GENERAL PRINCIPLES OF SOIL REHABILITATION

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I shall be extremely brief in my comments, partly because I have already dealt at length with this subject, and you have a summary of my conclusions before you,* and partly because you will need all the time available to discuss other and more controversial aspects of replanting.

My original ideas concerning the value of various grasses remain unchanged. I can not think of a cheaper or more efficient way of protecting, consolidating and aerating soil which has undergone a violent disturbance, nor can I imagine a cheaper method of obtaining a rich organic manure. In addition, this manure, which is what the grass leaves, stumps, and roots eventually become, is distributed through the soil with a thoroughness that no human activity could achieve. I have no particular preference for any one species of grass although I usually speak of Guatemala grass. It is up to the man on the spot to select a species most suited to local conditions, and also to the purpose for which the grass is required. I believe that manna grass provides a more durable thatch than does Guatemala grass, but that the latter species has a more vigorous root growth.

When I wrote my article two years ago, it was based on the assumption that rehabilitation under a suitable crop would be compulsory, for a period of about two years. With the recent change in the new recommendations this is no longer so. From the soil scientist's point of view there can only be a small proportion of the land at present under tea which could be replanted without rehabilitation, and in general I should like to see rehabilitation crops grown for as long as possible. I am well aware that there is an economic side to this matter, but I have a very great respect for soil, which needs centuries for its formation, and I sincerely hope that economic considerations will never tempt anyone into treating the soil like so much inanimate brickdust.

The overriding consideration regarding rehabilitation is still, as it always has been, the pathological one. Both the length of the period and the nature of the crop are dependent on the presence of pests or disease organisms, and it is not possible for me to be any more precise on either point. If it is possible, on pathological grounds, for an area to undergo only a very short rehabilitation, then we shall have to pay more attention than ever to the actual planting hole, and the mixture used to fill it. There is no doubt as to the value of compost made from well rotted animal and vegetable residues, provided that sufficient soil is present to avoid stickiness, that it can be consolidated in the planting hole, and that the pH value is below about 5.0. There is also no doubt about the expense of producing enough compost to fill up to 5,000 medium sized planting holes per acre. My original idea was that there would be sufficient dried surface residue from the grass rehabilitation crop, in conjunction with a top soil full of grass roots, to be used as a perfectly suitable filling mixture, produced actually on the spot. Compost must be made properly if it is to be used for this purpose. Raw material will decompose after the tea is

* See appendix IV, pages 251–252.

planted, leaving a young, and vulnerable, plant with a small root system wandering through air pockets and at the mercy of a sudden drought. Similarly, compost must not be dry when it is in the planting hole. If several weeks are allowed to pass before the tea is planted, the dangers of lack of consolidation and of dryness will become remote. For this purpose I would advise against using town-refuse, wood-ash or saw-pit refuse, or any similar rubbish. Areas would have to be set aside for growing crops especially for compost, and, presumably, for animal feeding if required.

I doubt if compost will ever be an attractive proposition, except on small scale replantings, particularly when we remember that thatching material will have also to be found for use after the tea is planted, and probably for a considerable period. Again, land would need to be set aside for growing this crop, and however these areas are selected there is bound to be considerable expense involved. The more rehabilitation that is done on a replanted area the less need there will be for heavy thatch, brought from outside, during the first few critical months as there should be ample litter from the rehabilitation crop.

So far I have scarcely mentioned manuring during rehabilitation. I think you know my views on that subject by now, and in any event the printed summary which I referred to earlier leaves no doubt. In relation to the total cost and trouble involved, inorganic manure is not a large item, and if used as I hope it will be, there will be a transformation to an organic manure at a relatively ridiculously low cost. Finally, and to look ahead somewhat, after all the effort which will be put into establishing these high yielding clones, may I emphasise as strongly as I can that they will require manuring in accordance with their yield and vigour. We do not know how much manure will be required to enable a young clonal plant to reach maximum frame development and crop production capacity in the shortest possible time. Probably there will be a different answer for each clone and for each climatic zone, and there is plenty of scope for individual experiment. If you remember a general horticultural principle for manuring young plants, namely, "little and often," and as long as a balanced mixture is used, there need be no fear of experimenting with high annual dosages. In the coming months I hope to rewrite our Manuring Pamphlet and to include such information as I can collect on the response of clones, in the field, to high manuring rates, and the value to you of my remarks will depend very largely on how far you are able to supply me with the practical information.