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

W R. Dodson

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NINETEENTH
ANNUAL REPORT
OF THE
AGRICULTURAL EXPERIMENT STATIONS
OF THE
LOUISIANA STATE UNIVERSITY
AND
A. AND M. COLLEGE
FOR 1906,
TO THE GOVERNOR.

BY W. R. DODSON, DIRECTOR.

BATON ROUGE:
The Daily State Publishing Company, State Printers
1907.
To His Excellency, Newton C. Blanchard, Governor of Louisiana:

Sir—In accordance with the provisions of section 2 of the act of Congress to establish Agricultural Experiment Stations in connection with 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 for the year ending February 1, 1907, including a statement of the receipts and disbursements from July 1, 1905, to July 1, 1906.

Station No. 1, Sugar Experiment Station, Audubon Park, New Orleans.

Mr. R. E. Blouin has remained in active charge of the work of this station, and has very ably administered its affairs and conducted the experiments in field and laboratory in a thoroughly scientific and practical way. The field of investigation has been somewhat enlarged, and very valuable results have been obtained, both from a technical and a practical standpoint.

The year 1906 has been a bad year for the sugar interests of the State. The spring was cold and wet, and stubble cane suffered severely throughout the State. When warm weather came it was accompanied by drought, which in turn was detrimental to the growth of the cane crop. Accordingly the yields
throughout the State were poor, much below the average, both in tonnage and sugar content. The crop at the station was well up to the average in tonnage, but was deficient in sugar content.

IRRIGATION.

The tonnage secured again emphasizes the necessity of thorough preparation of the land in the fall and the value of irrigation. Irrigation was resorted to twice, on May 29 and June 20, and is to a large extent responsible for the good tonnage secured. The plats comparing irrigation and non-irrigation canes were in second year's stubble this year, and owing to imperfections in the stand of cane, cannot be strictly compared; however, the results show a marked improvement in the cane by irrigation.

FERTILIZATION AND CULTIVATION.

The study of the fertilizer requirements of D. 74 has been continued and new experiments added, and the results are now showing good promise, though it will require some time before positive results can be secured.

We also started fertilizer experiments on succession cane and various combinations on the home varieties. With cultivation experiments our results show markedly the advantage of frequent and shallow cultivation. To this we have added one new implement this year which is still in its experimental stage, though giving promise of good results. This is the ordinary harrow with a bull-tongue in the center, making a clean sweep of the middles of the rows, using a disc and bull-tongue for our middles instead of the shovels now so popular in the State. Experiments with new implements in the preparation of the land have also been inaugurated, breaking land at different depths and in a different manner, and we are testing the deepest possible breaking of the land in Louisiana. We look forward to some very interesting results from these experiments. They are conducted upon both sandy and stiff lands.

SEEDLING CANES.

The D. 74 and D. 95 seedling canes have again maintained their superiority over the home canes, not only on the station.
but throughout the State, the result being a large extension of the area planted in these canes this year. This applies particularly to the D. 74, which is highly commended by practically all planters. An extended report was made to the Sugar Planters' Association and published in the Louisiana Planter and Sugar Manufacturer (and will later be published in bulletin form) on the results from these two seedlings compared with home canes during this year, which was favorable in every instance to the new canes, both from a field and sugar house standpoint. At the station here the D. 74 showed itself markedly superior to either the home or D. 95, the tonnage being greater and the sugar content very much greater than the home cane, and markedly greater than the D. 95, also being richer in sugar than the home cane.

New seedling varieties were introduced this year from Jamaica, Java and Barbados, and they have now been placed in our regular variety plats to compare them with other canes. We have also secured from the Hawaiian Islands a quantity of cane seed, and have for the first time successfully germinated these seed in Louisiana, and we have now Louisiana seedlings which are ready to be placed in the field. In December we received another consignment of cane seed from the Hawaiian Islands. These have been planted and have germinated remarkably well, and we have every hope from this germination to secure a number of seedlings from these plantings. There are prospects that some of these will develop into very desirable canes for Louisiana.

SUGAR HOUSE WORK.

In the sugar house we continued our experiments comparing the home and seedling canes from a sugar manufacturing standpoint, and investigated carefully the amount of clarifying agents left in our products during manufacture. This is particularly of interest now, owing to the Pure Food Law being in operation, and these experiments were conducted in order to post ourselves in advance as to the composition of these products.

LABORATORY WORK.

The laboratory has been investigating the composition of molasses, and the effects of the different agents in clarification
upon this molasses and the amounts of these agents remaining in it. This entailed an immense amount of analytical work, which is not yet completed. The results are very interesting, and will have value in relation to the application of the new Pure Food Law to our cane industry.

A study of the effects of the different fertilizing ingredients on the composition of cane has not been quite completed, and this work will be continued.

Dr. C. A. Browne, our efficient chief chemist, resigned to accept a position in the sugar laboratory of the Bureau of Chemistry Department of Agriculture at Washington, much to our regret, as his services had shown him to be an extremely able and efficient worker. His place has been filled by Dr. Fritz Zerban, who was Carnegie Research Chemist at the college of the city of New York.

CANE LOADERS.

We had two trials of cane loaders this year. The object of the demonstration was to exhibit the different models and bring before the planters the improvements that had been made in these machines. At the first trial, held May 9, there was a very fair attendance, with only two machines on trial. These were the Moline and Guassiran cane loaders. At the second trial there were present the following loaders: Moline, Luce, Castegnos, Landry and Mire. These five loaders were given a thorough trial in exhibiting their respective merits, and this trial was the most successful one ever conducted on the station. There were over three hundred planters in attendance from every part of the State, and they were given an excellent opportunity of viewing the working of the different loading devices.

CANE HARVESTERS.

We have continued testing cane harvesters here, several tests being made, and it is gratifying to note that there is some improvement in these machines. The number of patentees of these devices are increasing, and some of them are at work in this State. The outlook is very hopeful for success in this line, and when this has been accomplished it will be a great relief to the sugar planters in the labor problem. The D. 74 cane is consid-
ered extremely desirable by the cane harvester men, the majority of them making their harvesters to handle only this cane. This is due to its erectness under all conditions, giving us straight cane to be handled by the harvester.

IMPROVED IMPLEMENTS.

This station has tried a number of new agricultural implements this year and discussed with the various manufacturers alterations pertaining to them. All manufacturers, agents and inventors are invited to test their implements here, and we are glad to encourage such tests, and visitors to the station are welcome to witness them.

SUGAR SCHOOL.

The demand for graduates of the Audubon Park Sugar School of the Louisiana State University and Agricultural and Mechanical College has increased this year, and we are unable to supply the demand from sugar countries that come to us for such graduates. While the students are down here they are given practical instruction in agriculture, chemistry and sugar house work.

COTTON.

Cotton has again been planted and the usual tests made of the various standard varieties, and new varieties have been introduced. These are grown here to test their merits upon alluvial soil, and have this year produced very good crops, over two bales per acre being secured from the better varieties. Again, no boll weevils have been found this season, and we are positive of the complete extermination of the weevils, which were placed on the station in 1903.

CORN.

This crop was very good this year, giving us a good average yield, and we tested a number of varieties, also testing home-grown versus purchased seed, and again our home-grown seed has given better results. The station has had a number of inquiries as to a weevil-proof corn—or one approximately near that—and we have found here that the improved variety of Yellow Creole is markedly resistant to the attack of the corn weevil.
FORAGE CROPS.

Besides continuing experiments with a number of varieties that hitherto have been carried on, such as alfalfa, red and crimson clovers, sorghum, teosinte, beggarweeds, cow peas and vetches, we have this year co-operated with the United States Department of Agriculture in the introduction of new varieties of alfalfa and clover from various sections of the United States and also from foreign countries. The results are very interesting and full of promise.

FIBER CROPS.

The station is continuing its experiments with these crops, and inventors of decorticating machines make frequent application for ramie, jute and hemp; the quality of fiber this year has proven very satisfactory. These crops, however, are awaiting the development of a practical decorticating machine.

OLIVES.

Our olive trees are still healthy and vigorous growers, though not fruiting as prolifically this year as last; there was very little fruit on them this year and the Pendulina, the variety which fruited last year, when it came to maturity, was the only one that had fruit on it this year, though not the same tree that fruited last year.

CITRUS FRUITS.

We have continued our growth of citrus fruits, enlarging the number of varieties, which this year have suffered very markedly from an attack of scale insects and the white fly.

The method of spraying for the extermination of the scale insect, which has proven efficient in other sections, is here complicated with another problem, namely, the control of the small ant that has become so numerous in the vicinity of New Orleans. These ants carry the insects and replant them on trees after they have been sprayed, and thus vitiate the results of spraying. We are now making arrangements with the Crop Pest Commission to carry on in co-operation with them some investigations looking to the control of this pest under the new conditions. It is to be regretted that the funds of the station will not permit the em-
ployment of an entomologist to devote his time to the study of
the ant, as this insect is proving a great annoyance to all house-
keepers in the infected territory, and will probably become a
menace to our orange groves, and possibly to our sugar interests.
Our hybrid oranges fruited to a large extent this year, though
likewise suffering from insect attacks. The object of experiment-
ing with these hybrids is to see if we cannot get an edible orange
that will withstand our coldest weather here without protection.

MISCELLANEOUS WORK.

The assistant director, Mr. Blouin, has rendered most valua-
ble services to the sugar interests of the State in aiding to protect
these interests against unreasonable and unjust exaction of the
committee in charge of the enforcement of the Pure Food Law,
recently passed by Congress. He has made two trips to Wash-
ington, D. C., with other parties to present our claims to the
committee of Congress and to the Commission. Mr. Blouin was
the accredited representative of the Sugar Planters' Association
in these hearings. The work done has borne good fruit, result-
ing in the prevention of great losses to the value of the sugar
products of the crop of 1906 that would have otherwise been
sustained by the enforcement of the law as interpreted by the
authorities, prohibiting the use of sulphur and lime in bleaching
and clarifying the cane juice.

CHANGES IN STATION STAFF.

Mr. J. C. Waldron, who was farm manager of the station,
resigned to accept a more lucrative position in Antigua, B. W. I.,
and his place has been filled by Mr. A. E. Dodson of Missouri.

Station No. 2, State Experiment Station,
Baton Rouge.

The experiments at the farm have continued under the im-
mediate supervision of Mr. S. E. McClendon, assistant director
of this station. His work has been done faithfully and well.
We are here carrying on a considerable number of experi-
ments in which results of a long series of years are required for
tabulation. These experiments have been referred to in previous reports, and need no extended notice at this time. They involve questions of soil fertility, values of the different sources of fertilizing elements, variety tests of standard crops, rotation of crops and so forth.

**CATTLE FEEDING.**

A considerable number and diversity of feeding experiments have been conducted during the year. Upward of fifty head of cattle have been fed under various experiments the latter part of the year, and a slightly less number during the early part of the year. The subjects have included a comparative study of the values of different combinations of available feed stuffs, the comparative returns from feeding animals of different ages, the value of the droppings as a fertilizer and related subjects. We have also compared the value of green feed, ensilage, dry hay and mixtures of hay and ensilage as sources of forage. Much valuable data has been secured from this work, but the results are not conclusive and not entirely satisfactory. The results with full comments will be published in bulletin form.

For the feeding experiments a silo was constructed the past summer, with a capacity of ninety tons ensilage. The silo was filled with sorghum, Japanese cane, grass and corn, with unqualified success.

**STOCK BREEDING.**

The work previously reported in the production of high grade beef animals has been continued. We now have some fine types of the Angus and Hereford breeds that have been raised on the station grounds. While these are most creditable animals, they have not reached maturity as soon as they would, had they not had the Texas fever, which we are fully convinced dwarfs the full development of the animal. These steers weigh at this time about twelve hundred pounds. Had they not had the fever to contend with I believe they would weigh by this time at least fifteen hundred pounds. So that while we have solved the problem of protecting the animal against death from Texas fever, we have not yet solved the problem of complete protection, without the extermination of the cattle tick. However, we
have completely demonstrated the possibility of exterminating
the cattle tick in areas that can be protected from cattle that
roam at large. The question of exterminating the cattle tick now
becomes the great problem in live stock production in the South.

A disease of the eye, commonly called "pink eye," (conta-
gious ophthalmia) has been a source of severe discomfort to
young animals, and in frequent instances has destroyed the sight
of an eye in calves. The improved blood seems to be more subject
to annoyance from this disease than is the native. It is possible
that with the removal of the tick the increased vitality of the
calf will result in greater resistance to this disease also.

At the present time we have on the station about thirty-five
head of Angus cattle, mostly high grades, and about fifteen of
the Hereford breed, also high grades. Some of these animals
would be very satisfactory animals any where, for their class,
but some are unsatisfactory, and we are unable to account for
the difference. It is now our purpose to take up the effects of
tick infection and fever of the mother on fetal nutrition and
development.

This station has recently purchased a pair of Angus calves
from the celebrated herd of D. Bradfute & Son, Cedarville, Ohio.
It is hoped that some fine animals will be developed from this
purchase.

SWINE FEEDING.

Some interesting results have been obtained from feeding
experiments with pigs, with and without pasture. The value of
sweet potatoes, Dwarf Essex rape and oats as a pasture crop in
the production of pork has been further investigated. The feed-
ing of rice polish to pigs has been continued with good results.
All these results will be published in bulletin form when the
work is completed.

BOLL WEEVIL.

Unfortunately the boll weevil continues to make rapid
progress in the invasion of the State. Points near the Ouachita
River have been reached, and by the close of the year 1907 this
pest will be found in all but the most easterly parishes of the
State. The past season has fully demonstrated to those in the
heavily infected territory that moderate crops of cotton can be raised in the presence of the boll weevil if the planter follows an intensive system of cultivation, and fertilizes and selects his seed for early maturity. The stations have for many years advocated (from the results of many carefully conducted experiments) careful and thorough preparation of a deep soil bed, then shallow cultivation of the crop at frequent intervals. This, with rotation and selection of seed, is the solution of the question of growing profitable cotton in the boll weevil infested territory, as far as it has been solved at the present time. The people do not feel the apprehension on this subject that they did two years ago. In some instances undue alarm is felt at the present time. It is a source of gratification, however, to know that by the best system of agriculture in vogue we may still grow cotton as our principal money crop in the cotton section. The station is doing all it can to aid in facilitating adaptation to the new conditions.

Horticultural Department.

The work of this department has been continued under the direction of Prof. F. H. Burnette. The variety tests of fruits and vegetables have been continued, and some special lines have received attention. In co-operation with the United States Department of Agriculture there has been under observation a number of new or rare plants imported from foreign countries, or results of breeding work of men connected with the national department. The most important of the latter class are the Citranges. These are hybrids between the sweet and the hardy trifoliata oranges, and may possibly lead to something very valuable in the orange line, the purpose of the cross being to secure a desirable fruit that will not be destroyed by our winter freezes.

Experiments have been continued in cultivating plants in "half shade," under a frame covered with the wild cane for slats. The cloth house of last year was unsatisfactory, from the fact that it was not strong enough to endure the vicissitudes of
the climate. Sufficient results have been obtained to show the marked superiority of foliage vegetables grown in half shade, because of their more tender tissue and superior flavor.

Fertilizer experiments have been continued with sweet potatoes, onions and sweet corn.

A few varieties of fruits of recent introduction have been added to the orchard. The work in pecans has been continued. Cuttings of the more desirable varieties of figs have been distributed over the State.

A small vineyard of improved varieties of scuppernong grapes has been planted and these, with the native muscadine, will form the basis for work looking to the improvement of our grapes through breeding.

The department has aided a number of high schools of the State by furnishing plans and materials for improvement of grounds and school gardens.

Veterinary Department.

Dr. W. H. Dalrymple has continued in charge of the work of this department, assisted the latter part of the year by Dr. H. J. Milks.

DISEASES OF SHEEP.

The chief experimental work has been a continuance of that connected with the parasitic diseases of sheep, more especially nodule disease of the intestines. This line of work was taken up some years ago, and the results have encouraged its continuation. Part of the past year was devoted to duplication and verification of previous experiments, and additional phases were under experiment, results of which are published in bulletin No. 89.

An intestinal parasitic disease of sheep, other than that above alluded to, has been found very destructive to lambs, and it is the intention of the department to pursue a line of investigation looking to the amelioration of the conditions. The disease is known as "parasitic gastritis," and is caused by the "Haemonchus contortus," or twisted stomach worm, found in the fourth compartment of the stomach of the sheep.
BLACK LEG.

Owing to numerous inquiries regarding a disease of young cattle, which on investigation turned out to be "black leg," or symptomatic anthrax or charbon, a short bulletin of information on this subject was issued as bulletin No. 85.

FEEDING.

On account of the large number of inquiries and the growing interest in the subject of economic stock feeding, a full discussion of this subject was given under bulletin No. 86, entitled, "Our Available Stock Foods." This bulletin has met with very hearty appreciation by stock owners throughout the State. The bulletin gives all necessary data in regard to compounding and feeding our available feeding materials in this State for the most economic rations.

MISCELLANEOUS.

In February last Dr. Dalrymple represented the Experiment Stations in a hearing before the Committee on Agriculture of the National House of Representatives, in behalf of an appropriation bill, introduced by Congressman Ransdell of Louisiana, for aiding in the work of exterminating the cattle tick from the South. An appropriation of $82,500 was made for this work, and great good has already been accomplished in the expenditure of this money.

The correspondence of the department continues to increase, indicating a growing interest in live stock subjects.

Owing to the increasing demand for investigations along veterinary lines, and owing to the fact that Dr. Dalrymple's time is largely taken up in teaching work in the university, the station has employed an assistant, who will devote all of his time to research work. This has been made possible through the appropriation under the Adams act of the National Congress.

BACTERIOLOGICAL INVESTIGATIONS.

H. J. Milks, D. V. M., assistant veterinarian and bacteriologist.

Dr. Milks became a member of the station staff the latter part of July, 1906, and at once began investigations along the lines of diseases of animals.
ANTHRAX.

At the time he came to Louisiana there were several outbreaks of charbon in the State and several weeks were spent in getting all data possible in regard to this disease in the field. All sections of the State known to be infected were visited by Dr. Milks and all available cases of charbon were studied. On some of these trips he was accompanied by Dr. Hines, then employed by the Crop Pest Commission to study the horse fly and its relations to outbreaks of charbon. Unfortunately for the investigation, but fortunately for the live-stock interest, these outbreaks had almost subsided before our investigators reached the field. As soon as the field examinations were completed the work was taken up in the laboratory, where it has been actively prosecuted. He has been studying vaccines and the causes of the failure of vaccination, in many instances, to convey immunity to the disease. He is also making investigations on the development of the anthrax organism on various kinds of vegetable matter that may be found in field conditions; extracts from grasses, weeds, etc., such as may be found in the fields and meadows or woodlands.

We have made about all preliminary arrangements for the study of insects and birds and their relation to dissemination of diseases. The possibility of procuring an immunizing serum is also under investigation.

CEREBRO SPINAL MENINGITIS.

Some attention has also been given to the disease of the horse known as "cerebro spinal meningitis," and to a disease among young chicks which is not yet identified, and which may prove to be a new disease. The laboratory for this work has been very materially increased and additional room built at the Experiment Station building for the use of sterilizers, incubators, etc., and plans are being drawn at the present time for the construction of a hospital for diseased animals under treatment. We look forward to accomplishing great good in these lines of investigation.
Department of Plant Pathology.

This department was also organized in July, 1906, and was put under the direction of Mr. H. R. Fulton from Harvard University. He has been giving all of his time to the study of plant diseases.

COTTON DISEASES.

The cotton wilt, or black heart, disease has been quite prevalent in some sections of the State during the past season, and the destructiveness of the disease has greatly increased. Considerable time has been devoted to the study of this disease. No direct means have been found in destroying the fungus, but it is hoped that control measures may be perfected. Several distinct diseases of the cotton boll have occasioned in the aggregate large loss during this season. Special attention is being given to the study of the nature of these diseases with the hope of finding some remedy.

RICE DISEASES.

Observations made in the rice district during the harvest season reveals several diseases of the grain, none of them, however, having caused great loss this season. Among them are two smut diseases of recent introduction, which have proven to be very destructive to the grain in other countries. It has therefore been deemed advisable to undertake some investigations as to the effect of fungicides upon the spores of these smuts with a view of treating the rice seed before planting for the control of the disease.

SUGAR CANE DISEASES.

A fungus has been found generally present in cane fields of some sections of the State, and indications lead to the suspicion that this fungus plays a part in bringing about a diseased yield, especially of stubble cane. Experiments to determine the exact role of this fungus are now being carried on.

PEPPER WILT.

Noticeable loss, due to an undescribed wilt disease, occurred in the pepper beds of the Baton Rouge Station last summer. It
has been definitely determined that the death of the plants was due to the attacks of a soil fungus belonging to the genus *Rhizoctonia*. The mode of attack of the fungus, affecting as it does the underground part of the plant, precludes the use of remedial measures in the case of plants already infected. Preventive measures will be tested during the next season.

**MISCELLANEOUS.**

The laboratory has been called upon from time to time to examine and to report on specimens of diseased plants, to make bacteriological diagnoses, and to determine the names of economic plants.

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**Rice Experiments at Crowley, La.**

In co-operation with the United States Department of Agriculture and some of the progressive citizens of Crowley, rice investigations were inaugurated the past season. The lines of work begun include a study of the fertilizer requirements of rice, a botanical study of the plant and the introduction of all obtainable varieties, that their adaptability to our climate and soil may be tested. Reference has already been made to the work of the pathological department in studying rice smut.

The results of the work were not very satisfactory, due in considerable extent to the fact that the work was not inaugurated until late in the season and a prolonged drought after the plots were planted. This year, with the levees already constructed, and the work under way, much more satisfactory results are anticipated.

The extent of the rice interests of the State would justify an expenditure of many times what we have been able to devote to this work, but the investigations cannot be extended without additional funds.
Station No. 3, North Louisiana Experiment Station, Calhoun.

This station is located at Calhoun, Ouachita Parish, and has been under the supervision of Major J. G. Lee. Recently Major Lee's health has been such that he requested a leave of absence, which has been granted, and Mr. T. I. Watson for many years the efficient farm manager, has been in charge of the station. It is to be hoped that Major Lee will soon be restored so that he can resume the work there.

During the year we have made some improvements to the grounds, and have bored a deep well for securing water for general purposes. At 580 feet we secured excellent water in great abundance. This will solve a problem that has always troubled us during dry weather. We have heretofore been unable to get an unfailing supply of water.

Additional land has been cleared for the purpose of extending our experiments in the production of feed stuffs for dairy purposes, as well as in the fattening of beef cattle.

THE SILO.

A silo was constructed at this station during the summer and an ensilage cutter purchased. The silo was filled principally with corn. The product has kept in excellent condition, and is now being fed in some experiments in the dairy, and in fattening beef cattle. So far very satisfactory results have been obtained. There has been considerable interest manifested in this subject in that portion of the State.

THE DAIRY.

The dairy work has been resumed, but has not been without hindrances to its successful operation. We have been unable to get a competent and reliable dairymen, whose results could be depended upon for scientific accuracy. However, we have at the present time a good dairy herd and are training a dairymen that is a native of the vicinity, and it is hoped this work will go forward satisfactorily. It is our purpose the coming summer to make investigations on Texas fever and the cattle tick as related to milk production and the development of calves in utero.
TRUCK CROPS.

Much of the work previously reported has been continued. The new orchard should come into bearing this year, and the old orchard is now being destroyed. We are also enlarging the peach orchard for certain lines of experiments, and for this purpose new land is being cleared. About two acres have been cleared and set in trees. Considerable attention has been given to collecting the native seedling peaches and apples of the country. It is hoped that these may form the basis for some breeding experiments that will bring good results.

We have made all preliminary arrangements for conducting a full line of irrigation experiments in trucking this summer.

AGRICULTURAL FAIR.

The annual Agricultural Camp Meeting and Fair of the North Louisiana Agricultural Society was held in September on the station grounds. It was the opinion of many of the old citizens of the community that the fair the past season was the most successful ever held at Calhoun. The attendance was possibly not as large as at some of the earlier fairs that were held before the various parishes organized their parish fairs, but the products on exhibition were more varied and of greater excellence than ever seen before in North Louisiana.

PUBLICATIONS.

Bulletin No. 90, giving a summary of results obtained during fifteen years of work with fruits and vegetables, was issued in December. This was prepared by E. J. Watson, and is proving a popular bulletin, as it well deserves.

The State Geological Survey.

There has been no change in the management of the survey. Dr. G. D. Harris of Cornell University continues to devote one-half of his time to this work and one-half to Cornell University. The work has been actively prosecuted the past season. The survey of Winfield area has been completed and mapped, and the results are now being prepared for publication.
The latter part of the season has been given almost wholly to work in Southwest Louisiana. The work has been interrupted but little by bad weather. The area near Jennings has been surveyed and maps are now being prepared for publication.

**PUBLICATIONS.**

No bulletins have been issued during the past year. The report on the underground waters of North Louisiana was handed to the printer some months ago, but owing to the delay occasioned by a large number of maps that are to be issued with the publication, it has not yet come from the press. The salt report will also be ready in a short time: We therefore have now in press or ready for the press three publications that should be ready for distribution before summer.

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**Co-operation With the U. S. Geological Survey.**

In continuation of plan inaugurated several years ago we have spent a portion of the funds of the Geological Survey for co-operative work with the National Survey. This year we spent fifteen hundred dollars in this work, and the National Department spent a similar amount in determining the exact latitude, longitude and altitude of a large number of places in Southwest Louisiana. This work will be of great service to surveyors, especially in the rice region, in building roads, drains, canals and for other purposes. It is a necessary preliminary step to any accurate work in mapping that portion of the State.

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**Soil Survey.**

The Soil Survey of the National Department of Agriculture has continued work in co-operation with the station without cost to Louisiana. The survey of Winn Parish has been completed. The survey of Tangipahoa Parish has been completed and the publications issued. This work is of very great interest to the parishes surveyed. Copies of this publication can be secured by all interested parties by addressing the Congressman from the district.
Analyses of Fertilizers, Feed-Stuffs and Paris Green.

This work is all done now in the laboratory at Baton Rouge, under the direct supervision of Mr. J. E. Halligan. The following is a tabulated statement of the work done during the year, which for this work ended September 1, 1906:

**Commercial Fertilizers.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
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</thead>
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<td>Complete fertilizers</td>
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<td>Fertilizers containing phosphoric acid and nitrogen, not tankages</td>
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</tr>
<tr>
<td>Fertilizers containing phosphoric acid and potash</td>
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<tr>
<td>Miscellaneous</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total analyses</strong></td>
<td><strong>2,508</strong></td>
</tr>
</tbody>
</table>

**Paris Green.**

There were also 73 samples of Paris green analyzed and all were found to be above the guarantee of 50 per cent arsenious acid. The average per cent of arsenious acid in these samples ran 55.13 per cent.

**Commercial Feeding Stuffs.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton seed meal</td>
<td>588</td>
</tr>
<tr>
<td>Rice bran</td>
<td>177</td>
</tr>
<tr>
<td>Molasses feeds</td>
<td>330</td>
</tr>
<tr>
<td>Corn and oat feeds</td>
<td>411</td>
</tr>
<tr>
<td>Wheat bran and mixed feed</td>
<td>74</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>235</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,815</strong></td>
</tr>
</tbody>
</table>


We also made fibre determinations on 123 special samples. All brands of fertilizer must have stamped in plain letters and figures on the sack, the guaranteed composition, and each sack must be tagged by the Commissioner of Agriculture. The repeated inspection and analysis of different brands is for the purpose of seeing that the manufacturer constantly maintains his product up to the standard guaranteed. The same remarks would hold good as to feed stuffs and Paris green.

The amendment to the law passed by the last Legislature, requiring the guarantee to be given on all ground feeds not the primary products of grains, has had a good effect. Previous to this it was practically impossible to execute the law as applied to wheat bran, rice bran and so forth. The present law leaves little to be desired in the way of protection to the general public. While the law does not prohibit a man from putting a poor article on the market, it prevents him from selling it for a good article. If a purchaser is seriously imposed upon now, it is his own fault.

**MISCELLANEOUS ANALYSES.**

The main bulk of the fertilizer samples are received during the winter and spring months, and the feed stuff samples diminish greatly in number in summer and fall. In order to handle this business promptly during the busy season it is necessary to maintain a larger force in the chemical laboratory than would be necessary if the work was constant. This season of least activity, however, gives time to do some work for the general public, that it seems they expect us to do gratuitously. When time will permit we make analyses of waters, soil samples, suspected ores and various other products for the general public, and for this work no charge is made. As soon as the funds will permit it we expect to take up a study of the soils of the State in connection with this work.

**The Adams Fund.**

During the last days of May, 1906, Congress passed an act now known as the Adams Act, providing for an increased appropriation by the National Government for experiment station
work. The act, however, designates that the work shall be research work, and plainly contemplates investigations of a high character, such as will throw additional light on general principles involved in animal and plant life. Much of the work carried on by this and other stations that is producing much good in the way of demonstration or the removal of minor difficulties in the way of application of known principles would not be permissible under this fund. As the national legislators make provision for more liberal support of research work, they expect the States to also become more liberal in providing for all necessary work supplemental thereto. Any diminution in funds available for dissemination of knowledge, through demonstration or otherwise, cripples the effectiveness of the research work. It is therefore to be hoped that Louisiana will keep up with the procession of progressive States in making more liberal provisions for broadening the field of work of the Experiment Stations.

This station is using the fund secured under this act in three lines of investigation. They are those of animal diseases, plant diseases, and chemical study of sugar cane and its products. The work is referred to under these heads in previous pages.

Meeting of the American Association of Agricultural Colleges and Experiment Stations.

The annual meeting of the American Association of Agricultural Colleges and Experiment Stations was held in Baton Rouge, November 14 to 16, 1906. This meeting brought to our institutions the largest number of distinguished investigators and teachers ever assembled in a Southern State. The station staff at this place were called upon to help entertain the visitors, and the response, I am sure, contributed much to the good name of this station and our people in the esteem of our visitors from nearly every State and Territory.
Experiment Station Exhibit at the State Fair, at Shreveport.

The experiment stations prepared and put on exhibition at Shreveport specimens of fruits and vegetables, forage crops, farm crops and other material secured from the three stations. Charts were prepared that graphically presented phases of the experiment station work that could not otherwise be presented. The composition of the prevailing fertilizers and feed stuffs sold in the State was shown in attractive form. Method of immunization of cattle from Texas fever, method of vaccinating for protection against black leg, anthrax and other diseases was presented in picture form, with samples of vaccines and the instruments used in the work. Temperature charts showing the reaction to tuberculin test in cattle and other work of this character was presented. Specimens of plant diseases, specimens of animal parasites and insect pests were a part also of an attractive and instructive exhibit. The exhibit was generally complimented by those who knew of its merits in a most unreserved manner. It is believed much good was accomplished by this work, in bringing the investigations of the stations before the people.

A new feature of the exhibit was a lecture room, in which lectures were delivered on farm topics. Lantern slides and moving pictures were used in illustrating these lectures. After the first few days the crowds at these lectures were as large as could be accommodated, and the enterprise was a pronounced success.

Mr. and Mrs. Robert Glenk, of the State Museum, rendered most valuable services in arranging the exhibit, and much of the success is due to their untiring work.
The following is a list of parties who constitute the present station staff:

W. R. Dodson, A. B., B. S., director, Baton Rouge, La.
R. E. Blouin, M. S., assistant director, Audubon Park, New Orleans.

J. G. Lee, B. S., assistant director, Calhoun.
S. E. McClendon, B. S., assistant director, Baton Rouge.
Fritz Zerban, Ph. D., chemist, Audubon Park, New Orleans.
H. P. Agee, B. S., chemist, Audubon Park, New Orleans.
J. A. Hall, Jr., B. S., chemist, Audubon Park, New Orleans.
A. E. Dodson, farm manager, Audubon Park, New Orleans.
James K. McHugh, secretary, Audubon Park, New Orleans.
G. D. Harris, M. S., M. A., geologist, Baton Rouge.
J. E. Halligan, B. S., chemist, Baton Rouge.
H. L. Green, B. S., chemist, Baton Rouge.
J. C. Summers, B. S., chemist, Baton Rouge.
W. G. Taggart, B. S., chemist, Baton Rouge.
Roger P. Swire, B. S., treasurer, Baton Rouge.
A. P. Kerr, B. S., chemist, Baton Rouge.
Wilmon Newell, M. S., entomologist, Baton Rouge.
F. H. Burnette, horticulturist, Baton Rouge.
H. R. Fulton, M. S., plant pathologist, Baton Rouge.
L. O. Reid, farm manager, Baton Rouge.
T. I. Watson, farm manager, Calhoun.
E. J. Watson, horticulturist, Calhoun.
J. G. Lee, Jr., B. S., charge of feeding experiments, Calhoun.
Financial Statement.

The following is a statement of the receipts and expenditures of Stations during the year July 1, 1905, to June 30, 1906:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cr.</th>
<th>Dr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatch Fund</td>
<td>$15,000.00</td>
<td></td>
</tr>
<tr>
<td>Received from United States treasurer for Cr.</td>
<td></td>
<td>$15,000.00</td>
</tr>
<tr>
<td>By salaries</td>
<td>$14,105.16</td>
<td></td>
</tr>
<tr>
<td>Publications</td>
<td>887.34</td>
<td></td>
</tr>
<tr>
<td>Contingent expenses</td>
<td>7.50</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$15,000.00</td>
<td>$15,000.00</td>
</tr>
</tbody>
</table>

We, the undersigned members of the Board of Agriculture and Immigration, to whom is entrusted the disbursement of the above funds, do hereby certify that we have examined the accounts of the Experiment Stations of the Louisiana State University and Agricultural College for the fiscal year ending June 30, 1906, and have found the above classification to be correct, and the receipts for the time named are shown to be fifteen thousand dollars, and the corresponding disbursements are fifteen thousand dollars, for all of which the proper vouchers are on file, and have been examined by us and found correct.

(Signed.)

Charles Schuler
Commissioner of Agriculture and Immigration

Henry L. Fuqua
Vice President Board of Supervisors and Ex-Officio Member of the Board of Agriculture.
ADAMS FUND.

As per Act of Congress, approved March 16, 1906:

Received from the treasurer of the United States for the year ending June 30, 1906...

$5,000.00

By salaries ...................................................... $2,164.14
Labor .......................................................... 476.65
Postage and stationery ....................................... 48.90
Freight and express ......................................... 12.35
Heat, light, water and power ............................... 291.30
Chemical supplies ........................................... 54.38
Seeds, plants and sundry supplies ....................... 80.22
Feeding stuffs ................................................ 394.66
Library ......................................................... 1.10
Tools, implements and machinery ......................... 168.79
Scientific apparatus ....................................... 387.82
Live stock ..................................................... 696.00
Traveling expenses ......................................... 9.40
Contingent expenses ....................................... 7.50
Building and repairs ....................................... 206.79

$5,000.00  $5,000.00

We, the undersigned members of the Board of Agriculture and Immigration, to whom is entrusted the disbursement of the above funds, do hereby certify that we have examined the accounts of the Experiment Stations of the Louisiana State University and Agricultural and Mechanical College for the fiscal year ending June 30, 1906, and have found the above classification to be correct, and the receipts for the time named are shown to be five thousand dollars, and the corresponding disbursements are five thousand dollars, for all of which the proper vouchers are on file, and have been examined by us and found correct.

(Signed.) CHARLES SCHULER,
Commissioner of Agriculture and Immigration.

HENRY FUQUA,
Vice President Board of Supervisors of the Louisiana State University and Ex-Officio Member of Board of Agriculture.
Supplementary Statement.

State appropriation ........................................ $15,000.00
Cash on hand July 1, 1905................................. 15,612.33
Refunded, not expended, Barrow & Flynn............... 550.00
Farm products ............................................. 3,385.33
Fertilizer fund, State Board of Agriculture........... 3,300.00
Miscellaneous ............................................. 32.26

By salaries ............................................... $ 1,517.75
Labor ..................................................... 6,007.52
Publication .............................................. 374.95
Postage and stationery ................................... 828.48
Freight and express ...................................... 295.06
Heat, light, water and power ............................ 1,797.42
Chemical supplies ........................................ 203.04
Seeds, plants and sundry supplies ....................... 1,742.37
Fertilizers ............................................... 406.85
Feeding stuffs ........................................... 1,200.52
Library ................................................... 972.50
Tools, implements and machinery ......................... 549.82
Furniture and fixtures ................................... 1,050.88
Scientific apparatus ..................................... 310.00
Live stock ................................................ 841.36
Traveling expenses ...................................... 506.85
Contingent expenses ..................................... 1,263.01
Miscellaneous ........................................... 287.60
Building and repairs .................................... 6,471.78
Balance cash on hand June 30, 1906 ................. 11,252.16

$37,879.92  $37,879.92

The receipts and expenditures of the Fertilizer Fund, through the Commissioner of Agriculture and of the Geological Survey, are examined by the same Board as the above accounts, have been approved, have been published in the Baton Rouge Times on the first of June and the first of December, 1906, sworn to by the Director of the Experiment Station and filed with the Auditor of State Accounts.

Respectfully,

W. R. DODSON, Director.