High input agriculture on destruction of biodiversity in farm lands: A case study of farmer perception in Mihintale Divisional secretariat area in Anuradhapura District

H.M.D. Tharaka[1], D.N. Jyawardhana[2] and P.N. Yapa[1]

Abstract

Biodiversity, the existence of a wide variety of life forms on earth, continues to decline in an alarming rate in every region of the world significantly reducing the people's wellbeing. The rise of intensive high input agriculture and associated unsustainable land use practices are major drivers of biodiversity loss. A survey was carried out in the farmlands of Mihintale Divisional Secretariat, North Central Province of Sri Lanka with the aim of finding about the perception of farmers how high input agricultural practices cause the loss of biodiversity. The questionnaire based survey was done from randomly selected 100 people from the farmlands in Mihintale, using structured questionnaires and key informant interviews. The 60% of the respondents indicated that they used chemical inputs for agriculture and 76% among them agreed that high chemical input agriculture resulted biodiversity loss. Twenty four percent of the respondents agreed that a myriad of human interventions of intensive agricultural practices caused a loss of biodiversity. Further, it was revealed that the farmers believe that growing of single or few crops in their lands resulted in more threats to flora and fauna. Further, the farmers believe that some plants and fishes have been eradicated from the study area. According to the farmers Mada Kanaya (*Channa punctata*), Kha Korali (*Etroplus maculatus*), Hiri Kanaya (*Labeo dussumieri*), Walaya (*Wallago attu*), Kavaiya (*Anabas testudineus*) and Kokassa (*Ompok bimaculatus*) are some of the fresh water fish that have decreased in numbers and Brown Plant Hopper (*Nilaparvata lugens*) was also eradicated from the area. The farmers also believed that the cultivation of improved breeds of crops of chemical fertilizers negatively affected the distribution of some plant species such as Gas Bavila (*Sida cordifolia*) and Maduru Thala (*Ocimum ternuiflorum*). Only 25% of the respondents were satisfied with the advice they got from farm organizations and government authorities with regard to conserving biodiversity. Our study indicates that, farmers believe that chemical input agriculture is one of the key factors which contribute to the destruction of the biodiversity in Mihintale. Pesticides and herbicides used in intensive agricultural practices can have toxic effects in the short term in directly exposed organisms, or long-term effects on other non- target organisms by causing changes in habitat and the food chain, which might be the reason for loss of biodiversity. All the respondents were willing to use environmentally friendly farming methods to conserve the biodiversity. Therefore, the farmers in the area would be systematically encouraged to adapt ecologically friendly agricultural practices that promote the conservation of native species.

***Keywords**: Biodiversity, Chemical input agriculture, Ecological agriculture, Farmlands, Threatened specie*

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[1] *Department of Biological Sciences, Faculty of Applied Sciences, Rajarata University of Sri Lanka, Sri Lanka. Corresponding author's email: dilini783@gmail.com*
[2] *Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Sri Lanka*