

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 Economics

Economic Theory

Nature, Scope and methods of economics-Economic systems- Basic economics concepts in economics- Theory of consumer behaviour –cardinal utility approach-ordinal utility approach in difference curve analysis-income and substitution effect-derivation of demand – applications of indifference curve analysis- revealed preference hypothesis- elasticity of demand and determinants-consumer surplus- Neo-classical theory of Production- Production function – Isoquants – Properties – homogenous production functions and Returns to scale - Technical progress- definition and types. -Profit maximization –Neoclassical theory of costs – Derivation of various types of cost curves- Cost minimization vs. profit maximization. Modern theory of costs- Derivation of supply and lay of supply-producer's surplus. Market classification-pure and perfect competition. Characteristics and price determination under perfect and imperfect markets (monopoly, oligopoly and monopolistic competition)-- Theory of income distribution and factor shares- General Equilibrium theory- Pareto optimality- Social welfare function- National income-concepts and measurement methods- Theory of employment classical. Keynesian and post Keynesian theories of income determination. Consumption, Investment and saving functions- Concept of multipliers and accelerators- general equilibrium of product and money markets-IS and LM framework-inflation-types and control measures, Monetary and fiscal policies-instruments and effectiveness.

Economic and Agricultural Development

Concept of economic development and economic growth-indicators and measurement- Criteria and characteristics of developing nations-economic and non-economic factors of economic growth-, stages and theories of economic development- economic growth models-classical and neoclassical growth models, role of state, markets and civil society in economic development, institutions and economic development, international development institutions Objective and processes for economic planning in India, economic and trade reforms in India. Role of agriculture in economic development, theories of agricultural development, agricultural policies (price, land,

credit, R&D, trade, subsidy, etc.)-agricultural development issues-poverty, inequality, unemployment and environmental degradation-agricultural development programmes in India, issues of water, energy, environment, food and nutrition security, agro-eco -regional planning, assessment of ecosystem services, farm-non-farm linkages.

Public Finance and International Economics

Public Finance: Public and private finance. General principles of public finance. Principle of maximum social advantage. Public revenue. Incidence of tax and financial policies. Public expenditure and economic development. Balanced and unbalanced budgets. Limitations of fiscal policies. Fiscal policy as an instrument of development. Structure of development taxation. Public debt policy and economic development, international Economics: Principle of comparative advantage. Factor endowment theory, Balance of payments. . Trade with many goods and countries; Leontief paradox; human skills; technological gaps; the product cycle Trade policy: Protection; tariff and non-tariff measures; trade and market structure; trade liberalisation; factor mobility and movements; role of multinational enterprises. National competitive advantage – Porter’s diamond Problems of international monetary systems, Foreign trade and foreign capital. Export promotion and input substitution. Past experiences and future strategies.

Farm Management Economics

Definition of farm management and its relationship to technical and social sciences. Characteristics of modern farming. Role and functions of farm management under Indian condition. Measurement of management. Measures of farm efficiency. Cost concepts. Evaluation of farm assets and liabilities. Decision theory and decision making models. Decision making under different knowledge situations. Tools and techniques in farm decision making. Farm planning and budgeting-sources of data and illustration. Linear programming. Problem formulation in farm planning. Farm records and accounts. Farm inventory with applications to farming enterprises. Farm cost accounting for managerial analysis. Management of farm resources-land, labour, capital and machinery. Review of farm management research, education and extension in relation to changing needs. Systems approach in agriculture. Farming systems, identification of farming system inputs and outputs, sub-systems and the circuitry connecting these systems. Systems analysis to find out needed changes in policies and programmes.

Agricultural Production Economics

Nature and scope of agricultural production economics vis-à-vis farm management. Relative importance of farm production economics and farm management in developed and developing countries. Economics of farm production- resource allocation and use under static and dynamic conditions. Resource — product relationships in agriculture. Types of production functions, frontiers technical and allocative efficiency. General rules of their economics application. Technological change and production function analysis. Principles of choice and allocation of resources. Resource combination and cost minimization economies of scale and economies of size. Types of risk in agriculture, resource allocation and enterprise combination under risk and risk diffusion mechanisms. Nature of costs and family farm theory. Returns to scale and farm size. Dualities between production, cost and profit functions; Derivation of supply and factor demand functions from production and profit functions.

Agricultural Finance and Co-operation

Role of credit in agriculture and rural development. Estimates of agricultural credit requirements investment, production, marketing and consumption. Role of public and private section banks and cooperatives in development financing. Classification of agricultural credit. Rural credit structure. Principles of agricultural finance and financial management. Agricultural finance as

a part of public finance. Nexus between commercial banks and cooperative credit institutions. Recent innovations in extension of credit to agriculture. Rural credit supply and credit gap. Multiagency approach and coordination of credit structure at different levels. Agriculture credit policy. Principles and practices of cooperation. Success and failure of cooperative sector in India. Credit and non-credit institutions. National federations of cooperative organizations. Review of reforms in cooperative structure. Single window approach in agricultural input supply and output marketing. Bureaucracy and cooperatives. Management of cooperative institutions. Professionalization and revitalization of cooperatives. Role of cooperatives under new economic policy Risks in financing agriculture. Risk management strategies and coping mechanism. Crop Insurance programmes – review of different crop insurance schemes – yield loss and weather based insurance and their applications.

Agricultural Marketing

Nature and scope of marketing in a developing economy. Classification of markets. Problems of marketing agricultural produce. Functions of marketing. Marketable surplus and marketed surplus. Channels of marketing agricultural produce and price spread Market Structure, Conduct and Performance (SCP). Marketing institutions, their role and functions. Regulated markets and other state interventions in agricultural marketing. Role of commission on agriculture cost and prices and parastatal organizations in agricultural marketing. Cooperative marketing. Marketing practices and cost-marketing of grains, pulses, commercial crops, fruits, vegetables, livestock and livestock products and inputs. Processing, transportation, storage and warehousing, equity aspects of marketing. Marketing efficiency. Marketing finance-methods and practices. Forward trading and speculation. Future markets. Market management. Agricultural price analysis. Seasonal and spatial variations in prices in agricultural price policy. Agricultural exports, problems and prospects. Role of information technology and telecommunication in agricultural marketing.

Agricultural Project Analysis

Definition of project in agriculture. Need for project approach for agricultural development. Project cycle. Project identification and formulation. Project appraisal-ex ante and ex-post. Projection worth measures-discounting techniques, network techniques –PERT and CPM. Project monitoring and mid-course corrections. Project funding.

Research Methodology and Econometrics

Agricultural economics research, steps and themes, collection and analysis of data, scientific report writing, econometric and statistical methods, sampling methods, probability theory. Multiple regression analysis, ordinary and generalized least squares estimators, BLUE, multicollinearity, heteroscedasticity, auto correlation, dummy variables. Simultaneous equation methods