GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION

RAJYA SABHA
UNSTARRED QUESTION NO-502
ANSWERED ON- 26/07/2024

USE OF PRECISION AGRICULTURE AND TECHNOLOGY TO INCREASE CROP YIELD

502. SHRI AYODHYA RAMI REDDY ALLA:

Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether the use of precision agriculture and technology can increase crop yields while minimizing environmental impact, if so, the details thereof;

(b) the manner in which Integrated Pest Management (IPM) approach reduce chemical use and promote ecological balance; and

(c) whether sustainable agricultural productivity can be balanced with the need to address global food security and meet growing demand, if so, the details thereof?

ANSWER

THE MINISTER OF AGRICULTURE & FARMERS WELFARE
(SHRI SHIVRAJ SINGH CHOUHAN)

(a): The precision agriculture aims at site specific management using Global Positioning System, sensors, and drones to gather data on soil properties, moisture levels, and crop health at a very localized level. This information allows farmers to apply inputs such as fertilizers, pesticides, and water precisely thereby optimizing resource use and reducing waste. Apart from that the crop health monitoring can be done through remote sensing technologies and drones equipped with multispectral cameras to detect early signs of stress or disease thereby enabling timely management interventions which increases crop productivity while minimizing environmental impact, contributing to long-term agricultural sustainability.

(b): Ecologically safe plant protection is achieved by integration of available plant protection tactics like use of suitable/ resistant variety, clean cultivation to reduce inoculum load/ pest population, use of suitable mechanical devices like traps, bio-pesticides etc. along with the chemical pesticides. IPM approach integrates all the available management techniques viz., physical, cultural, mechanical, biological, genetical and chemical methods starting from monitoring to pest management with need-based use of chemical pesticides. Due to need based interventions applied in IPM programmes, dependency on chemical pesticides is reduced. Thereby, minimising their harmful effects on environment.

By reducing reliance on chemical pesticides, IPM helps to mitigate environmental pollution and minimize risks to human health associated with pesticide exposure there by promoting the ecological balance. It also promotes biodiversity by preserving natural predator-prey relationships.

(c): Technology development and deployment is done in such a way that production sustainability can be balanced with the need to address global food security and meet growing demand. By providing targeted, efficient, and environmentally friendly solutions, these technologies contribute to higher crop yields, better resource management, and reduced environmental impact.

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