

VOCATIONAL HIGHER SECONDARY

FIRST YEAR

LIVESTOCK MANAGEMENT

DAIRY HUSBANDRY & POULTRY HUSBANDRY

TEACHERS SOURCE BOOK



**GOVERNMENT OF KERALA
Department of Education**

2005

State Council of Educational Research & Training (SCERT)

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PREFACE

Dear Teachers,

A new system is being introduced to the VHSE of Kerala. The striking feature of this system is that it is learner centred and activity based and process oriented. The shift of emphasis is on the learning process and evaluation system.

Being an agriculture based country, Livestock Management has emerged as one of the leading subjects in vocational education. The learner need to acquire necessary skill and experience so that he may be able to take up livestock rearing as his livelihood. He should also be able to work in different industries and enterprises related to animal rearing, processing, feed manufacturing etc.

The design and contents of this sourcebook will help the teacher to facilitate different information needed for learners. The vision, knowledge and experience of teacher should be used for proper application of this source book.

For preparing this sourcebook SCERT has drawn expertise from the field of animal husbandry. This sourcebook gives necessary guidance for planning the activities to achieve the different curriculum objectives and evaluation process in tune with the prescribed method.

I request the teaching community to forward their comment and suggestions to improve this book.

With regards,

Thiruvananthapuram
25.11.2005

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GENERAL APPROACH

Introduction

The ultimate aim of education is human refinement. Education should enable the learner to formulate a positive outlook towards life and to accept a stand which suits the well being of the society and the individual as well.

The attitude and potential to 'to work' has determined the destiny, progress and cultural development of the human race. As we all are aware, the objective of education to form a society and individuals having a positive work culture. The educational process expected in and outside our formal schools should concentrate upon inculcating concepts, abilities, attitudes and values in tune with these 'work culture.' Hence vocationalised education cannot be isolated from the main stream of education. In another sense, every educational process should be vocationalised. However, due to our inability to utilise the resources wisely, scarcity of job opportunities is a severe issue of the present society. For overcoming this deep crisis, emergent techniques have to be sorted out and appropriate researches have to be seriously carried out. It is in the sense that the content and methodology of vocational Higher Secondary Education have to be approached.

The Vocational Higher Secondary course was envisaged as a part of the National Policy on Education with the noble idea of securing a job along with education. The relevance of Vocational education is very great in this age of un employment. This education system, which ensures a job along with higher education, stands aloof from other systems of education.

A learning environment which ensures vocational aptitude, vocational training, basic life skills, competencies related to different subjects, appropriate values and attitudes and existential readiness has to be provided here.

The curriculum should be one which recognises the specific personality of the learner and should develop it in a desirable way. It should provide opportunity to imbibe novel ideas to follow a critical approach and for learning through experiences.

The competency to transform ones own resources for the betterment of the society and the individual is to be ensured in each individual. Training in the sense of equality, democratic sense, environmental consciousness and devotion to the constitution is an inseparable factor of the curriculum.

The need of a systematic curriculum is prevailing in vocational subjects. A scientifically structured curriculum incorporating the unique features peculiarity of Kerala ensuring the possibility of higher education and utilising the national and international possibilities of employment is required.

The new curriculum should be capable of assimilating the life skills, scientific temper, attitude of co-existence, leadership qualities and mental health to face the challenges of life. It should be capable of strengthening the competencies imbibed by the learners up to the tenth class.

A curriculum for selecting vocational areas according to the aptitude of the students, learning it in depth, acquire general awareness in the basic areas and to secure jobs has become the social need of the day. A learner centered, process oriented, need based vocational curriculum is envisaged.

What is learning?

- Learning is construction of knowledge and so it is a live and continuous mental process.
- Learning is a process of advancement through adding and correcting in the light of comparing the new issue with the previously learned concepts.
- Learning takes place as a part of the effort to solve problems.
- Learning takes place by assimilating bits of knowledge into ones own cognitive structure.
- Learning is not a linear process. It is a spiral process growing deeper and wider.
- Learning is an intellectual process rather than the mere memorisation of facts. Learning is a conglomeration of a variety activities like problem analysis, elucidation, critical thinking, rational thinking, finding out co-relations, prediction, arriving at conclusions, applications, grouping for other possibilities and extracting the crux. When opportunities are provided for intellectual processes learning will become effective and intellectual ability will get strengthened.

Theoretical foundations of learning

Education is the best device that can be adopted for creation of a new society. It should be democratic in content and process and should acknowledge the rights of the learner. It should also provide opportunity for better citizenship

training. The concept of equality at all areas should get recognition in theory and practice.

There should be conscious programme of action to develop nationality, humanness and love and against the encroachment of the sectarianism of caste and religion.

The learner should be able to take firm steps and deferred against the social crisis like privatisation, liberalisation, globalisation etc and against all kinds of dominations.

They should develop a discrimination to use the acquired learning as a liberative weapon.

They should be able to view education and life with the perspective of social well being.

They should get opportunity to recognise that co-operation is better than competition and that co-operation is the key to social life and culture.

A basic awareness of all the subjects needed for life essential for all students.

The remnants of perspectives formed in us during the colonial period still influence our educational philosophy. The solution to the present day perplexities of the society which approaches education on the basis of competitions and marketisation is only a comprehensive view of life.

It is high time that education was recognised on the basis of the philosophy of human education. The human approach to education has to reflect in its content, learning process and outlook. The perspective of 'learning to be ' and learning to live together as expressed by the UNESCO and the concepts of existentialist intelligence intrapersonal and interpersonal intelligence.

The basis of new approaches on curriculum, teaching- learning process are derived from the developments place in the east and west of the world.

When we begin to see the learner at the centre of the learning process, the teaching process has to be changed timely. It is the result of the rapid growth and development of Science and Technology and Pedagogy. If we want to undergo the changing process, we have to imbibe the modern hypothesis regarding learner, they have;

- Great curiosity
- Good imagination
- Numerous other qualities and interests
- Independent individuality
- Interest in free thinking and working in a fearless atmosphere.
- Have interest in enquiring and questioning.
- Ability to reach conclusions after logical thinking.
- ability for manifest and establish freely the conclusions arrived at.

- Interest for recognition in the society.
- Determination to face the interference of society and make components which is a part of social life.
-

When we consider the learning system, the domains to be stressed in education according to the modern development becomes relevant.

The **knowledge** domain consists of

- Facts
- Ideas
- Laws
- The temporary conclusions and principles used presently by scientists.

The learning is a process. The continuous procedures we undergo to reach a particular goal is process. The skills which are parts of the process to analyse the collected ideas and proofs and come to a conclusion is called *process skills*. Some important **process skills** are,

the skills;

- To observe
- To collect data and record
- To classify
- To measure and prepare charts
- To experiment
- To predict
- To recognise and control the variables
- To raise questions
- To generalise
- To form a hypothesis and check.
- To conclude
- To communicate
- To predict and infer
- To use tools.
-

Observation is the process of acquiring knowledge through the senses. It is purely objective oriented. Learning experiences which provide the opportunity to use all the senses may be used.

The process of grouping is known as **classifying**. Starting from simple groupings of data, it can extend to the level of classification into minute sub-groups.

In addition to this, consider the skills related to **creative domain** also, they are skills:

- To visualize
- To connect facts and ideas in new ways
- To find out new and uncommon uses of objects
- To fantasize
- To dream
- To develop creative isolated thoughts
-

Creativity is an essential component of process and activities. The element of creativity is involved in finding out problems, formation of hypothesis, finding 'solutions' to problems etc. Through activity oriented learning experiences, opportunities to express creativity can be created.

Again, the following factors consisting in the **Attitudinal domain** are also important as;

- Self confidence
- Love for scientific knowledge
- Attitude to know and value history
- Respect human emotions
- Decide with reasonable present problems
- Take logical decisions regarding personal values

'Hypothesis' is a temporary conclusion drawn using insight. Based on knowledge and experiences relating to the problems the causes and solutions can be guessed.

As regards the **application domain** the important factors are the ability to:

- observe in daily life examples of ideas acquired.
- take the help of scientific process to solve the problems of daily life.
- choose a scientific life style
- connect the ideas acquired with other subjects.
- integrate the subjects with other subjects.

Some basic stands have to be taken on the new scientific knowledge about intelligence learning and teaching. When such basic concepts are accepted changes are required in the following factors.

- The vision, approach, structure and content of the curriculum.
- The vision, approach, structure and content of the textbooks.
- Role of the teacher and the learner.
- Learner atmosphere, learning materials and learning techniques.

Some scientific perspectives accepted by modern world in educational psychology are given below.

Constructivism

This approach puts forward the concept that the learner constructs knowledge.

New knowledge is constructed when ideas are examined and practiced in new situations relating them with the previously acquired knowledge and experience. That is assimilated into the cognitive structure of one's knowledge. This method which gives priority to critical thinking and problem solving provides opportunity for self motivated learning.

Social Constructivism

Social constructivism is a sub section of constructivism. Knowledge is formed, spread and imbibed and it becomes relevant in a social environment. Interactive learning , group learning, co-operative participatory learning, all these are concepts put forward by social constructivism.

The main propounders of constructivism are piaget, vygotsky and Bruner.

Discovery learning and interactive learning have prime importance. Learning takes place as a part of the attempt for problem solving. The activities of a learner who confronts cognitive disequilibrium in a learning situation when he tries to overcome it is leads to the renewal of cognitive structure. It is through this process construction of new knowledge and the assimilation of them that learning take place. **Observation and enquiry are unavoidable factors.** The learner advances towards new areas of acquisition of knowledge where he tries to compare his new findings with the existing conceptions.

Learning is a live mental process. Rather than the ability for memorisation of facts cognitive process has to be given emphasis. The process of problem analysis, elucidation, critical thinking, rational thinking, finding out co-relation, prediction, hypothesis formation, application, probing for other possibilities, extracting the crux and other processes are of critical importance in learning.

Constructivism gives greater predominance to co-operative learning. Social and cultural factors influence learning. Sharing of knowledge and experience among learners, collective enquiry, assessment and improvement, group activity and collaborative learning, by sharing responsibilities with the objective of public activity, provide opportunity for effective learning.

In learning internal motivation is more important than external motivation. The learner should have interest and initiative in learning. Learning situation should be capable of forming a sense of ownership in of the learner regarding the learning process.

Learning is not a linear process. It progresses in a spiralled way advancing deeper and wider.

Learner-his nature and features

The learners in standard XI has undergone a learner centered and process oriented learning experience up to X standard. He is adequately competent to select vocational subjects according to his aptitude and interest and to acquire higher education and profession as he wishes. The aspirations about future life is framed in this particular age foreseeing national and international job

opportunities. Some of the peculiarities of the learner at this stage are:

- Physical, intellectual and emotional planes are intensive changes during this age and their reflections can be observed.
- Ability to enquire, discover and establish cause-effect relationship between phenomena.
- Readiness to undertake challenges.
- Capacity to shoulder leadership roles.
- Attempt to interpret oneself.
- Susceptibility to different pressures.
- Doubts, anxieties and eagerness about sex.
- Longing for social recognition.

Needs of the learner

- To make acquaintance with a job through vocational education.
- To acquire more knowledge in the concerned area through higher education.
- To recognise and encourage the peculiar personality of the later adolescent period.
- To enable him to defend against the unfavourable circumstances without any help

Role of the Learner

- Active participant in the learning process.
- Acts as a researcher
- Sharer of information
- Sharer of responsibilities
- Collects information
- Takes leadership
- Involves in group work
- Acts as a co- participant
- Observes his environment
- Experiments and realises
- Makes interpretations and draws inferences.
-

Role of the Teacher

The teacher should;

- consider the 'Stress and strain' of the teenagers
- understand the socio- economic and cultural background of the students.
- promote and motivate the students to construct knowledge.
- arrange proper situations to interact in and outside of the classroom.
- guide the students by explanations, demonstrations etc.
- promote opportunity for co-operative learning and collaborative learning.

- facilitate interpersonal and intra-personal interactions.
- act as a democratic leader.
- act as a problem solver
- effectively guide the students for the selection and conduct of various continuous evaluation elements.
- continuously evaluate the progress of the learners.
- gives scaffolding/support wherever necessary.
- motivate for learning
- promote divergent thinking.
- act as a democratic group leader.
- act as a co-learner
- gives variety of learning experiences.
- be a constant student
- facilitate for reference/data collection
- have a clear understanding about the age, needs, peculiarities, abilities, nature, aptitude etc. of the learner.
- have the ability to motivate the learner in order to acquire and enrich their knowledge.
- be a guide to the learner in developing insights and creating responses on current affairs.
- be capable to lead the learner into a variety of learning methods and process based on curricular objectives.
- be a link between school and community.
- be a good organiser, guide, friend, philosopher and co-learner.
- have an inter disciplinary approach in learning activities.
- be able to guide the learner in his/her career prospects based on his interest aptitude and ability.
- be impartial and democratic.
- provide ample experiences to attain the basic values and objectives of the curriculum.
-

New Concepts of Learning

1. Discovery Learning-

The teacher has to create a motivating atmosphere for the learner to discover concepts and facts, instead of listening always. Creating occasion to progress towards discovery is preferred. Instead of telling everything before and compelling to initiate the models, situations are to be created to help the children act models as themselves.

2. Learning by discussion

That discussion leads to learning is Burner's theory. Here discussion is not

opposing each other. It is a sharing on the plane of ideas. New ideas are arrived at by seeking explanations, by mutual giving and taking of ideas and by problem solving.

3. Problem solving and learning

Only when the learner feels that some thing is a problem to be solved that he takes the responsibility of learning it. It is an inborn tendency to act to solve a problem that causes cognitive disequilibrium in a particular area. It is also needed to have confidence that one is capable of doing it. The problems are to be presented in consideration of the ability and level of attainment of the learner.

4. Collaborative learning

This is the learning in which the responsibilities are distributed among the members of the group keeping common learning objectives. The common responsibility of the group will be successful only if each member discharges his duties. All the members will reach a stage of sharing the result of learning, equally through the activity with mutual understanding. The teachers who arrange collaborative learning will have to make clear the responsibilities to be discharged. This is possible through the discussion with the learners. Collaborative learning will help to avoid the situations of one person working for the whole group.

5. Co-operative learning

This is the learning in which the learners help one another. Those who have more knowledge, experience and competency, will help others. By this exchange of resources the learners develop a plane of social system in learning also. As there are no high ups and low ones according to status among the learners they can ask the fellow students doubts and for helps without any hesitation or in hesitation Care should be taken not to lead this seeking of help to mechanical copying. It should be on the basis of actual needs. So even while encouraging this exchange of ideas among the members of the group cautions acceptance is to be observed as a convention. There should be an understanding that satisfactory responses should come from each member and that the achievement of the group will be assessed on the basis of the achievement of all the members

6 Zone of Proximal Development

Vygotsky observes that these is a stage of achievement where a learner can reach by himself and another higher zone where he can reach with the help of his teachers and peers and elders. Even though some can fulfil the learning activity by themselves there is the possibility of a higher excellence. If appropriate help is forth covering every learner can better himself.

7 Scaffolding

It is natural that the learner may not be able to complete his work if he

does not get support at the proper time. The learner may require the help of the teacher in several learning activities. Here helping means to make the learner complete the activity taking responsibility by himself. The teacher has to keep in mind the objective of enabling the learner to take the responsibility and to make it successful.

8 Learning: a live mental process

Learning is a cognitive process, only a teacher who has an awareness as to what the cognitive process is alone can arrange learning situations to the learner to involve in it. Learning can be made effectively and intellectual sharpness can be improved by giving opportunity for the cognitive processes like reminding, recognising, relating, comparing, guessing, summarising and so on. How is cognitive process considered in language learning? Take guessing and prediction for example.

- Guessing the meaning from the context.
- Guessing the content from the heading.
- Predicting the end of the story.
- Guessing the incident, story from the picture.
- Guessing the facts from indications.
- and other such activities can be given the following activities can be given for the cognitive process of summarisation.
- Preparation of blue print.
- Preparation of list.
- Preparation of flow chart.
- Epitomising in one word.
- Giving titles and so on.
- Symbols, performance of characters indications, lines of a poem, tables, pictures, concepts, actions, body language and such things can be given for interpretation. Process based language given for interpretation. Process based language learning has to give prime importance to the cognitive process.

9 Internal motivation

Internal motivation is given more importance than external motivation. The teacher has to arouse the internal motivation of the learner, A person internally motivated like this alone can immerse in learning and own its responsibility. How motivating is each of the activities is to be assessed.

10 Multiple intelligence

The Theory of Multiple Intelligence put forward by Howard Gardener has created a turning point in the field of education. The National curriculum document has recommended that the curriculum is to be designed taking into consideration of this theory.

Main factors of the intellect :

1. Verbal/linguistic Intelligence -

Ability to read and write, making linguistic creations, ability to lecture, competence effective communication, all these come under this. This can be developed by engaging in language games and by teaching others.

2. Logical/mathematical Intelligence

Thinking rationally with causes and effect relation and finding out patterns and relations come under this area, finding out relations and explaining things sequential and arithmetical calculations are capable of developing this area of intelligence.

3. Visual/spatial Intelligence

In those who are able to visualise models and bringing what is in the imagination into visual form and in philosophers, designers and sculptors this area of intelligence is developed. The activities like modelling using clay and pulp, making of art equipments, sculpture, and giving illustrations to stories can help the development of this ability.

4 Bodily/Kinaesthetic Intelligence

The activities using body language come under this. This area of intelligence is more developed in dancers and actors who are able to express ideas through body movements and in experts in sports, gymnastics etc.

5 Musical Intelligence

This is an area of intelligence which is highly developed in those who are able to recognise the different elements of music in musicians and in those who can hear and enjoy songs. Playing musical instruments, initiating the songs of musicians, listening silently to the rhythms and activities like this are capable of developing this area of intelligence.

6 Interpersonal Intelligence

Those in whom this area of intelligence is developed show qualities of leadership and behave with others in a noble manner. They are capable of understanding the thought of others and carrying on activities like discussion successfully.

7 Intrapersonal Intelligence

This is the ability to understand oneself. These people can recognise their own abilities and disabilities. Writing diaries truthfully and in an analysing way and assessing the ideas and activities of others will help developing this areas of intelligence

8 Naturalistic Intelligence

A great interest in the flora and fauna of the nature, love towards fellow beings interest in spiritual and natural factors will be capable of developing this area.

9. Existential Intelligence

The ability to see and distinguish our own existence as a part of the universe, ability to distinguish the meaning and meaninglessness of life, the ability to realise the ultimate nature of mental and physical existences, all these are the peculiarities of this faculty of intelligence.

Emotional Intelligence

The concept of emotional intelligence put forward by **Daniel Golman** was used in framing the new curriculum. The fact that one's **Emotional Quotient (E.Q)** is the greatest factor affecting success in life is now widely accepted. The teacher who aims to focus on improving the emotional intelligence of students need to concentrate on the following.

i) Ability to take decisions

Rather than imposing decision on students while planning and executing activities, the students may be allowed to take part in the decision making process. Taking decisions through open discussion in the class, inviting students suggestions on common problems etc. Are habits to be cultivated.

ii) Ability to reach consensus

- When different opinions, ideas and positions arise the students may be given the responsibility to reach a consensus.
- Imagine what would be the course of action in some situations, allowing to intervene in a healthy way in problems between individuals.

iii) Problem solving

- Developing the idea that there is reason and solution to any problem.
- Training in finding reasons for problems.
- Suggesting solutions through individual or group efforts.
- Discussing social problems.
- Analysing the shortcomings in methods to solve problems.

Whether plastic can be banned within school premises can be given as a problem. Group discussion will provide reasons and solutions. Problems which can influence classroom learning and for which the learner can actively contribute solutions need to be posed.

- Self criticism, evaluation
- Ability to face problem-situation in life
- Thinking what one would do if placed in the situation of others, how one would respond to certain experiences of others - All these foster the growth of emotional intelligence.

iv) Life skills

Life skills need to be given a prominent place in education. W.H.O. Has listed ten skills required for success in life.

- Self awareness
- Empathy
- Inter personal relations
- Communication
- Critical thinking
- Creative thinking
- Decision making
- Problem solving
- Copying with emotion
- Copying with stress

The new curriculum addresses these areas.

Knowing the characteristics of the learner, role of the teacher and how to use the teachers handbook help the teacher to plan and effectively implement learning activities.

Objectives of the Vocational Higher Secondary Curriculum

- To facilitate higher education while giving opportunity to enter in the field of employment.
- To develop environmental awareness, sense of national integration, tolerance and human values so as to ensure social and cultural improvement.
- To enable the learner to find on his own employment.
- To inculcate mental courage in the learner to face unfavourable situations.
- To make human resource development possible.
- To enable the learner to understand social problems and to react appropriately.
- To develop the learner to identify and develop his own competencies.
- To develop vocational aptitude, work culture and attitude in the learner so as to provide useful products and services to the society.
- To create an awareness about mental and physical health.
- To acquire awareness about different job areas and to provide backgrounds for acquiring higher level training in subjects of interest.
- To develop possibilities of higher education by creating awareness about common entrance examinations.
- To provide situation for the encouragement of creative thinking and organising training programmes in each area, creative abilities and to develop artistic talents.

Nature of Approach

The learning device is to be organised in the selected vocational subjects in such a way that adequate practical experience should be given, making use of the modern technology. The development in each area on the basis of information technology is to be brought to the learner. The work experience in the respective

fields(OJT, Field trip, Production/Service training, Survey, Workshop, Exhibition, Youth festival, Physical fitness etc.) are to be adjusted suitable to the learning and evaluation process. The participation and leadership of the students in planning and execution is to be ensured through this kind of activities. Social service is to be made a part of the course.

Approach towards Vocational Higher Secondary Education

The learning methodology has to be organised so as the learning provide adequate practical thinking on the opted vocational subject utilising the new technology. The development of information technology should be made available in each sector. Work experience, OJT, Field trip production, Service cum training centre, Survey, Workshops, Exhibitions, Youth festivals, Physical fitness etc should be systematised well appropriate to learning and evaluation. Learner participation should be ensured in the planning and implementation of these activities. Social service should be a part of the course. If a learner has to change his school, he should be provided an opportunity to continue his studies in the new school. While considering criteria for admission to higher courses, grades of vocational subjects should also be given due weightage. In tune with the changes in the Vocational Higher Secondary Education changes should be ensured in the field of higher education.

The teachers have to take special care in arranging learning activities for the development of all the faculties of intelligence.

Learning activities and learning atmosphere.

A proper learning atmosphere is essential for the betterment of learning activities.

They are:

- Proper physical environment
- Healthy mental atmosphere
- Suitable social atmosphere
- Active participation of PTA, Local bodies and SRG
- Reference materials and visual media equipments.
- Academic monitoring
- School Resource Group (SRG)



SUBJECT ASSOCIATED APPROACH PAPER

LIVESTOCK MANAGEMENT

Introduction

India is basically an agricultural country. More than 50% of Indians depends on livestock farming as their main source of livelihood. Various livestock products were used by human beings since time immemorial. Livestock rearing has played a major role in shaping human civilization. Livestock management is of great significance in generating employment opportunities. The draught power for agricultural industry can also be attained from livestock.

The main aim of this VHSE course on Livestock management is to enable the students to be self employed. There are a lot of opportunities waiting for the students who have successfully completed the livestock management course. It is the basic qualification for a job such as livestock Assistant/Farm Assistant in various veterinary hospitals, livestock farms, dairy plants, Disease diagnostic institutions coming under Kerala Animal Husbandry Department, Kerala Agricultural University, Kerala Livestock Development Board & MILMA. Many of these vacancies are filled annually by the PSC. There is also loan facilities from banks for those who seek self employment.

Objectives

- *To generate large scale employment opportunities in Animal Husbandry sector.*
- *To develop a society with self confidence, practical experience and moral values.*
- *To enable the students seek self employment opportunities.*

Learning Approach

A learner-centered and activity-based learning approach is to be adopted. The many sided intelligence of the students should be explored to gain in depth knowledge, The method of teaching should be based on the student's needs, their expectations and interest. Their participation also should be ensured.

For this we can adopt different strategies & techniques.

1. Discovery learning

The teacher has to create an atmosphere that encourages the learner to discover ideas and facts on his own. For example, the teacher can assign the students to identify the characteristics of different breeds. This gives an opportunity for the learner to observe the different breeds in their surroundings or they can collect information from different sources like Internet & print media. Their observation can be consolidated into the product.

2. Co-operative learning

In this method, the learners learn by helping each other. The negotiations among peers take place here.

For example if, we want to create an awareness among the students about different milking methods, the students can be divided into different groups and a group discussion on the topic can be conducted. The ideas evolved from the discussion can be consolidated and presented in the class.

3. Collaborative learning

The two important aspects of this method of learning are sharing of ideas and negotiation among the learners. Suppose we want to deal with different feeding materials for animals. Here also they can be divided into groups and the teacher can ask them to collect different varieties of feeding materials and their characteristics. Their observation can be consolidated and presented in the class.

4. Socio cultural related learning

This method of learning pertains to the social and cultural aspects of the society. For example: An informal interview can be conducted by the learner to study the influence of different livestock products on the people of a particular locality. A suggested topic can be the problems related to marketing of pork in a Muslim dominated area.

Learning Objectives

1. To create the basic knowledge of Livestock Rearing
2. To familiarize the students with the common terms regarding Dairy farming & Poultry farming.
3. To help the students to identify various breeds of cattle, Buffalo, Goat and poultry.
4. To create a knowledge about specific methods of Rearing Livestock.
5. To make the students aware of the structure & functions of various organs in the body.

6. To help the students to identify various food stuffs for livestock available in their locality
7. To make them aware of different breeding strategies.
8. To give the students an idea of milk & its composition.
9. To help the students to identify various adulterants & preservatives used in dairy industry.
10. To create an awareness of clean milk production.
11. To make students aware of present status of Livestock & Poultry - Introduction to livestock and poultry - common terms - merits and demerits of livestock farming

For this topic, group discussion can be used as a study tool. Students are divided into different groups and are given the following topics to deal with group wise.

1. Population status of cattle
2. Population status of buffalo
3. Population status of goat

Common terms in Dairy farming

For this topic, brainstorming can be used as the study tool. Terms common to students can be consolidated. Additional terms can be supplemented by the teacher.

Merits & Demerits of Dairy farming

The students are divided into different groups and the teacher can ask the students to conduct an informal interview with the farmers. The students are asked to present collected information in the class group wise. Then the teacher can consolidate all the collected pieces of informations.



PLANNING

To make education activity based, we have to provide learning experiences that would help to develop process skills and components of multiple intelligence. Whether the activities are conducted in the class or outside, they are to be completed in a time bound manner.

The teacher has to plan the activities necessary to make learning effective, time required, evaluation methods and all other aspects. Teacher must prepare at least three planning documents.

- Year plan
- Unit plan
- Daily plan

Yearplan

The year plan will include the total number of units to be transacted through the three terms, units to be covered during each month and the number of periods required for each unit.

Unit Plan

Teacher may prepare unit plan before the actual transaction of the unit in the classroom. This plan must make clear the curriculum objectives intended, periods required for transaction of these objectives, instructional strategies to be used and materials required. How the outcomes are to be evaluated may also be spelt out. Unit analysis for each unit given in the source book may be utilized for preparing unit plan.

Daily Plan

The daily plan includes curriculum objectives to be transacted during class period, learning activities, learning aids and feedback.

A lesson plan means planning for a lesson

Some models of year plan, unit plan and daily plan are given below.

YEAR PLAN

Unit	Chapter	Time in Hours	Months when plan to teach	Activity/Strategy
1	Introduction to livestock farming	5	June	Discussion chart, Data collection, field visit, debate, Brain storming,
2	Handling of Animals	12	June, July	Discussion, demonstration and practise, demonstration
3	Breeds	15	July	Discussion collection of photographs, preparation of charts, collage, brainstorming , farm visit,
4	Identification of Animal	12	August	Preparation of flash cards, farm visit, discussion, chart preparation,
5	Housing of cattle	5	September	Field visit, preparation of posters, seminars, preparation of layouts, Taking measurements of
6	Normal values	5	September	Discussion, demonstration & practise, hospital visit, chart preparation.

Unit	Chapter	Time in Hours	Months when plan to teach	Activity/Strategy
7	Organs of the body	12	October	Discussion Microscopic examination of slides, Demonstration using charts, models, Lecture demonstration
8	Care and Management	10	October, November	Seminar, field visit , discussion, demonstration, picture collection
9	Health care	10	November	Field visit, collection of pictures, charts preparation, data collection, survey, seminar
10	Principles of feeding	10	November, December	Discussion, chart preparation, assignment, farm visit, preparation of compounded feed
11	Feeding materials	10	December	Chart preparation, seminar, farm visit, discussion, Table preparation, Assignment

Unit	Chapter	Time in Hours	Months when plan to teach	Activity/Strategy
12	Systems of breeding	9	January	Discussion, brainstorming,
13	Manure	3	January	Discussion, Bio gas plant visit, chart
14	Rearing of goat	4	January	Picture collection, discussion, farm visit, chart preparation, demonstration
15	Rearing pigs	5	February	Discussion, brainstorming, chart preparation, farmvisit, data collection, picture
16	Rabbit rearing	3	February	Farmvisit, picture collection, brainstorming
17	Poultry rearing	10	February	Picture collection, chart preparation, farmvisit, seminar, Hatchery visit, discussion

UNIT PLAN**SYSTEMS OF BREEDING**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none">• Basic idea about phenotype and genotype	<ul style="list-style-type: none">• Genetic factors and physical appearance	<ul style="list-style-type: none">• Lecture			1
<ul style="list-style-type: none">• Traits of economic importance	<ul style="list-style-type: none">• Production traits• Reproduction traits	<ul style="list-style-type: none">• Discussion• Preparation of notes	<ul style="list-style-type: none">• Reference books	<ul style="list-style-type: none">• Acquired concepts	2
<ul style="list-style-type: none">• Different selection methods and mating systems	<ul style="list-style-type: none">• Inbreeding• Out breeding• Grading up	<ul style="list-style-type: none">• Lecture• Discussion• Brainstorming		<ul style="list-style-type: none">• Acquired concepts• Participation in discussion	3
<ul style="list-style-type: none">• Advantages and disadvantages of mating systems	<ul style="list-style-type: none">• Comparison of inbreeding and out breeding• Improvement of indigenous cattle	<ul style="list-style-type: none">• Lecture• Discussion		<ul style="list-style-type: none">• Acquired concepts	3

DAILY PLAN

<p>Name of the teacher :</p> <p>Name of the school :</p> <p>Subject : Livestock management</p> <p>Unit : Introduction to livestock farming</p> <p>Topic : Merits & demerits of Livestock farming</p> <p>Curriculum Objectives Create an awareness of the merits and demerits of livestock farming.</p> <p>Concepts and ideas</p> <p>Merits</p> <ul style="list-style-type: none"> • Nutritive value of livestock products • Employment potential • Conversion of feeding materials to useful products <p>Demerits</p> <ul style="list-style-type: none"> • Confining nature of the job • Risk involved • Requirement of skill 	<p>Class : VHSE</p> <p>Division : I/II Year</p> <p>Strength : 27</p> <p>Average Age :</p> <p>Duration : 1 Hour</p> <p>Previous knowledge</p> <ul style="list-style-type: none"> • Concepts of livestock rearing <p>Material required</p> <ul style="list-style-type: none"> • Reference books
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<p>Activities / Strategies</p>	<p>Responses / Evaluation</p>
<p>Introduction: After making a good relation with the students the teacher may ask the students some questions regarding rearing of livestock in their families, for example how many of you are having knowledge about management of livestock - its feeding, housing etc? After getting some idea about their knowledge in livestock farming, the teacher may lead the students in to a debate by dividing the students in to two groups</p> <p>Presentation</p> <p>Activity : debate and discussion</p> <p>The students should be divided in to 2 groups and each group should be given the topics for debate.</p> <ol style="list-style-type: none"> 1. Merits of livestock farming 2. Demerits of livestock farming <p>The class should be properly arranged so as to conduct the debate smoothly. The moderator should brief the debate in the beginning itself. Then the group representatives asked to present, their arguments. After the presentation arrange a discussion followed by</p>	<p>Participation in discussion</p> <p>Presentation of prepared notes</p> <p>Presentation of prepared notes on debate</p> <p>Participation in debate</p> <p>Questioning</p>

<p>Activities / Strategies</p>	<p>Responses / Evaluation</p>
<p>consolidation by the moderator. Teacher should point out the merits and demerits of livestock farming while consolidating the discussion. Then ask the students to prepare the notes on debate and submit.</p> <p>Discussion points</p> <ul style="list-style-type: none"> • Merits of livestock farming • Demerits of livestocking 	<p>Assignment Draw a chart showing merits and demerits of livestock farming.</p>

EVALUATION

Introduction

As the curriculum is based on a particular vocation, evaluation becomes an inevitable procedure. Evaluation is done along with learning process throughout the course of study. In order to make an evaluation, the teacher should be able to understand the students, their scholastic and co-scholastic knowledge. Capacity building in the selected vocation is the most important part in vocational education and it should be evaluated accordingly. The technical skills, interest and devotion in the particular field, communication skills, analysis, organising and presentation skills etc. have to be evaluated. The personal and social qualities also have to be evaluated. Thus evaluation is an integral part of learning process which assesses the implementation of the curriculum.

Need and importance of Evaluation

Evaluation is to assess the scientific knowledge of students and to recognise to what extent they have achieved the specified capabilities. A written examination at the end of an year which is purely based on a textbook is not of much use. "Evaluation is a systematic process of collecting, analysing and interpreting evidence of students' progress and achievement both in cognitive and non-cognitive areas of learning for the purpose of taking a variety of discussions".

The teacher can properly assess the level of the learner and can identify his/her strength and weakness. This will help each student to evaluate themselves and to improve their level of learning by taking necessary assistance from the teacher (self evaluation) classmates can evaluate themselves through interaction (peer group evaluation) Evaluation even help the teacher to analyse and improve their performance. Evaluation helps to integrate the teacher, learner and even the parents. Thus student who are socially useful and can perform productive work are created. This will improve the quality of our young generation.

Features of Evaluation

- Evaluation should be humane in nature. It must help the students grow as social beings.
- Evaluation should be the responsibility of the teacher who teaches the students and is responsible for developing the requisite healthy attributes in them.
- Evaluation should be consistent with its purpose and must provide a reliable and valid measure of the student's performance.
- Evaluation should reflect the outcome of each learning intervention and should provide all the students with equal opportunity to display their individual potential.
- Evaluation should take into account both the background and the prior experience of the students.
- Procedures for grading and their reporting should be appropriate and easily understood by one and all.
- Evaluation should restore the faith and trust of the masses by ensuring transparency in the procedure.

Theories of constructivism and multiple intelligence are the basis of modern learning. So evaluation strategies have also to be changed. Evaluation must be;

- Continuous and comprehensive
- Scholastic and co-scholastic
- Depending on grading system.
- Depending on a vocational or trade proficiency.

Continuous and Comprehensive Evaluation

Most of our traditional evaluation methods are related only to the area of scientific knowledge or the memory of students. To eliminate the limitations of this method we are forced to evaluate the multi-dimensional competencies of the learner with respect to the practicability and nature of the subject.

Continuous and Comprehensive Evaluation is an essential ingredient of any learning process. It helps the learner to understand and evaluate his own progress and to develop adequate strategy for further improvement. Continuous Evaluation also helps us to measure the attained goals of formulated curriculum objectives.

Merits of Continuous and Comprehensive Evaluation system are:

1. Making student's learning regular
2. Provides for a variety of activities
3. Effective feedback is possible
4. Assess the all round development of the learner on a continuous basis through a variety of activities.
5. Remedial and diagnostic teaching is possible.
6. The process as well as the product is assessed.

Different tools are used to evaluate the multi dimensional competencies of the learners. The Continuous and Comprehensive Evaluation (CCE) includes not only written test (class tests) but also oral tests, observation, interview, debates, discussions, seminars etc.

The learner proceeds through a variety of learning experiences. Therefore the level of progress should be evaluated in a comprehensive and continuous manner. More over, the learner is to be made aware of the findings and it helps him to measure his progress. Necessary help should be provided to them in time. As such we can generate the environment and opportunity for Continuous Evaluation.

In order to evaluate the multi- dimensional competencies of the learner, different tools and techniques have to be used. The multi- dimensional competencies of the learner include :

- Class -room interaction
- Task orientation
- Creative expression
- Field/institutional interactions
- Knowledge assessment/ expression

Continuous Evaluation Items

1. Assignment
2. Seminar
3. Class test
4. Project etc.

* For continuous evaluation class test (CT) is made compulsory taking any two of the above said indicators. CT can be a written test, oral test (viva), Practical test.

CE Item	Evaluation Indicators	Weightage	Score
1. Assignment	1. Awareness of the content	4/3/2/1	20
	2. Comprehensiveness of the content	4/3/2/1	
	3. Systematic and sequential arrangement	4/3/2/1	
	4. Observation/suggestions/Views Judgements/ Evaluation	4/3/2/1	
	5. Timely Submission	4/3/2/1	
2. Seminar	1. Ability to plan and organise	4/3/2/1	
	2. Skills in the collection of data	4/3/2/1	
	3. Awareness of the content (presentation of the paper, participation in discussion, ability to substantiate the ideas and views)	4/3/2/1	

	<p>4. Ability to prepare the report (sequence in the presentaionof the concepts, authenticity and clarity of ideas/views/concepts</p> <p>5. Quality of Seminar Document</p>	<p>4/3/2/1</p> <p>4/3/2/1</p>	<p>20</p>
3. Project	<p>1. Ability to plan (Selection of the method for solution of the problem, identifying suitable tools, planning the various activities to be carried out in each stage)</p> <p>2. Ability to collect data (sufficiency and Relevance of data. Classification and arrangement of data for analysis, reliability and authenticity of the Collected data.)</p> <p>3. Ability to analyse the elements and procedure (Structuring of elements and developing logic. Efficieny in using the package/tool. Recognising design errors and correcting them)</p> <p>4. Ability to prepare the project report (Reflection of the process skills. Communicability and authenticity of the report in relation with the Project diary</p> <p>5. Viva Voce(Knowledge of the content and Process)</p>	<p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p>	<p>20</p>

CE item calculation

Subject		item: Assignment					Total Score (20)
Sl. No	Name	Evaluation Indicators					
		I (4)	II (4)	III (4)	IV (4)	V (4)	
1	Anand	2	3	4	4	4	17
2	Shibu	4	3	4	4	4	19

Consolidated statement of CE

Class: 1st year

Stream: Animal Husbandry

Subject: Livestock Management (Dairy Husbandry)

Sl. No	Name	CE Items			Total (60)	Total CE Out of 20 Score obtained $\times \frac{20}{60}$
		1 Class Test (20)	2 Assignment (20)	3 Seminar/ Project (20)		
1	Anand	18	17	19	54	18
2	Shibu	20	19	18	57	19

No minimum score for CE

Terminal Evaluation (TE)

Terminal Evaluation is in written form. The test should not be aimed to test the memory alone. The terminal evaluation questions give more emphasis on application level, analysis and synthesis. The questions are framed so that the students are able to apply their different mental process. The maximum score is 80 and the minimum score of TE is 24 (30%).

The terminal evaluation questionnaire should be capable of measuring

- Content validity
- Criterion validity
- Constant validity
- Reliability
- Class test, term evaluation and annual examination should be in tune with the new approach.
- Should not be prepared to test the rote memory.
- Questions asked should provoke the thinking abilities of students.
- Questions to test the competency of application analysis, synthesis and evaluation are to be given. In otherwords the questions should be framed in such a way that the students are able to apply their various mental processes.
- Questions should be based on the learning process and the new approach to each subject.
- Results should be scientifically analysed.

- Evaluation results should be analysed and follow up may be carried out at relevant levels (remedial measures).
- Eighty percent marks are set apart for the common examination as the part of the Term Evaluation

The Question Paper must have

- Application level questions
- Synthesis level questions
- Comparison of facts
- Challenging questions
- Scope for obtaining innovative ideas
- Giving creative thinking by the students
- Questions based on the objectives of learning activities
- Practical oriented questions
- Environment related questions
- Divergent thinking level questions

Role of the Teacher in the Evaluation Process

- Preparation for the effective execution of evaluation
- Preparation of daily planning notes (teaching manual) and helping learners in their activities.
- While learners are engaged in doing seminars/collections/assignments/collections, conduct interim evaluation and provide necessary help.
- Consider assignment, seminar, collections etc. as learning activities and approach them as evaluation materials.
- Prepare a format to record continuous evaluation.
- Identify and evaluate the progress at different stage.
- Find out learner's difficulty by conducting feedback.
- Make use of the support mechanism fully, provided by the department of education.
- Make the parents aware of the new approach to curriculum and evaluation system through class P.T.A.
- Make use of the training programme for professional excellence and transparency in work.
- Make use of the Humanities Teachers Council for academic progress.
- Identify and make use of the possibility of action research to resolve classroom learning problems.

Grading

It is not scientific to assess the achievement of a student solely based in the marks in the terminal examinations. Marking system proved unscientific in evaluating the growth and development of students both in cognitive and non-cognitive areas. To overcome this shortcomings, a popular mode of evaluation

based on students' performance- grading system- has been evolved. At the Higher Secondary stage, it is desirable to use a point absolute grading to coordinate and record the evaluation. After giving the score, they are changed into percentages and appropriate letter grades are awarded corresponding to each percentage. The score percentage and corresponding letter grade in Livestock management is given below.

Consolidated statement of CE & TE

Score in percentage	Grade
90-100	A+
80-89	A
70 -79	B+
60-69	B
50-59	C+
40-49	C
30-39	D+
20-29	D
Below 20	E

Stream : Animal Husbandry**Class : Ist Year****Subject : Livestockmanagement (Dairy Husbandry)**

Sl. No	Name	CE (20)	TE (80)	Total CE+ TE (100)	Grade
1	Anand	18	60	78	B+
2	Shibu	19	72	91	A+

Practical Evaluation (PE)

PE is the important part of vocational practicals. The practical skills must be evaluated after completing all practical experiments in each term and at the end of the academic year. PE must cover all required indicators to evaluate the technical skill and practical knowledge of the different topics covered.

Syllabus

- 1 Identification of parts of the body of cattle and poultry
- 2 controlling of cattle
 - a Handling of animals
 - b Restraining of animals
 - c Casting of animals
- 3 Acquaintance with various appliances in animal husbandry practices.

Bull nosering, Bull holder, Bull leader, Mouth gag, anticow kicker, Milkman's rope, Probang, trocar and canula, speculum, ear tagging set, enema can, drenching bottle, syringe and needles.
- 4 Handling of microscope
- 5 Breeds of cattle - Identification of coloured photographs
- 6 Identification of animals by branding, tattooing, ear tagging etc
- 7 Determination of age by dentition
- 8 Drawing sketch of floor plan for cattle shed
- 9 Determination of pulse, respiration and temperature
- 10 Dehorning of calf
- 11 Castration of calf
- 12 Determination of body weight
- 13 Administration of medicine
 - a Drenching
 - b Deworming
 - c Administration of vaccines for cattle and poultry
- 14 Mastitis - Testing of milk
- 15 First aid practices. Dressing and bandaging
- 16 Identification of various feeds and fodders
- 17 Handling of birds for examination
- 18 Milking of animals - Handmilking and milking machine

Indicators for Practical evaluation and their score

No	Indicators	Percentage	Score
1	Proceedure and demonstration	20%	30
2	diagonosis or situation analysis	20%	30
3	Identification	20%	30
4	Calculation	20%	30
5	Record	10%	15
6	Viva	10%	15

Consolidated statement of Practical Evaluation

Class: 1st year

Stream: Animal Husbandry

Subject: Livestock Management (Dairy Husbandry)

No	Name	Procedure and demonstration	DIAGNOSIS/ Situation	Identification analysis	Calculation	Record	Viva	Total	Grade
		30	30	30	30	15	15	150	
1	Anand	25	25	25	25	10	10	120	A
2	Shibu	29	29	28	28	14	14	142	A+

How will you find out grade for PE

Convert the total score into percentage and findout the grade

eg: Total score: 120, percentage $\frac{120}{150} \times 100 = 80$, Grade A

The minimum score to be obtained is fixed at 40% that is 60 out of 150.
Grade B

Vocational Competency Evaluation

Being a vocational course, a system to judiciously evaluate the required value addition and consequent capacity building in the selected vocational subject is highly essential. As the other evaluation components like CE, PE and TE cannot assess the vocational competencies and professional skills

acquired by the students, an internship evaluation (IE) component has been introduced to meet this requirement.

Internship evaluation should be done based on the following components.

I. Regularity and punctuality

A regular presence and habit of time bound completion of task is a must for attaining maximum efficiency.

Regularity and Punctuality can be evaluated by 5 point scale

Rating Scale

		1	2	3	4	5
1	Regularity	Never regular	Often regular	Usually regular	Most of the time regular	Always regular
2	Punctuality	Never Punctual	Often Punctual	Usually Punctual	Most of the time Punctual	Always Punctual

Regularity and punctuality can be assessed by using attendance of the student and time bound completion of tasks.

II. Value addition

Value addition can be evaluated through conducting field visits/survey. The experiences gained through field visit and survey increases the level of intrinsic motivation and positive attitude towards the vocational field and there by increase his value as a skilled semi- professional.

The aim of value addition is to measure the interest, devotion Group managment, persevernce of the learner in specific areas Value addition can be evaluated from field visit, survey and simulated experiments.

III. Capacity building

Capacity building can be evaluated through conducting the following activities.

1. OJT/Simulated experiment
2. Performance- Camp/ Exhibition/ Clinic.
3. Performance- Production/Service cum Training censtre.

These components helps the students to practice the acquired skills in the real situation and there by increasing self confidence and promoting self reliance.

Capacity building is aimed at measuring the skills of the learner from OJT/ production cum training centre/ research and developoment/graded area exposure.

IE Item	Evaluation Indicators	Weightage	Score
1. Regularity and Punctuality			10
2. Value addition	<p>Field Visit</p> <p>1. Attitude and readiness towards the task.</p> <p>2. Capacity for observation.</p> <p>3. Data collection.</p> <p>4. Application of ideas.</p> <p>5. Documentation/ recording.</p> <p style="text-align: center;">OR</p> <p>Survey</p> <p>1. Planning.</p> <p>2. Data collection.</p> <p>3. Consolidation of data and analysis.</p> <p>4. Drawing inference.</p> <p>5. Reporting.</p>	<p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p>	20
3. Capacity building	<p>OJT/ Simulated Experiment/ Practical skill</p> <p>1. Involvement/ Participation.</p> <p>2. Skills in doing work/ Communication skill.</p> <p>3. Time bound action.</p> <p>4. Capacity for observation, analysis and innovation.</p> <p>5. Documentation, Recording and display.</p> <p style="text-align: center;">OR</p> <p>Performance in camp/ Exhibition/ clinic</p> <p>1. Ability for planning and organising.</p> <p>2. Mastery of subject.</p> <p>3. Ability for communication.</p>	<p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p> <p>4/3/2/1</p>	20

IE Item	Evaluation Indicators	Weightage	Score
	4. Innovation. 5. Involvement/Social commitment. OR Performace in production/ service cum training centre (PSCTC) 1. Mastery of vocational skills. 2. Managerial capacity. 3. Promoting self confidence. 4. Innovative approach. 5. Promoting self - reliance.	4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	

Vocational Competency Items for Internship Evaluation

Items	Score
Regularity & Punctuality	10
Field visit/survey(any one)	20
OJT/simulated experiment/ Practical Skill/ Performance- Camp/exhibition/Clinic Performance- PSCTC (any one)	20
Total	50

A minimum of 80% attendance is required for promotion to the second year. Those who have shortage of attendance should repeat first year. Those who have 80% and above attendance but failed to achieve 30% of Internship Evaluation (IE) will be promoted to the second year. He has to improve the component in which he performed poor. He has to attain the minimum by improving the particular component to get eligible for appearing second year public examination.

Consolidated statement of IE

Stream : Animal Husbandry

Class : Ist Year

Subject : Livestock management (Dairy Husbandry)

Sl No	Name	Regularity & Punctuality	Field visit or survey	OJT or Practical skill	Total Score	Grade
		10	20	20	50	
1	Anand	5	12	10	27	C+
2	Shibu	6	15	16	37	B+

CURRICULAM OBJECTIVES

Introduction to livestock farming

- Understand and develop an idea about livestock farming and its importance through discussion.
- To know the present population status of different species of livestock through data collection and charts.
- Identification of different species of animals through field visit, picture collection and assignments.
- Create an awareness about merits and demerits of livestock farming.
- Familiarisation of common terms used in livestock farming.

Handling of animals

- Identification of body parts of cattle .
- Identification of body parts of poultry.
- Precautions to be taken while approaching an animal.
- Restraining and controlling of animals.
- Familiarisation of common terms used in livestock farming.

Breeds

- Create an awareness about different breeds of different species.
- Classification of Indian breeds of cattle according to utility.
- Classification of cattle according to origin .
- Identification and understanding the salient features of different dairy breeds, draught and dual purpose breeds.
- Identification and understanding the salient features of breeds of buffaloes, sheep, goats and pigs.
- Classification of poultry according to geographical distribution.
- Identification and understanding the salient features of various breeds of poultry.

Identification of animals

- To get an idea about identification of animals.
- To create an awareness about common methods of identification.

- To get an idea about determination of age of cattle.

Housing of Cattle

- To get an idea about principles of housing.
- To acquire knowledge about different systems of rearing cattle.
- To get an idea about construction of a model cattle shed and the necessities to be provided.

Normal values

- To give an idea about normal values.
- Recording of normal values.
- To get an idea about the circumstances in which the normal value varies.
- To get an idea about gestation period , span of life , age of puberty and birth weight of different species.

Organs of Body

- Create an elementary knowledge of skeletal system, muscular system, nervous system, circulatory system, Urinary system and respiratory system.
- Understand the structure and function of digestive system.
- Understand the structure and function of reproductive system.

Care and Management

- To understand about the care of newborn calf.
- Systems of feeding dairy calves
- Care and management of heifers, milking cows and draught animals.
- To understand artificial insemination pregnancy and parturition.

Health care

- Understand signs of health in animals.
- Awareness of natural defence mechanisms of body
- Basic concept about diseases
- Etiological classification of diseases
- Common diseases affecting cattle and poultry.
- Methods of prevention and control of diseases.

Feeding Materials

- To develop basic idea about important nutrients.
- Make an idea about ration, balanced ration, maintenance and production ration.
- Formulation of compounded feed.

Systems of breeding

- To get an idea about the selection based on phenotypic and genotypic characters.

- To get an idea about traits of economic importance.
- Understand the different systems of breeding.

Manure

- Understand collection storage and disposal of manure.
- Understand manurial value of each manure.
- To get an idea about biogas plant.

Rearing of goats

- To acquire basic knowledge about goat rearing.
- To get an idea about care and management of different categories of goats.
- Understand the selection procedure for goat breeding.
- To get an idea about breeding of goats.

Rearing of Pigs

- To acquire basic knowledge about swine rearing.
- To get an idea about care and management of different categories of pigs
- Understand composition of ration for different categories of pigs.

Rabbit rearing

- To acquire basic knowledge about rearing rabbits.
- To get an idea about care and management of rabbit.
- Purpose of rearing rabbits.

Rearing of poultry

- To acquire basic knowledge about rearing chicken.
- To get an idea about collection, composition and incubation of eggs.
- To create an awareness on brooding and rearing of chicken.
- To get an idea on care and management of different categories of chicken.
- To acquire basic knowledge about rearing ducks.
- To acquire basic knowledge about turkey.
- To acquire basic knowledge about rearing of quails



SYLLABUS

- **Introduction to livestock farming (5 Hours)**

Livestock farming, importance, merits and demerits, population status of different species and common terms.

- **Handling of animals (12 Hours)**

Body parts of cattle and fowl, restraining livestock, various methods of handling cattle, buffaloes and goats, restraining head, neck, forelimbs, hind limbs, whole body casting, methods of casting, common appliances used, rope, bull nose ring, bull holder, bull leader, mouth gags, halter, anti cowkicker, milkman's rope, trevis.

- **Breeds (15 Hours)**

Definition of species, breed, strain and variety exotic and Indian breeds, definition, differences, examples.

Exotic Breed origin, breed characteristics, physical features of Jersey, HF, Brown Swiss (2) Indian breeds according to utility- milch, draught, dual

- (3) Distinguishing characters of Sindhi, Haryana, Kankrej, Kangayam, Halliker Surthi and Murrah Buffalo (4) Goat - Malabari, Alpine, Saanen (5) Sheep - Merino, Kashmiri (6) Pig - Yorkshire, Landrace. (7) Poultry - classification, breeds - White Leghorn, Australorps, RIR, WPR, Cornish, Desi, Grama Lakshmi and Gramasree.

- **Identification of animals (10 Hours)**

Objectives, Methods

- 1) Branding
 - a) Hot iron branding
 - b) Chemical branding
 - c) Freeze branding
- 2) Tattooing

3) Ear tagging

4) Ear notching

Identification of poultry - wing banding & wing badging.

Natural body markings, determination of age of cattle by dentition, general appearance and horn rings.

- **Housing of cattle (5 Hours)**

Systems of rearing cattle - free range, loose house, conventional barns. Principles of housing, cow house system.

- **Normal values (4 Hours)**

Pulse, Respiration and temperature, Gestation period, span of life, birth weight, Age at maturity, Age of breeding of animals and birds - cow, buffalo, Goat, poultry.

- **Organs of Body (10 Hours)**

Elementary knowledge of Skeletal, Muscular, Nervous, Circulatory, Urinary, Respiratory, Digestive and Reproductive organs (with special emphasis on digestive and reproductive organs)

- **Care and management (10 Hours)**

New born, heifers, cows, working animals

- **Health care (10 Hours)**

Signs of health - classification of the disease (bacterial, viral, protozoa, metabolic etc), Causative factors, Prevention and control of Anthrax, HS, Foot and mouth disease, Brucellosis, Mastitis, milk fever, Ketosis, Parasitic infestation, Ranikhet, Coccidiosis.

- **Principles of Feeding (10 Hours)**

Feed nutrients - Water, Carbohydrates, Proteins, Fat, minerals, vitamins

Ration - Balanced ration, Maintenance and production ration.

- **Feeding Materials (10 Hours)**

Classification of feeds as roughages and concentrates.

Roughages - Green fodder, Hay, straw, silage.

Concentrates - Cakes, Grains, By products, Tapioca.

- **Systems of breeding (9 Hours)**

Selection methods - inbreeding, out breeding for cattle and poultry, grading up, systems of breeding.

- **Manure (3 Hours)**

Cattle and poultry manure, collection, storage and disposal, manurial value - biogas and slurry.

- **Rearing of Goats (4 Hours)**

Basic knowledge about rearing goats.

- **Rearing of pigs (5 Hours)**

Basic knowledge about rearing swine.

- **Rabbit rearing (3 Hours)**

Basic knowledge of rearing rabbits.

- **Rearing of poultry (10 Hours)**

Basic knowledge about rearing poultry.



INTRODUCTION TO LIVESTOCK FARMING

Introduction

India has basically been an agricultural country and it is likely to continue to be so for a long time to come. The present contribution of livestock to the national economy is estimated to be Rs. 15,000 crores. Livestock farming is taken as a subsidiary occupation by majority of the farmers. A system of combining agriculture operations along with livestock rearing is referred to as mixed farming system. Both Agriculture and Livestock are complementary to each other.

This chapter is aimed at making students aware of the importance of livestock farming. It also provides the present statistical details of different species of livestock in Kerala as well as India and also deals with how agriculture is associated with livestock farming. While dealing with this chapter the students will get an idea about the merits and demerits of livestock farming and it will enable them to create an interest in this subject.

Curriculum Objectives

- Understand and develop an idea about livestock farming and its importance through discussion.
- To know the present population status of different species of livestock through data collection and charts.
- Identification of different species of animals through field visit, picture collection and assignments.
- Create an awareness about merits and demerits of livestock farming.
- Familiarisation of common terms used in livestock farming.

Syllabus (5 Hours)

- Livestock farming, importance, merits and demerits, population status of different species and common terms.

Livestock farming and its importance

Suggested activities - General Discussion

This portion can be introduced to the students by asking questions about livestock, agriculture and their interdependence.

Points for Discussion

- Livestock farming.
- Agriculture.
- Mixed farming.
- Major and minor livestock products.
- Application of scientific knowledge.

Identification of different species

Suggested Activities - Field visit, picture collection

- Conduct a field trip to identify different species of animals like cattle, buffaloes, sheep, goat, pigs, rabbit and poultry.
- Collect pictures of different species of animals.

Population status

Suggested Activities - Data Collection and charts

Ask the students to collect data about present population status of different species of livestock from journals, reference books and internet and prepare a chart on it.

Additional information

Compare the population status of livestock in India with world population.

Merits and demerits of livestock farming

Suggested Activities - Debate and discussion.

The students should be divided into two groups. Each group should be given the topic for debate as follows.

1. Merits of livestock farming
2. Demerits of livestock farming

The topic should be given in advance and ask them to collect relevant information for their arguments and prepare notes. On the day of debate the class should be properly arranged so as to conduct the debate smoothly. The moderator (it is better the teacher becomes the moderator) should brief the debate in the beginning. Then the group representatives are asked to present their arguments. After the presentation arrange a discussion followed by consolidation by the moderator. While consolidating the teacher should point out the merits and demerits of livestock farming. After the debate ask the students to prepare report on debate and submit.

Common terms

Suggested Activities - Brainstorming, Chart preparation

Ask the students about familiar terms related to livestock. Additional information should be supplemented by the teacher. Then prepare a chart based on this information and reference books.



CHAPTER - 1 INTRODUCTION TO LIVESTOCK FARMING

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none"> Understand and develop an idea about livestock farming and importance of livestock farming 	<ul style="list-style-type: none"> About livestock Agriculture Mixed farming-system Major & Minor livestock-products Application of scientific knowledge in livestock farming 	<ul style="list-style-type: none"> Discussion 	<ul style="list-style-type: none"> Reference materials 	<ul style="list-style-type: none"> Participation in discussion Prepare notes in livestock diary 	1
<ul style="list-style-type: none"> Understand about the present population status of different species of livestock 	<ul style="list-style-type: none"> Total livestock population in India , Kerala Population status of cattle, buffalo, sheep, goat, pigs & poultry in India & Kerala 	<ul style="list-style-type: none"> Data collection Chart discussion 	<ul style="list-style-type: none"> Journals Reference - books Internet 	<ul style="list-style-type: none"> Observation of collected data Analysis of chart Participation in discussion 	1
<ul style="list-style-type: none"> Identification of different species of animals 	<ul style="list-style-type: none"> Identify different species like cattle, buffalo, sheep, goat, pig, Rabbit, & Poultry 	<ul style="list-style-type: none"> Field visit Picture collection Assignments 	<ul style="list-style-type: none"> Reference books Periodicals Dailies Visual medias 	<ul style="list-style-type: none"> Evaluation of assignments Participation in different activities 	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Create an awareness of the merits and demerits of livestock farming 	<p>MERITS</p> <ul style="list-style-type: none"> • Nutritive value of livestock products • Employment potential • Conversion of feeding materials in to useful products <p>DEMERITS</p> <ul style="list-style-type: none"> • Confining nature of the job • Risk involved • Requirement of skill 	<ul style="list-style-type: none"> • Debate • Discussion • Field visit 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Participation in various activities • Discussion • Report of debate and field visit 	1
<ul style="list-style-type: none"> • Familiarisation of common terms used in livestock management 	<ul style="list-style-type: none"> • Different terms associated with different species 	<ul style="list-style-type: none"> • Assignment • Chart preparation • Brain storming 	<ul style="list-style-type: none"> • Reference books • Internet 	<ul style="list-style-type: none"> • Verification of assignments and charts 	1

2

HANDLING OF ANIMALS

Introduction

The prerequisite to livestock management is to understand the various body parts and proper handling of animals for various purposes.

This chapter helps to create a more scientific approach to control animals for various farm operations like milking, AI, surgical operations etc. Necessary practical activities regarding handling of appliances should be planned to get a concrete idea about restraining of farm animals.

Curriculum Objectives

- Identification of body parts of cattle .
- Identification of body parts of poultry.
- Precautions to be taken while approaching an animal.
- Restraining and controlling of animals.
- Familiarisation of common terms used in livestock farming.

Syllabus (12 Hours)

- Body parts of cattle and fowl, restraining livestock, various methods of handling cattle, buffaloes and goats, restraining head, neck, forelimbs, hind limbs, whole body casting, methods of casting , common appliances used, rope, bull nose ring, bull holder, bull leader, mouth gags, halter, anti cowkicker, milkman's rope, trevis.

Identification of body parts of cattle

Suggested activities - Demonstration, Charts presentation and discussion

Ask the students to identify the body parts known to them. Then the teacher should supplement additional information.

The teacher should ask the students to consolidate all the points in a chart.

Points of Discussion

- Location of parts of body - Cranial, Caudal, dorsal etc.
- Parts of head, neck, trunk, limbs.
- Body cavities.

Body parts of poultry

Suggested Activity - Demonstration, chart preparation and discussion

Ask the students to identify the body parts known to them. Then the teacher should supplement additional information.

The teacher should ask the students to consolidate all the points in a chart.

Points for discussion

- Terminologies used to indicate different body parts.

Approaching an animal

Suggested activity - Demonstration and practise, Discussion

Students should be asked to approach the animal and teacher should assist and correct, wherever necessary .

Points for discussion

- Precautions to be taken while approaching an animal.

Suggested Activity - discussion, Demonstration and practise

A discussion should be initiated about restraining of livestock. Demonstration should help to understand it in a better way.

Points for discussion

- What is restraining
- Purposes of restraining.
- Restraining of fore and hind limbs.
- Restraining of head and neck.
- Preventing cows from kicking.

Controlling of whole body of cattle

Suggested activity - Discussion, demonstration and practise

A general discussion about casting and precautions taken while casting should be initiated by the teacher. Different methods of casting should be demonstrated and students should be made to practise the same.

Points for discussion

- What is casting?
- Precautions taken before casting - Reuff's method, alternate method, country method.

Controlling of goats

Suggested Activity - Demonstration and practise

Demonstration should be conducted on controlling of goats and students should be made to practise it.

Common appliances

Suggested Activity - Demonstration and handling of equipment

Appliances like rope, anti cowkicker, bull nose ring, bull holder, bull leader, mouth gags, halters, milk man's rope and trevis should be shown and the use and methods of handling should be explained.



CHAPTER - 2**HANDLING OF ANIMALS**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Identification of different body parts of cattle 	<ul style="list-style-type: none"> • Terminologies used to indicate exact location of different parts of body of cattle • Terminologies used to indicate location of different areas of body • Body cavities 	<ul style="list-style-type: none"> • Chart presentation • Demonstration & practise • Discussion 	<ul style="list-style-type: none"> • Reference books • Live animal 	<ul style="list-style-type: none"> • Participation in discussion • Chart 	2
<ul style="list-style-type: none"> • Identification of different parts of body of poultry 	<ul style="list-style-type: none"> • Terminologies used for different parts 	<ul style="list-style-type: none"> • Chart presentation • Demonstration & practise • Discussion 	<ul style="list-style-type: none"> • Reference books • Live bird 	<ul style="list-style-type: none"> • Participation 	1
<ul style="list-style-type: none"> • Approaching an animal 	<ul style="list-style-type: none"> • Precautions to be taken 	<ul style="list-style-type: none"> • Demonstration and practise 	<ul style="list-style-type: none"> • Live animal 	<ul style="list-style-type: none"> • Participation 	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Restraining of livestock 	<ul style="list-style-type: none"> • Purpose of restraining • Restraining of head & neck 	<ul style="list-style-type: none"> • Demonstration and practice • Discussion 	<ul style="list-style-type: none"> • Live animal • Appliances used for restraining head & neck 	<ul style="list-style-type: none"> • Participation 	1
<ul style="list-style-type: none"> • Restraining of livestock 	<ul style="list-style-type: none"> • Restraining of fore and hind limbs 	<ul style="list-style-type: none"> • Demonstration and practice 	<ul style="list-style-type: none"> • Live animal • Appliances used for restraining fore and hind limbs 	<ul style="list-style-type: none"> • Participation 	1
<ul style="list-style-type: none"> • Controlling of whole body 	<ul style="list-style-type: none"> • Casting • Precautions to be taken while casting • Method of casting Reuff's method • Alternate method • Country method 	<ul style="list-style-type: none"> • Discussion • Demonstration and practice 	<ul style="list-style-type: none"> • Live animal • Appliances used for casting 	<ul style="list-style-type: none"> • Participation 	3

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> Controlling of goats 	<ul style="list-style-type: none"> Methods used to control goats 	<ul style="list-style-type: none"> Demonstration and practice 	<ul style="list-style-type: none"> Live animal Appliances used for controlling 	<ul style="list-style-type: none"> Participation 	1
<ul style="list-style-type: none"> Familiarisation of appliances for controlling animals 	<ul style="list-style-type: none"> Application of common appliances 	<ul style="list-style-type: none"> Demonstration and practice 	<ul style="list-style-type: none"> Live animal Appliances used for restraining fore and hind limbs 	<ul style="list-style-type: none"> Participation 	1
<ul style="list-style-type: none"> Controlling of whole body 	<ul style="list-style-type: none"> Casting Precautions to be taken while casting Method of casting Reuff's method Alternate method Country method 	<ul style="list-style-type: none"> Discussion Demonstration and practice 	<ul style="list-style-type: none"> Live animal Appliances used for casting 	<ul style="list-style-type: none"> Participation 	3

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> Controlling of goats 	<ul style="list-style-type: none"> Methods used to control goats 	<ul style="list-style-type: none"> Demonstration and practice 	<ul style="list-style-type: none"> Live animal Appliances used for controlling 	<ul style="list-style-type: none"> Participation 	1
<ul style="list-style-type: none"> Familiarisation of the appliances for controlling animals 	<ul style="list-style-type: none"> Application of common appliances 	<ul style="list-style-type: none"> Demonstration and handling of equipments 	<ul style="list-style-type: none"> Rope Anti cow kicker Bull nose ring Bull holder Bull leader Mouth gag Halter Milkman's rope Trevice 	<ul style="list-style-type: none"> Participation 	2

BREEDS

Introduction

Breed is a group of animals related by descent and similar in most characters like general appearance, features, size, configuration etc. There may be considerable differences between individuals; still they have as a group many common points which distinguish them from other groups. The purity of the breed is maintained by confining the mating of animals within the breed.

In India there are 28 well defined breeds of cattle and 7 breeds of buffaloes, in addition to a large number of non-descript breeds of low production potential.

In this chapter the students get opportunity to collect photographs of different breeds of animals and closely observe the distinguishing characters of each breed. This will enable them to identify different breeds of livestock and will help them to select better animals for different purposes.

Curriculum Objectives

- Create an awareness about different breeds of different species.
- Classification of Indian breeds of cattle according to utility.
- Classification of cattle according to origin.
- Identification and understanding the salient features of different dairy breeds, draught and dual purpose breeds.
- Identification and understanding the salient features of breeds of buffaloes, sheep, goats and pigs.
- Classification of poultry according to geographical distribution.
- Identification and understanding the salient features of various breeds of poultry.

Syllabus (15 Hours)

- Definition of species, breed, strain and variety exotic and Indian breeds, definition, differences, examples.
- Exotic Breed origin, breed characteristics, physical features of Jersey, HF, Brown Swiss (2) Indian breeds according to utility- milch, draught, dual

(3) Distinguishing characters of Sindhi, Hariana, Kankrej, Kangayam, Halliker Surthi and Murrah Buffalo (4) Goat - Malabari, Alpine, Saanen (5) Sheep - Merino, Kashmiri (6) Pig - Yorkshire, Landrace. (7) Poultry - classification, breeds - White Leghorn, Australorps, RIR, WPR, Cornish, Desi, Grama Lakshmi and Gramasree.

Breeds

Suggested activities - Discussion

The teacher can begin the class by giving examples and collecting the feed back from students and assessing their previous knowledge. The teacher should supplement additional points and lead them to the basic idea of species, breed, strain and variety.

The teacher should ask the students to consolidate all the points in a chart.

Points for Discussion

- What is species, breed, strain and variety?

Breeds of cattle

Suggested Activities - Collection of photographs, Preparation of charts, Preparation of collage brain storming, farm visit

After dividing the students in to different groups, teacher may ask them to collect photographs of cattle breeds from journals, newspapers etc. Based on the photographs they may be asked to define the characteristics of each breed and to present it in the form of a chart.

For collage preparation, cuttings from periodicals, journals, dailies should be collected and pasted on a chart paper.

The above gained knowledge may be consolidated by arranging a farm trip.

A Brainstorming session may be conducted in the class to differentiate Indian and exotic breeds of cattle.

Points for Discussion

- Indian breeds - Milch, drought and dual purpose breeds.
- Exotic breeds - Jersey , HF, BS.
 - Origin
 - Salient features
 - Utility/ Production

Additional information - Ayrshire
Vechoor Cattle
Gir

Breeds of Buffalo, goat, sheep, pigs

Suggested activities - Collection and observation of photographs, farm visit, collage preparation, seminar

The previous suggested activities may be followed in a similar pattern for the smooth conduct of the class. Based on the knowledge gained from the

activities a seminar should be conducted. For this, students should be divided into four groups .

Seminar topics

1. Breeds of buffalo.
2. Breeds of Goat.
3. Breeds of sheep.
4. Breeds of Pig.

Each group should be given a single topic.

Points for discussion

- Buffalo breeds - Murrah, Surti
- Origin.
- Salient features.
- Utility.
- Origin and salient features of exotic breeds of goats, sheep, pigs and their advantages over Indian breeds.

Additional Information

- Jamnapari goat
- Duroc pig
- Jaffrabadi buffalo.

Poultry breeds

Suggested activities - Collection and observation of photographs, discussion, farm visit, chart preparation, seminar

The students may be assigned to collect photographs from periodicals dailies etc and the acquired concepts may be discussed in the class. A visit to near by poultry farm will enhance the gained knowledge. All these ideas should be consolidated in a chart.

The students are divided in to four groups and each group should be asked to organise a seminar on a particular class of poultry. Topic should be given in advance. After presentation there should be discussion and clarification of doubts. Each student should summarise the ideas of the seminar in the form of a report. Teacher should give necessary guidance as and when required.

Points for discussion

- Class - characters and examples
- Comb types
- Desi breeds - Aseel, Chittagong, Ghagus, Naked neck

Additional Information

- Kadaknath
- Athulya
- Gramlakshmy
- Gramapriya
- Tellicherry



CHAPTER - 3**BREEDS**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none">• Create an awareness of different breeds of different species	<ul style="list-style-type: none">• Species• Breed• Strain• Variety	<ul style="list-style-type: none">• Discussion	<ul style="list-style-type: none">• Charts	<ul style="list-style-type: none">• Analysis of charts• Participation	1
<ul style="list-style-type: none">• Classification of Indian breeds of cattle according to utility	<ul style="list-style-type: none">• Milch breeds• Draught breeds• Dual purpose breeds	<ul style="list-style-type: none">• Collection of photographs• Discussion• Preparation of charts• Preparation of collage	<ul style="list-style-type: none">• Photographs• Periodicals• Dailies	<ul style="list-style-type: none">• Perfection in preparation of charts & Collage• Participation in discussion	1
<ul style="list-style-type: none">• Classification of cattle according to origin	<ul style="list-style-type: none">• Exotic breeds• Indigenous breeds• Difference between exotic & indigenous breeds	<ul style="list-style-type: none">• Brainstorming• Discussion• Observation of charts & photographs	<ul style="list-style-type: none">• Charts• Photographs	<ul style="list-style-type: none">• Participation in different activities	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Identification and understanding of the salient features of different dairy breeds 	<ul style="list-style-type: none"> • Jersey • HF • Swiss brown • Ayershire • Sindhi 	<ul style="list-style-type: none"> • Collection & observation of photographs • Assignments • Seminars 	<ul style="list-style-type: none"> • Photographs • Reference books • Periodicals & Dailies 	<ul style="list-style-type: none"> • Seminar report • Evaluation of assignments 	2
<ul style="list-style-type: none"> • Salient features of draught and dual purpose breeds 	<ul style="list-style-type: none"> • Kangayam • Hallikar • Hariyana • Kankrej 	<ul style="list-style-type: none"> • Collection & observation of photographs • Assignments • Seminars 	<ul style="list-style-type: none"> • Photographs • Reference books • Periodicals & Dailies 	<ul style="list-style-type: none"> • Seminar report • Evaluation of assignments 	3
<ul style="list-style-type: none"> • Breeds of buffaloes - Identification & understanding the salient features 	<ul style="list-style-type: none"> • Murrah • Surti • Jaffarabadi 	<ul style="list-style-type: none"> • Collection & observation of photographs • Assignments • Seminars 	<ul style="list-style-type: none"> • Photographs • Reference books • Periodicals & Dailies 	<ul style="list-style-type: none"> • Seminar report • Evaluation of assignments 	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Identification and understanding the salient features of goats & sheep 	<ul style="list-style-type: none"> • Malabari • Saanen • Alpine • Kashmiri • Merino 	<ul style="list-style-type: none"> • Collection & observation of photographs • Assignments • Seminars 	<ul style="list-style-type: none"> • Photographs • Reference books • Periodicals & Dailies 	<ul style="list-style-type: none"> • Seminar report • Evaluation of assignments 	2
<ul style="list-style-type: none"> • Identification & understanding the salient features of pigs 	<ul style="list-style-type: none"> • Large white yorkshire • Landrace • Duroc 	<ul style="list-style-type: none"> • Collection & observation of photographs • Assignments • Seminars 	<ul style="list-style-type: none"> • Photographs • Reference books • Periodicals & Dailies 	<ul style="list-style-type: none"> • Seminar report • Evaluation of assignments 	1
<ul style="list-style-type: none"> • Classification of poultry according to geographical distribution 	<ul style="list-style-type: none"> • American class • English class • Mediterranean class • Asiatic class 	<ul style="list-style-type: none"> • Discussion • Chart preparation 	<ul style="list-style-type: none"> • Chart 	<ul style="list-style-type: none"> • Participation • Chart 	1
<ul style="list-style-type: none"> • Identification & understanding the salient features of various breeds of poultry 	<ul style="list-style-type: none"> • White leghorn • Australorp • Rhode Island red • White plymouth rock • Cornish • Aseel • Chittagong • Ghagus • Kadaknath • Gramalakshmi • Gramapriya 	<ul style="list-style-type: none"> • Collection & observation of photographs • Assignments • Seminars 	<ul style="list-style-type: none"> • Photographs • Reference books • Periodicals & Dailies 	<ul style="list-style-type: none"> • Seminar report • Evaluation of assignments 	2

IDENTIFICATION OF ANIMALS

Introduction

The identity of an animal has to be established soon after birth. Many dairy men name their cows but do not have any marks for their identification. For a small herd the naming of animals may serve the purpose to some extent, but for large herds of animals, it is always necessary to put some sort of identification marks on each animal.

This chapter deals with various techniques of identification of animals like branding, tattooing, tagging etc. While going through this chapter, the students get adequate knowledge about different identification methods and they become capable of practicing these techniques. They also become aware of the different purposes for identifying animals. Another important aspect dealt with in this chapter is the determination of age of cattle by different methods.

Curriculum Objectives

- To get an idea about identification of animals.
- To create an awareness about common methods of identification.
- To get an idea about determination of age of cattle.

Syllabus (12 Hours)

Objectives, Methods

1) Branding

- a) Hot iron branding
- b) Chemical branding
- c) Freeze branding

2) Tattooing

3) Ear tagging

4) Ear notching

Identification of poultry - wing banding & wing badging.

Natural body markings, determination of age of cattle by dentition, general appearance and horn rings.

Identification of animals

Suggested activities - Discussion , Flash card, Farm visit Handling of instruments, Lecture demonstration

To begin the class, a discussion can be initiated, highlighting the objectives of identification . The previous knowledge of the students should be used to get an idea about the methods of identification.

Flash cards representing pictorials of different methods of identification will enhance the gained knowledge.

A farm visit can be conducted. Then allow the students to observe the different methods of identification used in different animals. Allow them to interact with each other and discuss the merits and demerits of each method.

A lecture demonstration of each method can be conducted in the farm itself by an expert. In this the instruments used can be shown to the students and their application in each method can be demonstrated.

Points for Discussion

- Objectives of identification
- Identification based on natural body markings, colour.
- Common methods of identification - branding, Tattooing, tagging, ear notching.
- Poultry identification - wing banding, leg banding, wing badging, leg badging
- Other methods of identification

Determination of age

Suggested activities - General discussion, demonstration and practice, photographs, chart preparation

Recalling the previous knowledge by asking questions, the topic can be introduced in the class.

Photographs showing eruption and wearing of teeth at different age is an effective method to understand the same. The above gained knowledge should be practiced by the students on a live animal to determine its age . Teacher can correct and demonstrate where ever necessary.

Charts should be prepared by the students showing pattern of eruption and wearing at different age groups and based on these they may be asked to formulate dental formula.

Points for Discussion

- Dental formula - Permanent, Temporary.
- Other methods - General appearance, horn rings, Pedigree certificate.
- Full Mouth, gummers, broken mouthed aged animals.



CHAPTER - 4**IDENTIFICATION OF ANIMALS**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To get an idea about identification of animals 	<ul style="list-style-type: none"> Purpose of identification based on natural body marking, colours etc 	<ul style="list-style-type: none"> Discussion Preparation of flash cards 	<ul style="list-style-type: none"> Reference books Flash cards 	<ul style="list-style-type: none"> Perfection in preparation of flash cards 	1
<ul style="list-style-type: none"> To create an awareness of common methods of identification 	<ul style="list-style-type: none"> Branding Hot iron branding Chemical branding Freeze branding 	<ul style="list-style-type: none"> Lecture demonstration farmvisit 	<ul style="list-style-type: none"> Applianaces used for branding 	<ul style="list-style-type: none"> Observation of notes in livestock diary 	1
<ul style="list-style-type: none"> To create an awareness of common methods of identification 	<ul style="list-style-type: none"> Tattooing 	<ul style="list-style-type: none"> Lecture demonstration 	<ul style="list-style-type: none"> Applianaces used for tattooing 	<ul style="list-style-type: none"> Evaluation of assignments 	1
<ul style="list-style-type: none"> To create an awareness of common methods of identification 	<ul style="list-style-type: none"> Tagging 	<ul style="list-style-type: none"> Lecture demonstration 	<ul style="list-style-type: none"> Applianaces used for tagging 	<ul style="list-style-type: none"> Observation of notes in live-stock diary 	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To get an idea about identification of animals 	<ul style="list-style-type: none"> Earnotching Other methods of identification 	<ul style="list-style-type: none"> Lecture demonstration 	<ul style="list-style-type: none"> Applianaces used for ear notching 	<ul style="list-style-type: none"> Observation of notes in live-stock diary 	1
<ul style="list-style-type: none"> To create an awareness of methods used for identification of poultry 	<ul style="list-style-type: none"> Wing banding Leg badging Wing badging Legbanding 	<ul style="list-style-type: none"> Lecture demonstration Farm visit 	<ul style="list-style-type: none"> Applianaces used for identification of poultry 	<ul style="list-style-type: none"> Observation of notes in live-stock diary 	1
<ul style="list-style-type: none"> To give an idea about determination of age of cattle 	<ul style="list-style-type: none"> General appearacne Horn rings Pedigree certificate Dentition 	<ul style="list-style-type: none"> Discussion Demonstration and practice 	<ul style="list-style-type: none"> Live animal Reference-books 	<ul style="list-style-type: none"> Participation 	1
<ul style="list-style-type: none"> Formulation of dental formula 	<ul style="list-style-type: none"> Temporary dental formula Permanant dental formula Definition Different types of teeth 	<ul style="list-style-type: none"> Demonstration and practice Chart preparation Exhibition of photogrpahs 	<ul style="list-style-type: none"> Live animal Charts Photographs 	<ul style="list-style-type: none"> Performance Observation of charts 	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> To determine the age of cattle by noting dentition 	<ul style="list-style-type: none"> Eruption, wear and tear different types of teeth 	<ul style="list-style-type: none"> Exhibition of photogrpahs Preparation of tables 	<ul style="list-style-type: none"> Live animal Charts Photogrpahs 	<ul style="list-style-type: none"> Observation of charts Participation 	2
<ul style="list-style-type: none"> To determine the age of cattle by noting dentition 	<ul style="list-style-type: none"> Full mouth Gummers Broken mouthed Aged animals 	<ul style="list-style-type: none"> Demonstration and practise Exhibition of pictures 	<ul style="list-style-type: none"> Live animal Photogrpahs 	<ul style="list-style-type: none"> Participation 	2

5

HOUSING OF CATTLE

Introduction

An efficient management of cattle will be incomplete without a well planned and adequate housing of cattle. Improper planning in the arrangement of animal housing may result in additional labour charges and thus curtail the profit of the owner. During construction of a house for dairy cattle, care should be taken to provide comfortable accommodation for individual cattle. Proper sanitation, durability and arrangement for clean milk production also should be given due importance.

This chapter gives an insight about the principles of housing and the different systems of rearing. It also gives an idea about the requirements and dimensions for constructing cattle sheds.

Curriculum Objectives

- To get an idea about principles of housing.
- To acquire knowledge about different systems of rearing cattle.
- To get an idea about construction of a model cattle shed and the necessities to be provided.

Syllabus (5 Periods)

Systems of rearing cattle - free range, loose house, conventional barns.
Principles of housing, cow house system

Principles of housing

Suggested activities - discussion and field visit

Discussion should be initiated by the teacher by asking questions about different housing facilities for animals seen in their surroundings.

A field trip can be arranged to near by localities for observing the needs of housing.

The above gained ideas from discussion and field visit can be consolidated as principles of housing in the form of a report.

Points for discussion

- Protection from adverse weather conditions.
- Comfortable housing.

Systems of rearing

Suggested Activities - Farm/ field visit, Preparation of posters and models, seminars.

A farm/field visit can be arranged to observe different rearing systems in their locality and compare different housing systems. This comparison should evolve merits and demerits of each housing systems.

After this an assignment can be given to students to prepare posters and models of rearing systems they have observed; for this students can be divided into different groups.

These ideas should be summarised in the form of a seminar paper. Each seminar group can be given a name .

Points of discussion

- Intensive or conventional system.
- Semi intensive system
- Free range system.

Model cattle shed

Suggested activities - Field visit, Farm visit Layout preparation

Each student should be given an assignment to observe construction details of cattle sheds. For this students can visit cattle sheds in their locality. They should take measurements of different components in the shed. Allow them to compare their observations. Then a farm visit can be arranged to observe the standard measurements and compare it with the data formulated by them. Corrections can be done where ever necessary.

The students may also be asked to observe the different facilities provided in a cattle shed.

The measurements should be consolidated for making a lay out of a model cattle shed after dividing the students into groups.

Points for Discussion

- Roof, Wall, Floor.
- Orientation
- Ventilation
- Floor space requirements



CHAPTER - 5**HOUSING OF CATTLE**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none">To acquire knowledge about the different systems of rearing cattle	<ul style="list-style-type: none">Intensive/ conventionalSemi intensiveRange system	<ul style="list-style-type: none">Field visitSeminars	<ul style="list-style-type: none">Posters	<ul style="list-style-type: none">PerformanceReport	2
<ul style="list-style-type: none">To give an idea about the principles of housing cattle	<ul style="list-style-type: none">Purpose of housingRequirements for housing	<ul style="list-style-type: none">DiscussionField visit	<ul style="list-style-type: none">Reference booksCharts	<ul style="list-style-type: none">PerformanceReport	1
<ul style="list-style-type: none">Construction of a model cattle shed	<ul style="list-style-type: none">Dimensions of different components	<ul style="list-style-type: none">Preparation of layoutsTaking measurementsFarmvisit	<ul style="list-style-type: none">ChartsMeasuring tape	<ul style="list-style-type: none">Perfection in preparation of layout	1
<ul style="list-style-type: none">To create an awareness about common methods of identification	<ul style="list-style-type: none">RoofingFlooringManure disposalWater & electricityOrientationVentillation	<ul style="list-style-type: none">Farm visitDiscussion	<ul style="list-style-type: none">Reference books	<ul style="list-style-type: none">Participation	1

6

NORMAL VALUES

Introduction

Normal values help in assessing physiological condition of an animal. While dealing with this chapter, students develop skill in recording the different physiological parameters and they will be able to differentiate between healthy and unhealthy animals. This will certainly help them in better management of livestock.

Curriculum Objectives

- To give an idea about normal values.
- Recording of normal values.
- To get an idea about the circumstances in which the normal value varies.
- To get an idea about gestation period, span of life, age of puberty and birth weight of different species.

Syllabus (4Hours)

Pulse, Respiration and temperature, Gestation period, span of life, birth weight, Age at maturity, Age of breeding of animals and birds - cow, buffalo, Goat, poultry.

Normal values

Suggested activities - Discussion, Demonstration and practice, chart preparation

Teacher should initiate a discussion furnishing the basic idea of pulse, respiration and temperature.

The teacher should demonstrate the method of recording pulse, respiration and temperature in a live animal and students should be allowed to practise the same. The observed data should be recorded.

The students are assigned to record the values of pulse, respiration and temperature in different species of animals. For this they can visit houses in their localities. The observed data should be verified by the teacher and necessary corrections should be made. A chart can be prepared by the students from these corrected data.

Points for discussion

- Pulse
- Respiration
- Temperature
- Normal values in different species.
Additional information - Rumen motility

Variation in normal values**Suggested Activities - Brain storming, Hospital visit, discussion**

Ask the students about the circumstances in which there is variation in normal values. Additional information should be supplemented by the teacher.

A hospital visit can be conducted and allow the students to record pulse, temperature and respiration of different kinds of animals presented in the hospital. Compare these data with normal values already recorded by them in their previous class. After this a discussion can be made consolidating all the ideas.

Points for discussion

- Increase or decrease in normal values - age, sex, breed, time of the day, feeding, exercise pregnancy, psychological pain, disease.

Gestation Period, Span of life, Birth weight and Age of puberty**Suggested activities - Discussion, chart preparation**

Teacher should initiate a discussion concerning the basic ideas of gestation period, span of life, birth weight and age of puberty. The teacher should consolidate the ideas.

The students are to be assigned to go through some prescribed reference books and prepare notes on these. Necessary correction should be made by the teacher and a chart should be prepared by students representing the correct values of these criteria in different species.

Points for Discussion

- Gestation period
- Span of life
- Birth weight
- Age of puberty



CHAPTER - 6

NORMAL VALUES

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • To give an idea about normal values 	<ul style="list-style-type: none"> • Pulse • Respiration • Temperature • Ruman motility 	<ul style="list-style-type: none"> • Discussion 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Participation 	1
<ul style="list-style-type: none"> • Recording of normal value 	<ul style="list-style-type: none"> • Observation of pulse, respiration and temperature 	<ul style="list-style-type: none"> • Demonstration & Practice 	<ul style="list-style-type: none"> • Live animal • Thermometer 	<ul style="list-style-type: none"> • Participation 	1
<ul style="list-style-type: none"> • Furnishing idea about normal values of respiration, pulse and temperature 	<ul style="list-style-type: none"> • Normal values of different species 	<ul style="list-style-type: none"> • Chart preparation 	<ul style="list-style-type: none"> • Reference books • Chart 	<ul style="list-style-type: none"> • Perfection in preparation of chart, Assignments 	1
<ul style="list-style-type: none"> • To get an idea about the circumstances in which the normal value varies 	<ul style="list-style-type: none"> • Increase or decrease in temperature, pulse & Respiration 	<ul style="list-style-type: none"> • Discussion • Observation • Brainstorming • Hospital visit 	<ul style="list-style-type: none"> • Live animal • Reference books 	<ul style="list-style-type: none"> • Participation 	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • To give an idea about gestation period, span of life, Age at puberty and birth weight of different species 	<ul style="list-style-type: none"> • Gestation • Span of life • Puberty • Birth weight 	<ul style="list-style-type: none"> • Discussion • Chart preparation 	<ul style="list-style-type: none"> • Reference books • Chart 	<ul style="list-style-type: none"> • Perfection in preparation of charts • Participation 	

ORGANS OF THE BODY

Introduction

A knowledge of how the animal body functions, helps the understanding of animal husbandry and also helps us to take management decisions regarding the feeding, growth and health of animals. Students have previous knowledge about human systems and human organs. This unit deals with the systems of body of animals. The major difference lies in the digestive and reproductive system of human beings and animals. So these two systems are dealt separately with more details. After completion of this chapter, the students will get an idea, both about ruminant and non ruminant digestion and about the animal reproduction.

Curriculum Objectives

- Create an elementary knowledge of skeletal system, muscular system, nervous system, circulatory system, Urinary system and respiratory system.
- Understand the structure and function of digestive system.
- Understand the structure and function of reproductive system.

Syllabus (11 Hours)

Elementary knowledge of Skeletal, Muscular, Nervous, Circulatory, Urinary, Respiratory, Digestive and Reproductive organs (with special emphasis on digestive and reproductive organs)

Skeletal, Muscular, Nervous, Circulatory, Urinary and respiratory systems

Suggested activities - Discussion and demonstration using charts and models, microscopic examination of slides

Students have previous knowledge of different divisions of each system of human beings. Teacher can introduce more points through a general discussion with the help of charts and models. From these charts and models the students get opportunity to observe and understand the structure of each organ.

Allow the students to observe microscopic slides of blood cells muscle cells, nerve cell etc. to create an awareness about the structure of these cells.

Points for discussion

- **Skeletal system**
 - a) Structure of bone
 - b) Functions
- **Muscular System**
 - a) Skeletal muscles
 - b) Smooth muscles
 - c) Cardiac muscles
- **Nervous system**
 - a) Neuron
 - b) Central , Peripheral and Autonomic nervous system
- **Circulatory system**
 - a) Structure of heart and circulation of blood
 - b) Functions of blood, Composition of blood
 - c) Spleen
 - d) Lymph system
- **Urinary system**
 - a) Structure of Kidney
 - b) Function of Kidney
- **Respiratory system**
 - a) Organ associated with respiration
 - b) Inspiration, Expiration and exchange of gases.

Reproductive system

Suggested Activities - Lecture demonstration using slaughter house specimens of male and female reproductive organs of cattle, charts and models, Assignments

Specimens of male and female reproductive organs can be collected from near by slaughter houses and they can be shown to the students.

Along with this the teacher can give a lecture on the structure and function of different organs. Ask the students to draw diagrams of the reproductive organs they have seen. If possible models of reproductive organs can be shown to students.

Students have already acquired a basic knowledge about puberty, sexual cycle, fertilization, Placenta, Parturition and hormonal regulation from lower classes. The teacher can initiate a discussion on these topics and feedback from the students can be collected. Additional information can be supplemented by the teacher. To get more clarity the teacher can provide a chart on hormonal regulation of female reproduction and mechanism of action of different hormones should be explained.

Points for discussion

- Male reproductive system - Structure and function
- Female reproductive system - Structure and function
- Puberty
- Oestrous cycle
- Fertilization
- Placenta
- Parturition
- Hormonal regulation of female reproduction

Digestive System

Suggested activities - Lecture demonstration using slaughter house specimen of digestive organs of cattle, charts, assignments

Specimens of digestive organs can be collected from nearby slaughter houses and can be shown to the students. The teacher can give a lecture on the structure and function of different organs along with this. Ask the students to draw diagrams of the digestive organs they have seen. To get more clarity the teacher can provide charts on microbial digestion in ruminant stomach and explain the different steps involved. Students have previous knowledge about enzymatic digestion and absorption of food. Teacher can initiate a discussion on the topic with the help of charts. Additional information can be furnished by the teacher.

Points for Discussion

- Digestive Organs
- Ruminants and non ruminants
- Mastication , Deglutition
- Microbial digestion
- Enzymatic digestion and absorption of food



CHAPTER - 7

ORGANS OF THE BODY

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Create an elementary knowledge of skeletal system, muscular system, nervous system, circulatory system and respiratory system 	<ul style="list-style-type: none"> • Skelatal system • Muscular system • Nervous system • Circulatory system • Urinary system • Respiratory system 	<ul style="list-style-type: none"> • Discussion • Demonstration using charts & models, microscopic examination of slides 	<ul style="list-style-type: none"> • Charts • Models • Microscopic slides • Reference books 	<ul style="list-style-type: none"> • Participation in discussion, • Acquired concept 	4
<ul style="list-style-type: none"> • Understand the structure and function of reproductive system 	<ul style="list-style-type: none"> • Reproductive system 	<ul style="list-style-type: none"> • Lecture demonstration • Assignments 	<ul style="list-style-type: none"> • Slaughter house • Specimens, charts, models, • Reference books 	<ul style="list-style-type: none"> • Evaluation of assignments, • Acquired concepts 	3
<ul style="list-style-type: none"> • Understand the structure and function of digestive system 	<ul style="list-style-type: none"> • Digestive - system 	<ul style="list-style-type: none"> • Slaughter house, specimens • Charts 	<ul style="list-style-type: none"> • Slaughter house, • Specimens, charts, models, • Reference books 	<ul style="list-style-type: none"> • Evaluation of assignments • Acquired concepts 	4

CARE AND MANAGEMENT

Introduction

Management is an art and science of combining ideas, facilities, processes materials and labour to produce and market a worth while product or service successfully. In our dairy farms we convert labour, soil fertility, hay silage and other inputs into milk. These transformations do not occur by happenstance. They are the result of a purposeful and premeditated force called management, a process we shall examine more closely.

Curriculum Objectives

- To understand about the care of newborn calf.
- Systems of feeding dairy calves
- Care and management of heifers, milking cows and draught animals.
- To understand artificial insemination pregnancy and parturition.

Syllabus (10 Hours)

New born, heifers, cows, working animals

New born calf

Suggested activities - Seminar

The class should be divided into four groups . The topics should be given in advance . Each student should be asked to collect information and ideas and submit it to the group leader. On the day of seminar group leader should be asked to deliver the same in an organised way. After the completion of seminar of each groups, a group discussion among students will help to understand the topic more clearly. Additional information should be supplemented by the teacher at the end of discussion.

Points for Discussion

- Mucous removal
- Artificial respiration
- Naval cord
- Colostrum
- Weaning

- Birth weight
- Dehorning , Deworming

Feeding dairy calves

Suggested Activities - Field visit and discussion

The students are asked to visit near by houses of farmers and observe the various methods and aspects of calf feeding. Then a discussion should be conducted and students are allowed to express their observations. The teacher should consolidate these observations and additional information should be supplemented wherever necessary.

Points for Discussion

- Liberal milk feeding
- Milk replacer
- Calf starter
- Nurse cow method

Heifers, Milking cows and draught animals

Suggested activities - Farm visit, Observation, Field visit, Demonstration, Photographs

A farm visit should be conducted and the students are asked to observe feeding of heifers milk animals, detection of heat and milking practices in the farm. More information should be collected from the labourers of the farm. Other methods of milking also should be demonstrated by an expert. Then a discussion should be conducted and ideas are consolidated . Additional information required should be provided by the teacher.

A field visit should be conducted and details about draught animals management should be collected. Photographs showing shoeing of draught animals can be provided to the students.

Points for Discussion

- Feeding of heifers, milking cows, draught animals
- Heat detection
- Milking methods
- Clean milk production
- Training and shoeing of draught animals
- Differentiation of working and non working animals

Artificial Insemination

Suggested Activities - Farm visit, Hospital visit, Demonstration

A farm visit (Preferably KLDB) can be conducted and a lecture demonstration can be arranged involving all the steps of AI by an expert. A visit report should be submitted by each student. To make the idea more clear a hospital visit can also be arranged.

Points for discussion

- Collection of semen
- Processing
- Storage
- Insemination methods

Pregnancy and Parturition

Suggested Activities - Picture collection, Observation, Discussion

They are asked to collect pictures pertaining to parturition from dailies, magazines etc. The students are asked to observe pregnant and calving animals in their surroundings.

A discussion should be conducted and ideas are consolidated . Additional information required is provided by the teacher.

Points for discussion

- Pregnancy diagnosis
- Signs of Pregnancy
- Stages of Parturition



CHAPTER - 8**CARE AND MANAGEMENT**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none">• To understand about the care of newborn calf	<ul style="list-style-type: none">• Colostrum• Dehorning• Deworning• Weaning	<ul style="list-style-type: none">• Seminar	<ul style="list-style-type: none">• Reference books	<ul style="list-style-type: none">• Seminar report	2
<ul style="list-style-type: none">• Systems of feeding dairy cattles	<ul style="list-style-type: none">• Liberal milk feeding• Milk replacer• Calf sterter• Nurse cow method	<ul style="list-style-type: none">• Field visit• Discussion		<ul style="list-style-type: none">• Visit report	1
<ul style="list-style-type: none">• Care and management of heifers	<ul style="list-style-type: none">• Feeding• Detection of heat	<ul style="list-style-type: none">• Observation• Farmvisit	<ul style="list-style-type: none">• Reference books	<ul style="list-style-type: none">• Observation report	1
<ul style="list-style-type: none">• Care and management of milking cows	<ul style="list-style-type: none">• Clean milk production• Feeding	<ul style="list-style-type: none">• Observation• Discussion• Demonstration of milking methods• Field visit	<ul style="list-style-type: none">• Photographs	<ul style="list-style-type: none">• Participation in discussion and demonstration	1

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • To get an idea about management of working animals draught 	<ul style="list-style-type: none"> • Feeding • Training • Shoeing 	<ul style="list-style-type: none"> • Observation • Field visits 	<ul style="list-style-type: none"> • Reference books • Photographs 	<ul style="list-style-type: none"> • Acquired concepts • Observation • Report 	1
<ul style="list-style-type: none"> • To understand Artificial Insemination 	<ul style="list-style-type: none"> • Collection • Processing • Storage • Insemination 	<ul style="list-style-type: none"> • KLDB farm or hospital visit • Demonstration 	<ul style="list-style-type: none"> • Microscopic examination • Chart 	<ul style="list-style-type: none"> • Visit report 	2
<ul style="list-style-type: none"> • To get an idea about pregnancy and parturition 	<ul style="list-style-type: none"> • Pregnancy diagnosis at right time • Signs of pregnancy • Stages of parturition 	<ul style="list-style-type: none"> • Observation • Picture collection • Chart preparation • Discussion 	<ul style="list-style-type: none"> • Reference books • Visual media 	<ul style="list-style-type: none"> • Observation • Notes • Chart 	2

HEALTHCARE

Introduction

Health is defined as a state of maximum physiological functioning of all systems of the body based on breed, age and sex. The signs of health are external manifestations of a healthy animal in normal condition.

Any deviation from health is known as disease. This chapter enables the students to differentiate between healthy and diseased animals by observing the external signs. It also provides an idea about common disease conditions prevalent in our state and various preventive and control measure that can be adopted.

Curriculum Objectives

- Understand signs of health in animals.
- Awareness of natural defence mechanisms of body
- Basic concept about diseases
- Etiological classification of diseases
- Common diseases affecting cattle and poultry.
- Methods of prevention and control of diseases.

Syllabus (10Hours)

Signs of health - classification of the disease (bacterial, viral, protozoa, metabolic etc), Causative factors, Prevention and control of Anthrax, HS, Foot and mouth disease, Brucellosis, Mastitis, milk fever, Ketosis, Parasitic infestation, Ranikhet, Coccidiosis.

Health and defence mechanisms

Suggested activities - Discussion, Lecture, chart preparation

The topic should be introduced in the class by asking questions about health. Collect the feed back and evolve an idea about the signs of health.

Additional information will be supplemented by the teacher. A chart depicting a healthy animal can be prepared by the students.

A lecture based on different defence mechanisms can be delivered in the class.

Points for discussion

- Differences between healthy and diseased animals.
- Functions of different parts of body against diseases.

Diseases

Suggested Activities - Hospital visit, Collection of pictures, Seminars, Data collection, Preparation of charts, survey, posture

The students may be asked to collect the picture of diseased animals. A survey can be conducted in the surrounding locality and the information can be gathered from the farmers. A hospital visit can be conducted and further information can be collected from the hospital. The above gained knowledge may be discussed in the class and teacher should ask questions to evolve the idea about causative factors and etiology of diseases. These ideas should be consolidated in the form of a seminar. The students should be divided into four groups and the following topics are given.

- Bacterial diseases
- Viral diseases
- Parasitic diseases
- Metabolic diseases

Points for discussion

- Diseases - Etiological classification
- Common diseases of livestock - Anthrax, B.Q, H.S, Brucellosis, FMD
- Common diseases of milch animals - Milk fever, Ketosis, Mastitis
- Parasitic diseases
- Common poultry diseases - RD, Coccidiosis

Prevention and control

Suggested activities - Farm visit, Collection of datas, Preparation of charts, Discussion

A farm visit should be conducted and the students are asked to observe

various hygienic practices, vaccinations done, treatment of sick animals etc. Students are also assigned to collect various datas on disinfection and other hygienic measures from surrounding farmer families. A discussion on above mentioned ideas can be conducted and further information required should be supplemented by the teacher.

Students are assigned to prepare a chart on vaccination schedule in different species of animals.

A poster with the caption “ Prevention is Better than cure” will convey the message clearly . This also can be prepared by the students.

Points for Discussion

- Disinfection
- Disinfestation
- Isolation and treatment
- Immunization
- Quarantine



CHAPTER - 9**HEALTH CARE**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none"> Understand the signs of health in animals 	<ul style="list-style-type: none"> Distinguishing between healthy and diseased animals 	<ul style="list-style-type: none"> Field visit, Collection of pictures, Chart preparation and discussion 	<ul style="list-style-type: none"> Reference - books Charts 	<ul style="list-style-type: none"> Analysis of charts Participation in discussion 	1
<ul style="list-style-type: none"> Awareness of natural defence mechanism of the body 	<ul style="list-style-type: none"> Functions of different parts of body against diseases 	<ul style="list-style-type: none"> Discussion Lecture 	Reference books	<ul style="list-style-type: none"> Participation in discussion 	1
<ul style="list-style-type: none"> Basic concept about diseases 	<ul style="list-style-type: none"> Diseased animal Definition 	<ul style="list-style-type: none"> Hospital visit Data collection 	<ul style="list-style-type: none"> Collected data 	<ul style="list-style-type: none"> Analysis of data 	1
<ul style="list-style-type: none"> Etiological classification of diseases 	<ul style="list-style-type: none"> Causative factors mode of infection Systems affected 	<ul style="list-style-type: none"> Discussion Making notes Preparation of Charts Survey 	<ul style="list-style-type: none"> Reference books Hospital records 	<ul style="list-style-type: none"> Participation in discussion Chart analysis 	2

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none"> • Common diseases affecting cattle & poultry 	<ul style="list-style-type: none"> • Bacterial diseases • Viral diseases • Diseases of milch animals • Parasitic diseases 	<ul style="list-style-type: none"> • Lecture method • Hospital visit • Seminar • Collection of pictures • CD 	<ul style="list-style-type: none"> • Journals • Reference books • Microscopic examination 	<ul style="list-style-type: none"> • Participation in seminar 	3
<ul style="list-style-type: none"> • Methods of prevention and control of diseases 	<ul style="list-style-type: none"> • Measures for control of diseases • Treatment of sick animals 	<ul style="list-style-type: none"> • Farmvisit • Preparation of chart • Collection of data • Assignments 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Evaluation of assignment and charts 	2

PRINCIPLES OF FEEDING

Introduction

The animal body requires all the nutrients in specified proportion for its growth and maintenance. Among these are water, proteins, lipids, carbohydrates etc. The students will be having some previous knowledge about these feed nutrients. In this chapter they will get an idea about the different types of ration and inclusion of each nutrient in correct proportion. The increased feed allowance in pregnancy and lactation are also dealt with in this chapter. By knowing the scientific methods of feeding animals, one can obtain maximum returns from livestock farming.

Curriculum Objectives

- To develop basic idea about important nutrients.
- Make an idea about ration, balanced ration, maintenance and production ration.
- Formulation of compounded feed.

Syllabus (10 Hours)

Feed nutrients - Water, Carbohydrates, Proteins, Fat, minerals, vitamins

Ration - Balanced ration, Maintenance and production ration.

Nutrients

Suggested activities - Discussion and chart preparation

Teacher should initiate the discussion by asking questions about important nutrients, their functions and other relevant facts. The ideas should be consolidated and any further information if needed should be supplemented by the teacher.

The students are to be assigned to present the gathered information in the form of a chart.

Pointsfordiscussion

- Importance of
 - Water
 - Protein
 - Lipids
 - Carbohydrates
 - Minerals
 - Vitamins

Ration

Suggested Activities - Discussion and Lecture

A discussion should be initiated by eliciting their previous knowledge about ration. Ask questions about practical consideration while formulation of ration. A lecture should be given on areas of maintenance ration, production ration, ISI specification of compounded feed etc.

Pointsoffdiscussion

- Ration
- Balanced ration
- Practical considerations in making ration
- Concentrate feed mixtures
- ISI specifications for compounded feed.
- Maintenance ration.
- Requirements for pregnancy and lactation.

Formulation of compound feed

Suggested activities - Farm visit and Discussion

A farm visit should be conducted and the students are asked to observe feeding practices followed in the farm. Percentage of inclusion of each component should be noted. The gathered information can be discussed and students are asked to formulate a compounded feed sample.

PointsofDiscussion

- Ingredients
- Percentage of inclusion



CHAPTER - 10**PRINCIPLES OF FEEDING**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none"> • Basic idea about important nutrients 	<ul style="list-style-type: none"> • Importance of water • Protein • Lipids • Carbohydrates • Minerals • Vitamins 	<ul style="list-style-type: none"> • Discussion • Chart preparation • Reference 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Participation in discussion • Evaluation of chart 	2
<ul style="list-style-type: none"> • Ration 	<ul style="list-style-type: none"> • Make an idea about ration, balanced ration • Concentrate feed mixtures • ISI specification for compounded feed 	<ul style="list-style-type: none"> • Discussion • Assignment • Lecture 	<ul style="list-style-type: none"> • Notes preparation • Data collection 	<ul style="list-style-type: none"> • Evaluation of assignment and notes 	3
<ul style="list-style-type: none"> • Understand the idea of maintenance ration and production ration 	<ul style="list-style-type: none"> • Maintenance requirement and extra feed needed for pregnancy and lactation 	<ul style="list-style-type: none"> • Lecture • Calculation of feed requirement 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Evaluation of solved problem 	2

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none">• Formulation of compounded feed	<ul style="list-style-type: none">• Ingredients used• Percentage inclusion of feed ingredients	<ul style="list-style-type: none">• Discussion• Preparation of compounded feed• Feed factory visit	<ul style="list-style-type: none">• Collection of feeding materials	<ul style="list-style-type: none">• Participation• Evaluation of feed prepared• Visit report	3

FEEDING MATERIALS

Introduction

Livestock feeds are generally classified according to the amount of a specific nutrient they furnish in the ration. Different feeds differ mostly in the amount of digestible materials such as Crude proteins (CP) and Total digestible nutrients (TDN). The number of substances used as feeding stuff to different species of livestock exceed over 2000 items. This chapter aims at developing a basis for understanding the various feeding materials given to livestock. In addition to that the chapter also focuses the various methods involved in the preservation of fodders. This chapter is meant to encourage the students to collect various feed stuffs and formulate compounded rations for different species of livestock.

Curriculum Objectives

- Classification of different feeds
- Comparison of quality of different feeds
- Idea about method of preservation of feed stuffs.

Syllabus (10 Hours)

Classification of feeds as roughages and concentrates.

Roughages - Green fodder, Hay, straw, silage.

Concentrates - Cakes, Grains, By products, Tapioca.

Feeds

Suggested activities - Farm visit, discussion, Seminar, Collection of samples

A farm visit should be conducted and students are asked to observe different feeding practicses followed in the farm. They are asked to collect samples of different feeds. They should also interact with farmers in the surrounding localities and collect the relevant datas. A discussion should be arranged and consolidate the information .

Students are divided into 2 groups and are given seminar topics like. (1) Roughages (2) concentrates. After the seminar teacher should furnish additional information needed (Students can acquire additional information from reference books)

Points for discussion

- Different feeds - Roughages, concentrates
- Roughages - Green leaves, fodder, straw, tuber crops
- Concentrates - Cakes, animal protein

Quality of feed stuffs

Suggested Activities - Lecturer, Chart preparation

The teacher should give basic idea about DCP and TDN. Then the students are asked to collect DCP and TDN values of different feed stuffs from various references and the collected data should be consolidated in the form of a chart.

Points for discussion

- DCP
- TDN

Preservation of feed stuffs

Suggested activities - Farm visit, Specimen collection, Discussion, Assignment

A farm visit can be arranged where the facility of silos are available . Students are asked to observe different preservation methods followed in the farm. They should also be asked to collect specimens of these preserved feed stuffs. A discussion can be conducted and ideas are consolidated .Any further information needed should be provided by the teacher. The students are assigned to prepare a report on farm visit based on all these information.

Points for Discussion

- Silage making - Types of silos
- Hay
- Straw



CHAPTER - 11

FEEDING MATERIALS

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> • Classification of different feeds 	<ul style="list-style-type: none"> • Different feeds (roughage and concentrate) for animals 	<ul style="list-style-type: none"> • Chart preparation 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Analysis of chart 	1
<ul style="list-style-type: none"> • Roughages 	<ul style="list-style-type: none"> • Green leaves fodder • Straw • Tuber crops 	<ul style="list-style-type: none"> • Seminar 	<ul style="list-style-type: none"> • Feed stuffs 	<ul style="list-style-type: none"> • Seminar report 	2
<ul style="list-style-type: none"> • Concentrates 	<ul style="list-style-type: none"> • Cakes • Animal protien 	<ul style="list-style-type: none"> • Collection of samples • Farm visit • discussion 	<ul style="list-style-type: none"> • Feed stuffs 	<ul style="list-style-type: none"> • Participation in discussion 	3
<ul style="list-style-type: none"> • Comparison of quality of different feeds 	<ul style="list-style-type: none"> • Basic idea about DCP and TDN 	<ul style="list-style-type: none"> • Table preparation 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Analysis of the table 	1
<ul style="list-style-type: none"> • Idea about method of preseervation of feed stuffs 	<ul style="list-style-type: none"> • Silage • Hay • Straw 	<ul style="list-style-type: none"> • Farm visit • specimen collection • Assignment 	<ul style="list-style-type: none"> • Feed specimen 	<ul style="list-style-type: none"> • Report of visit • Analysis of the assignment and specimens 	3

SYSTEMS OF BREEDING

Introduction

The performance of a genetically inferior animal cannot be improved even if the best care and management is provided. Improving the genetic merits of livestock population is important at all levels of management. A sound breeding programme is a necessary part of the total animal production system. This chapter also deals with the selective breeding and traits of economic importance in farm animals.

Curriculum Objectives

- To get an idea about the selection based on phenotypic and genotypic characters.
- To get an idea about traits of economic importance.
- Understand the different systems of breeding.

Syllabus (9 Hours)

Selection methods - inbreeding, out breeding for cattle and poultry, grading up, systems of breeding.

Selection

Suggested activities -Discussion

The students have previous knowledge about phenotype and genotype. The teacher can introduce the topic by asking question related to the subject and a discussion can be initiated . Feed back from the students are collected . The teacher can consolidate the ideas by adding necessary points.

Points for discussion

- Phenotype, Genotype.
- Selection based on phenotypic and genotypic characters.

Traits of economic importance

Suggested activities - Brain storming and discussion

A brain storming session can be conducted by asking questions about the important economic traits in cattle and poultry. The opinion from the students are consolidated and additional information can be furnished by the teacher.

Points for discussion

- Production traits - Milk, Yield, fat percentage, Egg production etc.
- Reproduction traits - Birth weight, age of puberty, Age of first calving, Hatchability, Fertility etc.

Systems of breeding

Suggested activities - Lecture and preparation of notes

Teacher should give a lecture on different systems of breeding. Ask the students to refer to relevant books, journals etc and prepare notes on the subject.

Points of Discussion

- Random mating
- Inbreeding
- Out breeding - Out crossing, Cross breeding, Species hybridisation
- Grading up



CHAPTER - 12**SYSTEMS OF BREEDING**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none">• Basic idea about phenotype and genotype	<ul style="list-style-type: none">• Genetic factors and physical appearance	<ul style="list-style-type: none">• Lecture			1
<ul style="list-style-type: none">• Traits of economic importance	<ul style="list-style-type: none">• Production traits• Reproduction traits	<ul style="list-style-type: none">• Discussion• Preparation of notes	<ul style="list-style-type: none">• Reference books	<ul style="list-style-type: none">• Acquired concepts	2
<ul style="list-style-type: none">• Different selection methods and mating systems	<ul style="list-style-type: none">• Inbreeding• Out breeding• Grading up	<ul style="list-style-type: none">• Lecture• Discussion• Brainstorming		<ul style="list-style-type: none">• Acquired concepts• Participation in discussion	3
<ul style="list-style-type: none">• Advantages and disadvantages of mating systems	<ul style="list-style-type: none">• Comparison of inbreeding and out breeding• Improvement of indigenous cattle	<ul style="list-style-type: none">• Lecture• Discussion		<ul style="list-style-type: none">• Acquired concepts	3

MANURE

Introduction

Animal excreta and other waste materials from the farm are mainly utilized as manure. If they are not properly maintained, the excreta and waste can cause environmental pollution and other health hazards. So it is very necessary that the excreta should be processed in the most effective way to produce manure. After this chapter, the students will get an idea about the utilization of excreta to produce biogas and the importance of biogas production.

Curriculum Objectives

- Understand collection storage and disposal of manure.
- Understand manurial value of each manure.
- To get an idea about biogas plant.

Syllabus (3Hours)

Cattle and poultry manure, collection, storage and disposal, manurial value - biogas and slurry.

Manure and Biogas

Suggested activities -Farm visit, Discussion

A farm visit should be arranged to enable the students to understand collection, disposal and storage of manure. Make sure that the farm has a functional biogas plant. A class can be arranged in the farm to explain the functioning of biogas plant. Ask the students to draw a diagram of biogas plant based on the idea they have gained.

Points of Discussion

- Manure - Collection, disposal and storage
- Manurial value
- Functioning of biogas plant
- Composition of biogas



CHAPTER - 13**MANURE**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none">• Collection, storage and disposal of manure	<ul style="list-style-type: none">• Hygienic rearing of animals	<ul style="list-style-type: none">• Discussion		<ul style="list-style-type: none">• Participation in discussion	1
<ul style="list-style-type: none">• Manurial value of each manure	<ul style="list-style-type: none">• Percentage inclusion of nitrogen, phosphorus, potassium etc	<ul style="list-style-type: none">• Discussion• Preparation of notes	<ul style="list-style-type: none">• Reference books	<ul style="list-style-type: none">• Participation	1
<ul style="list-style-type: none">• Biogas plant	<ul style="list-style-type: none">• Uses of biogas• Functioning of a biogas plant	<ul style="list-style-type: none">• Visit to a nearby biogas plant		<ul style="list-style-type: none">• Visit report	1

REARING OF GOATS

Introduction

The goat was the earliest ruminant domesticated around 9000 - 7000 BC. It provides milk, meat, hides, fibre and manure. Most goats are maintained in small holder situation integrated with crop farming. However they are large flocks maintained under large nomadic system. The goat is considered as poor mans cow and can thrive in any adverse condition. This chapter gives an over all idea about the care and management of different categories of goats. It also helps in creating confidence in the students to take up this as a self employment measure.

Curriculum Objectives

- To acquire basic knowledge about goat rearing.
- To get an idea about care and management of different categories of goats.
- Understand the selection procedure for goat breeding.
- To get an idea about breeding of goats.

Syllabus (4 Hours)

Basic knowledge about rearing goats.

Goat rearing

Suggested activities -Farm visit, Picture collection, CD Demonstration

Students may be asked to collect pictures of different patterns of housing and different systems of rearing. With the help of these pictures, they can compare the different systems of rearing and find out the merits and demerits of each system.

The above gained knowledge can be consolidated by conducting a farm visit. During this visit, the housing method, types of feeds, feeding and watering patterns can be shown to them. Students should be asked to measure the dimensions of different sheds and their components.

A CD demonstration can be conducted in the school to consolidate the important points like patterns of housing, types of rearing, important breeds, feeding etc.

Points for discussion

- Systems of goat rearing
 - Extensive system
 - Intensive system
 - Semi intensive system
 - Integration with cropping system
 - Teathering system
- Housing
- Feeding
 - Roughage, Concentrate
- Feeding regimen of different age groups

Care and Management

Suggested activities - Farm visit, Discussion, Chart Preparation

Students have already gained basic knowledge about the care and management of bucks, does, pregnant does lactating does and kids, from the farm visit and CD demonstration. Based on this a discussion can be initiated on the subject and feed back from the students can be collected. The students may be asked to collect additional information by referring relevant books, journals periodicals and dailies.

The students can prepare charts on the feeding regimen of different categories of goats from the information they have gathered.

Points for discussion

- Care and management of bucks, does, lactating does, pregnant does, kids and new born kids.

Selection for breeding

Suggested Activities - Discussion, Observation of physical characters and performance

The students should be allowed to express their opinions on the various aspects to be considered while selecting goats. In the end, the teacher can consolidate all the relevant information and supplement additional points if necessary.

Students should be given opportunity to observe the physical characters and performance of different animals and to select the best among them. This can be done along with the farm visit.

Points for Discussion

- Selection based on physical appearance and performance

Breeding of Goats

Suggested Activities- Discussion and demonstration

A discussion is initiated in the class on signs of heat and the methods of insemination.

The method of semen collection, dilution and artificial insemination can be demonstrated in a field visit.

Points for Discussion

- Signs of heat
- Natural service
- Artificial insemination

Additional information

- Broiler goats - Boer goats



CHAPTER - 14**REARING OF GOATS**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none">• Introduction to goat rearing	<ul style="list-style-type: none">• Systems of rearing• Feeding	<ul style="list-style-type: none">• Picture collection• Visual media• Discussion	<ul style="list-style-type: none">• CD, Magazines• Reference books	<ul style="list-style-type: none">• Participataion in discussion• Acquired concepts	1
<ul style="list-style-type: none">• Care and management of different age groups of goats	<ul style="list-style-type: none">• Bucks• Does• Pregnant does• Kids, lactating does	<ul style="list-style-type: none">• Farmvisit• discussion• Chart preparation		<ul style="list-style-type: none">• Visit report	2
<ul style="list-style-type: none">• Selection of goats	<ul style="list-style-type: none">• Dairy goats• Meat goats• Breeding	<ul style="list-style-type: none">• Discussion• Demonstration	<ul style="list-style-type: none">• Reference books	<ul style="list-style-type: none">• Participation in discussion• Report	1

REARING OF PIGS

Introduction

Before the introduction of five year plans, except for some sporadic import of few superior quality pigs of exotic breeds, no concrete measures were taken to improve pig production direction in the country. At present there are no Indian breeds of pigs. The majority of pigs in our country are either exotic or upgraded stock of pigs.

Pig products such as pork, bacon, ham, sausages, lard etc are increasingly in demand both for local consumption and for export. Throughout the world the secondary consideration of pig farming is the production of pig skin, bristles and manure.

Curriculum Objectives

- To acquire basic knowledge about swine rearing.
- To get an idea about care and management of different categories of pigs
- Understand composition of ration for different categories of pigs.

Syllabus (5Hours)

Basic knowledge about rearing swine.

Swine rearing

Suggested activities -Group discussion, Brainstorming, chart preparation

Students can be divided into 4 groups and are allowed to discuss about the advantages and disadvantages of pig rearing.

The teacher should consolidate the relevant points obtained from each group and supplement additional points.

A brainstorming session based on the common technical terms relating to swine should be conducted and a chart should be prepared from the information gathered.

Points for discussion

- Advantages of swine production
 - Efficient producers of human food
 - Utilization of waste products

High prolificacy
High dressing percentage
Dung as manure
Valuable byproducts
Minimum labour requirement

- Disadvantages
 - Religious taboos
 - Require good and shoeing housing
 - Cannot be reared outdoors
- Common Technical terms

Care and Management

Suggested Activities - Farm visit, Data collection, CD demonstration, picture collection

A farm visit should be conducted and the students should be allowed to gather information on various aspects of care and management of different categories of pigs like housing , feeding, cleaning the sheds etc. Students should be asked to measure different sheds and their components.

A CD Demonstration can be conducted in the school to consolidate the important points like patterns of housing, types of rearing important breeds, feeding etc.

Students should be asked to collect pictures and relevant data about the management of different categories of pigs from periodicals, dailies, reference books and journals.

PointsforDiscussion

- General guidelines to be adopted in management pigs.
- Care and management of boars, gilts and sows, pregnant sows, growing and finishing pigs and piglets.

Feeding of Pigs

Suggested Activities - Collection of feed materials , Preparation of compounded feed

The students are asked to collect materials used for making compounded feed.

During the farm visit they are given opportunity to observe the preparation of compounded feed for different categories of pigs. The students are asked to collect information regarding the feeding of pigs and amount of feed given to each category of pig.

PointsforDiscussion

- Feeding materials - Maize, Tapioca, Groundnut cake, Wheat bran, rice bran etc.
- Feeding regimen for different categories of pigs.



CHAPTER - 15

REARING OF PIGS

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none"> • Introduction to swine production 	<ul style="list-style-type: none"> • Common terms • Advantages and disadvantages 	<ul style="list-style-type: none"> • Discussion • Chart preparation • Brainstorming 	<ul style="list-style-type: none"> • Visual media • Reference books 	<ul style="list-style-type: none"> • Participation in discussion • Chart 	1
<ul style="list-style-type: none"> • Care and management of different age group of pigs 	<ul style="list-style-type: none"> • Boars • Gilts and sows • farrowing • Growing and finishing pigs 	<ul style="list-style-type: none"> • Farm visit • Data collection • Picture collection 	<ul style="list-style-type: none"> • Visual media • Reference books 	<ul style="list-style-type: none"> • Acquired concepts • Data • Pictures 	2
<ul style="list-style-type: none"> • Idea about ration for pigs of different categories 	<ul style="list-style-type: none"> • Ingredients of ration at different stages 	<ul style="list-style-type: none"> • Feed sample collection • Formulation of ration 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Analysis of notes and samples 	1
<ul style="list-style-type: none"> • Idea about Main sources of good quality pigs 	<ul style="list-style-type: none"> • Important pig breeding farms in and out side Kerala 	<ul style="list-style-type: none"> • Farm visit 		<ul style="list-style-type: none"> • Visit report • Analysis of notes 	1

RABBIT REARING

Introduction

Rabbits are small running animals with relatively short legs, which give birth to blind, naked young kits. Rabbit meat is white in colour, low in fat and cholesterol and source of omega- 3 fatty acid. Rabbits also provide useful wool (fur), manure, toys and novelties. Rabbit is a pet animal which produce meat, 10 to 15 times its own weight in a year through progenies.

This chapter mainly deals with the purpose of rearing rabbits and management aspects of different categories of rabbits. The students are asked to collect photographs of different exotic breeds of rabbits and they become aware of the distinguishing characters of each breed. This chapter also gives emphasis on broiler potential and meat quality of rabbits which helps to create interest in rabbit rearing

Curriculum Objectives

- To acquire basic knowledge about rearing rabbits.
- To get an idea about care and management of rabbit.
- Purpose of rearing rabbits.

Syllabus (3Hours)

Basic knowledge of rearing rabbits.

Rearing Rabbits

Suggested activities -Farm visit, Picture collection discussion

The students are asked to collect photographs of different breeds of rabbits from periodicals and dailies. Based on the photograph they are asked to identify the character of each breed.

The above gained knowledge can be consolidated by conducting a farm visit. During the farm visit, the housing methods, types of breeds and feeding pattern can be shown to them. Students may be asked to measure the dimensions of different types of cages.

Points for discussion

- Breeds - Local non descript, Newzealand white, grey giant, Soviet Chinchilla, Flemish giant, Angora white giant
- Housing - Cage System, Back yard system.
- Feeding - Types of Feed.
 - Roughage - Leguminous, non leguminous and vegetables.
 - Concentrates - Bengal gram, Ground nut cake, Soyabean meal etc.

Purpose of rearing

Suggested Activities - Brain storming and discussion

Based on the knowledge obtained from farm visit, a brain storming session should be conducted in the class, on purpose of rearing rabbits.

Following this , a discussion is conducted and the additional points should be supplemented by teacher.

Points for discussion

- Laboratory animal
- Pet
- Meat purpose
- As a wool and fur animal
- Broiler potential of rabbits
 - Low initial cost
 - Ease to handle
 - High prolificacy and short gestation length
 - fast growth rate
 - High forage utilization
 - High adaptability
 - Scope for cottage fur skin industry
- Limitations of rabbit rearing

Care and Management

Suggested Activities - farm visit, discussion, slaughter house visit

Students have already acquired basic knowledge about the care and management of bucks, does, and kits during their farm visit. Based on this, a discussion should be conducted in the class and feed back from the students is collected. Additional information if any, may be supplemented by the teacher, or the students may be asked to refer to the subject.

A slaughter house visit can be arranged to acquire idea about the slaughtering technique of rabbits.

Points for discussion

- Care and management of bucks, pregnant does, kits
- Slaughtering of rabbits
 - Stunning
 - Bleeding
 - Flaying
 - Evisceration
- Preservation of fur skin

Additional information

- Handling of rabbits
- Sources of good quality rabbits



CHAPTER - 16**RABBIT REARING**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Period
<ul style="list-style-type: none"> • Basic knowledge of rearing of rabbits 	<ul style="list-style-type: none"> • Uses of rabbits • Breeds • Housing • Feeding 	<ul style="list-style-type: none"> • Farmvisit • Picture collection • Brainstorming 	<ul style="list-style-type: none"> • Visual media • Magazines 	<ul style="list-style-type: none"> • Visit report • Pictures 	2
<ul style="list-style-type: none"> • Care and management 	<ul style="list-style-type: none"> • Pregnant doe • Kits • Slaughtering 	<ul style="list-style-type: none"> • Slaughter house visit • Discussion 	<ul style="list-style-type: none"> • Reference books 	<ul style="list-style-type: none"> • Visit report • Participation in discussion 	1

REARING OF POULTRY

Introduction

The term poultry applies to a rather wide variety of birds of several species and it refers to them whether they are alive or dressed. The term applies to chicken, turkeys, ducks, goose, swans, guinea fowl, pigeons, pea fowl, ostriches, pheasants, quail and other game breeds.

This chapter gives an insight about care and management of different categories of poultry. This will help to generate interest in rearing of poultry and may help the students in future to take up this as a means of earning livelihood.

Curriculum Objectives

- To acquire basic knowledge about rearing chicken.
- To get an idea about collection, composition and incubation of eggs.
- To create an awareness on brooding and rearing of chicken.
- To get an idea on care and management of different categories of chicken.
- To acquire basic knowledge about rearing ducks.
- To acquire basic knowledge about turkey.
- To acquire basic knowledge about rearing of quails.

Syllabus (10Hours)

Basic knowledge about rearing poultry.

Rearing of Chicken

Suggested activities -Farm visit, Picture collection, CD demonstration and Brainstorming

Students should be asked to collect pictures of different systems of rearing from periodicals, dailies etc. With the help of these pictures and other relevant information collected from various sources like reference books, periodicals etc, they can compare different systems of rearing and after the farm visit they could compare it with the intensive system.

A farm visit should be arranged to observe cage system and deep litter system of rearing. The students may be aware of the common backyard system

of rearing and after the farm visit they could compare it with the intensive system.

A CD demonstration can be conducted in the school to consolidate the important points like systems of rearing , different breeds, feeding equipments etc.

A brainstorming session can be conducted on the common terms related to chicken and the feed back from the students can be collected . Additional information should be furnished by the teacher.

Points for discussion

- Systems for rearing - free range system, semi intensive, intensive, deeplitter and cage, backyard system
- Common terms related to chicken

Collection, composition and incubation of eggs

Suggested Activities -Farm visit, Seminar, Hatchery visit, CD demonstration

The students should observe collection of eggs during farm visit. They should be given opportunity to observe the internal qualities of egg by candling.

They should be asked to refer relevant books and find out the composition of eggs and present it on a chart.

A hatchery visit should be arranged to familiarize with various stages of incubation of eggs. The students may be already aware of the natural incubation of eggs by broody hen and they can compare it with artificial incubation.

Points for discussion

- Collection of eggs
- Candling of eggs
- Compositions of eggs
- Incubation of eggs - natural and artificial

Brooding and rearing of chicks

Suggested Activities - Lecture, Hatchery visit

A lecture on the brooding and rearing of chicks can be done by an expert during the hatchery visit.

The students should be allowed to observe and understand the equipments for brooding and the techniques of brooding and rearing.

Points for Discussion

- Brooding - Natural and artificial
- Artificial - floor brooding, Battery brooding
- Rearing of chicks - Vaccination, deworming, debeaking, dubbing

Case and Management

Suggested Activities - Farm visit, CD demonstration and discussion

Students have already gained basic information about the care and management of the different categories of birds from the farm visit and CD demonstration. Based on this, a discussion can be initiated on the subject and feed back from the students can be collected. The students may be asked to collect additional information by referring to relevant books, journals, periodicals and dailies.

Additional Information

- Care and management of
 - Growers
 - Layers
 - Broilers
- Summer management

Rearing of Ducks

Suggested activities- CD demonstration, farm visit, discussion

A CD demonstration can be conducted in the school to make the students aware of the care and management of different categories of ducks, hatchery operations, health care etc.

The ideas obtained from the CD demonstration can be consolidated in the discussion.

If possible a visit can be arranged to a duck farm and the above mentioned activities can be observed.

Points for discussion

- Breeds of duck - Muscovy, White Pekin, Aylesburry, Indian runner, Khaki Campbell
- Care and management of ducklings, growing ducks, laying ducks, breeders.
- Incubation of duck eggs
- Health care

Rearing of turkey

Suggested Activities - CD demonstration, farm visit, discussion

A CD demonstration can be conducted in the school to make the students aware of the care and management of different categories of Turkeys, hatchery operations, health care etc.

The ideas obtained from CD demonstration can be consolidated in the discussion.

If possible a visit can be arranged to a turkey farm and the above mentioned activities can be observed.

Points for discussion

- Common terms
 - Large type turkey
 - Small type turkey
 - Broad breasted turkey
 - Fryer roaster (Broiler)
 - Young tom turkey
 - Young hen turkey
 - Poult
 - Yearling tom/hen turkey
- Varieties of turkey
 - Bronze, White Holland, Black, Slate, Red, Small White, Large white
- Care and management of breeding stock, poult, young turkeys etc.
- Incubation of turkey eggs and broodings - natural and artificial
- Health care - vaccination, debeaking wing clipping and feeding

Rearing of Japanese quail

Suggested Activities - CD demonstration, farm visit, discussion

A CD demonstration can be conducted in the school to make the students aware of the care management of different categories of Japanese quails, care of hatching eggs, health care, feeding etc.

The ideas obtained from the CD demonstration can be consolidated in the discussion

If possible, a farm visit can be arranged to a quail farm and the above mentioned activities can be observed.

Points for discussion

- Care and management of different categories of quails.
- Care of hatching eggs.
- Incubation of quail eggs.

Additional information

- Structure of egg
- Vaccination schedule
- Sources of good quality poultry varieties.



CHAPTER - 17**REARING OF POULTRY**

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none">Review of classification of poultry	<ul style="list-style-type: none">Four geographical classes poultry Breeds included	<ul style="list-style-type: none">Collection of picturesChart preparationFarm visitCD demonstrationSeminar	<ul style="list-style-type: none">Reference booksMagazinesInternet	<ul style="list-style-type: none">PicturesChartSeminar reportVisit report	1
<ul style="list-style-type: none">Systems of poultry keeping	<ul style="list-style-type: none">FreerangeSemi intensiveIntensive	<ul style="list-style-type: none">DiscussionFarmvisit	<ul style="list-style-type: none">Reference books	<ul style="list-style-type: none">Participation in discussion	1
<ul style="list-style-type: none">Collection, composition and incubation of eggs	<ul style="list-style-type: none">Natural and artificialIncubation	<ul style="list-style-type: none">FarmvisitSeminar	<ul style="list-style-type: none">Reference books	<ul style="list-style-type: none">Participation in seminarVisit report	2
<ul style="list-style-type: none">Rearing of chicks	<ul style="list-style-type: none">Natural and artificial broodingManagement of chicks	<ul style="list-style-type: none">LectureHatchery visit		<ul style="list-style-type: none">Acquired conceptsVisit report	2

Curriculum Objectives	Ideas/ Concepts	Activities	Materials	Evaluation	Hours
<ul style="list-style-type: none"> Rearing of different age groups of birds 	<ul style="list-style-type: none"> Grows Layers Broilers Farm records 	<ul style="list-style-type: none"> Farm visit Discussion 	<ul style="list-style-type: none"> Reference books 	<ul style="list-style-type: none"> Acquired concepts 	1
<ul style="list-style-type: none"> Idea about rearing of ducks 	<ul style="list-style-type: none"> Care and management of ducklings, growers, laying ducks, Breeders and incubation of duck eggs 	<ul style="list-style-type: none"> Demonstraton Farmvisit Discussion 	<ul style="list-style-type: none"> Collected datas 	<ul style="list-style-type: none"> Survey report 	1
<ul style="list-style-type: none"> Rearing of turkey and Japanese quail 	<ul style="list-style-type: none"> Varities Care and management Importance of quail egg and meat 	<ul style="list-style-type: none"> Farmvisit Assignment Picture collection 	<ul style="list-style-type: none"> Reference books Magazines 	<ul style="list-style-type: none"> Evaluation of assignment 	2

SAMPLE QUESTIONS FOR EVALUATION

1. A poor farmer approaches you for getting advice to construct a cattle shed. How will you help him?
2. "Prevention is better than cure" - comment?
3. A survey of your locality revealed that "mastitis" is the most prevalent disease. What may be the reasons and measures to prevent this?
4. You are assigned to put identification marks on a group of cattle. Which method would you adopt? Give reasons?
5. A farmer brings his cow for selling in the market. He claims it is to be 5 years old. How will you prove it?
6. A farmer complaints of kicking by the animal at the time of milking. What measures will you suggest to prevent it?
7. A calf in your house is showing the habit of eating soil. What other associated symptoms can be noticed. Suggest the causes and remedial measures?
8. A new born calf is weaned on the first day itself .After one week the same calf dies. What may be the reasons?
9. A farm survey shows reduction in variability among progenics . Comment on it.
- 10 Goat is known as poor man's cow" comment on it.

SUGGESTED ASSIGNMENTS

- 1 Chart preparation on body parts of cattle and poultry.
2. Chart preparation on characters of each breed.
3. Collage preparation, after collecting pictures of breeds of cattle, poultry, goat, sheep, pig and buffalo.
- 4 Seminar on
 - a) Breeds of buffalo, goat, sheep, pig, poultry
5. Flash card - Pictorials of identification methods
6. Chart preparation on pattern of eruption and wearing of teeth at different eggs
- 7 Model preparation - Different rearing systems
8. Poster - Different rearing systems
9. Seminar - Different rearing systems
10. Chart preparation - Lay out of model cattle shed
11. Charts preparation - Diagram of reproduction and digestive system of cattle
12. Seminar - Management of new born calf
13. Chart preparation - On normal values of different species of animals
14. Chart preparation - Gestation period, span of life, birth weight, age at puberty of different species of animals
15. Chart preparation - Importance of different nutrients
16. Seminar on roughages and concentrates
17. Collection of different feed samples
- 18 Chart preparation - DCP and TDN values of different feed stuffs
- 19 Collection of preserved feed stuffs.
20. Chart preparation - Signs of health
21. Collection of picture - Different disease conditions

- 22. Seminar - Diseases of animals
- 23. Poster - Prevention and control of diseases
- 24. Survey - Prevalence of diseases in different areas
- 25. Chart preparation - Diagram of Bio gas plant
- 26. Picture collection - Breeds of animals
- 27. Chart preparation - Feeding regimen of different categories of goat, pig
- 28. Picture collection on care and management of goats, pigs, rabbits, poultry.
- 29. Seminar - Incubation of eggs
- 30. Chart preparation - Composition of eggs



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