

Agricultural Ergonomics in Today's World

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DESCRIPTION

The characterization of ergonomics and safety in the context of human-machine interaction in agriculture is a developing task. The most sophisticated method of avoiding issues arising from the unpredictable and complex nature of the agriculture field, which varies with the stable domain seen in industrial settings, is said to be human-robotic synergetic systems. The specific cognitive human traits of observation, decision-making, and action may be merged with the power and repetitive precision of robots in potential working environments. Therefore, safety must be ensured in order to prevent mishaps from unwelcome physical contact as well as the development of musculoskeletal problems. The latter is a succinct word for a variety of soft tissue conditions that have impacted farmers' quality of life and reached epidemic levels. This inquiry carefully attempts to discover possible risks that might endanger human safety by outlining the basics of human-robot interaction from an agricultural perspective. To address these risks, strategies for reducing the likelihood of injuries were examined, along with techniques for safe teamwork. This work innovates by emphasizing ergonomics within agricultural human-robot interaction tasks. Thus, possible difficulties relating to human factors, technology, and policy orientations are captured by analyzing the fundamental ergonomic concepts and the key risk factors.

Technology, society, and the economy should all benefit from ensuring safety in these kinds of systems. Establishing a sustainable anthropocentric human-robot interacting environment will be difficult without multidisciplinary cooperation. Ergonomic injuries are frequently linked to production agriculture, especially during periods of heavy physical labour and harvesting. This aims to provide a succinct summary of the oil palm plantation management, stressing each breakdown task analysis' ergonomics issues. For characterizing the interaction between people, machines, and the environment, an environmental ergonomics model is proposed. The three axes, which are shown as a cube, are the physical aspects of the environment, organismic aspects, or aspects that identify the occupant of the environment, and adaptive aspects, or aspects that affect how the occupant interacts with its surroundings. The

components that must be described when examining how the environment affects the dependent elements of physiology, behaviour, and affectivity are explored in terms of the dimensions within these variables.

Currently used theoretical and practical approaches for evaluating agricultural tractor performance only take steady-state operation into account. However, a tractor's dynamic behaviour plays an equal role in deciding how helpful it is. The performance of a tractor's draught control system is the primary determinant of its dynamic performance. So that it may be employed in a more thorough dynamic study of the entire tractor and implement combination, this has been theoretically analyzed in this work.

There are field tests which were performed using tractors with various draught control systems. The pressures between the tractors and the ploughs as well as the movement of the ploughs in relation to the ground and the tractors were measured. It was discovered how the ploughs moved as a result of measured forces acting on the control systems' sensing components. The steady flow responses recorded in the laboratory were contrasted with the dynamic reactions of the controlling systems in the field. It was discovered that overreach in the dynamic reaction reduced field performance. When this is taken into account, it is possible to forecast a field's performance based on the laboratory reaction and a few other measurable field variables. An interest in the ergonomics of agricultural workers gathered in 1998 at a symposium hosted by the National Institute for Occupational Safety and Health. Twenty representatives from colleges, state governments, commercial agricultural and insurance firms, migrant worker groups, agricultural industry organizations, and the Agricultural Extension Service were among the attendees. The participants broke into three separate groups and addressed research topics and outreach strategies pertaining to agricultural worker ergonomics. The groups independently said that the primary issues that needed to be investigated to minimize physical risk factors for musculoskeletal illnesses were therapies, expense analyses, and cultural belief systems. The participants also offered suggestions for educating agricultural workers and owners.

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