

Dairying (DAI) Paper-I

Theory – 40
Practical - 60

Unit.I	Dairy farming Basics	<p>Dairying -introduction. History & Present status of dairy farm produces in India & Odisha.</p> <p>Scope of development in cattle wealth , Human diet & of Dairy enterprises, farmers and supporting professionals.</p> <p>Setting up a Dairy farm- aspects to consider; farmer’s eligibility& critical needs. Opportunities, shortcomings & challenges. Making up entrepreneurial deficiencies.</p> <p>Supporting & dependant activities to Dairy farming</p> <p>Broad idea on Cattle & buffalo morphology, productive traits , behavior & Habitat- under domestication</p>
Unit.II	Stocking of animals, herd improvement and maintenance.	<p>.Importance of herd composition; Goodness cattle & buffalo ratios.</p> <p>Planning of herd size & quality.</p> <p>Recognised Cattle & Buffalo breeds of India , Odisha & Exotic donor breeds used . Outlines on salient characteristics & productivity , milk yield & quality.</p> <p>Stocking strategies. Breeding policies - National & Odisha. Factors whilst selecting foundation stock.</p> <p>Principles of genetical improvement of breeds. Systems of breeding.</p> <p>Maintenance of blood level.</p> <p>Selection & culling based on records & Judging</p> <p>.Procurement of Dairy animals, Soundness certification, legal requisites and insurance cover.</p> <p>Mode of Transport, quarantine, Care during transportation & post procurement.</p>
Unit.III	Preparation and maintenance of Dairy Accommodation	<p>Ideal environment for wellbeing of livestock. Site for a dairy farm- considering available resources, legal, economic & other factors.</p> <p>Systems of cattle rearing- Suitability Dairy housing for different systems</p> <p>Hygiene , sanitation, safety in dairy farms.</p> <p>Construction of structures, use of space & money saving techniques.</p> <p>Fittings & fixtures for accommodation , Tools & equipments - their maintenance & storage.</p> <p>Waste & carcass management. Study of Production, bottling , storage & distribution of Biogas.</p>
Unit.IV	Forage Production	<p>Importance of Forage; Status of pastures, grass lands & forage cultivation in Odisha & India. Challenges to fodder production in Odisha.</p> <p>Soil - types, topography , chemical & physical properties. Soil fertility & productivity . Relation of meteorology, water availability & soil properties to forage production.</p> <p>Fodder crops –selection. Tillage of soil and cultivation practices for cereals , legumes & grasses. Application of manure, fertilizers ,pesticides- merits & demerits.</p> <p>Crop rotation, inter cropping & cropping schemes.</p>

Relevance of Irrigation & drainage systems for forage production.
 Maintaining soil health & productivity.
 Organic forage production.
 Stages of harvest of different fodder crops. Loss minimization tips.

Fodder seed production & storage.

Use of grass, fodder & lopped leaves as green forage. Merits of Chaffing & diet dosing of green fodder.

Practical

- Utility of milk in human diet.
- External & Internal Anatomical outlines of cow
- Identification with salient traits of important breeds of Indian Dairy, draft & dual cattle, Exotic donor breeds, Buffalo breeds.
- Common terms used in Dairy Farming & cattle markets.
- Diagrammatic representation to maintain blood level in Cross bred & Full blood animals.
- Study of Dairy wedges
- Preparation & use of score card for judging of milch cow.
- Restraint, leading & handling of Cattle & buffaloes
- Determination of age basing dentition.
- Ear Tagging & branding of animals.
- Study of a soundness certificate and Monetary transaction document at purchase of a milch cow.
- Study & filling up of cattle insurance proposal form.
- Enlisting of Mandatory requirements for animal transport.
- Floor space requirements for different age & stage of dairy animals.
- Preparation of Design for a Dairy farm & byres.
- List of tools & equipments used in a milch cow byre.
- Dairy farm-waste disposal designs
- Study of a Biogas plant, Composition & utility of Biogas.
- Study of Forage growing areas in India & Odisha
- Identification of major forages & their productivity.
- Identification of Fodder & their seeds /stumps
- Preparation of a Design of a fodder plot.
- Study of a chaff cutter.

Paper-II

Theory – 40
Practical - 60

Unit.I	Feeds & feeding of Dairy animals	<p>Importance of good nutrition to dairy animals. Digestive system of adult ruminants & calves. Physiology of Digestion, absorption & utilization. Classification of feeds. Concentrates, Roughages, Feed supplements & additives and water - their role & nutritional values. Importance of good quality of feed & water.</p> <p>Ration requirement for maintenance & production stages. DCP & TDN- Formulation principle for mixed concentrates</p> <p>Feeding of dairy animals at different age and stages.</p> <p>Value added provender- Bypass protein & Fat, Chelated minerals, Pre & pro-biotic, NPN. Manipulative measures to reduce feed cost & increase FCR & gain advantages.</p> <p>Anti-nutritive factors and adulterants in common feedstuff - combating maneuvers.</p> <p>Feed stuff procurement– BIS Standards . Quality control of feed & packing. storage of feed.</p>
Unit.II	Care & Management of Dairy cattle	<p>Importance of timely proper care of Dairy animals. Factors contributing to wellbeing of animals. Providing Basic needs like Balanced diet, Clean water, comfortable ambience & Fresh air & exercise etc. – common to all categories.</p> <p>Special attention to different categories of animals. Routine & casual attention in dairy farm.</p> <p>Necessity of proper Health care of dairy animals. Losses due to health hazards. Signs of health & illness.</p> <p>Out lines on infectious and metabolic diseases of cattle & Buffalo.</p> <p>Recognition of Redline symptoms of important diseases. Steps for prompt treatment & Vet First Aid.</p> <p>Concept on Prevention & control of Diseases in farm animals. Immunity system & vaccines & its effect.. Prevention of calf mortality, Abortions & mastitis. Control & eradication of Parasitic diseases.</p> <p>Recognition of common health problems not necessitating a veterinary Doctors attention; treatment & care at farm level.</p>
Unit.III	Dairy cattle head & Milk production. Idea on Quality improvement & value addition of milk.	<p>Concepts of animal reproduction. Merits of A I mediated planned breeding of female animals in the farm. Vet- Embryo -transfer , Synchronized mass AI concept & facilities available.</p> <p>Broad idea on Anatomy & physiology of reproductive system in cattle & buffaloes.</p> <p>Oestrus symptoms & detection. Choice of semen & Timing of AI. Pregnancy diagnosis & special care of Pregnant animals and udder development regimes.</p> <p>AI techniques , Idea on Frozen semen straw production , handling, transport & storage..</p> <p>Infertility and other breeding failures in the farm. Causes & remedial steps. Parturition- Symptoms and Mechanism. Dystokeya & ROP etc. problems and points to intervene.</p>
Unit.IV	Dairy entrepreneurship & Organized Marketing and	<p>Importance of economic viability in a dairy enterprise. General principles of accounts keeping . Maintaining of traditional and e-accounts & records and balance sheets.</p> <p>Structure & functions of organized Dairy Cooperative setups in Odisha. How milk producers and other stake holders mutually benefit from this sector. Registration of business firms; producer groups & companies.</p>

- extension. Pollution control, SPCA, Consumer protection , cattle tress pass, Prevailing Milk & Milk product Laws. Cattle and Micro-insurance schemes. Labor laws & zoonosis. Provident Fund and other welfare benefit options available to employees.
- Extension methods & Techniques. Need of training to employees & other stakeholders. Crises management & conflict resolution in workers.
- Practical
- Identification of feed stuff with TDN & DCP values for cattle.
 - Identification of feed additives & promoters.
 - Computation of ration with locally available feed stuff.
 - Recognition of inedibility in feedstuff by organo- leptic test.
 - BIS standard for cattle feeds of diff categories.
 - Study of water provisions & sanitization in farm. (VISIT)
 - Study of cattle feed manufacturing (VISIT)
 - Formulation of concentrate mix using Pearson's Square
 - Preparation of hand mixed feed concentrate at farm.
 - Preparation of Artificial colostrums & calf starter.
 - Feeding calves using sterilized feeding bottles. (VISIT)
 - Maintenance of pedigree sheet for a milch cow of a dairy farm.
 - Steps to combat stress to farm animals in hot humid weather.
 - Observation & trial of hand milking & udder care. (VISIT)
 - Observing vital steps to clean milk production(VISIT)
 - Study of Process of Weaning , Drying off .
 - Familiarizing with Maintenance of different records.
 - Sample Routine of Daily & Casual works.
 - Observing Vaccination of animals & study of Vaccine calendar
 - Administration of medications- drenching, spray etc.
 - Performing Castration(closed), dehorning , hoof trimming.
 - Enlisting First -aid steps to animals in emergencies
 - Observing parenteral administration of drugs to animals
 - Practice of drain of abscess, wound dressing & bandaging .
 - Knowing medicaments - label , Expiry date & storage etc.