

SHADE TREES

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Question

1. What is the TRI's present position in the controversy "Shade" versus "No Shade". Is the majority view in favour or against High and Medium Shade (a) in the up-country area and (b) in the mid-country. (Manager, Beaumont Group).

2. May I have your views please on the removal of all shade where there is a good cover of tea. If all shade is removed by how much should N be stepped up (20 to 30 lb N per acre per annum?) (Asst. Superintendent, Hautville Group).

Reply

The question whether shade is beneficial to tea, beneath it, cannot be answered with a simple Yes or No.

In Assam, it has been found that unshaded tea gives a lower yield than shaded tea, whereas overshadowed tea gives a lower yield than medium or lightly shaded tea.

In East Africa (personal communication by Dr Chenery) the results from one shade-tree experiment showed that higher yields were obtained in the absence of shade trees.

In Ceylon, there are preliminary indications from one trial at St Coombs that reduced sunlight may depress yield and quality. A similar trial at St Joachim has not shown such an effect from shading.

I shall not try to list all the possible effects, favourable or unfavourable, that variations in the amount of sunlight can have on the tea bush, nor shall I try to mention all the possible effects, favourable or unfavourable, that growing shade trees can have on the tea bush.

However, in order to show you the range of possibilities, I shall mention some broad generalizations.

1. If the soil is fertile, one could probably do with less shade than when the soil is poor.

2. The need for shade would seem more likely on a shallow soil than on a similar soil which allows the plants to root deeply.

3. If the plants are well supplied with water and manure the necessity to have shade trees may well be less than in conditions with a sub-optimal water and nutrient supply.

4. In periods with little sunshine the effect of shade trees may be adverse, but in periods with ample sunshine it may be favourable.

5. A drought-resistant clone may benefit less from shade than a susceptible clone.

6. Tea fields infested with Shot-hole Borer will suffer more from excessive sunshine than fields where no damage occurs.

7. If temperatures, both in the air and in the soil, are high, shade is more likely to have a beneficial effect than at lower temperatures.

Shortly the answer to the question whether shade is beneficial or not will differ from elevation to elevation, from estate to estate, from field to field and even from one part of a field to another. Or to quote the editorial in the *Tea Quarterly* of June 1963, "discussions on shade, as with most agronomic subjects, lead to entanglement in complexities".

It will be obvious from this brief outline, that all these problems cannot be investigated at once. The best approach to tackle the shade problem would seem to me to investigate those factors first, which are thought to be the most important.

Therefore, the two main approaches followed by us are to see whether shade can have an effect on yield and quality in up-country, and on yield in the low and mid-country. Secondly to see whether the growth pattern of the tea bush is influenced by shade.

The first approach (yield and quality) is being investigated in field trials in which the effect of reduced light intensity is obtained both artificially (screens) and by means of shade trees.

The second approach is investigated by assessing the effect of reduced sunlight on the physiological changes that may take place in the tea bush.

Both these approaches have given interesting results, which show that reduced sunlight can indeed have an effect on yield and quality of tea, and on the chemical composition of the tea bush.

Bearing in mind the variables that may contribute to a particular result on experiments with shade, the Institute is considering suitable simple designs of field trials on shade in relation to nitrogen response, and we would invite the co-operation of estates in the project.

I may perhaps end with the following personal remark.

The best shade for a piece of tea land is that caused by the presence of its Superintendent.