' representatives in the various countries throughout the world.

Course Enrollment Costs

Costs of attending IGP short courses and seminars vary according to the type of course, sponsorship, course length, etc.

Individuals interested in specific courses should contact the director for course information and costs.

Standard IGP Short Courses

Feed Manufacturing

Tentative Date: September 28–October 29, 1987.

Purpose: This course provides an overview of the principle processes used in feed manufacturing. Participants gain a better understanding of the processing technology and managerial applications in the industry.

Maximum Number of Participants: 48.

Topics Covered: Mixing, ingredients, quality control, pelleting, energy management, safety, trucking, computers, sanitation, scheduling, shrink, and government regulations.

Who Should Attend: Individuals wishing to broaden their knowledge of the feed industry, and those with experience in the feed industry who want and expect to move up the management ladder will gain most from the course.

The course also will be useful to persons associated with industries allied with the feed manufacturing industry since it will provide a comprehensive view into the complexities of the industry.

U.S. Grain Marketing System

Tentative Date: March 30–April 10, 1987

Purpose: To increase participants' understanding of the U.S. grain marketing system and the milling, baking, and feed processing industries as they relate to it.

Maximum Number of Participants: 48

Topics Covered: Futures markets, contracts and financing, ocean transportation, factors affecting grain prices, grain standards and grading, grain storage and quality preservation, grain milling and processing, feed manufacturing, and grain production and distribution.
Who Should Attend: Individuals involved in managerial aspects of importing U.S. grain.

Grain Grading, Storage, and Handling

Tentative Date: May 11–22, 1987
Purpose: To help participants understand the way U.S. grain is graded and how the grading system operates, including the issuing of grain quality certificates for grain in the international market. In addition, the course will cover proper handling and storage procedures. One week will be spend on grain grading and one week on storage and handling.
Maximum number of participants: 24
Topics Covered: U.S. wheat quality, marketing the classes of wheat, kernel structure, standardization, grain grading, protein, rheological measurements, evaluating a sample, hands-on laboratory practice, grain handling, U.S. grain marketing system, writing a contract, grain storage facilities, storage methods and procedures, planning storage facilities, maintenance, sanitation, housekeeping, and control of stored grain insects and pests.

Who Should Attend: Individuals interested in learning how the U.S. grain grading system operates and improving their knowledge in grain storage and handling. Interested persons should include grain buyers, mill managers, owners, and warehouse managers.

Basic Flour Milling

Tentative Dates: June 29–July 10, 1987 and August 3–14, 1987
Purpose: To familiarize millers with the basic principles behind milling procedures and methods of improving milling efficiency.

Maximum Number of Participants: 24

Topics Covered: Grain grading, marketing, testing, cleaning and conditioning; principles of milling; flow sheets; flour mill construction; grain and mill sanitation; flour microscopy and functionality; mill control; sieves and sifters; analysis of milling operation; experimental milling; fine grinding and air classification; baking and dough testing; and specialty and feed milling.

Who Should Attend: Practicing millers with 1-5 years experience.

Advanced Flour Milling

Tentative Dates: July 20-July 31, 1987

Purpose: This is a refresher course that provides refined techniques and information on recent developments in flour milling.

Maximum Number of Participants: 24

Topics Covered: Grain storage and drying, flow sheets, principles of wheat cleaning, seive clothing, mill sanitation, integrated sanitation programs, soft wheat milling versus hard wheat milling, wheat/grain grading, flour mill control, contracting, loading and discharging, mill by-product manufacturing, impurities separation, energy management, improving grain quality for long storage, use of aspirated grains in feed products, flour mill project engineering, safety, U.S. bread industry, and noodles from hard red winter wheat.

Who Should Attend: Mill managers and owners with more than five years experience in the milling industry and/or university degrees in related areas. This course requires more participant knowledge of milling than the basic course because pace is rapid and material is presented in-depth.

Mill Management

Tentative Date: September 14-25, 1987

Purpose: To bring mill managers up to date on the latest, state-of-the-art equipment, the latest marketing techniques in milling, and to

provide innovative methods to determine costs.

Maximum Number of Participants: 48

Topics Covered: Management decision making; introduction to feasibility study using computers; purchasing management: hedging, grain contracts, ocean transportation; particle segregation; storage of grains; energy utilization; employee training; cost accounting; cost cards for flour; sanitation program; plant safety program; mill control; production scheduling and inventory control; mill automation; plant maintenance; customer utilization of flour; mill modernization; computer applications; and milling by-product use.

Who Should Attend: Mill managers and mill owners who have been involved in the business for 10 years or more and/or have university degrees in related areas.

Seminars available for presentation in-country

U.S. Grain Marketing System and Policies for Executives

Tentative Dates and Locations: Not yet set for 1987; may be scheduled by contacting director of IGP.

Length of Course: 3 days

Purpose: To provide background and policy information to aid participants in making effective buying decisions in purchases of U.S. grains.

Maximum number of participants: Dependent upon available facilities

Topics Covered: Grain market outlook, U.S. grain marketing system, U.S. farm program policies, grain futures markets, price forecasting, grain procurement strategies.

Who Should Attend: Top-level government and business executives who can be away from their offices for only a limited number of days and therefore cannot attend the two-week grain marketing short course on the Kansas State University campus.

U.S. Grain Marketing System and Policies for Managers

Tentative Dates and Locations: Not yet set for 1987; may be scheduled by contacting director of IGP.

Length of Course: 5 days

Maximum number of participants: Dependent upon available facilities

Purpose: To provide basic market information and a working knowledge of the U.S. grain marketing system to participants so that they can effectively buy U.S. grain.

Topics Covered: Grain market outlook, U.S. grain marketing system, U.S. farm program, grain futures markets, price forecasting, and grain procurement strategies.

Who Should Attend: Middle management employees in government agencies and private companies who do not have funding to travel and stay in the U.S. for the two-week, on-campus, short courses on the U.S. grain marketing system.

Note: Although topics covered in the two preceding seminars are identical, the level and direction in which the topics will be covered will differ considerably.

Other Seminars

Seminars on milling, feed manufacturing, and grain storage also may be presented in-country on sufficient demand depending on faculty availability and planning time.

International Grains Program
Shellenberger Hall
Kansas State University
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U.S.A.
Telex: 510 6000 752 KSU GRAINS