

Research Paper :

Anthropometric data of agricultural workers for suggesting demensions of manually operated weeder

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Received : February, 2011; Revised : March, 2011; Accepted : April, 2011

ABSTRACT

In the vidharbh region of Maharashtra state, most of the agricultural operations are performed manually with the help of traditional tools (*Khurpi*). Use of improved tools and machinery is very low due to inherited constraints like difficult terrain, wide variation in slopes and altitude's, land tenure systems and cultivation practices. At present traditional hand tools and equipments being used in the Vidharbh region are manufactured by the local artisans and small scale manufacturers without application of ergonomic considerations. Thus, a study was undertaken to suggest a dimensions of manually operated weeder on anthropometric data of the agricultural workers of Maharashtra State. Present investigation was undertaken in Vidharbh Region of Maharashtra State during 2010-2011. Total 2500 subjects were selected randomly from five districts of Vidharbh region of Maharashtra State, from each district 500 subjects were selected randomly. Altogether, 19 body parameters useful for manually operated weeder design were selected for the study. Data had been analyzed for mean, standard deviation, 5th percentile value, and 95th percentile values to be used in weeder design. Different body dimension to stature ratio was also calculated and compared with other studies. Anthropometric data of agricultural workers of Maharashtra was significantly different than the other regions of the country. Present anthropometric data of agricultural workers could be useful in design and development of manually operated weeder.

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Khogare, D.T. and Borkar, Sunita (2011). Anthropometric data of agricultural workers for suggesting demensions of manually operated weeder. *Asian J. Home Sci.*, 6(1) : 57-60.

Key words : Anthropometric data, Agricultural workers and Weeder

Anthropometry is the technique of measuring various human physical traits like size, mobility and strength. Engineering antropometry is the effort to apply such data for the design of equipments or drudgery reducing technology in agriculture to enhance the system efficiency, safety and comfort to the workers. The designer to consider the physical dimensions and designing of farm equipments for better output and safety (Gite, 2000). Singh (1992) showed that anthropometric body dimensions vary from region to region due to gender, race and age. Within a particular group also the variation is seen in anthropometry due to nutritional status and nature of work. To achieve better efficiency along with better comfort and safety to the operater, it is necessary to develop equipments and workplace keeping in view of the anthropometric data of workers. India being an agrarian economy has a very large population performing various types of strenuous activities under varying environmental conditions. Therefore, development of manually operated weeder with the help of anthropometric

parameters is very important thing in agriculture (Gupta, 1981).

In Vidharbh region of Maharashtra most of the weeding operations are performed manually and with indigenous hand tools like "Khurpi" and spade. In Vidharbh region of Maharashtra, there is decrease in the agricultural productivity than other regions due to traditional methods of weeding. One of the main reasons of decreasing the productivity is the use of traditional method for weeding. At present, traditional hand tools and equipments being used in the Vidharbh region are manufactured by the local artisans and small scale manufacturers without application of ergonomic considerations. Weeder developed with the help of ergonomic considerations automatically increase the productivity and efficiency of agricultural workers. Hence, it becomes necessary to study the anthropometric measurements of agricultural workers which could be used as reference data in ergonomical development of manually operated weeder. Present investigation focuses on the anthropometric measurements of agricultural