

MINIMIZING SOIL EROSION ON TEA ESTATES IN RESPECT OF MANUAL WEED CONTROL*

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Soil erosion on tea estates is posing a serious threat not only to the plantations themselves, but also to various water courses, rivers and reservoirs, which are faced with the inevitable siltation problems. The manner of weeding adopted on many tea estates is a very destructive process that is contributing to this impending disaster in no small measure.

Any foreign species of plant found growing amidst cultivated crops, competing with the latter for water and nutrients, is a weed and consequently, has to be removed. In an efficient agricultural industry, such as the tea industry, the commonly accepted, maxim is "a weed-free estate is one that reflects a high standard of management".

Planters have been made to accept "clean-weeding" as a yardstick of assessing agricultural supervision and management efficiency. Most experienced planters may still agree that it is unsafe to dispense with this concept altogether. Should the weeds on an estate get out of hand, all planters know the amount of trouble and tremendous expense it entails to clean up the property again.

Weeding, therefore, is an essential cultural practice that estates are compelled to adopt, provided it is not carried out at the expense of the topsoil, which is also the source of nutrients to the main crop.

There are two natural advantages in tolerating certain extraneous plants, especially those with a prostrate growth habit; one is the prevention of soil erosion and the other is the recycling of the decaying humus back to the soil. A primary need on any tea plantation is to guard against erosion and preventing the loss of valuable topsoil. It takes very many years to slowly build-up this topsoil on the mountain slopes of our tea estates. It is this topsoil that adds to the fertility of our soils and the general well being of our tea crop. But it takes only a matter of a few months to completely denude this valuable asset, through careless scraping that is carried out in the name of weed control.

The topsoil on any tea estate must be regarded as a capital asset and every effort must be taken to conserve this priceless nature's gift. No effort should be spared to prevent the abuse of the ground surface and the greatest care must be taken to conserve if not build-up, this vital asset.

Evidence of many years of scraping, in the name of weeding, using the most vicious implement on any tea estate, namely the weed-scaper or the "Sorondi" as it is popularly called, has led to a very poor deterioration of soil on many a tea plantation. Nothing has contributed so much to the denudation of the original

*Extracted from a Radio Talk presented under the series 'Behind the News'.

topsoil of tea estates and their fertility more than the use of this formidable implement. The abuse of the soil with the scraper still continues on many a clean-weeded tea estate and many of the best of Agricultural Advisers and Superintendents have not been able to effectively prevent this rape of the soil surface. This vicious implement will never be effectively controlled and nothing short of a complete ban on the use of this will prevent the continued destruction of our most valuable asset on any tea estate, which is the topsoil.

The two basic requirements to prolong the economic life of any crop are: the conservation of the soil in which the plant grows and the maintenance of its fertility. The economic cultivation of any crop necessarily involves some disturbance of the soil from time to time, and this would invariably lead to a greater or lesser degree of soil erosion. However small may be the amount of erosion which takes place, in time, it will both reduce the fertility of the soil and reduce the efficiency of nutrient uptake and consequently, increase cost of production.

Clean-weeding on tea estates has led to such a deterioration of soil, that there is at present an urgent need for the promotion of proper soil management and connected agronomic practices, which would also ensure the better utilization of added fertilizers.

The wanton denudation of topsoil and the inadequate programmes of regular incorporation of organic mulches, has made it difficult for our tea to survive only on added chemical fertilizers. In order to improve the economic utilization of such inputs, it is most essential that we make an immediate concerted effort at improving soil fertility, without any further delay. By this way, we can even reduce the amount of artificial fertilizer inputs and yet obtain the expected yield.

Organic matter is rapidly destroyed under conditions of exposure and it is therefore very important that we do everything possible to prevent soils from remaining bare for any considerable periods. Pruned fields and newly planted areas should therefore not be left exposed to the elements.

If we are to isolate true weeding as such, the present system can be modified to a more scientific approach. The regular eradication of all species of grasses, creepers and various extraneous jungle growth, should strictly come under pest control. All low growing legumes and other related prostrate growth, should, whenever, necessary, be slashed into the soil and this work should come under green manuring. The removal of most species of flowering plants should alone be strictly charged to weeding.

It is most essential to evolve an integrated approach for a careful selective weed management programme, entailing selective removal of aggressive weeds without inducing any form of erosion and maintaining a non-vigorous ground cover, managed perhaps by the judicious use of herbicides. Such an approach will include manual control, without the use of the scraper, but by using less harmful implements such as a sharp narrow spear, that would help to dig out deep-rooted weeds. An important approach in such a programme would include the planting of a fast spreading prostrate ground cover of a non-aggressive and non-climbing species, such as a species of *Stylosanthes* or a suitable species of *Desmodium*, that can be readily checked by periodical slashing.

The establishment of a suitable ground cover would create conditions unfavourable for the germination and growth of weeds. Besides, such ground covers

have numerous other benefits, including the preservation of soil moisture, particularly during periods of moisture stress, and the addition of considerable amounts of organic matter that contributes significantly towards improving soil fertility.

In conclusion, I wish to stress on the need to reorient the existing policy as regards clean-weeding on tea estates, in particular the vicious manner of manual scraping. We should urgently adopt sound agronomically and ecologically acceptable measures to manage weeds and at the same time, conserve and protect our most valuable asset of every individual tea field, which is the topsoil.

Finally, I wish to appeal that, on a national scale, we should be mindful of the dangers posed by soil erosion, especially in the hill country, which is one of our most crucial sectors of the land area of this country. Soil erosion in these areas pose the threat of silting up of water courses, streams, rivers and reservoirs, which would eventually get clogged-up and this is bound to nullify all the huge ambitious ventures we have embarked upon by building dams and reservoirs, and a network of irrigation channels, at tremendous expense to the country.