

### **AGRIBUSINESS MANAGEMENT SPECIALIZATION**

<b>Semester</b>	3	<b>Course Credits</b>	4	<b>Specialization</b>	Agri Business Management.
<b>Course Code</b>	OMAB301			<b>Type</b>	Specialization Course.
<b>Course Title</b>	Current Trends In Agri Business Management				

#### **Course Description:**

Course introduces the student regarding current and upcoming trends in agri business sector, emerging trends and new technologies in agriculture. factors of production, good agricultural practices that will help the nation to become self- dependent. Course will give more focus on modern agricultural practices implementation at grass root level.

#### **Course Objectives:**

1. To understand current trends in agriculture, horticulture, floriculture and food processing in terms of administration, business planning, marketing.
2. To introduce about latest technologies adapted by successful farmers and agro industries in terms of post-harvest management, use of IT in Agriculture.
3. To understand modern practices used in agribusiness today.

#### **Course Outline:**

**Unit 1: Introduction to Agro based industries:** Types of agro-based industries and Agri Export Zones, Institutional preparation for the adaption of new technologies, Role of Agro Industries in development of country, Difference between traditional and modern technologies in agriculture.

**Unit 2: Recent development in Agriculture:** Artificial Intelligence, remote sensors, satellite, plant health, temperature, soil conditions and humidity, watershed management, drip irrigation, sprinkler irrigation its features and advantages for crop productions, green house and its types.

**Unit 3: Current trends in Agri Business:** Modern trends in Seed Sector, Current practices in animal husbandry sector, Pesticide formulations, fertilizer formulations, Business plan preparation and presentation for agri business, gathering the current resources to manage good production.

**Unit 4: Emerging Trends in Agribusiness Management:** Agripreneurship, Sustainable Farming, Post-Harvest Equipment's, Landscape design software's, Food Processing Technologies, Use of IT in Agri

Business.

**Unit 5: Sustainable Trends in Agri Business:** Agro Tourism, Organic Framing, Contract Framing, Post-Harvest management, value addition, NGOs in agriculture and rural development, Agriculture supply chain management.

**Unit 6: Use of IT in Agri business management:** Meaning, Role and importance of IT in Agribusiness and Agriculture, Robotics in dairy industry, Use of IT tools in Sales and Marketing, Use of drone in farming, IoT in Agri sector.

**Unit 7: Management of New Technology in Agri Business:** Marketing reforms in Agri business, Management of Digital Marketing, Management of Resistance to Change, Comparative analysis of modern techniques and anticipation of future trends, SWOT analysis of current trends in Agri Business Management.

**Unit 8: Agro base market and market structure:** Market definition, market dimensions, market components, and market functions and functionaries. regulated market and their features. Producer's Surplus concept, definition, types and relationship between marketed surplus and marketable surplus and factors affecting.

**Unit 9: Cooperative marketing as an innovative up gradation:** Meaning definition and principles of cooperation, Regional Cooperative Credit Structures and Their Relevance. cooperative sugar factories' functions and regulating power, Methods of Fixing MSP for Agricultural Commodities by the Commission on Agricultural Costs and Prices (CACP).

**Unit 10: Credit as a special purpose drive of agri business:** Credit definitions, classifications, and introductions. NABARD and AFC's significance, role, and function in the growth of agriculture. Difficulties farmers have in getting loans.

**Unit 11: Food Laws and regulations key to consumer satisfaction:** Introduction to Food Laws and Regulations: Need for food standards and their enforcement, Food Safety and Standards Authority of India (FSSAI); Food Safety and Standards Act, 2006 (FSSA), FSS Regulations: Regulations on Licensing and Registration.

**Unit 12: Role and Importance Government Institutions for agricultural development:** Study of Central Warehousing Corporation, State Warehousing Corporation, Food Corporation of India, St Primary Agricultural Co-operative Credit Society and Maharashtra State Agricultural Marketing Board. ICAR, Tea board, spice board, APEDA, MOFPI.

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO301.1	<b>Remembering</b>	DESCRIBE the types of agro industries, modern and traditional methods of agriculture
CO301.2	<b>Understanding</b>	UNDERSTAND Agripreneurship, Post-Harvest Equipment's, Food Processing Technologies
CO301.3	<b>Applying</b>	APPLYING Digital Marketing, SWOT analysis and latest technologies.
CO301.4	<b>Analysing</b>	ANALYSING the current trends and best practices in agribusiness with reference to IT, landscape, seeds and fertilizers, post-harvest treatments
CO301.5	<b>Evaluating</b>	EVALUATE the process of applying theory knowledge in practical about models, practices, SOPs and GAP in ABM

### **Prescribed Books:**

1. "Agri Business Management Problems and Prospects" By Prof. R K Dixit and Dr Himanshu, Ritu Publications, Jaipur.
2. "Agri Business Management", Dr K P Sinha, A K Publications.
3. "Introduction to Agricultural Economics and Agri Business Management", by J M Talathi, V G Naik & V N Jalgaonkar, Ane Books India.
4. "Agri Business Management", Dr. J S Amarnath and Dr. A P V Samvel, Salish Serial Publishing House.
5. Acharya S.S & N. L. Agrawal: Agriculture Marketing in India, Oxford and IBH Publishing Company, 1987

### **Suggested Readings:**

1. "Indian Agriculture and Agri Business Management", Dr, Smita Diwase, Krishi Resource Management Network.
2. "Innovation in Agri Business Management", Karnam Lokanadhan, K Mani and K Mahendran, NewIndian Publishing Agency.
3. Nagpure & Deshmukh: Agri Business Management, Agromet Publisher.
4. Dr. R. H. Jaju, Food Laws and regulations, radheya publication , beed .

### AGRIBUSINESS MANAGEMENT SPECIALIZATION

<b>Semester</b>	3	<b>Course Credits</b>	<b>4</b>	<b>Specialization</b>	Agri Business Management.
<b>Course Code</b>	OMAB302			<b>Type</b>	Specialization Course.
<b>Course Title</b>	Livestock Management and Fodder Technology				

#### **Course Description:**

Course introduces various practices involved in animal husbandry. Students will get information about housing system, nutrient requirement, and government schemes for livestock and poultry. Students will also get information about fodder of animals and different fodder processing technologies including information of current trends in such industries.

#### **Course Objectives:**

1. To know about livestock management in India.
2. Laws and rules related to livestock management.
3. To know about fodder technologies and to find opportunities related to entrepreneurship in livestock management sector.

#### **Course Outline:**

**Unit 1: Introduction to Livestock Management:** Meaning, concept, importance of livestock management, Potential of livestock management in India, Various breeds and their resembles in animal sector, Use of livestock for dairy, meat purpose, Livestock Industrial analysis.

**Unit 2: Significance of livestock and poultry in Indian economy:** Significance of livestock and poultry, role of livestock and poultry in Indian agriculture. Purchase and maintenance of livestock, Vaccinations for livestock, B: C ratio of livestock, Different cattle shed design and construction of milk parlor.

**Unit 3: Handling and restraining of animals:** Grooming, Brushing and cleaning of animals, Identification methods of animals, Hoof trimming of cow, sheep, goat, Tattooing in piggery, Branding of dairy animal, sheep, goat etc Different tools needed for management of animals, Tools for branding, tool of ear notching, Tool for nose ringing and hoof trimming.

**Unit 4: Housing System of Livestock:** Systems of housing-Single row system-Double row system- head to head and tail to tail-merits and demerits. farm site selection-space requirement.

**Unit 5: Nutrients requirements of livestock and poultry:** Nutrients requirements of livestock and poultry; feed stuff and their origin; scientific storage of feeds and feed ingredients; protection of protein and fat.

**Unit 6: Milking Methods:** Milk-Definition, clean milk production-methods of milking, hand and machine milking. Preservatives and common adulterants of milk. compositions of milk. -Cooling-Pasteurization-Definition-Various methods-Low Temperature Long Time, High Temperature Short Time.

**Unit 7: Processing & Marketing of Livestock:** Identification of livestock for benefit, Product identification and finalization of livestock, Management of cow, buffalo, sheep & goat, poultry, other animals, Livestock product preservation techniques and marketing, SWOT analysis of marketing of livestock product.

**Unit 8: Fodder Production and Conservation:** Concepts of organic livestock farming Various types of fodders, various fertilizers and manures. Collection, preservation and storage of feed and fodder, Livestock waste utilization and recycling.

**Unit 9: Financial Aspects of Livestock and Fodder:** Financial projections for animal industry, Sources of finance for livestock and fodder, Preparation of financial documents for control over budget, Agencies involved in financing and insurance of livestock, Economic growth of farmers and agro industries.

**Unit 10: Fodder Technology Management:** Various types of fodder, Preservation of fodder for good market value, Preservation, processing and marketing of animal fodder, Current trends in preservation of fodder, Parameters to decide fodder and micronutrient calculations.

**Unit 11: Government Institutions:** National Dairy Development Board (NDDB), Veterinary Council of India, Animal Welfare Board of India, National bovine genomic center for indigenous breeds.

**Unit 12: Schemes for cattle development:** The Rashtriya Gokul Mission (RGM), National Livestock Mission, National Programme for Dairy Development (NPDD), Dairy processing & Infrastructure Development Fund (DIDF), Supporting Dairy Cooperatives & Farmer Producer Organizations (SDCFPO).

### **Course Outcomes:**

On successful completion, on completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO302.1	<b>Remembering</b>	DESCRIBE the concept, potential and uses of livestock in dairy sector
CO302.2	<b>Understanding</b>	UNDERSTAND housing system, nutrient requirement, and government schemes for livestock and poultry
CO302.3	<b>Applying</b>	APPLYING identification remarks of livestock, cow and buffalo management, preservation of milk and other products of livestock.

CO302.4	<b>Analysing</b>	ANALYSING financial aspects of livestock, budget analysis for livestock
CO302.5	<b>Evaluating</b>	EVALUATE the process of fodder preservation techniques, nutritional requirement of livestock, marketing of fodder and livestock products

**Prescribed Books:**

1. Agribusiness Management: Theory and Practical, Bairwa Shoji Lal Et.Al Write & Print Publications.
2. Elements of Agricultural Engineering, Jagdishwar Sahay, Standard Publishers.
3. Principal of Agricultural Engg. Vol –I, T P & A M Michael Ojha, Jain Brothers.
4. Unit Operations of Agricultural Processing, K.M. Sahay, Vikas Publishing House Pvt Ltd.

**Suggested Readings:**

1. A Textbook of Machine Drawing, P.S. Gill, S.K. Kataria & Sons.
2. Modern Techniques of Raising Field Crops Second Edition, SINGH C., OXFORD & IBH PUBLISHING.
3. Annual report of livestock management.

### AGRIBUSINESS MANAGEMENT SPECIALIZATION

Semester	3	Course	4	Specialization	Agri Business Management.
Course Code	OMAB303	Credits		Type	Specialization Course.
Course Title	Management of Agricultural Engineering Business.				

#### **Course Description:**

Course introduces farm power and machinery including from sowing to harvesting. Students will get information about Harvesting and threshing equipment, Harvesting Tools and Equipment that are used in horticulture and vegetable harvesting. Students will get knowledge about mechanization of farm, management of agricultural equipment, Landscaping and Bunding.

#### **Course Objectives:**

1. To explain the concept of Agricultural Engineering, Food Processing Equipment's, Post-Harvest equipment's and packaging machines.
2. To orient Students about engineering in landscape construction, Financing for equipment, Opportunities for Agri engineering in entrepreneurship.
3. To understand farm power tools, harvesting and threshing equipment's.

#### **Course Outline:**

**Unit 1: Introduction to Agricultural Engineering:** Meaning, Concept, Importance and Scope, Objectives, Indian Agri Business Sector Scenario, Agricultural Engineering elements.

**Unit 2: Farm Structure, Power and Machineries:** Farm Power tools, Basic mechanism of Engine, Cropping pattern and mechanization in Indian Agriculture, Introduction to different equipment used for cultivation, harvesting and processing of cereals, pulses, legumes, fruits and vegetables, International standards for operating machines.

**Unit 3: Farm machinery selection:** Farm machinery selection for different size of farms, Farm machinery selection for different agro-climatic conditions, Scheduling of farm operations for higher efficiencies and indices of machine performance.

**Unit 4: Tractor and power tillage industry:** Tractor and power tillage industry – model, make, capacity, production, Present status and future prospects of tractor and power tillage industry. Concept of zero tillage.

**Unit 5: Tillage implements:** Indigenous plough, mould board plough – components and its accessories, adjustments, disc plough (types and troubleshooting), chisel plough. Secondary tillage implements – harrows, rotary plough, rotavator, rotating auger plough.

**Unit 6: Seed drills:** Sowing methods, seed drill, components of seed drill, seed metering mechanism, , types of furrow openers, calibration of seed drill, example.

**Unit 7: Harvesting and threshing equipment:** Definition of harvesting and threshing, Types of Power Threshers, Main Components of Thresher, Principles of threshing, Axial Flow Thresher, Functional components of threshing unit, Feeding Hopper, Chaff cutter or Syndicator type thresher, Multi-crop Threshers.

**Unit 8: Horticultural Tools Gadgets and Garden Tools:** Pruning secateurs, Chain saw, Hedge cutters, Tree pruner, Chain saw, Hedge shear, Hedge trimmer.

**Unit 9: Vegetable Harvesting Tools and Equipment:** Tomato Harvesting, Green pea harvesting machine, Bhindi plucker, Onion Harvester, Tractor mounted onion harvester-cum-elevator.

**Unit 10: Landscaping and Bunding:** Engineering for landscaping, engineering tools used in irrigation (Sprinkler, Drip, Micro Irrigation), Management of maintenance of these equipment's, record keeping, financing institution, Contour Bunding opportunities, Soil management.

**Unit 11: Linking Engineering to Procurement, Distribution and Transport:** Current practices in procurement, Use of Engineering in procurement, use of machineries in distribution, Transport reforms in agri sector, agricultural engineering towards transport.

**Unit 12: Government Interventions in Engineering Tools:** SWOT analysis of engineering practices, resistance to change, adaptation of new technology, Government subsidies on purchase of high value equipment, project proposal planning.

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO303.1	<b>Remembering</b>	DEFINE the concept, scope, objectives, elements of Agricultural Engineering Business
CO303.2	<b>Understanding</b>	TO DESCRIBE different agricultural equipment's, farm power and machinery, their adaptability across the globe, current Agri engineering practices, govt. regulations
CO303.3	<b>Applying</b>	TO IMPLEMENT best equipment as per cropping pattern and soil requirement
CO303.4	<b>Analyzing</b>	TO COMPARE domestic Agri engineering practices with global practices in terms of farm equipment's, shed net constructions in Agri engineering, landscaping.
CO303.5	<b>Evaluating</b>	TO JUDGE current practices in Agri engineering business with value added design of machinery products

**Prescribed Books:**

1. Agribusiness Management: Theory and Practical, Bairwa Shoji Lal Et.Al Write & Print Publications.
2. Elements of Agricultural Engineering, Jagdishwar Sahay, Standard Publishers.
3. Principal of Agricultural Engg. Vol –I, T P & A M Michael Ojha, Jain Brothers.
4. Unit Operations of Agricultural Processing, K.M. Sahay, Vikas Publishing House Pvt Ltd.

**Suggested Readings:**

1. A Textbook of Machine Drawing, P.S. Gill, S.K. Kataria & Sons.
2. Modern Techniques of Raising Field Crops Second Edition, SINGH C., OXFORD & IBH PUBLISHING.

### AGRIBUSINESS MANAGEMENT SPECIALIZATION

Semester	3	Course	4	Specialization	Agri Business Management.
Course Code	OMAB304	Credits		Type	Specialization Course.
Course Title	Marketing of Agri- Inputs And Outputs.				

#### **Course Description:**

Course introduce the student regarding rural market environment, marketing of Agri inputs, outputs strategies for the developments of rural markets and the problems face by farmers. The course would also give better understanding of marketing of Inputs and Outputs to student.

#### **Course Objectives:**

- 1 To understand the concept of agricultural marketing, its classifications.
2. To understand the Process of marketing channels and its functions.
3. To understand in-depth rural market environment and learn about rural marketing opportunities available for Agri inputs and outputs.
4. To specify categories of inputs and outputs in agricultural marketing and to understand rural consumer.

#### **Course Outline:**

**Unit 1: Introduction to Agriculture Marketing:** Meaning definition, of agricultural marketing. Importance of Agricultural marketing in economic development. Classification of Markets, Marketing functions and Market functionaries, Marketable and Marketed surplus, Marketing costs, margins and price spread. Problems and remedial measures in agriculture marketing.

**Unit 2: Marketing of Agri Inputs:** Marketing of Agri inputs such as seeds, fertilizers, bio-fertilizers, pesticides. Bio-pesticides, tractors and farm implements, fertilizer and pesticide control order, Government policy in pricing/price commission and marketing of agro inputs, credit facilities, distribution channels, trade practices and availability of financial institutions, Problems faced by Indian farmers in input marketing.

**Unit 3: Seed Marketing:** Importance of seed input; Types of seeds- hybrid, high yielding and quality seeds, Demand and supply of seeds- seed marketing channels, pricing, role of NSC and State Seed Corporation.

**Unit 4: Fertilizer Marketing:** Chemical fertilizers- market system, marketing channels, problems in distribution, supply of chemical fertilizers, demand/consumption, Role of IFFCO and KRIBCO in fertilizer

marketing.

**Unit 5: Plant Protection Chemicals:** Production, export/import, consumption, marketing system – marketing channels, types of insecticide. Types of pesticides.

**Unit 6: Farm Machinery:** Production, supply, demand, Marketing and distribution channels of farm machines; Agro-industries Corporation and marketing of farm machines / implements/Equipment's Credit definitions, classifications, and introductions. NABARD and AFC's significance, role, and function in the growth of agriculture. Difficulties farmers have in getting loans.

**Unit 7: Promotion of Agri inputs:** Basic concept of promotion, Fundamental of advertising, Market Analysis for Agri products segmentation and targeting, Sales management, personal selling and salesmanship, Sales related marketing policies, Extension Education, Market Assessment, Classification of rural market.

**Unit 8: Output Branding and Packaging:** Branding definitions and its major roles in Promotional activities. Importance of Attractive packaging. Problems in marketing of output marketing and suggestions to overcome the problems.

**Unit 9: Problems in Rural Marketing:** Defects in traditional Agri marketing system and suggestions for improvement, Channels of Marketing: Meaning, definition, marketing costs, margin, price spread, factors affecting the cost of marketing.

**Unit 10: Strategies for rural marketing and Promotion of Agri Products:** Strategic view, co-operatives, interdependence of inputs to rural marketing, management of demand and supply, Unique selling propositions, ethics in business, Developing sales force in rural markets, agricultural marketing agencies at village, block and district levels, Basic concept of promotion, Fundamental of advertising, Market Analysis for Agri products segmentation and targeting, Sales management, personal selling and salesmanship, Sales related marketing policies.

**Unit 11: Supply chain management in agro inputs:** Concept of Agri supply chain, Advantages and Disadvantages and challenges of SCM in agriculture, Business processes, Infrastructure requirement, supply chain umbrella, Factors determining the nature of supply chain, Agribusiness supply chains in India, Success of supply chains, The role of transportation in a supply chain, factors affecting transportation decisions.

**Unit 12: Docs required for Insecticide Sale:** Docs required for Insecticide Sale License for Maharashtra Insecticide Manufacturers, Applicant Information, Firm/Organization Information, Responsible Person Details, Place of Business, Inspection Report

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO304.1	<b>Remembering</b>	DESCRIBE the types agricultural marketing its functions and marketing functionaries.
CO304.2	<b>Understanding</b>	UNDERSTAND Process of marketing channels and its functions.
CO304.3	<b>Applying</b>	Students will be able to EXPLORE opportunities and challenges in the marketing of various Agricultural inputs like pesticides, fertilizers etc.
CO304.4	<b>Analyzing</b>	ANALYZING the importance of agriculture marketing in economic development.
CO304.5	<b>Evaluating</b>	Students will be able to EVALUATE various facets of rural marketing and develop an insight into rural marketing regarding different concepts and basic practices in this area.

### **Prescribed Books:**

1. Marketing of Agricultural Products”, Richards L. Kohls and Joseph N UHL, Eastern Economy Edition.
2. Rural Agricultural Marketing, Prof. M V Kulkarni, Everest Publishing House.
3. Agri Food Marketing, D I Padberg, C Ritson and L M Albin, CAB International.
4. Agriculture and Rural Development, Pratal May, Mohit Publications, New Delhi.
5. New Perspectives in Rural and Agri. Marketing, Ramkishen Y, Jaico Publishing House.
6. The Rural Marketing Book by Pradeep Kashyap and Siddhartha Raut.
7. Agri Marketing Management, Premjit Sharma, Gene Tech Book, New Delhi.
8. A text book of Rural Marketing by MinoutiKamat and R.Krishnamoorthy.
9. Rural marketing environment, problems and strategies by T.P.Gopalswamy.
10. Rural Marketing-Focus on agricultural inputs by Sukhpal Singh.

### **Suggested Readings:**

1. “Indian Agriculture and Agri Business Management”, Dr, Smita Diwase, Krishi Resource Management Network.
2. Nagpure & Deshmukh: Agri Business Management, Agromet Publisher.
3. Acharya, S.S. and N.L. Agrawal. Agricultural Marketing in India. Oxford and IBH Publishing Company Pvt. Ltd., 66, Janpath, New Delhi – 1. Memoria, C.B. and R.L. Joshi. Principles and Practice of Marketing in India. Kitab Mahal, 15, Thorn hill Road, Allahabad.

### **AGRIBUSINESS MANAGEMENT SPECIALIZATION**

<b>Semester</b>	3	<b>Course</b>	4	<b>Specialization</b>	Agri Business Management.
<b>Course Code</b>	OMAB305	<b>Credits</b>		<b>Type</b>	Specialization Course.
<b>Course Title</b>	Post-Harvest Technology and Management				

#### **Course Description:**

The course introduces the student regarding importance of Post-Harvest technology, various aspects of Agro processing Industry & innovation in Agro processing, packing and packaging technology to avoid the national loss due to lack of post-harvest knowledge.

#### **Course Objectives:**

1. To educate the students about importance of post-harvest technology management for achieving overall growth of agriculture sector.
2. To understand the methods of storage and food safety.
3. To provide technical know-how and to develop managerial skills in order to serve the agriculture Industry efficiently.
4. Industrial study of Vegetables, Fruits, Milk, Meat, Fishery and Biodiesel sector with respect to various aspects.

#### **Course Outline:**

**Unit 1: Introduction to Agro processing, Pre & Post harvest management:** Introduction to Indian agro-processing sector, SWOT analysis of agro-processing industries in India, Business Environment related to processed food industry, Importance of Pre-Harvest Management, Standard operation practices followed after harvesting the produce at farm level including handling, sorting, grading, post-harvest treatments, storage and transportation of fresh produce.

**Unit 2: Aspects in Agro Processing Industry:** Factors to be considered while establishing food processing plant including Government norms and requirements, Actual processing of Agri-produce into final products, Different preservation practices followed in food processing sector, Utilization of by products in agro processing industry.

**Unit 3: Present status and Importance of Post-Harvest Technology:** Horticulture production in World and India, present status of fruit industry in India and emerging scenario Role of horticulture in Indian

agriculture and Importance of post-harvest technology.

**Unit 4: Fruit Ripening and harvesting Indices:** Maturity and ripening process, fruit ripening, climacteric and non-climacteric fruits, Changes during Fruit Ripening, Maturity and harvesting indices of fruits and vegetables, Factors responsible for maturity, ripening and deterioration.

**Unit 5: Factors Affecting Ripening:** Fruit maturity, temperature, water humidity, Altitude, Atmosphere, Mechanical damage, Surface to volume ratio. Peel thickness, biotic stress. factors responsible for deterioration of harvested fruits and vegetables

**Unit 6: Methods of storage:** Precooling, pre storage treatments, low temperature storage, controlled atmosphere storage, hypobaric storage, irradiation and low cost storage structures.

**Unit 7: Packaging Technology:** Ethylene scavenger: Low temperatures of storage, Controlled atmospheric storage, Oxygen Scavenger: Antimicrobial Packaging, Modified Atmosphere Packaging (MAP), Humidity and condensation control.

**Unit 8: Processed product packaging & labelling:** Recent trends in packaging & labelling industry Viz. Green Packaging, Intelligent Labelling etc., government's regulations in packaging and labelling of food products. Importance of packaging and labelling, Different kinds of packaging materials, Points to be considered while selecting a packaging material.

**Unit 9: Vegetable Preservation:** Importance and scope of fruit and vegetable preservation in India, Export of fruits and vegetables from India, role of APEDA in export of fruits and vegetables.

**Unit 10 Food safety and standards:** Need for food standards and their enforcement, Food Safety and Standards Authority of India (FSSAI); Food Safety and Standards Act, 2006 (FSSA).

**Unit 11: Managerial aspects & Market study in Food Processing Industry:** Different department involved in a food processing company and importance of coordination in those departments etc. Importance of production, marketing & distribution aspects in food processing sector, Introduction to different research institutions and corporations involved in food processing sector, Case studies in agro- processing sector.

**Unit 12: Marketing of fruits & vegetable:** Market and marketing: meaning, definition, components of a market, importance of agricultural marketing, classification markets, Producer's surplus marketable and marketed surplus Problems of marketing.

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO305.1	<b>Remembering</b>	DESCRIBE the types of agro processing industries, technology used for packaging and preservations of fruits and vegetables.
CO305.2	<b>Understanding</b>	UNDERSTAD the different methods of storage and need food safety and its standards.
CO305.3	<b>Applying</b>	Students will be able to convert the observations to meaningful results and DEMONSTRATE managerial skills in order to serve the agriculture industry efficiently
CO305.4	<b>Analyzing</b>	Students will be able to COMPARE various processing methods of post-harvest technology and their outcomes

### **Suggested Readings:**

1. Dr. R. H. Jaju, Food Laws and regulations, radheya publication, beed.
2. S. N. Misra, 2004, "Commercial Agri-enterprises-Strategy Achievement and Future prospects", Deep & Deep Pulications, New Delhi.
3. F. C. Blank, 1999, "Handbook of Food and Nutrition", Agro Botanical Publishers, India.
4. B. Misra, G. C. Kar, S. N. Misra, 2004, " Agro Industries and Economic Development, A vision of the 21st Century", Deep & Deep Publications Pvt. Ltd., New Delhi.
5. Dairy Technology, By Sukumar De, Tata MC Graw Hills Publication, N Delhi.
6. Food biotechnology, S N Tripathy, Dominant Publishers and Distributors, New Delhi
7. State of Indian Farmer, A millennium Study, Post-Harvest Management, V R Gaikwad, Shreekant Sambrani, V Prakash, S D Kulkarni, P Murari, Academic Foundation, New Delhi.
8. Pantastico, E. R., B. Post-Harvest Technology, Handling, Utilization of Tropical and Sub-tropical Fruits and Vegetables. The AVI Publishing Co.,West-Post, Connecticut, USA.
9. Salunke, D. K. and Desai, B. B. Post-Harvest Biotechnology of Vegetables. II CRC Press, Boca Raton, Florida.
10. S. Subba reddy et al .agriculture economics.(2010) oxford and ibh publishing company Pvt. Ltd., 66 Janpath, New Delhi – 110001.

### AGRIBUSINESS MANAGEMENT SPECIALIZATION

Semester	3	Course Credits	4	Specialization	Agri Business Management.
Course Code	OMAB306			Type	Specialization Course.
Course Title	Agri Import And Export Management.				

#### **Course Description:**

Course introduces the student regarding import and export of agricultural commodities, management of import export organizations. Course helps to develops institutional linkage of export promotion, rules and regulation for export and import. Information regarding the agencies involved in EXIM of Agri commodities also documentation require for export.

#### **Course Objectives:**

1. To understand the fundamentals of International Trading
2. To orient Students about Potentials in international trade in Agri sectors, Import and Export management of Agri commodities, Agencies / Institutes/ Bodies for EXIM of Agri Commodities.
3. Understand Government Initiatives for export of agriculture commodities.
4. Students will understand Export- Import documentations procedures and government policies.

#### **Course Outline:**

**Unit 1: Nature and scope of International Trade:** Meaning and importance of International trade. Advantages and disadvantages of international trade. Salient features of international trade.

**Unit 2: International Market:** Importance of international markets, economic reasons for export. International marketing: Practice and problems. Terms of Trade Balance of Payments.

**Unit 3: Theories of International Trade:** International Trade concept, definitions, its significant role in agriculture. Theories of International Trade: Basics Classical Theory, Theory of Absolute Advantage. Theory of Comparative Advantage.

**Unit 4: Management of Export –Import organization:** Management Of Export Import Organization Registration, Documentation, Export Import Logistics. Review of EXIM policy / procedures, Potentials and emerging focus area for Agricultural exports (FAO), Constraints in international trading in Agricultural Commodities.

**Unit 5: Terms of trade:** Meaning, structure and India's balance of payments position. Meaning and classification of terms of trade.

**Unit 6: Foreign Exchange:** Concepts of Foreign exchange, EXIM Bank, Exim Policy, Foreign exchange rate, types of foreign exchange rate, Mechanism of determining foreign exchange. Instruments of international payments.

**Unit 7: GATT & WTO:** Introduction to GATT/ WTO, International Trade in Agricultural Commodities (AoA), Policy of GOI for International Trade in Agricultural Commodities, QC and QA for international trading in Agricultural Commodities, Sanitary and Phyto sanitary measures.

**Unit 8: Export Documentation:** How to start import and export business of Agricultural commodities (Documentation), Case studies, Use of Information Technologies in Agri Exports.

**Unit 9: Managing Exports Business:** Method of Payment Nature / Method of Payment Terms, Advance Payment, Open Account, Letter of Credit (Form & Type of L/C), Documentary Collection, Instruments of Payment (Incoterms).

**Unit 10: Post Export Follow up:** Customs Clearance of Export Import Cargo Clearance of Export Cargo, Clearance of Import Cargo, Customs Valuation.

**Unit 11: Acts related to import and export:** Acts and provisions for international trading in Agricultural Commodities/ Global Gap/ HALCP/ BRC/ PGI/ India Gap/ POP/ Organic Certification.

**Unit 12: Govt. Institutions Related to International Trade:** APEDA, Tea Board, Spice Board, FCI, MOFPI, Commerce Ministry, DGFT and export promotion councils, Trade development authority and trade fair authority, Export inspection council, Role of Multinationals in Agricultural Development, Residue Monitoring Plan for export, Advance certification in export.

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO306.1	<b>Remembering</b>	Students will be able to IDENTIFY factors that indicate strong potential Agri export markets in order to define Market selection models or drive market selection systems.
CO306.2	<b>Understanding</b>	Understand Export-Import process and documentations of agricultural commodities.
CO306.3	<b>Applying</b>	Students will be able to identify major governmental and non-governmental sources of information related to agri import/export assistance and APPLY that knowledge through development of marketing plans tied to global business activity and country-specific business conditions.
CO306.4	<b>Analyzing</b>	ANALYSING the current trends and best practices in agribusiness with

		reference to export and Import.
CO306.5	<b>Evaluating</b>	EVALUATE the process of applying theory knowledge in practical about exporting of agricultural commodities.

### **Suggested Readings:**

1. "EXIM Hand Book and Procedure, Min of Commerce, GOI, 2009-14.
2. Export Potential of Indian agriculture by Dr. Gursharan Singh Kainth, published by Regency Publication, New Delhi.
3. Agri Business Management by Smita Diwase, published by Everest Publishing House, Pune.
4. Agricultural Marketing Management by Premjit Sharma, Published by Gene Tech Books Publishing House, New Delhi.
5. Agri Business Management by Dr J Amarnath and Dr. APV Samvel, Published by Satish Serial Publishing House, Delhi.

### AGRIBUSINESS MANAGEMENT SPECIALIZATION

Semester	4	Course Credits	4	Specialization	Agri Business Management.
Course Code	OMAB401			Type	Specialization Course.
Course Title	Emerging Trends in Organic Farming				

#### **Course Description:**

Course introduces the student regarding various types of healthy and nutrient rich foods, emerging trends in organic farming management. It discusses the scope of avoidance of food borne diseases and sustainable lively hood.

#### **Course Objectives:**

1. To introduce the importance of emerging trends in organic farming management towards sustainability.
2. To understand various aspects of organic farming Management and its marketing.
3. To introduce organic perspectives conventional organic agriculture and National & International Organic Policy.

#### **Course Outline:**

**Unit 1: Introduction to Organic Farming:** Meaning, Concept, Importance and Scope, Current scenario of Organic Farming in India, Historical development of Organic Agriculture in India, Soil Management for Organic plantation.

**Unit 2: Types of Farming:** Pure Organic Farming – Definition, Concept & Benefits, Integrated Farming system (Combination of Organic and Inorganic) Mixed Farming.

#### **Unit 3: Plant Nutrients:**

Name of plant Nutrients with gradation, Functions of Nutrients in plant growth and Development of crops Nutrient uptake and Utilization by plant: From Organic and Inorganic.

**Unit 4: Balanced Nutrients supply:** a) For Organic Farming system using nutrients from Organic sources.  
b) Integrated plant nutrient Management.

**Unit 5: Sources of nutrients for Organic Agriculture:** Organic Manure – FYM/Rural compost, City

compost, Oil cakes, Animal wastes, Vermicomposts, etc. Green Manure – Green Manure with Leguminous crops in crop rotation. In-situ incorporation of crop residues -Benefits of Other Nitrogen contributing plants.

**Unit 6: Post Harvest Management of Organic Crops / Fruits / Vegetables:** Current Industrial Requirement of Organic Produce, Actual Processing of Organic Produce without making loss of nutrients, Pre and Post harvesting techniques for Organic Produce, Packaging, Labelling, Nutrients management in Organic Produce.

**Unit 7: Marketing of Organic Farm Produce:** Concept of Product, Evaluation of Product, Branding of Product, Marketing in domestic market Milk, Cereals, Pulses, Legumes, Fruits and Vegetables, Opportunities in Export of Organic produce, Use of Digital Marketing for Organic Produce, Pricing Strategy for Organic Produce.

**Unit 8: Standards, Inspection and Certification of Organic Unit:** Indian certification agencies- National Accreditation Board for Testing and Calibration Laboratories (NABL), Tamil Nadu Organic Certification Department (TNOCD), Agricultural and Processed food products Export Development Authority (APEDA), Spice Board, Coffee Board, Tea Board, International certification agencies- California Certified Organic Farmers (CCOF), International Federation of Organic Agriculture Movements (IFOAM) and standards, The Ecological Farming Association, Organic Farming Research Foundation (OFRF), Organic trade Association.

**Unit 9: Organic Farming Measures by Indian Government:** Paramparagat Krishi Vikas Yojana (PKVY), Rastriya Krishi Vikas Yojana (RKVY), National Programme for Organic Production (NPOP), Certification schemes for regulation of organic products: Food Safety and Standards Authority of India (FSSAI), Participatory Guarantee System (PGS), Soil Health Card Scheme, One District – One Product (ODOP).

**Unit 10: Assessment and Evaluation of Organic Products:** Product Analysis by machines, Sorting, Grading of Organic Produce, Quality management aspects of Organic Farm Produces- Cereals, Vegetables, Micro greens, Exotic plants, Procedure for Accreditation, Difficulties in Organic Farm Management.

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO401.1	<b>Remembering</b>	TO STATE the major conceptual framework, scope, need of Emerging trends in Organic Farming
CO401.2	<b>Understanding</b>	TO UNDERSTAND background of post-harvest technology management for organic farming
CO401.3	<b>Applying</b>	TO APPLY current and emerging trends in marketing of Organic Farming on

		field and in domestic market
CO401.4	<b>Analyzing</b>	TO DISTINGUISH between domestic and international standards for certification of organic products
CO401.5	<b>Evaluating</b>	TO SELECT most suitable framework and model of organic farming

### **Prescribed Books:**

1. The World of Organic Agriculture, Helga Willer, Minou Yussefi, Neil Sorensen, Earthscan Publications, 2008.
2. Trends in Organic Farming in India, Purohit S.S. & Gehlot, Dushyent (Eds.).
3. The Complete Book on Organic Farming and Production of Organic Compost, NPCS Board of Consultants & Engineers.
4. ABC of Organic Farming, Amitava Rakshit and H B Singh, Jain brothers.

### **Suggested Readings:**

1. The Natural Way of Farming: The Theory and Practice of Green Philosophy, Masanobu Fukuoka.

### AGRIBUSINESS MANAGEMENT SPECIALIZATION

<b>Semester</b>	4	<b>Course</b>	4	<b>Specialization</b>	Agri Business Management.
<b>Course Code</b>	OMAB 402	<b>Credits</b>		<b>Type</b>	Specialization Course.
<b>Course Title</b>	Agricultural Economics.				

#### **Course Description:**

Course introduces the student regarding Agricultural Economics, Importance of Agriculture in Economy, various economic theories. Course will give more focus on practical exposure of principles and theories in Agri business management. This course will deal with the decision making in Agri business, food processing with respect to economics.

#### **Course Objectives:**

1. To explain different concepts, theories, principles of agricultural economics.
2. To know about different cost concepts, cost sheet.
3. To orient students about cost calculations in agricultural activities including farming and agro industries.

#### **Course Outline:**

**Unit 1: Nature and Importance of Agricultural Economics:** Nature, Scope, Importance of agricultural economics, production process, economies of scale in production, agricultural production function, Micro and Macro Economics.

**Unit 2: Economic growth and agricultural development:** Short, Medium and Long Term growth, Development of Economics, Economic progress of developing countries, Economics Institutions and their role, functions etc.

**Unit 3: Approaches to economic analysis:** Micro and macroeconomics, positive and normative analysis- Deductive and Inductive methods of investigation. Market structure, meaning and types of market, basic features of perfectly competitive and imperfect markets.

**Unit 4: Law of Diminishing Marginal Utility:** Utility theory, Law of Diminishing Marginal Utility – statement, assumptions of law, explanation, limitations of the law, Importance.

**Unit 5: National income:** Meaning and importance, circular flow, concepts of national income accounting-

Gross domestic product, gross national product, net national product, net domestic product- national income at factor cost, personal income, and disposable income.

**Unit 6: Consumer's Surplus:** Meaning, Assumptions, Explanation, Difficulties in measuring Consumer's Surplus, Importance. Ordinal Approach-Consumer's equilibrium, indifference curve analysis.

**Unit 7: Distribution theory and Price determination:** Meaning, factor market and pricing of factors of production, Price determination under perfect competition.

**Unit 8: Agricultural Credit / Loan:** Meaning, Definition and Classification – short term loan, medium term loan and long term loan. Importance of credit in agriculture development. NABARD its role and importance for farmers development.

**Unit 9: Agri Business Management Economics:** Economic Principles Applied to Financial Management of the Farm, Economic policies related to Seeds, Fertilizers, Pesticides, Irrigation, Credit Policy, Food Policy, Laws related to WTO / Farmers Rights Act / Farmer Bill, Agri Poverty Measurement and Suggestions, Project Planning and Costs associated with agricultural project.

**Unit 10: Financial Economics:** Basic difference between finance and economics, Introduction to share market, Concept of securities, stocks, bonds, Financial institutions in India, Derivatives analysis, regulations of financial markets.

### **Course Outcomes:**

On successful completion of the course the students will be able to

CO#	Cognitive Abilities	Outcomes
CO402.1	<b>Remembering</b>	TO IDENTIFY the nature, scope and economies of scale in Agricultural Economics
CO402.2	<b>Understanding</b>	TO DESCRIBE the Short-, Medium- and Long-Term economic growth, cost concepts in Agricultural economics.
CO402.3	<b>Applying</b>	TO IMPLEMENT Law of Diminishing Returns
CO402.4	<b>Analyzing</b>	TO ANALYSE Economic policies related to Seeds, Fertilizers, Pesticides, Irrigation, Credit Policy, Food Policy, Laws
CO402.5	<b>Evaluating</b>	TO EVALUATE projects, policies, and regulations in financial market with reference to Agricultural economics.

### **Prescribed Books:**

1. Bhalla, G. S. and Singh G., 2001, Indian Agriculture: Four Decades of Development, Sage Publications.
2. Dhondyal, S.P. " Farm Management -An Economic Analyst " Friends Publications. Meerut.

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3. Ghatak, S and K Ingersent (1984) Agriculture and Economic Development, Select Book Service Syndicate, New Delhi.
4. Ramaswami, Bharat, Shamika Ravi And S.D. Chopra (2004), Risk Management, State of the Indian Farmer- A Millennium Study, Volume 22, Academic Foundation, New Delhi.

**Suggested Readings:**

1. Chandra, P. (2000), Financial Management, Tata McGraw Hill.
2. Chadha G. K. (2003), WTO and Indian Economy. Deep and Deep Publications.

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