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AERIAL SPRAYING ASSESSMENT REPORT

RUBBER

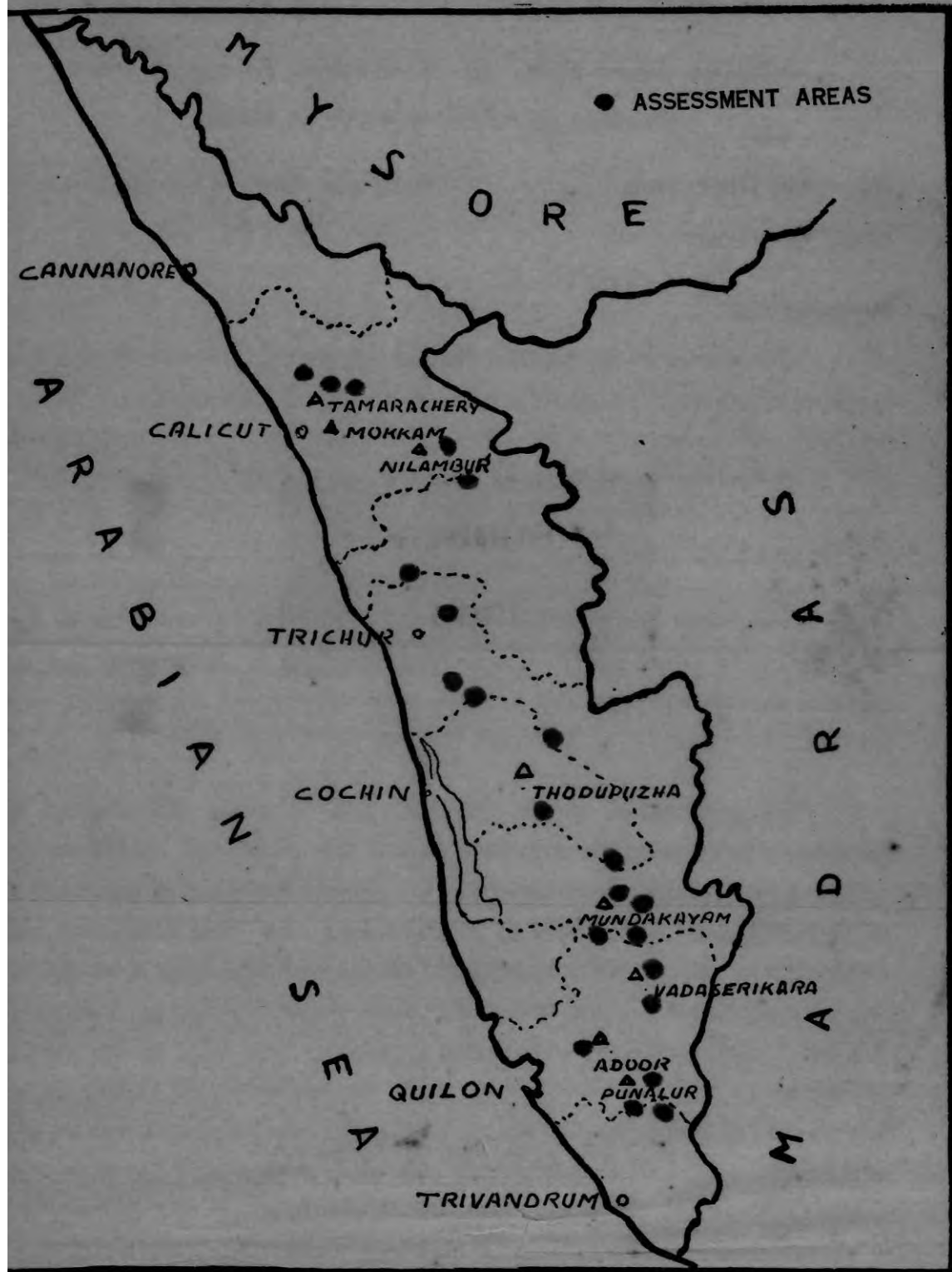
1965

PEIRCE LESLIE & CO., LTD.

IN ASSOCIATION WITH

HELICOPTER SERVICES PRIVATE LIMITED

RUBBER ASSESSMENT — 1965



AERIAL SPRAYING OF RUBBER—SEASON 1965

CONTROL OF PHYTOPHTHORA PALMIVORA

Spraying Operators ... Helicopter Services Private Ltd.

Field Operators ... Peirce Leslie & Co., Ltd.

Introduction

1965 proved to be another year of successful advance in the aerial spraying of rubber, the most difficult of all crop spraying operations. Who, for instance, would have imagined even a year ago that one helicopter would be able to spray 24,316 acres in 38 days—or an average of 640 acres per day throughout the operations? But this is in fact what one modified Bell 47 G2 accomplished this year.

This major breakthrough opens up even greater possibilities for aerial spraying in the future and it is our intention that by the use of the most modern aircraft available, flown by the most experienced crop spraying pilots, we shall in the years to come exploit this successful experience.

The performance of the helicopter and its pilots and engineer was impressive, but despite the undoubted skill of the pilots and the efficiency of spraying, the results which appear in this Report indicate that much has still to be learnt about the control of *Phytophthora*. In 1965 there were many extraordinary and so far unaccountable results, and before any of us can be in any way satisfied it is clear that much more research must be done by the Rubber Board, ourselves and rubber producers. It will be our constant endeavour to improve the service which we render to the rubber planting community, so that efficiency will be increased and expenditure reduced as far as possible. We shall always be very pleased to receive any suggestions from rubber producers for the improvement of our services.

Aircraft personnel

Pilots Mr. W. C. Davidson
Mr. M. Cain

Engineer Mr. H. Dysart

Ground personnel

Messrs. G. S. Gill (Sr.)
G. S. Gill (Jr.)
C. Viswanathan
Suraj Prakash
R. V. Narasimhan

Assessment Team

Messrs. M. Cain	...	Pilot—Helicopter Services Private Ltd.
P. K. Madhava Menon	...	Estate Manager—The Cochin Malabar Estates Ltd.
G. S. Gill (Jr.)	...	Peirce Leslie & Co., Ltd.

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A detailed questionnaire was sent to all estates and the replies gave us valuable information on the results at the end of July and August. After analysing these reports the assessment team visited a number of estates, the combined acreage of which represented 65% of the total acreage sprayed.

The assessment team commenced their tour on 11th September and concluded it on 19th September. The following estates, scattered in the rubber growing tracts of Kerala, from Kozhikode district in the North to Quilon district in the South, were visited:—

Tamaracherry Area	...	Kinalur, Poonoor, Manamel Plantations
Mokkam	...	Thirumbadi, Calicut
Nilambur	...	Pullangode, Kerala, Sultana, S. S.
Trichur	...	Desamangalam, Mappadam, Chemoni, Pudukad
Thodupuzha	...	Malankara, Teekoy, Kaloore
Mundakayam	...	T. R. & T., Kutikul, Villeney Group
Vadasserikara	...	Cavunal, Perinaad
Adoor	...	Kodumon
Punalur	...	Shaliacary, Good Hope, Vellimalai

Method of Assessment

Consistent with previous practice, results were assessed under the following categories :—

Satisfactory	...	Leaf retention of 75% and above
Reasonable	...	Leaf retention of 50% to 75%
Unsatisfactory	...	Leaf retention of 25% to 50%
Poor	...	Leaf retention of below 25%

While written information received from estates formed the main basis for assessment such information wherever possible was scrutinised by field inspection. Admittedly visual estimates again are subject to human error but allowances were made for such error wherever necessary. Results are expressed in terms of percentages of the total area in each estate.

General Observations

(i) As usual, opinions vary as to the severity of the *Phytophthora* attack in 1965, but the predominant view is that this was a bad year for the disease. The South West Monsoon was comparatively mild and there was intermittent rain and sunshine instead of the usual long spells of rain. This rainfall pattern is believed to have provided the fungus epidemic with most favourable conditions for spreading. There are, however, some planters in North Kerala who are of the view that the attack was lighter in 1965 than in the two previous years because the seed-fall was earlier resulting in a reduced source of *Phytophthora* infection.

(ii) A very interesting phenomenon was noticed in some estates, i. e. leaves with copper deposits on them had also fallen. This was particularly noticeable in the second attack. The Rubber Research Institute of India has been informed of this.

(iii) There were instances where the distribution of fungicide varied considerably on leaves on the same branch. This lack of uniformity of copper could be attributed to the position of leaves during spraying. A horizontal leaf would get a more evenly distributed deposit than a vertical one.

(iv) The incidence of *Phytophthora* appears to have been very severe in Tamaracherry area this year. Poor leaf retention in this region occurred also in plots sprayed from the ground. The severity of the attack in this area confirms that in the same season *Phytophthora* incidence varies from place to place. No particular reason could be attributed for the uniformly poor results in this area. We shall endeavour to investigate this in more detail.

(v) The view was frequently expressed that aerial spraying should be delayed to the latter part of April and early May; unfortunately it is obviously quite impossible to spray all estates in such a short period but every endeavour will be made to reduce the spraying season in future so that operations can start later.

(vi) In Thirumbadi Estate it was noticed that rubber that was sprayed in the early mornings, in heavy mist, near the river sides had poor results. This could also be attributed to heavier seed crops on the boundaries. In other estates the areas near rivers and streams and other marshy regions also had poor resistance to *Phytophthora*.

(vii) Among the various clones aerially sprayed, it was noticed that PB 86 suffered the most from this year's attack of *Phytophthora*, TJ 16 being next. TJ 1 was noticed generally to have resisted the attack well.

(viii) This year there were far fewer cases of swathes missed than in previous years. It was noticed that in such instances as were missed, the swath-width varied considerably, thus indicating that the swathes were not entirely missed but that there was under-lapping in certain instances which caused a narrow belt to be missed. This was particularly noticeable in Echipara division of Chemoni Estate.

(ix) In a few instances the heavier leaf-fall was confined to the lower half of the trees while the top had a good canopy.

(x) No instance of phytotoxicity was reported by any estate during the assessment.

Acknowledgment

Peirce Leslie & Co., Ltd., and Helicopter Services Private Ltd. wish to record their appreciation for the co-operation and advice rendered by the estate superintendents and producers during the assessment tour.

CALICUT, October 1965

STATEMENT SHOWING RESULTS OF AERIAL SPRAYING SEASON 1965

ESTATES	Satisfactory %	Reasonable %	Unsatisfactory %	Poor %	
TAMARACHERRY AREA:					
KINALUR	75	15	10	—	Results generally satisfactory. Swathes and patches of poor results in Tamaracherry division. This area was sprayed in strong wind. Manager feels late spraying would be more beneficial.
POONNOOR	95	—	5	—	Results satisfactory. Few patches of poor results.
MANAMEL PLANTATIONS	—	15	80	5	Manager feels this year's <i>Phytophthora</i> incidence was more severe than previous year. Poor leaf retention on this and neighbouring estates is baffling.
MOKKAM AREA:					
THIRUMBADI	85	15	—	—	Good retention on the whole. Some areas near river sides poor. Manager feels the early morning mist could have affected the areas. Heavy seed crop in certain areas is also a contributory cause. Manager considers results would have been better if spraying had been later.
CALICUT	5	80	15	—	Results not so good as in previous years. There appears to be a number of missed patches resulting in the trees shedding the lower canopy. The size of such patches is very small —under ten trees.
NILAMBUR AREA:					
PULLANGODE	75	20	5	—	Results satisfactory but not as good as in previous years. Old seedling and old budded area suffered the most. There are no missed swathes, only patches of poor results. Manager feels the results should have been better.
KERALA	95	5	—	—	Very good leaf retention. There is only one prominent missed swath running parallel to the estate road. Estate very satisfied with this year's results.
SULTANA and S. S.	95	5	—	—	Results very good. Better than any spraying in any previous year.
TRICHUR AREA:					
DESAMANGALAM	15	75	10	—	Results reasonable. Large patches of poor retention. The fallen leaves have copper deposits on them.
MAPPADAM	80	15	5	—	Good results except for a few small patches.
PUDUKAD	20	50	30	—	Some large areas confined to particular clones show very poor results. TJ16 and Chemara have prominently exhibited poor resistance to <i>Phytophthora</i> .

STATEMENT SHOWING RESULTS OF AERIAL SPRAYING
SEASON 1965

ESTATES	Satis- factory %	Reason- able %	Unsatis- factory %	Poor %	
<u>TRICHUR AREA:</u>					
CHEMONI	55	35	10	—	The young area has uniformly good results. There are a few missed swathes in Echipara division.
<u>THODUPUZHA AREA:</u>					
MALANKARA	50	30	15	5	Small patches appear to have been unsprayed. Results generally satisfactory.
KALOOR	—	30	60	10	Results bad. No particular reason could be attributed to this. Manager complains that he got only 15% more protection than unsprayed areas. Also states that the spray application was very unevenly distributed, some areas getting less coverage than the others.
TEEKOY	85	10	5	—	Results generally good. A small portion on the opposite side of the river is bad. Few missed patches.
<u>MUNDAKAYAM AREA:</u>					
T. R. & T.	80	15	5	—	The results generally speaking were very successful. There were, however, a few large patches of poor results. The boundaries were good. In Manikal division there was one missed patch of 12 acres, a swath running on three sides of a hill. About 35 acres of poor results.
KUTIKUL	80	20	—	—	Results generally satisfactory.
VILLENEY GROUP	85	15	—	—	The estate is very happy about their results.
<u>VADASSERIKARA AREA:</u>					
PERINAAD	85	15	—	—	Good results. Clones PB86 and TJ16 comprising approximately 35 acres are bad, having lost 50% of the canopy. No missed swathes or patches.
CAVUNAL	95	5	—	—	Very good retention.
<u>ADOOR AREA:</u>					
KODUMON	85	15	—	—	Results are very good throughout. No instances of missed patches or swathes. PB86 suffered a 40% leaf fall. The Manager is very much satisfied with the Aerial Spraying.
<u>PUNALUR AREA:</u>					
SHALIACARY	85	5	10	—	Estate is quite satisfied with this year's results. Some areas have 100% retention. Results unsatisfactory in 3 patches where leaf retention is comparatively poor.
GOOD HOPE	95	5	—	—	Good results except for a small patch.
VELLIMALAI	80	20	—	—	Satisfactory results. A few small missed patches.