Dairy Farm Manager (DAFM)
Core Qualification File Syllabus

Details of Theory Syllabus

Sl. No.	CONTENT	DETAILS
1.	Introduction (8 hrs)	1.1 Definition of Dairy Farming. 1.2 Role of Dairy Farming in relation to human nutrition, self employment and contribution to the national economy of India. 1.3 Important dairy animals in India. 1.4 Population of cattle & buffalo and milk production statistics. 1.5 Demand and availability of milk in our state and country
2.	Breeds of cattle and buffalo (25 Hrs)	I.1 Name of recognized indigenous breeds of cattle and buffalo in India. I.2 Name of exotic breeds of cattle experienced in India for milk production. I.3 Classification of indigenous cattle breeds according to utility (milch, draught and dual purpose). I.4 Origin, characteristics and production capabilities of important cattle and buffalo breeds – Sahiwal, Red Sindhi, Gir, Jersey, Holstein Friesian, Murrah, Surti, Mehsana. Suitable breeds of cattle in West Bengal
3.	Reproduction (25 hrs)	3.1 Reproductive system of cow and bull – an overview. 3.2. Composition of bull semen. 3.3 Estrous cycle. 3.4 Age at first mating and pregnancy period of cattle and buffalo; Pregnancy diagnosis; Forecasting of expected date of calving; Parturition – mechanism of parturition, care and management of cow during parturition. 3.5 Artificial Insemination (AI) – definition, advantages and disadvantages. 3.6 Steps of AI – collection, evaluation, dilution and preservation of semen. 3.7 Technique and procedure of AI with frozen semen, precautions; Transport of semen; Equipment needed for AI; Care of biological cryocan
4.	Feeds and Feeding (25 hrs)	4.1 Digestive system of cattle – an overview, digestion and absorption. 4.2 Roughages and concentrates – examples. Proximate analysis of feeds. 4.3 Cultivation of fodder crops–maize, jowar, berseem, lucerne, rice bean, hybrid napier, para grass; Supply of fodder throughout the year. 4.4 Conservation of fodder – hay and silage. Hay making - suitable fodder crops, method. 4.5 Silage preparation – suitable fodder crops, method of silage

		making. Some unconventional cattle feed. 4.6 Preparation of concentrate mixtures for dairy animals. 4.7 Feeding schedule of calf, heifer, cow, bull
5.	Housing (18 hrs)	5.1 Types of dairy cattle housing – loose housing system and conventional barn, floor space requirements for cow, heifer, calf, bull. 5.2 Ideal cowshed–constructional details; ancillary structures in dairy farm. 5.3 Cleaning and sanitation of dairy farm, conservation and utilization of dung and urine–organic manure, gobar gas
6.	Care and Management (18 hrs)	6. 1 Care and management of various stages of cattle-calf, heifer, cow
7.	Maintenance of health of dairy animals (25 hrs)	7.1 Health and disease, classification of various cattle diseases – viral, bacterial, parasitic, nutritional 7.2 Common infectious diseases–FMD, Haemorrhagic Septicaemia, Black Quarter, Anthrax, Brucellosis, Mastitis; 7.3 Prevention and control of infectious diseases – routine vaccination schedule. 7.4 Prevention and control of parasitic diseases- routine deworming schedule. 7.5 Common health problems and their first aid treatment–fever, diarrhoea, tympany, retention of placenta, milk fever, cuts and wounds, fracture of horn, anorexia, sprain, cracked teat, epistaxis
8.	Lactation, milk and milk products (24 hrs)	8.1 General idea about udder and teat. 8.2 Physiology of milk secretion. 8.3 Let-down of milk. 8.4 Composition of cow milk, buffalo milk, toned milk and double toned milk. 8.5 Legal standards. 8.6 Factors affecting yield and quality of milk. 8.7 Clean milk production. 8.8 Storage and transport of milk. 8.9 Common milk products – butter, ghee, dahi, chhana, paneer, khoa, milk powder. 8.10 Preparation of milk based sweets – rosogolla, sandesh, misti doi and chhana podo. 8.11 Common bacteria present in milk; diseases transmitted through milk. 8.12 Marketing of milk and milk products
	TOTAL	**168 Hrs**

Detail of Practical Syllabus

SL NO	CONTENT (Any Eight)	DETAILS
1.	Study of external body parts of cow (10 hrs)	1.1 Mouth 1.2 Muzzle 1.3 Nostril 1.4 Nose bridge 1.5 Eye 1.6 Face 1.7 Forehead 1.8 Horn 1.9 Poll 1.10 Ligamentum nuchae 1.11 Ear 1.12 Neck 1.13 Withers/hump 1.14 Back 1.15 Loin 1.16 Fossa of the flank 1.17 Hip point 1.18 Tail head 1.19 Rump 1.20 Pin bone 1.21 Tail 1.22 Thigh 1.23 Hock 1.24 Switch of the tail 1.25 Udder 1.26 Teat 1.27 Rear flank 1.28 Naval flap 1.29 Barrel 1.30 Heart girth 1.31 Arm pith 1.32 Dew claw 1.33 Hoof 1.34 Pastern 1.35 Shank 1.36 Knee 1.37 Arm 1.38 Brisket 1.39 Elbow 1.40 Dewlap 1.41 Shoulder 1.42 Shoulder point 1.43 Throat 1.44 Jaw
2.	Study of breed characteristics of dairy animals (10 hrs)	2.1 Dairy type indigenous cattle breed of India-Sahiwal, Gir, Red sindhi, Tharparkar 2.2 Draft type indigenous cattle breeds of India-Amritmahal, Hallikar, Kangayam, Umblachery, Gaolao, Red khandari, Punganur, Kenkanath, Khilari, Malvi, Dangi 2.3 Dual purpose indigenous cattle breeds of India-Kankrej, Hariana, Ongole, Deoni, 2.4 Buffalo breeds of India- Murrah, Nili-ravi, Jaffarabadi, Mehsana, Surti, Nagpuri 2.5 Exotic cattle breeds-Jersey, Holstein-Friesian, Brown swiss, Red dane

3.	Layout of houses for dairy animals – conventional housing and loose housing -- (10 hrs)	3.1 Types of animal housing, Conventional barns and Loose housing 3.2 Site, Foundation, Plan and Layout 3.3 Floor space requirements 3.4 Feeding and watering space requirements 3.5 Air and Ventilation 3.6 Lighting 3.7 Natural Lighting 3.8 Artificial Lighting 3.9 Ancillary structures-Stores, Silos, Milk house, Dry fodder shed, Handling yards ,
4.	Identification of feeds and fodder (10 hrs)	4.1 Nutrients in feeds-water, carbohydrates, lipids, protein , minerals, vitamins 4.2 Common feeds and fodder 4.3 Classification of feeds 4.4 Pastures 4.5 Roughages 4.6 Non-leguminous roughages 4.7 Concentrates 4.8 Digestible Crude Proteins (DCP) and Total Digestible Nutrients (TDN) 4.9 Unconventional roughage resources 4.10 Other unconventional roughage resources 4.11 Unconventional feeds as concentrate 4.12 Vegetable and fruit processing waste 4.13 Seaweeds and fishmeal 4.14 Non-protein nitrogenous (NPN) compounds as ruminant feed 4.15 Feed additives and their use in livestock
5.	Computation of ration by thumb rule (10 hrs)	5.1 Feeding of livestock and ration formulation 5.2 Nutrient requirement and feeding of bovines 5.3 Maintenance and growth requirements of animals 5.4 Requirement for reproduction 5.5 Requirement for milk production 5.6 Computation of ration 5.7 Maintenance ration for an animal weighing 250 kg 5.8 Ration for growing crossbred dairy heifer weighing 200 kg 5.9 Ration for cow weighing about 400 kg and producing 5 and 10 kg milk with about 5% fat
6.	Cleaning and disinfection (10 hrs)	6.1 Keeping milk cleaning 6.2 Cleaning and disinfection of cowshed 6.3 Prevention of infection 6.4 Isolation 6.5 Quarantine 6.6 Incineration 6.7 Commonly used disinfectants
7.	Hay making (10 hrs)	7.1 What is hay? 7.2 Properties of hay 7.3 Different types of hay 7.4 How to make hay 7.5 Factors affecting nutritive value of hay

8.	Silage making (10 hrs)	8.1 What is silage? 8.2 Advantages and disadvantages of silage 8.3 The ensiling process 8.4 Preparation of good silage 8.5 Crops used for ensiling 8.6 Types of silos 8.7 Different grades/kinds of silage 8.8 Improvement of poor quality roughages
	Projects (16 Hrs)	Any two projects each of 8 Hrs.
Total		**96 Hrs.**

Details of Project (Any two)

Sl. No.	Content (Any two, each 8 Hrs.)	Details
1.	Project I (8 Hrs)	Profit loss accounting in dairy farm
2.	Project II (8 Hrs)	Preparation of project on Small Scale Dairy Farming
3.	Project III (8 Hrs)	Record keeping in dairy farm
4.	Project IV (8 Hrs)	Methods of administration of drugs

OUTCOMES

Outcomes to be assessed	Assessment criteria for the outcome
1. Describe the concept of dairy farming and correlate it with contribution to the national economy of India by understanding the demand and availability of milk and milk products in the state and country.	1.1 List out the role of dairy farm manager. 1.2 Understand the general ethics of do's and don't 1.3 Identify the objectives of Dairy Farming 1.4 Elaborate role of Dairy Farming in relation to human nutrition, self employment and contribution to national economy of India 1.5 Identify important dairy animals in India 1.6 Describe population of cattle & buffalo and milk production statistics 1.7 Evaluate the demand and supply of milk in our state and country
2. Recognize the different breeds of cattle and classify the cattle breeds according to the utility.	2.1 Recognized indigenous breeds of cattle and buffalo in India. 2.2 List out of exotic breeds of cattle experienced in India for milk production. 2.3 Mention the classification of indigenous cattle breeds according to utility (milch, draught and dual purpose). 2.4 Illustrate origin, characteristics and production capabilities of important cattle and buffalo breeds – Sahiwal, Red Sindhi, Gir, Jersey, Holstein Friesian, Murrah, Surti, Mehsana. Suitable breeds of cattle in West Bengal.
3.Understand the reproductive system of cow and bull and identify the steps of AI collection and technique for preservation.	3.1 Overview the reproductive system of cows and bulls. 3.2 Understand the Composition of bull semen. 3.3 Describe the estrous cycle. 3.4 List out the age at first mating and pregnancy period of cattle and buffalo; Pregnancy diagnosis; Forecasting of expected date of calving; Parturition – mechanism of parturition, care and management of cow during parturition. 3.5 Understand Artificial Insemination (AI) and the steps of AI – collection, evaluation, dilution and preservation of semen. 3.6 Identify the technique and procedure of AI with frozen semen, precautions; Transport of semen; Equipment needed for AI; Care of biological cryocan
4. Prepare feed and fodders for dairy animals.	4.1 Describe the digestive system of cattle – an overview, digestion and absorption. 4.2 Differentiate Roughages and concentrate with examples, proximate analysis of feeds. 4.3 Understand cultivation of fodder crops–maize, jowar, berseem, lucerne, rice bean, hybrid napier, para grass; Supply of fodder throughout the year. 4.4 Explain conservation of fodder – hay and silage. 4.5 Explain hay making - suitable fodder crops, method. 4.6 Explain silage preparation – suitable fodder crops, method of silage making. 4.7 Illustrate some unconventional cattle feed. 4.8 Demonstrate preparation of concentrate mixtures for dairy animals. 4.9 Describe Feeding schedule of calf, heifer, cow, bull.

5.Plan the floor arrangements for different animal houses.	5.1 Illustrate types of dairy cattle housing – loose housing system and conventional barn, floor space requirements for cow, heifer, calf, bull. 5.2 Describe ideal cowshed–constructional details; ancillary structures in dairy farms. 5.3 Understand cleaning and sanitation of dairy farm, conservation and utilization of dung and urine–organic manure, gobar gas
6. Identify various steps of Care and Management of dairy animals and implement the best practices.	6. 1 Plan and execute the care and management of various stages of cattle-calf, heifer, cow. 6.2 Describe the various steps of early management of cows. 6.3 Identify the feeding procedure of cattle-calf, heifer and cow. 6.4 Plan, identify and implement the best practices of management of dairy animals.
7. Identify the symptom of certain specific diseases and apply the procedure of prevention and control.	7.1 Explain Health and disease, classification of various cattle diseases – viral, bacterial, parasitic, nutritional 7.2 Illustrate Common infectious diseases–FMD, Haemorrhagic Septicaemia, Black Quarter, Anthrax, Brucellosis, Mastitis; 7.3 Prevention and control of infectious diseases – routine vaccination schedule. 7.4 Describe prevention and control of parasitic diseases- routine deworming schedule. 7.5 Understand common health problems and their first aid treatment– fever, diarrhea, tympany, retention of placenta, milk fever, cuts and wounds, fracture of horn, anorexia, sprain, cracked teat, epistaxis
8.Identify the steps of clean milk production and describe the milk based products	8.1 Describe General idea about udder and teat. 8.2 Explain physiology of milk secretion. 8.3 Explain let-down of milk. 8.4 Illustrate Composition of cow milk, buffalo milk, toned milk and double toned milk. 8.5 Legal standards. 8.6 Illustrate factors affecting yield and quality of milk. 8.7 Demonstrate clean milk production. 8.8 Ability to understand storage and transport of milk. 8.9 Describe common milk products – butter, ghee, dahi, chhana, paneer, khoa, milk powder. 8.10 Describe preparation of milk based sweets – rasgulla, sandesh, mishti doi and chhana podo. 8.11 Illustrate Common bacteria present in milk; diseases transmitted through milk. 8.12 Explain marketing of milk and milk products