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Twenty-Seventh annual report of the agricultural experiment stations of the Louisiana State University and Agricultural and Mechanical College.

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TWENTY-SEVENTH ANNUAL REPORT

OF THE

Agricultural Experiment Stations

OF THE

Louisiana State University and Agricultural and Mechanical College

FOR 1914

TO THE GOVERNOR

By W. R. DODSON, Director

BATON ROUGE
RAMIRES-JONES PRINTING COMPANY
1915
Louisiana State University and
A. & M. College

Louisiana State Board of Agriculture and Immigration

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T. H. JONES, B. S., Entomological Assistant, detailed by U. S. Dept. Agricul-
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LOUISIANA STATE UNIVERSITY,
AND
AGRICULTURAL AND MECHANICAL COLLEGE.
Office of Experiment Stations,
Baton Rouge, La., January 15, 1915.

To His Excellency, Luther E. Hall,
Governor of Louisiana:

SIR—In compliance with the provisions of acts of the National Congress of March 2, 1887, commonly known as the Hatch Act, and of March 2, 1906, known as the Adams Act, providing for Federal appropriations for agricultural experiment stations of the several states, I submit herewith a report of work done by the stations during the year 1914, and a financial statement for the government fiscal year, July 1, 1913, to July 1, 1914.

While the receipts and expenditures of the various funds received from the State of Louisiana have been published twice annually, June 1 and December 1, as provided by state law, I have combined these two reports and submit them along with the statement of Federal funds, so as to show the total receipts and expenditures for twelve months. The accounts have been examined and approved quarterly by the Supervisor of Public Accounts.

All required reports to the United States Department of Agriculture have been made. All have been approved by the proper authorities of the Federal Government. Annually the Office of Experiment Stations sends an inspector to examine the vouchers and account books of the Federal funds and to discuss with the several members of the staff the work being done in the laboratories and in the field. The Comptroller of Currency would withhold the Federal funds of subsequent appropriations unless the accounts and vouchers were satisfactory, or unless the work had made reasonably good progress. Our lines of work and the expenditure therefor have been promptly approved. The State Supervisor of Public Accounts examines quarterly the accounts of all money received and disbursed by the Experiment Stations. Our accounts have been regularly approved by him.

The general work of the Experiment Stations has progressed satisfactorily during the year. There have been no very impor-
tant changes in our staff. All lines of investigations have pro-
gressed without interruption.

An act of the Federal Congress known as the Smith-Lever 
bill, providing for agricultural extension work in the various 
states of the Union, has made it necessary to definitely formu-
late plans for the development of broad activities in the line of 
agricultural extension and for correlating lines of investigation, 
demonstration and extension teaching generally, so as to secure 
the greatest efficiency in all lines of work. The president of the 
University and the director of the Experiment Station, after a 
full discussion with representatives of the United States Depart-
ment of Agriculture, entered into an agreement by which all 
future agricultural extension work in Louisiana will be carried 
on in cooperation with the Louisiana State University, and the 
dean of the college was appointed as director of extension for 
Louisiana. This action has been ratified by the Board of Super-
visors of the University, and by the Secretary of Agriculture.

In accordance with this agreement, the Farmers’ Cooperative 
Demonstration Work was articulated to the University, as a di-
vision of adult extension work.

During the last session of Congress a special appropriation 
of sixty thousand dollars was made for live stock investigations 
and demonstrations in the cane sugar and cotton sections of the 
United States. This money became available on the first of 
July, 1914. Its administration was entrusted to a committee 
consisting of the Chief of the Bureau of Plant Industry, Chief 
of the Dairy Division of the Bureau of Animal Industry, and 
the Director of the Experiment Station of the Louisiana State 
University. This committee after very thorough consideration 
decided to divide this work into two divisions. First, live stock 
investigations, to be conducted on a farm basis that would per-
mit of commercial tests being carried out in live stock production 
and feeding; and, second, instructional work designated as live 
stock extension. The State of Louisiana in offering its coopera-
tion for the expenditure of this money, passed an act in 1914 
authorizing the Governor and the Board of Control of the State 
Penitentiary to offer for farm demonstrations 500 acres from 
one of the State penal farms. The Chief of the Dairy Division 
of the Bureau of Animal Industry and the Director of the Ex-
periment Station of the Louisiana State University looked over the available land on Hope Plantation, Iberia Parish, and Oakley Plantation, Iberville Parish, and recommended the acceptance of 500 acres of cultivable land of Hope Plantation, about four miles from Jeanerette and six miles from New Iberia on the Bayou Teche. The Federal authorities approved of this recommendation, and the Governor and the Board of Control had a deed made to the Federal Government for this tract of land, to be held as long as it might be devoted to experimental and demonstrational work. The citizens of New Iberia and Jeanerette, and the Police Jury of Iberia Parish have provided for the construction of a bridge across the Bayou Teche, so as to make the farm readily accessible from the model road (which traverses the west bank of the bayou), the interurban trolley line (which runs parallel to the model road), and the stations of the Frisco and Southern Pacific railroads. Each of these railroads has agreed to do everything possible for furthering the work on this farm and to make it accessible to the traveling public. One will be able to leave trains on either of these roads within a few hundred yards of the farm. Mr. Sandigger, owner of the property on the west bank of the Teche, opposite this farm, has agreed to donate a right of way for a road to the bridge, and a sufficient strip of land for a residence property for the superintendent on the west bank, extending from the bayou to the model road. The people of the community are greatly interested in the enterprise and are lending every assistance that could be asked to make the work a success. Plans were perfected for inaugurating the work on various lines of live stock production and feeding, and fields, roads and buildings have been planned and the work is now fully inaugurated. Dr. C. E. Mauldin has been put in charge of the farm and has been provided with sufficient field and office force to carry out this work effectively.

The live stock extension work has been organized with Dr. G. E. Nesom as superintendent, with the following corps of specialists to assist him:
A specialist in horses and mules and hog cholera will be added to the organization in the near future. The University has provided office room for Dr. Nesom and his force in one of the frame buildings on the University campus. It is planned that these specialists shall hold farmers' meetings all over the State for the purpose of discussing live stock problems, and visit parties launching live stock production enterprises, to consult with them regarding plans of operation in breeding, etc. They are to make special effort to help the parish agents of the Farmers' Cooperative Demonstration Work, and to render every assistance and service possible as consulting experts in their respective lines of endeavor.

During the early part of the summer we secured from the Bureau of Animal Industry a hog cholera specialist to engage in extension work under a cooperative agreement. This work progressed very satisfactorily until the veterinarian in charge of the work was taken over by the Live Stock Sanitary Board for service in the production of hog cholera serum. The outbreak of the foot and mouth disease calling for the services of the full force of the Bureau of Animal Industry, has made it impossible to resume this work up to the present time.

SHORT COURSES AND AGRICULTURAL FAIRS.

The members of the station staff have offered freely their services in a considerable number of farmers' short courses held in different parts of the State, and at the various parish fairs, and the State Fair. They have acted as judges of live stock and agricultural products, and have given a helping hand at every place where they could serve in promoting the welfare of the community or the State.
During the summer a dairy barn, costing $1800, was constructed on a farm of the University southeast of Baton Rouge, and the dairy cattle were removed from the University campus to this farm. The construction of the building was paid for by the University in the expenditure of a portion of the special appropriation from the last legislature. The dairy is used now more largely for teaching purposes, and the Experiment Station is no longer spending money for its maintenance. Except for the construction of the building, the dairy has for some time been self-sustaining and at the same time the herd has been increasing in number and in value. With the new equipment the score given by the Louisiana State Board of Health is considerably higher than that of any other dairy in the State, being a fraction over 98%.

The stations have written during the year 12,456 personal letters, and sent out 40,306 bulletins, 11,388 circulars, and 2,901 postal cards. While many of these have pertained directly to experimental work, the majority of them have been in the nature of disseminating information secured from experiments carried on at the stations, and may be properly classed as extension work. A considerable portion of the correspondence has been shifted to the extension faculty, and as the extension becomes more completely organized it will absorb much of the large correspondence now carried on by the Experiment Station staff.

FERTILIZER LABORATORY.

The work in the laboratory for the analysis of feedstuffs and fertilizers for the State Board of Agriculture has been about the same as usual. There have been a few instances of striking violations of the law in the sale of fraudulent fertilizers and feedstuffs, all of which have been properly reported. We have not been called upon, however, to give any testimony in court in any of these cases, and the presumption is that there have been no prosecutions.

At the solicitation of members of the legislature, the Director of the Experiment Stations assisted in the framing of bills that were presented to the legislature at the regular session of 1914, suggesting rather marked changes in the present laws. The bills
as framed provided for placing the inspection and analysis of fertilizers and feedstuffs entirely in the hands of the State Board of Agriculture, requiring that the official samplers be trained agriculturists, and providing for the samples to be taken after the fertilizer left the factory, rather than at the factory, as at present prescribed. An even more important change suggested was that the official representative of the State Board of Agriculture should institute proceedings against violators of the law, instead of leaving it to the individual farmers who might be sufferers from such violations. These bills were copied largely after recommendations by the Association of Fertilizer and Feed-stuff Control Officials of the United States, with additions copied after the law of Texas, which is said to be excellent. These bills failed, however, to pass and the work remains as it has been for many years.

It would be very desirable to have the Station entirely released from work pertaining to police or regulatory powers.

SHREVEPORT STATE FAIR.

The Experiment Stations, as usual, made a joint exhibit with the University at the State Fair. The exhibit consisted of charts, photographs, specimens and models depicting, as far as practicable, the more important lines of investigation carried on by the stations. A considerable portion of the equipment of the Government Seed Laboratory was sent to Shreveport and operated there during the period of the Fair.

DEPARTMENT OF SOILS.

The Experiment Station pays half of the salary of Dr. F. V. Emerson, geologist, who is doing preliminary work for a detailed soil survey of the State. The work is of such nature that there can be but little to report at the present time, except that the work is progressing, and no doubt Dr. Emerson will ultimately accumulate data of great importance to the agricultural development of the State. Especial attention will be given, during the coming year, to the lime and phosphorus requirements of the different types of Louisiana soils.
BATON ROUGE STATION.

A. P. Kerr, Assistant Director.

The work of the station this year has been a continuation of experiments previously planned, which must be continued for a period of several years in order to secure accurate data, and a few new experiments planned at the beginning of the year.

The experiments previously inaugurated—rotation of crops to conserve the fertility of the soil, fertilizer tests to determine the value of nitrogen and phosphorus in different forms for various crops, variety tests of corn, spacing of corn, tests of the value of removing suckers from corn, the value of seed selection, variety tests of clovers with and without lime and green manure, yields of dasheens under local conditions, and crops for hogs—have been continued with satisfactory results.

The station has coöperated with the United States Department of Agriculture in growing different crops to ascertain their adaptability to this climate. These crops consisted of Sudan grass, foreign varieties of soy beans, catjang peas, adzuka beans and different strains of velvet beans. Most of these crops will be grown next year from seed produced here.

The grazing experiments with hogs consisted of rotation of crops as follows: corn and cow peas, soy beans and sweet potatoes. The grazing period lasted about seventy-five days. The hogs were then fed a ration of corn and cottonseed meal for twelve days and marketed. After being slaughtered, fifty-seven of a lot of sixty were considered good packing house hogs.

Because of the increased interest among the farmers of the State in silage as cattle feed, an experiment with different crops for silage was begun this year, consisting of Japanese cane, a mixture of corn and sorghum, and corn and soy beans. These crops were put in a stave silo during the summer and the silage is being fed as a part of a ration of thirty steers. Twenty of these steers are grade Herefords purchased at Fort Worth, Texas, the remaining ten are commonly known as "scrubs" purchased in East Baton Rouge Parish. The gains made by these two classes of steers as feeders will be noted, as well as the feeding value of the silage. These steers will be marketed in the spring at the close of the feeding period.
Experiments to ascertain the value of raw phosphate rock, lime and acid phosphate on the yield of lespedeza were also commenced this year and will be continued for several years.

The station purchased a fine Hereford bull last March from the W. J. Davis Company of Jackson, Miss. This bull will be used as the head of the station herd, and is considered a very valuable addition to the live stock of the station.

VETERINARY DEPARTMENT.
W. H. Dalrymple, Veterinarian.

Harry Morris, Assistant Veterinarian and Bacteriologist.

During the scholastic year of the University a considerable part of the time of the Veterinarian has been occupied with class work in the College of Agriculture. In addition to this, however, he has been able to attend to some extension work throughout the year; and he has responded to numerous calls over the State to afford information concerning the work of tick eradication, and on one occasion, during the summer of 1914, spending an entire week on an itinerary including thirteen parishes. As an ex-officio member of the State Live Stock Sanitary Board, he has devoted some time to that work, in an advisory way, and has attended all the meetings of the Board.

He has also attended and taken part in several immigration meetings held for the purpose of endeavoring to induce desirable foreign immigration to the State.

The Veterinarian, as a member of the Baton Rouge Chamber of Commerce, assisted in the successful inauguration of the Baton Rouge Live Stock and Agricultural Fair, and was largely instrumental in the establishment of the Baton Rouge monthly market for the farmers, a project which other sections of the State seem to be adopting.

He has also contributed numerous articles to the State, as well as some national, agricultural journals.

He was appointed reporter for the United States on anthrax or charbon to the tenth International Veterinary Congress, held in London, England, August, 1914, and submitted his report, which was reproduced in the various official languages of the Congress.
The correspondence of the department has been quite extensive, and has included, in addition to veterinary subjects, that pertaining to animal husbandry.

The purely research work of the department has been attended to by Dr. Harry Morris, Bacteriologist and Assistant Veterinarian.

**DEPARTMENT OF ANIMAL PATHOLOGY.**

**Harry Morris,** Bacteriologist and Assistant Veterinarian.

The work in the Department of Animal Pathology has been continued along the same lines as in previous years.

**ANTHRAX.**

A general study of this disease has been continued. Many points concerning its eradication and control have been further studied. Special attention was given to the horn fly as a possible carrier of the disease and some valuable data obtained regarding conditions under which transmission has been positively demonstrated. A popular bulletin on the subject of anthrax is being prepared for publication.

By the continued observance of strict sanitary rules and the use of vaccines, another year has passed without the loss of a single animal from anthrax on the station farms.

**COTTON SEED MEAL POISONING.**

With the Department of Plant Pathology, the study of the subject has been continued. A number of feeding experiments have been carried on testing the merits of several methods for reducing the toxicity of the meal. The work is still in progress and will be continued during the coming year.

**HOG CHOLERA.**

This project has been added to our list of diseases during the past year. A special study is being made concerning the spread of infection by some of the common carriers of the disease.

During the past year we have had the usual work of a bacteriological laboratory. On account of the outbreak of anthrax during the past summer we examined an unusually large number of blood smears and answered many inquiries concerning the disease and its control.
DEPARTMENT OF PLANT PATHOLOGY.

C. W. Edgerton, Plant Pathologist.
C. C. Moreland, Assistant Plant Pathologist.

The work in the Department of Plant Pathology has continued along the same lines as in previous years. A careful study is being made of several of the most important diseases of the State. The troubles that have been under investigation during 1914 include the following:

BEAN DISEASES.

The two important bean diseases have been under investigation for a number of years and several articles have been published on them. During the past year the work has been confined entirely to the anthracnose disease. A study is being made of the various strains or races of the fungus causing the disease, and also the effect of temperature on the growth of the fungus. These phases of the problem will receive further attention during the coming year.

COTTON BOLL ROTS.

The studies on the cotton anthracnose disease have been continued, but an unfavorable season interfered with the work considerably. Some data, however, was obtained on varietal resistance and the effect of temperature on the disease.

SUGAR CANE DISEASES.

The various sugar cane diseases have received attention during the year. Experiments on the effect of the Red Rot Disease on germination of cane at Audubon Park gave some very interesting data. These experiments will have to be continued through a series of years, however, to give reliable results.

TOMATO DISEASES.

Much time has been spent on the Wilt and Early Blight diseases of the tomato. The wilt-resistant strain which had been selected in earlier years was distributed to growers throughout the country and a thorough test was made of it. The strain gave excellent results in some localities, while in others it did not seem to be superior to other varieties. Whether this variability was due to different strains of the fungus or to different soil condi-
tions has not been determined. At present, a study is being made of a number of different strains of the fungus from different sections of the state and country. A number of different hybrids between the Wilt-Resistant strain and the Earliana have also been studied and selections made.

**EGG-PLANT DISEASE.**

The study of the Egg-plant Blight caused by *Phyllosticta hortorum* has been continued. New data regarding the life history of the fungus and its method of dissemination have been obtained. It is possible that a bulletin on this disease will be issued during the coming year.

**THE ANTHRACNOSE PROBLEM.**

In connection with the work on the bean and cotton anthracnooses, a general study of the whole anthracnose group of fungi has been made. New data have been obtained on the temperature requirements of the different forms and also upon the methods of reproduction.

**OTHER WORK.**

Besides the diseases mentioned above, attention has been paid to the Sclerotium Wilt Disease, the Damping Off Disease, the Cotton Wilt and the Citrus Canker. Also the Cotton-seed Meal Poisoning Project has been in cooperation with the Department of Animal Pathology.

During the year, the Pathologist attended the meetings of the Southern Agricultural Workers at Clemson College, South Carolina, in October, and the meetings of the American Association for the Advancement of Science at Philadelphia in December. Papers were presented at both of the meetings. He also made a trip through Florida in December, looking into the Citrus Canker situation.

During the year the correspondence of this department consisted of between 900 and 1000 letters.

**Publications During 1914.**


Results in Plant Breeding at the Various Experiment Sta-
tions. Southern Farm and Dairy.
Wilt Resistance Tomatoes. Rural New Yorker.
The Onion Mildew. Southern Farmer.
The Septoria Leaf Blight of Tomatoes. Southern Farmer.
The Citrus Canker Situation. The Southern Farmer. No-
vember.

ENGINEERING DEPARTMENT.
E. W. Kerr, Mechanical Engineer.

INVESTIGATIONS IN SUGAR ENGINEERING.

During the past year this department has pursued two lines of investigation, viz: (1) a continuation of the experiments on heating and evaporating apparatus and (2) the efficiency of different types of bagasse furnaces and settings.

Early in the year about six weeks were spent at Guanica Central, in Porto Rico, making capacity and economy tests on the heating and evaporating machinery, this work being made possible by the cooperation of the officials of this company both as regards expense and assistance. The data obtained in this series of tests are of especial value, in that they make possible comparisons of the efficiencies obtained in good Louisiana and tropical plants.

During the summer, Bulletin No. 149, entitled Performance Tests of Sugar House Heating and Evaporating Apparatus, was prepared and published. This bulletin contains 178 pages and 66 illustrations and gives the results of investigations extending over some three years’ time and covering the capacity and economy of heating and evaporating apparatus, including multiple effects, vacuum pans, condensers and juice heaters.

The matter for another bulletin that will contain steam and heat balances made up from tests at two typical factories, one in Louisiana and one in the tropics, has been prepared and will soon be ready for publication. By means of the data given in this bulletin the steam consumption and fuel cost are shown for each of the steps in the process of the manufacture of sugar.
During the grinding season just past a series of boiler tests was made on each of three typical bagasse boiler plants, the object being to determine the effects of the form and dimensions of the furnace and setting upon fuel economy.

A paper entitled Fuel Economy in Sugar Factories was read before the Louisiana Sugar Planters' Association in June.

Numerous articles on subjects pertaining to sugar engineering have been written for sugar journals, including the Louisiana Planter, Sugar, and El Mundo Azuearero.

An exhibit of the work of the department was made at the Baton Rouge and Shreveport fairs.

DEPARTMENT OF HORTICULTURE.

GEORGE L. TIEBOUT, Horticulturist.

Investigation and demonstration in the production and marketing of truck crops have been continued. Winter cauliflower, Brussels sprouts and bell peppers have received special attention in a commercial way.

WINTER CAULIFLOWER.

The interest shown, especially in the alluvial section, in winter cauliflower has warranted extensive investigations with this crop. Louisiana cauliflower is now being shipped for the first time in carload lots. Prospects are good for a large increase in acreage among growers next year. Our experiments with varieties imported from Denmark show that the earliest snowball is the most desirable for the market. The trade pronounces Louisiana cauliflower far superior in quality to those of competitors. The crop is at present produced from trade seed, imported from Denmark by the Louisiana Cauliflower Association, Baton Rouge. However, under arrangement made during a visit of an expert cauliflower seed grower from Denmark, our growers may obtain a far superior grade known as "stock seed," grown to order. This arrangement should make our "best" better.

Our method of planting cauliflower seed in the field in hills and thinning to a stand is well adapted to the heavier soils of Louisiana. It is practically the only system used by growers.

The Louisiana cauliflower crate designed to hold six heads
has been found a little small to suit the demands of the trade. We have adopted the half standard crate, holding ten to twelve heads, for extensive shipments.

The transportation of small shipments of cauliflower to distant markets by refrigerator freight has received special attention. Under arrangement with a general consignee at New Orleans we ship cauliflower there to be loaded in refrigerator cars with other vegetables for New York and Chicago, thus effecting an enormous saving over express rates. This service will allow a grower with a modest acreage within a hundred miles of New Orleans a fair return for his efforts, which, perhaps, will be the nucleus of sufficient acreage for carlot movement in the future.

**BRUSSELS SPROUTS.**

Our investigation with Brussels sprouts to date have been largely confined to culture and varieties. The several varieties imported from Denmark are worthless. They make a rank growth and loose sprouts. Fairly good results have been gotten from the Long Island dwarf from seed grown on Long Island, N. Y. We will make a few shipments this year. While the demand for Brussels sprouts is somewhat limited, it appears that modest efforts should be remunerative.

**BELL PEPPERS.**

With the demand for bell peppers increasing and the larger markets receiving car lots, it appears that the Louisiana product will have to move to distributing centers in refrigerator cars instead of by local express, as formerly. Upon receipt of complaints of our peppers arriving in bad condition by express, we loaded several hundred crates in refrigerator cars and had them arrive in perfect condition by freight.

Since the first of July an arrangement was made for the writer to devote half of his time in truck extension work.

The correspondence of the department has been largely confined to truck crops, mostly cauliflower. The writer judged the vegetables at the State Fair as usual, also at the South Louisiana Fair. He also assisted in installing and caring for the exhibit of the station at the State Fair, has served as secretary-treasurer of the Louisiana State Horticultural Society, and acted as adviser of the Louisiana Cauliflower Association.
DEPARTMENT OF ENTOMOLOGY.

E. S. Tucker, Associate Entomologist.

A great increase in the work devolving upon the department of entomology was marked during the year 1914. Early in the spring, an investigational study of the southern corn root-worm was undertaken, but it soon had to be discontinued on account of other duties. Correspondence regarding insect and other crop pests, and treatment for them, was exceptionally heavy. Matters relating to inspection also required much office labor, which is yet in need of clerical help.

In co-operation, the Bureau of Entomology, U. S. Department of Agriculture, has delegated Mr. Thos. H. Jones for study of truck crop insects. He entered upon his work in October, making his headquarters at this Station.

Most of the entomologist's time was devoted to horticultural inspection affairs, in compliance with Act 36 of 1910, which law places the power of its enforcement upon the State Board of Agriculture and Immigration. An emergency having arisen, due to the introduction into the State of a new and dangerous plant disease called citrus eanker, a regulation prohibiting further entry of citrus stock, except under certain stipulations, was promulgated and made effective on October 2. Charges for two violations were carried to court.

As no specified funds have been provided by the State for carrying out the provisions of the Act, the entomologist was only able to meet the situations demanding his attention, in the same manner as had been followed in previous years, or just so far as his time could be taken from the Experiment Stations, which paid his salary, and under certain allowances granted by the Commissioner of Agriculture and Immigration for expenses. Though the allowances were proportionately increased for exigencies in 1913, and again in 1914, yet a sum needed for general eradication work was beyond available means. Besides, the entomologist was primarily obliged to attend to regular inspection of nursery stocks and plants for sale, in order that certification could be issued for the growers to do business. Even with the best efforts, some inspections were delayed because of the fact that the entomologist had to visit the places in person, having no assistance except for the last two weeks of the year. Altogether, 120 certificates have been granted.
To meet the danger caused by the citrus canker, a meeting of orange growers was held in New Orleans on September 19, when several hundred dollars were raised by private subscriptions, and Mr. H. A. Lastrapes was engaged thereby as special inspector to seek out and destroy all canker-infected growth. Authority to operate under the State law was conferred upon the special inspector, and very satisfactory results in discovering and eradicating the disease were obtained by him in Plaquemines parish and places near New Orleans. All infected growth found by him was burned, and he also exercised careful watch to guard against spread of the disease in exposed groves.

A number of infections in other parts of the State were brought to notice voluntarily by persons who willingly took prompt action, or agreed to do so, for burning the diseased trees. While a campaign for raising money to carry on special inspection work in every citrus-growing parish was urged, the responses have not been sufficient to guarantee the undertaking. Therefore, we cannot deny that citrus canker still exists in the state.

A difficulty was experienced with the Texas nursery inspection official, who, for a time, refused to allow any kind of stock to be shipped into his state from our nurseries. Relations, however, were finally adjusted on terms agreeable to all concerned. Importations of foreign plants have run well up in number, being much more than was expected, but inspections of them could not always be made promptly.

The cottony cushion scale has persisted in some places and was further found infesting ornamental plants and shade trees on an entire city block in a choice residential section of New Orleans. The occurrence of many other crop pests of a decidedly injurious nature could also be mentioned. Conditions show, however, that the horticultural interests of Louisiana have reached a point where one man having all the state entomological work to look after alone cannot cover the field properly, nor render adequate service without sufficient funds.

In addition to short articles furnished to agricultural papers, the entomologist has prepared information that was published by the Experiment Stations, as follows:

Bulletin No. 145—Suppression of the cottony cushion scale in Louisiana.
Crop Pest Notice No. 1—Notice relating to citrus canker.
List of Louisiana dealers in nursery and ornamental plants.
Crop Pest Notice No. 2—Phylloxera galls affecting pecan trees.

SUGAR EXPERIMENT STATION
Audubon Park, New Orleans.
W. G. Taggart, Assistant Director.

At the Sugar Experiment Station all field experiments were continued as previously outlined. Some additions thereto consisted in a study of the proper time at which fertilizers should be applied to corn, the use of clover as a winter and early spring crop on fall plant cane, and the use of green manures with raw rock phosphate as a fertilizer for sugar cane.

Unfavorable weather during the growing season greatly affected all fertilizer experiments; especially was this true of sugar cane. Some of the phosphate experiments yielded results in accordance with data previously obtained. Data from nitrogenous fertilizers were not constant. Results from clover with an ordinary cane fertilizer are very promising. It is intended to continue all of the above experiments next year.

Unusually heavy yields of clover were obtained. One plat of red clover gave four tons of hay per acre from the first cutting and about six tons for the year. Other hay crops yielded well. Five cuttings of alfalfa gave 12,536 pounds of hay, the last two cuttings being light and somewhat mixed with crab grass.

Seven varieties of corn were tried out. Three of the varieties, while showing signs of good seed selection, were found not to be suitable for our conditions on account of the ear growing too close to the ground. Of the other four, the variety known as Yellow Creole gave the best results. On account of this corn being so well adapted to South Louisiana conditions, we have undertaken to make it a prolific variety by seed selection. The breeding of a white flint corn was continued. Other corn experiments carried out were an experiment with borax treated manure for the Bureau of Entomology, and a test on a small
scale of a commercial product—"B. D. R." (radium tailings)—for one of the fertilizer manufacturers.

Five new foreign varieties of sugar cane from Danish West Indies were received and are growing. Four varieties were received from Mauritius, of which one grew. But on account of a quarantine regulation, which was put into effect by the Federal Board of Horticulture, we will not be able to bring in more new foreign varieties of sugar cane. This regulation probably retards us in that work, but it will not be a serious handicap, as arrangements have been made by which this board will bring in any variety we desire, and keep it in Washington under observation for one year. This will lessen the chance of and relieve us of the responsibility of introducing any dangerous pest, either insect or plant disease.

Cane seed were received from Director H. P. Agee of the Hawaiian Station and from Prof. J. T. Crawley of the Porto Rico Experiment Station. About fifteen hundred seedlings were germinated from them, and we have in the regular plats four hundred and ten new varieties. L511 continues its record of yielding a juice of the highest sucrose content. A yield of twenty-two tons per acre was secured from this cane, and, while this is not as heavy a tonnage as is secured from D74, the high sucrose content of L511 makes it an attractive cane.

Five of the most promising of the Louisiana-grown seedling canes were distributed throughout the State. The supply of these canes was limited and we regret that we could not meet all of the heavy demands for them made on us by the sugar planters.

In the Department of Bacteriology, the investigation of the comparative value of various culture media for the quantitative determination of the microorganisms in sugar house products, which was begun in 1912, was completed in the early part of the past year, and the results published in Bulletin 146 of this station.

The investigation of the relative value of various germicides for use in sugar factories was begun during the grinding season of 1913 and has just been completed. The results are now in manuscript form ready for publication as a station bulletin.

During the past year the investigation of sugar deterioration has gone steadily forward. Numerous experiments have been
conducted on the storage qualities of various types of sugars, the relative rate of deterioration caused by different species of microorganisms, and the factors that tend to influence the keeping quality of sugars. About fifty samples of sugar have been collected from various plantations in the State, and also from Cuba and Porto Rico. These samples are to be used in experiments in the grading of sugars. Among these samples are many choice plantation whites, yellow clarified, and 96-test sugars.

Preliminary investigations of the bacterial flora of borer holes in cane resulted in the isolation of a species which possessed a marked ability to ferment sucrose. Although not completely identified, this species is probably *Bac. Fitzianus*, as it has the power of fermenting glycerine. Experiments in which a culture of this species was used to inoculate cane gave negative results. The experiments are to be repeated this year.

During the grinding season an investigation was conducted on the characteristic fermentation of cane juices at various temperatures. It was found, from observation on about twenty-five different samples of juice, that at a temperature of between 10° C. and 16° C. the natural fermentation resulted in a greater viscosity than at higher temperatures. Juices kept for a week in the box were always more viscous than those kept for the same length of time in an incubator at 34° C. The ice box stored juices were more viscous than the room temperature juices, except in cold weather, when the temperature of the room more nearly approximated the limit of 10-16° C than the ice box.

The work of the Chemical Department was interrupted by the loss of Dr. W. E. Cross, who resigned to accept a position elsewhere. That department completed and published a bulletin on the Clarification of Louisiana Cane Juices. A further study of clarification and the possible by-products of the sugar industry was entered into. This work will be taken up and carried out by Dr. Max A. Schneller.

The Bureau of Entomology continues its operations with us, through Mr. T. E. Holloway and two assistants. Their work in combatting the cane-borer with parasites has given hopeful results. Two trips by them to Arizona and South Texas, in search of other parasites, proved unsuccessful. Further efforts will be put forward in this line, and one man will be sent by the Bureau
to the tropics within the near future. Study of the mealy-bug and the relation of the Argentine ant to the mealy-bug was continued.

Three meetings of the Louisiana Sugar Planters’ Association were held on these grounds, at which members of the staff contributed papers for discussion.

The last legislature made extra appropriation for the improvement of the sugar house. One thousand dollars of this was made available and was used to great advantage. The necessity of experimenting with methods for the manufacture of white sugar has made it compulsory for us to make some changes in the plant, and by the use of the remainder of this money we will be in a position to undertake work that heretofore has been almost impossible.

The station office mailed 1198 letters on station business and answers to inquiries; 693 bulletins; 22 books; 1525 postal cards, and 79 packages of miscellaneous samples and specimens.

NORTH LOUISIANA EXPERIMENT STATION
Calhoun, La.

J. B. Garrett, Assistant Director.

Practically all of the experiments in progress in 1913 were continued, some were enlarged and other new work was inaugurated.

The work here has included several rotation experiments, soil improvement work, tests with varieties of cotton, corn, cow peas, peanuts, soy beans, sweet and Irish potatoes, sorghum, millets, and velvet beans; fertilizer and cultural experiments with a number of these crops, silage production, pork production experiments and experiments with fruit, truck and vegetable crops.

Some of the most important work of this station has been the rotation experiments. The hill farms of this portion of the State are greatly in need of soil improvement and it has been for the purpose of getting data along this line that these experiments have been inaugurated.

The first experiment of this kind was started soon after the station was established and has been continued without interrup-
tion up to the present time: It is a three-year rotation in which corn and cow peas are followed by oats and peas, which are followed by cotton the third year. A home-made compost is also used in connection with the rotation. The results each year have been highly in favor of the fertilized portion of the experiment. A description of this experiment accompanied by the results for several years was published as Bulletin No. 111 of the Experiment Station.

Another three-year rotation experiment was begun in 1913 in which raw rock phosphate is being used in comparison with acid phosphate as a source of phosphorus. In this rotation corn and cowpeas are followed by crimson clover, which is removed for hay or seed, and this is followed by velvet beans. The valvet bean vines are turned under to supply nitrogen and decaying organic matter to render the raw rock phosphate available. On one-half of each plot raw rock phosphate is applied at the rate of 2700 pounds per acre and is turned under with the bean vines. The other half of the plot receives acid phosphate at the rate of 300 pounds per acre in the spring just before planting cotton, which follows the third year. In this way the land receives 2700 pounds per acre of raw rock phosphate every third year and the supply of nitrogen is kept up by the cow peas, crimson clover and velvet beans. The results the past year have been practically identical on the raw rock phosphate and acid phosphate plots. On the raw rock phosphate plot 1207 pounds per acre of seed cotton were produced and 27.9 bushels of corn, and on the acid phosphate plot 1228 pounds of seed cotton and 27.7 bushels of corn.

Another experiment along this line, which should give interesting and profitable results for this section of the State, was begun the past year. About thirty acres of land are included in this work. One-third of this area will be devoted to silage crops each year, one-third to corn for grain and one-third to cotton. Cow peas will be planted in the corn and crimson clover will follow the cotton in the fall and will be turned under the following spring for soil improvement. The silage will be fed to live stock and the manure returned to the soil. This will give two leguminous crops and an application of stable manure for one-third of the land each year for soil improvement and cotton and live stock for cash crops.
A creosoted pine stave silo was erected last August in one corner of this field and the silage is now being fed to native cows. A fine shorthorn bull has been purchased and will be used in grading up these native cattle.

A considerable portion of the station's land has been devoted to corn and cotton, the two principal crops of this section. In the various corn experiments about 687 bushels of corn were produced and about 55 tons of corn silage was put into the silo. About 11,740 pounds of seed cotton were produced in the cotton experiments.

In the corn variety tests it was again demonstrated that home-grown seed, when properly selected, is superior to seed brought from a distance.

Eighteen varieties of corn were represented in the variety test and the three which gave the highest yields came from seed grown in North Louisiana.

Twenty-nine varieties of cotton were represented in the variety test and the highest yielding variety came from seed grown here on the station. The same variety stood highest in 1913 and the seed was grown in North Louisiana.

Quite complete fertilizer experiments have been conducted with sweet potatoes and peanuts the past two years, but the results have been so variable that no conclusions have been drawn from them.

The sweet potato storage house was again filled last fall and another storage experiment is now in progress. The yield of potatoes was fine, especially with the early plantings, and the weather was ideal for harvesting. The potatoes were put into the house in splendid condition and are in a perfect state of preservation at the present time.

An interesting acreage has been devoted to fall-sown crops. Crimson clover and oats are the best adapted to conditions in this section and have been most largely used. About 17 acres have been seeded to crimson clover and 12 acres to oats.

Good yields of alfalfa were again secured on the plots on the red type of soil, but these experiments had been continued on this land for four years and the coco grass had become so abundant it was necessary to discontinue alfalfa. The land was planted to oats and will be planted to some clean cultivated crop this spring to control the coco. About an acre of land has been
devoted to alfalfa experiments on the gray type of soil. Lime and stable manure were used in different proportions in a number of these experiments and the seed was planted broadcast and in drills. The alfalfa planted in drills will be cultivated to prevent injury by the growth of grasses and weeds. The results the past year again demonstrated the fact that it is necessary to inoculate alfalfa on this type of soil. Some of the early cuttings on the inoculated plots gave a yield of over a ton of hay per acre per cutting.

Sudan grass was again tested here. It was planted in drills three feet apart and was cut twice. The first cutting produced 2.45 tons per acre, and the second cutting gave 2.98 tons, or a total of 5.43 tons of hay per acre. It was planted on the red type of soil and it would have produced something like 30 bushels of corn under the same conditions. The seed crop was a failure. A great many articles have been written in the agricultural papers throughout the country about the grass and we have received many inquiries from farmers asking for information about its adaptability to this section.

In the variety test with cow peas some of the heaviest yields ever recorded here were secured. The New Era, Groit and Iron varieties produced 32.30, 26.35 and 20.96 bushels per acre, respectively. Two pickings were secured from each of these varieties. The Whippoorwill, which is the standard variety in this section, only produced 10.20 bushels per acre. Ordinarily, ten or twelve bushels of peas per acre is a good crop here. The other varieties in this test produced from four to eight bushels per acre.

On the general variety plot, where new introductions and miscellaneous varieties are tested, fifty-four varieties of sorghum, millets, soy beans, velvet beans, grasses, etc., were grown. Several of the sorghums were harvested and weighed at the proper time to ascertain the amount of silage each would make. The results were as follows:

- Early orange sorghum .............. 13.12 tons per acre
- Feterita .......................... 11.37 tons per acre
- Red kaffir corn ................... 10.44 tons per acre
- White milo maize .................. 10.38 tons per acre
- White kaffir corn ................. 10.32 tons per acre
- Dwarf seeded ribbon cane ........ 8.34 tons per acre
Three-fourths of an acre of Japanese cane was grown on an adjacent plot and harvested for the silo and the yield was 28 tons per acre. An excessive rainfall in August made this tonnage of Japanese cane possible.

HORTICULTURAL WORK.

This work has continued under the direct supervision of Mr. E. J. Watson, Horticulturist of the station.

The principal fruit and the truck crops included in this work were peaches, apples, pears, plums, figs, grapes, pecans, sweet and Irish potatoes, tomatoes, beans, strawberries, watermelons and cantaloupes.

The seedling peach work, which has been outlined in previous reports, was continued and there are now in the orchard 175 trees representing the best seeding varieties. Others have been found to be inferior and have been discarded. Late frosts last spring destroyed the crop on all of the trees except three Indian seedling varieties and they set and matured a heavy crop of very fine peaches. In the orchard there are 32 standard varieties of peaches, but the late frosts prevented them from setting fruit.

The work with apples consisted of collecting varieties that appear to be promising for this section and spraying to control rot diseases which attack the fruit.

There are now in the orchard 150 trees, representing 32 varieties. Only a few of these trees have come into bearing and some of them are quite promising for this section.

The work with pears has been to test varieties for blight resistance. The blight is the only trouble here and if a blight-resistant variety could be found this fruit could be grown in great abundance. We have a number of young grafted trees from an old tree at the Audubon Park Experiment Station which has never shown any indications of blight and we are interested to see if they will prove blight-resistant here.

We have twenty of the leading varieties of pecans in the orchard, but they have not yet reached the bearing age.

We now have 600 magnolia fig trees in rows four to six feet apart. These trees are cut off at the surface of the ground each fall and the crop the following year is obtained from new growth. In this way freezing of the trees is prevented. This
variety will produce edible fruit on the first year’s growth, but many of the other varieties will not do this.

The grape work has been enlarged and there are seventy varieties represented in the vineyard. Fifty of these bore fruit the past season and some of it was of very fine quality. The bagging experiments were continued with very satisfactory results. Enclosing the bunches of young grapes in cheap paper bags has been as effective in preventing the rot diseases as spraying and for the ordinary farmer the bagging is much easier and more practical.

The Irish potato work, which has been in progress for a number of years, was continued with results similar to those of previous years. This work has included seed selection, home-grown vs. bought seed; variety and fertilizer tests, and growing a fall crop. The Lookout Mountain variety has given best results for fall planting. It is distinctly a fall potato and the seed will keep perfectly until planting time, which is in the latter part of July. Every farmer should grow at least enough fall potatoes for home consumption.

A large number of varieties of tomatoes, watermelons and cantaloupes have been tested, with especial attention to blight-resistant varieties of tomatoes and cantaloupes. The Fusarium wilt or blight failed to appear in the tomatoes the past season and, therefore, no data were obtained along that line.

During the past year the station has erected a creosoted stave silo 14 x 30 feet, a creosoted water tank for live stock 10 x 16 feet, purchased 13 cows, a shorthorn bull, a Duroc Jersey boar and a Duroc Jersey gilt.

The correspondence has been fully up to the normal. We have written 980 letters, 813 form letters, and have mailed out many bulletins in connection with the correspondence.

The North Louisiana Agricultural Society continued to hold its regular monthly meetings here, and the station officials always took a leading part in making them a success.

The North Louisiana Agricultural Camp Meeting Fair, one of the oldest in the State, was again held on the grounds of the station, October 28, 29 and 30, and was considered the best that has ever been held here. A great variety of agricultural products were on exhibition and the girls’ canning club of the parish had a most creditable display of canned products.
The Experiment Station officials took a leading part in this fair and arranged an interesting and instructive program for the benefit of the farmers of the State. A number of the leading agriculturists of the country came here and delivered very interesting and instructive lectures covering subjects of vital importance to the agricultural interests of the State.

RICE EXPERIMENT STATION.
F. C. Quereau, Assistant Director in Charge.

FERTILIZER EXPERIMENTS.

Twenty-seven plots are devoted to this line of work. We are testing acid phosphate in different amounts when used alone and when used in combination with potash and cotton seed meal. Potash in the form of Kainit is being tested in the same manner. We are using a mixture of acid phosphate, potash and cotton seed meal in different amounts. The maximum application being as high as 1500 pounds per acre. We have eight plots in which we are testing the different sources of phosphorus. Basic slag and raw rock phosphate are being used in this test.

CONCLUSIONS THAT MAY BE DRAWN FROM THESE EXPERIMENTS.

(1). It is likely that 16% acid phosphate is our best and cheapest source of phosphorus. The results of the past five years indicate that a 200-pound per acre application will give the best and the cheapest returns.

(2). Kainit when applied to old rice land seems to make considerable increase in yield the first year, but in succeeding years the yield is but little better than the yield on the check plots, where no fertilizer has been used. Applications of phosphate and kainit in equal parts do not make increase in yield over the plots where phosphate is used alone.

(3). It is indicated by these experiments that cotton seed meal may profitably be applied to Honduras rice, but that the returns are not so great with Blue Rose or Shinriki, this especially marked in the case of the former. It is not believed that
it is profitable to use cotton seed meal or other nitrogenous fertilizer on Blue Rose rice.

(4). Water crab grass is observed to grow on all plots fertilized with acid phosphate. This was especially noticeable last year (1914). On plots fertilized with kainit and where there was no fertilizer there was little if any crab grass. On the phosphate plots there was a heavy stand of grass which could not be checked with water and which caused considerable decrease in the yields of rice in these plots.

As these results clearly indicate that phosphate promotes the growth of grass as well as the growth and yield of rice, it would seem that the fertilizer should be placed as close to the rice plant as possible. In other words, the fertilizer should be placed in the row with the seed, but not in contact with it. In this way the rice would get the benefit of the fertilizer first and would have a better chance to get away from the grass.

(5). It is good practice to drain the land fifteen days from the time of the first flooding. This will check the activity of the "root maggot," and it is believed that the drying out of the land at this time is a good thing for the rice. Where it is possible to do so, the land should be drained twice during the irrigating season.

**ROTATION EXPERIMENTS.**

Fourteen plots are devoted to this work. There are two two-year rotations, one three-year rotation, and two four-year rotations.

The object of these rotations is to find some crop or crops which will be profitable on rice land in rotation with rice.

The results indicate that highland crops will, if continued long enough, eliminate red rice. Corn, sorghum, cow peas, oats, and sugar cane are profitable crops on rice land. Corn and oats should be fertilized with cotton seed meal or other nitrogenous fertilizer. One hundred pounds 16% acid phosphate and 200 pounds of cotton seed meal per acre produced a yield of 38 bushels per acre of corn on land that had never before been planted to a highland crop.

It is believed that a rotation less than six years on a rice farm will not be profitable.
(1). Because a two, three, or four year rotation with highland crop is not long enough to eliminate the red rice.

(2). In changing from the highland crop to rice it is necessary, in a large measure, to close drains with the levee system. In going from rice to a highland crop all of the levees must be removed and drains opened which are not only unnecessary for rice but interfere with work. Changing from one system to the other, therefore, is very costly, consequently the rotation should be made as long as possible.

It is suggested that the land be planted to highland crops for six years. At the end of this period the drains will require attention if the highland crops are to be continued. Levee the land, leaving only those drains which are necessary for rice, and plant the area to rice six years in succession. Exercise care that the land does not become seeded to red rice.

Another factor to be considered in connection with the long rotation is the fact that rice makes but little if any use of the nitrate form of nitrogen. Rice uses the ammoniates. After six years of highland crops the soil would contain an abundance of vegetable matter. Under irrigated conditions of rice this vegetable matter would tend to break down into ammoniates which could be made use of by the rice. From the data which we have with reference to yields of rice on new land it is reasonable to believe that by the use of acid phosphate the yield for rice can be maintained to a profitable maximum during six years.

During the year 1914 the usual number of highland crops were grown. The only departure from previous years was the testing of a number of varieties of cotton. The summer season being less rainy than usual, the yield of cotton averaged about half a bale per acre. This is above the average for rice land.

The only improvement made during the year was the installation of a Smith drainage machine. This was put in to protect our highland crops from back water during excessive rains.

An agricultural society was formed among the farmers. This society meets the last Saturday of each month at the Experiment Station. The Assistant Director is secretary and treasurer. The average attendance during 1914 was forty-five farmers.
**FINANCIAL STATEMENT.**

**HATCH AND ADAMS FUNDS.**

<table>
<thead>
<tr>
<th>Dr. Hatch Fund</th>
<th>Adams Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>To receipt from the Treasurer of the United States as per appropriation for fiscal year ending June 30, 1914, under Act of Congress approved March 2, 1887 (Hatch Fund), and of March 16, 1906 (Adams Fund) $15,000.00</td>
<td>$15,000.00</td>
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<tr>
<td>By salaries $10,561.95</td>
<td>$11,575.52</td>
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<tr>
<td>Labor 2,093.43</td>
<td>418.84</td>
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| Publications 586.10 | .....
| Postage and stationery 47.97 | 27.54 |
| Freight and express 82.79 | 71.67 |
| Heat, light, water and power 16.56 | 285.85 |
| Chemicals and laboratory supplies ..... | 147.81 |
| Seeds, plants, and sundry supplies 178.77 | 147.17 |
| Fertilizers 101.95 | .....
| Feedstuffs 297.83 | 541.76 |
| Library 198.00 | 295.96 |
| Tools, machinery and appliances 222.37 | 17.81 |
| Furniture and fixtures 134.04 | 226.45 |
| Scientific apparatus ..... | 630.00 |
| Live stock 105.00 | 175.00 |
| Traveling expenses 7.20 | 294.69 |
| Contingent expenses 20.00 | .....
| Building and repairs 346.04 | 143.93 |
| **Total** $15,000.00 | $15,000.00 |

**Receipts—STATE FUND.**

Received from the State Treasurer $23,041.70

Fertilizer and Feedstuff Fund for Station accounts 3,000.00

Interest on daily balance 225.55

Refunds 881.21

Farm products 2,852.00

Deficit, Nov. 30, 1914 1,494.17

**Expenditures—**

Salaries $10,818.39

Labor 4,469.32

Publications 434.45

Postage and stationery 616.51

Freight and express 525.21

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Salaries $10,818.39

Labor 4,469.32

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Labor 4,469.32

Publications 434.45

Postage and stationery 616.51

Freight and express 525.21
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<tr>
<th>Expenditures—</th>
<th>Hatch Fund</th>
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<td>Heat, water and lights</td>
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<td>Chemical supplies</td>
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<td>Seeds and sundry supplies</td>
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<td>Fertilizer</td>
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<td>Feedstuffs</td>
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<td>Building and repairs</td>
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<td>Deficit, Dec. 1, 1913</td>
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FERTILIZER AND FEEDSTUFFS FUND.

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<td>Cash on hand Dec. 1, 1913</td>
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<tr>
<td>Miscellaneous sales</td>
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<td>Commissioner of Agriculture</td>
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<td>Refund</td>
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$19,039.71

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<tr>
<td>Labor</td>
<td>708.90</td>
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<tr>
<td>Publications</td>
<td>1,660.60</td>
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<tr>
<td>Postage and stationery</td>
<td>287.05</td>
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<tr>
<td>Freight and express</td>
<td>110.09</td>
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<tr>
<td>Heat, water and light</td>
<td>860.24</td>
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<tr>
<td>Chemicals</td>
<td>1,488.45</td>
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<tr>
<td>Seeds and sundry supplies</td>
<td>199.65</td>
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<tr>
<td>Feedstuffs</td>
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<tr>
<td>Library</td>
<td>7.09</td>
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<tr>
<td>Furniture and fixtures</td>
<td>80.87</td>
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<tr>
<td>Tools, implements and machinery</td>
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<tr>
<td>Apparatus</td>
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<tr>
<td>Building and repairs</td>
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<tr>
<td>Live stock</td>
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<tr>
<td>For station accounts</td>
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<td>$19,039.71</td>
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AUDUBON PARK SUGAR EXPERIMENT STATION REPAIR FUND.

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<thead>
<tr>
<th>Expenditures—</th>
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<td>Cash on hand Dec. 1, 1913</td>
<td>$ 273.51</td>
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<tr>
<td>Nov. 4, 1914, State Treasurer</td>
<td>1,000.00</td>
<td>$1,273.51</td>
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$1,273.51