THE PRINCIPLES OF PEST CONTROL

(I). GENERAL

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As an introduction to this part of our deliberations I wish to make a few general observations about the control of pests and diseases, and to define our views on blister blight control in particular.

The success of the blister blight control measures we recommended at the last Conference has fully equalled, if not exceeded, our expectations. I now confess that when we published our recommendations we were exceedingly anxious about whether they would work out in everyday practice. Had they proved to be a failure in estate routine, we should have been placed in a very difficult position indeed. I, therefore, take this opportunity, not only for congratulating you, but also sincerely thanking you for the backing you have given us.

As we anticipated, the introduction of effective control measures have had a spectacular effect on the general incidence of the disease. Every single infection is a potential source of perhaps two or three million other infections ; for each blister produces that number of spores. Even in practice, the number of actual infections arising from a single source is very high, for, I would remind you, the disease from the time it was first detected, spread with lightning rapidity over the whole of the tea districts. I have even heard it suggested that the disease has lost its virulence. This is a very dangerous idea, for attacks still build up very rapidly when left unchecked. There is, unfortunately, no evidence of any kind to suggest any reduction of virulence.

It is, however, owing to the enormous reduction in the number of foci of infection, becoming easier to be misled by the *apparent* effectiveness of control measures. A high standard of work in the application of control measures must be maintained. There must not be any slackening.

We still advise the use of 4 ounces of 50% copper fungicides per 10 gallons of spray fluid and have not altered any of our ideas about rates of application, types of equipment, or spray nozzles. I have previously warned you about the dangers of experimenting with spray nozzles. I repeat that a spray nozzle is not merely a piece of brass with a hole knocked through it. Unless you carry out accurate experiments, backed by the necessary technical knowledge, you can be badly misled and my advice is to adhere to the recommendations published in our blister blight circulars.

It is becoming increasingly difficult to test and to approve all the fungicides and equipment now being offered to the industry. Our staff is not large enough to permit us to run a testing and approval section. It is a difficult situation, but it is no part of our duties to assist in the sales of any proprietary products and we can only agree to test those products which promise some decided advantage, particularly in the reduction of costs.

Hand dusting is proving a promising alternative to wet spraying and particularly offers scope for the extension of protective measures where shortage of labour limits the amount of spraying which can be carried out. 4% "Cuprosana" dust applied with hand dusters at the rate of 5 lbs. every five days has given consistently good

protection. 6% "Cuprosana" dust has given good protection to pruned tea up to tipping, after which a change to 4% "Cuprosana" dust has been satisfactory. We cannot at present recommend the use of smaller quantities of dust, but will agree that the *skilled* use of smaller quantities may prove efficacious. I mention "Cuprosana" dust specifically because of several formulations tested, it is the only one which meets all requirements in Ceylon tea.

There have been two main lines of investigation in seeking advances in chemical prophylaxis. The first has been to search for chemicals which will increase the periods of protection given by fungicides. It was, and is still, hoped that systemic action may be developed, but so far there is no progress to report. The second line of search was for improved methods of application. The Shell Company sent Mr. Van Bemmel to Ceylon in 1951 with a prototype portable mist blower which went through its initial trials on St. Coombs at the end of that year. Mr. Van Bemmel returned last year with improved models and co-operated with us in further tests, as a result of which a third model is now in production and we propose to carry out more tests this year. Using 6 ounces of Shell copper fungicides in a charge of 10 gallons of water, an acre of tea is given satisfactory protection. Each operator can handle ten charges in a day's work. As with dusting, therefor, each labourer can cover up ten acres a day, but at a much lower cost for fungicide. Our present opinion is that the scope for the machine is limited to its use in batteries with a mechanic/supervisor in charge.

Experiments with double nozzle and with power charging units have been promising but tend to increase the problems involved in the control of operations.