



## BIOPESTICIDES: THE NATURAL SOLUTION FOR A GREENER FUTURE

**Srividya K**

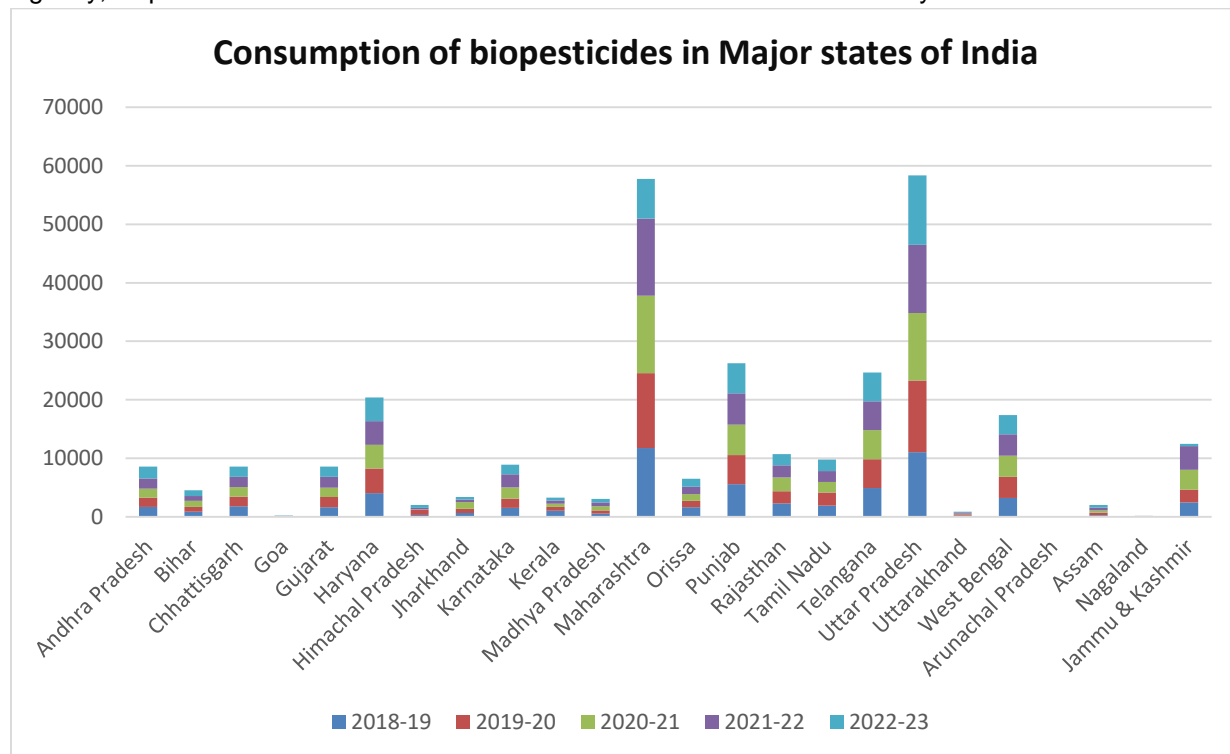
*PG scholar Division of Agricultural Economics, Indian Agricultural Research Institute, New Delhi.*

*Corresponding Author Mail ID: [srividyakodipaka@gmail.com](mailto:srividyakodipaka@gmail.com)*

### Introduction

With the increase in demand for food, various practices are brought up in rising food production but food production is haunted by several factors such as physical factors (soil), climatic factors (temperature, rainfall, humidity), and most prominently the effect of pests and diseases. It was estimated that 20-40% of total global production is at stake because of pests annually. These pests are controlled generally by pesticides but pesticides pose harmful effects. So to ensure sustainability biopesticides are now prominently used. The pesticides which are composed of infusions from different sources like plants, animals, bacteria, fungi, viruses, and other minerals that are used for the control of pests are called biopesticides. According to the US Environmental Protection Agency, biopesticides are of three different kinds:

microbial, biochemical, and plant-incorporated. The biopesticides market is forecasted at 217.97 million US dollars in India. It is also recorded that biopesticides constitute only around 4% of the total pesticide market in the country. Under the Central Insecticide Board and Registration Committee (CIB & RC) at present, there are about 20 microorganisms registered as biopesticides. Biopesticides help control pests and diseases, and they produce minimal toxic residues. Most often pests develop resistance against pesticides but in the case of biopesticides, there is no such risk. Biopesticides have a target range of very narrow and most importantly have a specific mode of action that is safer for the environment and humans, generally have less persistence in the fields with a shorter shelf life. But it is also noted that biopesticides have a lower efficacy and slow rate of action.

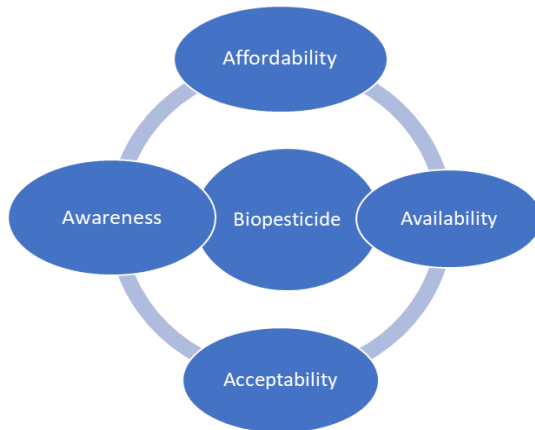


**Consumption of biopesticides:**

The data from the directorate of plant protection quarantine and storage is collected regarding pesticide consumption in major states for a period of five years from 2018-19 to 2022-23. The highest consumption was found in Maharashtra and Uttar Pradesh. It has also been found that during the last five years, the consumption of biopesticides has increased substantially.

**Challenges:**

Biopesticides are gaining popularity but besides that, there is less market size compared to chemical pesticides. Due to a slower action rate, the farmers generally don't prefer them opposite to chemical pesticides which show immediate results and also there is less awareness among the farmers regarding biopesticides. It is also seen that the cost of biopesticides is generally higher than that of chemical pesticides due to the higher cost of raw materials.

**Ways to increase usage of biopesticides**

1. Increases awareness through extension programs
2. Making the availability of pesticides at ease.
3. Making biopesticides affordable at cost.
4. Improving delivery mechanism
5. Making the registration process simple for producers.

**Conclusion**

The biopesticide market is still in the infant stage so through increased awareness to

the farmers it can be improved and the government should introduce new schemes which help in better reach of biopesticide to the farmer. This helps our country meet sustainable development goals.