ABSTRACT

INDYA DEWI. Ergonomic Analysis on Land Preparation of Marshland Field Using Traditional Tool Tajak at Banjar Regency South Kalimantan. Under direction of M. FAIZ SYUAIB and TINEKE MANDANG.

Marshland field in South Kalimantan is one of potential new source of paddy field area. Regarding marginal characteristics of the field however, there are some obstacles need to be overcome related to farm work activities, especially land preparation activity. Traditional local farmers in South Kalimantan conventionally do the field preparation by using a traditional tool named “tajak”. This typical traditional tool is very appropriate for land preparation in marshland field which is enabling to cultivate without raising the pirit (FeS2) layer. However, it is quite difficult, hard and dangerous to operate tajak, and it’s difficult to learn by a novis operator as well. Therefore, ergonomics study will be beneficial to develop more convenient, safe and effective tajak. This study focused in workload and human-tool suitability analyses. Workload analysis was conducted based on heart rate (HR) parameter, while human tool suitability analysis was conducted based on anthropometri and motion study. The result of workload analysis revealed that tajak operation is an “extremey hard” workload, whichs the average of IRHR is 2.14. The workload level of tajak operation is indicatively by workload intensity and swing elevation. Regarding the Total energy cost per weight (TEC’) and hours of work (JOK), the tajak operation consumes 5.36 kcal/kg.hour and need 61.07 hour/ha in average. Anthropometri and motion study analysed revealed that the dimensional suitability of tajak tool is strongly related to shoulders and waist heightly, arms length, and hands grips diameter. Based on the result of tajak anthropometri and motion analyses, for better design of tajak’s handle was recommended 75.70 cm.

Keywords : tajak, marshland field, ergonomic, work load, motion analysis, anthropometri