BLISTER BLIGHT CONTROL ON DESSFORD GROUP IN 1951

By

R. C. Gatehouse

Apart from the results obtained in our own experiments carried out directly under our supervision, the Tea Research Institute has constantly to bear in mind the application of methods under normal estate conditions.

Thus, in 1950 apart from the main 200-acre experiment on Kataboola Estate, Kotmale, concerned with protection from blister blight of tea recovering from pruning, eleven other estates agreed to carry out smaller scale experiments without any direct assistance from the Institute.

In 1951 our main attention was directed to dusting methods as an alternative to wet spraying methods. Dusting is a much more difficult subject for research and several experiments were necessary to investigate the factors involved in, and limiting the effectiveness off, field application of fungicidal dusts. Loos[1] has already described a technical experiment on Dessford Group. Howarth[2] and Loos[3] have explained other limiting factors in protection by dusting.

Through the courtesy of the Directors of the Lunawa (Ceylon) Tea & Rubber Estates, Ltd., and their agents, Messrs. Harrisons & Crossfield., Ltd., a large scale trial with dusting on Dessford Group was made possible. Apart from preliminary advice and assistance Mr. Gatehouse was left to his own devices. A copy of Mr. Gatehouse's report to his agents was sent to the Tea Research Institute and we have received permission to publish it in the form of an article. This report has only been lightly edited to delete domestic items which would only confuse. Although we do not necessarily agree with all that Mr. Gatehouse writes, we respect his opinions and believe that they are of general interest.

The Protection of Pruned Tea Recovering from Pruning

Pruning this season started in July and all fields have been protected from bud-break, about one month after pruning, by spraying and dusting. Wet sprayed fields were :—

Upper Abbotsford		*Dessford*	
No. 7 —	8 acres	No. 1A —	17¾ acres
No. 6 —	12 „	No. 1B —	10½ „
	20 „		28¼ „

From 2½ to 5 ounces of copper per acre per pound were used in a suspension of 4 ounces "Cuprokylt" to 10 gallons water depending on the incidence of blister blight, and the fields were sprayed weekly until the fine weather in November, when they were sprayed every 10 days.

(1) *Tea Quarterly*, Vol. XXII, pt. IV, pp. 126-132 (1951).
(2) *Tea Quarterly*, Vol. XXII, pt. III, pp. 104-106 (1951).
(3) An Article by C. A. Loos in this issue.

Protection has been good on the whole, bushes near swamps or streams that were carelessly sprayed suffered from blister blight.

I would emphasise that hand-spraying is not fool-proof and the protection afforded depends to a great extent on adequate supervision. Twelve " Four-Oaks " knapsack sprayers with two charge pumps were used ; difficulty was experienced in obtaining supplies of spare parts, such as new " T " jet nozzles and strainers.

Spraying experience has shown that pressure retaining low-pressure knapsack sprayers with " T " jet nozzles and a charge pump gave the best results ; hand-pump knapsack sprayers, which are used on some of the Company estates, are wasteful and inefficient. Dusted fields were.—

Dessford	*Lorne*	*Upper Abbotsford*	*Lower Abbotsford*
No. 3A 28¾ acres	No. 4 11 acres	No. 4 60½ acres	No. 1A 37½ acres
—	„ 2A 24 „	—	—
—	„ 3C 26½ „	—	—
—	—	—	—
28¾ „	61½ „	60½ „	37½ „
—	—	—	—

I was sceptical as to whether fungicides applied in the form of dust would protect tea recovering from pruning, due to the small buds in the early stages. Using 6% " Cuprosana " dust at an application of 10 lbs. per acre every 7 days and reducing this application to 5 lbs. per acre every 7 days when the shoots had formed, has given maximum protection, certainly as good as the sprayed fields mentioned above.

Personally I think I erred on the liberal side in this dusting, and that an original application of 5 lbs. per acre every 7 days increased to 7 lbs. per acre every 7 days would have given as good results. This would be reducing the maximum copper distributed from 38.4 ozs. copper per acre per mensem to 26.8 ozs, copper per acre per mensem.

The Tea Research Institute maintain that blister blight infection this season has been light compared with previous years, but in the lowest field No. 4 in Lorne, I left a small area of tea recovering from pruning unprotected and the damage was extensive.

Mr. Lamb and Mr. Portsmouth of the Tea Research Institute saw this area and admitted that the damage was severe while in the neighbouring tea of the same field, which had been dusted, the tea was quite normal with no blister blight infection or damage from this disease.

One important factor to be taken into consideration about the reputed decrease of blister blight infection this year is that in the 55,000 acres of Dimbula tea a good proportion was being protected which naturally stopped infection spreading from these protected areas.

Conclusions

It is impossible to state whether wet spraying or dusting is the superior method of applying fungicides, each has its advantages dependent on availability of water, terrain, and labour.

Cost have been worked out on the protection of 1,000 acres of tea in plucking, yielding 700 lbs. per acre for six months of the year.

The cost of dusting varies from 13.3 cts. per lb. to 7.7 cts. per lb depending on the method of application and strength, while the cost of wet spraying worked out at 7 to 9.3 cts. per lb. excluding the cost of extra labour which, if allowed for, more than doubled this cost.

Fungicides.—" Cuprokylt " used in a mixture of 4 ozs. per 10 gallons of water gave good results, the quantity of copper per acre being varied by increasing or decreasing the number of gallons of this mixture applied.

For tea in plucking in severe blister blight infection periods it was found necessary to apply 4 ozs. copper per round every 7 days giving 16 ozs. copper per mensem to obtain adequate protection. For tea recovering from pruning in similar periods it was found necessary to apply 5 ozs. copper per round every 7 days or 20 ozs. copper per mensem to get good protection.

2% " Cuprosana " dust even at 5 lbs. per acre every 5 days does not give adequate protection in fields where blister blight infection is severe.

4% " Cuprosana " dust at 5 lbs. per acre every 5 days gives excellent protection of tea in plucking and even at 10 lbs. per acre every 10 days the protection was adequate.

6% " Cuprosana " dust, except for dusting one acre in the Tea Research Institute experiment, was reserved for protecting tea recovering from pruning and at 5 to 10 lbs. per acre every 7 days gave excellent protection.

I believe 6% dust would give good protection of tea in plucking if used at the rate of 5 lbs. per acre every 10 days, and hope to try an experiment of this nature in the next south west monsoon.

The " Whirlwind " duster has worked without any trouble at all and is a most efficient power-duster. Its big limitation is that there is no method of measuring the amount of dust applied to a field except by judgment and experience.

I think this could be rectified by a mechanical feed in the dust hopper geared to the fan, so that one could know that at the maximum revolutions so many pounds of dust were issuing from the dust outlet.

Hand Dusters.—These were used to supplement the " Whirlwind " with success. The " Drake & Fletcher " Armada " duster was not a success because the weight of the whole machine is on the labourer's stomach and long periods of winding are exhausting ; in one machine the winding mechanism was continually breaking down.

The " Orient " duster supplied by Messrs. Walker Sons & Co., Ltd. proved a much better machine, mainly because it is well balanced with the dust container behind the labourer.

In my opinion hand dusting has a big future, especially in Uva where there is generally a shortage of water, the dust guns are comparatively cheap, but again this method of dusting has to be very well supervised.

A careful watch for excessive copper content in the made tea was kept during the season ; the Tea Research Institute kept a check on the copper content of the made tea from their experimental plots in Upper Abbotsford and on two occasions in July and September samples of our bulk made tea were analysed by the Tea Research Institute.

Their report in July read :—

" B. O. P.	.. ..	68 parts per million copper
B. O. P. F.	.. ..	71 " " " "

These figures are quite satisfactory.

September :—

" B. O. P.	.. ..	50 parts per million copper
B. O. P. F.	.. ..	37 " " " "

This is unusual as the fannings normally have a higher copper content than other grades.

In July maximum protection was being afforded to some 543 acres.

Finally, it is very gratifying to me that my appreciation of blister blight control on Dessford Group has proved remarkably accurate. For an expenditure of some Rs. 39,000/- on control, the crop at 704,710 lbs. is 157¾ lbs. per acre up on last year, and the cost of production will be in the neighbourhood of Rs. 1.62 per pound.

I should like to express my thanks to Mr. Jodrell for his assistance and advice about dusting earlier in the year. I should also like to express my thanks to the Tea Research Institute who at all times have been most willing to co-operate and render assistance.