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TLE

Animal Production

Quarter 2 – Module 4:

Performing Estimations and Basic Calculations in the Workplace

ALTERNATIVE DELIVERY MODE
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Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need To Know

This module was designed and written with you in mind. It is here to help you master the nature of Performing Basic Estimations or Calculations in the Workplace. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

The module is divided into four lessons, namely:

Lesson 1. Following Procedures in Reporting Estimate of Materials and Resources;
Lesson 2. Performing Estimations According to Job Requirement;
Lesson 3. Perform Calculations using Four Basic Mathematical Operations; and
Lesson 4. Employ different techniques in checking accuracy of results.

After going through this module, you are expected to:

1. Estimate quantities and resources and time required in animal production;
2. Discuss the needed quantities and resources and time required in animal production;
3. Identify job requirements from written or oral communication;
4. Perform estimations on the estimate quantities of materials and resources required to complete a task;
5. Perform calculations needed using four basic mathematical operation;
6. Illustrate the complete task calculation;
7. Determine appropriate operations used to comply with instruction; and
8. Employ different techniques in checking accuracy of result.

What I Know

Pre-assessment

A. Matching Type. Match column **A** with column **B**. Choose the correct answer and write the letter on your worksheet.

Column A	**Column B**
_____1. The amount of feed is dependent on the chicken's____.	A. restricted feeding
_____2. It is where the amount of feed provided regulated or limited to a certain amount.	B. Ad Libitum Feeding
_____3. A kind of feeding is made without restrictions of feed.	C. growth rate
_____4. Will also be used when feeding ad Libitum	D. fresh feed
_____5. It contributes to improve feed intake and feed efficiency.	E. dry feed

B. Directions. Read each question and choices carefully. Encircle the letter of the correct answer.

1. What is the formula used in solving the return of Investment?
   a. $ROI = \frac{net\ income}{cost\ of\ production} x\ 100$ c. $ROI = \frac{cost\ of\ production}{net\ income} x\ 100$
   b. $ROI = \frac{net\ income}{cost\ of\ production}$ d. *ROI = net income x cost of production*
2. Given the base equal to 5 cm and height equal to 3 cm. What is the area?
   a. 15 cm^2 b. 8 cm^2 c. 2 cm^2 d. 12 cm^2
3. What is the mortality rate of birds?
   Given: number of dead birds = 5, total number of birds = 120
   a. 4.17% b. 24.00% c. 5.00% d. none of the above
4. The amount of feed consumed in order to produce a kilo of meat.
   a. Feed conversion ratio b. return of investment c. feed cost
5. The formula for the surface area of a triangle.
   a. A (triangle)= 0.5 x base x height b. A (triangle)= base x height
   c. A (triangle)= base x height d. A (triangle)= 2base x 2height

Lesson 1 Following Procedures in Reporting Estimate of Materials and Resources

Learning Objectives:

1. Identify the different kinds of feeds, its estimation and calculations ant its advantages and disadvantages.
2. Estimate quantities, resources and time required in animal production, and
3. Discuss the needed quantities, resources and time required in animal Production.

What's In

Definition of Terms:

Broiler - chicken intended for meat use
Enterprise - company or a business venture willingness to begin work on a new project
Input - is the word that indicates either an entry or changes that are introduced in a system and activate/modify a process
Records - an item or a data collection

What's New

After learning all the basic competencies in this subject, the Animal Production, we are now moving on to higher competencies. As a learner in this subject, you might discover within yourself that you are born to become an Entrepreneur! So, by preparing yourself to be one, let's keep the eagerness in you to learn more and become a successful entrepreneur farmer someday. Keep your dreams burning!

There are different types of feed you need to learn in order for you to identify the right and appropriate food in poultry or swine business.

1. What are the different types of feeds for animals in poultry?

_____
_____

2. Explain the difference between Restricted Feeding and Ad Libitum Feeding.

_____
_____

What Is It

A. Types of Feed

The market offers three forms of feed. The proportion of nutrients in the feed differs in each form. Changing the proportion of nutrients is necessary to address the chicken's needs at different stages of development. The change from one ration to another will take place slowly so as not to disrupt the chicken's usual feeding behavior. Always allow at least one week of transition period.

1. **Starter Feed**

   Is a protein rich chicken feed variety intended to meet the chicks' dietary requirements? Typically speaking, chicks can survive happily on a starter feed and water diet for the first 6 weeks of their life before they will be fed by the grower. A starter feed contains 18% of digestible energy (DE) crude protein and 3,250 kilocalories (Kcal or j).

2. **Grower Feed**

   It is the kind of feed used in the nursery. Once the pigs have reached a certain age (about 5 weeks old) and have settled down, they don't need feeds which makes them unique as they were in their early stages of life (starter feed). Grower ration contains 16 percent crude protein (CP) and DE 3,200 kilocalories (Kcal or j).

3. **Finisher Feed**

   The ration of the pigs is shifted at 60 kgs to finisher feed. Finisher pigs are given up to 80 to 90 kgs ready for sale. The ration includes CP 14 percent with DE 3,200 kilocalories (Kcal or j).

B. Feeding Methods

The pig's growth output is influenced not only by the quantity and quality of feed provided but also by the feeding methods. For finishers the three basic feeding methods are restricted feeding, ad libitum, and a combination of ad libitum and restricted feeding. Food rates can vary from restricted feeding (approximately 80 percent satisfaction) to ad libitum (100 percent satisfaction).

1. **Restricted Feeding**

   It involves offering the animals limited amounts of feed, usually less than the amount they can eat (the feed is not available 24 hours a day). It is done by using a long feeding trough, where all chickens eat simultaneously. However, during feeding time, the length of the trough should be long enough to accommodate each fattener.

   One good criterion for restricted feeding is that if given as a slop, the trough should be emptied after 15 or 20 minutes. The level of feeding is based upon the chicken's growth rate.

2. **Ad Libitum Feeding**

   This system is also called free choice feeding where the bird can always eat well. It is a practice in broiler chicken where the ultimate goal of rearing birds is maximum body weight. This method is manageable easily. Feed can be supplied at a time for several days, and there is no need to monitor or supervise the daily intake of the bird. This method of feeding should always be used with dry feed. Fresh feed increases feed intake and

feed quality, so to avoid microbial spoilage, self-feeders should be emptied and cleaned at least once a week. Chicken consider infested feed unpalatable hence, feed wastage is high. Continuous supply of fresh and clean water in ad libitum feeding is essential, as water intake increases when this method is used.

3. Combination of Ad Libitum and Restricted Feeding

Pigs are fed by ad libitum until they are 50 kgs in weight and fed with restrictions until sold. With this feeding approach the animal's growth potential during the first 50 kgs can be maximized. Restriction is applied to reduce backfat thickness with a corresponding increase in the yield of lean cut.

To determine the **FCR or Feed Conversion Ration**, the formula below is used:

$$Feed\ Conversion\ Ratio = \frac{Feed\ consumed\ (kg)}{Gain\ in\ Weight\ (kg)}$$

Restricted Feeding

ADVANTAGES	DISADVANTAGES
1.To delay sexual maturity from few days to three or four weeks 2. Reduces body mass and body fat content 3. Reduces the expense of raising the pullets 4. Livelihood during egg development is increased 5. Egg weight is regulated to produce bigger one	1. Low Daily Average benefit 2. Unequal development, especially if the feed trough is not long enough to accommodate all chicken 3. More laboring 4. Less opportunity to counter higher marketing costs

Ad Libitum Feeding

ADVANTAGES	DISADVANTAGES
1. It reaches higher ADG 2. Less competition of feed 3. Less demanding	1. Thicker backfat 2. Higher feed conversion ration (higher feed cost) 3. More digestive problems in younger chicken 4. Less control on health problems

Combination of Ad Libitum and Restricted Feeding

ADVANTAGES	DISADVANTAGES
1. Superior ADG with healthy dead animals' quality 2. Low feed costs 3. Better feed use (better FCR)	1. Higher possibility of digestive problems if shifting is not properly done 2. Less control of health problems and feed intake at the start

On Broilers Requirements:

The following space parameters may serve as a reference.

Age	Floor space/ bird	Feeder space/ bird	Waterer space / bird
Up to 18 days	450 cm2 (0.5 sq.ft.)	3 cm	1.5 cm
From 19 days to 42 days	1000 cm2 (1.1 sq.ft.)	6-7 cm	3 cm

Recommended Brooding Temperature for Broilers

Age of Chicks (Weeks)	Brooding Temperature (°C)
0-1 weeks	32.2-35.0
1-2 weeks	29.4-32.2
2-4 weeks	26.7-29.4
Above 4 weeks	Remove the supply of heat

What's More

Activity 1.1

Write the correct answer in your worksheet.

_____1. Chicken's transition period in changing feeds
_____2. It is where the ration of pigs is shifted at 60 kgs.
_____3. A kind of feeding called free choice where the bird can always eat well
_____4. A kind of feeding where animals were given a limited amount of feed
_____5. It is applied to reduce backfat thickness with a corresponding increase in the yield of lean cut.

What I Have Learned

Activity 1.2

Directions: Fill in the blank with the right answer. Write AD if it refers to the advantage of feeding and DIS if it refers to the disadvantage.

_____ 1. It reduces the expense of raising the pullets in the restricted feeding.
_____ 2. Has a higher possibility of digestive problems if shifting is not properly done in the combination of Ad Libitum and Restricted Feeding.
_____ 3. Less competition of feed in Ad Libitum Feeding
_____ 4. Low Daily Average Benefit in the Restricted Feeding
_____ 5. Reduces body mass and body fat content in the Restricted Feeding

What I Can Do

Activity 1.3

Compute for the Feed Conversion Ratio of the following:

No.	Feed Consumed (kg)	Gain in weight(kg)	FCR
1	2.5	1.4	
2	3.2	1.8	
3	2.4	1.2	
4	2.8	1.6	
5	2.2	1.0	

Lesson 2 Perform Estimations According to the Job Requirement

Learning Objectives:

1. Identify job requirements from written or oral communication.
2. Perform estimations on the quantities of materials and resources required to complete a task are estimated.

What's In

Based on the previous lesson, the different methods and types of feed used in animal production can be calculated through the Feed Conversion Rate or FCR.

In our new lesson, we will identify the different job requirements in poultry farming and perform estimations on the quantities needed on the materials and resources required to complete a task. We will identify job requirements from written to oral communication and perform estimations in order to give our farm animals the right measurement and proper methods ensuring their health and safety.

What's New

Give short description of the following. Write your answer in the worksheet.

1. Bookkeeper

_____
_____

2. Caretaker

_____
_____

3. Farm Owner

_____
_____

4. Farm Technician

_____
_____

5. Farm Manager

_____
_____

What Is It

Job Requirement's in Poultry Industry

You want a job that stimulates your interest, uses your abilities, creates a challenge, and provides satisfaction. You want to be safe financially. And, when you graduate, you want to be sure of finding a job. It can be very rewarding, financially and personally, to choose a career in the poultry industry.

Chicken farm tasks depend on the farming method and the size of the farm, receiving and sorting new chicks, feeding the chickens, cleaning pens, and inspecting the birds for disease are the most common tasks, however. There are also laying hens in some chicken farms which lay eggs to sell, and some breed chicks that they can sell to other farms, so working on a poultry farm in the incubation room could also be part of your job.

If you're not careful, working on a poultry farm does bring some health hazards. It is important to wear protective clothing, especially a mask, when cleaning cages and pens or even just entering them, and if you suffer from asthma or allergies, this might not be the best job opportunity for you.

Job Requirement	Description of Job
Farm Owner	• He owns the farm. • Manages his own farm • Ensure compliance with the government regulations and health and safety standards • Has a working knowledge of the production of poultry, market practices and methods of management. • They spend a lot of money. • Set his own hours, depending on the size of the farm and the number of working employees.
Farm Manager	• Responsible for daily planning • Makes policy decisions • Instructs and supervises farm workers • Ensures that the farm is profitable and meets projected financial targets • Tasks include monitoring personnel, crops, and poultry, buying supplies, planning budgets and reports, and securing full benefit. • Detail-oriented, is a keen problem solver who concentrate on effectiveness and take a hands-on management approach.
Farm Technician	• Provides information and advice to farmers about their businesses. • Helps the farmers pick the right livestock. • Facilitates vaccines and medications of livestock • Conducts regular visit and monitoring on livestock health status • Inspects farms to comply with the standards of contracts and

	cooperative agreements, advises farmers on development projects to assist in the manufacture of quality poultry products. • Tours farms to inspect activities for adequacy and sanitation quality of services and facilities. • Examines chickens to define the efficacy of drug feeding systems for evidence of disease and growth rate by weight and age. • Recommends improvements to facilities, machinery, and medicines to increase performance based on poultry farming knowledge and processing of hatchery operations. • Inform farmers of new processes and techniques, government regulations, and production standards for businesses and associations to allow them to update farms to meet requirements. • Recommends, or collects samples for laboratory testing of diseased chickens, feeds, and nutrients and sends them to the plant laboratory for analysis. • Reports of farm conditions, laboratory tests, recommendations and reactions of farmers to maintain superior awareness of the efforts of farmers to supply quality goods.
Caretaker	• Moves livestock to desired locations like pastures for grazing, • Scales and measures foodstuffs, and mixes feed, additives and medicines in prescribed portions. • Monitors food and water supplies, and distribute feed and water to livestock. • Drives trailers and other equipment. • Cleans barns, sheds, pens, yards and equipment using disinfectant solutions • Grooms, trims, and castrate animals • Milks animals, such as cows and goats • Collects eggs • Examines animals to detect illness, injury or disease • Feeding, control of birds, bird safety, disposal of dead birds, handling of poultry, collection of eggs, setting of eggs, removal of hatches, grouping and vaccinating birds, cleaning rooms and equipment / facility maintenance.
Tool Keeper	• Maintain receipts, records and withdrawal of tools and equipment • Keep tools to their proper place • Receives, stores, and issues tools, supplies , equipment, and repair parts; and performs other tasks related to the care and maintenance of a tool room
Bookkeeper	• Keeps the record of the farm • Oversees farm financial record • Helps the farm owner to keep track income and expenditures • Bookkeepers are responsible for maintaining the basic accounting documents, known as ledgers. Daily operations include recording transactions and reporting them to separate accounts, such as income and outgoings. • should emphasize the need for a good sense of time management and organizational skills.

	• is like an accounting team's engine room, keeping a variety of ledgers used to generate key financial reports. • should suggest the need for an applicant who is structured and loves numbers and accounting information.
Security Guard	• Enforces laws, rules and farm policies • Responds to emergencies and protects property • Controls access to buildings and protecting employees, guests and the public • Monitors alarms and surveillance systems • Patrols areas and performing security checks • Writes activity and incident report • Secures premises and workers by property patrolling; security systems monitoring; houses, equipment, and access points inspection and allow entry permitting. • Obtains assistance by sounding alarms • Prevents losses and harm through the detection of irregularities; warns regulation and procedural violators; restricts trespassers.
Farm Supervisor	• manage poultry farms and handle sales and delivery to food producers of chicken-based goods. • work to establish farm schedules and achieve processing targets with other farm workers. • Hiring and training employees, ordering supplies and budgeting can be part of his responsibilities. • should have a good leadership and communication abilities. • Ensures the protection and quality of poultry farm activities. prioritizes tasks in consultation with the farm manager and agrees on the necessary quantity of machinery and the number of employees. • collects data and provides reports on worker participation, budget, supplies and growth of animals. • assigns roles to farm staff and ensures that they are carried out effectively; tasks can include feeding poultry, shipping eggs, or maintaining buildings. • should supervise the machinery that performs certain tasks, such as the collection of eggs, in larger hatcheries. • educates new staff, providing treatment for injured or sick animals, and implementing hygiene practices in the workplace to prevent the spread of disease.

FACILITIES AND EQUIPMENT IN POULTRY PRODUCTION

1. Drooping Board
2. Brooder
3. Feeding trough
4. Water trough
5. Incubator
6. Feed Bin
7. Perches
8. Nest
9. Livestock trailer
10. Manure Spreader

FACILITIES AND EQUIPMENT IN LIVESTOCK PRODUCTION

1. Castration rack
2. Farrowing crate
3. Breeding crate
4. Heat Lamps and Brooders
5. Waterer
6. Shipping crate
7. Feed cart
8. Self-feeders
9. Water system

What's More

Activity 2.1

Identify one job requirement in animal production and discuss and explain it briefly. Write your answer on your worksheet.

_____
_____
_____

What I Have Learned

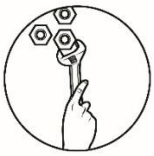
Activity 2.2 Write your answer on your worksheet.

1. Estimate by calculating the FCR.

A chicken farmer produces 455 kg. of chicken carcass in six weeks. Then consumed a total of 1000 kg of feed. Calculate the FCR.

2. Estimate by calculating the Feed Cost.

Given: 6 kg of feed for average chicken for its 8-week life span 50 kg bag of feed = ₱ 1,750.00



What I Can Do

Activity 2.3

Matching Type: Match column **A** with column **B** by writing the letter of your answer on your worksheet.

Column A	**Column B**
_____1. Keep tools to their proper place	A. Caretaker
_____2. Facilitates vaccines and medications of livestock	B. Bookkeeper
_____3. Manage poultry farms and handle sales and delivery to food producers of chicken-based goods products production	C. Tool keeper D. Farm Technician E. Farm Supervisor
_____4. Examines animals to detect illness, injury or disease	F. Poultry houses G. Security Guard
_____5. He owns and manages his own farm.	H. feeding trough
_____6. Bookkeeper helps the farm owner to keep track income and expenditures	I. Farrowing Crate J. Farm owner
_____7. Is responsible for daily planning and makes policy decisions	
_____8. Patrols areas and performing security checks	
_____9. Facilities and equipment in poultry production	
_____10. Facilities and equipment in livestock production	

Lesson 3 Perform Calculations Using Four Basic Mathematical Operations

Learning Objectives:

1. Perform Calculations needed using four basic mathematical operation, and
2. Illustrate the complete task calculation.

What's In

There are four mathematical operations namely; addition, subtraction, multiplication and division. As a learner in this subject you have to master these operations as part of job requirement when engaging in a workplace especially, the farm environment.

It is also important to be able to measure and calculate surface areas. In the previous lesson the discussion on basic estimation helps you in calculating the value of ration given to our poultry animals. By having the mastery in the four mathematical operation, Performing Basic Calculations will become easy.

What's New

DEFINITION OF TERMS

Broiler - chicken are raised for meat.
Costs - the amount of money spent on production.
Enterprise - (also known as enterprise or company) an organization engaged in the trade of goods, services, or both to consumers.
Feed conversion Ratio - the volume of feed consumed to produce one kilogram of meat.
Input - is the word used for whatever is inserted into the process.
Mortality rate - refers to the number of dead animals.
Records - an object or the data set.

What Is It

PRIORITIZING COMPETING DEMANDS TO ACHIEVE GOALS AND OBJECTIVES

Competing demands means you have two or more things you want to do, but cannot do both. Each of these two things is "demanding" your time.

Steps to prioritize competing demands in a business:

1. Collect a list of all your tasks. Pull together everything you could possibly consider getting done in a day. Don't worry about the order or the number of items upfront.
2. Identify urgent vs. important. The next step is to see if you have any tasks that need immediate attention. We're talking about work that, if not completed by the end of the day or in the next several hours, will have serious negative consequences (missed client deadline; missed publication or release deadlines, etc.). Check to see if there are any high-priority that needs to be done immediately.
3. Assess value. Next, look at your important work and identify what carries the highest value to your business and organization. As a general practice, you want to recognize exactly which types of tasks have top priority over the others.
4. Order tasks by estimated effort. If you have tasks that seem to tie for priority standing, check their estimates, and start on whichever one you think will take the most effort to complete.
5. Be flexible and adaptable. Uncertainty and change are given. Know that your priorities will change, and often when you least expect them to. But - and here's the trick—you also want to stay focused on the tasks you're committed to completing.
6. Know when to cut. You probably can't get to everything on your list. After you prioritize your tasks and look at your estimates, cut the remaining tasks from your list, and focus on the priorities that you know you must and can complete for the day.

UTILIZE RESOURCES EFFICIENTLY AND EFFECTIVELY TO MANAGE WORK PRIORITIES AND COMMITMENTS

Business resources are known as factors of production, consist of land, labour and capital. Other **resources** include energy, entrepreneurship, expertise, management, and time.

1. **Land** - It is real estate or property, minus buildings and equipment, that is designated by fixed spatial boundaries. Land ownership may offer the titleholder the right to natural resources on the land.
2. **Labor** -Refers to the amount of physical, mental, and social effort used to produce goods and services in an economy.
3. **Capital** -is a term for financial assets, such as funds held in deposit accounts and/or funds obtained from special financing sources.
4. **Energy** – It is the quantitative property that must be transferred to an object in order to perform work on.

5. **Time** - is a measure in which events can be ordered from the past through the present into the future, and also the measure of durations of events and the intervals between them.
6. **Expertise** – It refers to an expert skill or knowledge in a particular field.
7. **Entrepreneurship** - the activity of setting up a business or businesses, taking on financial risks in the hope of profit.
8. **Management** - It is the administration of an organization, whether it is a business, a not-for-profit organization, or government body.

HOW TO UTILIZE RESOURCES EFFICIENTLY AND EFFECTIVELY?

1. **List your priorities.** Write down everything that goes through your mind, even the most trivial thoughts.
2. **Empower your to-do-list.** List the issues that are crucial to each day. Only critical calls, important meetings, medical checkups, and work-related goals should figure in your daily calendar.
3. **Maintain people's lists intelligently.** Your boss, spouse, children, and many other important individuals need separate to-do-lists.
4. **Learn the art of relaxation.** Don't pack a day with so much action that you're left drained. Learn to relax and let go. Take a walk and smell the roses. Clarity of thought will bless you with the wisdom of knowing what's important and what isn't.
5. **Understand the importance of adequate rest.**

GOOD PRACTICES AND ECONOMIC MAINTENANCE OF EQUIPMENT AND FACILITIES AS PER ESTABLISHED PROCEDURES

The word 'maintenance' does not mean repairs. But maintenance really means to keep up and not only to repair when it breaks down. It must be a regular and methodical process. The emphasis should be on maintenance rather than on repair.

The following are:

1. Equipment inspection, cleaning and lubrication
2. Maintenance of existing plant buildings and grounds
3. Maintenance of existing plant and equipment
4. Property accounting
5. Proper storage keeping
6. Pollution and noise control
7. Waste disposal
8. Providing care taker services

What are the things we need to consider in order to evaluate the success of a business?

The following are the inputs in operation where we need to employ the four mathematical operations.

1. Costs – these are the needed facilities and materials listed as expenses or cost of operation. We need to know how some formulas in order to get the exact calculations.

- Labor
- Water supply
- Depreciation

- Air and Ventilation
- Feeds of Broiler
- Day-old chicks from broiler
- Financial preferences
- Housing and brooding facilities
- Vaccines, and supplements

2. Returns – these refers to sales and other income of the business.

- Broiler Sales
- Selling to vegetable farmers or fish pond owners of chicken manure
- Selling of empty fodder bags in good condition

Computing a Sample Gathered Data in Broiler Production

Mrs. Maria has the following data in his broiler project:

- *Total production cost*
  - *cost of chick per head @P25.00 (P 2,500.00)*
  - *cost of feeds P 10,000.00*
  - *medicine and antibiotics P 1,500.00*
  - *miscellaneous(electricity, water, labor) P 2,500.00*

Total P 16,500.00

- *Ninety broilers are ready for market*
- *Average weight per broiler is 1.6 kg.*
- *Cost of live weight per kg is P 150.00*
- *The total cost of production is P 16,500.00*
- *Mortality rate of 10% (90 heads)*

90 X 1.6 = 144 kilograms X 150.00 = 21,600.00
Total Gross sales ---------- P 21,600
Less Cost of Production --------- P 16,500
Net Income ---------- P5,100.00
To get ROI or Return on Investment:

$$ROI = \frac{NET\ INCOME}{COST\ OF\ PRODUCTION}\ X\ 100$$

$$= \frac{P5,100\ X\ 100}{P16,500}$$

= 0.3090 X 100
ROI = 30.90%

Calculating Broiler Chicken Feed Cost

Example:
7 kg of feed for average chicken for its 8 week life span
50 kg bag of feed = ₱ 1,850.00
Amount of feed per kilogram = ₱ 1,850.00 / 50kg
= ₱ 37.00

Solution:

Total feed cost per bird= Average feed for chicken X Amount of feed per kilogram
= 7kg x ₱37.00
= ₱259.00

Solve for the Feed Conversion Ratio

$$\textbf{\textit{Feed Conversion Ratio}} = \frac{\textbf{\textit{Feed consumed (kg)}}}{\textbf{\textit{Gain in Weight (kg)}}}$$

Example:
Age of flock = 35 days
Average weight = 1500 grams (1.5 kg)

Total feed intake = 2800 grams (2.8 kg)

Feed Conversion Ratio= $\frac{\text{Feed Consumed (kg)}}{\text{Gain in Weight (kg)}}$

$= \frac{2.8\text{kg}}{1.5\text{kg}}$

$=1.867$

Note: to get the mortality rate consider the formula below;

$$\textit{Mortality rate} = \frac{No.of\ dead\ birds}{Total\ no.of\ birds} X\ 100$$

What's More

Activity 3.1

Directions: Solve the Net Income of Mr. Lavega using the formula and data below. Write your answer in your worksheet.

Mr. Lavega has the following data in his broiler project:

- *Total production cost*
  - *cost of 150 chicks (chick per head @P22.00) (P)*
  - *cost of feeds P 8,500.00*
  - *medicine and antibiotics P 2,500.00*
  - *miscellaneous(electricity, water, labor) P3,000.00*

Total P _____

- *One hundred forty five broilers are ready for market*
- *Average weight per broiler is 1.3 kg.*
- *Cost of live weight per kg is P 180.00*
- *The total cost of production is P_____*
- *Mortality rate of 3% (____ heads)*

Formula:

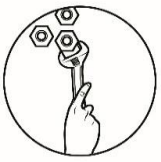
Total Gross Sales – Cost Production = Net Income

What I Have Learned

Activity 3.2

Instructions: Answer the questions using the formulas learned in our lesson. Write the letter of your answer in your worksheet. Show your solution.

1. Calculate the amount of feed needed for 100 broilers at 45 days of maturity if the amount of feed consumed is 3 kilogram per bird.
   A. 100 kg C. 300 kg
   B. 200 kg D. 400 kg
2. What is the percent of mortality if 100 birds out of the 1000 broilers died due to severe heat?
   A. 25 percent C. 2 percent
   B.100 percent D. 10 percent
3. Andrew wants to raise 150 broilers. He has available money allotted for the birds, but for the housing, he taps his father to finance the housing for that number of broilers. If the allocated budget for housing is P75.00 per bird, how much money does his father need for the construction of the broiler house?
   A. P2,000.00 C. P11,000.00
   B. P10,000.00 D. P14,000.00
4. You have an average of 1 square foot per bird space requirement. You want to raise 100 heads of broiler. How many square ft. are needed for that number of heads?
   A. 100 sq. ft C. 200 sq. ft
   B. 150 sq. ft D. 250 sq. ft
5. The price of 1 kilogram of chicken meat is P130.00. How much is the cost of 2.5 kg of chicken meat?
   A. P170.00 C. P220.00
   B. P170.00 D. none of the above



What I Can Do

Activity 3.3

Direction: Read the problem and solve. Write your answer on your worksheet.

1. The farmer wants to know how many remaining sacks of feeds he has in his farm. How many sacks does he have if he has twenty-five sacks inside his storage room and 15 sacks in his cart?
2. How many swine are present in the farm if there are 96 crates with one swine per crate and twelve empty crates?
3. Mark sold his harvested poultry eggs in the market for seven days. On the first day, he sold five trays and on the second to fifth day, he sold another 5 trays everyday. Each tray costs P190.00. How much money did Mark gets in seven days?
4. A broiler chicken cost P130.00 per head. What is the cost of one dozen of broiler chickens?

Lesson 4 Employing Different Techniques in Checking Accuracy of Result

Learning Objectives:

1. Determine appropriate operations used to comply with instruction.
2. Identify record keeping in swine production.

What's In

**Hello, dear learner! How did you find studying our previous lessons? Have you answered the questions and done with the activities?*

You have gone this far because you are enjoying our lessons, I hope so. So, let's move on to our next lesson on employing different techniques in checking accuracy of results using the four basic mathematical operations and the formula learned on our previous lesson. To start with, let us first define some words we will be encountering throughout this lesson.

Result – it is the output having done employing needed operations.
Accuracy - is how close a measurement for that measurement is to the right value.

A measuring system precision refers to how close the agreement between repeated measurements (which are repeated under the same conditions). Measurements may be exact and accurate.

- ✓ **Accuracy** refers to just how exactly a quantity's calculated value corresponds to its "true" value.
- ✓ **Precision** expresses the degree to which repeated measurements are reproducible or agreed.
- ✓ The more calculations you make, the more accurate you produce, the lesser the mistake.

What's New

HOW TO CHECK THE RESULTS OBTAINED

It is a relief to write down your answer, but just don't give in the test or assignment yet. Test the accuracy of your answers using a variety of techniques.

Check Logic

Ask yourself if your answer makes sense before proceeding to a different checking method. Read the question again, concentrating on the project involved, and numbers. If you solve a 5-digit subtraction problem and your response is greater than both the original numbers, your logic test will inform you the answer is incorrect. Another way of conducting a general check is through estimating. For example, if you subtract 4,685 from 8,842 then round off the numbers and see whether your answer is closer to the given answer.

Reverse It

Check your answer with the other way around feature. Multiply your answer with the divisor to a division problem, which should be equal to the dividend. Divide the answer by one of the two original numbers, for a multiplication question. The other number will be the answer. The same idea works for subtraction and addition. Plug your answer into the original equation when you solve an equation for a variable. To check the test, plug 28 into the equation x + 12 = 40 if your answer is x = 28.

Try Another Way

It seems boring, but it is an easy way to test the answers to fix the problem again. Both times you resolve it, the answers should be the same. If not, go back to find errors through your work. Whenever possible try a different method for the second time. For example, draw images to add two fractions the second time. For part of the problem, if you use a calculator, punch in the numbers again to make sure you didn't hit the wrong number the first time.

What Is It

RECORD KEEPING IN SWINE PRODUCTION

In swine raising operations it is very important to keep accurate and up-to-date records. It serves as a future reference for enterprise improvement. It also allows you to recognize the animals that need to be culled and maintain the animals. It also tells us whether the project will gain or lose.

Feed and hog prices are unpredictable. The demand for pork is pervasive. Determining the best time of the year to make more hogs can be achieved reliably by practice and this can be easily predicted by record keeping.

A pig farmer 's primary objective is to manage his farm in such a way as to be a continuing source of income. To accomplish this, a collection of good management steps and professional skills must be applied through good record-keeping and administration. This allows for the control and monitoring of production and reproduction activities and identify both financial and technical results.

System Identification

An animal identification instrument is an essential part of any record-keeping system. The ear notching, tattooing, and ear tagging are the most common identification systems. Another identification mechanism includes names, variations in colour, ear shapes, but that is just applicable for small number of sows.

The requirements are:

- All pigs being consigned for sale, or to a slaughterhouse or slaughter knackery, must be identified by either a tattoo mark or ear tag, depending on body weight, before leaving their original property.
- Pigs with a body weight less than 25 kg must be tagged with an approved ear tag. Those tags have numbers identical to the tattoo brand. Tattooing pigs of less than 25 kgs of body weight is not an option; they have to be ear tagged.
- Pigs weighing more than 25 kg must be tattooed with the owner's tattoo brand.
- Pigs that were purchased earlier and then sold must be tattooed with the new brand of tattoo dispatching equipment.

Notching

Notching requires cutting out small pieces of skin from the edges of the ears. This is a very cheap marking method which requires only a very sharp knife. The cutting wounds should be disinfected with iodine.

What does it mean to keep records?

Good record keeping means noting down a simple and clear manner all important details and events. It can also be used to provide and record information for activities to come forward. Use a notebook, or exercise book, to keep records. Set aside a few pages for every pig, and a few pages for what you are buying and selling. Other details should also be marked on a calendar (sow calendar), so that any appropriate planning can begin well in advance (such as preparing the farrowing pen for sowing).

Records make it easier for you to conduct day-to-day tasks on and for the pigs. When pigs are sick, the symptoms, treatment and whether or not the pig has recovered may be noted. This will enhance your knowledge of how to properly handle your farm animals. It also helps you keep track of sales costs and revenues.

Documents

1. *Records Litter*
   - Weight of birth (1.5.kg is good)
   - Weaning weight (18 kg is good)
2. *Rec dams*
   - Number of piglets weaned annually (18 is good)
3. *Marketing*
   - Age, weight
4. *Conversion rate*
   - Pigs which gain more weight from the amount of food provided.
   - 1 kg live weight gain for 3 to 5 kg would be a reasonable conversion ratio

A good system of record keeping allows for continuous monitoring and tracking of animal health and results. It helps the farmer maintain a steady flow of pigs into his business and recognize problem areas throughout the development program.

Considerations to be taken during construction of a record keeping system

- ✓ Registrations should be as simple as possible.
- ✓ Records should be kept in a location where they are readily available
- ✓ It would limit the transition of information from one record sheet to another
- ✓ The details to include in the documents varies with the type of procedure being performed. A swine operation involving a expensive enhancement program for breeding stocks would involve more comprehensive individual pig records than a commercial operation

- ✓ Individual records are valuable in the selection of non-productive breeding stocks and substitute animals

Individual records
- ✓ Sow found
- ✓ Reproduction Files

  First Estrus / heat date, Breeding dates, Farrowing dates, Number of pigs born alive and number born dead, Average birth weight (comments should be included on litter evenness)
- ✓ Wean Records
- ✓ Date to wean, weight weaning
- ✓ Records of managed litter
- ✓ Dates of routine administration practices e.g. Iron Therapy, Castration
- ✓ Records of the herd

A record sheet shall be held which summarizes important aspects of herd performance on a weekly or monthly basis. The farmer shall compare these records which are a fair indicator of the quality of production with previous figures as well as with the targets he has set for his production.

Records of the herds will include:
- ➢ Female serviced (classify as first breeders and repeat breeders).
- ➢ Farrowed litters
- ➢ Swine born alive and born dead
- ➢ Food consumed
- ➢ Total or rational herd, i.e. dry sowing, starter finish, etc.
- ➢ Marketed pigs (sows, boars, label or stock of breeding)
- ➢ Added swine (breeding stock from outside the herd)
- ➢ Information about the sector
- ➢ Advertising age of at least one sample number and weight of pigs
- ➢ Carcass index of marketed pigs.

The above data can be used to calculate the following parameters:
- ➢ Average born litter size and weight
- ➢ Average weaned litter size and weight
- ➢ Number of dead born pigs
- ➢ Death loss rate in each group
- ➢ Repeat breeding as a percentage of breeding total
- ➢ Food Conversion Ratio (FCR) - Average Daily Gain (ADG)

What's More

Activity 4.1

Directions: Determine the different operations in swine production.

Operations in Swine Production	Short Description
1.	
2.	
3.	
4.	
5.	

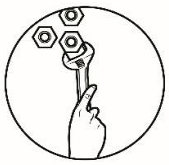
What I Have Learned

Activity 4.2

Instructions: Answer the following questions in you worksheet and check the accuracy of the answers of the following problems. Show your solution.

1. Anne goes to the poultry farm and counts 10 chickens. How many chicken legs are present in the farm?

2. Vonn's income is P300,000.00 per year. How much money does Von make weekly?



What I Can Do

Activity 4.3
Instructions:

I. It is time to have a practice on calculations of the different parameters on poultry and livestock productions.
II. Using the knowledge and skill gained from this module, answer the following questions. For problem solving, show your solution.
III. For items with computations, do this manually using scratch paper.
IV. Choose the letter of the correct answer for the following questions:

Questions

1. You have given 3 liters of water to your 2 sows per day. How many liters of water must be needed for 2 weeks?
   A. 18 liters C. 8 liters
   B. 22 liters D. 42 liters
2. You have an available 150 chicken meat at the average of 1.3 kilos each. What is the total number of kilos to be sold in the market?
   A. 150 kilos C. 125 kilos
   B. 175 kilos D. 195 kilos
3. Determine the number of swine with an area of 60 square meters. One square meter is provided per each swine.
   A. 20 C. 60
   B. 40 D. 80
4. What is the percent of mortality if 20 pigs out of 200 died due to severe heat?
   A. 10 percent C. 2 percent
   B. 25 percent D. 100 percent
5. How many kilograms of feed is needed for 25 heads of swine if it can consumed 5kg?
   A. 50kg C. 100kg
   B. 75 kg D. 125kg

Assessment

Multiple Choice. Read each question and answer or solved the following. Write the letter of your correct answer on your worksheet.

1. A distinct egg packaging term used by the farmer.
   a. brand identity c. brand roots
   b. brand quality d. brand price
2. How many per cent of the total production cost usually constituted by feeds?
   a. 20-40% c. 70-80%
   b. 40-50% d. 90% - 100%
3. What is the feed conversion ratio of the chicken if it is 34 days, average weight is 1.9 kg and the total feed intake is 2.7 kg.?
   a. 1.421 c. 4.215
   b. 1.500 d. 1.634
4. Which facility or equipment is included in the poultry production?
   a. brooder c. both a and b
   b. nest d. none of the above
5. What are the common diseases found in birds?
   a. Coccidiosis and necrotic enteritis
   b. Coccidiosis and amoebiasis
   c. necrotic enteritis and appendicitis
6. What is the recommended brooding temperature for 1-2 weeks old chick?
   a. 29.4-32.2°C
   b. 32.2-35.0°C
   c. 26.7-29.4°C
7. What is the standard feeder space for bird with 0-18 days old?
   a. 5 cm b. 3 cm c. 7 cm
8. Method in feeding which is manageable easily.
   a. Ad Libitum b. Restricted feeding c. Both and B
9. A farm owner buys uniforms for his employees. If each of his four farms needed twenty-five uniforms, how many uniforms would he needed?
   a. 25 b. 50 c. 75 d. 100
10. John bought seven sacks of feeds at an Agrivet Supply. If each sack contains fifty kilograms how many kilograms does he buy?
    a. 150kg b. 250 kg c. 350kg d. 450kg
11. An employee in a poultry farm earns P30.00 an hour. If he works eight hours a day, how much money would he earned in 1 week?
    a. P2,240.00 b. P 1,200.00 c. P240.00 d. P1,680.00
12. A farm sold five swine in a week. If each of the swine cost P4,500.00, how much money would they have made?
    a. P10,000.00 b. P 22,500.00 c. P20,000.00 d. P45,000.00
13. Andrea collects eggs in the farm and puts in a tray. Only 30 eggs can fit in the tray. How many eggs does she had in trays?
    a. 150 b. 200 c. 250 d. 300
14. The following are considerations to be taken during construction of a record keeping system EXCEPT:
    a. Registrations should be as simple as possible
    b. Records should be kept in a location where they are readily available
    c. It would limit the transition of information from one record sheet to another
    d. Advertising age of at least one sample number and weight of pigs

15. Records of the herds will include the following EXCEPT:
    a. Female serviced (classify as first breeders and repeat breeders)
    b. Farrowed litters
    c. Swine born alive and born dead
    d. Catch the pig, and keep it secure.

Additional Activities

Show that you learned something by doing this activity.

Assess your understanding by giving the advantages and disadvantages of the different feeding methods. Write your answer on your worksheet.

PROJECT PROPOSAL ON BROILER PRODUCTION

Prepare a basic project plan with cost estimate of the necessary materials, labor costs and schedule of operation to complete the project by computing collected Data in Broiler Operation.

Please note that you will be taking advantage of the current local price, estimating the outputs and benefit. For your computation see and be guided by the items below.
Assuming that the duration of the construction is 5 days, and you need to hire three (3) laborers, make a computation of the total labor cost, including the detailed scope of works using the schedule of activity below.

Submit your project proposal for testing and recording purposes to your teacher.

ITEMS FOR COMPUTATION
I. EXPENSES
1. Cost of 115 heads of "day-old chicks" at P_____ each P_____
2. Cost of feeds
   2.1--------- kilograms of booster at P_____ per kg. _____
   2.2 -------- kilograms of starter at P_____ per kg. _____
   2.3 -------- kilograms of finisher at P _____ per kg._____
3. Cost of vaccines and supplements _____P _____
4. Cost of light and heat _____P_____
5. Cost of water _____P _____
6. Others_____P _____(this include labor cost = P310/day)

II. RECEIPTS FROM SALES
Total sale of ____ kg. (live weight) at ____ per kg. ____P _____
Sale of ___ empty bags of feeds at P __per bag _____ P_____
Sale of bags of manure at P _____per bag _____ P_____

III. STATEMENT OF PROFIT OR LOSS
Average live weight of broiler is 1.80 kg.
Broiler Cost per kilogram (live weight) is P 120.00
TOTAL SALES _____
LESS EXPENSE _____
RETURN ON INVESTMENTS (ROI) _____

PROJECT PROPOSAL ON SWINE PRODUCTION

Instructions:
Prepare a basic project plan with cost estimate of the necessary materials, labor costs and schedule of operation to complete the project by computing collected Data in Swine Operation.

Please note that you will be taking advantage of the current local price, estimating the outputs and benefit. For your computation see and be guided by the items below.
Assuming that the duration of the construction is 7 days, and you need to hire three (3) laborers, make a computation of the total labor cost, including the detailed scope of works using the schedule of activity below.

Submit your project proposal for testing and recording purposes to your teacher.

ITEMS FOR COMPUTATION

I. EXPENSES
1. Cost of 50 heads of "weaned piglets" at P_____ each P_____
2. Cost of feeds
   2.1--------- kilograms of booster at P_____ per kg. _____
   2.2 -------- kilograms of starter at P_____ per kg. _____
   2.3 ------- kilograms of finisher at P _____ per kg._____
3. Cost of vaccines and supplements _____P _____
4. Cost of light and heat _____P_____
5. Cost of water _____P _____
6. Others_____P _____(this include labor cost =P310/day)

II. RECEIPTS FROM SALES
Total sale of ____ kg. (live weight) at ____ per kg. ____P _____
Sale of ___ empty bags of feeds at P __per bag _____ P_____
Sale of bags of manure at P _____per bag _____ P_____

III. STATEMENT OF PROFIT OR LOSS
Average live weight of pig is 45 kg.
Swine Cost per kilogram (live weight) is P 90.00
TOTAL SALES _____
LESS EXPENSE _____
RETURN ON INVESTMENTS (ROI) _____

Answer Key

What I know	What's More	What I have learned
Pre-assessment A. 1.c 2.a 3.b 4.e 5.d B. 1.b 2.a 3.a 4.b 5.a 6.a 7.b 8.b 9.b 10.c **Assessment** 1.a 2.c 3.a 4.c 5.a 6.a 7.b 8.a 9.d 10.c 11.d 12.b 13.a 14.d 15.d	*Lesson 1* 1.1 week 2.Finisher feeds 3. Ad Libitum Feeding 4. Restricted Feeding 5. Restriction *Lesson 3* Cost of chick= P3,300.00 Total of Production= P17,300.00 Mortality Rate= 3% or 5 heads Net Income= P16,630 *Lesson 4* 1. Ear Notching- requires cutting out small pieces of skin from the edges of ears. 2. Ear Tagging- putting tags in the ears of the swine. 3.Tattooing- a mark tattooed in the swine's skin.	*Lesson 1 Lesson 2* 1. AD 1. FCR= 2.198 2. DIS 2. Feed Cost=₱192.00 3. AD 4. DIS 5. AD *Lesson 3* 1. C 2. D 3. C 4. A 5. D *Lesson 4* **1.** 10 chicken x 2 legs per chicken= 20 legs for 10 chickens *Checking the accuracy:* 20 legs ÷ 2 legs/chicken= 10 chickens or 20 legs ÷ 10 chickens= 2 legs/chicken **2.** 10m/bamboo poles x 9pcs bamboo poles= 90m bamboo pole *Checking the accuracy:* 90m bamboo pole ÷ 9pcs bamboo poles= 10m or 90m bamboo pole ÷ 10m= 9pcs bamboo poles **3.** P300,000 ÷ 52weeks= P5,769.23/week *Checking the accuracy:* P5,769.23/week x 52weeks= P299,999.96 or P300,000 P300,000 ÷ P5,769.23/week= 52 weeks **4.** P4,000 ÷ P160/kg = 25kg *Checking the accuracy:* P160/kg x 25kg= P4,000 or P4,000 ÷ 25kg= P160/kg **5.** P50,000/year x 15yrs= P750,000 *Checking the accuracy:* P750.00 ÷ 15yrs= P50,000 or P750,000 ÷ P50,000/year= 15yrs

References

Agustin, Christine. 2015. "K To 12 Basic Education Curriculum Technology And Livelihood Education Learning Module". *Www.Slideshare.Net*. https://www.slideshare.net/ChristineAgustin/k-to-12-basic-education-curriculum-technology-and-livelihood-education-learning-module.

Frost, Shelly. 2017. "How To Check My Math Answers". *Sciencing.Com*. https://sciencing.com/check-math-answers-8077315.html.

Intacto III, V. 2015. "K To 12 Basic Education Curriculum Technology And Livelihood Education Learning Module". *Depedmhhhstle.Weebly.Com*. https://depedmhhhstle.weebly.com/uploads/1/1/7/5/117559110/horticulture_lm.pdf.

Agritech.Tnau.Ac.In. 2010. "Broiler Management". http://www.agritech.tnau.ac.in/expert_system/poultry/Broiler%20Management.html#.

Gltnhs-Tle Weebly.Com. N.D.. 2020."PERFORM ESTIMATION AND BASIC CALCULATION". http://www.agritech.tnau.ac.in/expert_system/poultry/Broiler%20Management.html

"Pig Identification: Tattoo Branding And Ear Tagging". UNDATED. *Agriculture.Vic.Gov.Au*. Accessed UNDATED. http://agriculture.vic.gov.au/agriculture/livestock/pigs/pig-identification-tattoo-branding-and-ear-tagging.

"What Is FEED CONVERSION RATIO? What Does FEED CONVERSION RATIO Mean?". 2017. *Www.Youtube.Com*. https://www.youtube.com/watch?v=xAceVphEcPM.

"FCR In Poultry Farming | Calculation And Definition Of Feed Conversion Ratio". 2020. *Www.Youtube.Com*. https://www.youtube.com/watch?v=Csfcyk9zjAo

Suscovich, John. 2019. "Calculating Broiler Chicken Feed Cost - PPP#1 S1:E5". *Www.Youtube.Com*. https://www.youtube.com/watch?v=h9apUrkcGug.

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