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"WEED SCIENCE FOR SUSTAINABLE AGRICULTURE AND ENVIRONMENT"

PROGRAMMES AND ABSTRACTS

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PLENARY 5

THE PROGRESS AND FUTURE OF WEED SCIENCE RESEARCH IN THE ASIAN-PACIFIC REGION

Adusumilli Narayana Rao*, Sreenath Dixit

ICRISAT Development center (IDC) & International Rice Research Institute (IRRI)
International Crops Research Institute for Semi Arid Tropics;
Building # 303, ICRISAT; Patancheru, Hyderabad, India - 502324

**Corresponding author: anraojaya1@gmail.com*

Abstract

Reducing poverty and ensuring future food and nutritional security are major concerns of the Asian-Pacific region (the region) which is characterized by rapid population growth, food crises and climate change. Efforts to increase crop productivity and reduce existing crop yield gaps, by identifying constraints such as weeds and alleviating them, are essential to meet the targeted food and nutritional security goals in the region. The Asian-Pacific Weed Science Society (APWSS)'s prime objective of promoting weed science in the region, by pooling and exchanging information has been done primarily through its biennial conferences and publications. In this review, an effort is made to assess the extent of achievement of APWSS prime objective by analyzing the APWSS publications. The research work reported and published on weeds and their weed management, methods adoption by farmers, shifts in weeds and farmer's needs, is synthesized and the future weed management research needs of the region are suggested. The discovery of 2, 4-D has led to intensified herbicides based weed management research and publications in both developed and developing countries of the region. Herbicide use became major weed management tool in developed countries and is increasing gradually in developing nations. Currently, herbicides became an indispensable input of agriculture in most countries in the region. However, herbicide resistant weeds, the shifts in weed population and emergence of invasive weeds like weedy rice and climate change became major weed management challenges. Around $250 million investment with ten years or more time for new herbicide molecule development has slowed down new herbicides introduction. Genetically modified Herbicide Tolerant Crops (HTC) was introduced in certain countries as a component of Integrated Weed Management (IWM). Herbicide tolerant weeds emergence due to gene flow and non-adoption of stewardship guidelines, health and environmental concerns and lack of trained personnel are limiting HTC introduction and adoption. Thus, IWM, better understanding weed ecology, biology and best weed management practices became major areas recent research and publications of weed management in the region. Genetic engineering, automation and artificial intelligence, better understanding of weed biology and ecology as influenced by climate change may provide innovative options to generate creative sustainable weed management approaches to efficiently, economically and ecologically manage weeds in the region. The decision making tools and location specific efficient weed management technologies popularizing extension methodologies are essential. APWSS will continue to play key role in strengthening Weed Science and sustainable weed management in the Asian-Pacific region.

Keywords: Asian-Pacific region, weed management, weed ecology, herbicide resistant weeds, herbicide tolerant crops