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Physiological effect of ergonomical parameters on different agricultural operation : An engineering approach

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ABSTRACT : Stress and fatigue are both linked with the level of physical and mental workload but they may also be linked intimately with factors such as posture, environmental conditions and certain psychological factors. The efficiency of this human machine is only 25%. Physical workload in any activity may be expressed in terms of cardio-respiratory responses of the workers and the main parameters measured are heart rate and oxygen consumption rate. Measurement of oxygen consumption is essentially an absolute measurement. The traditional tools and implements mainly relied on use of animal power. However, in India, the ergonomical factors in design of agricultural tools and machines are not much more considered. The manufacturer of agricultural machine in India is a quite complex, comprising village artisan, small-scale industries to state Agro-industrial Development Corporation and organized tractor, engine and processing equipment industries, as the ergonomics or human ergology is only considered by organized sectors. Although the primary approach in safety effort is the correction of the physical environment, so that the unwanted event cannot occur, it is sometimes necessary for economic or other expeditious reasons to safe guard personnel by equipping them individually with specialized personal protective equipment. It is very much necessary to know the personal safety precautions for Indian farmers working in field/farms. In the agricultural practices, it would be desirable to protect themselves (farmers) by all means, whether he/she involved in doing any farm operation like threshing, pesticide application, ploughing etc. However, in Indian situation, it is either too expensive or otherwise farmers are not aware of the safety measures.

Key Words: Ergonomics, human engineering, physical and mental workload.