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**Agron-324**

**System Simulation and Agroadvisory**

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

**Theory**

System Approach for representing soil-plant-atmospheric continuum, system boundaries, Crop models, concepts & techniques, types of crop models, data requirements, relational diagrams. Evaluation of crop responses to weather elements; Elementary crop growth models; calibration, validation, verification and sensitivity analysis. Potential and achievable crop production- concept and modelling techniques for their estimation. Crop production in moisture and nutrients limited conditions; components of soil water and nutrients balance. Weather forecasting, types, methods, tools & techniques, forecast verification; Value added weather forecast, ITK for weather forecast and its validity; Crop-Weather Calendars; Preparation of agroadvisory bulletin based on weather forecast. Use of crop simulation model for preparation of Agro-advisory and its effective dissemination.

**Practical**

Preparation of crop weather calendars. Preparation of agro-advisories based on weather forecast using various approaches and synoptic charts. Working with statistical and simulation models for crop growth. Potential & achievable production; yield forecasting, insect & disease forecasting models. Simulation with limitations of water and nutrient management options. Sensitivity analysis of varying weather and crop management practices. Use of statistical approaches in data analysis and preparation of historical, past and present meteorological data for medium range weather forecast. Feedback from farmers about the agroadvisory. **Lecture schedule: Theory**

S.N.	Topic	No. of lectures
1.	System Approach for representing soil-plant-atmospheric continuum,	2
2.	System boundaries, Crop models, concepts & techniques,	2
3.	Types of crop models, data requirements, relational diagrams.	3
4.	Evaluation of crop responses to weather elements;	2
5.	Elementary crop growth models; calibration, validation, verification and sensitivity analysis.	3
6.	Potential and achievable crop production- concept and modelling techniques for their estimation.	2

7.	Crop production in moisture and nutrients limited conditions; components of soil water and nutrients balance.	3
8.	Weather forecasting, types, methods, tools & techniques,	3
9.	forecast verification; Value added weather forecast,	2
10.	ITK for weather forecast and its validity;	2
11.	Crop-Weather Calendars;	2
12.	Preparation of agro-advisory bulletin based on weather forecast.	3
13.	Use of crop simulation model for preparation of Agro-advisory and its effective dissemination.	3

### Lecture schedule: Practical

S.N.	Topic	No. of lectures
1.	Preparation of crop weather calendars.	1
2.	Preparation of agro-advisories based on weather forecast using various approaches and synoptic charts.	2
3.	Working with statistical and simulation models for crop growth.	2
4.	Potential & achievable production; yield forecasting,	2
5.	insect & disease forecasting models.	1
6.	Simulation with limitations of water and nutrient management options.	2
7.	Sensitivity analysis of varying weather and crop management practices.	1
8.	Use of statistical approaches in data analysis and preparation of historical, past and present meteorological data for medium range weather forecast.	3
9.	Feedback from farmers about the agroadvisory.	2

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