

Mr. L. A. Fitz  
1910 - 1922

Report on the Department

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(The following report was selected from the larger history written by Dr. Swanson.)

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Sometime after Milling Industry had been definitely established as a department with Mr. L.A. Fitz as Professor and Head, he prepared a report covering the events which led up to the establishment of the department. The report is as follows:

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“Since this Department is only a little more than two years old it is deemed advisable to include in this report a brief history of the inauguration of the department and the growth it has made in this brief time.

Inauguration of the Department:- During the fall of 1909 Director Webster began a campaign for still greater improvement in the wheat raising industry of this state. Realizing that the name “Kansas” on a sack of flour should be synonymous with “The Best” steps were taken which will result not only in increasing the yield per acre and total quantity produced but also in improving the quality. A circular letter outlining the proposed work was sent to practically all the millers in the state and to a great many wheat growers. Replies containing a hearty endorsement of the proposal made in the circular letter and urging that the Experiment Station, as soon as possible, begin this line of investigation were received from a large number. On Dec. 27, 1909 a joint meeting of farmers and millers was held at the College for the purpose of discussing the proposed work and outlining the plans for carrying it out.

In order to finance the work the Experiment Station agreed to use \$5000 available from the tax imposed by the Kansas Feed Law provided the millers and grain dealers would raise a like amount. Later the Northern Kansas and the Southern Kansas Millers’ Clubs, the Kansas Grain Dealers, and the Kansas City (Mo.) Board of Trade took up the matter of raising this fund. Committees were appointed from each organization. A joint meeting was held in Kansas City, and the fund apportioned as follows:

Kansas Millers .....	\$2,500
Kansas Grain Dealers .....	1,500
Kansas City Board of Trade .....	600
Wichita Board of Trade .....	200
Kansas City Millers .....	150

The problem was to be taken up from the following standpoints:-

1. Locate fields of wheat suitable for seed purposes; inspect these fields after they head out and before harvest; encourage proper methods of handling this grain to maintain purity and quality.
2. A thorough study of the handling of the wheat crop after maturity; i.e., the cutting, shocking, stacking, threshing, storing on the farm, and the handling in local elevator as this practice, without doubt, influences the market grade and milling qualities of wheat.
3. A study of the present system of grading as practiced by buyers, state Inspectors, etc., and its influence on the general situation of marketing Kansas wheat.
4. A study of the life history and methods of combating the insect enemies of growing and stored grain and also of the flour and by-products.
5. The eventual establishment of a State testing and baking plant of sufficient size and scope to make results reliable and to have such plant operated for the mutual benefit of miller, farmer, and elevator man.
6. Study of the effect of climate and soil upon the chemical composition of wheat and upon its subsequent milling and baking qualities.

The Department began as a Division and L. A. Fitz, formerly of the Bureau of Plant Industry, United States Department of Agriculture, was placed in charge, March 1, 1910.

The first problem was the financing of the work. The Kansas Grain Dealers and the Wichita Board of Trade failed to contribute but the Kansas millers subscribed nearly \$2000 and the total fund secured from all outside sources was \$2382. This money was subscribed for the purpose of:

1. Sending into the growing fields a number of experts to examine the fields; determine the purity and quality of the wheat for seed; instruct the farmer in its care as a seed crop; assist him in selling it as a seed crop; co-operate with the elevator and mill men in giving this seed wheat the widest possible distribution throughout the wheat belt, gaining thereby these things:
  - (a) A very large increase in number of acres seeded to good wheat.
  - (b) An appreciable increase in yield per acre.
  - (c) The organization of a system for perpetuating the best varieties of Turkey type wheat.
  - (d) The education of the wheat grower in caring for and handling his crop to get greatest returns per acre for his work.

(Note.- Raising the average yield per acre two bushels means an increase of eleven million bushels in our total yearly production and raising the quality one grade means an increase in price of one or two cents per bushel. This all means the adding of practically \$10,000,000 to the value of Kansas' yearly production of wheat.)

2. Checking the damage wrought by insects injurious to stored grain and mill products.

Steps were taken to locate fields of wheat "that would be suitable for seed purposes". Circular letters were sent out to farm and trade journals, daily newspapers, and to farmers who had bought good seed. These met with ready response and over 175 fields sown from introduced or College bred seed were located and 135 of these inspected just before harvest. About 14,000 acres of this wheat would pass inspection for purity and freedom from noxious weeds. Samples of the threshed grain were sent in for final inspection.

A list of farmers having seed wheat for sale was published and copies were sent out all over the state. The wheat farmers all awakened to their opportunities and an unprecedented demand for good seed wheat resulted. The supply of over 6000 bushels at Hays was soon exhausted and most of the farmers having good seed wheat for sale were able to dispose of it at a good premium over the ordinary price of milling wheat. Inquiries and orders for good seed came not only from all over Kansas but also from many other states. Only about one-third of the men on the list reported to the department their sales of seed wheat, but even this number reported the sale of over 35,000 bushels. The total cost of this work as paid from the Millers' Seed Wheat Fund was \$443.08. The expense incurred for mill fumigation as reported by the Entomology Department was \$375.12. This left a balance on hand of \$1563.80. Later the sum of \$37.00 was used in the payment of cash prizes awarded for samples of wheat exhibited at the sixth annual meeting of the Kansas Corn Breeders' Association, leaving an unexpended balance in the millers' fund of \$1526.80.

It had long been known to those working for the improvement of the wheat industry that good seed alone would not solve the problem. Along with this must go proper rotation and proper cultivation methods. The matter was taken up with the State millers' organizations and all agreed to support a bill asking for an annual appropriation of \$15,000, for the purpose of developing good seed, distributing it, and demonstrating methods of good farming. One-half this amount was secured and, as the greater portion of this work was most closely related to the work of the Agronomy Department, the fund was placed in their charge with the inspection of wheat fields for seed purposes still left under the supervision of the Milling Industry Department.

For the crop of 1911 over 150 fields were personally inspected before harvest and a list giving the names of about 200 farmers having seed wheat for sale was supplied to all persons desiring it.

For the crop of 1912 over 165 fields were inspected and a list of nearly 200 farmers offering seed wheat was issued.

A follow-up letter has been sent out each fall to all farmers on the list asking them to report names and addresses of parties to whom they have sold seed wheat. Only about one-third of those listed have ever reported, but even these few report the sale of over 35,000 bushels from the crop of 1910 and about 32,000 from the crop of 1911. Reports for crop of 1912 are not available at this date. Most of this seed wheat has sold at a margin or from ten to sixty cents above market price for commercial wheat.

Many farmers report the inspection and advertising has been a great help to them in disposing of their surplus seed wheat. While a few did not sell all of their seed, many others report that the demand was greater than they could supply. A notable example of co-operation in this is found in the Farmers' Union, at Lost Springs. This organization bought from J. H. Mapes, of Salina, 1800 bushels of seed wheat from the 1910 crop. They secured Mr. Mapes' name from our seed wheat list. They had the 1911 crop grown from this seed inspected and sold from it over 10,200 bushels in carload lots.

Kansas is not only supplying her own demands but is also furnishing seed wheat for her sister states.

Considerable equipment has been obtained for class room and laboratory work. A course dealing with the handling, marketing, and commercial grading of grain, and the manufacture of various food products from grain, has been given during the winter term of each year to seniors in the Agronomy course as well as to special and elective students. This work consists of three lecture periods and one laboratory period per week, or four credit hours. Twenty-seven students took the work in 1911 and twenty one in 1912. In several instances grain men, millers, and flour salesmen have come in for a few days special instruction in grain grading and wheat and flour testing. A set of special lectures on wheat, flour, and flour manufacture has been given each spring term to classes in the Domestic Science course studying bread making.

In addition to this regular work a special class in elementary agriculture for teachers was taught for half the spring term of 1911. This class had fifty-nine enrolled.

Besides teaching these classes, this department has assigned all the sophomores in Agriculture, amounting to from eighty-five to one hundred seventeen students per term.

Since March 1, 1912, this department has had charge of the enforcement of the state law regarding the manufacture and sale of concentrated feeding stuffs. This matter has been taken up with the feed manufacturers and dealers in the state with a view to secure the passage of the uniform law as recommended by the Association of State Feed Control Officials. Additional registrations have been secured and several cases of apparent law violation taken up. The appointment of an additional inspector has been asked for and everything is favorable for a much better observance of the law than has formerly existed.

Experiment Station Work: Most of the experimental work was carried out in co-operation with the Chemistry Department. It consisted principally of milling and baking tests and chemical analyses of wheat and flours.

In order to have at hand some data regarding the quality of different grades of flour manufactured in Kansas, thirty-five samples of flour were secured from twenty-five representative mills in the state and baking tests made on these flours. Samples of the wheat were also secured and both wheat and flour analyzed.

Samples of the mill streams were secured from two of the best mills in the state and these were baked and analyzed.

A study of the different methods of harvesting and handling wheat with their effect upon milling quality and market grade and value has been carried on through two seasons.

Also the effect that different methods of tempering wheat may have upon the milling and upon the quality of flour obtained there from has been studied. All these data have been written up and part has been ready for publication for over six months.

In connection with the seed work the question has come up among the millers as to the cause of "yellow-berry" in hard wheat. Many millers had believed it to be due to the yellow berry seed planted and had advised as a remedy the importation of new seed. All previous investigations had led to the belief that this deterioration in the hard wheat was due primarily to the effect of climatic conditions and not to character of seed sown. To verify the results of previous experimental work and to demonstrate the preponderating effect of climate rather than character of seed on resulting crop the following experiment was carried out:

Six samples of clear hard seed and six samples of yellow berry seed were selected. These samples, with one exception, were Kharkof wheat and came from seed originally sent out from the college. These samples were planted at both Hays and Manhattan. Conditions with respect to the different lots were uniform

at each place. Owing to the extremely dry season there was very little yellow berry produced in the samples grown at Manhattan and the samples grown at Hays were uniformly of the thin, shriveled, "shoe peg" type of hard wheat. In all cases the samples grown from yellow-berry seed were fully as good in every respect as those produced from the clear hard type of seed.

Plans for the experimental mill have been worked out and designs for special machinery are being made. Equipment for the new milling and baking laboratory has been designed and ordered.

Experiments are being conducted to corroborate data already secured with respect to the study of changes which take place during the sweating of grain. Also experiments are being conducted to determine if possible whether or not this change can be brought about artificially by means of proper tempering of the wheat before milling.

The effect upon milling and baking qualities of different kinds of damage in wheat such as "bin burning" and sprouting is also being determined:

Respectfully submitted

L. A. Fitz  
Professor of Milling Industry"