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Telephone: 412-268-2434

Email: huntinst@andrew.cmu.edu Web site: www.huntbotanical.org

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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

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* Average under irrigation included in "In Bearing" figures. † Counts. Pounds, etc. Use two lines for each farm. Show last year's figures in red.

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* Average under irrigation included in "In Bearing" figures. † Counts. Pounds, etc. Use two lines for each farm. Show last year's figures in red.

November 29, 1938		March Pen Windsor Pk. Windsor Pk. Suptce. Live Stock Totel Period o Month	Congreve Pk. Twick. Twick. Bushy Bushy Bolf Ney Tree Coshen Chosniz Park	NO. OF WEEKS FARM BERNARD LODGE	1940 CROP PERIOD COMMENCED:
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Fr. 223

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1187 - BANANAS - FOR PERIOD ENDED MOVEMBER 1939 FARM REPORT INCLUDING CULTIVATION, DEPRECIATION & PROPERTY LOSSES

						Cost p	cult.	MICHEL STREET, ST.	Cult.
District	Acres in Bearing	Mainten- ence U.S.Curr.	Hervest- ing U.S.Curr	Cult.Deprn. & Prop.Losses U.S.Curr.	Counts		Deprn. & P.Losses S.Curr.	Mtco.	Deprn. & P.Losses Curr.
St.Cath.	2,267	244,870.35	54,729.10	85,131,28	904,907	.309	2094	108.02	3".55
St. Thomas	485	37,648.26	3,192,77	14,321.67	94,890	.431	.150	77.63	29.32
TOTAL.	2,752	282,518.61	37,921.87	99,352.90	999,787	.321	.099	102.66	36,10

Farm cost includes treating "Leaf Spot" and "Panama Discess", which work out at \$.052 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

Kingston, JAMAICA November 30, 1939

Kingston,

December 2nd 1939

Dear Dr. Popence,

I hope Mrs Popenoe and yourself reached Guatemala City safe and sound. I feel sure you will both be very pleased to get settled down in your own home once again.

I spoke to Mr. Bradshaw with reference to keeping you fully advised on Leaf Spot happenings in Jamaica, and naturally he readily agreed. On the more important subjects he will sign the letters, but on the smaller subject which I know you will be interested in, I will do my best to keep you fully advised.

U. Theo McKay - I enclose a letter received the day after you left the island. I have not been able to see him for some time, but hope to next week.

E. G. Miles , Gosling River - The pump arrived at Morant Bay and the Board advised accordingly. So far the Board has not taken any steps to recall the "99" and issue a Drake & Fletcher Headland.

E. L. Allen - Equipment taken delivery of by him after waiting nearly a month. We have received a letter from him this morning complaining that he has not received his registration card for materials. We received a similar complaint during the week from David Roberts, Angels.

The Board are still very slow in issuing cards in spite of our looking after agreements and receipts for them.

P.E. Browne, Gook's Bottom - I noticed in the Gleaner that this property is advertised for sale. Very little was said about the land or benana cultivation, but spraying equipment, hose and guns formed the major part of the advertisement - a thing, I believe, which should have been left

unsaid.

Grieve is fully installed at Oracabessa and has been travelling around and visiting contractors with Blake Morris, until he becomes familiar with the districts etc., over there. He will commence inspections on the 4th.

Box came in from Christiana this morning looking the picture of health and a splendid example of Pauline's care and attention. The Spaldings growers feel that their noses have been put out of joint by their not having a supply depot, the same as the Christiana people. When we have more equipment issued in this area I will certainly take up this point with the Control Board on their behalf.

The inspection of cultivations is still very slow. Up to the present, since the new order was put in force, we have approximately 130 applications before the Board and only 30 approvals so far. The delay seems to be between the Control Board and this office, as the inspectors are covering the ground rapidly. We obtained authority during the week to issue on our recommendation the Friend Spray pump at Montego Bay for the use of Stanley Foster and his tenants, total agreage 70. I know Foster very well and I feel sure he will look after this machine and do a good spray job. I also saw Pocock in town during the week. Small cultivators in the West End are certainly against knapsacks. I think the knapsacks would not be so objectionable to them if there was no other equipment, but they seem to study equipment issued by the other companies and, naturally, when they compare ordinary pumps with knapsacks they see the difference right away.

Argles is still very cheeseparing, and only wants G.N. Turner, who has a large property in St. Catherine, to be supplied with a Knapsack on account of his saying that for the present he only wanted to

spray 12 acres. Turner usually has 100/150 acres in constant cultivation. Our recommendations were for a Barrel Pump to spray 17 acres, which I expect we shall eventually get from the Board.

Growers in the country are still very busy cleaning up their cultivations. Many of the large properties have not got all the storm damage chopped up yet, but promised to make a start in spraying as soon as this has been done.

McNeil has still not sprayed. Scarlett's application for a Hardie 99 has been approved.

The Control Board has requested us to take over the balance of equipment which we are entitled to from Reginald Aitken's store at the railway, as they require this shed for spray mateirals storage purposes.

Well, Dr. Popenoe, I am afraid I will have to end now. You must excuse this letter as it is rather rambling, jumping from one subject to another, but as you remember how our office is on a Saturday morning when we have many visitors and endeavour to do a full day's work in a half day. Mrs. Sharpe send her warmest regards to Mrs Popenoe and yourself and is, like myself, looking forward eagerly to the day both of you return. There have been several amusing mistakes in the Gleaner recently. I attach one of the badly worded articles; the other I am afried is too shocking to send through the post.

The Government is now operating a small broadcasting station in Jamaica, and advising the people of the maximum selling prices of food etc., and short talks on agricultural matters. Perhaps this will be an excellent opportunity for planters to be advised to keep on spraying etc., in connection with the Government Leaf Spot Campaign.

Love from Me - 73, With warmest personal regards,
Yours very sincerely

UNITED FRUIT COMPANY

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION KINGSTON, JAMAICA

December 2nd 1939

Dear Dr. Popence,

Here are one or two things that have cropped up since you left which might be of interest to you.

Enclosed are rainfall reports for the weeks ending November 25th and December 2nd. As you will notice, last week we again had very heavy rains throughout the island, particularly in the East End, St. Catherine, Central Parishes and north coasts; roads were very badly scoured, but fortunately there were no further fruit losses. Temperatures recently have been running low and weather conditions in general appear to have made a change. It will be very interesting watching the behaviour of cercospora from now onwards, especially in the higher altitudes.

Growers have done very little spraying for the month of November owing to weather conditions, but expect to make an early start now the weather is more settled. H. G. DeLisser, for example, was not able to do any spraying. Percy Lindo's properties were also not sprayed, which now makes three months since they were last done. We were able to spray in St. Catherine only 1,042,25 acres, and nothing in St. Thomas.

The Legislative Council held a special session and after considerable discussion, principally by the Elected Members of St. James and St. Catherine, the Council voted £100,000. to aid distressed banana planters and fishermen, and a like amount to agriculturists to encourage

them in food production.

The loans to banana planters will be made through a network of fifty-eight offices of the Agricultural Loan Societies. The larger planters will obtain loans direct from the Banana Industry Aid Board, and rates of interest to be charged, in the case of personal security, will be 7½% and 6% in landed security. The Elected Members tried to get a set amount to be loaned per acre but the Banana Industry Aid Board rightly ruled that each case should be treated on its own merits. The honourable member for St. James stressed that the amount per acre on this occasion should be higher as banana planters now had to expend from £2.15.0., to £5. for spraying. This added expense they had not to deal with when considering applications for loans for restoring storm damaged cultivations previously.

I feel that when this money is put into circulation there is some likelihood of certain of the more progressive planters concentrating on spraying. Recently there has been a drop in price of fruit of 9d. per count; this, I am afraid, will make some of the smaller planters slow up in spraying.

At the request of the Control Board Mr Munro submitted a very interesting report on the Hardie No.6 Barrel Pump. He considers this pump to be very suitable for the type of operator who will be using it. In comparison with the Edwinson pump the advantages are many, particularly in that there are few working parts to get out of order and any repairs can be done quickly, easily and cheaply. He estimates the life of this pump to be thirty months. The approximate cost per month of the Edwinson pump, based on an estimated life of twenty-one months, is $9/3\frac{1}{2}d$, and that of the Hardie No.6 $2/0\frac{3}{2}d$. These costs are exclusive of hose or guns.

Mr. Reginald Aitken advises that he is getting down some smaller editions of the Hardie No.6 Barrel Pump; they are known as the " $4\frac{1}{6}$'s" and

cost approximately \$8. When these arrive we will have them thoroughly tried out by Messrs. Butler and Munro. These pumps may possibly supersede the knapsacks. Unfortunately many growers in the Central Parishes and West End of the Island are kicking pretty badly at the Knapsacks, which we considered to be the most suitable type of equipment when they were ordered. We are endeavouring to get the Board to approve of the issue of four Drake & Fletcher Headlands to be used in conjunction with the Knapsacks under the Blanket System on the Montego Bay Line, which Clifford DeLisser operates.

The Control Board recently have come across quite a number of cases where contractors do not wish to spray owing to the storm. The Board have asked us to make certain that contractors would be willing to spray if issued with equipment now, before carrying out the necessary inspection.

A rather unfortunate article appeared on the front page of the "Gleaner" mentioning that the Leaf Spot officers have been informed by the Control Board to cease checking up on properties for incidence of Leaf Spot throughout the Island. Mr Croucher has advised me this article is entirely wrong and had it contradicted this morning.

Up to the present we have not been able to obtain the actual expenditure figure for equipment and materials received from the Board, but we have been promised the correct figure in a few days' time.

Recently the Board has been receiving fairly heavy shipments of copper and lime, and are now hard-pressed for storage space.

The Perenox with the special filler, supplied free of cost by the I.C.I., is now in the Island and will be reported on by Mr Butler in due course. I will endeavour to keep you fully posted on matters in which I know you will be interested.

With kindest regards,

Sincerely yours,

Dr. Wilson Popenoe c/o The United Fruit Company Guatemala City Guatemala, C.A.

MAXIMUM AND MINIMUM TEMPERATURES AND RAINFALL - W/E NOVEMBER 25th 1939

	The Parket of the last of the	THE PERSON NAMED IN	The same of the same of	THE PERSON NAMED IN				1		
Station	Dist.	Temperatures - Week	Min.	Rai	Rainfall k Month	Rain:	Rainfall - Period through November 1939 1938 1937 1936	10d throu	gh Novemb	1935
Green Island	1	88	76	2.40	11.44	102.64	71.50	82.71	80.30	64.27
Montego Bay Valley	10	90	72	1.90	12.56	71.21	66.02	101.26	92.75	91.03
Catadupa	CS	88	68	2.56	26.45	126.99	79.60	114.07	104.44	93.54
Balaclava	4	88	66	5.09	20.79	96.44	56.37	87.61	93.11	71.47
Spaldings	CI	83	62	9.68	34.02	83.01	55.43	62.19	103.39	72.12
St. Ann's Bay	6	95	71	11.37	25.68	61.84	38.57	65.20	55.15	46.00
Oracabessa & Pt. Maria	7	98	73	9.52	18.56	56.37	52.49	73.06	65.14	58.42
Highgate	CO	90	70	9.60	27.26	70.65	50.52	66.14	70.48	58.28
Troja & Riversdale	9	69	69	11.12	30.43	65,48	52.73	71.07	70.08	72.83
Vere	10	88	68	10.72	31.39	42.83	32.07	35.76	51,42	29.00
Lower St. Catherine	H	92	88	19.45	40.35	57.85	28.42	35.53	48.56	30.29
Portland	12	83	74	.26.85	45.14	101.84	102.68	125.02	150.68	129.69
Albion	13	84	74	10.21	38.17	51.98	33,60	45.05	54.38	44.21
Morant Bay	14	86	72	11.10	50.58	81.02	41.78	61.39	65.22	67.19
Bowden	5	88	73	6.50	28.05	65.73	40.52	76.31	76.43	72.07
				9.86	29.25	75.68	53.48	73.49	78,50	66.69
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MAXIMUM AND MINISTRY TEMPERATURES AND RAINWALL - W/K DROGHESS 2nd 1959

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81.25	.23	72	84	14	Morant Day
51.98		72	88	13	Albion
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57.85		64	90	H	Lower St. Catherine
42.83	,	66	88	10	Vere
70.70	57	67	93	9	Troja & Riversdale
77.65	7.00	68	92	00	Highgate
57.37	1.00	77	96	7	Oracabossa & Pt. Maria
64.69	2.85	70	94	0	St. Ann's Bay
83.81	.80	61	72	cs	Spaldings
97.12	. 68	66	90	4	Ralaclava
127.23	- 24	70	88	Ca	Catadupa
72.11	.90	68	90	20	Montogo Bay Valley
103,84	1.20	74	88	1	Green Island
Reinfell Week Forlod		Temperatures		Dist.	Stations



UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

> JAMAICA DIVISION Kingston, JAMAICA

> > 18th December, 1939.

VIA AIR MAIL

Mr. A. A. Pollan, Executive Vice-President, United Fruit Company, Mass. Boston.

Dear Mr. Pollan:

I forward herewith copy of letter to me from Mr. Butler in regard to the proposed employment of a Mr. Clifford H. Meredith for 2 or 3 days weekly for the study of Sigatoka. I also enclose letters from Mr. Meredith giving his qualifications. Dr. Popence met Mr. Meredith in Jamaica and put him in touch with Mr. Butler. Mr. Meredith has since been working with Mr. Butler and they have succeeded in producing the conidial form of Cercospora Musae in pure culture and we believe very valuable information can be secured by having Mr. Meredith persue these studies.

I have personally interviewed Mr. Meredith, who impresses me very favorably indeed. In order to secure his services for the 2 or 3 days per week we will have to pay him £3, per day. In addition to this we will have to purchase about \$200.00 worth of laboratory equipment.

In my opinion the expense involved would be more than justified and I would request Mr. Turnbull to telegraph you the approval of himself and Messrs. Popence and Dunlap or otherwise. If after hearing from them you approve this expenditure, will you please advise me as soon as possible?

Yours very truly,

Madshaw

Copy to Mr. W. E. Turnbull

Dr. W. Popenos V

Dr. V. C. Dunlap

Enclosures.

Happy Grove School

Hector's River, P.O.

Jamaica, B.W.I.

December 16, 1939.

Mr. Thomas Bradshaw United Fruit Company Kingston.

Dear Mr. Bradshaw:

After our conference I talked with Alfred F. Butler as you suggested. We discussed the following points:

- The Cercospora Leaf Spot of Bananas is established in Jamaica.
- 2. The Cercospora Leaf Spot can be controlled by spraying.
- There needs to be a careful study of the organism Cercospora musae which causes the disease.
- Our efforts should be directed toward a lower cost effective control.
- 5. A Low Power Binocular Microscope is needed at the Cedar Grove Experiment Station.

I have had fifteen years of farming experience before I entered Plant Disease work. On September 1, 1938 I resigned from the staff at Iowa State College and became Science Master at Happy Grove School which position I hold at present.

Five years ago I isolated the Panama Disease organism at Highgate in St. Mary and used these cultures to work out a thesis on the growth of the organism through the soil.

I have been closely associated with the control of Cercospora Leaf Spot of Sugar-beets in Northern Iowa. We were able to get control, a higher per cent sugar content and greater tonage per acre.

At present I can give two days per week to plant disease work at Cedar Grove. I will also be conducting similar work in my own laboratory at Happy Grove School. I should receive £2:0:0 per day with £1:0:0 per day traveling expense for work at Cedar Grove Experiment Station.

If this arrangement is satisfactory Butler can telegraph me and I will start Wednesday December 20.

Yours truly,

(Signed) Clifford H. Meredith.

- 1. Name: Clifford H. Meredith
- 2. Age: 44. Date of Birth: March 29, 1895.
- 3. Place of Birth: Lynnville, Iowa, U.S.A.
- 4. Married; No children.
- 5. Race: White (English and Welsh decent)
- 6. A member of the Society of Friends (Quaker)
- 7. Education:
 - (a) Lynnville High School
 - (b) B.Sc. and M.Sc. from Iowa State College at Ames, Iowa.
 - (c) Two years credit toward a Ph.D. in Plant Pathology with minors in Soils and Zoology.
- 8. Publications:
 - (a) A Sugar-beet Root Rot caused by Aphanomyces cochlicdies.
 - (b) Pythium de baryenum and Other Species Cause Alfalfa Seeding Damping off.
 - (c) Phycomycetas in Iowa Soil.
 - a, b, and c present at Indianapolis, Indiana, Dec. 27-30, 1937.
 - (d) Thesis: The Growth of Fusarium Oxysporum Cubense in the soil.
- 9. Appointments:
 - (a) Research Fellow Iowa State College
 - (b) Research Graduate Assistant
 - (c) Research Assistant
 - (d) Science Master at Happy Grove School, Hectors River.
- 10. References:
 - I. E. Melhus, Botany and Plant Pathology, Ames, Iowa. Carl J. Drake, State Entomologist, Ames, Iowa.
 - F. B. Smith, University of Florida, Gainsville, Florida.

Happy Grove School,

Hector's River, P.O.

Jamaica, B.W.I.

December 16, 1939.

Dr. Vining C. Dunlap Research Department, United Fruit Company La Lima, Honduras.

Dear Dr. Dunlap:

Mr. Bradshaw suggested that I make some statement by way of introduction.

After fifteen years of farming in Iowa I returned to college and received a B.Sc. with a major in Botany at Iowa State College at Ames. For my M.Sc. I majored in Plant Pathology with Plant Physiology and Biochemistry as supporting subjects. I continued my work and have two years credit toward a Ph.D. with a major in Plant Pathology and minors in soils and Zoology.

My research work has mostly been/Pythium, Phytophthora, and Fusarium oxysporum cubense. You will find abstracts of these papers in Phytopathology give at Indianapolis in 1937.

The Cercospora Leaf Spot of Bananas is taking the centre of the stage in Jamaica now. I would like to receive any comments that you have to make on this problem.

Yours truly

(Signed) Clifford H. Meredith.

COPY.

Happy Grove School,

Hector's River, P.O.,

Jamaica, B.W.I.

December 16, 1939

Dr. Wilson Popence Tela, R.R. Co. La Lima Republic of Honduras.

Dear Dr. Popence:

At your suggestion Mr. Butler and I tackeled the problem of conidia production of Cercospora musae in pure culture. The conidia were first observed in culture on December 5 we used banana leaf agar.

Enclosed you will find a copy of "The production of Gercospora musae conidia in banana leaf agar".

Please send along any suggestions that you have for Cercospora work.

Yours truly,

(Sgd) Clifford H. Meredith.

1

THE PRODUCTION OF CERCOSPORA MUSAE CONIDIA

IN BANANA - LEAF AGAR

Clifford H. Meredith, Science Master, Happy Grove School, and Alfred F. Butler, Agronomist in Charge, Cedar Grove Experimental Station, Research Department, United Fruit Co.

The work with <u>Cercospora musae</u> has been retarded due to the difficulty experienced in producing conidia by artificial means. This difficulty has, also, been experienced in the study of other varieties of Cercospora. Normal conidia of six species of Cercospora were produced in pure culture by Nagel with potato-dextrose and sugar-beet-leaf agar.

The medium used to produce conidia of Cercospora musae consisted of a section of banana leaf 8" x 12" finely cut and boiled with 500 c.c. of distilled water for 5 minutes. This water was drained off and used to make up a litre of solution by adding distilled water and 2 per cent melied agar agar (Nagel used 1.2 and 1.5 per cent). The water was distilled in Pyrex glass and copper was not allowed to come in contact with the medium.

The conidia for seeding were obtained from banana leaves with typical Cercospora leaf spots that were held under moist conditions for 15 to 20 hours. A loop of steril distilled water was brushed over the spot and transferred to the tube before slanting. The tubes were held in a battery jar with a glass lid.

Black spots appeared after four days that proved to be a mass of dark mycelium on which were many conidia. Conidia were observed each day for five days. In some cultures conidia were not observed until the fifth and sixth day after seeding.

Literature cited: Clatus M. Nagel, Conidial production in species of Cercospora in pure culture, Phytopathology, October 1934, Vol. XXIV, No. 10, pp. 1101-1110.



UNITED FRUIT COMPANY

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

PERSONAL

JAMAICA DIVISION KINGSTON, JAMAICA

December 21st 1939

Dear Dr. Popence,

Very many thanks for your interesting letter of the 16th instant. I intended writing you at the end of last week, but I have been exceptionally busy lately; owing to Platt being off the island for a couple of weeks I am doing my best to carry both jobs.

In case you have not heard, I am very pleased to advise you that Mr Bradshaw was married yesterday over in St. Ann's. The entire staff are very pleased about this.

To get down to business, I enclose the Rainfall Reports for weeks ending the 9th and 16th instant. You will notice that now the heaviest rain has been falling in St Ann's, Oracabessa, Port Maria and Portland areas. I mentioned in my last letter, the weather has certainly made a decided change. The early mornings are very cold, so I do not think Leaf Spot will progress very much during the winter months. Unfortunately some planters have an idea in their heads now, as they do not notice heavy infection in their fields, that the recent storms have blown away all the leaf spot, forgetting entirely that all the badly infected trees were blown down. It will be a different story in six months' time.

I am afraid when the time comes for E.G. Miles to inaugurate the Drake & Fletcher you and I will be too old to enjoy it, besides, our beards will get in the way of the pump handles. We advised the Board some time ago that the Drake & Fletcher was at Morant Bay awaiting delivery to Mr Miles by their representative, and not hearing anything from the Board I reminded Mr. Croucher the other day about it, but so far nothing has been done. I am glad to say Weyrauch's application has been approved for a No.6 Barrel pump. The Board has authorised the issue of 29 kegs Perenox per month for the entire Bernard Lodge Farm. We really asked for 31 kegs; if we find we cannot get through with 29 we will certainly ask for an increase. The Board readily approved of the issue of 4 Drake & Fletcher Headland Pumps to be used under the Blanket System from Stonehenge to Anchovy. Mr Bradshaw was also very keen that Pocock should have these. C.H. Scarlett's application as been approved for a Hardie 99. Grieve and Townsend visited Mount Olive and Pear Tree Grove last Friday and jointly demonstrated the whys and wherefores of equipment maintenance and correct spraying technique. Our friend McNeil has at last decided to commence spraying, incidentally after Mr. Bradshaw gave him a much needed jacking up. The amended account came in from S.C. Black & Co., for £158.5.0., covering 3 "Friend" units complete. The Control Board is sending their cheque direct to Black.

The Board has approved of the purchase of 200 barrel pumps for our use. They are still doing their best to obtain these from England, but will get them from other sources if the quantity and type are not available in the

United Kingdom. Mr Croucher believes that most of them will come from the States, and will be in Jamaica during March 1940.

Mr. Aitken has not yet received the sample shipment of "4\frac{1}{2}" Barrel Pumps, but he expects they will be in over the week end and will cost approximately £3.14.0., including 50ft of 2001b pressure hose, galvanised iron 1/4inch pipe and shutoff cock. I will give this pump a good trial at Watson Grove, and will advise you further of the findings of Messrs. Butler, Munro and myself. Perhaps this may be the solution to a knapsack outfit, which is becoming more and more disliked every day.

Messrs. Carcia and Robertson have applied for a patent covering their "invention or discovery of composition of matter for the cure and/or treatment of Leaf Spot and other plant diseases or infections". A hopeless proposition, but they are still trying to convince the unintelligent what a wonderful cure they have.

No doubt you have already heard from Mr. Butler advising you of the successful achievement of Mr. Meredith and himself in producing the conidia of cercospora in pure culture. This is certainly very interesting, and opens the study of cercospora from an entirely different angle.

During November the acreage sprayed was very disappointing -

Montego Bay Survey	1,660	acres
Bowden	4	17
St. Catherine & Vere (our contractors)	706	11
Kendal	11	
Total contractors	2,381	
Our farms, including week ending		
December 2nd	2,402	
Grand Total	4,783	

Most of our contractors have been concentrating on cleaning up their cultivations after the storms. Present indications are that the December spray figures will be much better.

Up to now your friend Mrs Crooks has not been able to give us the actual expenditure on equipment and spray materials to the Company's contractors up to the 31st October. So far she thinks that the actual expenditure for equipment up to October 31st is £7,690. 1. 2. Cost of materials supplied to follow.

The Control Board has forwarded about 2,000 application forms for materials to us to be distributed amongst our contractors: they have done the same with the other two companies and all the station agents who issue materials. The growers have to state that they are desirous of obtaining so much materials; that they have so many pounds of copper sulphate and lime or Perenox left from the previous issue. In event of their not having sprayed the entire acreage of banana cultivation during the last three or four weeks they must state why. Mr Croucher issued these forms without obtaining our comments beforehand. I have since explained to him that at least 75% of our contractors will not be able to understand or fill up the forms, which will mean that our storekeepers or station agents will have to fill up a complete set of forms on each occasion that a contractor wants to draw materials. He has also pointed out that we can not refuse to deliver materials to a contractor when he applies for same, even if his form indicates that he has a considerable quantity of materials on hand

from the last issue. Personally, I do not see these forms will serve any useful purpose unless they are properly scrutinised by some member of the Control Board before deliveries are made. I believe it is the intention of the Control Board to watch the larger growers more carefully.

Mr Croucher is very pleased that you have arranged to forward tung oil seeds (Aleurites trisperma) for him.

Well, Dr. Popence, I shall have to finish this sermon. I have given you the points which I think will be of interest to you as they have cropped up. I have given your message to Mrs Sharpe, who has a very much brighter face now that Mass Vivian has returned from his pleasant (!) sojourn, where he met some friends of yours.

By the way, the fruit shipments recently have been very poor, and are likely to be for some time to come - one English ship for the entire island every two weeks. Personally, I do not believe Jamaica will be able to produce more than 12 million stems for 1940, as the shipments will not start to increase to any considerable extent before May of next year at the earliest.

Mrs Sharpe joins me in wishing Mrs Popence and yourself a very happy Christmas and prosperous New Year.

Yours very sincerely

P.S. U. Theo McKay has been on the sick list since last week, but is progressing nicely. I will give him your message.

I do not think that you put your foot into anything while you were in Jamaica - anything you said or did was done in a very nice diplomatic way, and I know people in and out of the Company appreciated fully that you were here to help them in their many problems, and knew that you could back up any opinions expressed by actual facts.

The Board has recently advised us that if a contractor does not draw his full allotment of materials during the month, he cannot make up any shortage in subsequent months. I think this is a very wrong move because contractors now, even if they do not spray, will draw their full quantities each month, and perhaps in a few months time be able to supply the Board with materials. During November our contractors certainly did not draw materials when they were not spraying. The Board also complains that growers, who are not even registered, have recently been supplied with materials - this certainly does not refer to depots under our control. According to Mr Sharp Springvale Ltd is still without spraying materials.

MAXIMUM AND MINIMUM TH	TEMPERATURES AND	AND RADUPALL - W/E	- W/E DEC	DECEMBER 16th 1939	th 1939
Stations	Dist.	Temperatures Max. Min.	Win.	Week	Reinfell Week Period
Green Island	1	98	74	.48	104.47
Montego Bay Valley	50	88	88	.86	72.97
Catadupa	CA	882	65	. 28	127.67
Belaclava	4	88	62	.83	97.95
Spaldings	СП	80	64		84.99
St. Ann's Bay	61	96	73	1.27	68.11
Oracabessa & Pt.Maria	7	98	72	.63	59.55
Highgate	CO	90	8	2.37	82.67
Troja & Riversdale	9	85	74	.77	74.64
Vere	10	86	67	.10	42.93
Lower St. Catherine	出	89	67	.06	57.97
Portland	12	820	70	1.67	107.32
Albion	13	88	72	1	51.98
Morant Bay	14	84	77		81.70
Bowden	15	84	73	.90	66.78
				.68	78.73
				101010	Section Section 100

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WAXTER WINTER THE WINETXAM	TEMPERATURES AND RAINFALL - W/E DECEMBER 9TH 1939	AINFALL -	W/E DECEM	BER 9TH	1939	
Stations	Dist.	Temperatures		Rainfall Week Period	Period	
Green Island	-	84	72	.15	103.99	
Montego Bay Valley	50	88	70		72.11	
Catadupa	CA	86	88	.16	127.39	
Balaclava	4	88	64	1	97.12	
Spaldings	CT	84	62	1.18	84.99	
St. Ann's Bay	6	98	71	2.15	66.84	
Oracabessa & Pt. Maria	7	97	73	1.55	58.92	
Highgate	CO	90	68	2.65	80.30	
Troja & Riversdale	9	91	67	3.17	73.87	
Vere	10	88	66		42.83	
Lower St. Catherine	F	89	64	.06	57.91	
Portland	12	85	70	1.88	105.65	
Albion	13	88	72		51.98	
Morant Bay	14	84	72	.45	81.70	
Bowden	15	87	72		65.88	
				*89	78.05	
				-	- Constitution of	

Copy of letter from Mr. A. McIlwaine to Mr. Reginald Aitken.

Montego Bay

December 19th 1939

Dear Mr. Aitken,

Many thanks for your letter of December 13th., and the improved strainer.

I tried the strainer this morning and was very pleased with what I saw. As you suggested I tried it after taking out the nozzle screws. It may be my imagination but it seemed to me that the rod with the strainer gave a better spray than the other one. It appeared to me that the Bordeaux atomised as soon as it was clear of the disc, and not about a foot away, as was the case with the ordinary spray gum.

Being able to do away with the nozzle screws is a big advantage. It has been my experience here and in St. Catherine, that Spraymen either cannot be bothered cleaning the screws or damage them to such an extent that they are useless as strainers. The improved strainer you sent is almost fool-proof and very easy to clean.

I have left the strainer with Mr Croskery of Hazelymph Farm to try out for a few days. He is very impressed with what we saw this morning, and is thinking of ordering half a dozen. If you have a stock of them perhaps you would get in touch with him at the address mentioned, Cambridge is his P.O.

I am sorry the Estate Pump has given you cause for worry. We tried to get the Board to buy it for Mr. Mills, but they turned this down.

Mr. Mills is very anxious to keep the pump, and has promised to get in touch with you with a view to buying it.

Yours sincerely,

(Signed) A. McIlwaine

de

Kingston. Jamaica.

22nd December, 1939.

Mr. W. E. Turnbull Dr. W. Popenoe Dr. V. C. Dunlap

The attached was omitted in error from my letter of 18th instant to Mr. Pollan with a copy to you.

Cedar Grove Experiment Station, Gregory Park P.O.

December 19th, 1939.

Mr. Bradshaw:

As you are aware we have recently been able to produce the conidial form of Cercospora musae on artificial media at Cedar Grove.

This opens up the possibility of a more careful study of the life history of Cercospora musae than has hitherto been possible. In the past, although various research workers have been able to take conidia from the black spots that appear on the banana leaf and grow them on artificial media, the fungus has just gone on growing and refused to produce more conidia in culture. Since the conidia are the means by which the fungus spreads itself around the banana areas this is really the most important part of its life history, and if more were known regarding the conditions which cause the production of conidia and the conditions which permit the conidia to attack the plant it is not unlikely that some saving could be made on our control program.

Why we have been successful where others have failed is probably sheer luck.

By growing the fungus in pure culture and obtaining conidia for investigational work from pure cultures the entire life history of the organism form conidia to conidia can be observed, and probably definite information obtained of the various conditions which either check its growth or cause the sudden flare up that we observe at certain times of the year. For example, it can be cultured under varying combinations of temperature and humidity.

From the Company's standpoint there appears to be at least three reasons why a more complete laboratory study should be undertaken.

- (1) In order to satisfy ourselves that the control measures we have used successfully cannot be applied with greater economy.
- (2) In order to anticipate with greater accuracy the performance of Cercospora in any new areas the Company may contemplate planting in the future.
- (3) In order to produce as a Fruit Company publication the best and most complete scientific paper that can be published regarding an organism which threatened the industry with quick destruction and which was successfully combatted.

Considering the wast expenditures of money that we have been forced to undertake to combat this pest, we know remarkably little about it and we have been able to observe its performance only under the conditions of temperature and humidity that have prevailed since 1935. Personally I should like to know what is likely to happen if we have 3 or 4 very wet or very dry years consecutively. We might get some idea of this from a more detailed observation of the organism.

Yours sincerely,

(Signed) Alfred F. Butler.

April 25th 1940

Mr. T. Bradshaw:

In accordance with a request received from Boston I am offering an independent estimate of production for the remaining eight months of this year, and for the period May 1st 1940 to April 30th 1941. These estimates are based entirely upon what I have seen during the past week. I have visited practically all the important centres of production, and have tried to keep in mind the following factors:-

- (1) Extent of recovery from the storms of last autumn
- (2) Extent of abandonments whether due to Leaf Spot damage or other causes
- (3) Relative extent of new plantings in 1939 and 1940
- (4) Progress of Leaf Spot throughout the Island

The following is my estimate for total production during the year 1940 - this includes actual shipments to date, of course.

No. Weeks	Average per Week	Total
5	100,000	500,000
4	125,000	500,000
4	175,000	700,000
5	225,000	1,125,000
4	250,000	1,000,000
4	325,000	1,300,000
5	325,000	1,625,000
5	275,000	1,375,000
ths 36		8,125,000
oril 17		785,600
		8,910,600
	5 4 4 5 4 4 5	5 100,000 4 125,000 4 175,000 5 225,000 4 250,000 4 325,000 5 325,000 5 325,000 5 275,000

I have not attempted to estimate by weeks or months total production during the first four months of 1941, but I am allowing slightly more than four million stems on my estimate for the period.

We therefore have the following:-

Estimated total production May 1st 1940 to April 30th 1941 - 12,500,000 stems

The present situation throughout the Island, as I see it, can be summarised as follows:-

St. Catherine is coming back rapidly; you know all about this.

St. Thomas and Portland impressed me as in promising condition. The fruit looks good and Leaf Spot is making few and localised gains. This region I feel should give a good account of itself during the next twelve months.

St. Mary is definitely backward. Influenced in large part by the severe drought of last year, recovery is proving to be slow. In Lower St. Mary the situation as regards Leaf Spot does not appear to be grave, but little fruit has shot as yet and I cannot see much of a crop coming off before September. In Upper St. Mary Leaf Spot is doing more damage.

Christiana & Kendal area has begun to pick up during the past few weeks,
but few plants are shooting as yet, and, taking the altitude into
consideration, I cannot see much fruit before October. Leaf Spot
infection is abundant in this area but from experience we know
that there is a possibility of its causing considerably less
damage than in some other parts of the Island.

Montego Bay Valley, Kenilworth and a number of other sprayed plantings in the west end are coming back in good shape, but Leaf Spot has taken heavy toll in most of the smaller plantings, many of which are in a semi-abandoned condition. All in all, I feel we must expect a heavy drop in production throughout the west end.

I understand that my estimates are lower than some others which have recently been made. In making them low I am to a certain extent gambling on this year's weather. We have had two dry years; these have greatly diminished the extent of Leaf Spot damage in many areas. If this year is as dry as these last two my figures will probably prove to be too low, but mathmatically the chances are on my side. With the exception of the eastern end of the Island and sprayed areas elsewhere, there is an immense amount of Leaf Spot infection throughout. Given a few weeks of the right kind of weather I cannot see what can prevent extensive damage to thousands of acres of bananas which have so far been able to get by with relatively small decrease in number of stems, though they have suffered severely as regards quality of fruit.

Panama Disease has been taken into account, but I cannot see that it is responsible for any large reduction.

Original Signed

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Kingston,

April 29th 1940

Mr. A.F. Butler:

Following is the estimate for total production of calendar year 1940 which I have submitted to Mr. Bradshaw as of April 25th:-

Month	No.Weeks	Average per Week	Total
May	5	100,000	500,000
June	4	125,000	500,000
July	4	175,000	700,000
August	5	225,000	1,125,000
September	4	250,000	1,000,000
October	4	325,000	1,300,000
November	5	325,000	1,625,000
December	5	275,000	1,375,000
Total 8 months	36		8,125,000
January - April	17		785,600
Total Year			8,910,600

On January 2nd 1941, if total shipments for the calendar year 1940 have not exceeded 9,000,000, you are authorised to buy one only hat, best British make, and pass the bill to Mr. Archer to be charged against my account at Tela.



UNITED FRUIT COMPANY

GENERAL OFFICES. ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION Kingston, JAMAICA

1st May, 1940.

VIA AIR MAIL

Mr. A. A. Pollan,
Executive Vice President,
United Fruit Company,
Boston. Mass.

Dear Mr. Pollan,

I refer to previous advices in regard to the Leaf Spot Campaign here. The Government Board of Control has now made a ruling that, effective May 1st, they will only issue materials free of charge to growers sufficient for 75 gallons of Bordeaux mixture per acre on the basis of 5-5-50.

The Board requested the three Companies to arrange to supply any growers with additional materials who required same. After discussion with the Board it has been arranged that they will issue this additional material to growers upon an order from the representatives of the Companies, it being understood that we will first collect cash from the growers and later replace all supplies issued by the Board under such authorization. The reason for handling in this manner is that the Legislative Council refused to pass a law authorizing the Control Board to sell materials to the growers. As a matter of fact very few growers will use more than the quantity allowed to them by Government free of cost.

In order that we may collect the proper amounts for any issues made to the growers I would appreciate it if you would keep me advised weekly by air mail as to current prices for Copper Sulphate and Hydrated Lime. It is our intention to collect from the growers on the basis of cost of materials on hand at that time or current market quotations, whichever is higher.

Yours very truly,

Madshaw

Copy to Mr. W. E. Turnbull Dr. W. Popence

Dr. V. C. Dunlap

KINGSTON,

May 6th 1940

Philip Sherlock Esq., Institute of Jamaica, Kingston

My dear Mr. Sherlock,

During our stay in Jamaica Mrs. Popenoe and I have taken a keen interest in the general subject of Spanish remains. I take the liberty of offering the following comments for such interest as they may possess:

The old buildings on Miranda Hill, just off the main road between the hospital and the down-town part of Montego Bay, seem to have received little attention at the hands of historians and I respectfully suggest that they are worth further investigation. In his "Historic Jamaica", Frank Cundall merely states "On Miranda Hill are Spanish remains". It was this remark which led us to visit the spot. There are walls here which seem to have been those of a fort, whether of Spanish or British construction I do not know; and there is a long, low building, roofless and in a ruined condition, which because of several architectural features seems to me definitely Spanish. If this building really was constructed by the Spaniards, it is one of the most interesting historic monuments in the Island. With your wider knowledge of these matters, you will doubtless be able to say just what are the facts. If we are correct in believing the building to be Spanish, would it not be worth while to start some sort of movement to have the place cleaned up, and the ruin brought to the atten-

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA -tion of interested visitors? It is very conveniently located, and it is our experience in Latin America that travellers are keenly interested in this sort of thing - not to mention residents, who should be the ones to profit most from any effort to preserve historic monuments.

Of still greater interest to us have been the remains at Seville Estate, near St. Ann's Bay. The carved stones which have been dug up within the past few years and which are now exhibited near the Overseer's house are beautiful examples of Spanish art, and worthy of much attention from all those interested in the history of Jamaica. Though they are being carefully protected from damage by Mr. Casserley, who is in charge of the property and who has the honour of having re-discovered them (for they seem to be some of the carvings mentioned in the description of Sevilla by Sir Hans Sloane) I could wish that they were in the Museum of the Institute. Mr. Casserley tells me he has in mind the construction of a small building in the early Spanish style, on the site of ancient Sevilla, to house these important relics. It would seem appropriate to locate such a building hard by the foundations of the structure in which they were discovered. There are still sufficient remains of walls and floor to be of interest, not to mention the deep bricklined well. This ruin must be the earliest relic of European colonization which Jamaica possesses, and I believe the time will come when it will attract much attention.

Sincerely yours,

The Institute of Jamaica,

For the Encouragement of Literature, Science and Art.

KINGSTON, JAMAICA.

7th May, 1940.

Dr. W. Popence,

c/o The United Fruit Co.

Kingston.

Dear Mr. Popence:

Please accept my thanks for your kind and interesting letter of May 6th.

I am having some enquiries made about the old buildings at "Miranda Hill" and will let you know what I find. I agree entirely that some attempt should be made to clean up the place, and I will write to one or two people as soon as I have made a search for information about the old buildings.

Sir Edward Denham appointed a Committee to consider the preservation of old monuments and buildings, and I hope that this will be revived before long. I myself should have done something about it before, but my hands have been very full with building work.

Some time ago I spoke to Mr. Ritchie about the possibility of getting at least one example of the Seville carvings for the Institute, and he told me that he had in mind the construction of such a building as Mr, Casserley mentioned to you.

Nothing, however, has as yet been done, and it seems to be a case of "tomorrow"!

With best wishes, Yours sincerely, engineer SECRETARY PMS/S

UNITED FRUIT COMPANY

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS "SANANAB"

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THOMAS BRADSHAW

JAMAICA DIVISION Kingston, JAMAICA

14th May, 1940.

VIA AIR MAIL

Mr. A. A. Pollan,
Executive Vice President,
United Fruit Company,
Boston. Mass.

Dear Mr. Pollan,

I forward herewith copy of a memorandum by Mr.

Butler dated May 11th in regard to his investigations of Cercospora, which I am sure you will find interesting.

Yours very truly,

Copy to Mr. W. E. Turnbull Dr. W. Popence Dr. V. C. Dunlap.

Enclosure.

Cedar Grove Experiment Station, Gregory Park, P.O.

May 11th, 1940.

Dear Mr. Bradshaw:

Another Means of Distributing Cercospora Musae

Recently we have found in our cultures of Cercospora musae a type of growth known as a "Sclerotia". These are small, round or egg-shaped bodies containing reserves of plant food and occupying approximately the same position in the life history of the fungus as a potato tuber does in the life history of the potato plant. We have found these same sclerotia like bodies in the dried up Cercospora spots on the leaves.

Unlike conidia these bodies have a thick cell wall, are extremely resistent to variations in temperature and humidity, and have the power to remain dormant for long periods. Moreover it is quite probable that they can germinate and produce conidia anywhere and any time that conditions of temperature and humidity become favourable. Where conidia soon die if they cannot get into the banana leaf, these sclerotia because of their reserves of food can go on growing and apparently produce conidia in plain water, moist soil or any other spot suitable for fungoid growth.

I believe that the Company might save considerable sums of money for control in Divisions where Cercospora is just starting, by taking care that infected trash is not used for padding Railway cars, thereby scattering these sclerotia at every point along the Railway where switching occurs. All the evidence in Honduras and Jamaica points to human beings having assisted in the dissemination of the fungus. In Honduras the disease was associated in its early days with railway lines, switches and labour camps, all places where dried leaves were moved for either padding cars or making trash mats. In Jamaica it was for a long time associated with the rum shops along the roads, where the men operating the banana trucks padded with infected trash stopped for refreshment.

It is probably too late to do anything about it in those Divisions where Cercospora is now widespread, but it appears likely that in new areas we may be able to delay the date of the first spray for some time by a simple method of plant hygiene.

Yours sincerely,

(Sgd.) Alfred F. Butler.



UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

MANAGER

VIA AIR MAIL

JAMAICA DIVISION KINGSTON, JAMAICA

May 23rd 1940

Dear Doc:

Before your departure you left with me copy of letter dated April 26th which you wrote to Cuthill in regard to the Central American Yucca Elephantipes for the prevention of soil erosion in Jamaica.

Under date of May 21st I received the following letter addressed to you by Goodman, the Superintendent of Public Gardens:-

"You will remember that you have had communication with the Director and Mr. Cuthill, Jamaica Sugar Estates Ltd., with reference to Yucca elephantipes for prevention of soil erosion.

The Director has requested me to ask you to obtain a supply of planting material from Guatemala for this Department for trial. I am not sure how this plant is propagated - if by cuttings or seed. If by cutting, I suppose 100 cuttings would give us sufficient material to start a nursery.

Any expense incurred will be borne by this Department."

I am not sure whether it was your intention to arrange the supply of this plant and I shall therefore be glad if you would advise me in regard thereto. I have considered it advisable to keep Goodman's letter here for the purposes of reference.

Dron has now settled down in his work as Supervising Agent, and has more or less decided to take up residence on Mount Diablo. He will be cool enough there, but I personally do not like the continuous mist which is found in that part.

The work in the Leaf Spot Department is proceeding much more smoothly than I expected and, although I am dictating this to the person concerned, I can truthfully say it is due to her hard work and efficiency. The most difficult thing, I find, is to get Mary to leave the office when it is time to go home.

With kindest regards to Elena, the children and yourself,

Sincerely yours,

Bruesto.

Dr. Wilson Popence c/o The United Fruit Company Guatemala City, Guatemala, C.A. Digitized by Hunt Institute for Botanical Documentation Carnegie Mellon University, Pittsburgh, PA

UNITED FRUIT COMPANY

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION KINGSTON, JAMAICA

June 22nd 1940

Mr. A.A. Pollan, Executive Vice-President, United Fruit Company Boston

Dear Mr. Pollan,

I refer to Mr. Bradshaw's letter to you of April 5th in regard to a method of curing Panama Disease by innoculating trees with Permanganate of Potash.

I forward herewith clipping from the Daily Gleaner of
June 19th containing a notice published by the Department of Science
& Agriculture prohibiting the use of this method on banana trees
which are already diseased.

Yours very truly,

linkuff

Copy to Mr. W.E. Turnbull Dr. Wilson Popence

Dr. V.C. Dunlap

Department of Science and Agriculture.

Notice To Banana Planters.

It has been brought to the notice

It has been brought to the notice of the Director of Agriculture that many banana growers are employing unauthorised methods in attempting to treat Panama Disease of bananas, in particular, the injection of potassium permanganate solution into diseased plants.

Planters desirous of testing new methods of treating Panama disease should apply to the Director of Agriculture for permission to do so. Failure to obtain this permission before setting out on such experiments constitutes an illegal act and renders the planter liable to prosecution under the Protection from Disease (Plants) Law, Chapter 350. Under this law it is still required that cases of Panama disease be treated by the gas-oil method as detailed in the Panama Disease Amendment Orders of 1931 and 1934 and that it is the duty of Inspectors of Plant Disease to enforce these orders.

The use of unauthorised methods in the treatment of Panama disease is not only liable to prove a menace to the planter concerned but to the

is not only liable to prove a menace to the planter concerned but to the industry as a whole.

The employment of permanganaet injection or any other such treatment on healthy plants as a possible preventive of disease does not constitute a violation of the Law.

G. A. JONES, Director of Agriculture.



DEPARTMENT OF SCIENCE AND AGRICULTURE,

JAMAICA, 24th June, 1940

Dear Dr. Popenoe,

Your letter to the Director of Agriculture with reference to a shipment of Yucca elephantipes cuttings has been referred to me.

We beg to thank you for this material and to say that they have arrived in good condition.

I hope we will be able to reciprocate some day.

Yours sincerely,

M. J. Goodman

Superintendent of Public Gardens.

Dr. W. Popenoe,

United Fruit Company

Antigua.

Guatemala.

UNITS ON HAND STILL TO BE ISSUED:

Hardie 99's

new units $\frac{4}{2nd}$ hand ones $\frac{6}{10}$ approx.

Drake & Fletcher Headland

On hand

Vermorel Headlands

10 units alloted us by the Board, less 4 which we exchanged with the

Standard Fruit Company for 5 Hardie Headlands.

Issued to our contractors

Sent To S.F. Company, Montego Bay

On hand for Standard Fruit Company

Available for our contractors

UNITED FRUIT COMPANY

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS,

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

VIA AIR MAIL

JAMAICA DIVISION KINGSTON, JAMAICA

June 27th 1940

Dear Pop,

I attach copy of self-explanatory letter received from W.B. Dixon, Acting Plant Inspecting Officer, in regard to the orchid plants which were forwarded to you from Fuerto Rico. Although Mrs. Sharpe informed you these orchids were dead and buried, you will note that they are still in the land of the living and I should be glad, therefore, if you would advise me what you want done with them. If you have the health certificate and wish somebody to be guardian for these orchids you know quite well how much Con and I like them.

It certainly looks as though you can without doubt start figuring how you are going to spend the fortune I look like losing to you at the end of the year. Up to the 22nd June the total Island shipments amounted to only 1,808,684, and where we are going to get the rest of the 10 million estimated by me I really cannot say at the present time, specially when you consider that half of the year has already past away.

I had quite an amusing note from Bayley-Hay the other day; I had asked him for an estimate of requirements of spray equipment over the next six months, and the following was the list he gave me:-

Hardie 1	ntral I	Hardie No.6			Vermorel		Drake & Fletcher	Total
50		35	2	0	2	0	10	135
Hardie	Hardie No.6	-	ate of tot Vermorel Headland	Drake &	Hardie	red Hardie No.99	Total	
1,200	700	100	75	35	15	7	2,132	

I presume he is looking forward to the day when he will be in charge of the whole Island for all three companies and is therefore estimating accordingly!

You have already heard from Jones that the Yucca elephantipes were safely received and I informed Mr. Cuthill accordingly.

With kindest regards from us all, and hoping to see you again soon,

Sincerely yours,

Bruesto.

Dr. Wilson Popenoe United Fruit Company Guatemala City

Digitized by Hunt Institute for Botanical Documentation,

Carnegie Mellon University, Pittsburgh, PA

C O P Y of letter received from the DEPARTMENT OF SCIENCE & AGRICULTURE
26th June 1940

Dr. Wilson Popence, United Fruit Company Kingston

Dear Sir,

A parcel of Orchid Plants has arrived from U.S. Experiment Station, Maraguez, Puerto Rico.

No Permit was obtained for the importation of these plants and neither did a Health Certificate accompany them. The plants have therefore been placed in Quarantine at Hope.

I have been instructed to inform you that when a Permit is obtained from the Director of Agriculture and a Health Certificate from Puerto Rico, the plants will be delivered.

Yours faithfully,

(Signed) W.B. Dixon

Actg. Plant Inspecting Officer.

		Ougarta Pk. 9 Budy Park Joshan Tibeutz Park Joshan Rindsor Park Superinteniese Live Stock Total Park South 155	NO. OF WEEKS		1941 CROP
ə		00 00000000	Acres Mature		NCED:
Taly 4, 1940.		1 263 LA 1 263 LA 90 96 230 96 230 96 230 96 231 14 239 52 24 239 52 24 239 52	EXPENDITURE	SUPERINTENDENCE AND CULTIVATION	
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gitized by	Hunt Institute for Botanical Documentation,		=	T T TON	940

Form 723 3-17-26

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1187 - BANANAS - FOR FERIOD ENDED JUNE 1940
FARM REPORT INCLUDING CULTIVATION DEPRECIATION & PROPERTY LOSSES

District		ninten-	Har- vesting U. S. Curre	Cult.Deprn. and Prop.Losses		and Har-	Depru. & Prop.	Mtoe.	
St.Cath.	3,154 150	3,684.55	11,552.54	59,914.14	245,710	.672	.244	48.71	19.00
St.Thomas	368 1	5,521.05	532.45	5,610.26	11,717	1,370	.479	42.18	15.25
TOTAL	3,522 169	0,145.60	12,084.79	65,524.40	257,427	.704	.255	48.03	18.60

Farm cost includes treating "Leaf Spot" and "Panama Disease", which work out @ \$.105 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

Kingston, JAMAICA July 4, 1940,

1-	Par	ACRE	EAGE	D. AT EXPEN	DITURE	PR	ODUCTION	4 = 4	COUNT	COST PE	R COUNT	COST PE
	Ot. Depres	RRIGATED	IN BEARING	FARM MAINTENANCE	HARVESTING	Stone	Counts	PER ACRE	RATIO	FARM MTCE.	HARVEST- ING	MTCE. ONLY
T. CATTERIN	TE ALA	870	21.0	9299-07	543,63	10008	33000	50.0			Aur	
atson Grove	.082	177	177	10243.74	1695.17	18907	11605	204.9	. 62.4	801	.047	140
		799	799	33203.47	2819,34	107067	72768		.914	.190	.031	57.
ongreve Par	.117	380	380	26345.97	4720.75	164512	137191	91.1	. 680	,458	.039	41.
wick . Perk	547	48	42	2457.88	410.27	9563	5468		.854	.192	.084	59.
WILLIAM TAN	.945	30	244	860.99	186.78	3403	2955	70003	.669	0886	0063	58_
usby Park	.971	287	267	13935.34	1510.55	25585	15062	56.4	.872	90	1088	-
mond Lura	.833	27	57	5372,30	1715.36	24481	17888	481.8	.728	-985	a100	52.
olf-Way-Tro		495	495	18987,38	2108.88	60388	43977	86.6	.789	.301	-096	145
PT-4-401-TTO	. 143	315	315	17364.35	4383,55	135910	121000		.890	.438	-048	38 ₀
ernord Loca	o-778	204	204	11356,77	706-81	24974	16972	83.2	5681		-042	
THE REAL PROPERTY.	.538	93	93	7151.83	812.08	23923	19534		.808	:672		76.
oshen	-525	351	351	18017.74	1381.06	43161	31456	89.5	. 808 . 789	.370	.047	45
On Half	.179	218	218	14900.78	2478.48	83098	76935	352.9	.926	.509	.032	
hoanix Park		420	420	17526.10	1148.84	35 288	23596	56.2	.650	-194		- 68,
TATAL LOS II	.201	305	305	16449.50	3627.23	107387	98771	304.8	.864	-177	.039	41.
aurencefiel		356	366	17004.98	983,53	35140	25911	65.1	678	.716	.041	45
Carendo 1107	283	233	233	17503.50	1971.19	63957	37132	245. 3	.893	.306	.035	75.
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GROT TALLTON	-197	1758	1758	188918,75	21690.52	665719	579106			-223	.039	73.
otal Month	.348	3605	5805	27470.84	3025_20	119938	62481	17.3		440	.048	7.
Over Bullion	.169	8279	2279	09984.09	5551,23	179135	141386	62.0		.212	.038	13.
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T. THOMAS												
	10324	64	64	2431.84	51.65	2290	875	13.7	.362	2,779	.OED	38.
	-062	38	38	2258,69	382,47	16947	12332	324.5		.183	.031	59.
lbion	10164	304	304	12734,38	480.80	1.7564	10842	35.7	0617	1175	-044	41.
	+872	416	416	16749.06	1750.44	68381	50278	120.9	.735	333	.035	40.
uptee.				834.83			2000			.050		
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ive Stock												
				74.44						.001		
otal Period	1,175	368	368	15521.05	532,45	19854	11717	31.8	.590	1.825	.045	42
	-230	454	454	19547.19	2138.91	85328	52610	137.9		.312	.034	43.0
otal Month	.659	392	392	2888.59	184.34	7186	3487	8.9	.485	.927	.053	7.5
	. 248	537	537	3686.28	440.35	20132	12373	23.0	.615	,296	.036	6.5
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July 4, 1940.

* Average under irrigation included in "In Talaring" figures.
† Counts. Pounds, etc.
Use two lines for each farm. Show last year's figures in red

UNITED FRUIT COMPANY, SAVATOR

DIVISION

Average under irrigation included in "In Bearing" figures.
† Counts, Pounds, etc.

Use two lines for each farm. Show last year's figures in red.

FARM REPORT FOR PERIOD ENDED JONE 1940 PRODUCT BOW Gost FARMS Ot EXPENDITURE COST PER ACREAGE PRODUCTION COST PER COUNT COUNT ACRE Counts | Cts. RATIO Stems MTCE. BEARING FARM MAINTENANCE HARVEST HARVESTING Depren. RECAPITULATION Period - 26 Week St. Cetherine507 3154 11552,34 361.057 245710 3154 153624-55 .047 .197 1758 .176 368 085719 579108 309.4 .870 19854 11717 31.8 .590 21690.62 1,175 15521.05 2153,91 12094,79 23823,43 330 454 456 19547.19 al Period.537 3522 3522 169145.60 .200 3212 2212 148459.94 521 17.3 8279 2882:59 392 -248 587 539 3666,33 -364 3997 3997 30353,43 Total Month 16.5 :519 .460 .049 38630,38 281.6 5791.58 Rate of Exchange - 1940 Month - 1940 Portod - 1939 Period 4-68

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

Tuly 4, 1940.

Antigua, Guatemala, 10 June 1940

Personal

Mr E R Platt United Fruit Co., Kingston, Jamaica.

Dear Ernesto:

Yours of 23rd May came a few days ago. At all times it is difficult to make shipments from here to Jamaica, but now more hazardous than ever, I suspect, so I doubt that we had best try sending any large quantity of <u>Yucca elephantipes</u> cuttings over to Hope. I have prepared a small lot of selected material which I shall dispatch this afternoon by air express, and I trust this will suffice to start the good work going. Mr Cuthill would probably be grateful if you would let him know the material has reached the Island - after you do know that it has done so.

Ever since my arrival I have been tremendously on the jump, running up and down the West Coast on this Cinchona job. It seems to involve even more travelling than the Leaf Spot Control campaign, which is saying a good deal. I shall probably be kept on it until the end of August.

I was mighty glad to have news of all of you, and will appreciate it if you will let me know from time to time how the Island shipments are coming on, so I can begin to figure out how I am going to spend the money Mary is going to collect for me. Warmest regards to all of you: we miss you, and miss Roslyn Hall, and all the other pleasant coexistences and sequences.

Sincerely yours,

Antigua Guatemala, 10 June 1940

Hon. G.A.Jones C.M.G., Director of Agriculture, Kingston, Jemaica, B.W.I.

Dear Mr. Jones:

In response to Mr. Goodman's letter of 21st May,

I am attempting a small shipment of Yucca elephantipes cuttings. Mr.

Goodman suggested one hundred cuttings, but as there seems to be no
prompt means of forwarding by steamer, I am using air express, and
reducing the quantity to 25 cuttings, which are going forward prepaid, with the compliments of the United Fruit Company. If these
grow well with you, and you later desire a larger quantity, we shall
be glad to see what can be done about making shipment via Belize and
the Connector. At the moment it seems to me rather unwise to
attempt anything but air express.

This plantgrows here from cuttings with the greatest facility, and I do not believe you will have any difficulty with the ones I am sending. I have tried to see that they are clean, but you will probably want to dip them or fumigate them on arrival.

I hope all goes well with the Leaf Spot Control campaign.

I miss my frequent contacts with all of you, and the pleasant associations of the work in Jamaica. At the moment I am devoting all my time to the Cinchona project here in Guatemala. I feel confident that we have, here, conditions admirably adapted to this culture.

Warmest regards to Mrs. Jones, your goodself, and my other friends in the $^{\mathrm{D}}\mathrm{e}\mathrm{partment}$.

Sincerely yours,

cc Thomas Bradshaw Esq.

UNITED FRUIT COMPANY, JAMAICA DIVISION

Cedar Grove Experiment Station, Gregory Park P.O.

July 2, 1940.

Dear Dr. Popence:

For the period ending June 30, the shipments of bananas from Jamaica was approximately 1,900,000 stems, as compared with approximately 9,000,000 for the corresponding period last year.

The shipments continue to run around 150,000 stems, and I am busy looking for the highest priced hat in Jamaica.

Everything else is going on about the same. The Farms are, I believe, at last recovering from the battering of last Fall.

With kind regards,

As always,

Bulling.

UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS SANANAB'

THOMAS BRADSHAW MANAGER

> JAMAICA DIVISION Kingston, JAMAICA

> > 16th August, 1940.

Dr. Wilson Popence, Tela Railroad Company, La Lima. Honduras.

Dear Dr. Popence,

I enclose herewith copy of a letter from Ansell Hart to Mr. Hislop, which is self-explanatory. I know that if these plants are available you will be only too glad to accommodate Mr. Hart and I am therefore forwarding you the necessary Importation Permit which should accompany this shipment.

Kindest regards, & yourself the family from Sincerely yours, both.

Enclosures.

MANTON & HART

71 BARRY STREET
KINGSTON,

REF: AH#YW

JAMAICA.

Carroll Hislop Esq., The United Fruit Company, Kingston.

Dear Carroll:

I find from Dr. Popenoe's book that the Ilama (Annona Diversifolia) grows in Guatemala and I am very anxious to get some plants, but do not know how to make contact. I enclose permit from the Director of Agriculture for me to import one dozen plants and I wondered whether you could help me. As the plants are not to have any earth on them, it would be necessary for them to come by air mail. I feel quite guilty about being such a nuisance to you.

Sincerely yours,

(Sgd.) Ansell Hart.

Encl:

Antigua, Guatemala, 21 Sept 1940

Thomas Bradshaw, Esq., Co., Manager, United Fruit Co., Kingston, Jamaica.

Dear Mr. Bradshaw:

Your letter of 16th August, regarding plants of Annona diversifelia for Mr. Ansell Hart, reached me some days ago. So far as am aware, there are no plants available snywhere in Guatemala, but on the way down to Barrios last week I had the good fortune to find fruits onesale at Sanarate station, and I obtained seeds for the first tile in several years. I am enclosing 25 of these, from which I believe Mr Hart will have no diffucity in growing a few plants. If he does not feel sure that he can handle them, he might like to turn them over to Mr Downes at Hope, who would, I am sure, be able to grow them without difficulty, and who could later give Mr Hart some of the plants.

I have finished the reorganization of the Cinchona work for Merck and Co. and am going over to La Lima tomorrow to spend a few weeks. After that, I do not know.

Helen joins in warmest regards to Mary and yourself, and to our other friends over there.

Sincerel yours,

UNITED FRUIT COMPANY

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS,

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

> JAMAICA DIVISION Kingston, JAMAICA

> > 11th November, 1940.

VIA AIR MAIL

Mr. J. F. Aycock, Manager, Tela Railroad Company, La Lima, Honduras.

Dear Mr. Aycock,

I refer to your radiogram of October 25th and wish to advise that I have just been informed by Imperial Chemical Industries that Mr. Holme expects to arrive in La Lima on or about December 9th. They regret very much the delay in letting you have this information and state that such delay has been caused by their efforts to figure out a definite schedule for Mr. Holme.

Yours very truly,

b. N. Hiclory

Copy to Dr. W. Popence Mr. V. C. Dunlap

Form 723 3-17-26

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1187 - BANANAS - FOR PERIOD ENDED AUGUST 1840 FARM REPORT INCLUDING CULTIVATION DEPRECIATION & PROPERTY LOSSES

	Acres in	Mainten-	Har-	Gult.Deprn.		and	Depru		Depra.
District	Bearing	2000	U. S. Curre	Prop.Losses	Counts	vesting	Losses	only	Losses
St.Cath.	3,266	222,803,50	18,334,26	84,286.33	380,322	.634	.822	68.22	25.81
St. Thomas	374	21,787.96	952.11	7,833.07	22,949	.990	.341	58.26	20.94
TOTAL	3,640	244,591.46	19,286,37	92,119.40	403,271	.655	.228	67.80	25.31

Farm cost includes treating "Leaf Spot" and Panama Disease" which work out @ \$.102 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

King ston, JAMAICA September 5, 1940

P	ost	ACRE	EAGE	D. AT CONTY	DITURE	PR	ODUCTION	4	COUNT	COST PE	R COUNT	COST PE
FARMS (RRIGATED	IN BEARING	FARM MAINTENANCE	HARVESTING	Stema	Counts	PER ACRE	RATIO	FARM MTCE.	HARVEST-	MTCE.
ST. CATHERINE												
atson Grove	397	276	218	13471.98	903,29	29079	18475	84.7	.638	.729	.049	61.8
	.099	187	187	14178.80	2055,68	69964	53046	337.1	4902	.225	.038	75.8
congreve Park	290	820	880	49213,27	4296.03	164170	108923	130.4	.651	.460	.040	60 . (
		448	448	38424.90	6808.83	E36078	190094	425.6	,80%	1000	085	85.
	447	48	48	4134,23	605,69	16370	21163	232.6	.685	.370	.054	85.
	. 575	000	000	1488.80	340.79	39043	22068	1985	.854	000	-018	273.
bushy Pork	.917	270	270	19702.54 8509.03	2388.53	45909	31954	81.7	.580	.893	,108	78.1
	995	517	517	28389.09	3345.94	100551	69651	134.7	.593	.268 .408	.048	124-5
alf-Way-Tree	167	_	027	04259 29	5552.97	169645	147976		, 378	.154	-0.00	56.1
Bernert Loage		353	208	15828.89	11:20,55	39272	26626	128.0	.678	594	.042	76.3
STREET, LOURS	ASS	118	118	11508,64	1515.66	44830	34961	126.7	,780	220	043	27.0
loshen	551	361	361	23570,85	1886.67	58753	41316	114.6	. 702	.571	-048	85.7
	215	130	239	21154,72	2014,36	99927	31.078	383.2	-918	v231	-083	28.1
boenix Park	.664	438	438	25186,39	1973,48	63613	42115	96.2	.662	.598	-049	57.1
	P29	361	341	83755.13	4501.98	138678	117167	343,6	.857	.203	930	69.
awrencefield	604	386	386	24923,09	1814,08	81498		108.8	, 682	.594		64
	302	9254	854	24355 90	710.66		70256	98.7	.869	1323	.038	95.8
Superintendence	38			12604-80						033		
				12808.77						.017		0.1
Ave Stock				5778,39						0018		10
	-	-	-	4673-84		-	-			-006		- 200
otal Period	456	3266	3268	822903.50	18354.26	571347		116.4	1666	.586	068	68.2
otal Month	403	8017	3598	20004 03	39258 85	896713	758493	N-1-0-0-0	,698	E PRO	069	30.3
digit House	200	0010	0000	38524.71	3435,72	96617	67441	18.7	7.75	.573	.051	10.1
-	1000	5910	-	21070140		Troops	20000	UN F Z		1000	1000	-
	9		7 -1		DOMESTIC TO							
	10	-	9 1 1									
	1											
Thomas					-	-	1222		-		-	-
Springtield	438	71	71	3798.17	150.21	7984	14183	57.9	.516	-923	.057	33,4
albion	910	808	303	7887.80	903 00	29081	18838	60.0	.693	020	040	57.8
EL GA CE	200	641	443	14013,52	801.90	100470	70459	52.3	.701	.930	-043	7/1
Superintenden	00		-	478.27	-	200210	70000	AUR . C	- IVI	.021	1000	1.1
The state of the s	-			886.97						.007	-	1.0
Live Stock										1		
		-		98.98	1000					-001		-
Potal Period	826	374	374	21787.96	952.11	37045	22949	61.4	.619	949	.041	58.2
	245		481	38650.88	2894.87			176.0	-700		4034	59.1
Potel Month	. 640	390	390	3853,54	241,47	9123	5523	16.7	-715	,591	.037	9.6
	357	557	567	5858.11	355,23	15544	10076	17,8	.648	. 522	.033	200
	-									-	1	
			-									

September 5, 1940.

MOISING UNITED FRUIT COMPANY, JAMAICA FARM REPORT FOR PERIOD ENDED. AUGUST 1940 PRODUCT BANAMAS COST PER ACREAGE PRODUCTION EXPENDITURE COUNT COST PER COUNT RMS Per Ct. Depron ACRE FARMS COUNTS PER ACRE MTCE. FARM MAINTENANCE IRRIGATED BEARING Stoms HARVESTING ONLY Rate of Exchange

* Average under irrigation included in "In Bearing" figures.
† Counts. Pounds, etc.

Use two lines for each farm. Show last year's figures in red.

The same of the sa		Joshen phoenix Park March Fen Mindsor Park Mindsor Park Mindsor Park Mindsor Park Mindsor Park Morintenden Idve Stock Potal Pariod Motal Month	EIRAND LADAS Ongreve Park wickenham Pk.	NO. OF WEEKS		PERIOD COMMENCED:
Octob		HE &	98 5 5 5	Acres		NCED
October 5, 1940			0.4TERESTIME 1.90 4.3 2 843 57 3 592 46	EXPENDITURE		4.28.40
0		1 24 63 2 23 56 1 25 14 3 25 56 1 3 56 3 56	5 19 04 5 19 04 5 7 7 04	Cost per Acre	SUPERINTENDENCE AND CULTIVATION	
			123	TS	ATION	g
			2 Heel	Cost per Acre		TIME OFFICE
	Este		10	Acres Cut		FILE
	of Exch		11	Tons Cane Produced		CO
	and the second s		111	Tons per Acre		COMPANY,
	Forted \$5.684	5 08 38 58 38 58 5 157 88 830 47	569 47 589 25	EXPENDITURE	HARVESTING	COMPANY, JANATER
	945			Cost per Ton	TING	. Aga
				Acres Cut		
				Tons Cane Tons Produced Ac		PERIO
				Tons per Acre		DIVISION
2 1				Cost per Ton		ON
1		199 43 809 94 9 936 12 1 476 83 1 017 71 1 017 71 71 218 56	3 215 04 3 217 04	THIS YEAR Farm Expenditure Exclusive of Depreciation	TOTAL	DIVISION PERIOD ENDED WITH MONTH OF
				2		A MARKET
Digitized b	y Hunt Institute for Botanical Documentation,			is Year Last Year		TR 190

Menous Porm 723

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1167 - BANANAS - FOR PERIOD ENDED SEPTEMBER 1840

PARM REPORT INCLUDING CULTIVATION DEPRECIATION AND PROPERTY LOSSES

District	Acres in Bearing	Meinten-	Har- vesting U. S. Curre	Oult.Deprn. and Prop.Losses	Counts	Her- vesting	& Prop Losses	. Mtos.	heprn. heprop. Losses
StoCath	3,308	252,182	21,713	95,530	453,428	-804	.211	76.37	28,93
St. Thomas	375	84,675	1,167	6,822	28,494	.907	,310	65.80	23,53
TOTAL	3,677	276,357	22,820	104,352	481,922	.621	.217	75.29	28.38

Farm cost includes treating "Leaf Spot" and "Penera Disease" which work out @ \$.096 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

Kingston, JAMAICA October 3, 1940

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA COMPANY, JAKATCA

DIVISION

	ACRE	EAGE	Δ EXPEN	DITURE	PF	RODUCTION			CO	ST PER C	OUNT	
FARMS			Farm Maintenance and Disease and Insect Control		Stems	Counts	PER ACRE	COUNT	Farm Mtce.	Harvest-	⊙Farm Deprn.	ACRE MTCE. ONLY
T. CATHERINE		-			10000							
atson Grove	221	221	15,357	1,056	76,160	22,856	103.5	.668	.672			69.
	191	191	15,587	2,190	76,160	68,511	358.7	.900	*828	*08%	-107	BI.
ongreve Park	827	827	55,545		1.66,838	123,198		.659		.039	a 283	67.
	483		42,555	7,267	265,345	Mario France		.803	.200	034	-134	88.
Twickerham Park	50	50	4,738	683	18,023	12,437			.381			94.
	6	6	1,798	359	7,589 45,198	6,490	1081.7	.855			.698	299,
Bushy Park	270	270	22,627	2,865	45,195	27,366				.105		83
	94	94	. 10,550		60,302	42,885		.711			.594	
Half-Way-Tree	584	524	32,326	4,007	117,854	82,547					.217	61.
	367	367	26,947 17,559	5,925	178,977 45,830	156,172	425.5		.173		.181	73
Bernard Lodge	210	23.0	17,559	T'958	45,830	31,621	150.6		.555		0642	83,
	127	127	13,948	1,704	53,641	42,287	333.0	.788	.308		-417	
Coshen	384	364	26,658	2,156	68,064	48,368						73,
	246	246	23,272	3,219	108,224	98,701		.918	. 236	.033	.328	94.
Phoenix Park	444	444	28,738	2,499	78,898	53,654	120.8		.536		a 587	64.
	356	355	26,472	4,778	147,427	126,593		.859	.809			74
Laurencefield	392	392	28,531	2,280	73,848	51,373		.696	.555	.044	.556	72
	260	260	27,614	2,925	95,383	82,450	317.3	.865	.335	.035	.31A	106.
Superintendence			14,161						.031		25.50	4
			14,098 5,944						.037			6,
Live Stock	-		5,944				Land of		.013			2,
	-	-	5,054				-		.006			20
Total Period	3,302	3,302	252,182		668,776	453,428	137.3				.431	76.
	2,130	2,130	206,893		993,048	837,266		. 843	-347		. 228	97.
Total Month		3,586	29,579		97,429	73,106				.046	.298	8.
	3.032	3,032	21,750	2,580	96,335	78,773	26.0	,818	276	033	.331	7.
ST. THOMAS												
Springfield	72	72	4,482	223 463	10,560	5,775	80.2	.547	.776		.361	62,
	41	41	3,595		21,177	14,623	356.7	.691	546	_	.088	87.
Albion	303	303	19,649		35,834			.671				64,
	450	450	26,957		107,922	76,330	169.6	+707	.353		(290	89.
Superintendence			544 698						.019			1.
			695	-	_				0008			1.
Live Stock									-			
			99	1111		-	- 100	-	:001	-	-	-
Total Period	375	375	24,675	1,167	44,394	28,494		,642	:856	.041	.746	65.
m. f. v. v. v.	390	491	31,346	3,056	129,099	90,353		.705			60	63,
Total Month	-	390	2,887		7,349	5,545				.039		70
	567	567	2,685	163	8,170	6,311	11-1	.778	1475	.026	466	4

October 3, 1940.

DATE

"Average under irrigation included in "In Bearing" figures.
100unts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.
ARport even dollars only eliminating ceats.
OFarm Depreciation (include Irrigation and Disease Control)

COMPANY,

JAMATCA

DIVISION

	ACRI	EAGE	A EXPEN	DITURE	PF	RODUCTION			co	ST PER	OUNT	COST PER
FARMS	RRIGATED	IN BEARING	Farm Maintenance and Disease and Insect Control	HARVESTING	Stems	Counts	PER ACRE	COUNT	Farm Mtce.	Harvest-	⊙Farm Depre	ACRE MTCE. ONLY
											1	
											-	
				REC.	APITU	LATI	ON		1			
PERIOD - 39 Week				42 020	600,000	100 100	2000	-	-		-	
St. Cetherine	9,308	2,130	208,182	31,834	668,776 993,048	837 266	393.1	843	a 555	.038	.431	97.3
St. Thomas	375	375	24,075	1, 167	44,394	28,494	76.0	843.	.866	.041	.746	
	491	491	31,346	5.056	189,099	90,953	185.2	-705		034	. 260	63.8
Total Period	3,677	3,677	276,857	22,880	713,170	481,922	131.1	.676	.5"4	04	.449	
	2,621	2,521	200,209	34,690	1112,147	920,019	00411	2021	DOU!	1000	-	500
												1
MONTH - 4 Neeks	A . E O .	m Mari	00 (000			-			100	0.00		-
t. Ge therine			29,379		97,429 96,335	73,106 78,775	20.4	.818	.276	033	296	7:1
St. Thomas			2.887	215	7,549	5,545	14.2		.521			7.4
THOUSA	587	567	2,685	162	8,170	6,311	11.1	.772	.485	086	-466	407
Potal Month					104,778	78,651	19.8 25.6	,751	.410	.046	.306	8.1
	3 599	3 599	84,435	2,742	104,505	85.084	20.0	* DT#	* 007	.000	1041	6.79
							-					
		1 5										
												-
					Rate of 1	txchange .	1940	Month		4.030		
								Perio		3.818		
							1939	Perio	od a	4.604		-
		-						-				
								100				
					-	-		1				
												-
							-		-	-		
		-							1			
							1					
			-									
								-				
										1		
	1	-		-								

October 3, 1940.

"Average under irrigation included in "In Bearing" figures. (Counts, Pounds, etc. Use two lines for each farm. Show last year's figures in red. A Report even dollars only eliminating cents. OFarm Depreciation (include irrigation and Disease Control)

00	il and the second	P 2	Live Stock	lindsor Park	Phoenix Park	Joseph	Prick Fark	Bornard Loogs	FARM	ZO ON ENNEXA	PERIOD COMMENCED:	1641 CROP
(C	C	1525		413	869	2	94	- 8	Acres Mature		NCED:	
October 31, 1940 (Date)		5 015 75	1 067 6	8 947	(S)	196	\$ 148 55 4 250 49	.Cather	EXPENDITORE	THIS YEAR		
		5 35 53	20	82	38	100	5 33 45 5 33 45	ne Distr	Cost per Acre	SUPERINTENDENCE AND CULTIVATION		1
						I	11	ot -	Acres Mature	LAS		
	Ente of						H	26 546	Cost per Acre	LAST YEAR	l	THE PRINT
								155	Acres Cut			NEW O
		-					H	H	Tons Cane Produced		FARM	TP C
	Month Pariod								Tons per Acre	THIS YEAR	REPORT	COMPANY
	\$4.0500 \$5.7151	6 006 58 849 30		1 915 66	327	5 97	268 95 268 95		EXPENDITURE		FARM REPORT—SUGAR	NY.
									Cost per Ton	HARVESTING		TAN
				Ħ		14		Ī	r Acres			AUTEN
									P. To	LAST YEAR	PERI	
							1		Tons per Acre	YEAR	DENE	DIVISION
					I				r Cost per		ED WIT	NOIS
		5 365 06	069	861	016	100	8 577 4S		Exc	THIS YEAR	PERIOD ENDED WITH MONTH OF	1
									2	TOTAL COST P	ECULDO:	A
NKm d l	Hunt Institute for Botanical Documentation,	1	1						ar Last Year	COST PER TON	5C 43	V

COMPANY

JAMATCA

DIVISION

3	ACRI	EAGE	A EXPEN	DITURE	PF	RODUCTION	t i		cos	ST PER	COUNT	COST PE
FARMS	IRRIGATED	IN BEARING	Farm Maintenance and Disease and Insect Control	HARVESTING	Stons	Counts	Cta o		Farm Mtce,	Harvest- ing	⊙Farm Deprn.	ACRE MTCE. ONLY
ST. CATEERINE							-					
Mateon Grove	224	224		1,268	39,174	27,304	121.9	697	-615	.045	.340	75.0
Congreve Park	195	195		5,434	78,160 205,326	70,294					.119	74.4
OOHETS AS TOTY	514	514			281,693	826,081					.149	90.5
Twickenhan Pork	51	51	5,136		18,861	15,148					s478	100.7
	7	7	2,077		7,801	6,662					-767	296.7
Bushy Park	267	257	12,571	3,301	72,385	33,203 52,508					.761	93.2
Half May Tree	531	531	35,611	4,485	130,840	93,515					.214	87.0
Dall hay 1100	378	378		6,157	186,321	168,902					.196	77.0
Bernerd Lodge	212	212		1,513	51,170	36,130				.042	.522	9102
	134	134	14,117	1,799	67,673	45,690			.309	-039	. 502	105.0
Goshen	252	366 252	29,575 85,125		77,173 111,108	101,067					- 850	99.1
Phoenix Park	448	448			90,652	63,482						78,1
	369	369	28,944		158,469	135,247				.037	.257	78.4
Lawrencefield	396	_		2,563		58,043	146.6	.710	.541	.044	.548	
a total and	265	265	39,965 15,882	3.018	98,784	85, 292	321.9	.863		.035	+340	Advent
Superintendence			15,488						.031			40
Live Stock			6,119					7	-012			1.8
			5,354					-	.006		-	81
Total Period	3,326	3,326			747,103		156.3	.698	.536	.048	418	
Total Month	8.849	3.549	26,714		78,327	886,743 66,469						10.00
TOUR BUILDI			20,787			19,477	16.0	.835	.420	.039	.566	6,7
ST. THOMAS												
Springfield	74	_			13,957	8,231 14,882	111.2					91.
Albion	294	294		1,087	38,628	26,920						73.
A101011	456			2,578		78,997					1318	66.
Superintendence			811 755						.005		-	1.
Live Stock					-	-		-	000	-	-	
Total Pariod	368	368	99	STREET, SQUARE, or	50 502	35,151	95.5	660	270	020	670	72
TOTAL PARIO O	498					93,879						70
Total Month	303				8,189	6,657	22.1	.813	.559	.031	.345	
	557	587			3, 510	2,926	5.2	.834	1.204	880.	1.005	8,2

October 31, 1940.

*Average under irrigation included in "In Bearing" figures. (Couests, Pounds, etc. Use two lines for each farm. Show last year's figures in red. AReport even dollars only eliminating cents. OFarm Depreciation (Include Irrigation and Disease Control) COMPANY, JAMATCA

DIVISION

	ACRI	EAGE	A EXPENI	DITURE	PF	RODUCTION			cos	T PER C	OUNT	COST PER
FARMS	• 11 or	AS IN	Farm Maintenance	HARVESTING	Stem	Counts	DER ACRE	COUNT	Farm	Harvest-		ACRE MTGE.
VARE 1000 1 30	IRRIGATED	BEARING	Insect Control		00000	ocodon.	PER ACRE	100 03	Mtce.	ing	Deprn.	ONLY
				REG	APITU	LATI	ON					
PERTOD - 43 Wool	N	-	000 000	D. 1 000	min 102	\$10 00H	150 0	- 000				
St. Ostherine	3,386	3,326	278,897	24,768	747,103	519,897	100 a	9999	. 536	048	0418	85.8
	368				1058, 894 52, 583		05.5	689	770	030	680	73.5
St. Thomas	498				138,609				371			70.08
Potal Period	-		305,963	26.139	799,686	ESE OAG						
TOTAL FER100	2 795	0 705	262,549	3A 980	1194 000							
	-	G- FQU	500,013	00,000	1000	980,528	359.9	-020	1000	1000	1000	96 35
8.					100							
MONTH - 4 Weeks	1		The state of									
St. Catherine	3,542	3,542	26,714	3,054	78, 327	66,469	18.8	249	.402	:046	.328	7.54
		3,097			59.246	49 477	15-0	835				6.73
St. Thomas		301	2,398	205	8,189	6,657	22.1	.813		.031		7.9
Tag Alleyson	557	567	3.595	93	3,510	2.926	5.2		1.304		2.005	6.21
Total Month	5.845	3.843	29,106	3,259	86,516 62,756	73,126	19.0	.845	.398	c045	.330	7.50
	3 664	3,664	34,310	1.999	52 756	52,403	14.5		-484	.028		6.63
		-			***************************************	-	-	-	-	-		
					7 4							
	100											
					Rate of	Exchange	- 1940	Mont	2 3	4.030	0	
								Peri				
		-						Peri				
							2000			-		
	- 5									-		
								-				
							1					
							100					
				1								

October 31, 1940.

"Average under irrigation included in "In Bearing" figures.
†Counts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.
Aleport even dollars only eliminating cents.
—Farm Depreciation (include Irrigation and Disease Control)

Form 723 3-17-46

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO MORM 1187 - BANANAS - FOR PERIOD RIDED OCTUBER 1940 FARM REPORT INCLUDING CULTIVATION DEPERCIATION & PROPERTY LOSSES

District	Acres in Bearing	Meinten- ance U. S	Here	Prop.Losses	Counts	Mtcs. and Har- vesting	Cult. Depren & Prop	Ntce. Only	
St. Cath.	5,326	278,897	24,766	108,124	519,897	.584		93-85	32.51
St.Thomas	368	27.086	2.373	9,810	35,151	.809	,279	73.68	26,68
Total	3,894	505,963	26,139	117 934	555,048	.598	372	98.82	51.99

Farm cost includes treating "Leaf Spot" and "P. 18" Discase" which work out 0 \$.095 per count bunch.

Gopy tol. Mr. A. Pollan Er. T. Bradshaw Dr. N. Popence

Cotober 31, 1940

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

100 Hz		BENNAM LOOK CONSTRUCTOR FARK THICKNOWN PARK COMMAN PARK COMMAN PARK WAYCH FOR WINDOOF FARK SUPETINGENGE LIVE STOCK TOTAL BONTH	1841 GROP PERIOD COMMENCED: NO. OF WEEKS Acres Mainre
tembe (C		1555 1555 1555	NCED:
September 5, 1940s.		27 677 01 6 986 79 113 885 27 11 885 285 11 885 285 11 885 285 11 885 285 11 885 285	29° 4°40 SUPERNIADENCE AND CULTUATION THIS YEAR ELISADITIES Cod per Acre Acre Maio
		16 76 22 49 22 49 22 45 22 45 22 45 22 45 25 25 45 25 25 25 25 25 25 25 25 25 25 25 25 25	Cost per
			TIVATION LAST Acres Mature
		18 Tooks	INTERP PROTE
		18	PULT Acres Cut
			FARM Tons Cane
	Sate		COMPANY, M REPORT—SU THIS YEAR Total per Mills Acre Mills
	of Ecolating s	1 184 55 1 277 19 2 277 19 1 1858 44	MUTUU HA
	- Month Period		TALATOA RVESTING Cost per
	th		Acres
	\$5.64L		PERIOD ET LAST YEAR Tons Care Tons Ac
			PERIOD ENDED WIT
			ON ED WITH
		2 905 26 3 239 26 3 239 26 3 259 26 30 050 20 1 050 20 1 050 20 1 25 52 76 1 823 67	H MONTH OF TOTAL TOTAL THIS YEAR Firm Expedition Exclusive of Depression
		100000000000000000000000000000000000000	7 6 9
gitized h	y Hunt Institute for Botanical Documentation,		RIST 1940. COST PER TON IN Year Last Year

August		Total Borto	Live Stock	Mindsor Pk.	March Pen	Phoenia Pk.	Gosbon Park	Twick . Paris	DOT CHANGE	FARM	NO. OF WEEKS		PERIOD COMMENCED:	1941 CROP	1000-1-39.
et 1		1555		413	168	38	77			Acres			NCED:		
1, 1940 (Date)		7 408 18	857 67	4 837 23	209		149 95	1 763 86	ST CACTO	EXPENDITORS	THIS YEAR	SUPERINTENDENCE AND CULTIVATION	28/4/40		
		20 62	55 10	11 71	100	4	PO 20	_	STA	Cost per Acre		NCE AND CL			
		C9 70	000	1	6		80 8	3 01 (REPLICE.	Acres Mature	LAS	LTIVATION			
		-			-				120	Cost per				TIME	
									Wooks	Cut				DIES ON THE	
		1	-	+	t	H	H	H		-			Ţ	TIME	
	Parts c	1								Tons Cane Produced			ARM I	CC	
	of Exc	1								Tons per Acre	THIS YEAR		REPOR	COMPANY	Form 1187 S
	nenge	1 355	and other particular		1 659	13	TO.7	12 822	ua .	EXPENDITURE	EAR		FARM REPORT—SUGAR	NY,	187 S
	- Porto	100	-	200	620	93	10	120	13	000		HARVESTING			
	\$40 550 550 550 550 550 550 550 550 550 5	1			1					Ton A		NG		JAMAICA	
	15 E 15 26	1								Acres T Cut I				ICA	
		-								Produced	LAST YEAR		PERIC		
				ı	ı					Tons per Acre	EAR		DEND	DIVISION	
										Cost per Ton			ED WIT	ION	
		8 763		2 888	21 868			1 592	200	Farm Expenditure Exclusive of Depreciation	_		PERIOD ENDED WITH MONTH OF		
								207			EAR	TOTAL			
		1								This Year	COST	TOTAL COST	TOYST ATOL	1	e la
igitized b	y Hunt Institute for Botanical Documentation,	-	-							Last Year	COST PER TON	-	2400	N°	1

Porm 723 3-17-29

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1167 - BANANAS - FOR PERIOD EMUSD JULY 1940
FARM REPORT INCLUDING CULTIVATION DEPRECIATION & PROPERTY LOSSES

District	Acres in Bearing	Mainten- ance	Har- vesting U. S. Curr	Cult.Deprn. and Prop.Losses ency	Counts	and Har- vesting	Daprn. & Prop. Losses	Mtca.	& Prop.
St.Cath.	3,219	184,178,79	14,898,54	70,483.90	31,2,881	.637	. 825	57.22	23.90
St. Thomas	371	17,934.42	710.64	6,597,30	16,426	1,135	.408	48.34	17,78
TOTAL	3,590	202,113.21	15,609.18	77,081,80	389,307	.661	. 234	56.30	21.47

Farm cost includes treating "Leaf Spot" and "Panama Disease", which work out @ \$.101 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

Kingston, JAMAIOA August 1, 1940,

FARMS CL.	ACRE	EAGE	EXPEND	DITURE	PR	ODUCTION	7 704	COUNT	COST PE	R COUNT	COST PE
FARMS Ct.	RRIGATED	BEARING	FARM MAINTENANCE	HARVESTING	Stems	Counte	PER ACRE	RATIO	FARM MTCE.	HARVEST-	MTCE.
.Oatherine											
tson Grove .415	215	215	11203.50	714.57	24048	1,4733	68.5	-614	.759	840	50.)
.090	181	181	12095.91	1862.01	64068	80007	301.0	907	. 208	.038	68.
ongreva Pk293	811	811	39803.84	3500.95	198846	163192	110.1	-65L	-946	0000	485
wick, Park 441	613	421	31467.41	511,54	14131	9499	311.1	.672	.193	084	70.
wick. Park 441	45	45	1078,93	266.68	5409	48.89	1543.0	.856	. 533	.000	859,
sby Park .912	869	269	16529.94	1925,39	33197	18750	69.7		881	.105	61.
743	54	54	3510.84	2.07.57	23094	231.44	418.5	.699	1891	095	10.
alf-Way-Tree . 231	508		23280.02	2704-60	81993	56743	111.7	.692	.410	.048	45.
149	534	334	20791.34	5080.97	158492	137251	411.0	.827	,151	.037	88.
stnerd Lodge, 715	807	207	13438.01	903.40	32166	21514	103.9	4669	6885	.042	64,
	100	106	8965.79	1809.75	33883	26638	851.5	. 785	. 3/37	.045	84.
oshen ,531		357	19357.36	1593,33	\$1,792	36378.	101.9	.785	.532	-044	54.
,192	220	229	17737.13	2745.16	92199	80006	371.8	922	.209	082	775
bosnix Park 5740	430	430	20925.45	1505 .21	49640		7402	6643	655		48,
.213	325	325	19753.98	4016.89	120399		318.4	859	*187		50
aurencefield.526	377	377	29478.86	1459.37	50662	54084	90.3	.879	-602		540
-283	245	245	20344.64	8383.50	75720	66663	272.3	.881	1305	035	83.
uperintendance		1000	10498.64				150		-034		30
day Obselv			10683.28		-	-		2-1	.018		1,
ive Stock			4043.71					-	*008		2.
otal Period .ASS	3219	803.0	184178.79	14898.54	474750	312881	97-2	659	-589	-048	57
otal Period .468	1888	1888	153478.60	25319.28	780104		353.9	855	. 830	.038	81.
otal Month 384	3604	3604	20554.24	3346.20	113663		18.6	.591	.485	ە050	8,
. 234	2670	2570	84659.91	3688178		39034	33.8	.778	76		9.
	-										
		3									
				-		-					
t. Toomas							00.0	-			
princtield750	53	- 68	2974.92	87.29	4446		28.3	433	1.545	.045	43
.069	303	303	14545.05	600 00	18903	13340	47.9	.706 .618	1,003	a043	48.
1bion 2,009			20073.89	893,35	23475	51886	142.4	.708	*388	.035	-9070
. 265 uperintandence	630	430	414.45	LAUTACE.	86483	DALGO	42002	2.00	.035	1000	1.
unary in source and a			545.94						1007		1.
ive Stock											
			86.86						-003		
otal Period .979	371	371	17934.42	710.64	27922	15486	44.3	.588	1,092	.043	43
.230	459	489	23402.77	2559.45	105585	74566	159.0	.708	.314	-032	42.
otal Month .488	398	392	2413,37	178.19	8088	4709	18.0	.584	.513	.038	6:
.827	561	561	2855.58	426,54	20057	11956	SLas	.596	.328	036	5 :
	-							-			
		-		-							
				-							
-										4	-
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August 1, 1940.

7 7003 TADOS I	Cost	ACRE	AGE	BAT EXPEN	DITURE	BRUTTE PR	ODUCTION	V INA	COUNT	COST PE	COUNT	COST PE
TAMES TARMS	Ct.	RRIGATED		FARM MAINTENANCE	HARVESTING	Stems	Counts	PER ACRE	RATIO	FARM MTGE.	HARVEST-	MTCE. ONLY
												10 15
		1	7 7 5	-			R. S. S. S.	181		Total I	-	
1 72							1000	100	780	The	400	-
				REO	APITU	LATI	ON					
eriod = 30		moto	2020	101100.00	3 4000 SA	ADADGO	312881	00.0	-659	.589	.048	60.00
t. Catherin	202	1888	1888	153472.66	14898.54 25319.28	780104	568130	353.9	856	.230	038	57.82
Thomas		371	371	17934.42	710-64	27988	16425	44.3	.588	1.092	043	48,34
24000	1830	469	469	23402.77	0559 45	105385	74566	159.0	2708	314	.034	40.9
tal Period	A93	3590	3590	202113.31	15609.18	508 658	329307					55.30
and the same	2805	2357	2357	175875.48	27878.73	385489	742896	315,1	.839	* 538	.038	75.0
	-	1000							-		-	
onth 4 No	ics	100	1							1000	-	
Gotherin	324	3604	3604	30554.24	3346.30	113663	67371	18.6		_455	.050	8.4
THE RESIDENCE		2670	2670	24559.91	3828.75	114385			.778	-276	.041	9.2
Thomas	488	392	398	2413.37	178,19 486,54	20057				.513 .522	038	6.1
	827	3996	561 5996	32957-61	3524.39	121731	71880		.596 .690		0049	8.2
stal Konth	283	3231	3231	28415.49	4055.30	134448		31.3			040	8.7
	-											
			- 13	45000		-	-	-	1000	0.5	1000	100
15 150.		-										-
	-			1000		-		1	1			
					Rate of E	change	- 1940 1		\$2	.8188		
							2940 E	Polon	32	.7474		
							- 1939 1	eriod	- 8	4.688		
				-								
			-	100			1 1/2				110	
		-					Section 1	1-				
	61	-		1		13	Lake	ESE.				100.00
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												193. 100
	The same						200					
	200	100		200	100		1.750				1300	- 46
		-			The second secon			1000	-			
				THE R	100			100	-			
-			1									
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		-							-		-	
-												

* Average under irrigation included in "In Bearing" figures.
† Gounts, Pounds, etc.

No. New York Show last year's figures in red

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

S. Popular built

Cedar Grove Experiment Station, Gregory Park P.O. Jamaica, B.W.I.

November 12, 1940.

Dear Dunlap:

This will acknowledge receipt of your letter written from Honduras transmitting photographs of the palatial residence in Bedouin Main. I am glad that the old four-poster finally found a suitable resting place, end if at some future date Iolene and I are able to take advantage of your kind offer of hospitality we shall enjoy that also.

We have been hoping that some freak of fate would have brought you to Jamaica before this, since as a result of delving into the mysteries of Cercospora musae there are so many points on which I should have wished to obtain your advice.

There is no doubt in my mind that we are now on the eve of completing the life history of Cercospora musae, since in the Frankfield area of Jamaica we have recently discovered perithecia, the asco spores of which have produced Cercospora conidia in culture. We are now impatiently awaiting the final proof which should be available within the next two weeks, since conidia from these asco spore cultures have been placed upon banana leaves and apparently are behaving like the normal Cercospora conidia taken from the leaf. We have already produced typical conidia bearing lesions from conidia produced in culture from other conidia, so that if we are able to produce lesions from the asco spore producing conidia the cycle should be pretty well complete.

So far the Frankfield area is the only one which has yielded

perithecia, and we are now investigating the Montego Bay area. It may be that this will complete our picture and give us more understanding of some of the hitherto unexplained seasonal spreads. Just as soon as I can accumulate sufficient material I will write you a more detailed description.

The Asco spores are two-celled, slightly tapered at each end, about one-third of the length of a typical conidia and a little fatter. The perithecium is about the same diameter as the length of a typical conidia, and the asci are a little more than half as long as a typical conidia. Perithecia appear to be produced on both sides of the leaf.

With kindest regards,

I am,

Yours sincerely,

Soldware Fruit Cop.

BOGWAIK. P.O.

MOVEMBER 27 1940.

DEAR DE POPEMOE,

MANY THANKS FOR YOUR MICE LETTER RECEIVED SOME LITTLE
TIME AGO — PLEASE EXCUSE MY MOT REPLYING EARLIER — BUT YOU KNOW
HOW TIME FLIES. I SEE BY YOUR LETTER YOU ARE STILL VERY MUCH
ON THE MOVE, IT MUST BE VERY INTERESTING BEING IN YOUR POSITION
VISITING All OF THE DIVISIONS, AND HAVING MANY PROBLEMS TO SOLVE —
ESPECIALLY WHEN YOUR SOLUTIONS ARE PUT 1910 EFFECT.

THINGS HERE IN JAMAICA HAVE BEEN RUMMING SMOOTHLY FOR QUITE

SOME MONTHS, FRUIT IN THIS SECTION STEADING INCREASED FROM JUME

UP 10 THE FIRST WEEK OF MOVEMBER, AND MON SHOWS A DECIDED FAILING

OFF IN QUALITY AND QUANTITY. IF CONDITIONS VERE MORMAN, THERE

WILL BE A REPETITION OF 3 OR 4 JEARS AGO—AN EARLY STRING CROP

STURTING FROM EARLY IN APRIL. UNFORTUNATELY THERE IS A FAIR AMOUNT

OF TRUMH PUT UP IN CROWNER'S AND PLATTS ALIBIS, PROSPECTS DO NOT LOOK

BRIGHT AS FAR AS SHIPMENTS. FOR SOME WEEKS HOW WE HAVE ONLY BEEN

SHIPPING 92 82 442 — SINES AMOUNT TO 13% OF THIS SECTIONS DUTOUT

HAVE BEEN SHUT OUT AT STATIONS, BUT BOUGHT FROM GROWERS AT THE

GOVERNMENT'S EXPENSE. IF I REMEMBER CORRECTLY WHEN THE BETS WERE

BEING PLACED — MRS SHAPPE TOOK NOTES OF POSSIBLE ALIBIS— NOT BEING

ABLE TO SHIP THE FRUIT, WAS ONE I FEEL SURE. NEVERLESS WHEN WE MEET

AGAIN WE CAM STRAIGHTEN THINGS OUT — PERSONALLY JOUR GUESS

I CONSIDER WAS CORRECT, IF WE HAD BOTTOMS THE ISLAND SHIPMENTS

Digitized by Hunt Institute for Botanical Documentation,

THE REGARDS TO LEAF SPOT THINGS ARE STILL GOING Along. SO SO
THE SAME LARGER GROWERS STILL STRAYING AND KEER — THE LITTLE FELLOWS
SIGHTLY INTERESTED, LYTILL THEY GET A PUMP, THEY MILLIONS OF EXCUSES
WHY THEY DO NOT STRAY OR KEEP ON A SWEEK'S CYCLE. THERE ARE MIGHTY
FEW FARMS (OUTSIDE OF OUR OWN) AND A 3 VEEK'S CYCLE. THE SMALL GROWERS
WILL HAVE TO GO DUT, BEFORE THEY WILL COME BACK SPRAY MINDED. JAY AFRAID
THE PRESENT SYSTEM WILL HAVE TO BE CHANGED, BEFORE CEREGOSIORA CAN BE
TACKIED BY THE SMALL MAY IN REAL EARNEST — DEMONSTRATION PLOTS IN
EVERY DISTRICT OF ANY IMPORTANCE TO BE RUY BY REAL BAYAMAMEN — THEY
DISTRICTS LET OUT BY CONTARCT TO MON GOIN. ENFINYERS TO DO THE SPRAYING
BY THE ACRE AND PAYMENT TO BE MADE BY FRUIT OR CASH. JAY AFRAID
THEY DAYS OF GENTIE PERSUASION ARE PAST

THE VIEWS I HAVE EXPRESSED ARE MY OWN AND I HOPE DO MOT CLASH WITH OTHERS.

I SPEAT A DAY WITH BUTIER, HE TOID ME HE HAD JUST HEARD FROM

YOU - VEIL WHEN I ARRIVED AT BOAWAIK YOUR LETTER WAS VAINING FORME

SO MATURALLY I FELT GRAND.

BETT AND BARY ARE BOTH LOOKING THE PICTURE OF HEALTH AND WE SHALL MEVER FORGET ME BRADSHAWS KIND CONSIDERATION IN MAKING IT POSSIBLE FOR US TO GET ABREAK IN LIVING IN THE HILLS HERE. Although JAM JEVER HOME BEFORE DARK FOR THE SIX DAYS OF THE WEEK, IDO TOT MIND IT FOR THE SAKE OF OTHERS, AS THE CLIMATE IS SO GOOD.

BE111 Joids ne id Wishida Heley AND YOURSELF EVERY MING Digitized by Hunt Institute for Botanical Documentation,

OF THE YEST BEST, WE ARE looking FORWARD WITH PLEASURE TO THE DAY WHEN YOUWILL BE COMING ON ONE OF YOUR VISITS!

BY THE VAT, THERE IS A VERY INTERESTING HOUSE AT CIMENOMY

ON RAMBIE PROPERTY, IT VAS BUILT BY THE CUSTOS OF STAMIS

ABOUT 1697 — IT MUST HAVE COST AGOOD \$15,000 THEN —

PRESENT DAY LABOUR COULD NOT DO SUCH FINE WORK. TO START

WITH All THE BEDROOMS ARE ON GROWNO LEVEL — LIVING ROOMS LIPSTONIS

AND FLOORS ARE LIKE MOSAIC WORK DONE IN WOOD OF MANY DIFFERENT

COLORS. GEILING ARE ALSO DONE IN WOOD OF DIFFERENT COLORS

AND HAVE ALLSORIS OF DESIGNS, STARS, MALTESE CROSSES ETC.,

BATH IS MADE ENTIREM OF TILES, IT IS QUITE AN ODD HOUSE

WELL WORTH A VISIT — SOME FRIENDS OF OURS RENTED IT

FOR THE SUMMER MONTHS — SO ISPENT SEVERAL SUMDAYS THERE.

THE ORCHIO HAS JUST FITISHED Blooming it WAS A PICTURE AND GREATH ADMIRED THE MAME POPETOE MATURALLY WAS MENTIONED MANY TIMES

I FOR GOT 10 MENTION THAT ON RAMBIE PROPERTY TEAMACHINGS IS STILL BE THERE, THEARD THAT LIPTONS GAVE THE OWNER BACKING BUT IT WAS HOT PROFITABLE.

ENOUGH HILLANDS / OUR SINCERE FRIENDS AND BOTH

M.B. CROUCHER HAS NOT COME ACROSS WITH A GOOD HEWSPAPER ARTICLE

SINCE YOU LEFT - FAR LESS R. F.W-HEVION HASSUST RETURNED FROM HAVII Digitized HE IN AST MARKE FOR STANDARD. !!!



UNITED FRUIT COMPANY, JAMAICA DIVISION

Supplement to Form 1187 - Bananas for Pariod Ended November 1940
Form Report including Cultivation Depreciation & Property Losses

District	Acres in Bearing	Wainten- ance:	Harvest ing	Cult.Depro		Mince.	cult. Deprm. & P.Losses	Mtce	Cult. Depend. P. Losses
		U.S.Curr	ency				U. S. Cur	reney	
St. Catherine	3,345	319,195	28,063	121,993	592, 633	.586	.206	95.42	36,47
St.Thomas	362	30,310	1,594	11,046	41,355	.772	.267	83. 73	30.51
Total -	3,707	349,505	29,657	133,039	633,988	,598	.21.0	94.28	35, 89

Farm cost includes treating "Leaf Spot" and "Panama Disease" which work out at \$.099 per count bunch.

Copy to: Mr.A.A.Pollan Mr.T.Bradshaw Dr.W.Popenos

Kingston, Jamaica. December 7, 1940.

JAMATCA

DIVISION

phin !			FOR PERI					- 11	ODUC	-	ANANA	
FARMS	-	EAGE	A EXPEN	-		Counts	Cts.	COUNT	Farm	Harvest-	OUNT	COST ACR MTC
	IRRIGATED	BEARING	Farm Maintenance and Disease and Insect Control	HARVESTING			PER ACRE	RAITO	Mtce.	ing	Deprn.	ONL
ST. CATHERINE	-	-		2000		20000						
Watson Grove	225				42375		134.8					86.
Consumo Donk	193				79200 228598	159199	368.7			.033	.132	93
Congreve Park	534				290616	232658	V62 1	201	. 220		.273	95
Twickenham Park	52				19412	13630	262.1	2001	434	058	,521	113
AND DECEMBER OF THE PERSON OF	8	8			7844		837.0			.059	.849	
Bushy Park	265	265		3906	55147		136.0			.108	.788	
July 2012	130	130	15892	4259	76651		425.6			.077	.650	120
Half-Wey Tree	537	537	41213	4922	141878	1.03660						75
	380	380	31317	6297	188394	164813					. RIS	88.
Bernard Lodge	213 135	213	21716	1675	55412	39894	187.3	.720	0544		0836	101
		135	15260	1836	59146	46856	347.1	.792	.326	.039	479	113
Joshen	368	368		2925	89778	68010	184.8	e758	.501	.043	-470	92.
	254	254	-	3369	112371	102021				,033	.275	
Phoenir Park	451	451		3505	105817		170.1				e514	83
	368	368		5175	162125	139282				.037	.282	83.
Laurencefield	400 265	265	36937	2851	89902		162.9				550	92
Toma windows and an ex-	200	265		3084	99790	86090	324.9	.863		.036	378	118.
Superintendence			17653				-		.030			5
Time Wheels	-		16756 5599	-	-	-			.009			1
Live Stock			5053		-				.006	-		-
Potal Period	3345	3345			328319	592633	177 0	215		047	413	95
	2267				1076137	904907				.038	3274	108
Potel Month	3542	3542		3296	81216	72736	20.5	.896	,554	.045	384	11
	2664				23843	18164			.948			
			-	12								
	-											
							1					
-												
ST. THOMAS Springilela		75	5000	220	10200	30000	274 0		606	.034	.271	78
phriskingm	75 42	75 42	5891 4144	339 477	16196 21652	10072	134°3	622	. 585			
Albion				1255	43541	31.283	109.0					
The state of the s	28 7 443	287	32604	2716	112133	79886	180.3	.712		.034	,350	73
Superintendence			657						.016			1
- Parker some so			801						.008			T
Live Stock			-		-							
	-		99						+001			
Total Period	362	362		1594	59737	41355	114.2		,733	.039	.659	83
	485	485		3193	133785	94880	195.6		.397	.034	.312	77
Total Month	301	301		221	7154	6204	20.6		.523	.036	.463	10
	351	351	2779	44	1176	1001	2.9	,851	2.777	.024	2,903	7
										1		
	-										100	
	-											
		-										
										-		
											_	

December 6, 1940

"Average under irrigation included in "In Bearing" figures.

†Counts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.

All people even dollars only eliminating cents.

Farm Deprecision (flocide

	ACRI	EAGE	A EXPEN	DITURE	PF	RODUCTION			co	ST PER C	OUNT	COSTAN
FARMS		IN	Farm Maintenance and Disease and Insect Control	HARVESTING	Stems	Counts	Cts.	COUNT	Farm	Harvest-	⊙Farm.	ACRE MTCE.
	IRRIGATED	BEARING	Insect Control		- vonto	oodn on	PER ACRE	-	Mtce.	ing	Deprn.	ONLY
									-			
									-		200	
										-		
					APITU	LATI	ON			-		
FERIOD - 1940, 48	Weeks	1939						-	-	-		
St. Catherine	3345 2267	3345 2267		28063 34729	1076137	592633 904907	309.2	042	539	038	.413	95.4
St. Thomas	362				59737		114.2					
Ota AHORNS	485			2195	133785		195.6					77.6
Total Period	3707	3707	349505	29657	888056	633988	171.0	-714	.551	-047	428	94.2
The state of the s	2752	2752		37922	1209922	633988 999787	363.8	.826	.283	.038	.278	102.6
												1000
MONTH - 1940, 5 W	aoka.	1050	- 4 Wester									
	3542				81216	72736	00 %	000		0.0	70.0	
St. Catherine	2664			988	23845	18164		752	946	-054	1-618	6.4
St. Thomas	301			221	7154	6204		- 867	505	036	ARR	10 7
	351	351.	2779	44	1176	1001	2.9	851	2.777	.044	2.938	7.9
Total Month	3843		43542	3517	88370	78940 19165	20.5	.893	.552	.045	.390	11.3
	3015	3015	19959	1032	25019	19165	6.4	.766	1.042	.054	1.687	6.6
							-	-				
	-	-								-	Warrier .	
	-											
					Rate of	Exchange				4.030		
					-					3.855		
							1939	Per	lod	4.508		
					-	-						
	-	-			-			-	-			
-		-			-	-		-				
						-				-		
									_			
											91.57	
											1000	
											1	

"Average under irrigation included in "In Bearing" figures. †Counts, Pounds, etc. Use two lines for each farm. Show last year's figures in red. AReport even dollars only eliminating cents. ©Farm Depreciation (ficuled irrigation and Disease Control)

D30		Total Fariod Total Houth	upton Pk,	March Fen	hoenix Fk.	Jushy Park	Congrave Pk.	THENARO LODGE	FARM		PERIOD COMMENCED:	1941 CROP	1000-1-39.
0.00		1523	- 413	859	33 4	97	210	- 57	Acres Mature		NCED		
-								CAT	KXP	T T			
1940		55 753 45 5 648 34	135	809	899	200	2000	Tarre	EXPENDITURE	SUPERINTENDE	40230		
		2 13 13	50 44	48	777	38	96	100		CADENCE	.40		-
		22 23	84.8	100	10 1	0 10	37 38		Cost per	AND CI			
		- 0	100	Dr j	- 2	0 08	0 0	III.	~	SUPERINTENDENCE AND CULTIVATION			
			H	H	H	1		15.2	_	TON YEAR		9	
								MEET	Cost per Acre	A		TERRIT	
	Ente								Acres			CYDEA CHARLES	
	of Exet				-				Tons Cane Produced		FARM		
	Property of the second		1		1	I	1		-	HT	FARM REPORT—SUGAR	COMPANY	-
			Н	H	H		H		Per per	THIS YEAR	ORT-	PAN	Form 1187 S
	North: Ferrion:	0	€0	62					EXPEN	2	SUC	3	S
	Ga ·	653	203	100	60 0	3775	492		EXPENDITURE	HAR	SAR		
	\$5. 74.000 \$2.000	770	50	52	59	3 63	90 80		-	HARVESTING		JA.	
	88								Cost per Ton	o Z		AMAICA	
			П			I			Acres				
				Ħ	ı	T			Tons		9		
			П			I			Tons Cane Produced	LAST YEAR	ERIO		
									Tons per	A	PERIOD ENDED WITH MONTH OF	DIVISION	
						I			Cost per Ton	-	IM G	NO	
			-	-				_	_		M H		
		68 413 6 296	2 08 2 33		98	CR CR CR			urm Expen	TOT YEAR	HTNO		
		06 07 08	SR 20	0 79	CH C	0 00	0 0 00		Farm Expenditure Exclusive of Depreciation	TOTA	OF		
									3	TOTAL COST	CINETITA		N
						H			ir Last Year	9	1940.	N	1

		EAGE	ΔEXPEN		ED TROS	RODUCTION			ODUC	ST PER C	OUNT	
FARMS			Farm Maintenance and Disease and Insect Control			Counts	PER ACRE	COUNT	Farm Mtce.	Harvest-	⊙Farm Deprn.	ACRE MTCE. ONLY
ST. CATHERINE												
Matson Grove	227	287	21,359	1,712	48.664	36.328	160.0	-745			.32%	04.0
	191	191	19,808	2,840	79,403	71 000	37 3	BOB	378	1000	120	500
Congreve Park	837				237,768			e703	468	-03B	290	93.3
	850	550		-	297,116		-	799	202	.036	100	184.5
Twickenham Park	53			817	19,953				-458	+058	-580	151.5
Durcher Brech	0.00	9		4 000	7,944		758.1	-854	-29%	- CISA	0.07	98.
Buchy Park	263	263	10 824	4,097	79,034	39,584			-765	-104	705	115.1
Half Way Tree	541			5,396	149,448	110,787			-433	-049	909	17.
Hall Hay Ires	281	283	34 374	5 423	189,106	185,459	454.5	875	208	-049	2000	00
Bernard Todge	215	23.5		1,779	57,601	41,865		-727	-	.042	.676	309-6
The state of the s	139				59 957	47,400		700	480	Dun.	10	1 1 1
Goshen	369	369			95,885	73,613		-768	513	-044	485	102-0
	56	256	29,526	3,445	113,851	103,169	403_0	-906	.384	0.8	208	110
Phoenix Park	454	454	41,380	4,004	114,772	84,330	185.7	.735	491	047	520	91.1
	387	367	84,121	5,221	152,528	139,679		P59	223	037	310	99.0
Lawrence Tield	403	403	40,719	3,055	94,385	69,189	171.7	.733	.589	-044	577	101_0
	264	264	34,381	3,148	100,524	88,655	888 3	_E68	357	-038	1435	330
Superintendence			19,894						-031			5.8
	-		19,158		-		-		1021			8 3
Live Stock		_	5,765		-	-	-		-009			1.2
Make 3 Mended	2 200	2 800	8.700	00 105	877,510	676 000	700 8	7000	000	000	100	100
Total Period	2002	0,062	200,606	30,480	1002 000	030,988	102.0	0728	.550	098	428	104 3
Total Month	3 540	3,548	31.441	0 400	49,191	44.355	12.5	002	.709	-055	629	3.8
TOYEL BOILD	O COR	2,565			13,743	10,086	2 3	73	2000	000	/ GQV	30.0
	-	-	-	-	-	-	-	-	-	-	-	
								1				
ST. TROMAS							-					
Springfield	77	77	6,697	389	18,006	11,449	148.7	.63E	.585	.034	270	85.9
	43	23	4,502	487	31.657	34,000	248.8	893	202	050	322	107.5
Albion	280	280	25,632	1,486	47,852	34,808		5727	.736	5043	.753	91.5
	431	431	35,015	2,769	112,530	80,330	186.1	723	-136	1000	291	81
Superintendence	-		757	-	14				-016	-		2.2
Time Of the			907			-			-070			1.1
Live Stock			99						003	-		
Sinto 7 David ad	357	AND.	35,086	1 015	SE DEC	AR DEG	100 6	700	001	075	633	92.6
Potal Pariod	-	357	40 100	1,815	134 187	48, 257	129.6	020	725	5002	10	1000
Potal Month	301	301	3,775	221	6.121	4,902	16.3	901		045	505	0 0
A CONTRACTOR OF THE PARTY OF TH	251	9.53	3,975	5.4	100	349	10	26B	8 11 24	783		
	-	-	-				-		-	-	-	
			_									
				1								

January 8, 1941

*Average under irrigation included in "In Bearing" figures.
(Counts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.
AReport even dollars only eliminating cents.
OFarm Depreciation (Include Irrigation and Disease Control)

COMPANY, JAMES

DIVISION :

	ACRE	EAGE	△ EXPEN	DITURE	PF	RODUCTION			cos	T PER C	OUNT	COST PER
FARMS		IN.	Farm Maintenance	HARVESTING	Stons	Counts	, Ots.	COUNT	Farm	Harvest-	© Farm	ACRE MTCE.
7.85 NOS 25	IRRIGATED	BEARING	Insect Control			4000	PER ACRE	to lot	Mtce.	ing	Deprn.	ONLY
					-						1	
				RSCAP.	PULATION							
T104 - 1940 - 5	3 Week	9; 193	8 52 Res	rs								
is-desherine	3,352	3,262	350,636	30,485	877,510 1089,880	636,988	189.5	.725	550	.048	.428	104.39
	357	357	33,086	1.815		46,257	129.6	0702	-715	.039	.633	92.68
	579	174	10.688		154,187 943,368 1224,087	95,209	200.9	-710	,427	.034	349	85-70
Notel Pariol	3,719	3,719	383,722	32,300	945,368	585, 245	183 .7	0724	.563	047	.442	103,18
	2 973	8,773	314,488	58,959	1224,057	1616 202	254.0	.885	-011	.039	-317	140 .4.
onth = 1940 5 We	eks: 1	939 5	lieeks									
St.Catherine	5,542	3,542	31,441	2,422	49,191							
		2,865		984	13,745	10,088	3.8	.733	2,880	.098	3.893	10.8
St. Thomas	301	301	2,776	221	6,121	4,902	16.3	801	8,524	100	10 505	9.21
Total Month	3 943	3.843	100 000 000	-								8.90
Dens hones		3.016										10.60
		-										
									7 70			
				Rate	of Exchang	e - 1940	Honth	\$4	0300			
							Period		.8684			
						1939	Period	\$ \$4	455			
		-							-	-		
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				Name and Address of the Owner, where the Owner, which is the Own								

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*Average under irrigation included in "In Bearing" figures.
†Counts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.
Alteport even dollars only eliminating cents.
Fram Depreciation (include Irrigation and Disease Control)

		Notel Month 1 525	Live Stook		Tindsor Park	Spoenix Park	TOUR TOUR	Diakenben Pk	Jone Bank Control	7273	NO. OF WEEKS		PERIOD COMMENCED:	1941 CROP	1000-1-39.
THE PERSON NAMED IN		1 525		00	413			7	10	1	Acres		NCED:		
(Date)		5 094 71	304 5	2 525	11 219 08 28 28 68		250 370	N 52	074 8	EXPENDITURE	THIS YEAR	SUPERINTEND	6,28,40		
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						I			00 10	Acre	Acres Cost per			THITTE	
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	Days.		-							Produced	-		FARM		
	of Excelu	1	-		I					Acre	THIS YEAR		REPORT	COMPANY,	Form 1187 S
	rage Mar	1 206	220 0		S 920	91		508	14	KAPKADITUKE	EAR	6	FARM REPORT—SUGAR	NY,	87 S
	Period.	85	E			87	250	100	98	Ton	Cost per	HARVESTING		TAMAYON	
	\$44,0300 \$3,7246		-							Cut	Acres				
	\$ 8		-							Produced	Tons Cane Tons		PERIO		
		-	-							Acre	per		DENDE	DIVISION	
			-			I				Ton	Cost per		HTIM G	N	
		6 303 08	984	585	18 848 OF	106	281	5 365 31	289	Exclusive of Depreciation	Farm Expenditure	тот	PERIOD ENDED WITH MONTH OF		
			-			9						TOTAL COST			N
itized b	y Hunt Institute for Botanical Documentation,		-						H	This Year Last Year	COST PER TON	7	CHEST PERSONS	N	4

Opper 50m 723 3-17-26

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1187 - BANANAS - FOR PERIOD ENHED DECREDER 1940 FARM REPORT INCLUDING CULTIVATION DEPREDIATION & PROPERTY LOSSES

District	Acres in Bearing	Mainten- ance	Har- yesting U. S. Curr	Culty Deprn and Prop losses ency		Mtce. and Her-	Cult. Depra. & Prop Lossas	.Mtce.	Losses
St.Cath.	3,362	350,636	30,485	135,934	636,988		.21.3	104.29	40.45
St. Thomas	357	33,086	1,815	18,282	46,857	.754	.266		34.40
TOTAL	3,719	383,722	32,300	148,216	683,245	.609	.217	103,18	39.85

Farm cost includes treating "Leaf Spot" and "Panama Disease" which work out 0 \$-100 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

Kingston, JAMAICA Jenuary 8, 1941

Boston, Massachusetts January 30, 1941

Via Air Mail

Dr. V. C. Dunlap Apartado 26 Santiago Dominican Republic

Dear Dr. Dunlap:

I attach hereto copy of Mr. Bradshaw's letter to me dated January 25th, and my reply of today, regarding the possible adoption of Perenox as a means of controlling Sigatoka on 50% of cultivations in Jamaica.

I should like to have your very specific recommendations on this.

In order to refresh your memory, in case you do not have your notes with you,

I quote from your recent report on fungicidal sprays tested in Tela since 1936.

	Standard Perenox	Perenox Bentonite
Metallic Copper	50%	40%
Proportions used	2.25 lbs./100 gals.	2.8 lbs./100 gals.
Spreaders	Goulae	Bentonite
Material cost per cycle acre	\$1.06	\$1.17
Trial period	1 year	10 months
Cycle	21 days	21 days
Spreading quality	Poor	Poor
Sticking qualities	Fair	Good
Advantages	Easy to mix. Stays	
	well in suspension. Not too expensive.	Ditto
Disadvantages	Difficulty in super-	
	vision because of dark brownish residue on leaves.	Ditto
Control	Fair to good	Fair
Comments	Throughout 1939 gave fair to good control but was discontinued in favor of Perenox Bentonite.	No improvement in control over Standard Perenox.

Yours very truly,

a. B. Bllau

Copy to: Mr. H. Rowe

Mr. W. E. Turnbull Mr. T. Bradshaw Dr. Wilson Popence

January 30, 1941

Mr. T. Bradshaw, Manager United Fruit Company Kingston, Jamaica

Dear Mr. Bradshaw:

I refer to your letter of the 25th instant regarding the use of Perenox for control of Sigatoka Disease and also regarding disposal of about half of your stock of Copper Sulphate in the event Perenox is adopted as standard treatment on at least half of your cultivations.

Before making any decision regarding adoption of Perenox I would like to have Dr. Dunlap's reaction and am sending to him at Santo Domingo copy of your letter and copy of this reply. If Dr. Dunlap decides in favor of Perenox, would it not be possible for you to dispose of your Copper Sulphate stock in Jamaica, possibly to the Government and for Sterling. The expenses in connection with transfer to another division would be considerable, and there is always the possibility of loss due to breakage of bags, etc. I believe you can let the Covernment have the stock at a price below that which they would have to pay on the open market. If you have any surplus stocks of lime, cannot these be handled in the same manner.

You state that the use of Perenox will enable you to save 19¢ per cycle acre in the cost of spray materials. At the present time your spray materials cost 60¢ per acre and you receive credit from the Covernment of an amount equal to 42¢ per acre, leaving a net cost of 18¢. Are we to understand that the entire cost of Perenox would be borne by the Covernment? It is only by the Covernment's doing so that I can visualize your net cost of 18¢ being wiped out.

In Honduras, where we used Perenox for one year, the Standard Perenox (50% metallic copper), on basis of 2.25 pounds to 100 gallons of water, gave us a

material cost of \$1.06 per application acre. Perenox Bentonite (40% metallic copper), with strength of 2.8 pounds per 100 gallons, gave us a material cost of \$1.17 per application acre. I shall be glad to hear further from you regarding this point.

Yours very truly,

a. a. Pollay

Copy to: Mr. H. Rowe
Mr. W. E. Turnbull
Dr. Wilson Popence
Dr. V. C. Dunlap

UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

MANAGER VIA AIR MAIL

JAMAICA DIVISION KINGSTON, JAMAICA

January 25th 1941

Mr. A.A. Pollan, Executive Vice-President, United Fruit Company, 1 Federal Street. Boston, Mass.

Dear Mr. Pollan,

As previously advised we have been giving Perenox a thorough tryout on our Bernard Lodge banana cultivations - 252 acres.

The results of this trial with Perenox and of our other experiments convince us that this material will give us just as good control of Leaf Spot as the Bordeaux Mixture, and I would like to have your authority to substitute Perenox for Bordeaux Mixture on about half of our total banana cultivations. Both Mr. Shaw and Mr. Butler recommend we do this.

The reasons for this recommendation are as follows:-

- Perenox gives us a saving at present prices of 19¢ per cycle acre. In addition to this economy there will be much less wear and tear on our machines and equipment.
- Perenox is much easier to handle, which will enable quicker operation and less labour in filling our spray tanks.

In addition to the above there is also the fact that we will be using a British product in a British colony which is always desirable. This consideration, however, has not had any influence with us in making this recommendation.

I understand that Perenox has not given very good results in Honduras, but conditions here are very different and we are all perfectly satisfied that it will give us complete control.

We have on hand approximately two years' supply of copper sulphate -503 tons - but it occurs to me that you may be glad to utilise about half of this supply in some other Division; if not, then we cannot of course consider the substitution of Perenox for Bordeaux Mixture. Please advise as soon as possible.

Yours very truly

J. Bradslaw

Copy to Mr. W.E. Turnbull

Dr. V.C. Dunlap

Dr. Wilson Popence -

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

open	ARM R	EFORT	FOR PERI						ODUC			
	ACRI	EAGE	△ EXPEN	DITURE	PI	RODUCTION			co	ST PER C	OUNT	COST PI
FARMS	IRRIGATED	IN BEARING	Farm Maintenance and Disease and Insect Control	HARVESTING	Stone	Counts	PER ACRE	RATIO	Farm Mtce.	Harvest- ing	⊙Farm Deprn.	MTCE.
G. CATEGRINA							-					
Margon Grove	299		8,136	217	7,479	6,599	22,1	.882	.386	.033	4106	
	173	173	1,438	55	10 200	20 000	40.0			-		8.3
ongrave Park	865	885	6,459	192	16,556	13,725	15.9	.829	- 573		.241	700
	730	63	5, 896		395	2,002	0.0	OFF	2 000			
Wickerhan Park	18	18	. 301	53	5	378	0.0	.957	2-17	-140	4010	300
USBF Purk	257	237	1,807	263	3,336	8,755	11.6	.021	.650	-095	.694	7.1
and the same	875		8,304		308	197		.652	11.600			8.
elf-way True	559	659	3,879	415	12,499	11,311	3.7.7					
	595	395	8,850	150	235	255	.6	895	10 39	150		
ornand Lodge	282	881	1,760	174	2,303	1,980	9.0	.860	.885	ACE8		
-	158	154	1.314	17	13 000	30 400	07:0	220	-	-		200
oshop	380	580	3,416	449	11,899	10,488	2000	07/	585	-043	.234	8.
Lounis Park	482	488		451	9,138	7,034	15.8	.824	.421	.057	1642	9.1
DOUBLE LOSE	358	358	2 845	50	88	73	2000	, B30	38 197	.585	0.004	2.
Awreacefield	4.26	486	3,594	280	5,502	4,500	10,8	.836	e600	.061	-604	8.
	250	260	2,239	27	29	85	-1	5864		1,090		2
Eperintencer 0			1,427									
		-	1,715						- 63			
Tre Stock		_	3/17						.004			
	2 010	-	00 180	0.000	60 360	50'000	. 30 3		102	-		-
Puriod	0 638	2 638	29,158	2,786	69,127	2,766	1.0	.808	3.14	+049	-366	B.(
Timus principals	89	- 89	583	36	1,640	1,163	15.1	.709	.50.	.033	,175	
	43						-2	833		1 800		
liblon	241	241		ISS	3,416	2,768	11.5	810	-745	-048	562	8.
and the same	303	303	0,101	81	413	374	1.2	1916	O.C.L	.08	-	
agerintendence			66						101			- 14
	390	900	2 719	184	5.056	5,931	11.9	2997	-69	.04	.448	
Derion.	361	351	8,497	32	419	379	1.1	,905	6.58	-08		- 7
		-										

Pebruary 5, 1941.

"Average under irrigation included in "In Bearing" figures.
†Counts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.
A Report even dollars only eliminating ceats.
OFarm Depreciation (ficiole irrigation and Disease Control)

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA 1187 (

UNITED MUIT COMPANY, JAMANON

____ DIVISION

FARM REPORT FOR PERIOD ENDED SANUARY 184 PRODUCT PARAME PRODUCTION ACREAGE A EXPENDITURE COST PER COUNT COST PER COUNT ACRE IRRIGATED BEARING SECTION BEARING STORMS OF STREET OF STREET STREET OF STREE FARMS RATIO Farm Harvest- OFarm Mtce. ing Deprn. MTCE. RECAPITULATION \$4,0000

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA "Average under irrigation included in "In Bearing" figures.
TOounts, Pounds, etc.
Use two lines for each farm. Show last year's figures in red.
Alkeport even dollars only eliminating cents.
OFarm Depreciation (fociode Irrigation and Disease Control)

Porm 723 3-17-26

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLEMENT TO FORM 1187 - BANANAS, FOR PERIOD ENDED JANUARY 1941 FARM REPORT INDIVIDING CULTIVATION, DEPRECIATION & PROPERTY LOSSES

	Acres in Beering	Meinten- ance	Harrest-	Cultiv. Dep. & Prop. Losses	Counts	Mtce.	Deprio.	Mtcs	Der Ac. Cultiv. Depu. A P. Losmo
		U.S. On	rency			U.S.	Currency		
St.Catherine	3,612	29,156	2,786	9,474	59,373	.538	-160	8.07	2:68
St.Thomas	330	2,719	166	564	3,951	.733	-143	8.24	3.72
Total -	3,948	31,875	2,950	10,038	63, 304	.551	.159	8.09	2.55

Farm cost includes treating "Leaf Spot" and "Panama Disease" which work out at \$.121 per count bunch.

Copy to: Mr.A.A.Pollen
" T.Bredshaw
Dr.W.Popence

Kingston, Jamaica, February 6, 1941.

		Idve Stock Potal Period Istal Month	Mindsor Park Superintender	Goshen Phoenix Park	Congress Park Trickenhen Park Suchs Park	SERVING TODGE	FARM		PERIOD COMMENCED:	1941 CROP
		2129	010	CA -S	325	37	Acres		NCED	
		22	255	-	-	0.0	EXP	IS S		
		749	0 0	243	203		EXPENDITURE	SUPERINTENDE	4.28.40	
		200 34	98 %5 28 21	22	20 PM 20	B		DENCE	5	-
			400		3 3 8	DEST	Cost per Acre	IND CO		
						MOIN	×	SUPERINTENDENCE AND CULTIVATION		
						10		10N		S
NAME OF TAXABLE PARTY.						Wed	Cost per Acre	AR		CELL
						13	Acres Cut			LIDER GENTO
							Tons Cane Produced		FAR	-
									Z Z	CO
							Tons per Acre	THIS YEAR	FARM REPORT-SUGAR	COMPANY,
	Resta	10	(d) (h)				EXP	EAR	ns	NY.
	92	1 125	20.00	85	426		EXPENDITURE	HAR	GAR	
	Expha	38		85	200			HARVESTING		IAN
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					T		Acres Cut			
	Month		111		H					
							Tons Cane Produced	TAST	PERI	
	\$4.0300 \$3.7985						Tons per Acre	LAST YEAR	PERIOD ENDED WIT	DIV
	300 985						ne per		NDED	DIVISION
					11		Cost per Ton		TIW	Z
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		322	166		679		Farm Expenditure Exclusive of Depreciation	TOT	NTH C	
		12.55	38				_	TOTAL COST	OF.	
					-		This Year	COST PER TON	DATES	- 01

Carnegie Mellon University, Pittsburgh, PA

UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION
Kingston, JAMAICA

3rd February, 1941.

VIA AIR MAIL

Dr. V. C. Dunlap, Apartado 26, Santiago, Dominican Republic.

Bear Dr. Dunlap,

I refer to Mr. Pollan's letter to you of January 30th in regard to my recommendation that we use Perenox on 50% of our cultivations in Jamaica.

There is one point I would like to comment upon which is the disadvantage of Perenox mentioned in Mr. Pollan's letter, viz: difficulty in supervision because of poor visibility of Perenox on the leaves. Under our present system of spraying in St. Catherine where we now concentrate all our spray machines at two points in the district, the supervision is such that the disadvantage above referred to has been eliminated entirely in our case.

Yours very truly,

Madshaw

Copy to Mr. A. A. Pollan,

Mr. H. Rowe

Mr. W. E. Turnbull

Dr. Wilson Popence

February 13, 1941

Mr. T. Bradshaw, Manager United Fruit Company Kingston, Jamaica

Dear Mr. Bradshaw:

Again referring to your letter of January 25th regarding the use of Perenox for control of Sigatoka disease on about 50% of your cultivations.

I have received reply to my letter to Dr. Dunlap, and he states:

"Under St. Gatherine conditions I have no doubt excellent control can be obtained with Perenox as has been demonstrated by Mr. Butler's emperiments. On the whole, control with Perenox has been satisfactory in Honduras except where exposed to virulent type of infection. Under such virulent conditions, Bordeaux 5-5-50 is definitely superior to Perenox.

"Where spray is applied with fixed nozzles on portable machines our objections based on trouble in inspection due to inconspicuous residues would be eliminated.

"In view of the reasons Mr. Bradshaw gives for his recommendation I should think it would be a good idea to make the change."

It will, therefore, be in order for you to use Perenox instead of Bordeaux mixture.

I shall be interested in hearing from you as to whether it will be possible for you to dispose of your excess Copper Sulphate and Lime locally as mentioned my letter of January 30th.

Yours very truly,

a g Pereau

Copy to: Mr. H. Rowe

Mr. W. E. Turnbull Dr. Wilson Popence

Dr. V. C. Dunlap

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

VIA AIR MAIL

JAMAICA DIVISION
KINGSTON, JAMAICA

February 14th 1941

Madshaws

Mr. A.A. Pollan, Executive Vice President, United Fruit Company, Boston, Mass.

Dear Mr. Pollan,

I have your letter of January 30th in regard to my recommendation that we use Perenox for the control of Sigatoka on half of our cultivations here.

Enclosed I forward you a memorandum giving full details of the present cost of Bordeaux mixture and of Perenox from which you will note that on our present basis of operations with free materials we would save 17% per cycle acre if we spread full strength materials, and about 9% per acre if we were able to go to the 3.3.50 basis.

As the Government assistance is only temporary I ignored this in making my recommendations. I believe it is better not to approach Government in regard to our copper stocks until we hear from Dr. Dunlap in the matter.

Yours very truly,

Copy to Mr. H. Rowe

Mr. W.E. Turnbull

Dr. Wilson Popence V

Dr. V.C. Dunlap

SPRAY MATERIAL INFORMATION

tost of Materials as of February 12th 1941

Copper Sulphate contains 25 per cent of copper by weight Standard Perenox " 50 " " " " " " " Bentonite Perenox " 40 " " " " "

The I.C.I. makers of Perenox recommend the use of $2\frac{1}{8}$ lbs of Standard Perenox per 100 Imperial Gallons, and consider this solution to be as effective as the 5-5-50 Bordeaux.

The spraying outfits in use here are American, therefore in order to use the solution recommended by the I.C.I. we mix 2.125 lbs of Perenox per 100 American Gallons - or a mixture of 41 lbs per Spray Tank of 200 gallons.

The average coverage is 180 Gallons per acre. On this basis the following would be the costs per cycle acre for materials:-

Bordeaux 5.5.50 costs \$ 0.953 per acre, using 180 gallons per acre
" 3.3.50 " \$ 0.571 " " " "
Standard Perenox) " \$ 0.770 " " " "
of 2.125 lbs per)
American gallon)

Standard Perenox)
of 1.275 lbs per) costs \$ 0.462 per acre, using 180 gallons per acre
American gallon)

Government allows 10 lbs of coppor sulphate crystals and 10 lbs of hydrated lime per acre per month, or Government allows alternatively $2\frac{1}{2}$ lbs of Perenox per acre per month

Material Costs per acre per month (of four weeks) would be as follows:-

1	1		- 2 -	
-	Bordeaux	Mixture of	5.5.50 using 180 gallons per acre 3.3.50 " 180 " " "	\$ 1.271 \$ 0.761
1	Standard	Perenox of	2.125 lbs per 100 American gallons, using	
12	*	**	1.275 " " " " "	\$ 0.616

The value of the Government allotment of 10 lbs copper and 10 lbs hydrated lime per acre per month is, at the present costs of lime and copper \$ 0.530 per month.

The value of the Government allotment of 21 lbs of Standard Perenox per acre per month, at the present cost of Standard Perenox, is \$ 0.503.

Therefore the cost per acre per month of 4 weeks to the Company for the various solutions, using 180 gallons per cycle acre after deducting the Government allowance, would be as follows:-

Bordeaux 5.5.50 would cost \$0.741 per acre per month 3.3.50 " " \$0.231 " Standard Perenox of 2.125 lbs per)" \$0.517 100 American Galls) Standard Perenox \$0.113 " of 1.275 lbs per 100 American Galls)

The costs per cycle acres after deducting the Government allowance would therefore be as follows:-

Bordeaux	5.5.50 3.3.50			\$0.556			acre	
	Perenox of 2.125 lbs per 100 American gallons	"	*	\$0.388	17	"	"	
	Perenox of 1.275 lbs per 100 American gallons	77	**	\$0.085	**	н	**	

Sorm 3234

UNITED FRUIT COMPANY, JAMAICA DIVISION

SUPPLIMENT TO FORM 1187 - MANANAS - PERIOD ENDED FERRUARY 1940.

FARES REPORT INCLUDING CULTIVATION DEPRECIATION & PROPERTY LOSSES

District	Acres in Bearing	Mainten- ence	Har- vesting U. S. Curr	Gultv.Deprn. and Prop.Losses ency		end Har-	Deprn. & Prop.	Mtoe.	THE RESERVE AND ADDRESS OF THE PERSON NAMED IN
St. Cath	3,591	60,379	5,676	17,358	137,043	.482	.127,	16,81	4,85
St. Thomas	339	5,349	362	1,488	7,370	.775	.202	15.78	4.39
TOTAL	3 930	65,728	6,038	18,846	144,413	-497	.131	16.72	4.80

Farm cost includes treating "Leaf Spot" and "Panama Dissase" which work out @ \$.102 per count bunch.

Copy to: Mr. A. A. Pollan Mr. T. Bradshaw Dr. W. Popence

Kingston, JAMAICA March 6, 1941.

DIVISION

Ar I			FOR PER			PERSONAL 1941			PRODUCT				
	ACRE	EAGE				COUNT	COST PER		OUNT	COST PE			
FARMS	IRRIGATED	IN BEARING	Farm Maintenance and Disease and Insect Control	HARVESTING	Stems	Counts	PER ACRE	RATIO	Farm Mtce.	Harvest- ing	⊙Farm Deprn.	MTCE ONLY	
ST. CATHERINE				1									
Watson Cours	899	299	4920	659	23962	19685	55.8	.enz	350	.033	.077	1600	
	173	1,73	2823	71								10.0	
Congreto Park	861	861	11984	1035	36531	30855 3524	35.8	.845	.388	.034	.214	13.9	
	752	788	9788	307	4079		4.5	.815	2.945	.09%			
Twickenber Park	65	63	1139	90	838	806	12.8	.952	1.413	.113	1.517	18.0	
	280	289	4058	448	5691	4706	30.6	887	-861	.095	.812	17.7	
bushy fert	273	273	4474	206	450	286	1.0		5.645		9010	16.3	
	657	637	8998	983	32504	28951	45.5	888	.37.1	.034	.239		
THE RELITION	395	395	5285	258	1845	1198	3.0	.962	4.432	.213	-	12.	
Bernand Tolon	214	314	41.73	284	4848	4227	19.8	.872	-987	.067	-991	190	
Lotte hand to the same	166		2596				- 2	.9857	2-125	.850		15.	
	380	380	6716	919	26817	23265	61.2	.888	·289	.040	.31.1		
			4612	88	1488	1129	3 9	.919		.076		15.	
Phoenix Perk	488	482		778	18118	14946	31.0		.480	-055	1449	14	
	357	357	5017	105	166	151	.4	9103	7.19?	.695	-		
Lewroncefield	425	426		480	11828	9598	22.5		.789	-050	.580	17.	
	283		4753	31	193	179	. 6	987		.172		18.	
Esperiatence per			3055						*083				
			3529	-				-	004				
Zive Stock			601		-				004				
march South	2591	3593	1127	5676	160737	137043	38.2	.853	-44	±047	.300	16.	
TOTAL PRINCIPLE	2690	2890	60379	1176	7444	6338	2.4	851	7.125	.185	District		
	3570	3570	31923	2890	91610	77670	21.8	848	-401	-031	261	8.	
ALCOHOLD ST.	2741		12637	504	3999	3578	1.3	893		.141			
	-						-						
SI, THUEAS	-	-		0.00	-	2705	31.8	731	man	053	3.50		
Springriein	85	85		85	5752	2705	31.0	931	398	,033	.150		
Albica	254	254	778	277	5794	4665	18.4	805	RRR	.059	.680		
Accessed	303		8885	56	906	630	2.1	892	6.167	.089	400		
Saperintendence	500		132	- 00	- 100				.018	-			
Jay			109	1 -					.170				
Total Pariot	339	339	5349	362	9546	7370	21.7	778	726	.049	485		
	351	201	4770	59			1.8	:591					
Total Munch	348	348	-	198	4490	3439	9.9	.766	·765	0058	.589	7 - 1	
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March 6, 1941.

*Average under irrigation included in "In Bearing" figures. (Counts, Pounds, etc. Lise two lines for each farm. Show last year's figures in red. A Report even dollars only eliminating cents. — (Farm Depreciation (fecule

	ACR	ACREAGE A EXPEN		DITURE	PF	RODUCTION			cos	T PER C	OUNT	COST PE
FARMS	IRRIGATED	IN BEARING	Farm Maintenance and Disease and	HARVESTING	50000	Counts	Cts.	COUNT	Farm Mtce.	Harvest-	⊙Farm Deprn.	ACRE MTCE. ONLY
			Insect Control		-					- Ing	оерін.	ONLI
			R	ECAP	ITVI	ATION						
THE CO WOOKS												
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314 40 400 4110	2890	2890	45175	1175	7444	137043 6338	8.4	.851	7.128	.185	a500	16.
St. Thomas	339	339	5349	362	9546	7370		.772	.726	-049	.485	15.
	351	351	4770	57	718	640	1.8	.891	7.453	.089		13.
COAL PARIO	3930	3930	65728	6038	170283	144413	35.7	.848	.455	.042	.310	16.
	2061	3041	49945	1238	8162	8978	8,3	,855	7.158	.177	-	16.
INTE 4 Nacks				-		-						
t. Catherina	3570	3570	51225	2890	91610	77670	21.8	248	.402	.037	080	8.
		8741	22837	504	3999	3572	21.8	.893	3,337	.141	*1002	8,1
St. Thomas	348	348	2630	198	4490	3439	9.9	,766	.765	.058	.529	70
	351	351	2273	25	899	261	- 7		3.707	.097		6.
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	2092	0085	24910	589	4898	3833	1.3	89%	5.499	.1.38	-	8.0
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Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

*Average under irrigation included in "In Bearing" figures.
†Counts, Pounds, etc.
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©Farm Depreciation (Include Frigation and Disease Control)

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UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

JAMAICA DIVISION KINGSTON, JAMAICA

February 21st 1941

My dear Pop,

I hang my head in shame when I consider that it is nearly six months since I last wrote to you, but I hope you will be able to forgive me when you bear in mind that we have had a really hellish time here during that period. As you know, T.B. went over to England and, far from writing personal letters, it was a difficult job for me to keep up with the work that passed through our hands during his absence. Upon his return we went into the throes of Government Control of the banana industry, and I presume that you have already heard that Government makes all purchases of bananas for which they, through the help of the Imperial Government, have been able to guarantee a price of 3/- per count bunch for this year's production.

I do not think you will be surprised to learn that Leaf Spot has become rampant practically throughout the entire Island, and even St. Thomas and Portland, which had kept fairly free of the disease up to last year, now have infection rated as high as No.4. Unfortunately, not one of the growers in the Island is co-operating with Government in an effort to control the disease, and their latest excuse is that as the price guaranteed by Government amounts to only 3/- per count, they cannot afford to buy any spray materials, and if they cannot get the required amounts free of charge from the Government they might as well abandon their cultivations. After the amount of work that our people have put into this question of Leaf Spot control it is very disheartening to hear this kind of stuff from people like the Lindos, Percy Junor, H.G. DeLisser, etc., who, considering their holdings and positions, should have more intelligence in this respect. They all come in to see me at one time or another, and when they do my blood begins to boil, but of course it is necessary for me to snuff out any fire that could easily appear in my replies to them.

I am forwarding herewith copy of my Annual Report covering the Leaf Spot Control Department as I think you will be quite interested in the figures and statements contained therein. As a matter of fact, since this report was rendered Butler has made a survey of the entire Island and his report is quite alarming as far as the future prospects of the banana industry in Jamaica are concerned. Possibly when T.B. writes up north in order to give them an outline of the present situation, he will more than likely send you a copy. In any case I will make this suggestion to him.

We have had visits from quite a number of old friends lately

including Reg and Walter Hamer, Mr. Turnbull and Mr. Jackson, and I have also had the pleasure of meeting for the first time Bowman and Van Diepen, together with their respective wives, and found them to be very charming people. They certainly do have a grand lot over in Honduras, and Con and I will really have to try and accept Mildred's invitation of going over there and spending a little time with the Maxwells.

Mary is typing this letter for me, which is an indication of how little she has to do these days in connection with Leaf Spot, but one good thing about this is that she is able to help me with my other work. She has already written to you so there is no need for me to refer further to her actions, etc. All of us here are getting along as well as ever, although somewhat saddened by what they are going through at home. However, we all do what we can in obtaining funds and look forward to the time when we can do a devil of a lot more to help them.

With kindest regards from Connie and myself to Elena, yourself and the family,

Sincerely yours,

Bruceto

Enclosure



UNITED FRUIT COMPANY

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

VIA AIR MAIL

JAMAICA DIVISION KINGSTON, JAMAICA

March 19th 1941

Madshaw

Mr. A.A. Pollan, Executive Vice-Fresident, United Fruit Company, Boston, Mass.

Dear Mr. Pollan,

I refer to your letter of February 13th authorising us to put about 50% of our cultivations on Perenox spray for control of Sigatoka. After going into this matter carefully I find that we have on hand and on order one year's supply of lime, and two years' supply of copper sulphate. Under present circumstances, and in view of your round letter of March 6th, I recommend we retain this stock of copper sulphate against our own future requirements. The Government here is not interested in the purchase of any of this material as they have a large supply of both lime and copper on hand.

Yours very truly,

Copy to Mr. H. Rowe

Mr. W.E. Turnbull

Dr. Wilson Popence -

Dr. V.C. Dunlap

PERENOX STOCK REPORT AS AT 30TH JUNE 1941

Received Previously
Received This Month
Delivered Previously

Delivered This Month

on hand

621 drums

34 "

603 drums

9

43

655 drums

655 drums

DELIVERIES

Roy Lindo - Ballards Val ley

Percy Lindo - Brimmer Hall

Percy Lindo - Quebec Park

6 drums

2 "

1 "

9 drums

BLUESTONE & LIME STOCK REPORT AS AT 30TH JUNE 1941

	BLUESTO	ONE	LIME	
Received Previously	20 bags		40 bags	
Received This Month	20 "		38 "	
Delivered Previously		ll bags		21 bags
Delivered This Month		9 "		15 "
On Hand		20 "		42
	40 bags	40 bags -	78 bags	78 bags

DELIVERIE	Bluestone	Lime
Percy Lindo - B/Hall	9 bags	15 bags

Ref.No.

JAMATCA. B.W.I.

June 26th.1941.

VIA AIRMAIL

Dear Dr. Popenoe,

I was very glad to receive your letter of the 1st June, but was disappointed to learn that having been so near us in Cuba, you were unable to pay us a visit.

I am interested to hear of the United Fruit Company's plans for an Agricultural School in Central America. Presumably it is all part of the United States' "goodwill" scheme leading up to the regional planning about which I understand your good President is so keen. There seems to be consideable movement in the West Indies to establish close co-operation between the United States and the British Colonies. The idea has been given a good start by the Naval Base schemes, but I gather that it is hoped to extend it to economical and particularly the agricultural side.

We had recently a most interesting visit from Dr. Crawford in charge of the Soil Conservation Programme in Porto Rico and the Virgin Islands. Although he has not specifically said so, I gather it was in the nature of a "goodwill" visit. Certainly, although he was here for only ten days, he assisted us tremendously in broadening our views and giving us new ideas in regard to the solution of the soil erosion problem in Jamaica. The next step is the Conference in Porto Rico in the coming Fall to which representatives of all the Caribbean governments will be invited. I am hoping to be able to go, but there are many candidates from Jamaica.

I do not know to what extent Butler has kept you informed of the recent developments in Leaf Spot work. As you will have seen from Leach's papers, he is now satisfied that all the important infection takes place on the heart leaf and within seven days of its appearance. Leach has now succeeded in making Bordeaux or Perenox stey on the heart leaf by the use of a combined sticker and wetter such as Agral. He has found that by spreying the centre leaf and the first leaf on a cycle of seven days so that each leaf received two spraying in its life, he is able to effect almost perfect control. He has succeeded in doing this near to Kingston in conditions of severe infection, even to the extent of controlling the disease on a follower when the parent and adjoining trees are severely infected. It is now being tried in other areas of the Island and there is every indication that it will be successful even under the wet conditions in the West end. It is another problem, of course, to apply the results on a practical basis. I do not think that it will affect the big properties in Jamaica. The difficulty of spraying every week will be considerable; the importance of which will probably be for the small man, but we shall have to devise some readily transportance equipment so that he can get through his bananas spraying just the two leaves repidly and easily. One of the advantages of it is the psychological effect it should have on the small grower when he finds that once a leaf has been sprayed, it does not get any spots. leach hopes that once having established control in an area of bananas, it should require approximately ten weekly spraying them you will be able to let up on the spraying for sometime perticularly as you have the knowledge that even after spots have appeared, it can be controlled readily. We are leying down trials to see to what extent this is true. Cur chief problem at the moment is to devise suitable equipment, and as far as the Board is

MUTEL

concerned, we are going very carefully in regard to the purchase of additional equipment of the old type. In general fewer and fewer small growers appear to be spraying although the larger growers are still going ahead and appear to be making money on their 3/- per bunch; they have of course, free materials. Nobody is buying additional and their to they get an allotment equivalent to 100 gallons per acre per month) but still seem to be maintaining control.

There has been considerable pressure on Government recently to undertake the supervision of spraying even though the staff required were financed by the Companies. Government has told the Companies that they have no objection to their setting up their own single supervisory staff, but that they will not undertake the responsibility of controlling that staff. It would probably mean that it was the first step towards Government undertaking spraying for growers, which, as you know, would be an impossible situation in this country. In any case, I do not see how one organisation would be any more successful in getting the small grower to spray then the three organisations at the moment.

I hope that the Soil Science Society in Florida may yet be another means of exchanging information and getting uniformity of work throughout this area. Thank you very much indeed for putting my name down and committing yourself not only for one year but for an indefinite time to come. As a result of Dr. Crawford's visit, I have had some reports from Porto Rico prepared by J.J.Landron and Juan Juarez, from a Soil Survey Report by R.C.Robert. The idea is that we may be able to tie up methods of description in Jamaica with those in Porto Rico and Cuba.

I have had no opportunity of mentioning your book " On The Unpaid Debts" to Platt. He has been particularly off recently although the last time I saw him he seemed better. They are again moving up to Stony Hill.

We have both been keeping very fit. - At present, Sir Frank Stockdale and the Inspector General of Agriculture, Mr. Wakefield, are providing us with plenty of work. They arrived last week and are turning their attention first of all to Sugar, but Bananas will receive their turn in the near future.

Our kindest regards to Helen, and to your good self. I hope the heat of Columbia is not overpowering you completely.

Yours sincerely,

Herlund Corde

Dr. Wilson Popence, Magdalena Fruit Company, Santa Marta,

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

AUG 25 1941

August 19, 1941

Via Air Mail

Mr. T. Bradshaw, Manager United Fruit Company Kingston, Jamaica

Dear Mr. Bradshaw:

I am sure you recall that we have a large cacao acreage at Tenguel in Ecuador. Dr. Popence was there last month and has recommended that some young man be sent there to take care of the cacao. He has suggested Thomas D. Grieve as the most likely person for the job, and I am writing to ask if you think he could be released.

So that you may have an idea of what some of the work is, I quote from Dr. Popence's letter of July 31st:

"The hard pert of this job will be the propagating and it will take a good deal of skill to do this well. Grieve was trained in Scotland, where they are as good at plant propagation as anywhere else in the world. He would need to go to Trinidad for a few months and get hold of the principles of selection and their technique in growing outtings. Then we could outline a program for him at Tenguel, which, I believe, he could handle satisfactorily.

"I believe it would be well to discuss this matter with Tom Bradshaw and Butler, as they know Grieve better than I do."

I shall appreciate hearing from you about this, and if you decide that we can have young Grieve, I should want Dr. Popence to outline for him the work which he is to undertake in Trinidad.

Yours very truly,

Q. Q. Pollan

Copy to: Mr. W. E. Turnbull

Dr. W. Popence - Guatemala

Mr. R. H. Goodell

GENERAL OFFICES. ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

> JAMAICA DIVISION Kingston, JAMAICA

> > 22nd August, 1941.

VIA AIR MAIL

Mr. A. A. Pollan,
Executive Vice President,
United Fruit Company,
Boston. Mass.

Dear Mr. Pollan,

I have your letter of August 19th and have discussed this matter with Mr. Butler, who considers Grieve would be a very suitable man for the work you require to have done in Ecuador. We can spare Grieve at any time and I will await your further advice regarding his trip to Trinidad.

Yours very truly,

Madshaws

Copy to Mr. W. E. Turnbull
Dr. W. Popence - Guatemala

Cedar Grove Experiment Station, Gregory Park P.O.

August 26, 1941.

Mr. Bradshaw:

Yesterday I spent the day with Mr. Leach. We visited his spray plots at The Manor House and also at Stony Hill. In addition, he was kind enough to make available for examination and discussion all the records from his plots in the Montego Bay area.

His spray plots have been treated as follows:- Each week all leaves that have opened during the past seven days are thoroughly sprayed on the under surface only using Perenox with a spreader. This means that the leaves of each plant and follower have received one spraying only applied when the leaf was no more than seven days old.

While these plots all show more disease than we would care to have in our own plantations, the differences between sprayed and unsprayed leaves in the same vicinity are extremely significant. Check leaves are invariably completely burned up while his treated leaves exhibit only a moderate amount of spotting. However, where there are infected leaves overhanging the followers there has been a considerable amount of fairly severe secondary infection.

A feature of Leach's plots is that they are all small, located in the centre of heavily infected areas. Ascospore discharge under such conditions, is much heavier and more of a problem than would be the case were he controlling a large area. Personally, I think that the technique of locating small scale control experiments in a very heavily infected area is open to considerable argument. By doing so one introduces an uncontrolled variable which does not normally exist in field practice. In very heavily infected areas the usual control technique is to chop down the heavily infected plants, thus reducing the spore load in the vicinity before chemical control is attempted. In view of the location of Leach's plots I think that the differences obtained comparing sprayed and unsprayed leaves assume even greater significance.

As I interpret these results it means that the method of Heart leaf spraying does offer a good prospect of control in a young plantation where there is no overhanging infection and it looks as though it might be practical under such conditions. Labour costs would probably be higher and material costs lower than with the present method.

With ratoon fields, especially where the trees are tall I cannot yet see how it can be done efficiently as a routine farm operation. There is a possibility, which is being investigated at present, that by commencing with a plantilla field, spraying as he suggests until the mother plants approach maturity, then ceasing to spray the mother plant but continuing with the followers, he may be able to maintain a clean cultivation with the use of much less material. It seems doubtful to me however, that the saving on spray materials will compensate for the additional costs for labour and the maintonance of equipment unless he can so clean up an area as to be able to quit spraying for a while.

My own reaction to the Heart leaf technique is that its value lies chiefly in adding to our knowledge of the behaviour of the disease, and any work carried out on a field scale with it will further increase this without having to make the bulk of the expenditures ourselves as has been the case in the past.

Already we know that a certain amount of the total infection occurs before the leaf is ten days old. This amount, viewed as a percentage of the whole infection, varies with climatic conditions at different times of the year and in different localities. However, there is good reason to believe that during our dry months in Jamaica it approaches 100 per cent of the total infection and the same may be true elsewhere. This infection carries the disease over to more favourable periods when reinfection and secondary infection are possible which cause mass destruction of the leaf tissues and build up the spore population in the vicinity.

One important feature of Leach's work, which we should not overlook, is that he has demonstrated that it is mechanically possible to get enough spray to stick on the underside of the youngest banana leaf to control 95 per cent or more of this type of infection. Whether we can do it economically on a field scale is something our engineers and others working with spray control can help us decide. If we can, I am sure that the task of controlling Cercospora will be rendered easier and this should mean cheaper.

The Ascigerous type of Cercospora musae has recently shown up in our St. Catherine plantations again. No ascospores were discovered between January 1st and August 20th of this year, but during the past few days we have found them in fair quantities. If they continue to show up in large numbers, I believe it would be worthwhile to remove the dead leaves during the pruning operation from August to December. Infected leaves, hanging down as they do around the follower cause quite a lot of infection during a period of the year when conditions for infection are favourable. Ascospores which are produced inside the old leaf are ejected directly on to the Heart leaf of the follower and do not come into contact with any spray. This is an essential difference from conidia which we believe come down in water suspensions containing copper ions from the overhanging sprayed leaves. They therefore have a tougher time of it.

We are continuing our observations regarding Ascospore infection.

Yours sincerely,

(Sgd.) Alfred F. Butler.

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION
Kingston, JAMAICA

29th August, 1941.

Madshaw

VIA AIR MAIL

Mr. A. A. Pollan, Executive Vice President, United Fruit Company, Boston. Mass.

Dear Mr. Pollan,

I forward you herewith a further memorandum by Mr. Butler in regard to the Leaf Spot experiments being carried out by Mr. Leach of the Department of Agriculture here.

Yours very truly,

Copy to Mr. W. E. Turnbull Mr. H. Rowe

Dr. W. Popence Dr. V. C. Dunlap

Enclosure.

Panama City, R. P. September 4, 1941

VIA AIR MAIL

Thomas Bradshaw, Esq. Manager, United Fruit Co., Kingston, Jamaica, B.W.I.

Dear Mr. Bradshaw:

Mr. Pollan has instructed me to inquire if you would be willing to transfer Thomas D. Grieve to Ecuador for work on cacae. The story is as follows:

Our large plantings at Tenguel are badly in need of rehabilitation. But it is useless to go on planting cacao which is highly
susceptible to witch broom, and which is of such mixed constitution that
the quality of production would be, in any case, unsatisfactory. We have
discussed the problem with Professor Cheesman in Trinidad and believe it
would be worth our while to do some selection, and then propagate by
cuttings. The British Government in Trinidad is adopting such a program
in that Island, on a rather extensive commercial scale.

The moment is particularly favorable, because the United States Government has recently sent Dr. Kevorkian to Ecuador, and it is proposed that he shall develop an experiment station near Guayaquil, and build up a collection of selections from material all over the country. We would have access to this material.

What we want to do, therefore, is to put someone at Tenguel, someone who knows how to propagate plants, and let him grow selected varieties from cuttings just as rapidly as possible. It has been shown in Trinidad that cuttings give better results than budding or grafting. He would not need to do much of the actual selection himself, though anything along this line would be all to the good. He could work in close

September 4, 1941

Thomas Bradshaw, Esq. - 2

cooperation with Kevorkian and take advantage of all the promising strains which are brought to light.

In canvassing the field for a man, the only person now in Company employ who might possibly be available, and who has been trained in plant propagation, seems to be Grieve. I do not know how he has been getting along during the past year or so; and I have never seen him handle work of just this sort. But with his training he ought to be able to do the job. However, you and Butler will know best about this. It would be our idea, in case he were to tackle it, that he should go down to Trinidad for a couple of weeks, and let Cheesman show him how to grow cacae cuttings.

I am on my way to Guayaquil this week, not on Company business but in connection with a little job for the United States Government, and I will probably have an opportunity to discuss the matter further with Mr. Goodell. If you will write him, telling him whether or not you think Grieve can handle the job, and whether or not you are willing to transfer him, we shall greatly appreciate it. I would like to add that I personally consider this quite an opportunity for Grieve for anyone else fortunate enough to get the assignment.

With best regards.

Sincerely yours,

Wilson Popence

oc: Mr. A. A. Pollan Mr. W. E. Turnbull Mr. R. H. Goodell

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

> JAMAICA DIVISION Kingston, JAMAICA

VIA AIR MAIL 8th September, 1941.

Dr. W. Popenoe, Compania Bananera del Ecuador, Guayaquil. Ecuador.

Dear Dr. Popence,

I have your letter of the 4th instant in regard to
Thomas D. Grieve. As advised in my letter to Mr. Pollan of August
22nd, copy to you and Mr. Goodell, both Butler and I consider Grieve
would be a very suitable man for the work you have in mind in Ecuador,
and we can transfer him at any time you wish. Please let me know
when you want Grieve to go to Trinidad and I will make the necessary
arrangements.

Kind regards,

Sincerely yours,

Moudshaws

Copy to Mr. A. A. Pollan Mr. W. E. Turnbull Mr. R. H. Goodell

Cedar Grove Experiment Station, Gregory Park P.O.

September 9, 1941.

Mr. Bradshaw:

We have recently completed a survey of the Cercospora activity in Section 8, Halfway Tree. Final spraying of this area was
completed on June 25th, so that it is now 11 weeks since the last application. This block of bananas, which is roughly 45 acres in extent,
contains approximately 20,000 mother plants and followers each having
at least 10 leaves or about 400,000 leaves in all.

When the treatments were commenced status of Cercospora in the area was medium infection. That is to say, extension of the spraying cycle beyond 3 weeks would have been considered dangerous. At the present time I believe it would be difficult to discover 100 leaves that have more than an occasional spot, and a large percentage of the followers at present show no spotting at all.

In view of the fact that this test has been carried out during a period when we know ascospores are present in the vicinity, I believe it shows sufficient promise to be extended to a larger area.

I would particularly like to see them try it in Honduras during the next dry season. If they do the following suggestions may be of interest:-

- (1) At the start of the dry season select an area on which present control is considered satisfactory but where a 3 or 4 week cycle is considered necessary.
- (2) Remove any leaves or parts of leaves showing excessive spotting, presumably 4 or 5 per 1000. This operation can make no appreciable difference to crop and cuts spore population considerably.

- (3) Remove dead leaves if these have any appreciable amount of heavy infection in order to reduce ascospore population.
- (4) Spray on weekly cycle with <u>Bordeaux</u> at high pressure, taking care that youngest leaves of plant and follower are covered so far as is practical. Continue this treatment for six weeks.
- (5) After spraying has ceased inspect area weekly. As spots of disease again begin to show up spray trees in contact with these spots on weekly cycle for several weeks. If this is done persistently I believe it may be possible to practically eliminate the disease from certain areas for considerable periods.

The reason I would like to see it operated in Honduras is because that area is more generally typical of the company's banana plantings than our Jamaican fields. In addition, the personnel in Honduras all accept spraying as a normal cultivation procedure and even if the system, as I have outlined it, does not hold up there, it may easily suggest another approach to their problems which they can develop and improve. The carry over of the disease on the heart leaves during adverse weather will, I am sure, apply equally as well to Honduras as Jamaica and a close spraying cycle definitely interferes with this portion of the life history of the fungus.

The period of six weeks is suggested as the minimum time in which the cycle of disease can be seriously interrupted. Where the disease is extensive the period would naturally have to be extended, so that when the treatment is completed at least 60 per cent of the leaves are practically free from spots and all leaves carry a heavy deposit of spray which we believe interferes with sporulation.

Yours sincerely,

(Sgd.) Alfred F. Butler.

GENERAL OFFICES. ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS "SANANAB"

THOMAS BRADSHAW MANAGER

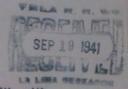
> JAMAICA DIVISION Kingston, JAMAICA

> > 11th September, 1941.

VIA AIR MAIL

Mr. A. A. Pollan, Executive Vice President, United Fruit Company, Boston. Mass.

Dear Mr. Pollan,



I refer to Mr. Bradshaw's letter of July 25th, with which he forwarded you copy of memorandum prepared by Mr. Butler commenting on Dr. Dunlap's memo of June 9th in regard to Leaf Spot, and now forward herewith copy of a further memorandum from Mr. Butler on the same subject.

You will note that as a result of a survey of the Cercospora activity recently completed on our Half way Tree Farm in St. Catherine Mr. Butler suggests that it would be advantageous to try out the spraying system indicated on a larger area in the Honduras Division, and we trust that this will be possible as details of the results of such an experiment would certainly be of interest and use to us here in Jamaica.

Yours very truly,

Censuit

Copy to Mr. H. Rowe

Mr. W. E. Turnbull

Dr. V. C. Dunlap

Br. W. Popence

Enclosure.

Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

September 15, 1941 Mr. W. L. Taillon Assistant General Manager Tela Railroad Company La Lima, Honduras Dear Mr. Taillon: I refer to Mr. Hislop's letter of September 11th to the writer with copy to you, and Mr. Butler's memorandum of September 9th relative to spraying experiment being carried on in the Jamaica Division. Please take no action regarding Mr. Butler's suggestion to the effect that a similar experiment be carried out in Honduras on a larger scale. This matter was discussed with Mr. Bradshaw here in Boston today, and he will write you more fully about the Jamaica experiment but, in any event, there is no need of duplicating the experiment until we know more about the results obtained on the forty-five acre experimental block in Jamica. Yours very truly ausollarco Copy to: Mr. T. Bradshaw Mr. H. Rowe Dr. V. C. Dunlap Dr. W. Popence Digitized by Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, PA

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

VIA AIR MAIL

JAMAICA DIVISION KINGSTON, JAMAICA

September 29th 1941

Mr. A.A. Pollan, Executive Vice-President, United Fruit Company, Boston, Mass.

Dear Mr. Pollan,

As a matter of possible interest I am forwarding herewith a life history chart of <u>cercospora musae</u> based on observations made by our Research Department in St. Catherine's district, which has been drawn up by Mr. Butler.

Yours very truly,

Copy to Mr. W.E. Turnbull
Dr. Wilson Popence of Dr. V.C. Dunlap

LIFE HISTORY CHART OF CERCOSPORA MUSAE (ZIMM)

BASED UPON OBSERVATIONS IN

SAINT CATHERINE'S DISTRICT OF JAMAICA

1937 to 1941

Ascospores blow in from distant infection. If the source is a great way off this produces single isolated spots. If comparatively close the infection resemples the discharge of a shot-gun at 30 to 40 feet.

After 25 to 35 days conidia produced on these spots, given favourable weather conditions, reinfect tissues around the original spot. If the original infection occurred on a leaf of a mother plant, conidia from both the original spot and the reinfection drip as a water suspension on to young leaves of followers.

These "burns" produce ascospores at certain periods of the year. Unlike conidia, which we think are carried only as water suspensions the ascospore is windborne. This enables the disease to climb back up to the heartleaves of both the follower and motherplant. In very heavily infected areas, where many burns are visible, ascosporæ can be numerous enough to cause mass infection of heart leaves direct from burns on the older leaves. This is cause of heavily infected plant fields.

The heavy increase in infectious material which thus comes into contact with the young leaves of the follower causes mass infections. Given favourable weather conditions reinfection again occurs, this time on the followers as well, and by the time the leaves are 60 to 80 days old these appear as dried up patches, the so-called "Burns".

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Carnegie Mellon University, Pittsburgh, PA

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October 9, 1941,

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*Average under irrigation included in "In Bearing" figures.
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GENERAL OFFICES. ONE FEDERAL STREET, BOSTON, MASS.

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

VIA AIR MAIL

JAMAICA DIVISION

September 30th 1941

Mr. W.E. Turnbull, Assistant Vice-President, United Fruit Company, La Lima, Honduras.

Bear Mr. Turnbull,

I refer to Mr. Hielop's letter to Mr. Pollan of September 11th and Mr. Pollan's letter to Mr. Taillon of September 15th in regard to a Sigatoka experiment we are carrying on in our St. Catherine's district, and about which we have not written previously.

As the result of knowledge accumulated by Mr. Butler, and observations of the experiments being carried out by Mr. Leach of the Jamaica Department of Agriculture, we decided to try an experiment as outlined in Mr. Butler's memorandum of Leptember 9th. For this purpose we used an area of a little less than 50 acres of cultivations which had medium infection and which had been on a three-weekly cycle. This area was thoroughly sprayed weekly for six weeks in succession, the idea being that if we could eliminate practically all infection for this period we would eliminate most of the danger of secondary infection. If this theory were proved to be correct in actual practice it might be possible to spray cultivations on a weekly cycle for six to eight weeks and then discontinue spraying for a very long period - possibly a year.

We commenced spraying the above area week ending May 21st and completed the six weekly sprayings on June 25th, since which date we have discontinued spraying this area entirely. To date, which is fourteen weeks since we last sprayed this area, there is very little slight infection to be seen, and the cultivations are as clean, if not cleaner, than any others in the district, in spite of the fact that we have an area adjoining these cultivations which has to be sprayed on a two-weekly cycle.

Although it is too early to predict that our theory is correct, we are positive that in so far as our St. Catherine's cultivations are concerned we can at least save money by this method of spraying. On the basis of a three-weekly cycle our six sprayings would have taken us till September 17th; we are already two weeks over that period and there are no signs that the area will require spraying for some time. Needless to say, we are keeping a very careful watch on the area in question and Mr. Butler is making a personal inspection of same every week.

Even if this method of spraying proves to be completely successful here in Jamaica it does not follow it would be successful in our other Divisions where climatic conditions are entirely different.

Yours very truly,

Copy to Mr. A.A. Pollan

Mr. Hartley Rowe

Dr. V.C. Dunlap

Dr. Wilson Popence V

TELA RAILROAD COMPANY Office of the General Manager

La Lima, Hondures October 1, 1941

Mr. A. A. Pollan United Fruit Company Boston, Mass.

Dear Mr. Pollan:

This will acknowledge receipt of your letter of September 15 that we are to take no action regarding Mr. Butler's suggestion to the effect that a similar experiment be carried out in Honduras as is being done in the Jamaica Division.

We await with interest Mr. Bradshaw's comments covering results on the forty-five acre experimental block in Jamaica.

Yours very truly,

M. L. Taillong

Co: Mr. Hartley Rowe Mr. T. Bradshaw Dr. Wilson Popence Dr. V. C. Dunlap

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Digitized by Hunt Institute for Botanical Documentation,

"Average under irrigation included in "In Bearing" figures.
†Counts, Pounds, etc.
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*Average under irrigation included in "In Bearing" figures. Toomts, Pounds, etc. Use two lines for each farm. Show last year's figures in red. Aleport even dollars only eliminating cents. OF arm Depreciation (include Irrigation and Disease Control)

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GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION Kingston, JAMAICA

22nd October, 1941.

VIA AIR MAIL

Mr. A. A. Pollan, Executive Vice President, United Fruit Company, Boston. Mass.

Dear Mr. Pollan,

I refer to my letter to Mr. Turnbull dated September 30th, and previous correspondence in regard to Sigatoka experiment we have been carrying out on about 50 acres of our St. Catherine banana cultivations. I inspected the experimental plot yesterday and find that there is now considerable infection throughout the entire area and we consider that we will be running considerable risk of losing this field if we do not resume spraying without delay. We are, therefore, putting back this area on the regular 3-weekly cycle.

I might mention that there is a considerable increase of the disease throughout all our St. Catherine properties, and the majority of our cultivations are on a 2-weekly cycle with the full strength Bordeaux mixture (5-5-50).

Yours very truly,

Copy to Mr. Hartley Rowe

Mr. W. E. Turnbull

Dr. W. Popence

Dr. V. C. Dunlap



GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW MANAGER

> JAMAICA DIVISION Kingston, JAMAICA

> > 14th November, 1941.

madshaw

VIA AIR MAIL

Mr. Hartley Rowe, Vice President, United Fruit Company, Boston. Mass.

Dear Mr. Rowe,

As a matter of interest I am enclosing herewith copy of a memorandum by Mr. Butler in regard to Dr. Wardlaw's comments on Panama Disease contained in the publication forwarded with your letter of October 24th.

Yours very truly,

Copy to Mr. A. A. Pollan
Mr. W. E. Turnbull
Dr. W. Popence
Dr. V. G. Dunlap

Enclosure.

Copy.

Gragory Park P/O.,

November 13th., 1941.

Thomas Bradshaw Esq., Div. Manager, United Fruit Company, Kingston.

Mr. Bradshaw:

I am returning Dr. Wardlaw's paper on "Cultivation & Diseases of the Banana in Central America". In light of our own experience with new banana areas & Panama Disease, I found his comments on page 22, 23 & 24 of interest. particularly regarding the "pre cultivation dispersal of the pathogen during periodic flooding" reported from La Ceiba. This is apparently what has happened on our cane farm soils, and also at Grove Farm, although as you know I was prepared to doubt it at first. Wardlaw's comments & theories are interesting, but, emphasise only too clearly that at present we know very little about the behaviour of Fusarium cubense, and some of our theories which had appeared to be fairly well substantiated, like the pH. theory & the resisting qualities of the heavier soil types are now open to argument. To me, this is a serious outlook. Our agricultural procedures today are based upon a heavy investment per acre for equipment, and differ substantially from the old time methods whereby bananas could be brought to production for \$100 per acre or less. Had we been faced with the same investment costs that are usual in Central America today in our plantings at Grove Farm, we should have gone deeply into the red. Yet, by all the soil tests that we know anything about, Grove should have been highly resistant; soil being a clay loam soil of high pH. Actually it grew some of the best quality bananas ever produced in Jamaica, and remained in active production less than 3 years.

Of course, if the flood fallowing method of soil sterilization works out successfully, the Company would have fewer worries, but, there is still the possibility of losing large sums of money in new land development, if Panama Disease makes serious inroads within 2 years of planting. If some simple system could be found for determining the presence and density of Fusarium cubense in

the soil, and which could be carried out by any one of average intelligence, it might save us considerable money. A promising one, is that of using the seed from susceptible seed bearing types & attempting to grow them in pots or boxes of the soil under question. Cultures from plants which died would soon reveal presence or absence of Fusarium cubense.

Yours sincerely, (Sgd.) Alfred F. Butler.

GENERAL OFFICES, ONE FEDERAL STREET, BOSTON, MASS,

INLAND TELEGRAPH ADDRESS

THOMAS BRADSHAW

JAMAICA DIVISION Kingston, JAMAICA

26th November, 1941.

VIA AIR MAIL

Mr. A. A. Pollan, Executive Vice President, United Fruit Company, Boston. Mass.

Dear Mr. Pollan,

In regard to the Leaf Spot campaign - I am informed that the Government Board proposes to appoint two additional supervisors for this work, and to carry on an intensive campaign in one or two districts of the Island in line with the procedure adopted by Mr. Leach in the experiments he has been carrying on during the past year. This treatment consists of spraying of the heart leaf and the underside of the second leaf each week, and it is the intention of Government to endeavor to get growers to follow this procedure for from six to eight weeks and then suspend spraying operations until cultivations are infected to a degree where it is considered necessary to re-commence spraying operations.

Yours very truly, Minadola aw

Copy to Mr. W. E. Turnbull
Dr. V. C. Dunlap
Dr. W. Popence

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Carnegie Mellon University, Pittsburgh, PA

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Counts, Pounds, etc.
Use two lines for each farm. Show last year figures in red.
AReport even dollars only eliminating cents.

Farm Depreciation (Include Irrigation and I sease Control)

UNITED FRUIT COMPANY, JANATCA

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