Teachers Sourcebook

VOCATIONAL HIGHER SECONDARY

LIVESTOCK MANAGEMENT

(POULTRY HUSBANDRY)

SECOND YEAR

Government of Kerala
Department of Education
SCERT
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Livestock Management

(Poultry Husbandry)

Second Year

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Dear Teachers,

This Teacher's Sourcebook on **Livestock Management (Poultry Husbandry)** introduces the teacher to the main principles and practices of the revised pedagogy which is activity-based, process-oriented and learner-centered.

The realisation that learning is not mere storing information in memory and that real learning is construction of knowledge through observation, comparison, classification and analysis has led us to give a new thrust to the teaching-learning process at Vocational Higher Secondary level to make it more meaningful and learner-friendly.

This sourcebook has been developed primarily for the benefit of teachers who teach **Livestock Management (Poultry Husbandry)** at Vocational Higher Secondary level. The subject matter has been dealt with utmost care, in tune with the revised curriculum and pedagogic principles. It is hoped that this book will enable the teacher to provide suitable learning activities for effective learning.

The success of the approach depends upon the vision and commitment of the teacher. They are expected to make use of this sourcebook at all stages of their teaching process. It is also expected that the teacher would seek help and guidance from other sources like libraries and websites.

Hope that this sourcebook will help the teacher to develop the skills and experience required for effective classroom transaction.

Creative criticism and suggestions for improvement are most welcome.

With regards,

Thiruvananthapuram,
July, 2006

Dr. E Valsala Kumar
Director
SCERT, Kerala

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PART I

GENERAL APPROACH

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 work has determined the destiny, progress and cultural development of the human race. As we all are aware, the objective of education is 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 utilize 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 need for meaningful linkages between the world of work and world of education is well recognized. The essence of the recommendations made by various commissions and committees is that the vocationalisation should be the main feature of the future system of education at the higher secondary stage, it can be extended to school level also.

Vocational education is system of education which intends to prepare students for identified occupations , opening several areas of activities.

The Vocational Higher Secondary course 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 unemployment. This

education system, which ensures a job along with higher education stands aloof from other systems of education.

This education imparts the life skills required by the youth to enter the world of work and assuming the responsibilities of adulthood. As per the expert meeting report (2001) of UNESCO, the life skills are grouped under 4 categories. They are

1. skills for personal fulfillment
2. skills for living in society
3. skills for dealing with changing economies
4. skills for dealing with changing work patterns.

Vocational Education ensures fulfillment of manpower requirement or national development and for social security for the citizens through self-employment. It also helps to reduce the migration of rural youth to urban areas and thus helps in rural development.

The learners of Vocational Education get an opportunity to avail one year apprenticeship training in industries to improve their practical skill. During the course of study, on the job training (OJT) for 10 days in a year is arranged to improve the skill and efficiency of the learner. This education system motivates the attitude towards self –employment through Production Cum Service Training Centres. (PSTC)

OBJECTIVES OF VOCATIONAL EDUCATION

The National policy on education has accorded very high priority to the program of vocationalisation of education, considering the following objectives.

1. To fulfill national goals of development and the removal of unemployment and poverty.
2. To impart education relevant to increased production and productivity, economic development and individual prosperity.
3. To make available skilled work force at all levels to alleviate the rural unemployment and for the development of nation.

4. To develop environmental awareness to ensure sustainable development.
5. To develop vocational aptitude, work culture, values and attitudes of the learners so as to enrich the productivity of the nation.
6. To develop entrepreneurial competencies and skills of learners for self reliance and to undertake gainful self employment.
7. To facilitate the expansion of higher education and explore future opportunities through innovative guidance and programmes.
8. To develop vocational competencies, creative thinking in the related areas and facilitate training.
9. To create awareness on mental, physical and social health.
10. To acquire awareness about different job areas and to provide background for acquiring higher level training in subjects concerned.

LEARNING

Learning is construction of knowledge through a continuous mental process. It is an advancement through adding and correcting in the light of comparing the new issue with the previously learned concepts. It is an intellectual process rather than the mere memorization of facts. Learning is a conglomeration of a variety of activities like problem solving, finding out co-rrelations, prediction, arriving at conclusions, rational as well as critical thinking, finding 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 against the encroachment of sectarianism of caste and religion.

The learner should become cognisant of the implications of privatisation, liberalisation, globalisation etc.

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.

A basic awareness of all the subjects needed for life is 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 recognized 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 existential, intrapersonal and interpersonal intelligence.

The basis of new approaches on curriculum and teaching- learning process are derived from the developments tookplace 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 that they have

- Great curiosity
- Good imagination
- Numerous other qualities and interests
- Independent individuality
- Interest in free thinking and working In a fearless atmosphere.

- Interest in enquiring and questioning.
- Ability to reach conclusions after logical thinking.
- Ability for manifest arid 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 analyze 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 recognize and control the variables
- To raise questions
- To generalize
- To form a hypothesis and check.

- To conclude
- To communicate
- To predict arid infer
- To use tools.

Observation is the process of acquiring knowledge through the senses. It is purely objective oriented. Learning experiences which provide the use of 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 modem 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 branch 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 leads to the renewal of cognitive structure. It is through this process construction of new knowledge, the assimilation of them takes 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 concepts.

Learning is a live mental process. Rather than the ability for memorization of facts cognitive process has to be given emphasis. The process of problem analysis, elucidation, critical thinking, rational thinking, finding out correlation, 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 the learner regarding the learning process.

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

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

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 cautious 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 there 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, peers and elders. Even though some of them can fulfill the learning activity by themselves there is the possibility of a higher excellence. If appropriate help is provided 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 - An active mental process

Learning being a cognitive process, the teacher needs to know cognitive processes to facilitate the creation of learning opportunities. Learning can be made effective by providing learning experiences involving mental processes like

- Retrieves/recollects/retells information
- Readily makes connections to new information based on past experiences and formulates initial ideas /concepts.
- Detects similarities and differences
- Classifies/categories/organizes information approximately.
- Translates/transfer knowledge or understanding and applies them in a new situation.
- Establishes cause-effect relationships
- Makes connections/relates prior knowledge to new information/applies reasoning and draw inferences
- Communicates knowledge/understanding through different media.
- Imagines/fantasies/designs/predicts based on received information
- Judges /appraises/evaluates the merits or demerits of an idea/develops own solutions to a problem.

9. Intrinsic Motivation

Intrinsic motivation is given more importance than extrinsic motivation. The teacher has to arouse the internal motivation of the learner. A person internally motivated alone can immerse in learning and own its responsibility.

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 documents 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 to 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, explaining things, sequential and arithmetical calculations etc. are capable of developing this area of intelligence.

3. Visual/spatial Intelligence

In those who are able to visualize 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 modeling 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 recognize the different elements of music in musicians and in those who can here and enjoy songs. Playing musical instruments, imitating 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 or others and carrying on activities like discussion successfully.

7. Intrapersonal Intelligence

This is the ability to understand oneself. These people can recognize their own abilities and disabilities. Writing diaries truthfully and in an analyzing 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 realize the ultimate nature of mental and physical existences, all these are the peculiarities of this faculty of intelligence.

EMOTIONAL QUOTIENT

The concept of emotional intelligence put forward by Daniel Golman is 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.
- Imagining what would be the course of action in some situtations, 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.
- Analyzing 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 solution needs 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 : skills required for-success in life.

- Self awareness
- Empathy
- Inter personal relations

- Communication
- Critical thinking
- Creative thinking
- Decision making
- Problem solving
- Coping with emotion
- Coping 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.

Role of a Teacher

In the earlier approach the teacher was mainly depending on the lecture method for teaching. But in the new method of education the student centered approach is given more importance than the teacher centered approach. Under this changed scenario the teacher has to perform the following roles in the classroom.

The teacher should be

- A facilitator of learning
- A guide to the overall development of the student
- A good observer and motivator
- Able to consider the activities, needs, special features and age group of students at higher secondary level.
- Able to understand the limitations of learner and their learning problems.
- An instructional material developer
- A good communicator
- An innovator
- Able to raise leadership qualities and self confidence of the learner

- An authoritarian in the concerned subject
- Able to arrest and sustain the attention of the learner
- Able to bring out and encourage the inborn talents.
- A resource manger to ensure the optimum utilization of resources.
- A systematic record keeper
- A controller to issue guidance to the students
- A person with high level of practical competency
- Able to correlate area of study with familiar environmental situations
- A self evaluator and good listener
- Able to create awareness in social problems
- A person with democratic and humanitarian approach
- A professionalist as well as philosopher
- A good evaluator
- A good organizer and a friend.
- A co-learner as well as co-researcher
- Able to give assistance and advice in placement needs and self employment by giving moral and technical support
- Able to keep moral values
- A person equipped with skill for using new techniques of learning
- Optimistic and impartial

Child friendly Class Room Atmosphere

Learning can be effective and enjoyable only when the class atmosphere is according to the new conception of learning and the characteristics of higher secondary teacher.

- Class and seating are arranged in an attractive way
- Democratic nature is upheld
- Always active
- Students interact with teachers without fear
- Opportunity for a variety of activities

- Students allowed to involve interesting group activities
- Learning speed, learning style and different levels of attitudes are considered. Help is extended whenever needed.
- Sufficient instructional materials are available
- There is freedom of expression, students share their ideas and experiences
- Students are given acceptance and encouragement
- Healthy atmosphere
- Needs of each student is given consideration. Happy and energetic atmosphere
- Teachers work considering the rights of students
- Prtoblems handled in a patient way
- Teachers work at all events from the students view point

There will be students of various ability levels in any class because learning style, learning speed, varying exposure to language experiences, physical ad psychological problems and varying socio-cultural background.

The learning experiences provided must help to bring the low activities to an expected level and extended the breadth and depth of the skills of the high activities.

By repeating experiences, introducing variations in a learning experience to suit different levels and if needed, formulating additional experiences the problem of varying ability levels can be tackled.

Role of Learner

The learner in second year has undergone a learner centered and process oriented learning experience up to first year. The learner at this age is in awakening stage and he is enthusiastic about environment. He needs recognition and encouragement from environment and also recognize as a grown up man. He is adequately competent to select vocational subjects according to his aptitude and interact and to acquire higher education and profession as he wishes. The aspirations

about future life is framed in this particular age for seeing national and international job opportunities. Some of the peculiar ities of learner at this stage are

- Physical, intellectual and emotional plans have intensive changes during the 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
- Imaging for social recognition

Needs of Learner

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

Role of learner

- Active participant in the learning process
- Act as a researcher
- Sharer of information
- Sharer of responsibilities
- Collect information
- Takes leadership
- Involves in group work

- Act as a co-participant
- Observes his environment
- Experiments and realises
- Make interpretations and draw inferences
- Mould himself in to an active contributor for the welfare of the society

Evaluation

In vocational higher secondary education, a new approach to education and evaluation should be made. Eva luation must be a systematic and continuous process. As the curriculum is based on vocational stream, capacity building is a most important part and it should be evaluated accordingly. The technical skills, interest in the particular field, communication skill, analysis organizing and presentation skills etc have to be evaluated. The personal and social qualities also have to be evaluated. Therefore, evaluation should be transparent, continuous and comprehensive.

Supporting System

In learner centered vocational education, a learning methodology has to be organized and a proper learning atmosphere is to be provided. Many organizations can support the learning activity. They are:-

1. **School Resource Group (SRG)**

   Comprising all teachers (vocational and non voca tional) instructors, and lab assistants with academic head as the group leader.

2. **School Support Group (SSG)**

   Comprising PTA president, members of local bodies, members of social clubs, subject experts etc who can contribute guidance /technology /infrastructure /financial assistance etc.

3. **Parent Teacher Association (PTA)**

Can provide adequate funds for field trips, production cum training centers (PCTC), exhibition, On Job training (OJT) etc.

4. Local bodies

Grama Panchayat, District Panchayat and Block Panchayat can provide infrastructure ie, class rooms, laboratory, library, seminar hall, audiovisual equipments etc.

5. Subject club

All vocational teachers handling same vocational subjects should form a subject club at regional level or district level. This will helps to share the knowledge and practical facilities, production and marketing of materials, service etc.

6. Based on the excellency, district wise nodal schools may be selected to provide facilities like central library, museums, video conferencing etc.

7. Institution Industry Interaction Project (III P)

This should be implemented in every institution to update knowledge this also helps for OJT , PCTC and field visit.

Monitoring system

Education is a sort of journey from darkness to light satisfying the needs and the wants of the individual and the society. The modernization of education through activity oriented system enhances free thinking and working in a fearless atmosphere. It is a qualitative process not a quantitative one. This necessitates a proper monitoring system. The system of monitoring should have the following features.

1) It must be transparent.
2) It must enrich the ideas of the facilitator through innovative process.
3) It must be time bound and rational.
4) It must motive the facilitator to adopt new strategies.
5) It must be recordable and ensure effective feedback for the effective monitoring of the system, three levels of the mechanism should be setup.
    1. School level monitoring group.
    2. Regional level monitoring group.
    3. State level monitoring group

Moreover a social auditing system is advisable to achieve the objective effectively.

FEATURES OF LEARNING PROCESS IN THE NEW SYSTEM OF EDUCATION

In the new system of education the learning process should be modified in such a way as to enable the learner to construct the knowledge of his own through observation, co-operation, problem solving, social interaction etc. The learning process should consider the nature ability, social setup, inborn talents and subject selected by the learner. Therefore the learning process should be:

- A continuous mental process
- Simple learner must feel that he is able to undertake the task
- Enable the learner to attain the curriculum objective
- Interesting
- Suitable to the age and attitude of the learner
- Future possibilities
- Enable group activity
- Challenging
- Time bound
- Constructive and curiosity developing
- Possibilities for evaluation
- Capacity to generate independent thinking
- Ability to enquire discover and establish cause effect relationship between phenomena.

Learning Aids

To make the teaching and learning process simple and effective , certain learning aids and necessary use of such aids for transacting a complex idea make the class room live and students get more and more involved. The advances in science and technology may be effectively utilized for this purpose. Some of the learning aids listed below.

- Multimedia
- Over Head Projector
- Computer
- Internet
- Liquid Crystal display Projector
- TV, VCD, DVD and tape recorders
- Working models
- Charts
- Slides
- Video Conferencing facility
- Library
- Text book
- Source book

Society

The new educational policy uplifts the social commitment of the learner. Therefore the society can also give some valuable contributions in this changing situation. The new system also ensures that the learner can perform certain useful services for the betterment of society. The social obligations can be illustrated as follows.

- To enrich social values, aptitude and ability in learner
- To develop entrepreneurial aptitude and ability which helps social welfare and self employment
- New system of education adopts OJT, PSTC etc is a part of vocational curriculum which helps to make close contact with the society.
- The resources available from our society can be positively utilized to convene seminars, interview etc.
- Social organizations can help learners to make their education socially committed.
- The social clubs like NSS, Tourism Club, CDO Club, Energy Club etc functioning in schools can make direct link with the society.

SUBJECT ASSOCIATED APPROACH PAPER
LIVESTOCK MANAGEMENT
(Poultry Husbandry)

INTRODUCTION

India is basically an agricultural country. More than 50% of Indians depend on livestock farming as their main source of livelihood. Human beings have been using various livestock products 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 fro agricultural industry can also be attained from livestock.

The main aim of this VHSE course on livestock management is to enable the learners to be self-employed. There are a lot of opportunities waiting for the learners who have successfully completed the livestock management course. It is the basic qualification for a job such as livestock assistant/ farm assistants in various veterinary hospitals, livestock farms, diary plants. Diseases diagnostic institutions coming under Kerala Animal Husbandry department, Kerala Agricultural University, Kerala livestock Development Board and 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 poultry husbandry sector.
- To develop a society with self confidence, practical experience and moral value.
- 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 students needs, their expectations and interest. Their participation also should be ensured . For this we can adopt different strategies and 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 student to identify the characteristics of different breeds. This gives an opportunity for the leaner to observe different breeds in their surroundings or they can collect information from different sources like internet and print media. Their observation can be consolidated in to 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, students can be divided in to 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 in to groups and the teacher can ask them to collect different varieties of feeding materials and their characteristics. There 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 influences 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 an awareness about importance of poultry industry
2 To get an idea about nutritive value of poultry products.
3 To familiarise the anatomy and physiology of poultry
4 To make learner aware about breeds and breeding.
5 To create awareness about rearing and housing system of poultry.
6 To get an idea about feeding of poultry.
7 To create an awareness about management of chicks.
8 To understand the management of growers.
9 To get an idea about management of layers.
10 To analyse the management of breeders.
11 To know about different aspects of managing broilers.
12 To understand the importance of table eggs and eggs products.
13 To get acquainted with hatchery operations.
14 To get an idea about common diseases of poultry.
15 To know about the care and management of ducks, turkeys and quails.

LEARNING STRATEGIES

In the modern era of globalization the introduction of new technologies ensure only the survival of the fittest. So it becomes a necessity to equip the leanness to face the growing challenges in the competitive world. Hence the traditional approach to learning is no more relevant in the present context. The teacher should use instructional techniques that motivate the students to construct his own knowledge. Now the learners are not passive listeners, but they are the active participants in the construction of knowledge. Here the teacher – student interaction should be given much importance.

In the new instructional strategy while selecting the methods of teaching, the social and psychological aspects of the learner is to be taken into consideration. The given activities for learning are only suggested ones. It can be altered according to the discretion of the teacher.

To obtain the objectives, the new system of education is introduced in the Vocational Higher Secondary Education for attaining the objectives of the courses in this system, we can adopt the following strategies.

I. Assignment

Assignment is some specific work assigned to the students as a part of their academic enrichment. There are learning activities undertaken as a continuation of class room activities to realize the curriculum objectives to a broader extent . They should be completed in time bound manner. They help to lead learner to higher level of learning from the present status. Challenging assignment can motivate the students to involve in group dynamics and achieve fruitful results. The teachers may at as a guide.

Assignment may be given on individuals or group basis. Assignment includes preparation of notes, preparation of charts, models, collection of materials from institutions etc. Assignments develop skills of reference, observation, enquire reporting etc. It ensures the effective utilization of leisure time of the students.

II. Seminar

Seminar is a learning strategy involving an in-depth analysis of specific topic, preparation of a paper and presentation . The paper is presented by either one student or a group of students. After the presentation, there will be a discussion/ interaction in which all the students can participate . The students get an opportunity to clear their doubts and make clarification. Seminar helps to develop communication skill and overcome stage fright.

Stages

1. **Selection of Topic :** The topic of seminar should be relevant to the subject of study

2. **Assignment of topic to individuals students or team** :The topic may be assigned to one student or to a group of students.

3. **Collection of relevant information :** Information required for seminar can be collected from various sources namely books, magazines, internet, institutions, place and persons.

4. **Preparation of draft paper:** Based on the information collected the student may prepare a draft paper and submit it to the teachers for comments. Revise the draft paper based on the comments of the teachers. The refined draft is submitted for approval.

5. **Program Scheduling:** The date, time and venue of the seminar is fixed. A seminar leader may be selected from the students

6. **Seminar paper presentation:** The student/ students shall present the paper in the seminar. The teacher may function as the moderator during the initial stages.

7. **Discussion / Inte raction:** A number of respondents from the students make comments on the topic. This will be followed by a general discussion. All the group members should actively participate in discussion.

8. **Summing up deliberation:** The moderator sums up the deliberation

9. **Evaluation / Feed back:** Both teachers and students evaluate the programme.

10. **Preparation of final report:** A final seminar report is prepared covering all the additional points discussed and consolidated.

III. Panel Discussion

It is a learning strategy in which a panel of experts are allowed to discuss a specific subject under the control and direction of a moderator. Subjects can be divided according to the number of panel members. Number of panel members are fixed according to subdivision of points in the subject. Relevant materials and handout may be given in advance to the learners. The monitor or moderator introduces the subject of discussion and invites a panel member to start the discussion. Each panel member is invited for discussion afterwards. After briefing by the panel members the questions are raised from the audience and the panel members give suitable answer to them. A report should be submitted by each learner to the moderator.

IV. Project

Project is a self-learning strategy which can exert great influence on the overall development of the learner. Project as learning strategy is to be selected where a problem arises in any part of the curriculum. The students may be divided into groups and assigned different aspects of the problem. Each group works independently .Specific aspects of the problem such as data collection, classification, analysis, report preparation and presentation is to be undertaken by

each of the members. Even though the work is divided among the members, it must be ensured that the execution of each and every activity is done with the active participation of all. After analyzing data collected from different sources, the learner arrives at a conclusion that can help to solve the problem. Thereby learner learns the topic though his own activity. The other advantage of this learning activities is that it helps the learner to scientifically handle any problematic situation. It helps in the development of scientific thinking and thereby builds up the students aptitude for the subject.

Stages of the project

1. Selection of a topic

The project selected should be related to the curriculum and it should not be a project for projects sake. The topic or problem should arise from the curriculum.

2. Planning of the Project :

(A) Hypothesizing: Hypothesizing means making assumptions based on the available primary information.

(B) Methods and Technique : The methods and Technique should be based on the aim and Hypothesizing of the Project. The nature of the project, suitability of the tools, and the methods of learning should be related to each other.

3. Collection and Tabulation of Data

The data may be primary, secondary or tertiary. Either census or sampling method can be used based on the objective of the project. Suitable questionnaires are to be prepared for the collection of primary data.

The collected data is to be classified and tabulated so as to make it easily understandable.

4. Analysis of data and formulation of conclusion

By analyzing the data, the reliability of the hypothesis can be examined. Preparation of graphs and diagrams and maps will positively help the analysis. The

similarities, relations and differences gathered from the analyzed information would tell whether the hypothesis should be accepted or rejected.

5. Preparation of Report

The cover page should have the title of the project, the period of study, name (s) of investigator / group, and the address of the school. The report should be structured in the following order.

1. Title
2. Preface
3. Hypothesis and aim
4. Methodology
5. Sources of data
6. Analysis and conclusion
7. Suggestions (if any)
8. References
9. Appendices (Questionnaire, Observation schedule, check list Etc.)

6. Presentation of the Project

When the project is presented , the learner is being evaluated and accepted. It is through this presentation that ideas are shared with others in the class and society.

The project methods promotes scientific self learning and makes him capable of solving the problem arising in real life situations.

V. Debate

Debate is a hot and interesting learning activities. A debate can be organized only on a topic on which there is difference of opinion. Therefore a topic suitable for debate has to be chosen.

Debate can be on relevant topic that is different and interesting to the students and relevant to society. Students with different opinions have to be identified for discussion. Those who have similar opinion should join together to form a side . Those who hold the opposite view with form the other side. It would be

ideal to write down the topic of the debate and displayed in advance. There should also a person to control debate.

Students should be given opportunity to absorb the ideas obtained from discussion and debate, develop the idea through reading and study, and to express them through writing or other means

Stage of Debate

1. Topic Selection
2. Selection of panels keeping in balance with intelligence, gender etc.
3. Selection of moderator
4. Collection of information guided by the teacher
5. Conducting the debate under the control of moderator by avoiding any sort of personal conflicts
6. Conclusion by the moderator expressing his final version or verdict.

VI. Case Study

A case may be a person, institution or a community case study is an indepth analysis of an actual event or situation. It presents real pictures of situation with facts, objective information or data. Learners analyse the case to interpret, predict and resolve issues associated with it. The case study provides the learner an opportunity to analyse and apply concepts, data and theory taught from the class. Learners can work individually or in groups.

By studying realistic cases in the classroom, students develop new insights into the solution of specific on – the – job problem and also acquire knowledge of the latest concepts and principles used in problem solving.

Case may be presented by the teachers or may be provided in print form.

A simple case study may have the following steps

1. Collection of data
2. Conversion of data into information
3. Analysis of the case in groups

4. Presentation of the finding by each group leader.
5. Evaluation

In addition to the above mentioned learning strategy there are many other learning strategies which can be used in appropriate situations to enrich leaning process such as problem solving, Role play, brain storming, debate etc.

VII. Brain Storming

This is the best method for solving creative problems. It facilitates generation of ideas quickly. Rules for conducting Brain storming.

1. No response is wrong. So welcome every response.
2. Welcome as many responses as possible
3. No criticism is allowed
4. Allow to work on others idea

Steps in Brain storming

1. Presentation of the problem
2. Provide relevant information
3. Record the ideas put forth by the participants
4. Combine similar ideas
5. Evaluate each idea and solution
6. Selection of the best solution

If brainstorming is used as an instruction strategy, the last step is not essential

VIII. Discussion

Discussion is essential for the student to share new finding, idea and conclusion at each stage of learning with fellow students and teachers. In general discussion the teachers should guide the discussion through questioning and summarizing. The major steps involved are

1. Introduction initiated by the teacher
2. Development of discussion by giving lead points and follow up interactions

3. Transaction stage in which the key points are reviewed by the teacher and
4. Summarizing stage in which teacher provides additional support materials to ensure the achievement of the objectives

IX. Group Discussion

Group discussion is an ideal method to develop co-operation, democratic attitude, friendliness and compromising attitude which are the ultimate aims of education. During group discussion the teacher may observe each group and it needed help them to channel the discussion towards the common objectives. All students may be given opportunity to take part and express their ideas within a time limit. The conculsion reached may be entered by each student. A group reprsentive must present this during consolidation in which the teacher may correct or add informations to ensure that all the relevant ideas have been covered

X. Collection

Collection is a continuous learning activity, which ensures complete participation of students. The collected item may be materials, pictures, charts, ideas, data etc. Collection provides direct experience to learn. An exhibition of collected materials will help to strengthen the concept.

XI. Practical works

Experimentation contains the process skill in an integrated way. In the new approach of curriculum the student forms idea and comes to conclusion though process. The term 'Practical ' when associated with a science subject usually means an experiment. The objective of doing an experiment is to explore new ideas though investigation only. Its main purpose is to verify some principles associated with theory. The subjects end here. But this is not the case with 'Vocational Practical'

The ultimate goal of a Vocational Education is to generate skill through continuous practice along with investigation and invention. Continuous practice transforms the unskilled to the skilled. This is the significance and importance of

practical in the Vocational stream. Hence it is very crucial that Vocational teachers as well as instructor should understand the importance of vocational practical and act accordingly.

XII. Quiz

Quiz programmes can be used as an interesting class room tool for transaction of curriculum objectives as well as to evaluate the effectiveness of transaction and achievement of students.

For conducting a quiz programme a topic should be selected based on the above objective

The students are asked to prepare questions based on the topic individually. The next day / next hour the students are grouped into 3-4 groups randomly. A question is rised by a particular team and the other teams to answer them if they can answer the question they get points for that if all other teams fail to answer the question raised by the 1St team the 1st team answer the question and explain the background if necessary. All the teams get equal number of chances to ask the question . Time limit is also prescribed for the conduction of the programme. The team who scores maximum points wins

All the participants can make notes on the questions asked, answers and their explanations which help them in learning

XIII. Models

Models are used in learning process. It enhance the leaning experience. This is based on the 'seeing is believing". It helps the learner a chance to see feel the model presented . Still models and working models help the students to understand the structure, working principles, actual operation etc.

Several steps are involved

1. Locating the problem
2. The teacher should plan the type of model according to co's
3. Grouping the students

4. Briefing the tasks
   - Aim
   - Need
   - Material required
   - Source & Materials
   - Cost of materials
   - Division of Labour
   - Guidance
   - Fixing of a time limit

5. Presentation by each group about
   (A) How the models were prepared
   (B) Details of - Expenses
   - working and principles

Finally documentation of the process

6. Evaluation
   - By the other groups
   - Later a consolidation by teachers are to be done.

XIV. Games

Class rooms can be made attractive by introducing different types of games. Games should be interesting as well as informative. Some of suitable games are

1. Odd man out
2. Cross word puzzles
3. Match the following
4. Aswamedham
5. Link game – Answer using clues.

XV. Survey

This strategy involves collection of data from the group under study (book, person, materials etc.) It develops the social interaction and communication ability of the learner. It also provides a scope for discovery learning.

Step involved in survey

- Objective of survey
- Selection of area for survey/sampling frame
- Selection of survey method
  - Direct method
  - With help of questionnaire/schedule
- Tabulation and analysis
- Consolidation and Presentation

XVI. Exhibition

It is a learning strategy by which the learner can get a chance to show the skill developed. It provides the intrinsic motivation and exposure.

Exhibition item can be conducted either individually or as a group task. It can be conducted at school / Regional/State/National level. Necessary publicity and other arrangements can be provided. Presentation, documentation, participation and innovative skills of the learner can be evaluated.

XVII. Interview

Interview is one of the important learning strategies taking the help of a resource person. Interview is an inner view. It provides opinion and information about a topic.

An interview is conducted by the following steps

1. How to introduce a problem?
2. Invite a resource person
3. Decide the questions by learners
4. Decide the time, place etc.

5. How to discuss?
6. How many students to participate?
7. Implemen ntation of the interview
8. Conclusion (Facilitator)

Items required

- Interview Schedule
- List of questions prepared by learners Selection of students, selected names sequence of question

XVIII. Field Visit

Field visit is an inevitable vocational tool to be implemented in vocational Higher Secondary Education. This helps the students to familarise with the modern technologies and new situation in a different atmosphere. It provides learning though viewing. It is based on the principle that seeing is better than having. It enables the learning to retain the learned information longer and to make the subject more interesting. It motivates and give more confidence in his/her particular vocation.

The facilitor should identify suitable center/ institution/site. Get prior permission from the authorities before conducting the field visit. Give instructions to the learners for collection data/information/materials/specimens. Teacher may assign different duties to learners by working them different groups.

Each learner should take utmost care and interest during the visit. He/She should observe and interact at the center/ institution where the field visit is conducted

After the visit, learner should acquire the ability to apply the ideas/concepts in his future carrier. Each learner should submit a detailed repot about the field visit.

XIX. Demonstration

Though demonstration we can present an item/product and emphasis its features very effectively.

Eg:- To understand the functioning of a computer

1. Material/Item/Process
2. Demonstration
3. Venue
4. Additional requirements depending upon the nature of the item

Demonstration Process

1. Introduction about the item/Material
2. Principles – Working
3. Operation
4. Components
5. Merits of the item

XX. Chart display

It is also one of the important teaching aids. It can be used in every activities of a learning process.

Chart display is a written or pictorial representation of idea or concept. It is abbreviate, brief and clear. It is prepared by study

Benefits

1. A learner gets clear idea about the concept
2. The leaner can retain the ideas in his mind for longer periods
3. A complicated idea can be simplified though a chart

Cheap method of teaching aid.

CURRICULAR OBJECTIVES

Unit-1

Importance of Poultry Industry

- To familarise and list out the common terms and scientific names of Poultry through reference, brain storming and note making.
- Development and future of poultry Industry in India through data collection, reference and chart preparation
- Development and feature of poultry industry in Kerala through data collection, reference and chart preparation

Unit-2

Nutritive value of poultry products

- To get an idea about the importance of poultry products, through group discussion live demonstration etc.
- To get an idea about the nutritive value of egg through reference, discussion and chart preparation.
- To get an idea about the nutritive value of met through reference, discussion and chart preparation .

Unit-3

Anatomy and physiology

- To create an awareness about anatomy and physiology of poultry through reference, dissection drawing pictures and listing the organs.
- To understand the structure and function of digestive system through reference, dissection and drawing pictures.
- To understand the structure and function of reproductive system and the formation of egg through reference, dissection, discussion, and model making.
- To understand the structure and functions of feathers through sample collection, discussion and report preparation.
- To get an idea about moulting through discussion, observation and report

Unit-4

Breeds and Breeding

- Differentiation of terms like class, variety, breed and strain through reference.\

- Distinguishing different classes of birds through farm visit, discussion and chart preparation.
- Distinguishing different breeds through farm visit, discussion and album preparation.
- To understand breeding (mating) and selection thorough lecture, debate, report presentation etc.
- To understand about cross breeds and commercial hybrids through reference, Internet searching and notes.
- To compare qualitative and quantitative traits through debate, comparative chart etc.

Unit-5

Rearing and housing of poultry

- To analyse the merits and demerits of different systems of poultry rearing through farm visit, discussion and report preparation.
- To understand preparation of a model poultry shed through farm visit, taking measurements and preparation of layout.
- To familiarize with the common equipment used in poultry house through farm visit and drawing pictures.

Unit-6

Feeding of poultry

- To create an awareness on the principles of feedings of poultry through brain storming and report preparation.
- To compare different systems of feeding of poultry through debate, farm visit and report preparation.
- Formulation of various poultry feeds with different types of feedstuffs through reference, live demonstration and chart preparation.
- To compare the ISI specification for different poultry rations through brain storming and chart preparation.
- To understand the preparation and mixing of poultry rations and feed additives through field visit, report and chart preparation.

Unit-7

Management of chicks

- To get an idea about brooding of chicks through farm visit and report preparation.
- To make an awareness about dubbing, debeaking and sexing of chicks through live demonstration, report preparation and Hatchery visit.
- To get an idea about feeding of chicks through farm visit, discussion and report presentation.

Unit-8

Management of Growers

- To make an awareness about housing of growers through brain storming, farm visit and report presentation.
- To get an idea about feeding of growers through farm visit and chart preparation.
- To understand different farm operations through farm visit and discussion.

Unit-9

Management of Layers

- To make an awareness about housing of layers and farm operations through farm visit, discussion and report preparation.
- To get an idea about feeding, feeding standards and feed efficiency of layers through farm visit, reference and note making.
- To understand the summer management of layers through farm visit, discussion and report preparation
- To analyse the light requirement for layers through data collection, discussion and note making.
- To understand culling of layers through live demonstration, discussion and report preparation.
- To understand standards of egg production during different phases of laying through reference and listing out.
- To get an idea about profitability of layer farming through data collection, discussion and report preparation.

Unit-10

Management of breeders

- To analyze the purpose of rearing of breeding stock through discussion and report preparation
- To understand feeding of breeders through brain storming and note preparation.
- To analyze the selection and culling methods through seminar and report preparation.
- To get on idea about different mating systems and trap nesting through brain storming, demonstration, notes preparation and internet searching.

Unit-11

Management of broilers

- To make an awareness about broiler, broiler breeds and hybrid strains through reference, discussion and listing out
- To understand about feeding and housing of broilers through brain storming, farm visit and note preparation.
- To analyse the purpose and stages of processing, storage and marketing of poultry meat through meat plant visit, discussion and flow chart preparations

- To analyse the features involved in starting, commercial units through farm visit and project
- To familiarize the by products of broiler industry through discussion, demonstration and meat plant visit.

Unit-12

Table Eggs and its production

- To get an idea about the candling and grading of eggs through live demonstration, farm visit and wall paper preparation.
- To make an awareness about abnormal eggs through sample collection and report presentation.
- To get an idea about the factors affecting production of table eggs through discussion and making notes.
- To make an awareness about the methods of cleaning soiled eggs through a farm visit.
- To understand the methods of collection, transportation and marketing of eggs through discussion, report presentation and farm visit.

Unit-13

Importance of egg and egg products

- To understand the physical and chemical composition of an egg through live demonstration, discussion and making diagrams.
- To understand the egg quality parameters through discussion, lecture and reference.
- To get an idea about the need and methods of preservation of shell eggs through reference, discussion and method demonstration.
- To get an idea about the uses of common egg products through group discussion, sample collection and preparation of products.

Unit-14

Hatchery management

- To understand the selection of hatching eggs and important hatchery operations through a hatchery visit.
- To make an awareness about different methods of incubation through lecture and reference.
- To get an idea about the conditions required for incubation through hatchery visit and reference.
- To familiarize with the incubator through a demonstration and making diagrams.

Unit-15

Common diseases of poultry

- To get an idea about Ranikhet disease, Mareks' disease, fowl pox, IBD , pullorum disease, fowl cholera, salmonellosis, coccidiosis, Aspergillosis, Aflatoxicosis, favus etc, through hospital visit, reference and seminar.

- To get an idea about Pararitic disease (Ascariasis, syngamiasis, caecal worm, ticks, mites, fleas, lice) and deficiency diseases through hospital visit, microscopic examination and sample collection.
- To analyse the prevention and control measures of poultry disease through farm visit and an interview with farmers.
- To practise different vaccination procedures in a poultry farm and preparing a vaccination schedule chart through practice

Unit-16

Rearing of ducks

- To get an idea about the advantages of duck rearing through discussion
- To identify different breeds of duck through farm visit and photo collection.
- To make an awareness about incubation, brooding , housing and feeding of ducks through farm visit.
- To understand the common duck diseases through reference, group discussion and report preparation
- To make an awareness about care of laying ducks through farm visit, discussion and making notes.

Unit-17

Care and management of Turkeys

- To make an awareness about turkey rearing through farm visit and booklet preparation.

Unit-18

Care and management of quails

- To make an awareness about quail rearing through a project work.

SYLLABUS

THEORY **140 hours**

1	Poultry Industry – importance – Development- Present status , future prospects.	**3 hours**
2	Poultry and poultry products – Poultry meat and eggs- nutritive value – relevant importance in human diet.	**3 hours**
3	Basic knowledge on general Anatomy and physiology of poultry with special reference to Digestive and reproductive system-feathers-structure, function and moulting	**8 hours**
4	Common breeds of poultry-classes-Breeds- Varieties- Principles and practices of breeding-Selection system-qualitative and quantitative traits –Breeding for meat and layer types-commercial hybrids.	**9 hours**
5	Systems of rearing poultry –Back yard – deep litter – Cage systems – Poultry house design and construction	**11 hours**
6	Feeding poultry-general principles-semi intensive systems of feeding-feed additives.	**8 hours**
7	Chicks-Housing and Housing requirements-care of young chicks – dubbing –debeaking sexing-Brooding and brooding equipments and feeding.	**8 hours**
8	Growing stock-Housing requirements-feeding management.	**8 hours**
9	Layers-housing-summer management-culling-feeding-management-artificial light –feed efficiency- egg production standards – profitability.	**12 hours**
10	Breeding stock-culling –feeding-transepts-pedigree details-mating system-management.	**6 hours**
11	Broiler-Definition-Breeds-Housing-Requirements-Feeding-Production standards-Dressing-Processing and marketing-Economics-Commercial units.	**10 hours**
12	Table eggs production-collection-Grading –storage-Marketing-production of clean eggs.	**6 hours**
13	Eggs – Physical and chemical composition – Methods of preservation – Egg products-Egg powder and frozen egg products-whole eggs, yolk or albumen Egg quality parameters	**13 hours**
14	Care and Management of hatching eggs-Selection of hatching eggs-incubation-Hatchery operation	**10 hours**
15	Common diseases – Ranikhet discuses –Marek's disease-Fowl pox-coccidiosis –Pullorum disease- Parasites –External and Internal Causes-Main symptoms and control –Vaccination – Deworming	**11 hours**
16	Duck-Common breeds -Brooding-rearing and management.	**3 hours**
17	Turkey –Common breeds –Brooding –rearing and judgment.	**2 hours**
18	Quail-Brooding –rearing and Management	**9 hours**

PRACTICALS **(420 hours)**

1 Structure of an egg.

Prepare a table showing the comparative nutritive value of egg and milk

2 Identification of internal organs of chicken.

- A Digestive system
- B Respiratory system
- C Reproductive system

3 Identification of common breeds with live specimen and photographs

4 Sketching of common types of poultry houses.

5 Cleaning of feeders, waterers and other equipments for different age groups.

6 Familiarization of brooding equipments and setting up of brooder for 100 chicks

7 Dubbing-Debeaking

8 Vaccination-Demonstration and Practicing.

9 Deworming-common drugs

Control of external parasites

10 Culling practices-growers-layers.

11 Production of clean eggs-including collection and recording.

12 Selection of hatching and table eggs.

13 Dressing of broiler birds.

14 Hatchery management

- A Candling
- B Fumigation

15 Maintaining of farm records.

PLANNING

To make education activity based, we have to provide learning experiences that would be to develop process skill and components of multiple intelligence. Whether the activities 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 require evaluation methods and all other aspects. Teacher must prepare at least three planning documents.

- Year plan
- Unit plan
- Daily plan

Year plan

The year plan will include the total number of units to be transacted through the three term 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 class room. 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 outcome 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 feed book.

A lesson plan means planning for a lesson

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

DAILY PLAN

Name of the teacher : …….
Name of the school : …….
Subject : Livestock management (Poultry Husbandary)
Unit : Anatomy and Physiology of Poultry
Topic : Moulting
Curriculum objectives : To get an idea about moulting
Concepts and ideas : * Moulting – Shedding and renewal of feathers
* Moulting pattern – Head, neck, breast, body, wings and tails.

Class : VHSE
Division : II year
Strength :
Duration : 3 hours

Previous knowledge : concept about shedding of feathers
materials required : Reference book

Activities / Strategies	Responses / Evaluation
Introduction The facilitator can introduce the topic by asking about shedding of feathers. For example how many of you have observed shedding of feathers or shedded feathers. After giving a brief introduction about moulting and its order/ pattern the facilitator can lead the learners into a group discussion.	Participation in Discussion through contributing points can be taken as a tool for evaluation. Presentation of points Notes prepared by learner can be used for evaluation.
Presentation Activity : Discussion and note preparation The learners can be divided into 2 groups and each group discusses about the following topics. 1. Moulting 2. Moulting Pattern Two groups are formed along the learners and discussion is started. The facilitator observes the process of discussion and can contribute during the activity. The group leader of each group can consolidate their discussion by stating the point evolved after discussion. The learners should write and submit notes about the discussed points.	

EVALUATION

Evaluation is a systematic process of collecting, analyzing, synthesizing and interpreting evidences of students' progress and achievements both in cognitive and non-cognitive areas of learning. Evaluation has to play significant role in making the learning process more effective. It provides diverse experiences to the learners, keeping in view the skill to be attained continuously by them.

As the curriculum is based on a particular vocation the selected stream is the most important part and it should be evaluated accordingly. Technical skills, interest and devotion in the field, communication skills, organizational and presentation skills are to be evaluated. Evaluation of the personal and social qualities also should be done. So the evaluation should be continuous and comprehensive.

Terminal or Term End Evaluation (TE)

It is the written form of evaluation aimed at evaluating the facts, concepts and ideas gained by the learner. The test should not be aimed to evaluate the memory alone. Questions are framed in such a way that the learners are able to apply different mental process while answering. The Terminal Evaluation questions give more emphasis on application, analysis and synthesis level.

The maximum scores for TE is 80 and the minimum is 24 (30%). The questions should be formulated taking into consideration the time required to read, think, understand and write answers. These aspects should be considered while fixing the scores also. To avoid blind guessing, multiple choice and application level questions may be mixed. The total number of questions may vary from time to time. All the questions should be based on the curricular objectives. Open ended questions may be included. Choice questions, if included also should be based on the same curricular objectives.

Continuous and comprehensive evaluation (CCE)

Our traditional evaluation methods measure only the memory and recollection capacity of the learner. To eliminate/ overcome the limitation the evaluation should be done on multi dimensional ways by measuring multiple intellectual capacities of the learner. So it is better to evaluate the learner in a continuous and comprehensive manner. CCE helps the learner to understand and develop his own progress and to develop adequate strategies for further improvement.

Merits.

- Assess the all round development of the learner on a continuous basis through a variety of activities.
- Effective feed back is possible
- Remedial diagnostic teaching is possible
- Process as well as products are assessed.

A series of learning activities are grouped into five major thrust areas as follows

1) Investigative activities

Activities which create a spirit of enquiry, investigation and a mind for research in the learner belong to this group.

For example.

- Study project
- Case study
- Field study

2) Inte ractive activities

Activities which improve the communication skill, activities of sharing ideas, etc.

For example

- Seminar
- Panel discussion
- Debate
- Group discussion

3) Assigned task

Activities assigned to the learners to enrich/ stre ngthen the concept and ideas.

For example

- Assignment
- Collections

4) Performance task (Tests)

Activities related to the achievements of the learner.

For example

- Class test (oral/ written/ performance test)
- Quiz
- Open book examination
- Interview
- Group testing

5) Practical based activities

For example

- Preparation of working model
- Album
- Improvisation

From the above five group of activities, the teacher has the freedom to choose any four areas for evaluation purpose.

1. INVESTIGATIVE ACTIVITY

Sl.No	Stages	Criteria	Score	Total Scores
1.	Planning	Relevance of the study Identification of problem Ability to select appropriate tools, ability to select suitable bearing method.	4/3/2/1	
2.	Data Collection	Ability to collect sufficient and relevant data. Ability to classify and arrange data for analysis. Reliability and authenticity of the data collected.	4/3/2/1	
3.	Analysis and Inference	Ability to analyses the data Systematic arrangements. Ability to draw inferences based on analysis. Ability to give suggestions based on inference.	4/3/2/1	
4.	Report presentation	Ability to present in logical and sequential order, authenticity of report, time bound comparison.	4/3/2/1	
5.	Viva-Voice	Knowledge of content and process. Ability to analyses data. Ability to justify inference. Ability to explain. Strategies and methods adopted.	4/3/2/1	

Case Study

Sl.No	Criteria	Score	Total Scores
1.	Identifying the problem	43/2/1	
2.	Approach to the problem	4/3/2/1	
3.	Time bound Action	4/3/2/1	
4.	Analysis of the problem	4/3/2/1	
5.	Problem solving / Reporting	4/3/2/1	

Field study

Sl.No	Criteria	Score	Total Scores
		4/3/2/1	
1.	Attitude and readiness towards the task	4/3/2/1	
2.	Capacity for Observation	4/3/2/1	
3.	Data collection	4/3/2/1	
4.	Application of ideas	4/3/2/1	
5.	Documentation / Recording	4/3/2/1	

Assignment

Sl.No	Criteria	Score	Total Scores
1.	Awareness of the content	4/3/2/1	
2.	Comprehensiveness of the content	4/3/2/1	
3.	Systematic and sequential arrangement	4/3/2/1	
4.	Observation/suggestion/views/judgment/evaluation	4/3/2/1	
5.	Timely Submission	4/3/2/1	

Seminar

Sl.No	Criteria	Score	Total Score
1.	Planning and Organization	4/3/2/1	
2.	Collection and data / content	4/3/2/1	
3.	Observation / appraisal and clarity	4/3/2/1	
4.	Content knowledge	4/3/2/1	
5.	Presentation	4/3/2/1	

Debate

Sl.No	Criteria	Score	Total Score
1.	Readiness to participate	4/3/2/1	
2.	Depth of subject knowledge	4/3/2/1	
3.	Communication skill	4/3/2/1	
4.	Ability to justify the stand	4/3/2/1	
5.	Presentation	4/3/2/1	

Group Discussion

1.	Readiness to participate	4/3/2/1	
2.	Depth of subject knowledge	4/3/2/1	
3.	Communication skill	4/3/2/1	
4.	Ability to justify in a democratic way	4/3/2/1	
5.	Leadership quality	4/3/2/1	

Interview

1.	Planning	4/3/2/1	
2.	Preparation of Questions	4/3/2/1	
3.	Communication skill	4/3/2/1	
4.	Participation	4/3/2/1	
5.	Report preparation	4/3/2/1	

Practical Evaluation (PE)

The goal of vocational Education is to generate skills through continuous practices along with investigation and innovations. Continuous and comprehensive practice transforms the unskilled learner to a skilled one. This is the importance and significance of vocational practicals.

PE is done to evaluate the practical skills achieved by the learner in the concerned vocational subject Total Scores for PE is 150 and minimum is 60 score ie 40%. Practical Examination is conducted for a batch of 8 learners having 6 hours duration.

Practical evaluation should be done taking into account the whole practicals included in the curriculum since learning of practical skills is a continuous process through out the period of study.

Vocational Competency Evaluation (VCE)

Vocational Competency Evaluation is to evaluate the vocational skill and aptitude developed by the students during the learning process. This is a system to judiciously evaluate the required value addition and consequent capacity building in the concerned vocational curriculum. The vocational education is aimed at developing interest, skills and devotion in specific vocational fields. As other evaluation components like CE. PE and TE cannot assess the vocational competencies and professional skills, acquired by the students an internship evaluation (IE) components has been introduced to meet this requirement.

Internship evaluation should be done based on the following components like regularity and punctuality, value addition and capacity building.

1. Regularity and punctuality

Regularity and punctuality has vital role in vocational education learning continuous process, the regular presence of the learner is must for attaining maximum efficiency.

2. Value Addition

Value addition is the qualitative measure of the learner's interest, devotion perseverance and efficiency. Value addition can be evaluated through conducting field visits/ vocational survey. The experiences gained through field visit / vocational survey increases the level of intrinsic motivation and positive attitude towards the vocational field and thereby increase his value as a semiprofessional.

3. Capacity Building

It gives a quantitative measure of the student's skill in graded area exposure. Capacity building can be evaluated through conducting the following activities.

1. OJT / Simulated experiment
2. Performance – camp/exhibition/clinic
3. Performance – PCT/Service cum Training center.

These components help the learner to practise the acquired skills in the real situation and thereby increasing self-confidence and promoting self reliance.

Vocational Competency Evaluation Indicators

No	Items	Scores
1.	Regularity and punctuality	10
2.	Field visit / survey (anyone) vocational project	20
3.	OJT/Simulated experiment performance – Camp/exhibition/clinic Performance – PSCTC (anyone)/Practical skills	20
	TOTAL	**50**

1. Regularity and punctuality can be assessed by using attendance of the learner and time bound completion of tasks. It is evaluated by using 5 point grading system.

Rating Scale

Sl. No	Items	1	2	3	4	5
1.	Regularity	Never regular	After regular	Equally regular	Most of the time regular	Always regular
2.	Punctuality	Never punctual	Often punctual	Usually Punctual	Most of the time punctual	Always punctual

Item	Evaluation indicators	Scores	Score
Equality and punctuality			10
Value addition	**Field visit** 1. Attitude and readiness towards the task 2. Capacity for observation 3. Data collection 4. Application of ideas 5. Documentation/recording Or	 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	20

	Survey 1. Planning 2. Data collection 3. Consolidation of data and analysis 4. Drawing inference 5. Reporting	 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1 4/3/2/1	

Capacity Building	**OJT/Simulated experiment** 1. Involvement/participation 2. Skills in doing work/ communication skills 3. Time bound action 4. Capacity for observation, analysis and innovation 5. Documentation, recording and display Or **Performance in camp/exhibition/clinic** 1. Ability for planning and organizing 2. Mastery of subject 3. Ability for communication 4. Innovation 5. Involvement/social commitment Or **Performance in production/service cum training center (PSCTC)** 1. Mastery of vocational skills 2. Managerial capacity 3. Promoting self confidence 4. Innovation 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 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	20

CRITERIA FOR PROMOTION

- A minimum of 80% attendance is required to register for the public examination. Those who are having at least 65% can apply for condonation from higher authorities. Those who have shortage of attendance below 65% should repeat the second year.
- The students should obtain minimum 30% score in all subjects separately in TE. In first year if the student failed to obtain 30% minimum score in any subject he will be promoted and will be given chance for improvement.

The students should obtain a minimum of 40% score in the vocational practical Evaluation (PE) that is 60 out 150 score. If a student fails to attain the minimum required score for TE and secure minimum score for pass in TE, he need not reappear for practical examination and vice versa.

FORMAT FOR SUBJECT WISE EVALUATION

Sl.no	Name	CCE					TE (80)	Total (100)	Grade	PE								Vocational Competency Evaluation				
		1 (20) Class	2 (20) Assingment	3(20) seminar / Project	Total (60)	Total Out of 20				1	2	3	4	5	6	Total	Grade	Regularity nd panchuality (10)	Value addition (20)	Capacity building (20)	Total (50)	Grade

FORMAT FOR SCHOOL WISE SCORE SHEET

Sl.No	Name	English				General Foundation Course				Vocational subject								Physics					Chemistry					Mathematics			
										CE	TE			PE		VCE															
		CE	TE	Total	Grade	CE	TE	Total	Grade	CE	TE	Total	Grade	Total	Grade	Total	Grade	CE	TE	PE	Total	Grade	CE	TE	PE	Total	Grade	CE	TE	Total	Grade

PART II

UNIT – I

IMPORTANCE OF POULTRY INDUSTRY

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
* To familiarize and list out the common terms and scientific names of poultry	* Different terms related to poultry science. * Zoological classification of poultry	* Reference * Brain storming *Notes preparation	Reference books	Verification of notes.	1+3
* Development and future of poultry industry in India	*Population status of poultry industry in India * Development of poultry industry. * Constraints and solutions of poultry industry in India.	* Data collection * Reference * Chart preparation	* Reference books * Internet * Periodicals * Dailies		1+6
* Development and future of poultry industry in Kerala	* Population status of poultry industry in Kerala. * Development of poultry industry in Kerala. * Constraints and solutions of poultry industry in Kerala.	* Data collection * Reference * Chart preparation	* Reference books * Internet * Periodicals * Dailies		1+5

UNIT-I

Introduction

Poultry industry has grown as one of the leading sectors in Indian Livestock production scenario. Indian poultry industry is mainly oriented in chicken production and it has grown at the rate of 15-20% during the last two decades providing employment for 1.5 million people. India ranks 4th largest producer of eggs and 8th largest producer of broilers in the world. Broiler industry has made tremendous progress than layer industry in last few years. Even among these success stories Indian poultry industry faces many problems like non availability of good quality chicks, high cost of feed, labour cost, marketing difficulties etc.

This chapter aims at familiarizing common terms in poultry production and zoological classification of various species of poultry. The learner should be aware about importance, development and present status of poultry industry in India and Kerala. The learner should be able to analyse advantages and problems of poultry industry.

Curricular objectives

- To familarise and list out the common terms and scientific names of Poultry through reference, brain storming and notes preparation.
- Development and future of poultry Industry in India through data collection, reference and chart preparation
- Development and feature of poultry industry in Kerala through data collection, reference and chart preparation

Syllabus.

Poultry Industry – importance – Development- Present status , future prospects.

Learning activities

- **Group Discussion**
- **Panel discussion**
- **Data collection**

- **Field study**

Importance of poultry industry

This portion can be introduced to the learners by asking questions about the common terms, scientific names, zoological classification of poultry. Ask them to refer from Books and prepare notes.

Poultry Industry in India

Ask the learner to collect data about Population Status, Production Status, Present Scenario and future Prospects of Poultry farming in India. Problem faced by the Poultry industry should be highlighted.

Poultry Industry in Kerala

Ask the learner to collect dates about Population Status, Production Status, Present Scenario and future prospects of poultry forming in India. Problem faced by the poultry Industry should be highlighted.

TE Model question

- Compare the family history (Phylogeny) of quail and domestic chicken with the help of an arrow diagram ?

UNIT – II

NUTRITIVE VALUE OF POULTRY PRODUCTS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
* To get an idea about the importance of poultry products.	* Listing & briefing the various poultry. products like egg, meat, egg products, meat products etc.	* Group discussion * Live demonstration * Preparing the list.	* Live products	* Participation in discussion * List evaluation	1+6
* To get an idea about the nutritive value of egg.	* Size of eggs * Composition * Importance in human diet.	* Reference * Discussion * Chart preparation.	* Reference book	* Participation in discussion * Chart preparation	1+5
*To get an idea about the nutritive value of meat,	* Composition of meat, * Importance in human diet,	* Reference * Discussion * Chart Preparation.	* Reference book	* Participation in discussion. * Evaluation of chart	1+5

Introduction

Now a days the poultry products like meat & eggs contribute a major share in human nutrition. The demand for chicken and egg is increasing because of its high digestibility and nutrients. Egg is a rich source of high quality animal protein and is often used as a standard for measuring quality of other food proteins. The flavour, tenderness, nutritive value and easy digestibility of poultry meat have attributed to its best choice among food of animal origin by majority of meat consuming people of the world.

This chapter should create an awareness about the poultry products like egg, meat, etc. The learner should get an insight about the nutritive value of egg and meat and their importance in human diet.

Curriculum objectives

- To get an idea about the importance of poultry products, through group discussion live demonstration etc.
- To get an idea about the nutritive value of egg through reference, discussion and chart preparation.
- To get an idea about the nutritive value of met through reference, discussion and chart preparation .

Syllabus

Poultry and poultry products – Poultry meat and eggs- nutritive value – relevant importance in human diet.

Learning Activities

- **Group discussion**
- **Live demonstration**
- **Discussion**
- **Assignment**

Importance of Poultry Products

Learners should have an idea about different products and by products of poultry industry like meat, egg etc. through group discussion & live demonstration. They should be able to list and brief the products.

Nutritive value of poultry egg.

A thorough discussion about the size of different poultry eggs, physical and chemical composition of eggs in human diet should be facilitated after reference. A comparative chart regarding these should be prepared.

Nutritive value of poultry meat.

A through discussion about composition of poultry meat and its importance in human diet should be facilitated after reference. A comparative chart regarding these should be prepared.

TE Model question

1. A man is suffering from High Cholesterol complaint. Can you suggest a remedy in his diet for him as a poultry student?

UNIT – III

ANATOMY AND PHYSIOLOGY

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
To create awareness about anatomy and physiology of poultry.	Comparative awareness about the structure and function of different organ systems like respiratory, skeleton, sense organs, muscular system etc……	Reference Dissection Drawing pictures Listing the organs	Reference book Live bird	Notes Picture	1+10
To understand the structure and function of digestive system.	Detailed study of the digestive system.	Reference Dissection Drawing pictures	Reference books Live bird	Notes Pictures	2+10
To understand the structure and function of reproductive system and the formation of egg.	Male reproductive system Female reproductive system Process of formation of egg	Reference Dissection Discussion Model making	Reference book Live bird Plaster of Paris model	Notes Pictures Model	3+10
To understand the structure and functions of feathers	Structure of a feather Functions of feathers Types of feathers	Sample collection Discussion Report preparation	Reference book	Samples Participation Discussion	1+6
To get an idea about moulting	Moulting Multing pattern.	Discussion Observation Report preparation Reference		Report Participation in Discussion Report	1+3

Introduction

Anatomy is the science which deals with the study of form and structure of any animal. Poultry anatomy can be demonstrated to the learners by the method of dissection. Physiology is the study of the functions of normal body as a whole and of the individual structures and organs contained in it . Body consists of many organs, each organ having its own particular function to perform. The organs are organized into several system according to the functions they perform such as skeletal system, respiratory system, muscular system, skin and feathers, circulatory system, excretory system, nervous system, sense organs, digestive system and reproductive system. Thus the learner should understand the parts of organ system, relative position of various organs, their approximate size, shape and basic functions.

Curriculum Objectives

- To create an awareness about anatomy and physiology of poultry through reference, dissection drawing pictures and listing the organs.
- To understand the structure and function of digestive system through reference, dissection and drawing pictures.
- To understand the structure and function of reproductive system and the formation of egg through reference, dissection, discussion, and model making.
- To understand the structure and functions of feathers through sample collection, discussion and report preparation.
- To get an idea about moulting through discussion, observation and report.

Syllabus

Basic knowledge on general Anatomy and physiology of poultry with special reference to Digestive and reproductive system-feathers-structure, function and moulting

Learning Activities

- Discussion
- Model making
- Sample collection
- Observation

- Report preparation
- Demonstration
- Assignment

Anatomy and Physiology of poultry.

With the help of dissection the learner should get an idea about the relative position of different organ system the structure and functions of different organs of digestive system like mouth, esophagus, crop, proventriculus, gizzard, intestines, caeca, cloaca, liver, pancreas and gall bladder, male reproductive system-testes, vas deferens, papillae and female reproductive system- ovary, parts of oviduct, cloacae.

Reference, discussion, diagram and model making should be supplemented to complete the learning activities.

Formation of egg

The learner should get an idea about the formation of different parts of egg in infundibulam magnum, isthmus, uterus and vagina, terms like internal layers oviposition etc. through reference and discussion.

Feathers and Moulting

Samples of feathers of different birds should be analysed through collection, discussion and report preparation for getting an idea about structure, functions and types (plumules, filoplumes, contour feathers, fluffy feathers, Hackles, sickles, tail coverts etc.) of feathers. Learners are asked to observe and discuss about the order of moulting and prepare a report on it.

TE Model questions

- Collect meat waste especially internal organs of chicken from a slaughterhouse. Identify each organ and make a labelled diagram of digestive system.
- A farmer approaches you complaining that his hen appears to be in laying conditions, but he didn't get any egg. What explanation you will give him?

UNIT -IV

BREEDS AND BREEDING

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• Differentiation of terms like class, Breed, variety and strain	• Class • Breed • Variety • Strain	Reference	Reference book	Notes	1+1
• Distinguishing Different classes of Birds	• American • English • Mediterranean • Asiatic	• Farm Visit • Discussion • Chart Prepartion		• Participation in Discussion • Chart	1+3
• Distinguishing Different Breeds	• RIR • New Hampshire • Plymouth Rock • Australorp • Cornish • White leghorn • Minorca • Brahna • Aseel • Kadaknath • Naked neck • Busra • Chittagong	• Farm Visit • Discussion • Album preparation		• Visit Report • Discussion Report • Album	2+10
• To understand Breeding (Mating) and selection	• Selection • Selection system • System of mating • System of selection of stock for breeding	• Lecture • Debate • Report • Presentation	• Reference Book	Report	2+3

• To understand about cross breeds and commerc ial Hybrids.	• Austra white (Grama lakshmi) • Grama priya • Rhodo white • Giri Raja • Croiler • Pass Jyothi • Athulya • ILM – 90 • COBB • HH 260	• Reference book • Internet • Note making		• Notes	1+3
• To compare qualitative and quantitative traits.	• Qualitative traits • Quantitative traits	• Debate • Comparative chart Preparation	• Reference book	• Notes • comparative chart	1+4
• To create an idea about Random sample test.	• RST • RST units • Objectives	• Reference • Discussion • Note making	• Reference Book	• Notes	1+2

Introduction

There exist a great variety of poultry breeds from which one should be able to select according to the need for which he is farming. Precise identification of breeds is a must for a person dealing with poultry. Success of a poultry industry greatly depends on the ability to purchase the exact quality of the stock. Breeding demands skills, knowledge, judgment, technical ability and a strong will to make optimum decisions. It is a subject which is extremely fascinating to the learner and denotes a needful study and observation. A breeder cannot afford to select for one factor to the detriment of other essential qualities.

Curriculum objectives

- Differentiation of terms like class, variety, breed and strain through reference.\
- Distinguishing Different classes of birds through farm visit, discussion and chart preparation.
- Distinguishing different breeds through farm visit, discussion and album preparation.
- To understand breeding (mating) and selection thorough lecture, debate, report presentation etc.
- To understand about cross breeds and commercial hybrids through reference, internet searching and notes.
- To compare qualitative and quantitative traits through debate, comparative chart etc.
- To create an idea about random sample test. through reference, discussion and notes preparation.

Syllabus

Common breeds of poultry-classes-breeds- varieties- Principles and practices of breeding-Selection system-qualitative and quantitative traits –Breeding for meat and layer types-commercial hybrids.

Learning activities

- Discussion
- Album preparation
- Farm visit
- Debate
- Presentation
- Chart preparation
- Note making

Terms like class, breed, variety and strain

Through reference the learner should be able to differentiate terms like class, breed, variety and strain with examples.

Classes of birds

A farm visit conducted will help for identifying different classes of poultry. A discussion among learners and a comparative chart of characters with examples should be made. The classes dealt are American, English, Mediterranean and Asiatic class,

Breeds

Along with farm visit and discussion, an Album preparation will also help to get a through knowledge about different breeds like RIR, New Hampshire, Plymouth Rock, Australorp, Cornish, white leghorn, Minorca, Brahma, Aseel, Kadakanath, Naked neck, Busra and Chittagong.

Breeding and selection

A lecture provides preliminary ideas about selection, selection systems and systems of mating. A debate conducted between the groups about different systems of selection and mating; and debate report will consolidate the ideas. Concepts about individual selection, family selection, systems of mating (flock, pen and stud mating), characters for selection of stock for breeding are covered through this learning activities.

Cross breds and commercial hybrids

Through reference book and internet information about cross breads, commercial hybrids and their economic importance are collected. Examples like Austrawhite etc. The information are briefed by notes preparation.

Qualitative and Quantitative traits

A debate of two groups about the Qualitative & Quantitative traits, their peculiarities and examples concluded with a comparative chart will help to convey the idea and importance of these traits. Reference from standard text books can be made before debate.

Random sample test

A group discussion is organized about Random sample test. Reference and a briefing can be adopted to get an idea about RST. Objectives, various RST units etc should be dealt with.

TE model questions

1. A poultry farmer approaches you for getting an advice regarding the selection of poultry breed for laying purpose. Explain him at least about 3 layer breeds with its characters (6 scores)
2. You are in charge of a breeder house in a poultry farm. Brief about the different mating methods, which can be adopted. (6 scores)

UNIT- V

REARING AND HOUSING OF POULTRY

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To analyse the merits and demerits of different systems of poultry rearing	• Free range system • Semi-intersive Back yard system • Intensive system-deep litter, and cage system • Merits and demerits of each system	• Farm visit • Discussion		Report	5+7
• To understand the preparation of a model poultry house.	• Objectives of poultry house • Design and layout	• Fram visit • Taking measurements and preparation of lay outs.	• Measuring tape	• Perfection in preparation of layout	4+6
• To familiarize with the common equipments used in poultry house.	• Brooder house equipments • Grower house equipments • Layer house equipments	• Farm visit • Drawing pictures		• Visit Report • Picture	2+7

Introduction

There exist different systems for housing poultry with their own merits and demerits. These merits and demerits apply based on the purpose for which birds and reared and also on the initial investment. From this chapter the learner should get an idea about different systems of rearing poultry, how to prepare a model poultry house and common poultry house equipments.

Curriculum objectives

- To analyse the merits and demerits of different systems of poultry rearing through farm visit, discussion and report preparation.
- To understand preparation of a model poultry shed through farm visit, taking measurements and preparation of layout.
- To familiarize with the common equipment used in poultry house through farm visit and drawing pictures.

Syllabus

Systems of rearing poultry –Back yard – deep litter – Cage systems – Poultry house design and construction.

Learning activities

- Farm visit
- Discussion
- Assignments

Different systems of poultry rearing

Through farm visit learner will get an idea about different systems of poultry rearing like Free range system, semi-intensive (Backyard system), Intensive system(deep litter and cage system) and demerits of different systems should be consolidated in the form of a report.

Preparation of a model poultry house

During the farm visit the learner should understand the function of a poultry house. He should take measurements of different poultry houses and layouts are prepared. Layouts prepared can be used for evaluation.

Common equipments

Common equipments used in brooder house, grower house & layer house like different feeders, waterer, brooder house equipments, nest box, trap nest & shell grit hoppers can be familiarized through farm visit and drawing pictures.

TE model questions.

- A poultry farmer in a rural area wants to shift his layer birds in deep litter system to an urban area. Suggest him an alternate system and also about the further arrangements to be made. (Number of total stock 300 birds).

UNIT – VI

FEEDING OF POULTRY

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To create an awareness on the principles of feeding of poultry.	• Water • Protein • Carbohydrates • Fats • Vitamins • Minerals	• Brain storming • Report		Report	1+3
• To compare different systems of feeding of poultry.	• Whole grain feeding system • All mash feeding • Grain and mash method • Pellet feeding • Ad-libitum feeding • Restricted feeding	• Debate • farm visit • Report.		Report	2+8
• Formulation of various poultry feeds with different types of feedstuffs.	• Energy feedstuffs • Protein feedstuffs • Vitamin sources • Mineral sources with examples of each • Formulation of poultry feed for different age groups.	• Reference. • Live demonstration • Chart preparation	• Reference book feedstuffs	Chart	2+7
• To compare the ISI specification for different poultry rations.	• BIS standards	• Brain storming • chart preparation		Chart	2+7
• To understand the preparation and mixing of poultry rations and feed additives.	• Feed mixing • Feed additives • Feed supplements • Average requirements of total feed in various classes of brids	• Field visit. • Report • Chart preparation	• Report • Chart		2+5

Introduction

The value of a poultry feed is determined largely by the kind and relative amount of different nutrients it contains. Quality is important or keep in mind that nutrition means the process of providing nourishment to the body. Choosing the nutrients on the basis of their purpose. Buying feed on the basis of quality. This chapter tells us what to feed and how to feed. For obtaining good results in feeding first use a good diet and second to adopt a definite system of feeding. A poultry ration should contain at least three cereal grains, two animal protein supplement, one plant protein supplement, green feed, a proper balance of calcium and phosphorous, salt and vitamins D, A, B2, B12. Apart from fowls some adjustments in feeds are often necessary for duck, geese and turkeys. This chapter tells about principles of poultry nutrition, systems of feeding, feed formulation, ISI standards for poultry feed and feed additives.

Curriculum objectives

- To create an awareness on the principles of feedings of poultry through brain storming and report preparation.
- To compare different systems of feeding of poultry through debate, farm visit and report preparation.
- Formulation of various poultry feeds with different types of feedstuffs through reference, live demonstration and chart preparation.
- To compare the ISI specification for different poultry rations through brain storming and chart preparation.
- To understand the preparation and mixing of poultry rations and feed additives through field visit, report and chart preparation.

Syllabus

Feeding poultry-general principles-semi intensive systems of feeding-feed additives.

Learning Activities

- **Brain storming**
- **Debate**
- **Farm visit**
- **Live demonstration**
- **Chart preparation**

Principles of feeding:

As the learners are aware about nutrients like water, carbohydrates, protein, fat, vitamins and minerals. A brain storming session combined with a report preparation can be done. The peculiarities of poultry nutrition should be briefed.

Systems of feeding

A debate session on systems of feeding will help to convey ideas about the methods followed , their advantages and disadvantages. A farm visit will help to familiarize about different systems.

Different feedstuffs and Formulation of poultry feed

Through reference learner will find out classification of feedstuffs-energy feedstuffs, protein, vitamins & minerals. feedstuffs with examples of each. A live demonstration through collection by students will familiarize them with these feedstuffs. A comparative chart can be prepared regarding formulation of poultry feed for different ages.

ISI specification for different poultry rations

A chart can be prepared through reference and a brain storming session regarding the ISI specification for different poultry rations.

Mixing of poultry rations and feed additives

A field visit to a feed mill/mixing unit will provide sufficient information about feed mixing. Learners can prepare a comparative chart regarding the requirement of total feed in various classes through reference. From field visit and reference learner will gather information about feed supplements.

TE model questions

1. Group the provided feed ingredients like maize, GNC, Rice polish, wheat, wheat bran, Bone meal etc. according to the classification of feedstuffs.
2. Formulate a chick feed and layer feed using locally available ingredients.

UNIT VII

MANAGEMENT OF CHICKS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To get an idea about brooding of chicks	• Brooding –Natural and Artificial • Brooder house management • Setting up of brooder for 100 chicks.	• Farm visit • Report presentation		• Report	3+12
• To make an awareness about dubbing debarking and sexing of chicks	• Dubbing • Debarking • Sexing	• Live demonstration • Report presentation • Hatchery visits & practice	• Chicks • Electric debeaker • Scissors	• Perfection • Report	4+10
• To get an idea about feeding of chicks	• Chick feed-feed ingredients and their percentage inclusion • Way of feeding and quality of feed.	• Farm visit • Discussion • Report presentation		• Report • Participation in discussion	1+5

Introduction

Chick raising is profitable only under certain conditions. The chicks must be healthy and bread for production. They must be housed properly with adequate space, heat and sanitation. The ration must provide the nutrients necessary for rapid and economical growth. Mortality must be kept to a minimum and the parasites. Before housing chicks scrape, sweep, scald and scrub the floor. In thousands of cases chicks of superior quality at hatching time have been ruined by mismanagement during the brooding period. Such happenings will cause great loss to the industry. This chapter provides basic information about different methods of brooding, brooding requirements, different farm operations at chick stage like sexing, dubbing, debeaking and grading of chicks.

Curriculum objectives

- To get an idea about brooding of chicks through farm visit and report preparation.
- To make an awareness about dubbing, debeaking and sexing of chicks through live demonstration, report preparation and Hatchery visit.
- To get an idea about feeding of chicks through farm visit, discussion and report presentation.

Syllabus

Chicks-Housing and Housing requirements-care of young chicks –dubbing – debeaking sexing-Brooding and brooding equipments and feeding.

Learning Activities

- Farm visit
- Report presentation
- Live demonstration
- Assignments

Brooding of chicks

Through visit to an organized poultry farm, the learner should get an idea about poultry farm, the learner should get an idea about brooding (natural brooding and

artificial brooding) and should understand about the factors which affect brooding like ventilation, sanitation and hygiene, litter, temperature, brooder space, brooder guard, floor space, waterer space and feeder space. After farm visit ask the learner to prepare a report of brooding and also a diagram of brooder house equipments

Dubbing, debeaking and sexing of chicks.

The skill of doing dubbing, debeaking and sexing of chicks can be developed in learners by a demonstration and practice. Dubbing & debeaking can be practised by visit to a hatchery. Procedure for each of these activities should be obtained by learner through discussion with farm authorities. The skill in sexing can be evaluated by taking the number of correctly sexed birds. Report on procedure can also be taken as a measure for evaluation.

Feeding of chicks

The learner should be made aware of the equipments used for feeding, quantity of feed, the various ingredients and their percentage inclusion in chick mash, importance of adding coccidiostat and vitamin mixture to feed, the protein and energy content required for chicks etc. by arranging a farm visit. They should also be able to formulate a chick feed using the locally available ingredients through discussion.

TE model questions

1. When you visit a poultry farm you see chicks getting away from the source of heat and some chicks even panting. Explain the farmer about this phenomenon. Suggest the remedial measure for it.

UNIT VIII

MANAGEMENT OF GROWERS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To make an awareness about housing of growers	• Grower house • Equipments in a grower house	• Brain storming • Farm visit • Report presentation		Report	2+6
• To get an idea about feeding of growers	• Restricted feeding • Advantages of restricted feeding	• Farm visit • Chart preparation		• Chart	2+4
• To understand different farm operations	• Vaccination schedule • Deworning - Drugs. • Control of ectoparasites • Culling • Farm record maintances.	• Farm visit • Discussion • Practice in deworming & culling. • Noting the format of different records.		• Visit report • Participation in discussion • Evaluation of practice. • Evaluation of formats prepared.	4+12

Introduction

Period after brooding till sexual maturity is referred as growing period (8^{th} week to 18^{th} week) Management during this period is highly critical. Performance at laying house largely depends upon their growing period. If the management during growing period is affected it will affect the performance of whole batch. This really gets reflected in the case of breeders. Selecting a good group of breeders at growing period is very important. So the management at grower period forms the key for success in poultry farming.

Curriculum objectives

- To make an awareness about housing of growers through brain storming, farm visit and report presentation.
- To get an idea about feeding of growers through farm visit and chart preparation.
- To understand different farm operations through farm visit and discussion.

Syllabus

Growing stock-Housing requirements- feeding management.

Learning Activities

- Brain Storming
- Farm visit
- Report presentation
- Chart preparation
- Discussion

Housing of growers.

The learner should be made to recollect the housing pattern of growers, floor space requirement, equipments used in grower house etc.. through brainstorming and a report presentation.

Feeding of growers

A farm visit conducted will reveal the feed requirement of growers- importance and advantages of practising restricted feeding in growers etc.

Different farm operations

A discussion after conducting farm visit will help to get a through knowledge about different farm operations like deworming, control of ectoparasites, vaccinations, culling, farm record maintenance etc.

TE model questions

1. When you visit a poultry farm, you see many weaklings of 12 weeks of age running here and there, and the farm in economic loss, how will you help the farmer to improve his economic position?
2. Give information to the farmer regarding disease control in growers giving more preference to vaccination programme in a tabular form?

UNIT IX

MANAGEMENT OF LAYERS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To make an awareness about housing of layers and farm operations in a layer farm	Housing systems and their comparison • Space requirements • Farm schedule	Farm visit • Discussion		• Report • Flow diagram	2+5
• To get an idea about feeding, feeding standards and feed efficiency of layer	Feeding systems and their comparis on • Types of feeds • ISI feeding standard • Feed efficiency	• Reference • Farm visit	Reference books	• Notes	2+6
• To understand summer management of layers	• Control measures taken to avoid summer stress	• Farm visit • Discussion		• Report Preparation	1+6
• To analyse light requirement for layers.	• Importance of light • Light requirement	• Data collection • Discussion		• Notes	1+3
• To understand culling of layers.	• Culling factors - Condition of body - Depigmentation - Sexual maturity - Moulting pattern - Distinguishing layers non layers	• Live demonstration • Discussion	• Live bird	• Report preparation • Comparative chart	3+6
• To understand standards of egg production.	• Egg production standards	• Reference		• List Preparation	1+1
• To get an idea about portability of layer farming	• Factors affecting profitability	• Project Data collection Discussion		• Report preparation	2+9

Introduction

With an annual out put of 30 billion eggs India ranks fourth largest producer of eggs in the world. Even though layer farming has not recorded as much growth rate as that of broiler farming, it has an important role in poultry industry. While managing a layer farm a quiet bit of matters have to be taken into account. This chapter torches sufficient light for managing a layer farm.

Curricular objectives

- To make an awareness about housing of layers and farm operations through farm visit, discussion and report preparation.
- To get an idea about feeding, feeding standards and feed efficiency of layers through farm visit, reference and note making.
- To understand the summer management of layers through farm visit, discussion and report making
- To analyse the light requirement for layers through data collection, discussion and note making
- To understand culling of layers through live demonstration, discussion and report preparation.
- To understand standards of egg production during different phases of laying through reference and listing out.
- To get an idea about profitability of layer farming through data collection, discussion and report preparation.

Syllabus

Layers-housing-summer management-culling-feeding-management-artificial light –feed efficiency- egg production standards – profitability.

Learning Activities

- **Farm visit**
- **Discussion**

- **Assignment**
- **Data collection**
- **Live Demonstration**

Housing of layers and farm operations:

A farm visit to a layer farm will help learner to easily get an idea about housing systems. A discussion should be conducted regarding the advantages and disadvantages of different housing systems- Intensive (Battery & deep litter system) , semintensive, free range and Backyard system. Space requirement provided in the poultry farm should be found out by learner through measurements and data collection. The different, farm operations like watering, feeding, collection of eggs, deworming, vaccination, etc should be noted by the learner- A flow diagram can be prepared regarding farm schedule. The group leader should present a report regarding farm visit.

Feeding, feeding standards and feed efficiency

Reference and farm visit will facilitate the understanding about feeding, F.S and F.E, feeding systems like grain feeding, mash feeding, grain & mash feeding, pellet feeding etc. and their comparison should be conducted through discussion and report presentation after the farm visit. The learner should be able to identified different feeding materials like energy feed stuffs, protein, fat, mineral supplements etc. ISI feeding standard should be referred. An idea about feed efficiency should be created in the learner.

Summer management:

During farm visit the learner should interact with farm authorities and labourers to find out the effect of summer and how to tackle it. A report should be presented regarding this by the team leader after thorough discussion.

Light requirement for layers:

Effect of light on egg production, its mechanism and rate of light being provided should be learned through data collection, interaction and discussion.

Culling of layers:

A live demonstration with explanation will help to know about different conditions on which culling is based-condition of body, depigmentation, sexual maturity & moulting pattern. The learner should be able to distinguish between a good layer and a poor layer through body conditions. A comparative chart prepared to compare poor layer and good layer.

Egg production standards at different phases of laying found out through reference and a list is prepared.

Profitability of layer farming :

Different factors affecting profitability are collected through data collection and discussion conducted with leader presenting the report.

TE model questions:

1. A poultry farmer takes you to his layer farm and complaints that the egg production has gone down. How will you distinguish the birds which are low producing and suggest him remedial measures.
2. Compare pellet and pullet in layer farming.
   Make a layer farmer who is new to his career know about importance of light in layer farming.

UNIT X

MANAGEMENT OF BREEDERS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To analyse the purpose of rearing of breeding stock.	• Purpose of rearing	• Discussion • Report preparation		• Report • Flow diagram	1+2
• To understand the feeding of breeders	• Importance of body weight • Restricted feeding	• Brain storming • Note making		• Notes	1+2
• To analyse the selection and culling methods	• Culling • Selection of good breeders • Culling procedure & Criteria in different groups of birds.	• Seminar • Report preparation	• Journals • Magazines • Visual media	• Seminar reports	3+3
• To get an idea about different mating systems and tap nesting	• Pen mating • Stud mating • Trap nesting • Artificial in semination	• Brain storming • Demonstration • Note making	• Live bird and trapnest • Internet	• Notes	1+4

Introduction

The sustainable development of a poultry farm depends upon the effective management of breeders. The planning about introduction of breeders to a mating stock plays a major role in the economic return of poultry farm. Major thrust to poultry breeding research was given during 4th five-year plan period with sanction of All India coordinated Research Projects (AICRP) on poultry breeding by Indian council of Agricultural research (ICAR). This helped the development of many suitable strains of meat and egg type chickens. Now besides ICAR, many agricultural universities, state & central Government poultry farms concentrate on the production of commercial hybrid chicks. Private farms like Poona pearls, keys & Unichix poultry Breeding Farms are putting efforts in the production of hybrid commercial chicks. This chapter provides information about purpose of rearing breeding stock, feeding of breeders, selection and culling methods, different mating systems and trap nesting.

Curriculum objectives

- To analyze the purpose of rearing of breeding stock through discussion and report making
- To understand feeding of breeders through brain storming and note preparation.
- To analyze the selection and culling methods through seminar and report making.
- To get on idea about different mating systems and trap nesting through brain storming, demonstration, notes preparation and internet searching.

Syllabus

Breeding stock-culling –feeding-transepts-pedigree details-mating system-management.

Learning activities

- Discussion
- Seminar
- Note making
- Brain storming

- Demonstration

Purpose of rearing breeders and their feeding.

Through brainstorming, discussion and report presentation the learner should get an idea about the purpose or use of rearing breeders in a poultry farm and the feeding of breeders, importance of body weight during growing and restricted feeding.

Selection and culling methods.

A seminar can be conducted regarding the whole topic selection and culling in which the need of culling and selection procedure for culling like body condition, depigmentation, order of moulting, sexual maturity etc. are included. The facitator will furnish additional points which are necessary for the seminar can be used for evaluation.

Different mating systems and trap resting.

Through brainstorming the learner should be able to recollect different mating systems like pen mating, stud mating, flock mating and its advantages. With the help of a live bird and a trap nest the method of trap nesting and its uses can be demonstrated to the learners effectively. The learners should be made to search internet to get details of artificial insemination in poultry and its future prospects and ask them to prepare notes.

TE model question:

- Convince a farmer about importance of rearing a standard breeding stock.

UNIT XI

MANAGEMENT OF BROILERS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
To make an awareness about broiler, broiler breeds and the hybrid strains	• Term – broiler • General characters • Breeds- white Plymouth-Rock, white Cornish, New-Hampshire, RIR, etc. • Hybrid strains-UBRO hybrids, COBBS, Poona pearls, Venkob etc. • Sources of good quality broiler chicks.	• Reference • Discussion • Listing out	• Reference book	• Participation discussion • list	1+2
To understand about the feeding and housing of broilers.	• Feed ingredients • Feeding standard and feed formulation for broiler starter and finishers. • Housing standard and housing requirements	• Brainstorming • Farm visit • Note making	•	• Note	2+6
To analyse the purpose and stages of processing, storage and marketing of poultry meat.	• Term-processing • Advantages of processing • Stages of processing • Stages of processing- • Storage • Marketing - •	• Meat plant visit • Discussion • Flow chart preparation	• Journals • Magazines • Visual media	• Visit report • Participation in discussion • Flow chart	4+10
To analyse the features involved in starting commercial units	• Management of a broiler farm unit	• Farm Visit • Running project	• Raw materials for starting broiler unit	• Visit report • Participation in project	2+14
To familiarize the by products of broiler industry.	• Bone meal • Meat meal • Blood meal • Feather meal • Meat cum bone meal	• Discussion • Demonstration • Meat plant visit.	•	• Participation in discussion • Visit Report	1+4

Introduction

Broiler is a young bird of eight weeks age with tender meat. Now broiler production is progressing at much faster pace than layers. This is mainly because broiler meat price have gone up considerably. Higher and quicker return and lesser risk attached with broiler farming than layers. Basic principles of layer management can be practiced for efficient production of broilers also. This chapter tells how to make a start in broiler farming, broiler breeds, management of broilers, processing and marketing of poultry meat and economy of broiler farming.

Curriculum objectives

- To make an awareness about broiler, broiler breeds and hybrid strains through reference, discussion and listing out
- To understand about feeding and housing of broilers through brain storming, farm visit and note preparation.
- To analyse the purpose and stages of processing, storage and marketing of poultry meat through meat plant visit, discussion and flow chart preparations
- To analyse the features involved in starting, commercial units through farm visit and project
- To familiarize the by products of broiler industry through discussion, demonstration and meat plant visit.

Learning Activities

- Discussion
- Brain storming
- Farm visit
- Flow chart preparation
- Project
- Demonstration

Broiler, broiler breeds hybrid strains:

Through reference learner gets an awareness about the term broiler and its general charactertics. Group discussion about different breeds like white plymouthrock, Cornish,

New hamphshire, RIR. A listing of these brids along with hybrid strains like UBRO hybrids, COBBS, Poona pearls, Venkob etc. and their sources will make learner aware about them.

Feeding & Housing of Broilers

As the learner is aware about feed ingredients of broilers brainstorming is enough to the update the idea. A farm visit & note preparation about feeding standards, feed formulation for starter and finisher, housing standards and equipments will create an awareness about feeding & housing of broilers.

Processing & Marketing of poultry meat

A meat plant visit will facilitate the learning process about processing, advantages of processing, stages of processing and marketing of meat. A discussion and flow chart preparation will affirm ideas about above activities. Visit report, participation in discussion and flow chart can be used for evaluating the learner.

Commercial Broiler units

After a farm visit learner groups can establish running units for broilers. Unit procures chicks, feed, other necessary equipments for broiler production. Necessary directions should be provided by the facilitator and constant visit to the units is a must. The group can market their products. Evaluation can be done by noting participation in project and economic feasibility of project.

Byproducts of Broiler industry

The various byproducts of broiler industry can be familiarized through demonstration of products like bone meal, meat meal, blood meal, feather meal, etc and a group discussion on it.

TE model question

- Compare the basic difference in mixing of feed ingredients for broiler starter and finisher rations.

UNIT –XII

TABLE EGGS AND ITS PRODUCTIONS

Curriculum Objectives	Ideas/Concept	Activity	Material	Evaluations	Hours
• To get an idea about candiling and grading of eggs	• Candling • Grading –Indian standards for quality of shell eggs. • Standards for weight classification of shell eggs.	• Live demonstration • Farm visit • Wall paper preparation	• Egg candler and egg	• Wall paper	2+10
• To make an awareness about abnormal eggs	• Double yolked eggs, meat spot, blood spot soft shelled eggs, Pale eggs, an egg with in an egg etc.	• sample collection • report presentation	• Samples	• Samples • Report	2+4
• To get an idea about the factors affecting production of table eggs	• Genetic make up, Nutrition, Housing and management, diseases, Age of birds, storage etc.	• Discussion • Making notes	• Reference books	• Participation in discussion • Notes	2+1
• To make an awareness about the methods of cleaning dirty eggs	• Dry cleaning • Wet cleaning	• Farm visit	•	• visit report	1+3
• To understand the methods of collection, transportation and marketing of eggs	• Collection • Transportation • Marketing	• Discussion • Report presentation • Farm visit	•	• Participation in discussion • Visit report	

Introduction

After selecting eggs for hatching, a large number of eggs remains which can be used for eating purpose, which are known as table eggs, sufficient care is required in producing table eggs since it is one of the main source of income in farming. This chapter provides insight about candling (method for testing internal quality) & grading. Even though defected eggs forms only a minor percentage in the total population of table eggs, this chapter gives an idea about abnormal eggs like blood spot, meat spot etc. various factors affecting production of table eggs and methods of cleaning soiled eggs are also dealt with. It gives an account about collection, transportation and marketing of table eggs which are factors affecting economic feasibility of farm.

Curriculum objectives

- To get an idea about the candling and grading of eggs through live demonstration, farm visit and wall paper preparation.
- To make an awareness about abnormal eggs through sample collection and report presentation.
- To get an idea about the factors affecting production of table eggs through discussion and making notes.
- To make an awareness about the methods of cleaning soiled eggs through a farm visit.
- To understand the methods of collection, transportation and marketing of eggs through discussion, report presentation and farm visit.

Syllabus

Table eggs production-collection-Grading –storage-Marketing-production of clean eggs.

Learning activities

- **Live Demonstration**
- **Farm visit**
- **Collection**
- **Discussion**
- **Wall paper preparation**

Candling and Grading of eggs

A live demonstration and farm visit for practice of candling will help learner to detect internal quality & shell quality of eggs. Grades of eggs can be distinguished and exhibited by means of wall paper.

Abnormal eggs

Samples of abnormal eggs like double yolked eggs, meat spot, blood spot, soft shelled eggs, egg within egg are collected and a report made will help learners to familiarize with these defects.

Factors affecting production of table eggs

Discussion about genetic make up of bird, nutrition, housing and management, diseases, age of birds, storage etc. with a report formulation can be done.

Cleaning of eggs

A farm visits helps to know about dry cleaning & wet cleaning .

Collection, transportation and marketing of eggs

Different aspects of collection, transportation and marketing of eggs can be known through a farm visit, group discussion and report presentation.

TE model questions

1. During candling of egg, you have noticed a red coloured spot in an egg, what condition do you suspect and what is your concept about hatchability of that egg?

2. Put the letter 'G' in front of each phrase that is characteristic of a good market egg. Put the 'P' in front of each description that is characteristic of a poor market egg. Put an 'X' in front of the phrase that has noting to do with the marking of an egg.
   (1) Large yolk_____
   (2) No air cell _____
   (3) Large air cell _____
   (4) A thick shelled egg _____
   (5) Unwashed egg _____
   (6) Egg with porous shell _____
   (7) Egg with bloom_____
   (8) Small air cell _____
   (9) An egg with two shell membranes _____
   (10) Mobile yolk _____
   (11) A fertile egg _____
   (12) Brown shelled egg_____
   (13) An egg with chalaza _____
   (14) An egg with rot _____

Ans: 1(P) 2 (X) 3 (X) 4 (X) 5 (X) 6(X) 7 (G) 8 (X) 9 (X) 10 (P) 11 (P) 12 (X) 13 (X) 14 (P)

UNIT XIII

IMPORTANCE OF EGG AND EGG PRODUCTS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To understand the physical and chemical composition of an egg.	• Shell • Shell membranes • Albumen • Yolk • Water percent, protein, fat and ash percent in egg.	• Live demonstration • Discussion • Making diagrams	• Reference book • Egg	• Participation in discussion • diagrams	3+6
• To understand the egg quality parameters	• Egg size and shell condition • Size and position of air cell • Amount and quality of thick albumen • Colour and quality of yolk. • Defects –blood spots, meat spots, rots etc.	• Discussion • Lecture • Reference	• Reference book	• Participation in discussion	3+5
• To get an idea about the need and methods of preservation of shell eggs.	• Water glass method, lime sealing, Thermo stabilization , Oil treatment , cold storage.	• Reference • Discussion • Method demonstration	• Reference books	• Participation in discussion. • Report	2+5
• To get an idea about uses of common egg products	• Egg powder, egg- • Chocolate drink, egg apple juice, egg cullet egg cake, omlett etc. • Methods of cooking • Effect of consuming raw & cooked eggs.	• Group discussion • Sample collection • Preparation of prouducts	• Raw materials	• Participation in discussion. • Listing the products	2+5

Introduction

An egg is made up of many complex parts. Study of these parts and their functions will be useful in dealing and working with eggs. This chapter deals with physical and Chemical composition of eggs. It also gives an idea about egg quality parameters and different methods of preservation of shell eggs. The products like egg powder, egg chocolate drink, egg cutlet etc are also dealt in this chapter.

Curriculum objectives

- To understand the physical and chemical composition of an egg through live demonstration, discussion and making diagrams.
- To understand the egg quality parameters through discussion, lecture and reference.
- To get an idea about the need and methods of preservation of shell eggs through reference, discussion and method demonstration.
- To get an idea about the uses of common egg products through group discussion, sample collection and preparation of products.

Syllabus

Eggs – Physical and chemical composition – Methods of preservation – Egg products-Egg powder and frozen egg products-whole eggs, yolk or albumen Egg quality parameters.

learning activities

- **Discussion**
- **Live demonstration**
- **Making diagram**
- **Sample collection**

Physical and chemical composition of an egg

A live demonstration and discussion can be arranged regarding the structure and chemical composition of egg. Each learner can bring an egg and analyse its parts like

shell, membranes, albumen, Yolk etc. Diagrams can be prepared. A discussion regarding the chemical composition will help in the learning process. Participation in discussion and diagrams can be used for evaluation.

Egg Quality Parameters.

A lecture, reference and discussion will help to understand different egg quality parameters. The portions to be covered under this are egg size and shell condition, size and position of air cell, amount and quality of thick albumen, colour and quality of yolk, defects- blood spot, meat spot, rots etc.

Need and Methods of Preservation of shell eggs.

The need for preserving shell eggs and different methods like water glass method, lime sealing, Thermo stabilization, oil treatment, cold storage etc. can be discussed in the class after demonstration of methods. Reference can also be used for collecting information.

Common egg products

A group discussion can be conducted regarding the variety of egg products available sample collection and preparation of products can be done for familiarization with the products like egg powder, egg cake, omlette etc. Methods of preparation/cooking should also be taken into account. Participation in discussion and preparation of list of products etc. can be taken as tools for evaluation.

TE model questions.

- Can you advice a poultry farmer about the methods of preservation of eggs? Give explanation to each method.
- List out some major egg products which can be easily prepared.

UNIT XIV

HATCHERY MANAGEMENT

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To understand the section of hatching eggs and important hatchery operations.	• Factors to be considered while selecting hatching eggs. • Important hatchery operations. • Factors affecting hatchability of eggs. • Hatchery hygiene and prevention of hatchery borne diseases.	• Hatchery visit		• Visit report	4+4
• To make an awareness about different methods of incubation.	• Incubation • Natural incubation • Artificial incubation - Still air incubators - Forced draft incubators	• Lecture • Reference	• Reference books	• Note	3+2
• To get an idea about conditions required for incubation	• Physical requisites for successful incubation	• Hatchery visit • Reference	• Reference books	• Visit report • Note	2+6
• To familiarize with the incubator.	• Parts of modern incubator.	• Demonstration • Making diagram	• incubator	• Diagram	1+6

Introduction

Incubation is the process of providing heat, moisture and air in the correct proportion to fertile eggs in order to cause development of the embryo and the hatching out of vigorous chicks. Hatchery is a building where incubator is placed. Incubators are used for large scale hatching and a few hens may be used for hatching a small lot. For successful incubation technical knowledge, hygienic precautions, selection procedures should be followed strictly. This chapter helps the learner to understand the types of incubators, selection of hatching eggs, operating the incubator and important hatchery operations.

Curriculum objectives

- To understand the selection of hatching eggs and important hatchery operations through a hatchery visit.
- To make an awareness about different methods of incubation through lecture and reference.
- To get an idea about the conditions required for incubation through hatchery visit and reference.
- To familiarize with the incubator through a demonstration and making diagrams.

Syllabus

Care and management of hatching eggs-Selection of hatching eggs-incubation-Hatchery operation.

Learning activities

- Field visit
- Demonstration
- Discussion

Selection of Hatching eggs and Hatchery Operations:

Factors to be considered while selecting hatching eggs like eggs size, shape, shell quality and internal quality should be familiarized through handling the eggs and

candling. The operations followed in hatchery in a sequential order should be familiarized through hatchery visit. Factors affecting hatchability of eggs can be found out through reference. A visit report prepared can be used for evaluation.

Different methods of incubation.

Preliminary idea about incubation, different methods like natural and artificial incubators and forced draft incubators etc can be introduced through lecture, reference and note making.

Conditions required for incubation

The physical requisites for successful incubation can be familiarized through reference and hatchery visit.

Parts of incubator

Learner can familiarize with an incubator through demonstration and making diagrams. Diagrams can be taken as a tool for evaluation.

TE model question

- You are appointed as an employee in a new hatchery. The hatchery manager asks you to take necessary hygienic measures before placing the eggs for incubation. Elaborate the measures you adopt.

UNIT- XV

COMMON DISEASES OF POULTRY

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To get an idea about Ranikhet disease, Marek's disease, fowl pox, IBD, Pulloram Disease, fowl cholera, smalmonellosis , coccidiosis, Aspergillosis, Afla taxicosis, favus.	• Causative agent • Transmission • Symptoms • Prevention & control.	• Hospital visit • Reference • Seminar	• Reference books	• Report	3+18
• To get an idea about parasitic diseases (Ascariasis, syngamiasis, caecal worm, ticks, mites, fleas, louse) & deficiency diseases.	• Causative agent • Transmission • Symptoms • Prevention & control	• Hospital visit • Microscopic examination • Sample collection	• Microscope	• Report	3+8
• To analyse the prevention and control measures of poultry diseases.	• Guide for preventing different poultry diseases.	• Farm visit • Interview		• Note	3+4
• To practise different vaccination procedures in a poultry farm and preparing vaccination schedule.	• Routes of vaccination • Vaccination schedule	• Practice • Vaccination • Schedule - chart	• Needle & syringe, vaccine	• Perfection in practice • Chart – vaccination schedule	2+10

Introduction

' Prevention is better then cure' is more true to-day than ever before due to increase in the number of high producing strains of birds who are more vulnerable to disease particularly during stress conditions. To maintain a flock in an ideal state of health and avoid loss through disease, it is essential to have an adequate knowledge of important disease conditions and predisposing factors influencing the resistance of birds to diseases etc. The most important factors which causes diseases are nutritional deficiencies in ration, faulty feeding practices, poor ventilation, overcrowding, infectious agents, enviromental stresses, parasites etc….. This chapter helps the learners to be familiar with the causes and mode of spread of diseases which are essential for instituting effective preventive measures to break the cycle of infection.

Curriculum objectives

- To get an idea about Ranikhet disease, Mareks' disease, fowl pox, IBD , pullorum disease, fowl cholera, salmonellosis, coccidiosis, Aspergillosis, Aflatoxicosis, favus etc, through hospital visit, reference and seminar.
- To get an idea about Pararitic disease (Ascariasis, syngamiasis, caecal worm, ticks, mites, fleas, lice) and deficiency diseases through hospital visit, microscopic examination and sample collection.
- To analyse the prevention and control measures of poultry disease through farm visit and an interview with farmers.
- To practice different vaccination procedures in a poultry farm and preparing a vaccination schedule chart through practice

Syllabus

Common diseases – Ranikhet discuses –Marek's disease-Fowl pox-coccidiosis – Pullorum disease- Parasites –External and Internal Causes-Main symptoms and control –Vaccination –Deworming.

Learning Activities:

- **Field visit**
- **Seminar**
- **Sample collection**
- **Farm visit**
- **Interview**

An idea about following diseases should be formed through hospital visit, Reference and seminar. Through reference learner should collect basic information about diseases, hospital visit enables to gather practical information and seminar helps in analysis of a disease. The presentation of seminar & its report can be taken as tools for evaluation. The diseases dealt are Ranikhet disease, Marek's disease, fowl pox, IBD, Pulloram disease, fowl cholera, salmonellosis, coccidiosis, Aspergillosis, Aflafoxicosis, favus, Prasitic diseases like Ascarasis, synagmiasis, Caecal worm, ticks, mites, fleas, louse, deficiency disease like Nutritional roup, Rickets, Nutritional encephalomalacia, Polyneuritis, curled toe paralysis, perosis etc. while dealing with a disease learner should develop an idea about the etiology, transmission, symptoms, prevention & control.

Prevention & Control measures for poultry diseases

The learner should formulate preventive measures for common poultry diseases in a poultry farm. Through farm visit and interviewing the authorities they should chart out different control measures.

Vaccination schedule

Learners should practise different routes through which vaccination is done. They should be familiar with different procedures related to vaccination and should prepare a vaccination schedule chart.

TE Model Questions

- In the control of diseases, there are a few guidelines that are employed by all poultry men; specify several of these procedures be sure to state which disease is being controlled by each procedure?
- During a farm visit you have noticed many weak birds with blood in droppings. Suggest the disease suspected and also the treatment and control measures?

UNIT- XVI

REARING OF DUCK

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To get an idea about advantages of duck rearing	• Advantages	• discussion		• Participation in discussion	1+1
• To identify different breeds of duck.	• Meat type white Pekin, muscovy . etc. • Egg type-Khaki Campbell, Indian Runer etc. • Ornamental type – crested white etc.	• Farm visit • Photo collection	• Reference book	• Visit report • Photos	2+4
• To make an awareness about incubation, brooding, housing and feeding of ducks.	• Incubation • Brooding • Housing • Feeding	• Farm visit	• Reference books	• Visit report	3+5
• To understand the common duck diseases	• Duck plague, Aflatoxicosis duck parteurellosis	• Reference • Group discussion • Report preparation • Practice Vaccination.	• Reference books	• Participation in discussion • Report	2+6
• To make an awareness about care of laying ducks.	• Management of laying ducks	• Farm visit • Discussion • Making Notes		• Visit report • Participation in discussion Note	1+2

Introduction

In nature duck is a water bird coming under family anatidae small in size, shorter neck, flatter body, shorter legs and broader bills. In India West Bengal ranks first in duck population. Scientific duck raising was practically non existent in the country, except tender to disorganized sectors. This chapter helps the learners to understand advantages of duck rearing over chicken, breeds of ducks, incubation of duck eggs, brooding, housing and common duck diseases.

Curriculum objectives

- To get an idea about advantages of duck rearing through discussion
- To identify different breeds of duck through farm visit and photo collection.
- To make an awareness about incubation, brooding , housing and feeding of ducks through farm visit.
- To understand the common duck diseases through reference, group discussion and report preparation
- To make an awareness about care of laying ducks through farm visit, discussion and making notes.

Syllabus

Duck-Common breeds-Brooding-rearing and management.

Learning Activities

- Discussion
- Farm visit
- Photo collection
- Report Preparation

Advantages of duck farming & Breeds of duck

The advantages of duck rearing over chicken farming can be taken as a subject for discussion in the class. A farm visit and collection of photographs of different breeds of

ducks helps in the understanding of different breeds of ducks like white pekin, muscovy, Khaki cambell, Indian Runner etc.

Management of ducks & care of laying duck

A farm visit provides an insight about different aspects of management in a duck farm like incubation, brooding, housing and feeding. A discussion about care of laying ducks can be conducted with concluding note preparation.

Common duck diseases

Information about common duck disease like Duck plague Aflatoxicosis, duck pasturellosis etc. can be gathered and analysed through reference, group discussion and report preparation.

TE model questions

- Your nearby duck farmer approaches you complaining that his ducks are dieing suddenly after feeding ground nut cake. Note that it is in a rainy season. What is the cause of death and suggest the remedial measures?
- Drake is a ……
  (male duck, male turkey, male quail)
- List out a few sources of duck chicks in kerala

UNIT -XVII

CARE AND MANAGEMENT OF TURKEYS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To make an awareness about turkey rearing	• Turkey varieties • Difference between sexes • Housing system & Brooding • Feeding • Advantages of Turkey	• Farm visit • Booklet preparation		• Visit report • Booklet	3+13

Introduction

Turkey production has become a highly specialized industry. They are kept mainly for meat. Turkeys are excellent foragers.There is no specific breed for turkey (only varieties). For economical turkey rearing start with quality poults, clean & disinfect brooder houses, rear them separate from chicken, do not overcrowd, feed adequately, provide clean will drained range & deworm regularly. If disease occurs secure an early and accurate diagnosis. We will deal in this chapter about different aspects in turkey production and management.

Curriculum objectives

- To make an awareness about turkey rearing through farm visit and booklet preparation.

Syllabus

Turkey –Common breeds –Brooding –rearing and judgment.

Learning Activities

- Farm visit
- Book let preparation

A farm visit to a turkey farm provides an idea how the turkeys are reared. Learner can prepare booklets about turkey production and management. It should include all activities of turkey nearing like turkey verities, difference between sexes, housing system, brooding, feeding and advantages of turkey rearing. Booklet can contain photographs, charts regarding production aspects and should cover all aspects in managing turkeys.

TE model questions

- The brooding of poults is generally considered a more difficult undertaking than brooding chicks. Tell why that belief exists and what extra precautions, if any, turkey raisers use that are not used by chicken raisers
- Black head is…… (a disease of turkey, a disease of the comb, usually called roup).
- A poult is…….

  (an immature turkey hen, a baby turkey, a market sized turkey)

UNIT- XVIII

CARE AND MANAGEMENT OF QUAILS

Curriculum Objectives	Ideas/ Concept	Activity	Materials	Evaluation	Hours
• To make an awareness about quail rearing	• Importance of Quail • Common breed & varities • Methods of rearing • brooding • Health cover • Differentiation of sex • Feeding • Light • Quail products	• Working project • Farm visit	• Basic requirements for rearing quails	• Participation & Running of project.	2+15

Introduction

Japanese quail (coturnix coturtnix Japonica) is a domesticated variety of quail. It is hardy, grows faster, has a short generation interval and is precocious. Quail meat is light and tasty. Specific lines developed for egg production as well as meat production are available. This chapter deals with mangemental aspects of rearing quails.

Curriculum objectives

- To make an awareness about quail rearing through a project work.

Syllabus:

Quail- Brooding –rearing and Management

Learning Activities

- Project
- Farm visit

Learners can establish running units of quails rearing. They should be provided with good quality chicks. The units can procure the chicks, feed, other necessary requirements for quail production. Necessary directions should be given by the facilitator and constant visit to the units is a must. The units should be near to the school premises so that their running is easy. Marketing of eggs and meat should also be a part of learning activity. They can find out the market either inside or outside the school. Evaluation can be done through be noting their participation in project.

TE model questions

- A farmer has brought a new stock of quail chicks. Help him to identify male and female chicks.

PART III

FORMAT FOR SUBJECT WISE EVALUATION

Sl. no	Name	CCE					TE (80)	Total (100)	Grade	PE								Vocational Competency Evaluation				
		1 (20) Class Test	2 (20) Assingment	3(20) seminar / Project	Total (60)	Total Out of 20				1	2	3	4	5	6	Total	Grade	Regularity and panchuality (10)	Value addition (20)	Capacity building (20)	Total (50)	Grade

FORMAT FOR SCHOOL WISE SCORE SHEET

Sl.No	Name	English				General Foundation Course				Vocational subject								Physics					Chemistry					Mathematics			
										CE	TE			PE		VCE															
		CE	TE	Total	Grade	CE	TE	Total	Grade	CE	TE	Total	Grade	Total	Grade	Total	Grade	CE	TE	PE	Total	Grade	CE	TE	PE	Total	Grade	CE	TE	Total	Grade

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2. "Livestock and poultry production", 'Clearance E Bundy', 'Ronald V Diggins', Third Edition.
3. "Poultry production", 'R.A. Singh'. Kalyani publishers, 2004.
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