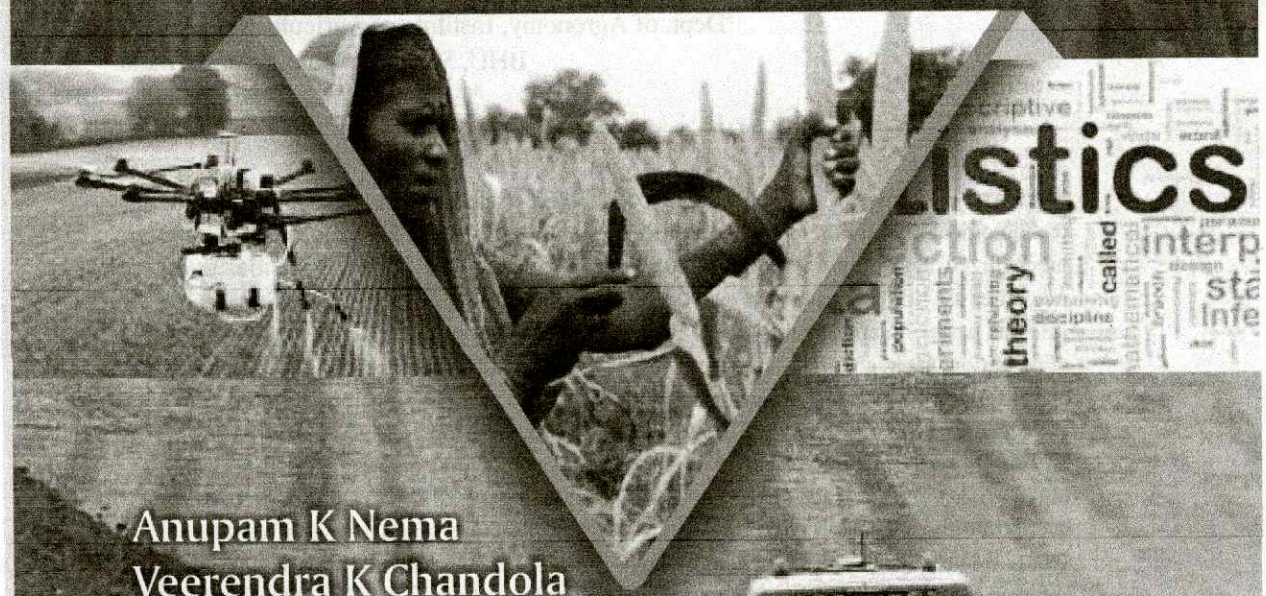
Role of Agricultural Engineering and Statistics for Sustainable Natural Resource Management



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CHAPTER

16

Artificial Intelligence in Weed Management

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Abstract: Farming, which is believed to be an oldest branches science, has been through technological development at various timeline. Invention of various machineries for mechanized agriculture is an evidence for the technological development. But these machines are limited in performing special intelligent functions such as detecting weeds, infested parts of plant/plants, ripe fruits/crops to be harvested and applying right quantity of irrigation water, chemical spray, etc. Weeds are generally found among desirable plants/ crops and in fact compete with them for resources such as water, nutrients, air and space causing desired plants to suffer, which all leads to reduced crop yield and lower returns of farmer. To overcome this effect of weeds, farmers opt for the application herbicides and other known cultural means. These traditional methods used do not eliminated weeds accurately and hence still will be damage of desired plants by weeds to a significant level. In addition to this chemical application on no-weed infested area while spraying on weed infested area through traditional method increases hazardous in the field. One can find the solution for all this kinds of issues by having artificial intelligence to detect, analyse and respond to the causes. In this chapter, the scope of AI in weed management, different types AI enabled technological intervention at global level and their application in weed management is discussed.

Keywords: Artificial intelligence; management; smart sprayer, roboweeder; weeds

INTRODUCTION

Farming as one of the oldest branches of sciences deals with the crop cultivation and animal rearing for both human and industrial consumption has been through distinct