International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol. 5, No. II (May 2012), pp 391-403

A METHODOLOGY FOR RANKING OF PESTICIDE SPRAYERS USING ANALYTICAL HIERARCHY PROCESS

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Abstract

Pigeonpea is a principal commercial crop of Gulbarga region of North Karnataka in India. Pest attack is one of the major threats to this crop. Various types of sprayers namely lever operated knapsack sprayer, power mist blower, engine operated knapsack sprayer, battery operated knapsack sprayer and spinning disc sprayer are used to spray the chemical on to the crop to protect it from the pests and insects. This paper presents a methodology for ranking the various types of pesticide sprayers using Analytical Hierarchy Process. The criteria considered for comparison of sprayers are the requirements of the customer and these requirements were collected by contacting people located in different parts of the region. Field tests were conducted and the results are used for the analysis. Here both qualitative and quantitative criteria are used. The problem is modeled on the basis of hierarchy containing the decision goal, the criteria and sub-criteria. A series of judgments based on pairwise comparisons of the elements are made to establish the priorities among the elements. These elements are synthesized to yield a set of overall priority of the hierarchy and judgments are checked for consistency. Finally, ranking of the sprayers is made on the results of the process.

Keywords: customer requirements, AHP, sprayers, multi-criteria, pairwise comparison.