How It Came To Be
A short history of the Department of Grain Science and Industry at Kansas State University
1905 – 2006
The roots of the Department of Grain Science and Industry at Kansas State University reach back to a corner of a chemistry laboratory in old Denison Hall. There, in 1905, J.T. Willard, head of the Department of Chemistry, installed an experimental mill to begin evaluating the milling quality of new strains of hard winter wheat being developed for Kansas and the Great Plains.

By 1910 the work had grown, culminating in the establishment of the Department of Milling Industry. The director of the Kansas Agricultural Experiment Station began soliciting funds for the new department from millers and wheat growers throughout the state. Kansas millers raised nearly $2,000, and additional donations from the Kansas City Board of Trade and Kansas City millers brought the total to $2,382.

Leslie O. Fitz, a 1902 K-State graduate involved in wheat-quality work for the U.S. Department of Agriculture, was hired to head the new department. Goals of the department were to promote the use and improve the quality and handling of Turkey-type wheat, as well as to do research on those topics and grain storage methods.

*Old Denison Hall (1902 – 1934) housed the first activity in 1905 that eventually resulted in the Department of Grain Science and Industry.*
Under Fitz’s direction, plans were drawn for construction of a large experimental mill and for special machinery. In 1913, the state legislature appropriated $7,500 for mill equipment. The machinery was installed in Agriculture Hall (now East Waters Hall), when it was built in 1913 and was placed in operation in January of 1914. The mill had a capacity of approximately 145 hundredweight per 24 hours.

Fitz resigned in 1922, and C.O. Swanson assumed the position as department head in July 1923. Swanson had been associated with Kansas State University since 1906 when he was named as assistant chemist. He had been primarily involved with research on composition and properties of wheat flour. Under his leadership, the department became nationally recognized for wheat and milling research.

In 1937, a basic four-year course in milling industry was developed for students, and the old major in flour mill engineering was dropped. Courses were added to allow students to specialize in milling administration, technology, or chemistry. Swanson was succeeded as department head in 1939 by E.G. Bayfield, who remained as head until 1945.

Departmental facilities were not impressive when John A. Shellenberger became department head in September 1945. The pilot mill and lab equipment were outdated and inadequate. The Millers’ Advisory Committee was formed as the result of a chance tour Shellenberger led for John W. Cain, president of the Midland Flour Milling Company of Kansas City, Mo. At the first committee meeting in July 1947, the group agreed to modernize the pilot mill.
Ultimately, the state legislature appropriated $10,000 for new equipment, and a number of milling companies also made donations to modernize the mill. The remodeling project was completed in 1948 for a total cost of $80,000.

At the request of the feed industry, the feed technology curriculum was added to the department in 1951. Plans were drawn for the formula feed industry to raise $250,000 to build a structure to house a feed mill and other needed facilities. The Feed Technology Building was dedicated on November 10, 1955. Final cost was $331,000, and more than 275 firms contributed cash, equipment, or services.

On August 25, 1957, East Waters Hall, home of the department, was struck by fire. Despite efforts by fire departments from campus, the City of Manhattan, and Fort Riley, the building was a gutted ruin. Faculty members were moved to the central section of Waters Hall, Dickens Hall, and the attic of Willard Hall. Salvageable equipment was stored in the judging pavilion of Weber Hall and in World War II barracks. Replacement cost was estimated at $1,500,000.

A committee that investigated the fire recommended that the pilot plant never again be located in Waters Hall. As a result, plans were drawn for a new building to join the Feed Technology Building. East Waters Hall was also to be refurbished, mainly for use of the Agronomy Department, but with space for milling and feed technology classrooms.

The new building, constructed and furnished with state funds and money raised by the Millers’ Advisory Committee, cost about $700,000. When the cost of equipment was added, the total was well over $1 million. Secretary of Agriculture Orville L. Freeman dedicated the Milling Technology Building on May 18, 1961.

In 1960–62, Robert W. Schoeff led development of a new Extension program for the commercial feed industry. It was approved by Kansas State University, and two positions were funded by the state legislature.

At the suggestion of the Southern Bakers’ Association, and with the approval of the Kansas Board of Regents, the bakery science curriculum was established in 1963. The program allowed students to select a major in bakery science and specialize in one of three options: administration, operations, or chemistry.
In 1966, the departmental name was changed to the Department of Grain Science and Industry, William J. Hoover became department head when Shellenberger retired, and the Food and Feed Grain Institute was established. The institute’s goal was to allow interdisciplinary research activities that would bring together expertise from throughout the university to address problems of food and feed grains throughout the world.

The 1970 state legislature appropriated $100,000 to finance a third-floor expansion, but funds were insufficient. The result was the addition of a classroom and a general laboratory.

Hoover resigned in 1976 to become president of the American Institute of Baking, which he had successfully encouraged to move from Chicago to Manhattan.

Under direction of the new department head, Charles W. Deyoe, and with the support of the Kansas wheat, corn, sorghum, and soybean commissions, the International Grains Program was established in 1978 to support the marketing of U.S. grains. The program provides short courses and seminars for international buyers and processors, and assists other countries with milling, feed, grain, or baking problems.

By 1980 the program had grown, and facilities were needed to accommodate participants in International Grains Program courses. An area in the sub-basement of Waters Hall was remodeled. The Kansas Wheat Commission funded a classroom, and state funds provided for a small conference room, preparation room, and office.

Also that year, the Kansas Board of Regents approved construction of a 10,000-square-foot addition to Shellenberger Hall. However, in funding
the project, the Kansas Legislature specified that construction funds for the addition must come equally from the state and from the milling, baking, feed, and allied industries. Ultimately the state provided $750,000 for the addition, and industry financed the remainder of the $1.6 million building and equipment addition, which was dedicated in June 1984.

When Throckmorton Hall opened in 1981, the Department of Agronomy moved most of its activities to that building, freeing space in Waters Annex. With funding from the legislature, an area of about 3,000 square feet was remodeled to provide space for a large classroom, grain grading laboratory, office, and preparation room. The area, named the International Grains Program Center, was dedicated in December 1983.

Charles Deyoe stepped down as department head in July 1992, but remained as professor and director of the International Grains Program. Richard R. Hahn took over the department head’s role, after serving as the first director of the Kansas Value-Added Center.

In 1996, Brendan J. Donnelly became department head and began redirecting some departmental activities and upgrading the physical facilities. With the encouragement of faculty and university administration, he promoted the concept for a set of five new buildings to be located north of Kimball Avenue on the site of the department’s grain storage research facility.
The International Grains Program Conference Center, funded by the state commodity commissions, was completed in 2004. The BIVAP (Biological and Industrial Value-Added Programs) building was completed with state funds in 2005. The Hal Ross Flour Mill, funded by the milling industry, was the third building in the complex, dedicated October 20, 2006. The 500 hundredweight/24-hour mill will also host the Bühler Western Hemisphere Milling School. A research and teaching feed mill, funded by industry, is planned, and the final building of the five will house classrooms, research laboratories, offices, and the baking program. A combination of federal and state funds will be considered to finance the project.

Undergraduate enrollment in the department peaked at more than 200 in 1998, but state budget shortfalls in the early part of the 21st century resulted in delayed replacement of retiring and departing faculty, declining student numbers, reduction of research projects, and slowing of recruitment efforts. A phased-in retirement program for senior faculty further reduced recruiting and research activities. Faculty and support staff positions and enrollment both began to fall, resulting in a low of 120 undergraduates (50 in milling science, 45 in baking science, and 25 in feed science) in 2004.
Virgil Smail was hired as department head in 2004. As previous director of the USDA Grain Marketing and Production Research Center and president of the American Institute of Baking – both in Manhattan – he was familiar with the industry and institutions in Kansas. He continued the policy of expanding department facilities, began rebuilding faculty and support staff, and immediately began efforts to increase enrollment.

By the fall semester 2006, the department consisted of 23 full-time and three emeritus part-time faculty involved in teaching, research, extension, and the International Grains Program, as well as numerous visiting scientists and research assistants/associates. Undergraduate enrollment grew to 153 students majoring in baking (35), milling (75), or feed (43) science and management. Another 38 students were enrolled in the graduate program, pursuing M.S. or Ph.D. degrees in grain science.

The International Grains Program brings international short-course participants to campus and provides information on grain marketing, processing, and utilization to an international audience. Departmental research covers a broad range of topics in cereal chemistry, grain storage, processing, and utilization, and results in a number of patents and publications.

The department is as heavily involved in wheat-quality work as it was back in 1910. As former professor Arlin Ward liked to say, “It’s pretty hard to buy a cereal product that hasn’t been touched by a K-State Wildcat.”

Much of the above history is based on information from “The History of the Department of Milling Industry 1910-1966” and “Another Decade in the History of the Department of Milling Industry – 1966-1976, Department of Grain Science and Industry,” both written by John A. Shellenberger, former department head and KSU distinguished professor emeritus. It has been successively updated by Marcia Longberg and Chuck Walker.
The $10 Million Hal Ross Flour Mill, housing the Bühler Western Hemisphere Milling School, was dedicated October 20, 2006.