**RKDUNIVERSITY, RANCHI**

**ESTABLISHED UNDER GOVT. OF JHARKHAND AND REGISTERED UNDER UGC 2(f) 1956**

**One Year Management Diploma in Agriculture Extension Services for Input Dealers**

**(Pesticides & Fertilizers)**

Theory (Classroom sessions)

1. **Plant Protection & Pesticides Management**

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| **S.No.** | **Contents** |
| 1. | Recommended herbicides for weed control in different field crops. |
| 2. | Important weeds of different crops. |
| 3. | Classification of Herbicides |
| 4. | Plant Pathology |
| 5. | Classification of Insecticides |
| 6. | Disease Carrier/ Casual Organism |
| 7. | Entomology |
| 8. | Pest Control in different crops |
| 9. | Integrated Pest Management, Bee Keeping, Major Insecticides, Causes of Colors/Bitterness in Fruits/Vegetables. |

1. **Planning for Agro Ecological Situations**

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| **S.No.** | **Contents** |
| 1. | Overview of Agricultural Production Systems |
| 2. | Agro-ecological situation and Agro-eco system approach |
| 3. | Weather parameters and their impact on Agricultural Production |
| 4. | Suitable cropping systems for the existing Agro-ecological situation |
| 5. | Relevance of Agro-meteorological information for crop production |



1. **Soil Health Management**

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| **S.No.** | **Contents** |
| 1. | Soil-Profile, Types, Characteristics, Properties (Physical, Chemical and Biological |
| 2. | Importance of soil testing, method of soil sampling, interpretation and farm advisory based on soil test results. |
| 3. | Problematic soils and their management |
| 4. | Macro-Micro Nutrient deficiencies and their symptoms |
| 5. | Integrated Nutrient Management |
| 6. | Liquid Fertilizers |
| 7. | Plant Growth Regulators |

1. **Rainfed Farming**

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| **S.No.** | **Contents** |
| 1. | Crop planning in Rainfed Areas |
| 2. | Importance of Water Management in Crop Production |
| 3. | Natural Resource Management for Dry land Agriculture |
| 4. | Climate Change and adaptation strategies for Rainfed agriculture |
| 5. | Integrated watershed management |

1. **Seed & Seed Production**

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| **S.No.** | **Contents** |
| 1. | Difference between seeds and grains |
| 2. | Importance of Quality Seeds in crop production |
| 3. | Seed treatment- Importance and procedure |
| 4. | Types of seeds |
| 5. | Seed storage and maintenance |
| 6. | Principles and practices of Seed Production |
| 7. | Seed Certification Process |

1. **Irrigation Techniques and their Management**

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| **S.No.** | **Contents** |
| 1. | Basic Principles in irrigation |
| 2. | Water use Efficiency System and Methods of Irrigation |
| 3. | Installation and Management of Micro irrigation Systems (Sprinkler & Drip Irrigation |
| 4. | Budget requirement for Installation of Micro Irrigation System |

1. **Weed Management**

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| **S.No.** | **Contents** |
| 1. | Importance of Weed Management in crops |
| 2. | Types of weeds |
| 3. | Integrated weed Management (Physical, Chemical, Biological method |

**8. Management of Farm Implements and Machineries**

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| **S.No.** | **Contents** |
| 1. | Farm Mechanization : Scope and Importance |
| 2. | Name and utility of various farm implements and machinery |
| 3. | Sources and approximate cost of Farm implements and machinery |
| 4. | Repairs and maintenance of farm implements and Machinery |
| 5. | Custom hiring Centers: Concept and Importance in the present context as a business model |

1. **Pest and disease Control**

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| **S.No.** | **Contents** |
| 1. | Importance of Pest and Disease Control in Agriculture |
| 2. | Difference between Harmful and Beneficial insects |
| 3. | Insect and Disease Symptoms |
| 4. | Difference between Nutrition deficiency and Disease Symptoms |
| 5. | Classification of Pesticides |
| 6. | New Generation Pesticides |
| 7. | Compatibility of Agro Chemical |
| 8. | Storage pests and their Management |

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| 9. | Harmful effect of indiscriminate use of agricultural inputs |
| 10. | Integrated Pest Management |
| 11. | Residual Analysis |
| 12. | Precautionary Measures in procurement, handling and application of Chemicals and other agricultural inputs |
| 13. | First Aid |

1. **Crop Production Technology of major local crops.**

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| **S.No.** | **Contents** |
| 1. | Paddy |
| 2. | Cereals: Jowar, Bajra, Maize |
| 3. | Pluses: Red gram, Green gram, Black gram and Bengal gram |
| 4. | Oilseeds: Groundnut, Sesamum, Safflower, Sunflower. Soybean and Castor |
| 5. | Commercial Crops: Cotton, Chillies, Sugarcane, Turmeric etc. Horticulture Crops: Mango, Sapota, Guava, Custard Apple, Amla, Grape and Pomegranate |
| 6. | Vegetables: Tomato, Brinjal, Cole Crops, Cucurbits Medicinal and Aromatic Plants, |
| 7. | Floriculture |
| 8. | Landscaping and Lawn maintenance |

1. **Acts, Rules and Regulations related to Inputs (Pesticides & Fertilizers).**

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| **S.No.** | **Contents** |
| 1. | Seed Act |
| 2. | Insecticide Act |
| 3. | Fertilizer Control Order |
| 4. | Essential Commodity Act |
| 5. | Consumer Protection Act. Food Adulteration Act |
| 6. | APMC Act |
| 7. | Sales Tax / VAT etc. |
| 8. | Benefits of above Acts, Rules and Regulations related to Agricultural Inputs to farmers and for the traders |

1. **Schemes related to Agricultural Sector**

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| **S.No.** | **Contents** |
| 1. | Major flagship programs of Central/State Governments related to agricultural development. Title, Purpose/objectives components, who are eligible beneficiaries and benefits |

1. **Extension Approaches and Methods**

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| **S.No.** | **Contents** |
| 1. | Communication Skills |
| 2. | Negotiation |
| 3. | Motivation |
| 4. | Counseling: Application of these concepts for convincing the farmers for better adoption of technologies |
| 5. | Extension Reforms: Concept, Organizational Mechanism and role of input dealers in the organizational structure |
| 6. | Cyber Extension: Concept, various Agricultural information sources, How to access and disseminate agricultural related information to the farmers |
| 7. | Market-led Extension: Meaning, Role of Input dealers in promoting forward and backward linkages of farmers. |
| 8. | Extension Methods such as Training, Demonstration, Exhibition, Kisan, melas purpose and procedure for organizing each methods |

1. **Other Optional Areas based on requirement**

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| **S.No.** | **Contents** |
| 1. | Rural Credit— Micro Finance |
| 2. | Crop Insurance, Use of Plastics in Agriculture, Nursery Management |
| 3. | Precision farming, SRI Cultivation, Ornithology , Stress management |
| 4. | Values and ethics in business, Kisan Call Centre |
| 5. | **Methods of Fertilizers Application-** |
| 6. | Broadcasting Method, Tope Dressing |
| 7. | Liquid, Starter Fertilizer Solution |
| 8. | Application of fertilizer in irrigation water |

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| **S.No.** | **Contents** |
| 9. | Foliar Application of spray Fertilizers |
| 10. | Soil Application |
| 11. | Foliar Application |
| 12. | Manures and fertilizers & their classification |
| 13. | Single, Combined and mixed fertilizers |
| 14. | Bio Fertilizers or inoculants |
| 15. | Manure, Fertilizers, Soil Amendments |

Proposed Practical Sessions 1 field visits against each module

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| **S.No.** | **Module** | **Proposed Practical Sessions 1 field visits against each module** |
| 1. | Plant Protection & Pesticides Management | Recommended herbicides for weed control in different field crops.  Important weeds of different crops.  Classification of Herbicides Plant Pathology Classification of Insecticides  Disease Carrier/ Casual Organism  Entomology  Pest Control in different crops  Integrated Pest Management, Bee Keeping, Major Insecticides, Causes of Colors/Bitterness in Fruits/Vegetables |
| 2. | Agro-Ecological Situations and its relevance to Agricultural  Production Systems | Visit to a Agro-meteorological laboratory to acquaint with various weather parameters |
| 3. | Soil Health Management | Hands on experience in Soil sampling  Hands on experience in interpretation and advice based on soil test results  Field visit to farmers' field/Research Station / KVK / Bjofertilizer / Vermicompost  production units (four sessions)  identification of deficiency symptoms of different crops |
| 4. | Rainfed Farming | Visit to Watershed areas |
| 5. | Seeds & Seed Production | Hands-on-experience on Seed treatment, identification of different types of seeds based on various categories of labels, Germination test etc.  Field visits to seed production plots |
| 6. | Irrigation Techniques and their Management | Visit to Progressive Farmers' Field to acquaint with drip and sprinkler system  Visit to Agro-Service Centers  Visit to field or identification of different weeds  Hands -on-experience on operation of farm  Farm Implements, plant protection equipments and its maintenance |
| 7. | Weeds & Weed Management | Exposure to various weeds and weed management practices |
| 8. | Farm Implements and Equipments | Hands-on-experience in handling farm implements and equipments |
| 9. | Integrated Pest & Disease Management (IPDM) | Hands-on-experience on differentiating the pest and diseases by drawing, colouring and labeling of insects and their damages, disease symptoms and nutrient deficiencies.  Field Visit -Identification of useful and harmful insects/identification of symptoms diseases/ Visit to Bio-control Laboratory.  Agro-ecological situation analysis in field by the participants.  Visit to warehouses/ godowns/market yards.  Hands-on-experience on handling of agrochemicals during their application, and usage of first aid during unforeseen situations. |
| 10. | Package of Practices on predominant crops of the district | Visit to Progressive Farmers' Field to show the standing crops which are predominantly grown in the concerned district |
| 11. | Acts, Rules and Regulations related to Agricultural Inputs | Presentation by the participants on Acts, Rules and Regulations related to Agricultural Inputs |
| 12. | Extension Approaches and Methods | Hands-on-experience in using computers for accessing agriculture and market information.  Hands-on-experience in designing, developing and delivery of messages related to crop production, weather and market information through mobile phones.  Hands-on-experience in organizing extension  methods |