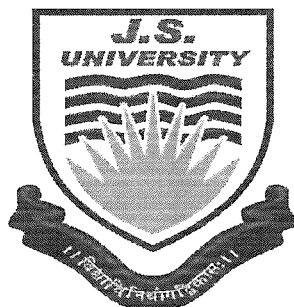


J.S. University, Shikohabad

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VALUE ADDED COURSE

"Insecticide Toxicology and Resistance Management: Strategies for Effective Insecticide Use"

Faculty of Agricultural Science



J.S. University, Shikohabad
Faculty of Agricultural Sciences

Value Added Course

AGVAC-14

"Insecticide Toxicology and Resistance Management: Strategies for Effective Insecticide Use"

Learning Objectives:

This value-added course will provide students with an understanding of the toxicology of insecticides and the mechanisms of insecticide resistance. Students will learn about the modes of action of insecticides, their effects on non-target organisms, and the factors that contribute to the development of insecticide resistance. The course will also cover the principles of resistance management and introduce students to the strategies for effective insecticide use.

Course Outcomes:

Upon completion of this course, students will be able to:

1. Understand the toxicology of insecticides and their effects on non-target organisms
2. Analyze the mechanisms of insecticide resistance and the factors that contribute to its development
3. Evaluate the principles of resistance management
4. Develop effective strategies for insecticide use

Duration: 8-10 weeks (depending on the pace of the student)

Intake: 60 students



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Course Modules (Syllabus):

Module-1

Introduction to Insecticide Toxicology

- Overview of insecticides and their modes of action
- Toxicology of insecticides and their effects on non-target organisms
- Environmental impacts of insecticide use

Module-2

Mechanisms of Insecticide Resistance

- Genetic and physiological mechanisms of resistance
- Factors contributing to the development of resistance
- Methods for monitoring resistance

Module-3

Resistance Management

- Principles of resistance management
- Strategies for preventing or delaying resistance development
- Case studies of successful resistance management

Module-4


Insecticide Use Strategies

- Selecting and using insecticides effectively
- Integrated pest management (IPM) and insecticide use
- Economic and environmental considerations in insecticide use

Module-5

Emerging Trends in Insecticide Use

- Alternatives to chemical insecticides
- Biotechnology and genetic engineering in insecticide use
- The future of insecticide use

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- Weekly quizzes and assignments
- Final project on designing and implementing insecticide toxicology and resistance management plan.

Prerequisites:

The course is designed for undergraduate and graduate students with a background in biology, entomology, or related fields. Some knowledge of biology and toxicology is recommended. Prior coursework in entomology or related fields is also beneficial.

Reference books:

1. Insecticide Mode of Action by G. P. Lahm and P. R. Cordova
2. Insecticide Resistance: From Mechanisms to Management by D. S. Karp and A. L. Sparks
3. The Pesticide Question: Environment, Economics, and Ethics by D. Pimentel and H. Lehman
4. Pesticide Resistance: Strategies and Tactics for Management by B. E. Tabashnik and R. T. Roush

The Future of Insecticides: Challenges and Opportunities by N. A. Casida and G. G. Gaylor



Course Coordinator
 Mr. Ranjan Kr.
 Singh
 Jados



Dean
 Academic
 Dr. Akhilesh



Dean
 Dr. R.A.
 Kushwah