EXPERIMENT STATION

Kansas State Agricultural College

MANHATTAN, KAN.

BULLETIN NO. 1

APRIL, 1888

By order of the Council:

E. M. SHELTON, *Director*.

ANNOUNCEMENT.

The Kansas State Agricultural College has, ever since its foundation in 1863, recognized agricultural experimentation as a part of its legitimate work. So far as the funds of the College, and appropriations made by the State Legislature, have allowed, the constant effort has been to aid in the development of the new State by increasing our knowledge of its agricultural capacities, by means of carefully conducted experiments. While this work has met with frequent interruptions, chiefly from luck of funds, it yet shows a degree of continuity which sufficiently attests the earnestness and steadiness of purpose of those having the work in hand. By the recent enactment by Congress of a measure entitled, "An act to establish Agricultural Experiment Stations in connection with the Colleges established in the several States, under the provisions of an act approved July 2nd, 1862," and of the act supplementary thereto, approved by the President March 2nd, 1887, the experimental work thus begun has been placed upon a broad and independent basis. This measure, known commonly as the "Hatch Act," provides for the establishment in the so-called land-grant Colleges, or agricultural departments of such Colleges, in each State or Territory, "a department to be known and designated as an 'Agricultural Experiment Station,' to aid in acquiring and diffusing useful and practical information on subjects connected with agriculture, 'and to promote scientific investigation and experiment respecting the principles and applications of agricultural science.'" The work of the Station, as outlined in the organic act, covers every department of agricultural art and science: the diseases of plants and animals; the chemical composition of soils, waters, and useful plants; the comparative advantages of different rotations; the capacity of new plants for acclimation; the adaptation and value of grasses and forage plants; the composition and digestibility of food of domestic animals; the scientific and economic questions involved in the production of butter and cheese, and such other researches and experiments bearing directly upon the agricultural industry as may be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories.

According to the provisions of section four, bulletins are to be published at said Stations at least once in three months; and one copy to be sent to each newspaper in the State or Territory in which the Station is located, and to such individuals actually engaged in farming as may request the

same, as far as the means of the Station will permit. It is further enacted that such bulletins or reports shall be transmitted in the mails, free of charge for postage, under regulations prescribed by the Postmaster General.

In section five, it is provided that, for the purpose of paying the necessary expenses of conducting investigations and experiments, and printing and distributing the results, the sum of $15,000 per annum is appropriated to each State and Territory entitled under this act to be specially provided for by Congress in this appropriations from year to year, to be paid in equal quarterly payments on the first day of January, April, July, and October of each year. Out of the first annual appropriation so received by any Station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such Station; and thereafter an amount not exceeding five per centum of such annual appropriation may be so expended.

The conditions of the "Hatch Act" were accepted by the Legislature in a resolution dated March 3rd, 1887, by which the deposition of the appropriation was placed under the control of the Board of Regents of the Kansas State Agricultural College.

Owing to verbal defects in the bill, it was held by the Comptroller of the Treasury that no appropriation was made by it. To give the act effect, therefore, a special appropriation became necessary, and such appropriation bill was passed by Congress, and received the assent of the President February 1st, 1888.

On account of the failure of the Congressional enactment to make the necessary appropriation, no action was taken in the matter by the Board of Regents until after the special appropriation above referred to, making provisions giving effect to the Experiment Station Act, had become a law.

On February 8th, at a special meeting of the Board of Regents, the following resolutions, organizing the Station and defining the duties of officers and the work of the several departments, were adopted:—

1. The general executive management of the Station shall be under the control of a Council, to consist of the President of the College, the Professors of Agriculture, Horticulture and Entomology, Chemistry, Botany, and Veterinary Science, and such other officers of the College as the Board may designate.

2. The President of the College shall be, *ex officio*, Chairman of the Council, and shall have the same supervisory control of the Experiment Station as of other departments of the College.

3. The Professor of Agriculture shall conduct original researches or verify experiments upon the comparative advantages of rotative cropping as pursued under a varying series of crops, together with experiments designed to test the comparative effects of the various manures, natural or artificial, on crops of different kinds; the adaptation and value of different grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals, and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable. He shall also be, *ex officio*, Director of the Station, the duties being to keep the records of all meetings, receive

and maintain all general correspondence with the Station, attend to the publication and distribution of all reports and bulletins under direction of the Council, certify to all bills, and act as General Superintendent in executing the plans of the Council.

4. It shall be the duty of the Professor of Chemistry to conduct original researches or verify experiments in the chemical composition of useful plants at the different stages of growth; the analysis of soils and waters; the chemical composition of manures, natural or artificial, and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable.

5. The Professor of Horticulture and Entomology shall conduct original researches or verify experiments on the capacity of new plants or trees for acclimation; the diseases to which they are severally subject, and the remedies therefor, together with all questions in economic entomology, and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable.

6. The Professor of Botany shall conduct original researches or verify experiments on the physiology of plants; the diseases to which they are subject, with the remedies for the same; and such other researches and experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable.

7. It shall be the duty of the Professor of Human and Comparative Physiology and Veterinary Science to conduct original researches or verify experiments in the composition and digestibility of the different kinds of food for domestic animals, the diseases to which they are subject, together with their prevention and cure; and such other original researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable.

8. Each member of the Council shall have full control of experiments assigned to his own department, and if any question arises as to the scope of any experiment, or by whom it shall be conducted, the same shall be decided by the President of the Council.

9. Assistants shall be chosen by the Heads of Departments subject to ratification by the Council; but the rates of compensation shall be fixed by the Board of Regents.

10. Estimates for equipments of the Station shall be submitted by the Council at each quarterly meeting of the Board of Regents, through the Secretary of the Board.

11. The funds of the Station shall be held strictly to the purposes contemplated in the act of Congress, in a separate account on the books of the Secretary and the Treasurer, with distinct vouchers for all expenditures, which shall be audited and paid as other vouchers for special appropriations.

12. Bulletins may be issued to the public from time to time under the law, as the Council may order, and there shall be printed in each the words, "By order of the Council: E. M. Shelton, Director"; but the annual report to the Governor shall be made through the Board of Regents.

From the above, the disposition of the college authorities to apply the fund strictly to the purposes contemplated by the act of Congress is apparent. The controlling body of the College have formally said: "The funds of the Station shall be held strictly to the purposes contemplated in the act of Congress"; and while many of the provisions of this act are susceptible of a variety of interpretations, it is yet the sentiment of those having in charge the work of this Station that all doubts should be settled by directing every energy towards the solution of problems directly connected with practical agriculture, horticulture, and stock-raising.

On account of the delay in receiving the appropriation,—it became available April 10th,—the work of the present season must necessarily be largely one of preparation for the operations of coming years. A fact in agriculture is valuable in itself and in its relations; but an agricultural principle can only be established as the result of repeated trials under agricultural conditions. It has been thought best, therefore, to direct the labors of the present year towards securing that permanent basis for future operations without which persistent and systematic work is impossible. To this end the farm and grounds will be greatly improved, a much needed Laboratory for use of the Department of Horticulture and Entomology erected, plantations of new varieties of trees made, and the necessary apparatus and supplies secured. Additional work is planned covering experiments with varieties and methods of cultivation of corn and other grains; with the cultivated grasses and other forage plants; with varieties and methods of cultivating sorghum, with the view to increasing the sugar contents of this plant; with ensilage and other stock foods, and methods of feeding, especially as effecting the production of meat and milk; with common and unusual fruits, shrubs, and forest trees, and with garden vegetables in great variety.

In the purely scientific departments, analyses of grains, fodders, and other agricultural products will be made, together with fertilizers, —natural and artificial,—and special soils and waters. Experiments are in progress to test the efficacy of insecticides, and the most practical methods of destroying insect pests. Thorough investigation will be made of the history and habits of weed pests; the diseases of the cultivated plants of our State: the rusts, smuts, moulds, mildews, blights, rot, scab, etc., which have so long been a burden to the farming community.

The above brief outline of operations is designed to give not merely the ultimate aim of the Station, but to indicate the scope of the work already in hand. In every one of the above indicated lines of investigation, and a number of others, a promising commencement has already been made.

Nothing is said here of researches upon the diseases of animals, although recognized by the Board of Regents as a part of the legitimate work of the Station. As the Professor of Veterinary Science enters upon his duties here on May 1st references to specific work in this department must be left to future bulletins of the Station.

From all of the above, it is plain that practical results are to be the aim and end of this Experiment Station. Unless it proves itself really useful to the great agricultural interest of the State, whatever it may accomplish or suggest in other directions, it may justly be said to have failed to accomplish the purpose for which it was created. This consummation, however, is not to be looked for as the result of a single season's labor. Whatever of real value grows out of the operations of the Station will be due to careful planning and diligent, patient labor often repeated.

Facts, real or supposed, obtained hap-hazard, by luck or chance, have so far been principally the foundation of agricultural practice. It is the demand for better knowledge than this—the something known, not "guessed"—that has called into life the Experiment Station. To carry out to the end a system of experimental investigations with subjects like farm crops, in which a whole year sufficeth for but a single experiment, involves in a large degree the element of time. For the present the Station can do little more than to report progress, which will be done in Bulletins issued at least quarterly, but oftener as the material for such bulletins becomes available.

The farmers of the State plainly have a duty in connection with the Station. Experimental investigations are valuable to the farmer chiefly in that they suggest to him new lines of thought and action. He who accepts, without further thought, results obtained at the Experiment Station is as much in error as his neighbor who completely ignores the teachings of science. The results of experiment must be finally confirmed by actual experience upon the farm before they can be said to have practical value.

Moreover, the farmers of the State can aid the Station by suggestions growing out of their experiences. Correspondence on matters pertaining to agriculture, horticulture, and related sciences is therefore invited. Samples of grains, grasses, and other products of experimental interest, diseased plants or those in which disease is suspected, insects, and fungi will be gladly received, with the understanding that they are to be reported upon publicly. In general, such specimens should only be sent after correspondence with officers of the Station, by whom detailed information as to quantity, best methods of packing and shipment, etc., will be given.

The Bulletins and Annual Reports of the Station are, on application, sent free to residents of the State.

Address all correspondence, inquiries for bulletins, samples, etc., to DIRECTOR OF EXPERIMENT STATION, Manhattan, Kansas.