

SCHOOL OF AGRICULTURE

Paper-I: Research Methodology

Research and Types of research: Meaning of Research- Objectives of Research- Motivation in Research. Research methods vs Methodology. Types of research – Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical. Research Process. Criteria of good Research. Research Formulation – Defining and formulating the research problem - Selecting the problem - Necessity of defining the problem - Importance of literature review in defining a problem – Literature review – Primary and secondary sources – reviews, treatise, monographs-patents – web as a source – searching the web - Critical literature review – Identifying gap areas from literature review - Development of working hypothesis. Data Collection and analysis: Execution of the research - Observation and Collection of data - Methods of data collection – Modeling, Mathematical Models for research, Sampling Methods- Data processing and Analysis strategies. Data Analysis with Statistical Packages – Hypothesis-testing, Generalization-and Interpretation

Paper -II: Agricultural Extension

Fundamentals of Extension Education and Programme Planning

Extension Education – Meaning, objectives, concepts, principles and philosophy. Adult Education and Distance Education. Steps in Extension Teaching-Teaching Learning process and Extension approaches of ICAR. Pioneering Extension efforts and their implications in Indian Agricultural Extension –ICAR and SAU, State Departments Extension system and NGOs. Community development and Poverty Alleviation Programmes – SGSY, SGRY, PMGSY, DPAP, DDP, CAPART – Employment Generation Programmes – NREGP, Women Development Programmes – ICDS, MSY, RMK, Problems in Rural Development. National level agricultural development programmes - NADP, NMAE&T, NFSM, Prime Minister seven point strategies for doubling the income of farmers and ARYA. Extension efforts and Rural Development Programmes in pre independence era (Sriniketan, Marthandam, Firka Development scheme, Gurgaon Experiment, Sevagram, IVS,GMFC) Post – independence era(Etawah pilot project, Nilokheri Experiment, CDP, NES, IAAP, IADP, HYVP, MCP, IRDP, ICDS, DWCR, TRYSEM, IAY, JRY, SFDA, MFAL). Ongoing development programmes in Agriculture/ Rural/ Animal Husbandry launched by ICAR/Govt. of India (T & V System, BBES,KVK, ATIC, ATMA, NAAP, NATP, NARP, NAIP, NADP, SADP, MGNREGS, PM Kisan, ARYA, NMAET, PMFBY).Different Approaches in Extension- PRA, RRA, PTD, PLA, FAR, PAME, AEA, FSRE, Market – Led – Extension, Farmers’ Field School, Kisan Call Centers and ATMA. Programme Planning –Steps, Principles. Monitoring and Evaluation- Steps, Keys and Principles

Extension Methods & Farm Journalism

Extension Methods – Definition, Individual, group and mass approaches in extension, audiovisual aids- classification, selection, use and production. Traditional media for communication in development programmes. Modularized communication- concept, approach, need, process of designing instruction for transfer of communication. Basics of agricultural journalism, types of publications – bulletins, folders, leaflets, booklets, newsletters, popular and scientific articles. Selection, planning and use of different extension teaching methods like demonstration, exhibition, farmers fairs, field days, tours, extension literature, etc. Preparation and presentation of different projected and non-projected audio-visual aids. Public speaking. Preparation of radio/video script. Principles of photography and its use in extension.

Information & Communication Technologies and Development Communication

Communication – models, types, elements, characteristics and barriers, Modern extension approaches (Private Extension, PPP, Market and Farmer led Extension, Group approaches – FIGs, CIGs, FPOs and ICT enabled extension), Transfer of Technology – Models, Development Communication– Theories. ICT and Development Communication – Role in abridging Digital divide. Concept of ICT and its role in agriculture and rural development. ICT tools- print and AGRICULTURAL EXTENSION electronic media- Satellite Radio, Community Radio, Internet Radio, Television, Interactive Television, Newspapers, e-publications, e-mail, Internet, Multimedia, Mobile phony, Video and teleconferencing, computer-assisted instructions, web technologies – Web portals, Mobile apps and Social Media tools, e-learning- information resources, information kiosks, sharing and networking. Types of network – PAN, LAN, WAN. AGRISNET, AKIS, Indian National Agricultural Research database. ICT programmes in agriculture and allied sectors - Problems and prospects. Artificial Intelligence in Agricultural Extension- Expert system, Decision Support System

Training and Human Resource Development

Human Resource Development – Meaning & importance. Steps in HRD- Recruitment, Induction Staff Training and Development, Career planning; Social and Organizational Culture: Indian environment perspective. Organizational and Managerial values and ethics, organizational commitment; Motivation- Theories – Maslow's hierarchy of needs, techniques & productivity. Job description, Job analysis and Performance appraisal. Human Resource management: Collective bargaining, Negotiation skills, Human Resource Accounting (HRA): Information Management for HR.: Collective behaviour, learning, and perception; Stress and coping mechanisms. Communication and Feedback and Inter personal processes & interpersonal styles. Organizational communication, Team building Process and functioning, Conflict management, Collaboration and Competition. HRD & role of supervisors: Task Analysis, Capacity Building, Counseling and Mentoring; Role of a

Professional Manager. Task of a Professional Manager. Managerial skills and Soft Skills required for Extension workers. Decision Making: Decision making models, Management by Objective. Leadership styles – Group dynamics. Training – Meaning, types, models, methods and evaluation, techniques for trainees' participation.

Research Methodology in Extension Education

Science – Four methods of knowing things. Research – Meaning, importance, Types and methods of Research – Fundamental, Applied and Action research, Exploratory, Descriptive, Diagnostic, Evaluation, Experimental, Analytical, Historical, Survey and Case Study. Different steps in scientific research– selection of problem, hypothesis, review of literature, objectives, variables and types, different data collection tools, Sampling techniques and different statistical analysis. Measurement – Meaning, postulates and levels of measurement, Steps in test construction, Item writing and Item analysis. Research Designs– types, MAXMINCON Principle. Meaning and Types of Reliability & validity, Rating scales, Observation, Case studies. Social survey – Meaning, objectives, types and steps. Data processing – meaning, coding, preparation of master code sheet, Analysis and tabulation of data – Parametric and Non- Parametric statistical tools. Report writing – Meaning, guidelines to be followed in scientific report writing, References in reporting.

Diffusion and Adoption of Innovations

Diffusion – Elements, Innovation- Development process; Adoption – Process, Stages; Innovation decision process- Types of innovation decision-Optional, collective and authoritative and contingent; Consequences of innovation decisions- Desirable or undesirable, direct or indirect, anticipated or unanticipated consequences. Innovativeness – concept and types; Adopter categories- Characteristics of adopter categories, Attributes of innovation, Rate of adoption of innovation and barriers in adoption process, Factors influencing rate of adoption; Diffusion effect, Over adoption, Re-invention; Opinion leadership- Measurement and characteristics of opinion leaders- Monomorphic and polymorphic opinion leadership. Models and theories of diffusion- One step flow model, Hypodermic Needle model, Multi-step flow of innovation. Concept of homophily and heterophily and their influence on flow of innovation, Decision making-Meaning, definition and theories , Process and steps and factor influencing of decision making- Role of Change Agents.

Management in Extension

Management – Meaning, concept, nature and importance, Approaches to management, Levels of management, Extension Management - Concept, Importance, Principles and functions of management, Planning – Concept, Nature, Importance, Types. Change Management- Decision making – Concept, Types of decisions - Steps in Decision Making Process, Organizing - Meaning of Organization, Concept, principles, Span of Management, Departmentalization, Authority and responsibility, Delegation and decentralization, line

and staff relations Management by Objective (MBO) and Total Quality Management (TQM). Logical Frame Working (LFW) and Project Management Techniques. Personal management, scope of Agribusiness Management and Institutions - National Institute of Agricultural Extension and Management (MANAGE). Indian Institute of Plantation Management (IIPM), NIRD, EEl and NAARM. Monitoring, evaluation and impact analysis of extension programmes. Critical analysis of organizational set up of extension administration at various levels.

Entrepreneurship Development

Entrepreneurship – Concept, characteristics, Approaches, Theories and Need. Agri – entrepreneurship – Concept, characteristics, Nature and importance for Sustainable Livelihood. Traits of entrepreneurs. Leadership, Decision making, Planning, Organizing, Coordinating and Marketing, Types of Entrepreneurs. Stages of establishing enterprise, steps to be considered in setting up an enterprise, Project Management and Appraisal – Market, Technical, Financial, Social Appraisal of Projects. Micro enterprises – Profitable Agri- enterprises in India – Agro Processing, KVIC industries. Micro financing – meaning, Sources of Finance, Banks, Small scale industries development organizations. Marketing for enterprises – Product sales and promotion

Market - Led Extension

Agricultural marketing- Concept. Market led extension – Dimensions, emerging perspectives issues and challenges. Development of a marketing plan, pricing concepts and pricing strategy; Consumer behaviour; Market Intelligence, Supply Chain Management, Marketing communication and promotional strategies; Marketing research process; Agricultural trade liberalization and its impact; International marketing opportunities; Implications of AOA, TRIPS and IPR agreements on agriculture; Agreement on SPS and TBT. Commodity features marketing. Public private linkages in market led extension; FPOs and SHG in market led extension; Contract farming

Gender Sensitization and Empowerment

Gender concepts, Gender roles, gender balance, status, need and scope; Gender analysis – Tools and Techniques. Gender development policies of Govt. of India – The historical evolution. Developmental programmes for women; Gender mainstreaming in agriculture and allied sectors. Gender budgeting. Women empowerment – Dimensions; Women empowerment through SHG approach; Women entrepreneurship and its role. Public Private Partnership for the economic empowerment of women; Building rural institution for women empowerment; Womenrights, issues and development.