

AGRICULTURE

Course Structure

Part	Section	Unit	Topics	Marks
I	A		Agriculture and Crop Production	30
		1	Scope and Importance	
		2	Physical Environment	
	3	Agriculture Economics		
	B			Genetics, Plant Breeding and Microbiology
4			Genetics, Plant Breeding and Microbiology	
II			Livestock Production	25
		5	Scope and Importance	
		6	Care and Management	
		7	Bio-waste Management and Government Schemes	
III			Practical	30

Course Syllabus

SECTION - I

PART A - Agriculture and Crop Production

Unit I: Scope and Importance

- Definition of agriculture
- Branches of agriculture
- Scope of agriculture in the national economy and employment

Unit II: Physical Environment:

- Climate and Weather
- Elements of Weather:
 - Rainfall
 - Temperature
 - Humidity
 - Wind
 - Sunshine
- Climate Change
- Global warming
- Soil:
 - Soil texture
 - Soil structure
 - Soil types
 - Soil distribution
 - Soil area
 - Soil erosion
 - Soil conservation
 - Reclamation of problematic soils acidic and alkali
- Tillage definition and types:
 - Concept of conservation and tillage

Unit III: Agriculture Economics and Crop Production

- Agricultural economics
- Cooperative system in Agriculture
- Crop Insurance
- Kissan Credit Cards
- Marketing of Agricultural Products (supply chain, retailing, wholesale), haats
- Package & practices like:

- Important varieties
- Seed rate
- Sowing time
- Intercultural operations
- Yield and marketing of:
 - Rice
 - Wheat
 - Maize
 - Mustard
 - Sunflower
 - Soybean
 - Groundnut
 - Black gram
 - Red gram
 - Pea
 - Jute
 - Sugarcane
 - Sorghum
 - Pearl millet
 - Finger millet
- Introduction, distribution and economic importance of fruit:
 - Mango
 - Banana
 - Guava
 - Lime
 - Grape
 - Apple
 - Pomegranate
- Introduction, distribution and economic importance of Vegetables:
 - Potato
 - Tomato

- Cauliflower
- Cabbage
- Spinach
- Brinjal
- Bottle gourd
- Pumpkin
- Cucumber
- Introduction, distribution and economic importance of Flowers:
 - Rose
 - Gladiolus marigold
- Types of seed-foundation and certified and methods of plant propagation layering and cutting, and Tissue culture.
- Important farm implements and their maintenance

PART B - Genetics, Plant Breeding and Microbiology

Unit IV: Genetics, Plant Breeding and Microbiology

- Cell:
 - Cell structure
 - Cell Division-Mitosis and Meiosis
 - significance in plant growth and development
- Introduction to - DNA, RNA, and their differences.
- Genetics:
 - Role of Genetics in Plant breeding
 - self and cross-pollinated crops
 - methods of breeding in field crops-introduction
 - selection
 - Hybridization
 - Mutation
- Mendel's laws of Inheritance:

- Illustrative depiction of the experiments
- Their importance in plant breeding
- Introduction to:
 - Algae
 - Fungi
 - Bacteria
- Decomposition and Fermentation

Section - II: Livestock Production

Unit V: Scope and Importance

- Importance of livestock in Agriculture
- National Economy and Nutritional security
- Important animal based food products and their role in our diet
- Important animal breeds of our country (cow and buffalo)
- Exotic breeds of cows and their milk production and quality

Unit VI: Care and Management

- Principles of feeding:
 - Feeding practices
 - Important fodder crops
 - Silage and Hay preparation
 - Balanced ratio-definition and ingredients
- Concept of grazing and stall feeding including poultry feeding
- Systems of milking by hand and by machine:
 - Important considerations in both these methods
- Concept of:
 - Clean milk production
 - Processing

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- Value added products from milk
- Milk pasteurization
- Packaging and milk marketing in india
- Concept of AMUL cooperative system of milk procurement and marketing
- Production of:
 - Meat
 - Egg
 - Wool/Fur
- Management of:
 - Calves
 - Bullocks
 - pregnant and milch animals
 - chicks and layers
- Animal body structure and functions
- System of animal health and hospital management in India
- Diseases:
 - Signs of sick animals
 - symptoms of common diseases in cattle and poultry
 - Rinderpest
 - Black quarter
 - Foot and Mouth
 - Mestitusand Haemorrhagic Septicaemia
 - Fowl Pox
 - Ranikhet
 - Prevention and control of disease

Unit VII: Bio-Waste Management and Government Schemes

- Utilization of animals in Bio-wastes and Biogas plant
- Important government schemes for livestock production in India
- The important features and eligibility criteria

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