

A STUDY ON MINIMISING DROUGHT EFFECTS ON YOUNG TEA
IN MID COUNTRY OF SRI LANKA

By

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ABSTRACT

The duration and frequency of drought have been on the increase in Sri Lanka. As a result, heavy casualties have been noted in the recent years in most tea growing areas. This is more pronounced with vegetatively propagated young tea plants and the loss of young tea plants has caused great concern to growers.

The objective of the study was to evaluate mulching and covercropping with three potassium levels on three clones in minimizing drought effects and hence reducing casualties in young tea. In addition, a preliminary investigation on use of synthetic soil conditioners in minimizing drought effects and plant establishment was also evaluated. These were tested under field conditions at the Tea Research Institute, Research Advisory and Extension Centre, Hantane, Kandy.

The results revealed that the presently recommended mulching rate of 37.5 t/ha was quite adequate for soil moisture conservation, soil improvement, enhancing plant growth and in minimizing drought effects. However, there was a tendency for shallow rooting when plants were mulched. Shallow rooting was seen to be greater at higher mulching rates. Therefore, the study clearly indicates that over mulching will result in shallow rooting, which in turn can affect drought tolerance.

Establishment of covercrops is a common practice in new clearings. The results of this study have shown that covercrops retard the growth and lead to higher casualty rate of young tea plants. Competitive effects were not reduced even when covercrops were properly managed by slashing and lopping at periodic intervals. However, the moisture stress conditions due to the presence of the covercrop induced deeper rooting by young tea plants. This tendency may be exploited to establish new clearings with deep rooted plants which could better withstand subsequent droughts.

This study clearly indicated the effectiveness of drought resistant clone DG 7. It withstood drought with reduced casualty rate. Therefore, replanting with clone DG 7 can be recommended for drought prone areas in the Mid Country of Sri Lanka.

Increased Potassium fertilizer application decreased drought effects and reduced casualty rate. The water use economy with increased Potassium fertilizer application could be made use of to minimize drought effects in new clearings.

The preliminary investigations on synthetic soil conditioners appear to be marginally effective in soil moisture retention. However, long term studies are required to determine effectiveness of these polymers in moisture retention. It is also necessary to investigate the build up of these polymers in soil and their effect on plants and environment.

