

Physiological workload of weeding operation by using existing and improved hoe in tea fields of Assam

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■ **ABSTRACT** : Weeding is a tiring and time consuming activity. An attempt was made to improve the weeding hoe used in tea fields of Assam. The modified tool was ergonomically compared with the existing hoe. Seven physically fit male workers without having any physical disability and chronic ailments were selected for the study. It was found that quality of work carried out with the help of improved weeding hoe was better than the existing one. There was a significant difference in the heart rate of the workers using existing and improved tool. Energy expenditure was found to be reduced, grip fatigue was decreased. The handle of improved weeding hoe was found to be well suited to the task and workers in terms of length and circumference that helped the workers to adopt a neutral posture and relief them from pain in hands as a result of offering greater leverage.

■ **KEY WORDS** : Physiological workload, Perceived exertion, Postural stress, Range of motion, Musculo-skeletal problem

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A strong relationship exists between the occupational stress of workers and their productivity. Occupational stress of the workers results in reduced production due to inefficiency of the workers and sickness absenteeism. Moreover, the workers have to be paid sickness benefits and compensation wherever applicable. In many cases workers have to face the loss *i.e.*, no work no pay.

Occupational stress is becoming an increasingly global phenomenon affecting all countries, all professions and all categories of workers, families and society in general. The major occupational stress concerning work motivation and quality productivity in India is the musculo-skeletal injuries. The emerging need should be focused on a pro-active response to occupational stress, with emphasis on preventive measures and elimination of the causes, rather than on the treatment of its effects and there by bringing occupational wellness among the workers.

The main objective of ergonomics is to achieve an optimal relationship between people and their work

environment, where the approach has to be context specific. The work environment of workers may be hazardous due to various responsible ergonomic risk factors while at work situations. The factors that play roles in the process of occupational wellness and stress are body postures, movements, exertion required, environmental factors, and poor design of work method/work tools, technical systems, inappropriate relationship between workers performance and their tasks demands.

Ergonomics principles and its application attempt to harmonise work and working environment to promote individual as well as organisational well-being through optimising the effort of the workers. The role of occupational ergonomics in the management of occupational stress is to look into measures and methods of prevention of occupational stress.

Weeding in tea fields is a tiring and time consuming activity in tea fields of Assam. It is highly hazardous and performed by the workers either in standing with a bend near