

INTRODUCTION

The art of mulching in the tropics is yet young, and there has been little work carried out on it. Nevertheless the nature of the benefits which a mulch confers are likely to be very similar to those conferred in a temperate climate, but differing in degree. Therefore it is legitimate in this paper to refer to the benefits of a mulch as they are known in temperate and sub-tropical climates where these have not been investigated under tropical conditions.

The more intense, and often heavier total rainfall, leading to more rapid leaching of the soil, and the higher temperatures, leading to more rapid rates of chemical action, and decomposition of organic material, are two of the most important factors which lead to the difference in effect of mulches in the tropics from those in temperate climates.

The benefits of a mulch can be divided into two main groups; chemical and physical. It will be seen that since the chemical benefits depend on the break-down of the mulch, and the physical benefits on its maintenance as a ground cover, these two are antagonistic. It is not always clear from the literature which of the two sorts of benefit it is hoped that a mulch will confer, and some authorities even suggest that it should confer both equally well.

In temperate climates, the literature on mulching is largely related to good soils, with reasonable fertility and physical structure, and under relatively "high farming" conditions. Under these circumstances, chemical improvements in the soil such as a high C/N ratio~~x~~ and high mineral status, are if anything, more important than improvements of the physical structure, since there is already a good structure. On the other hand, in the tropics, where the standard of cultivation technique is relatively low, and where cultivated soils deteriorate so rapidly, it is realised that good physical conditions must prevail and be

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maintained before a good chemical soil status is capable of expression.

A further point of confusion is whether a mulch should be incorporated in the soil or left as a surface layer. This arises out of the inability to decide what effects are expected from the mulch. It seems clear that as far as the tropics are concerned, once a mulch is turned in, it ceases to become a mulch, and can then be called an organic manure. As will be seen below, the physical benefits of a mulch largely depend on its maintenance as a layer on the soil surface, and once it is turned in, though certain of the physical benefits are obtained to a degree, the chemical benefits take precedence.