

# INTRODUCTION TO THE DISCUSSION ON MANURIAL ADVISORY POLICY.

J. A. H. Tolhurst

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When you studied the paper in the September 1963 Tea Quarterly, on our new presentation of advice on level of manuring, I hope you included the Editorial comments. Particularly the exhortation to bring this aspect of manuring into perspective. It seems to be all too easy for level of manure to be singled out as a factor of over-riding agricultural importance, with the risk of encouraging an inflexibility of thinking which is certainly not in keeping with the unpredictabilities of agriculture.

At the 1953 Conference you were given a guide to help you in computing manurial levels. It also helped the tiny staff which the Institute had in those years. This was presented with due warning of its limitations and with a very clear indication that the Institute would not hesitate to alter its suggestions when conditions warranted a change. We felt, over the last year or two, that the time had come to make this change. If we accept that manuring is inter-related with other agronomic factors, then we must admit that under the varied conditions of tea-growing which we see today our ideas on manuring should at least be flexible.

Perhaps you will allow me to reminisce a little. My first conference was that held in 1955, where the theme was "relant the old seedling tea; it is worn out and will not be capable of holding its place in the economic competition of the future". In 1955 an estate average yield of 1,000 lb per acre was not common and was liable to be explained away as a result of abnormal conditions. In 1963 a few estates, I believe, reached the 2,000 lb mark and a much larger number must have been within a few hundred pounds of this. Nor is this level of yield, to judge by the trends in individual fields, the limit of what we can reasonably expect to see in the near future. I am not going to include clonal tea in this introduction. How then do we frame our advice to cope with yields ranging from about 400 to 2,000 lb and beyond, and with equally striking difference in cultural operations and conditions from one estate to the next.

The only sure way of coming to grips with the complications imposed by such variation is to experiment with levels of manure under the different conditions and on estates themselves. You will have appreciated that our 1963 memorandum, while emphasising this aspect, has to offer other advice as well. I am here going to concentrate on the experimental scheme.

"Experiment" is a word with several shades of meaning, especially when used in discussion between scientists and agriculturalists. We do not intend to suggest that all experimentation is to be handed over to estates. We do suggest that a comprehensive scheme of individually very simple experiments could be of great value in clearing the undergrowth from some of the major problems. As well as level of manure, I would think that the question concerning shade—or of growing shade trees, to be more precise—could be usefully thinned out in this way. Possibly the relation between manufacturing properties and either manuring or shade, or both together, should be included in this list.

Our own experiments take time to organise, and our recent expansion of staff allows us to be optimistic about the scope of our programme in the near future. As we plan these experiments, within the limitations of conditions on our own estates, they are quite elaborate affairs, and are justified by the precision necessary to determine how certain detailed treatments affect each other. Experiments of this type could not be done on estates. They would however, be of greater value in shaping our advice if supplemented by a sufficient number of simple estate trials. Simple estate trials, in turn, if they are to be of real value, must be part of a properly planned scheme and must not be looked upon as makeshifts. The planning and the examination of the results will fall on the Institute. The provision of the simple trials depends entirely on the willingness of the Industry to be convinced that the small amount of extra work involved would be justified by the eventual receipt of more useful advice than could otherwise be given, *i.e.* you will have the opportunity of benefiting not only from your own experiment, but also from our assessment of all the other experiments.

Over the past several years, when patience must have been rather strained by the difficulties experienced by the Institute in getting sufficient staff to push ahead with research, my impression of the Industry leads me to think that we shall not have much difficulty in gaining your co-operation.

## ANSWERS TO QUESTIONS BY MR. J. A. H. TOLHURST ON MANURING POLICY

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**Question:**—Is it not probable that the Institute has put the cart before the horse in suggesting an increase in the level of manuring in order to lessen the possibility that insufficient manuring is the limiting crop factor?

I refer in particular to the majority of Mid-Country estates who are not in a financial position to incur any increased expenditure on manuring with a possibility of increasing the crop level. In these cases it must be a *near certainty*.

In my view, investigation into the restrictive effects listed under the heading "Limiting Factors" should be given priority. (Manager, Duckwari Group).

**Question:**—The main factor which causes some concern over the New Scheme of Manuring is the considerable increase in expenditure over 3 or 4 years in order to determine whether the limiting factor preventing increase in yield is due to an insufficient level of manure application.

Presumably it is accepted that for many years a ratio of between 8/100 to 12/100 has assisted in raising yields to a considerable extent on well managed properties.

The "Category System" now recommended to some extent arbitrary although based on expectations in accordance with past behaviour.

While the Estates Experimental Scheme (Part 3 of the new recommendations) should be whole-heartedly supported, the economy of many estates, particularly mid and low country, is such that heavy additional expenditure on a *general* increase in manuring level for at least 3 years would not be justified unless there was reasonable assurance of response in yield to lower C.O.P.

It appears that it will take some time as yet to draw firm conclusions from strictly scientific trials at the Institute, and its sub-stations, before firm recommendations can be made with additional support from estate experiments.

In the meantime—say for the next 3 years why not continue with the Ratio System which is well understood and a useful 'yardstick'—even if slightly faulty on the understanding that manure should never be reduced merely because of temporary set-backs. This will give a little time for Superintendents, V.As., Agents and Directors to adjust their minds to the New System, *i.e.* a gradual introduction until further information on the complex subject of manuring is available. (Manager, Balangoda Group).

**Answer:**—Regarding the criticism of our advice for low-yielding tea, as given in Category 1, I am surprised to see that our suggestions could be read as though we had played down considerations of factors other than level of manure. In fact, we were careful to point first of all to the probable restrictive effect of limiting factors in general, and only then did we go on to offer a way of finding out if level of manure was one of these factors. Of course it would be desirable to remove all limiting factors—if any were known to be operative they would surely be removed, if practicable, regardless of the adoption of our manuring scheme. What about the economic aspects? It seems to me that the probable cost, in time as well as money, of removing the effects of certain factors would be greater than the cost of increasing levels of manuring. I am thinking of matters such as low bush density, poor frames (with or without the added effects of shot-hole borer), eroded or exposed soil, *etc.*

There is no escaping the fact that you will not be able to tell if manuring itself is at present limiting yield increase unless you try to estimate the effects of increasing the manure, if not on the whole estate, at least on some fields. The same reasoning should, of course, apply to the removal of other potential limiting factors.

I must also, I feel, reject the suggestion that the Institute could continue to use some system of "ratio manuring" as its advisory policy while the Industry gets used to the new suggestions. It might be said that some of these suggestions are not particularly new; reference to our Tea Quarterlies and Annual Reports would show that "ratio manuring" has been treated in such a flexible way for several years past, that it was clear that the Institute was changing its ideas. We have now taken the plunge and tried to put our newer ideas into practice, and there is no going back.

The term "yardstick" is unfortunate. I know what the questioner had in mind and I do not want to enter into an argument over the meaning of words. But it must be realised that there is no such thing as "The Ratio System of manuring". Almost every estate has its own interpretation, for example, of "a 10 lb ratio". The Scientists themselves have contributed to this state of affairs, and we can not pick out one system and say that this is to be the yardstick. Individual estates may be satisfied that they have adapted the general ratio idea to their own conditions, although I doubt if any have arrived at this conclusion as a result of comparative, experimental, manuring. This suggestion was put out in our Annual Report for 1958, and we feel that our new scheme should enable you to do the job more satisfactorily.