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Fourteenth annual report of the agricultural experiment stations of the Louisiana State University and A. & M. College.

Louisiana State University and Agricultural & Mechanical College

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FOURTEENTH

ANNUAL REPORT

OF THE

Agricultural Experiment Stations

OF THE

Louisiana State University

AND

A. and M. College.

FOR 1901.

TO THE GOVERNOR.

BATON ROUGE, LA.
PRINTED AT THE TRUTH BOOK AND JOB OFFICE
1902.

REPORT.

Louisiana State University and A. and M. College,
Office of State Experiment Station,
Baton Rouge, La., January 24, 1902.

To His Excellency, W. W. Heard, Governor of Louisiana:

Sir—In accordance with the provisions of Section 2, of the Act of Congress to establish Agricultural Experiment Stations in connection withthe colleges established in the several States, under the provisions of an Act approved July 2, 1862, and the Acts supplementary thereto, I beg leave to submit a report of the operations of the Louisiana Agricultural Experiment Stations, including a statement of the receipts and disbursements from July 1, 1900, to July 1, 1901.

STATION NO. 1.

Sugar Experiment Station, Audubon Park, New Orleans. La.

Mr. R. E. Blouin, who resigned in October, 1900, to accept the directorship of the Hawaiian Sugar Experiment Stattion, returned to us in September last and resumed his former position as Assistant Director. The station is fortunate in recovering his services.

The energies of this station are directed mainly along lines looking to the improvement of the sugar industry. The season just closed, while detrimental to many of the planters of the State, on account of the scarcity of labor and the frosts, has been a very successful one on this station. The aggregate yield of cane in the field has been large, and the results in the sugar houses have been very satisfactory. The experiments with fertilizers have been continued with more positive results. The usual forms of Nitrogen have given decided increments in the field without detriment to the sugar yield. Phosphoric acid in moderate quantities has also been found beneficial. The continued applications of the various forms of potash has not yet produced any visible effects. The number of varieties of seedling canes under cultivation has been largely increased during the year by contributions from Trinidad, Barbados, and Hawaii. Extensive experiments were made in the field with Seedlings D. 74 and D. 95, with emi-

nently successful results. After distributing about thirty tons to hundreds of planters in this and adjoining States, enough was left of each to make a run in the sugar house. This run was extremely satisfactory, and a bulletin giving the results is now in press. It will also contain the field and laboratory results of all the seedlings experimented with up to date. Seedlings T. 111 and T. 189, seedlings respectively of D. 74 and D. 95, are included in our nursery, and the stalk analyses of this year show these canes to be superior to their parents.

The series of cultivation experiments have been continued, and the results for the past two years are now in press as Bulletin No. 66.

Experiments in the application of fertilizers, as well as in pedigreeing cane, heretofore fully explained, are also being continued.

In the sugar house, a series of experiments in clarification have been continued, checked by original investigations in the laboratory under my assistant, Mr. R. E. Blouin. These experiments will be embodied in the "Chemistry and Mechanics of Sugar Cane," Vol. 11, now being written. It is expected to be issued during the present year.

The young orange grove of this station bore a small quantity of fruit, enabling us to test for the first time some of the many varieties therein. The one hundred and odd orange trees, crosses between the hardy Trifoliata and the various Sweet oranges, are doing well and are expected to fruit during the present year. If a single tree should bear an edible fruit, it will be reserved and used for propagating trees for distribution among the orange growers.

Crops of ramie, jute and hemp have been grown with the expectation of testing some of the many machines whose inventors claim can successfully decorticate the fibres from these plants, but none appeared, and the crops were lost.

A large number of varieties of cotton were also grown on these grounds, and experiments were made by Prof. W. R. Dodson, of our staff, and Prof. S. M. Tracy, of Mississippi, in hybridization by cross pollination of desirable varieties. By selection, a very fine variety of cotton has been developed, the seed of which was last year and this, extensively distributed over this State.

Experiments with the various garden, forage and grass crops continue. The tea plants, set out two years ago, are doing well and are expected to furnish leaves for the manufacture of tea during the present year.

A number of new tropical plants obtained from the De-

partment of Agriculture at Washington, and elsewhere, were tried upon grounds of this station last year with varying results. Seeds from many have been obtained and planting will be made again this year.

During the fall a large and interested class of sugar students from the State University at Baton Rouge, assisted in the work of the station, in the field, laboratory and sugar house. They are members of the Audubon Sugar School, and will graduate in 1903. Such graduates will be valuable aids to the sugar cane industry.

STATION NO. 2.

State Experiment Station, Baton Rouge, La., which has been without an Assistant Director for the last two years, is now under the charge of Prof. W.R. Dodson, who gives his entire time to the work.

Mr. James Clayton, who has been Farm Manager for some years, has resigned and gone to farming. His place has been filled by Mr. Atkinson, of Missouri.

Experiments in the fertilization of corn and cotton have been continued, as well as testing the different varieties of these two staple crops.

Experiments with Havana and Sumatra tobacco have also been continued without marked success. Alfalfa, Red clover and Lespedeza have all given large yields during the past year. The pure Hereford bull on this station has been crossed on a number of grade Shorthorns, with very promising results. Several young bulls of this cross have been sold to the farmers of this State, one of them weighing, at ten months old, 710 pounds, raised entirely on its mother's milk and grass of the pasture. Several very fine heifers of this cross are retained for breeding purposes. While attending a convention of real estate agents in Central Illinois, the question was asked if our home-raised feeds could be economically used to produce first-class beef, with the remark that its successful solution would largely influence a desirable class of Western farmers, accustomed to feeding cattle, to move South. After considering this question, it was determined to put it to a practicul test. Accordingly, through the assistance of friends, seventeen steers and sixteen heifers (high grades) of the Polled Angus breed were secured and shipped to Baton Rouge. Along with them was shipped also a pure bred Angus bull. These cattle arrived safely, and have by inoculation been successfully immunized from Texas Fever. The steers are being

fed upon home products and every effort will be made to place them next winter as finished beef upon the Chicago market. Six of the heifers have been disposed of; the rest will be used for breeding purposes. When one considers the ease with which forage crops of all kinds can be grown in this section, and the usual cheapness of cotton seed meal, rice-bran, molasses, etc., the conviction is overwhelming that the finest beef can easily and cheaply be raised here, provided, the best beef type of cattle be obtained and properly cared for. There are now on this station, the three beef breeds, Shorthorns (grades only) Herefords, and Polled Angus (pure and grades.) Experiments with these different breeds will, it is hoped, aid materially in establishing a beef industry in this State. The station, too, will give particular attention, in the near future, to the growing of such crops as will conduce to the successful conduct of such an industry.

TEXAS FEVER.

Early in 1896, this station imported from Memphis four head of cattle for the purpose of experimenting in successfully rendering Northern cattle immune to the dangers of Texas fever. After trying experiments for several months, it was learned with surprise and regret that they were natives of an infected region, and therefore already immune.

In 1898, a large lot was imported from St. Louis, and various experiments performed without decided results. Again, in 1899, another lot was imported, and this time innoculated with the blood from our native cattle and rendered immune. Since that time the station has opened an infirmary for the innoculation of imported cattle, and up to date over two hundred head have been successfully operated on. These cattle, purchased by the farmers of this State, were innoculated free of cost (save feed and attendance) by the station. All of them were good animals, some exceedingly fine, yea, show specimens. This demand upon the station, indicates the widespread interest in the growing of good stock. The work of investigation and inoculation has been ably performed by Dr. Dalrymple and Profs. Dodson and Morgan. The last has simultaneously investigated the life history of the Cattle Tick, the vehicle by which the Texas fever is communicated, and has published the results in Bulletin No. 56. Full results of the work of inoculation have been published in Bulletins Nos. 57 and 64.

Experiments looking to a complete study of the life his-

tory of the Stomach Worm in sheep are in progress, and it is hoped that some method may be found by which the sheep of this State can be freed from this dreadful parasite.

Besides the work above alluded to, Dr. Dalrymple has rendered valuable aid to the various Police Juries and individuals when called upon in the public interest.

Prof. Morgan has rendered valuable assistance to the sugar planters of this State by his careful studies of the Cane Borer. His report to the Sugar Planters' Association was highly appreciated and gratefully received.

The Horticultural Department of this station has continued its experiments with vegetables and fruits. It has demonstrated the superiority of home-grown over Northern seed of nearly every kind of vegetable grown in this section. It has also distributed cuttings and rooted plants of many new varieties of fruit.

STATION NO. 3.

North Louisiana Experiment Station, Calhoun, La., has not had a favorable season during the past year. The drouth prevailing in the early part of the summer, seriously injured the corn and hay crops, and damaged the cotton and tobacco crops. Experiments in varieties of corn and cotton, as well as fertilizers adapted to these crops, are continued. A large number of forage crops and grasses are grown. Among the former, the Dwarf Essex Rape has proven a great success, furnishing up to the late severe cold, a large amount of forage for the stock. The young orchard on this station is growing finely, and promises its first fruit the present year.

The dairy continues its good work and furnishes an object lesson to the farmers in the art of butter making. The dairy herd has been increased during the year by the addition of a pair of Red Polls. The last head of Holstein has been disposed of, this breed, on account of size and feed requirements, proving unprofitable to this section where butter and beef only are desired. There are now on this station, four breeds, Jersey, Guernsey, Devons and Red Polls.

The sheep on this station have, during the past year, done better than heretofore. The losses from stomach worms were prevented by keeping them throughout the season on a large woods pasture, hitherto unoccupied by sheep.

There are four breeds of hogs on this station, the increase from which are sold to the farmers of Louisiana at prices fixed by the North Louisiana Agricultural Society.

Mr. T. Ivy Watson, the Farm Manager on this station, almost from its inception, much to the regret of every one, resigned his position in December last and entered upon other duties. It is a pleasure, however, to announce that Mr. Wm. R. Goyne, an agricultural graduate of the State University, has been appoitned in his place, and has entered upon his duties.

The annual Camp Meeting and Fair was held on the grounds of the station in October last. The attendance was large and the exhibits numerous and very creditable. The display of hogs was exceedingly fine. The premium list was large and extended, and the premiums were eagerly contested.

GEOLOGICAL SURVEY

is continued by Prof. G. D. Harris, assisted by Mr. J. Pacheco. They are both now in the field studying the horizons of water-bearing strata in North Louisiana. Prof. Harris is also establishing at each parish seat in North Louisiana a true meridian line, for future use of surveyors and engineers. He has established this line in nearly all of the parishes of South Louisiana. The report of his work, covering the last two years, is now being prepared for the press and will be issued early in the spring. It will treat of the following:

A (1) Part I—Establishing meridian lines for the parishes in the Northern part of the State that have already gotten ready for the work.

(2) A review of the Bayou Macon hills.

(3) A study of the Harrisonburg area of Vicksburg.

(4) A review of all points in Tertiary stratigraphy in the Southern part of the State.

B (1) A review of all oil wells and data in South Louisiana.

(2) A review of all water wells and data in South Louisiana.

C (1) A report embodying all definite data regarding geographic, hypsometric and geologic locations, to show what part of the State has been triangulated by the United States Engineers and Coast Survey, where their stakes are and where every bench mark is.

(2) Part II—A further report dealing with the stratigrapy of the State as it is now known after the recent investigations, borings, etc.

(3) Part III—Dealing with the artesian water question of Louisiana, together with a general discussion of the subject.

(4) Part IV—Louisiana oil and its geology.

(5) Part V—Description of meridian lines established.

Both Prof. Harris and his assistant have worked most diligently and have accomplished a great deal with the very small appropriation given to the survey.

ANALYSES OF FERTILIZERS AND PARIS GREENS.

It is made the duty of the Director of this Station to analyze all fertilizers and Paris Greens inspected by the Department of Agriculture of this State. During the past year 2,511 samples of fertilizers and 71 samples of Parish Greens were received and analyzed. This involved an immense amount of work, and nearly the entire time of five chemists was required to perform it. It is a source of gratification that both dealers and planters esteem highly the character of the work performed, and are willing without complaint to settle all differences by the published analyses. The entire work of the year ending Sept. 1, 1901, was given to the press in bulletin form early last fall.

PAN-AMERICAN EXPOSITION.

By appointment from your Excellency in February last, I entered upon the duties of Commissioner for Louisiana, in conjunction with Major J. G. Lee, Commissioner of Agriculture and Immigration, to the Pan-American Exposition. We succeeded by hard work in collecting and displaying a very large exhibit at Buffalo. This exhibit covered every product of the field, garden and orchard and the manufactured products of the same. It included an extensive forestry display with some handsome articles manufactured from the same. It embraced also samples of salt, petroleum, marble, tiles, brick and waters.

The exhibit was visited by thousands and greatly admired. The attractions of the State, as demonstrated by the extensive exhibits, were supplemented by handbooks, maps and circulars descriptive of the State and thousands of each were distributed. It is believed that an immense benefit will accrue to the material interest of this State by such an extensive advertisement of its resources.

Louisiana Day, to which your Excellency lent such valuable service, was a great success. Mr. Robert Glenk of the Station's staff was detailed to remain with this exhibit, and has by his enthusiasm and courtly ways won the esteem and thanks of every visitor.

At the close of the Pan-American Exposition, this exhibit was, under instructions from you, removed to Charleston, where it is now installed, superintended by Mr. Glenk. It is

hoped that it may accomplish the same good ends it did at Buffalo.

The following constitute the present staff of the stations:

SUGAR EXPERIMENT STATION NO. 1.

Postoffice, Audubon Park, New Orleans, La.

William C. Stubbs, Ph.D., Director.
R. E. Blouin, M. S., Assistant Director.
P. L. Hutchinson, B. S., Chemist.
Simon Baum, B. S., Assistant Chemist.
G. W. Agee, B. S., Assistant Chemist.
T. D. Boyd, Jr., B. S., Assistant Chemist.
G. D. Harris, M. S., Geologist.
J. Pacheco, Assistant Geologist.
George Chiquelin, Sugar Maker.
Wm. D. Clayton, M. S., Farm Manager.
Jas. K. McHugh, Secretary and Stenographer.

STATE EXPERIMENT STATION NO. 2.

Postoffice, Baton Rouge, La.

William C. Stubbs, Ph.D., Director.
W. R. Dodson, A. B., S. B., Assistant Director, Botanist and Bacteriologist.
C. E. Coates, Ph.D., Chemist.
H. A. Morgan, B. S. A., Entomologist.
F. H. Burnette, Horticulturist.
W. H. Dalrymple, M. R. C. V. S., Veterinarian.
B. H. Atkinson, Farm Manager.
H. Skolfield, Treasurer.

NORTH LOUISIANA EXPERIMENT STATION NO. 3.

Postoffice, Calhoun, La.

William C. Stubbs, Ph.D., Director.
D. N. Barrow, B. S., Assistant Director.
M. Bird, M. S., Chemist.
W. R. Goyne, B. S., Farm Manager.
E. J. Watson, Horticulturist.
A. T. Anders, Dairyman and Poultryman.

At the end of this report will be found a correct exhibit of the receipts and expenditures arising from the Hatch Bill for the fiscal year ending June 30, 1901. It shows that expenditures have equalled receipts.

There is also given a supplementary statement of receipts from all sources and expenditures of every kind.

All of which is respectfully submitted.

WM. C. STUBBS, Director.

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FINANCIAL STATEMENT.

Statement of Receipts and Expenditures of the Louisiana Agricultural Experiment Stations, in account with the United States Appropriation:

1901.	Cr.	Dr.
The receipts from the Treasury of the United States for the year ending July 1, 1901		$15,000 00
By Salaries	$ 7,181 28	
By Labor	2,879 75	
By Publications	1,768 85	
By Postbge and Stationery	379 51	
By Freight and Express	295 85	
By Heat, Light and Water	306 97	
By Chemical Supplies	484 36	
By Seeds, Plants and Sundry Supplies.	286 46	
By Fertilizers	101 66	
By Feeding Stuffs	355 88	
By Library	227 78	
By Tools, Implements and Machinery.	404 55	
By Scientific Apparatus	44 90	
By Live Stock	282 20	
	$15,000 00	$15,000 00

We, the undersigned members of the Board of Agriculture and Immigration, to whom is entrusted the disbursement of the above funds, do certify that we have examined the accounts of the Experiment Station of the Louisiana State University and Agricultural and Mechanical College, for the fiscal year ending June 30, 1901, and have found the above classification to be correct, and the receipts for the time named are shown to be $15,000.00, and the corresponding disbursements are $15,000.00, for all of which the proper vouchers are on file, and have been examined by us and found correct.

(Signed) J. G. LEE,
Commissioner of Agriculture and Immigration.
WM. GARIG,
Vice-President of Supervisors and ex-Officio Member of Board of Agriculture.

SUPPLEMENTARY STATEMENT.

1901.	Cr.	Dr.
To receipts from other sources than the United States, for the year ending July 1, 1901		
To Balance, July 1, 1900		$ 8,763 21
State Appropriation		15,000 00
Geological Survey Fund		2,000 00
Fertilizer Fund		2,350 03
Farm Sales		1,481 73
Miscellaneous receipts		672 54
		$30,267 51
By Salaries	$10,883 22	
Labor	3,953 01	
Freight and Express	408 57	
Heat, Light and Water	423 93	
Chemical Supplies	668 89	
Seeds, Plants and Sundry Supplies.	395 61	
Fertilizers	140 39	
Feeding Stuffs	491 46	
Tools, Implements and Machinery.	558 67	
Furniture and Fixtures	135 06	
Traveling Expenses	123 90	
Contingent Expenses	1,344 20	
Building and Repairs	709 77	
Insurance	383 00	
Geological Survey	2,000 00	$22,619 68
By Balance July 1, 1901		$ 7,647 83