United States Department of Agriculture,
OFFICE OF EXPERIMENT STATIONS,
A. C. TRUE, Director.

AGRICULTURAL EXPERIMENT STATIONS

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AGRICULTURAL EXPERIMENT STATIONS IN THE UNITED STATES.

HISTORY AND ORGANIZATION OF THE STATIONS.

Experiments in agriculture were carried on by the agricultural colleges to a limited extent from about the time of their first organization in 1857. On July 2, 1862, Congress passed a bill, introduced by Senator Justin S. Morrill, allotting a certain amount of public land to each State for the establishment of a land-grant, or agricultural and mechanical, college, and providing that these colleges should carry on agricultural experiments. This materially increased the number of institutions at which such experiments were conducted. In 1875 the first State agricultural experiment station in the United States was established at Middletown, Conn., under the direction of Prof. W. O. Atwater. About the same time the California Experiment Station was organized as a department of the University of California, but did not receive direct State recognition until 1877. The establishment of others followed in rapid succession, the first of which were the North Carolina, New York Cornell, New York State, and New Jersey State stations. On March 2, 1887, Congress passed the bill popularly known as the "Hatch Act," appropriating $15,000 annually to each State and Territory for the establishment and maintenance of an agricultural experiment station, from which time our national system of experiment stations dates.

Soon afterward the Office of Experiment Stations was organized in the United States Department of Agriculture. This office represents the Secretary of Agriculture in his relations with the agricultural colleges and stations at home and abroad. From time to time the supervision of special investigations has also been assigned to it; notably in 1894, the investigations on the nutritive value of various articles of human food; in 1897, agricultural investigations in Alaska; in 1898, irrigation investigations; and in 1900, agricultural investigations in the Hawaiian Islands and in Porto Rico.

The agricultural experiment stations in the United States are State institutions, supported in part by funds given by the National Government to the States to be used for their maintenance. They have also received the franking privilege under Federal authority. The

direct management of the stations is wholly in the hands of State officers. The stations organized under the Hatch Act are by law departments of the land-grant colleges, and as such are governed by the governing boards of those institutions. An exception was made, however, in favor of agricultural experiment stations which had been established separate from the land-grant colleges by some of the States prior to the passage of the act. In this way stations are maintained in Connecticut, New York, and Ohio which are not connected with colleges and yet receive in full or in part the benefits of the Hatch Act. These stations have their own governing boards.

Besides the president of the college, who holds the same relation to the station as to other departments of the college—that is, of executive officer—and the director, who is generally a separate officer and is in immediate charge of the station, the station staff usually comprises several scientific experts in charge of special lines of work (as dairying, horticulture, chemistry, entomology, or diseases of plants and animals) and scientific assistants. The members of the staff may be employed exclusively for experiment station work, but in a large number of instances they combine this with instruction in the college. In addition to the scientific force there are usually persons of practical experience employed as foremen of farms, dairymen, feeders of cattle, etc., and clerical assistants, including accountants, stenographers, and typewriters. The land, buildings, and equipment of the stations are very largely furnished by the colleges with which they are connected.

Agricultural experiment stations are now in operation under the act of Congress of March 2, 1887, in all the States and Territories. Agricultural experiments have been begun in Alaska with the aid of national funds; an experiment station is in operation in Hawaii under private auspices; and Congress has made appropriations for the establishment and maintenance of experiment stations under government auspices in Hawaii and Porto Rico. In each of the States of Connecticut, New Jersey, and New York a separate station is maintained wholly or in part by State funds. In Louisiana three stations are thus maintained, and in Alabama two, the Canebrake and Tuskegee Stations, are maintained wholly by State funds. Excluding the branch stations established in the several States, the total number of stations in the United States is 57. Of these, 54 receive appropriations provided for by the act of Congress.

The total income of the stations during 1900 was $1,170,857.78, of which $719,999.07 was received from the National Government, the remainder $450,858.71 coming from the following sources: State governments, $247,281.46; individuals and communities, $2,420.51; fees for analyses of fertilizers $70,927.31; sales of farm products, $90,088.84; miscellaneous, $40,140.59. In addition to this the Office of

Experiment Stations had an appropriation of $45,000 for the past fiscal year, including $12,000 for the Alaskan investigations. The value of additions to equipment of the stations in 1900 is estimated as follows: Buildings, $89,416.23; libraries, $10,784.70; apparatus, $19,397.85; farm implements, $17,015.86; live stock, $22,009.10; miscellaneous, $8,850.94; total, $167,474.68.

The stations employ 693 persons in the work of administration and inquiry. The number of officers engaged in the different lines of work is as follows: Directors, 71; chemists, 143; agriculturists, 74; experts in animal husbandry, 14; horticulturists, 75; farm foremen, 24; dairymen, 30; botanists, 55; entomologists, 50; veterinarians, 29; meteorologists, 16; biologists, 6; physicists, 7; geologists, 6; mycologists and bacteriologists, 17; irrigation engineers, 7; in charge of substations, 10; secretaries and treasurers, 27; librarians, 10; and clerks, 51. There are also 30 persons classified under the head of "miscellaneous," including superintendents of gardens, grounds, and buildings, apiarists, herdsmen, etc. Three hundred and fifteen station officers do more or less teaching in the colleges with which the stations are connected.

The activity and success of the stations in bringing the results of their work before the public continues unabated. During the year 1900 they published 386 annual reports and bulletins which were supplied to over half a million addresses on the regular mailing lists. A number of stations supplemented their regular publications with more or less frequent issue of press bulletins. **The bulletins of the stations are sent free of charge to all applicants residing within the State or Territory in which they are issued.**

Agricultural experiment stations of the United States, their locations, directors, and principal lines of work.

Stations, locations, and directors.	Number on staff.	Names on mailing list.	Principal lines of work.
Alabama (College), Auburn: P. H. Mell	13	8,402	Botany; soils; analyses of fertilizers and food materials; field and pot experiments; horticulture; diseases of plants; feeding experiments; diseases of animals.
Alabama (Canebrake), Uniontown: H. Benton	3	2,311	Soil improvement; field experiments; horticulture; floriculture; diseases of plants; diseases of animals
Arizona, Tucson: R. H. Forbes	9	2,900	Chemistry; field experiments; meteorology; diseases of plants; horticulture (including date-palm orchard).
Arkansas, Fayetteville: R. L. Bennett	8	6,000	Chemistry of foods; field experiments, horticulture; diseases of plants; feeding experiments; diseases of animals.
California, Berkeley: E. W. Hilgard	30	5,200	Physics; chemistry and geographical distribution of soils; fertilizers; field crops; horticulture; botany; meteorology; technology of wine and olive oil, including zymology; chemistry of foods and feeding stuffs; entomology; drainage and irrigation; reclamation of alkali lands; plant introduction.
Colorado, Fort Collins: L. G. Carpenter	16	6,500	Chemistry; field experiments; horticulture; entomology; irrigation.
Connecticut (State), New Haven: E. H. Jenkins	14	9,000	Analysis and inspection of fertilizers, foods, and feeding stuffs; chemistry; diseases of plants; horticulture; forestry; field experiments; entomology.
Connecticut (Storrs), Storrs: W. O. Atwater	7	7,000	Food and nutrition of man and animals; bacteriology of dairy products; field experiments; dairying.
Delaware, Newark: A. T. Neale	8	6,800	Chemistry; bacteriology; field experiments; horticulture; diseases of plants; feeding experiments; diseases of animals; entomology; dairying.
Florida, Lake City: W. F. Yocum	11	4,000	Chemistry; field experiments; horticulture; entomology.
Georgia, Experiment: R. J. Redding	8	15,238	Field experiments; horticulture; entomology; mycology; pig feeding; dairying.
Idaho, Moscow: J. A. McLean	11	3,000	Physics; botany; field experiments; horticulture; entomology; feeding experiments.
Illinois, Urbana: E. Davenport	12	18,000	Chemistry; bacteriology; field experiments; horticulture; forestry; diseases of plants; feeding experiments; entomology; dairying.
Indiana, Lafayette: C. S. Plumb	11	17,452	Chemistry; pot and field experiments; horticulture; feeding experiments; diseases of plants and animals.
Iowa, Ames: C. F. Curtiss	20	20,000	Chemistry; bacteriology; field experiments; horticulture; diseases of plants; feeding experiments; entomology; dairying.
Kansas, Manhattan: J. T. Willard	15	17,102	Soils; horticulture; seed breeding; field experiments; feeding and digestion experiments; diseases of animals; entomology.
Kentucky, Lexington: M. A. Scovell	11	7,000	Chemistry; soils; fertilizer analysis; field experiments; horticulture; diseases of plants; entomology; dairying.
Louisiana (Sugar), New Orleans: William C. Stubbs			Chemistry; bacteriology; soils and soil physics; field experiments; horticulture; sugar making; drainage; irrigation.
Louisiana (State), Baton Rouge: William C. Stubbs	21	15,000	Chemistry; geology; botany; bacteriology; soils; field experiments; horticulture; entomology; diseases of animals; inspection of fertilizers and Paris green.
Louisiana (North), Calhoun: William C. Stubbs			Chemistry; soils; fertilizers; field experiments; horticulture; feeding experiments; stock raising; dairying.
Maine, Orono: C. D. Woods	14	11,000	Chemistry; botany; analysis and inspection of fertilizers, concentrated commercial feeding stuffs, and creamery glassware; horticulture; diseases of plants; seed tests; food and nutrition of man and animals; poultry raising; diseases of animals; entomology; dairying.
Maryland, College Park: H. J. Patterson	16	8,500	Chemistry; soils; field experiments; horticulture; diseases of plants; feeding experiments; entomology.

Agricultural experiment stations of the United States, etc.—Continued.

Stations, locations, and directors.	Number on staff.	Names on mailing list.	Principal lines of work.
Massachusetts, Amherst: H. H. Goodell	20	16,350	Chemistry; meteorology; analysis and inspection of fertilizers and concentrated commercial feeding stuffs; field experiments; horticulture; electro-germination; diseases of plants; digestion and feeding experiments; diseases of animals; entomology.
Michigan, Agricultural College: C. D. Smith	16	28,000	Bacteriology; soils; field experiments; horticulture; forestry; diseases of plants; feeding experiments; diseases of animals; entomology; apiculture; stable hygiene.
Minnesota, St. Anthony Park, St. Paul: W. M. Liggett	15	12,000	Chemistry; soils; field experiments; horticulture; forestry; diseases of plants; food and nutrition of man; plant and animal breeding; feeding experiments; diseases of animals; entomology; dairying.
Mississippi, Agricultural College: W. L. Hutchinson	11	14,500	Chemistry; soils; field experiments; horticulture; feeding experiments; dairying.
Missouri, Columbia: H. J. Waters	14	12,000	Chemistry; field experiments; horticulture; diseases of plants; feeding experiments; diseases of animals; entomology; drainage.
Montana, Bozeman: S. Fortier	7	5,523	Chemistry; meteorology; field experiments; horticulture; feeding experiments; poultry experiments; entomology; irrigation.
Nebraska, Lincoln: E. B. Andrews	17	11,000	Chemistry; botany; meteorology; field experiments; horticulture; forestry; feeding and breeding experiments; diseases of animals; entomology; irrigation.
Nevada, Reno: J. E. Stubbs	9	2,000	Chemistry; botany; soils; field experiments; horticulture; forestry; feeding experiments; animal diseases; entomology; irrigation.
New Hampshire, Durham: C. S. Murkland	15	9,750	Chemistry; soil physics; field experiments; horticulture; diseases of plants; feeding experiments; entomology; bacteriology.
New Jersey (State), New Brunswick: E. B. Voorhees	8	10,000	Chemistry; biology; botany; analysis of fertilizers and foods; pot and field experiments; horticulture; diseases of plants; food and nutrition of man; diseases of animals; entomology; dairy husbandry; bacteria of milk; irrigation.
New Jersey (College), New Brunswick: E. B. Voorhees	8		
New Mexico, Mesilla Park: F. W. Sanders	15	2,800	Chemistry; botany; field experiments; horticulture; entomology; irrigation.
New York (State), Geneva: W. H. Jordan	25	36,000	Chemistry; bacteriology; meteorology; fertilizers; inspection of creamery glassware; field experiments; horticulture; diseases of plants; feeding experiments; poultry experiments; dairying; entomology; irrigation.
New York (Cornell), Ithaca: I. P. Roberts	19	20,000	Chemistry of soils; feeding stuffs and dairy products; soils; fertilizers; field experiments; horticulture; diseases of plants; feeding sheep and swine; diseases of animals; poultry experiments; entomology; dairying.
North Carolina, Raleigh: G. T. Winston	13	19,808	Chemistry; field experiments; horticulture; analysis of feeding stuffs; digestion experiments; poultry experiments.
North Dakota, Agricultural College: J. H. Worst	12	8,300	Field experiments; horticulture; diseases of plants; feeding experiments; diseases of animals; dairying.
Ohio, Wooster: C. E. Thorne	16	35,000	Soils; field experiments; horticulture; diseases of plants; breeding and feeding experiments; diseases of animals; entomology.
Oklahoma, Stillwater: John T. Fields	10	13,510	Field experiments; horticulture; forestry; diseases of plants; digestion and feeding experiments; animal husbandry; diseases of animals; entomology.
Oregon, Corvallis: T. M. Gatch	12	4,000	Chemistry; soils; field crops; horticulture; diseases of plants; digestion and feeding experiments; entomology; dairying.
Pennsylvania, State College: H. P. Armsby	20	12,500	Chemistry; meteorology; fertilizer analysis; field experiments; feeding experiments; dairying.

Agricultural Experiment Stations of the United States, etc.—Continued.

Stations, locations, and directors.	Number on staff.	Names on mailing list.	Principal lines of work.
Rhode Island, Kingston: A. A. Brigham	15	8,000	Chemistry; meteorology; soils; analysis and inspection of fertilizers and feeding stuffs; field and pot experiments; horticulture; poultry experiments.
South Carolina, Clemson College: H. S. Hartzog	14	8,500	Soils; analysis and control of fertilizers; field experiments; horticulture; plant breeding; diseases of plants; feeding experiments; veterinary science; entomology; dairying.
South Dakota, Brookings: J. H. Shepard	12	9,000	Bacteriology; chemistry of soils and soil physics; field experiments; forestry; diseases of plants; feeding experiments; entomology; irrigation.
Tennessee, Knoxville: A. M. Soule[1]	12	9,000	Chemistry; soils; fertilizers; field experiments; horticulture; seeds; weeds; diseases of plants; feeding experiments; entomology; dairying.
Texas, College Station: J. H. Connell	14	15,055	Chemistry; soils; fertilizers; field experiments; horticulture; feeding dairy cows; sheep husbandry; diseases of animals; irrigation.
Utah, Logan: J. A. Widtsoe	10	4,450	Chemistry of soils and feeding stuffs; alkali soil investigations; meteorology; field experiments; horticulture; forestry; diseases of plants; cattle and sheep breeding; feeding experiments; dairying; poultry experiments; irrigation.
Vermont, Burlington: J. L. Hills	13	10,500	Chemistry; analysis and control of fertilizers and feeding stuffs; inspection of creamery glassware; field experiments; horticulture; diseases of plants; feeding experiments; diseases of animals; dairying.
Virginia, Blacksburg: J. M. McBryde	10	8,200	Field crops; horticulture; cider and vinegar making; feeding experiments; diseases of animals; entomology.
Washington, Pullman: E. A. Bryan	12	5,000	Chemistry; botany; soils; bacteriology; field experiments; horticulture; diseases of plants; feeding experiments; entomology; soils; oyster culture; diseases of animals; dairying; irrigation.
West Virginia, Morgantown: J. H. Stewart	12	7,000	Chemistry; analysis and control of fertilizers; field experiments; horticulture; feeding experiments; poultry experiments; entomology.
Wisconsin, Madison: W. A. Henry	21	12,000	Chemistry; soils; field experiments; horticulture; feeding experiments; dairying; drainage and irrigation.
Wyoming, Laramie: E. E. Smiley	8	2,700	Geology; botany; meteorology; waters; soils; fertilizers; field experiments; food analysis; feeding experiments; entomology.

[1] Vice-director.

Revenue of the agricultural experiment stations for the fiscal year ended June 30, 1900.

Stations.	Hatch fund.	State.	Fees.	Farm products.	Miscellaneous.	Total.
Alabama (College)	$15,000.00		$5,628.21	$931.94	$1,668.87	$23,229.02
Alabama (Canebrake)		$2,500.00		270.88		2,770.88
Arizona	15,000.00		295.23	157.76	782.65	16,235.64
Arkansas	15,000.00					15,000.00
California	15,000.00	11,560.00		817.61		27,377.61
Colorado	15,000.00			1,013.22	511.69	16,524.91
Connecticut (State)	7,500.00	12,500.00	8,471.03	1,103.42	16.91	29,591.36
Connecticut (Storrs)	7,500.00	1,800.00			1,684.75	10,984.75
Delaware	15,000.00					15,000.00
Florida	15,000.00			1,132.55		16,132.55
Georgia	15,000.00	700.00		1,608.89	2,400.36	19,709.25
Idaho	15,000.00			612.00		15,612.00
Illinois	15,000.00		260.00	747.04	196.15	16,303.19
Indiana	15,000.00			2,251.21		17,251.21
Iowa	15,000.00		7.00	2,678.35	144.70	17,830.05
Kansas	15,000.00			7,002.05		22,002.05
Kentucky	15,000.00	a 2,455.26	a 20,866.29	a 3,334.34	a 105.30	41,761.19
Louisiana	15,000.00	18,000.00	5,514.25	1,669.90	12,974.84	53,158.99
Maine	15,000.00		4,970.53	3,950.10	177.74	24,098.37
Maryland	15,000.00			2,830.94	5.69	17,836.63
Massachusetts	15,000.00	11,200.00	3,600.00	1,720.86	1,979.82	33,500.68
Michigan	15,000.00	2,500.00	1,620.00	438.43	1,301.39	20,859.82
Minnesota	15,000.00	b 32,033.09		b 9,333.31		56,366.40
Mississippi	15,000.00			1,780.06	33.43	16,813.49
Missouri	10,000.00		1,129.95	2,520.00	1,195.83	19,845.78
Montana	15,000.00	1,500.00		3,128.89		19,628.89
Nebraska	15,000.00			1,806.12	949.78	17,755.90
Nevada	15,000.00			110.15	135.63	15,245.78
New Hampshire	15,000.00		1,222.38			16,222.38
New Jersey (State)		16,600.00				16,600.00
New Jersey (College)	15,000.00					15,000.00
New Mexico	15,000.00			153.58	651.80	15,815.38
New York ((State)	1,500.00	69,489.80				70,989.80
New York (Cornell)	13,500.00	c 17,500.00		867.68	517.02	32,384.70
North Carolina	15,000.00			420.87	1,438.04	16,858.91
North Dakota	15,000.00		3.00	2,271.99	571.18	17,846.17
Ohio	15,000.00	25,879.15	377.07	5,851.57	1,568.24	48,676.03
Oklahoma	14,999.07			a 3,895.91		18,894.98
Oregon	15,000.00			2,884.24		17,884.24
Pennsylvania	15,000.00		8,217.00	1,446.94	5,946.84	30,610.78
Rhode Island	15,000.00			615.41	186.30	15,801.71
South Carolina	15,000.00			776.25		15,776.25
South Dakota	15,000.00	400.00		464.01		15,864.01
Tennessee	15,000.00			3,768.62	103.00	18,871.62
Texas	15,000.00	2,500.00			1,056.42	18,556.42
Utah	15,000.00			3,168.96		18,168.96
Vermont	15,000.00		2,902.06	6,210.92		24,112.98
Virginia	15,000.00			3,886.57		18,886.57
Washington	15,000.00	4,164.16			552.22	19,716.38
West Virginia	15,000.00		5,718.31	114.95	1,274.00	22,107.26
Wisconsin	15,000.00	14,000.00	125.00			29,125.00
Wyoming	15,000.00			340.35		15,340.35
Total	719,999.07	247,281.46	70,927.31	90,088.84	40,140.59	1,168,437.27

a Including balance.

b Including subexperiment farms.

c Estimated amount of State appropriation spent for experimental purposes.

Respectfully submitted.

A. C. True,
Director.

Approved:

James Wilson,
Secretary.

Washington, *April 3, 1901.*