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## **Agron-313 Weed Management**

**3(2+1)\*\* Theory**

Introduction to weeds, characteristics of weeds their harmful and beneficial effects on ecosystem. Classification, reproduction and dissemination of weeds. Herbicide classification, concept of adjuvant, surfactant, herbicide formulation and their use. Introduction to mode of action of herbicides and selectivity. Allelopathy and its application for weed management. Bioherbicides and their application in agriculture. Concept of herbicide mixture and utility in agriculture. Herbicide compatibility with agro-chemicals and their application. Integration of herbicides with non chemical methods of weed management. Herbicide Resistance and its management.

### **Practical**

Techniques of weed preservation. Weed identification and their losses study. Biology of important weeds. Study of herbicide formulations and mixture of herbicide. Herbicide and agrochemicals study. Shift of weed flora study in long term experiments. Study of methods of herbicide application, spraying equipments. Calculations of herbicide doses and weed control efficiency and weed index.

### **Lecture schedule: Theory**

<b>S.N.</b>	<b>Topic</b>	<b>No. of lectures</b>
1.	Introduction to weeds	1
2.	Characteristics of weeds	1
3.	Harmful and beneficial effects of weeds on ecosystem	1
4.	Classification of weeds	2
5.	Reproduction and dissemination of weeds	1
6.	Dormancy in weeds and its types	1
7.	Crop-weed competition	1
8.	Principles of weed management- an introduction	1
9.	Physical and cultural methods of weed control	1
10.	Chemical and biological methods of weed control	2
11.	Herbicide classification	1
12.	Herbicide active ingredient and formulations	1
13.	Herbicide application- types and techniques	2
14.	Introduction to mode of action of herbicides	2

15.	Herbicidal selectivity to plants	2
16.	Fate of herbicides	1
17.	Concept of adjuvant- surfactant, stabilizing agents, stickers, activators and compatibility agents and solvents	2
18.	Bio-herbicides and their application in agriculture.	1
19.	Concept of herbicide mixture and utility in agriculture.	1
20.	Herbicide compatibility with agro-chemicals and their application.	1
21.	Allelopathy and its application for weed management.	1
22.	Integrated weed management - An introduction	1
23.	Integration of herbicides with non chemical methods of weed management.	1
24.	Weed management in rice, wheat, barley, maize, sorghum and bajra	1
25.	Weed management in oil seeds and pulses – groundnut , soybean, mustard, gram , lentil,, mungbean and urdbean	1
26.	Aquatic weeds and their management	1

#### Lecture schedule: Practical

S.N.	Topic	No. of lectures
1.	Identification of weeds and techniques of weed preservation	1
2.	Collection of common <i>kharij/rabi</i> weeds and their preservation	1
3.	Collection of common perennial weeds and their preservation	1
4.	Biology of important weeds.	2
5.	Study of herbicide formulations and mixture of herbicide.	1
6.	Herbicide and agro-chemicals study.	2
7.	Shift of weed flora study in long term experiments.	1
8.	Study of methods of herbicide application,	1
9.	To become familiar with herbicide spray equipments.	1
10.	Calibration of herbicide spray equipments	1
11.	Calculation on herbicidal requirement for field crops and aquatic situations	1
12.	Application of pre plant , pre-emergence and post emergence herbicides in the field	1
13.	Calculations of weed control efficiency and weed index.	1
14.	Farm visit to problem areas of weeds	1

#### Reference:

1. Saraswat, V.N., Bhan, V.M. and Yaduraju, N.T. 2003. Weed Management , ICAR, NewDelhi.
2. Gupta, O.P. 2015. Weed Management: Principles and Practices (2<sup>nd</sup> Ed.), Agribios (India), Jodhpur.
3. Gupta, O.P. 2016. Modern Weed Management , Agribios (India), Jodhpur
4. Das, T.K. 2008. Weed Science : Basics and Applications , Jain Brothers, New-Delhi.
5. Rao, V.S. 2000. Principals of Weed Science (2<sup>nd</sup> edition), Oxford and IBH Publishing Co., New Delhi.

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