

## Development and ergonomic evaluation of improved pruning knife for light pruning in tea gardens

■ NASIMA FARHANA ALI, NANDITA BHATTACHARYYA AND MOONTY BARUAH

Received : 20.03.2013; Revised : 06.09.2013; Accepted : 05.10.2013

See end of the Paper for authors' affiliation

Correspondence to :

**NASIMA FARHANA ALI**  
A.I.C.R.P. on Home Science,  
Department of Family Resource  
Management, College of Home  
Science, Assam Agricultural  
University, JORHAT (ASSAM)  
INDIA  
Email : nasima.ali7@yahoo.com

■ **ABSTRACT** : Pruning is a vital operation in tea gardens to limit the top growth and to rejuvenates the tea bush and brings it to growth of new pluckable shoots. Pruning is an exceedingly repetitive task and usually carried out with forceful exertion that involves movement of hand muscles, shoulder and wrist joint. In this study, an effort was made to modify the pruning knife used for light pruning activity in order to minimize drudgery involved in the activity and to increase work efficiency of the tea workers. It was limited to the light pruning activity only since it is the standard recurring pruning carried out in Assam. Thus, the present study is an attempt to ergonomically evaluate drudgery involved in light pruning activity using conventional and improved pruning knives. Eight physically fit tea workers (four male and four female) without having any physical disability and chronic ailments were selected for the field trial of the improved pruning knife. The results showed that improved pruning knife was found to be very effective in reducing drudgery of tea workers in terms of physiological workload, grip fatigue and musculoskeletal problems as compared to existing pruning knife. The curved or 'S' shaped handle of the improved knife makes the workers to grip it comfortably with lesser shocks while striking the tea bushes. In addition, the weight of the improved knife was kept balanced between blade and handle which allows the workers to prune effortlessly with clean cut.

■ **KEY WORDS** : Physiological workload, Rating of Perceived Exertion, grip fatigue, musculoskeletal problems, pruning efficiency

■ **HOW TO CITE THIS PAPER** : Ali, Nasima Farhana, Bhattacharyya, Nandita and Baruah, Moonty (2013). Development and ergonomic evaluation of improved pruning knife for light pruning in tea gardens. *Internat. J. Agric. Engg.*, 6(2) : 311-316.