Poultry Production

NTQF Level - II

Learning Guide -51

Unit of Competence: - Identify Basic Farm Record

Module Title: - Identifying Basic Farm Record

LG Code: AGR PLP2 M15 LO1-LG-51

TTLM Code: AGR PLP2 TTLM12 19v1

LO 1: Identify data to be collected

Instruction Sheet	Learning Guide #-51

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Determining requirements to collect Poultry farm data
- Obtaining and Calibrating materials or tools required for data collected
- Identifying and advising difficulties that may be encountered in collecting the data
- communicating advice about proposed data collection to others as required.

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- Determine specific requirements of the data to be collected.
- Obtain and Calibrate materials or tools required for data collected
- Identify and advice difficulties that may be encountered in collecting the data
- communicate advice about proposed data collection to others as required.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 6.
3. Read the information written in the “Information Sheets 1,2 and 3” in page 3, 6 and 12. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1 and 2” in page 5, 11 and 14.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1, 2 and 3).
6. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet #1	Determining requirements to collect Poultry farm data

1. Introduction

Before investing time and money in going to the field to collect data, you need to plan for it properly. Good planning for data collection can help you capture better, richer, more accurate data while saving your time and resources.

1.1. What is Data?

- Data is a collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.

1.2. **What is data collection**?

- is the process of gathering and measuring information on targeted variables in an established system, which then enables one to answer relevant questions and evaluate outcomes?
- To protect the credibility and reliability of data, information should be gathered using accepted data collection techniques.

2. Considerations for data collection

1. What kind of data or information needs to be collected?

1.1. Basic data are common for all enterprises, including offices. They are generally administrative type of records.

- Attendance data
- pay or salary data
- leave data
- movement data

1.2. Production or Technical records

These consists of all registers, files and computerized records pertaining to the technical aspects of farm.

- Buildings register
- Equipment registers
- Feed ingredients register
- Feed register

- Feed additives and medicines register
- Layer farm register
- Egg out turn register
- Broiler farm records
- Breeder farm records
- Hatching eggs out turn register
- Batch-wise hatchery sheet
- Chick out turn and disposal register
- Feed mill record

1.3. Financial records or accounts

These records will be common to any unit, dealing with finance and accounts. It includes:

- Cash out turn or flow register,
- Bank accounts and transactions register,
- Cheques issued register,
- Loans repayment pass book,
- Integrator-contract farmers' financial transaction register,
- Various Accounts registers,
- Audit register,
- Income tax and other taxes transaction register,
- Movable and immovable properties registers,
- Purchase register,
- Payments register, and
- Any other registers recommended by the banks, income tax or commercial tax departments and auditors.

2. What will be the frequency of data-collection and what will be the number of data?

- Daily
- Weekly
- Periodically, etc.

3. Where should the recording instrument be located?

- In the poultry house
- At the office
- At home

4. Who is in charge of the recording (responsibility)?

- The farm worker
- The farmer
- The production supervisor or the manager

5. What should be the character of the data or information?

- Production control
- Final flock results
- Health supervision
- Planning

Self-Check #1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1.What kind of data or information needs to be collected? (1pts)

2. What will be the frequency of data-collection and what will be the number of data? (1pts)

3. Where should the recording instrument be located? (1pts)

4. Who is in charge of the recording (responsibility)? (1pts)

5. What should be the character of the data or information? (1pts)

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet #2	**Obtaining and Calibrating materials or tools required for data collected**

2.1. Definition and Need for Calibration

- Calibration of an instrument is the process of determining its accuracy. The process involves obtaining a reading from the instrument and measuring its variation from the reading obtained from a standard instrument. Calibration of an instrument also involves adjusting its precision and accuracy so that its readings come in accordance with the established standard.
- Calibration is the comparison of measurement values delivered by a device under test with those of a calibration standard of known accuracy.
- Calibration involves applying known values to the unit under test under specified conditions and recording the results to improve the overall accuracy of the measurement system do this. Required data accuracy determines the need to calibrate. The cost of data acquisition is directly proportional to the data accuracy.

2.1.1. What is the need of equipment calibration?

- Calibration of equipment needs to be carried out on a regular basis. This is because instruments tend to deviate owing to hard operating conditions, mechanical shocks or exposure to extreme temperature or pressure.
- Frequency of calibration would depend on the tolerance level. When the objective of the measurement is critical calibration would need to be carried out more frequently and with great accuracy.
- To assure accuracy in instrument calibration, it is vital to ensure that each component of the measuring instrument is conforming to its specified standard.
- Regular equipment calibration carried out in a set format helps you obtain valid data and operate in a safe working environment.
- To protect the safety of poultry, equipment maintenance and calibration practices must be performed at the required frequency and according to the equipment manufacturer's specifications.
- To ensure that data of the highest possible quality

2.1.2. Calibration may be required for the following reasons: and Need of Equipment Calibration

- a new instrument
- after an instrument has been repaired or modified
- when a specified time period has elapsed
- when a specified usage (operating hours) has elapsed
- before and/or after a critical measurement
- after an event, for example
- after an instrument has been exposed to a shock, vibration, or physical damage, which might potentially have compromised the integrity of its calibration
- sudden changes in weather

2.1.3. Different types of calibration

The process of testing calibration can be performed on a number of products and types of equipment, across multiple sectors. Following are some of the most common types of calibrations service used today;

A. Mechanical calibration

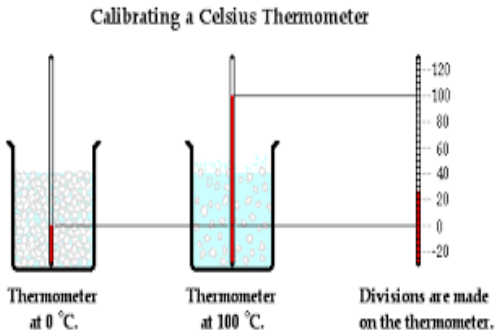
Generally speaking, mechanical calibration housing facilities will be temperature controlled. A number of dimensional, mass, force, torque and vibration elements will be calibrated during the testing process. Examples of mechanical equipment that can be tested for calibration include;

- Weight & Mass Sets
- Scales/Balances
- Accelerometers
- Load Cells & Force Gauges

B. Temperature and humidity calibration

Temperature calibration usually takes place in a controlled environment. A number of different types of equipment can be tested using temperature calibration, including the following;

- Thermometers/Thermocouples
- Weather Stations
- Data Acquisition Systems



Again, **humidity calibration** will usually take place in a controlled environment and will generally cover a range of 10 - 98% RH. A variety of instruments can be tested for humidity calibration, including the following;

- Humidity Recorders
- Humidity Generators
- Digital Indicators and Probes
- Transmitters

The calibration processes listed above are perhaps the most commonly-used and more widely-know about methods. However, calibration is used on a much wider scale in many industries. A few additional examples of calibration types are;

- Air Velocity Calibration
- Air Flow Calibration

In the majority of cases, an industry or company will require a combination of calibration techniques to fully test all of their equipment and devices – to this end, one piece of equipment may undergo a number of strict calibration tests to be deemed safe for use and performing at optimal standards.

The standards used to verify calibration levels differ somewhat, depending on a number of factors, including; the industry sector, the location (Country), the type of equipment involved and the specification of the calibration testing equipment used.

2.1.4. Methods of Calibration

Methods of calibration depend on whether the instrument is calibrated regularly or only occasionally for a special task where a highly calibrated instrument is required. It is essential to get the instruments calibrated every now and then even if they are in good condition to prevent wrong measurements of extremely crucial measurements

- **Data Calibration** – This method is akin to accredited calibration except that they are not accredited to the ISO standard and not supplemented by data with doubtful measurements.

- **Standard Calibration** – This is the method used for instruments which are not critical to quality or do not require accreditation. To make sure the standards are operative, it is necessary to document the process.
- **ISO 17025 Accredited Calibration** – This is one of the most rigid forms of calibration. An account of the measurement details is maintained. International Organization of Standardization is a benchmark which shows that the company has maintained its standard rules and regulations to maintain a level of quality. There are 4 things to keep in mind to achieve a level of quality.

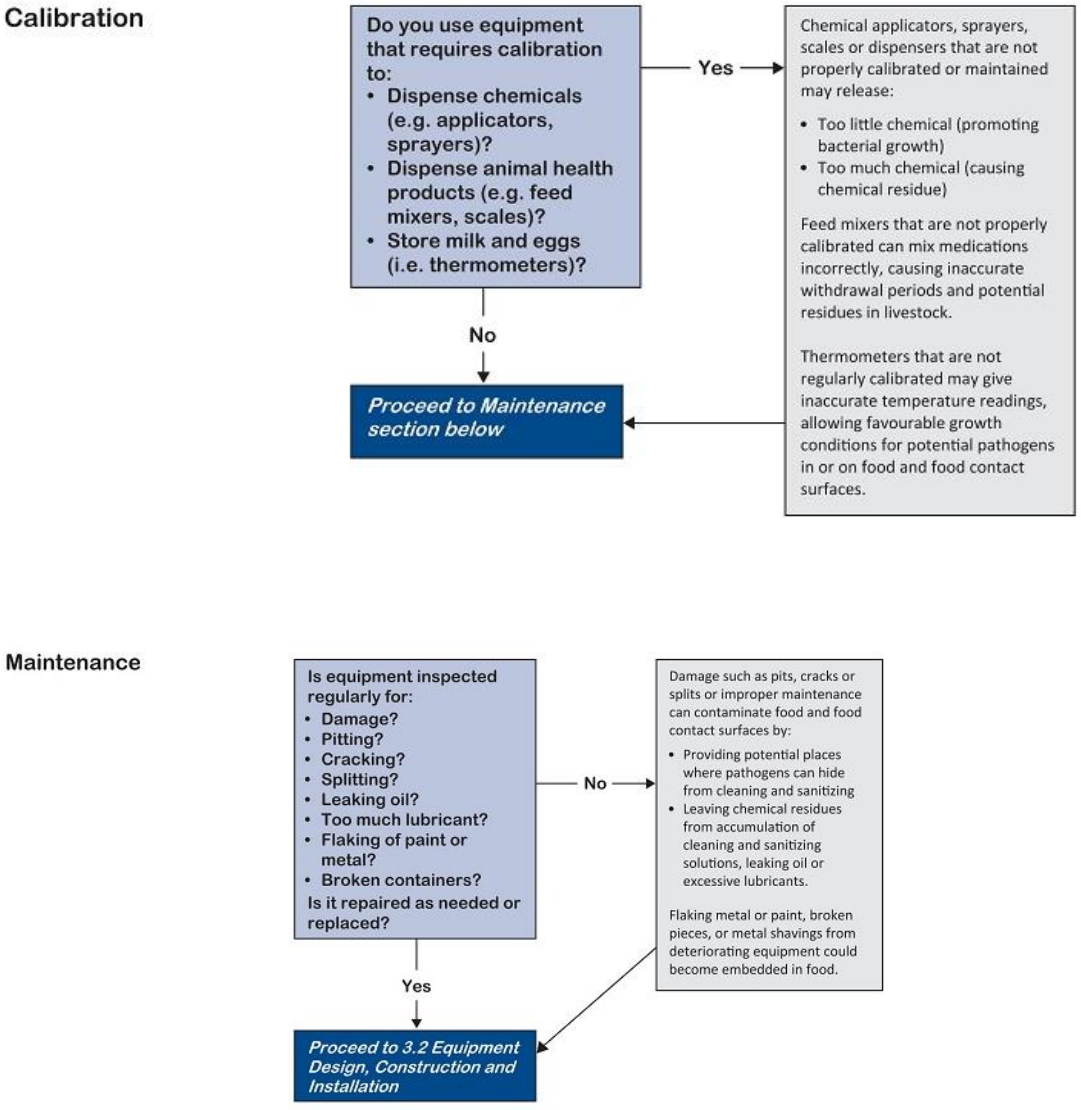


Fig.1. Flow of maintenance and calibration

Self-Check #2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. **What is Equipment Calibration? (1pts)**
2. **Describe reasons for Calibration? (1pts)**
3. **What are the methods and types of Calibration? (1pts)**

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet#3	Identifying difficulties that may be encountered in collecting the data

1. Introduction

1.1. Factors Affecting Keeping of Farm Records

Keeping of farm records is affected by certain factors.

- Independent of age, gender, farm size, level of formal education and years of farming experience.
- There is a significant relationship between farm record keeping and the following factors: farmer status, the receipt of credit and net income.
- Farmers who owned the larger farms tended to keep records than those with relatively smaller farms.
- Full-time farmers also tended to keep farm records than part-time farmers.
- A higher proportion of farmers who kept records had obtained credit because their farm records were used to provide an indication of the viability of the farm business in order to receive credit from financial institutions.
- Farmers who keep farm records are likely to have higher incomes.

1.2. Constraints of Keeping Farm Records

Farm record keeping is often seen as a mundane task by farmers. Obviously, farmers are faced with constraints which cause their inability to keep farm records.

- lack of keeping farm records is more pronounced due to the high levels of illiteracy and low numeracy levels in most low resource.
- Another constraint faced by farmers is that, most of them engage in several enterprises and mixed farming systems, and thus farm record keeping requires much of their time. They are therefore faced with time constraints which hinder them from keeping farm records

- further stated that the subsistence nature of farming does not produce any incentive for keeping the farm records. Farmers therefore cannot engage separately trained accountants for helping them in farm accounting.
- commented that the small farmers know that because of the small size of their farm holdings they will not be able to effect economies of scale hence do not show interest in farm record keeping.
- lack of sensitization on the importance of farm record keeping on the performance of farm businesses by extension agents or enumerators is a constraint.
- further stated that sufficient numbers of trained specialists in farm management are not available who could help farmers maintain records of their business.
- farmers are always afraid of new taxes and so they fear that if they maintain records and their incomes show up high in their record books, some sort of high tax may be levied on them
- Information is incomplete or inaccurate
- checklists neglect key issues

Examples of data collection problems that require prompt action include:

- Errors in individual data items
- systematic errors
- Violation of protocol
- Problems with individual staff or site performance
- Fraud or scientific misconduct

Any of the problems described in the above could result in inaccurate and unreliable information. If this is fed into the analysis system the final conclusions may be misleading and the recommendations inappropriate.

Self-Check #3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. write certain factors that affect keeping of farm records (1pts)
2. list constraints of keeping farm records (1pts)
3. what is the major result with problems of data collection? (1pts)

Note: **Satisfactory rating - 3points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Operation Sheet-1	Calibrating required tools and equipment for data collection

Steps of Calibrating

Step 1. Identify production equipment critical to poultry that requires maintenance and calibration. Such as sprayers, manure spreaders, scales, conveyors, flume washers, feed mixers, dispensers, mediators, coolers and temperature-monitoring devices.

Step 2. Create maintenance and calibration schedules for each identified piece of equipment.

Step 3. Calibrate equipment at recommended frequencies following manufacturers' instructions to ensure measuring is performed accurately.

Step 4. Perform maintenance as detailed in the manufacturers' operating manuals, such as lubricating with proper lubricants, changing oil and filters, replacing parts, tightening loose screws and adjusting belts.

Step 5. Visually inspect equipment for potential problems such as cracked or pitted surfaces and leaking oil.

Step 6. Repair or discard damaged equipment, crates and containers.

Step 7. Use food-grade lubricants, paints and oils if these materials are likely to come into contact with ready-to-eat product such as fresh produce, eggs

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within --- hour.

Task 1. Undertake calibration for required tools and equipment for data collection

List of Reference Materials

1. **WEB ADDRESSES (LINKS)**

- http://www.fao.org/elearning/Course/IA2/en/pdf/0934_common_problems_with_primary_data_collection_and_possible.pdf
- file:///C:/Users/Adonay/Desktop/L-II/Calibration%20-%20Wikipedia.html
- https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/food-safety/good-agricultural-practices/3-1-maintenance-calibration
- http://www.ohrc.on.ca/en/count-me-collecting-human-rights-based-data/6-what-involved-collecting-data-%E2%80%93-six-steps-success
- https://www.researchgate.net/publication/49583883_Assessing_Farm_Record_Keeping_Behaviour_among_SmallScale_Poultry_Farmers_in_the_Ga_East_Municipality
- https://ori.hhs.gov/education/products/n_illinois_u/datamanagement/dctopic.html
- https://automationforum.co/different-types-of-calibration/

Poultry Production

NTQF Level - II

Learning Guide #52

Unit of Competence: - Identify Basic Farm Record

Module Title: - Identifying Basic Farm Record

LG Code: AGR PLP2 M15 LO2-LG-52

TTLM Code: AGR PLP2 TTLM12 19v1

LO 2: Record Poultry farm data

Instruction Sheet	Learning Guide #-52

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Determining data recording systems
- Recording poultry farm data in the correct format.
- Completing records of poultry farm data**.**

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, **you will be able to –**

- Determine data recording systems
- Recording poultry farm data in the correct format.
- Complete records of poultry farm data.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 6.
3. Read the information written in the “Information Sheets 1and 2” in page 3 and 7. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1and 2” in page 6 and 10.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1and 2).
6. Submit your accomplished Self-check. This will form part of your training portfolio

Information Sheet #1	Determining data recording systems

1. Introduction



Even if maintaining a small flock, recordkeeping helps keep track of your expenses. It can aid in monitoring the progress of your flock. Records are important to the financial health of a business or operation. Efficient and profitable poultry operations are not guaranteed by good record keeping, but success is unlikely without them. Records are essential tools for management to maintain a successful flock. Recordkeeping involves keeping, filing, maintaining, and categorizing inventory, financial and production information for your flock. This can be accomplished by hand recording or by using computer software.

Recordkeeping is important. Records tell an owner or manager where the business/operation has been and the direction in which it is going. Records show the strength and weaknesses of the poultry operation. They provide useful insight to financial stability for your flock. If there are any shortcomings, records will show where adjustments can be made. Along with showing where adjustments can be made and being a good reference tool, there are several other purposes of recordkeeping.

It is surprising to see the number of farms that have little or no record keeping system. Reasons given for this include, "I don't have time", or "I don't need to bother".

On other hand, some farmers simply save up all their receipts and at year end, carry it all off to their accountant. Therefore, there is no accurate measure of profitability or production

costs until months after the fiscal year ends when the accountant prepares financial statements.

In general, most farmers do not keep records primarily as a management tool. A record keeping system should go beyond the basic listing of income and expenses. In addition, the less accurate your production records, the less accurate your financial projections will be.

1.2. Purposes of Records

- Measure profit and access the financial feasibility of the business/operation.
- Provides data for business/operation analysis.
- Assists in obtaining loans.
- Measure the profitability of individual operation.
- Assist in analysis of new investments.
- Help prepare income tax returns.

Records assist in avoiding management problems, helping prevent potential problems with your flock. More so, producers are being encouraged to keep accurate records about the activities on their farms due to increasing environmental concerns. Farm records consist of three distinct categories: inventory, financial, and production records. All records are used to compile useful information that is used in record analysis for an individual operation or the entire business. Records are only useful when maintained and categorized correctly.

1.3. What should be recorded?

The needs and size of your small flock will determine the type of records you as an owner or manager should keep. Financial statements are an intricate part of recordkeeping. As a general rule of thumb, the larger the enterprise, the more detailed records and financial statements should be kept. Regardless of flock size, records should always be kept up-to-date. Examples of financial statements include:

- Flock Management Plan
- Balance Sheet
- Farm Income Statement
- Statement of Cash Flow

- Poultry Enterprise Budget

Other financial records include:

- Where, when, and types of birds acquired
- Poultry Registration Papers
- Age and number of birds in each flock
- Vaccination dates
- Vaccine expiration dates

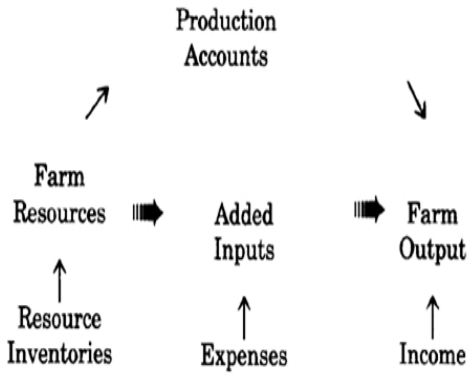


Fig.1. types of farm records

1.4. Methods of Recordkeeping

Traditionally, growers have kept records by hand. In many cases, a hand recording system is still useful for many growers. Yet, the use of computers and computer software has expanded on farms in recent years because of better record accuracy. The farm manager decides on the system that best fits his/her situation. Advantages to both hand records and computer records are listed below;

1. Hand-Recording System
    - low initial out-of-pocket expense
    - easy to start
    - requires only pencil & paper
2. Computer Recording System
    - more accurate & faster retract
    - tax deductible as an expense
    - much easier to create analysis

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is farm record?1pts
2. Write Importance of farm records. 1pts
3. List and explain three broad categories. 1pts
4. What are the methods of recordkeeping? 1pts

Note: **Satisfactory rating - 4points** **Unsatisfactory - below 4 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet #2	Recording poultry farm data in correct format and templates

2.1. Introduction

- you may keep your records in any format that suits you (e.g. hand written, computer generated, using record books or as part of a quality assurance program).
- The only requirement is that the records contain all the required information, are clear, accurate and must be readily available to an authorized officer upon request.
- A good sign that your record keeping system is suitable, is if an unrelated person can pick up your documentation and get a clear picture of exactly what you did, on any given day, without any assistance.
- Records may be made by a third party (e.g. a supervisor or assistant) or via automated data logging, but the user must ensure they are accurate and are kept for the required period.

2.2. Record keeping templates

Tbale1. poultry inventory sheet

Type/Breed	Age/DOB	Sex	Date Purchased/Born	Purpose***

Table2. Poultry rearing record sheet

Eggs set		Eggs Hatched		Birds Remaining (10 wks.)		Birds Sold/Kept***	
Date	No.	Date	No.	Date	No.	Date	No.

Table3. Poultry production record

Month	No. of Birds At Beginning	No. of Birds culled	No. of Birds died	No. of Birds Sold*	No. of Birds at end of Month	Eggs Laid***

Table4. Meat bird production record

	Broilers	Fryers	Roasters	Capons	Turkeys	Ducks	Geese
No Started							
Date Started							
Date finished							
No. of days fed							
Ending weight							
Total lbs. of feed used							
Cost of feed							
Other expenses							
Value of birds sold							
Total Expenses							
Profit or Loss***							

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

records in any format

1. What is the required information in records ?2pts
2. Who will be make the farm records ?2pts

Note: **Satisfactory rating - 4points** **Unsatisfactory - below 4 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

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Operation Sheet 1	Keeping farm record

Steps of recording keeping

1. Establish and/or implement a system of record keeping in order to collect production data and other relevant information.
2. Calculate technical and/or financial results during and at the end of the production process.
3. Compare and analyze the obtained results with recommended standards.
4. Establish an improvement plan in order to improve either the technical and/or financial results.
5. Start all over again with step number 1 "the record keeping" in order to assess whether the improvement plan has been successful

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 2 hours.

Task 1. Identify poultry farm records

List of Reference Materials

1- WEB ADDRESSES

https://www.faa.gov.nl.ca/agrifoods/fbm/pdf/farmrecd.pdf

https://pdfs.semanticscholar.org/13f9/ea7c52e5e38498228b6094fd58eb5a126d08.pdf

https://ag.purdue.edu/ipia/hasil/Unit%20C%20Lesson%203%20Poultry%20Production%20and%20Record%20Keeping%20PPT%20-%20English.pdf

https://kblivestocksolutions.blogspot.com/2016/12/record-keeping-in-poultry-production.html

Poultry Production

NTQF Level - II

Learning Guide #53

Unit of Competence: - Identify Basic Farm Record

Module Title: - Identifying Basic Farm Record

LG Code: AGR PLP2 M15 LO3-LG-53

TTLM Code: AGR PLP2 TTLM12 19v1

LO 3: Present and store Poultry farm data

Instruction Sheet	Learning Guide #-53

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Presenting poultry farm data in the correct format.
- Storing poultry farm data sheets
- Entering poultry farm data into a computer
- Analysing and interpreting production data

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, **you will be able to –**

- Present poultry farm data in the correct format.
- Store poultry farm data sheets according to enterprise procedures
- Download or enter poultry farm data into a computer
- Analyse and interpret production data

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 6.
3. Read the information written in the “Information Sheets 1, 2,3 and 4” in page 3,7,11 and 14. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check1, 2,3 and 4 in page 6,10,13 and 17.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1,2,3 and 4).
6. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet #1	Presenting poultry farm data in the correct format

1. Introduction

What is Presentation of data?

This refers to the organization of data into tables, graphs or charts, so that logical and statistical conclusions can be derived from the collected measurements.

Data presentation is the method by which people summarize, organize and communicate information using a variety of tools, such as diagrams, distribution charts, histograms and graphs.

- Presenting the data includes the pictorial representation of the data by using graphs, charts, maps and other methods. These methods help in adding the visual aspect to data which makes it much more comfortable and quicker to understand. Various methods of data presentation can be used to present data and facts.
- Data are usually collected in a raw format and thus the inherent information is difficult to understand. Therefore, raw data need to be summarized, processed, and analyzed. However, no matter how well manipulated, the information derived from the raw data should be presented in an effective format, otherwise, it would be a great loss for both authors and readers.

1.1. Data presentation techniques

Widely used format and data presentation techniques are mentioned below:

1. **As text** – Raw data with proper formatting, categorization, indentation is most extensively used and very effective way of presenting data. Such format is widely found in books, reports, research papers and in this article itself.
2. **In tabular form** – Tabular form is generally used to differentiate, categorizes, relate different datasets. It can be a simple pros & cons table, or a data with corresponding value such as monthly average weight gain, a bank statement, monthly expenditure etc.

Table 1. Monthly average weight gains of broilers for 3 years

Month	Weight (in grams)		
	Year 1	Year 2	Year 3
January	50	52	53
February	49	51	52
March	48	50	51
April	47	48	49
May	46	47	48
June	45	46	47
July	45	45	47
August	46	45	49
September	48	46	50
October	49	50	51
November	51	52	52
December	51	52	53

3. **In graphical Form** – Data can further be presented in a simpler and even easier form by means of using graphical form. The input for such graphical data can be another type of data itself or some raw data. For example, a bar graph & pie chart takes tabular data as input. The tabular data in such case is processed data itself but provides limited use. Converting such data or raw data into graphical form directly makes it quick and easier to interpret.

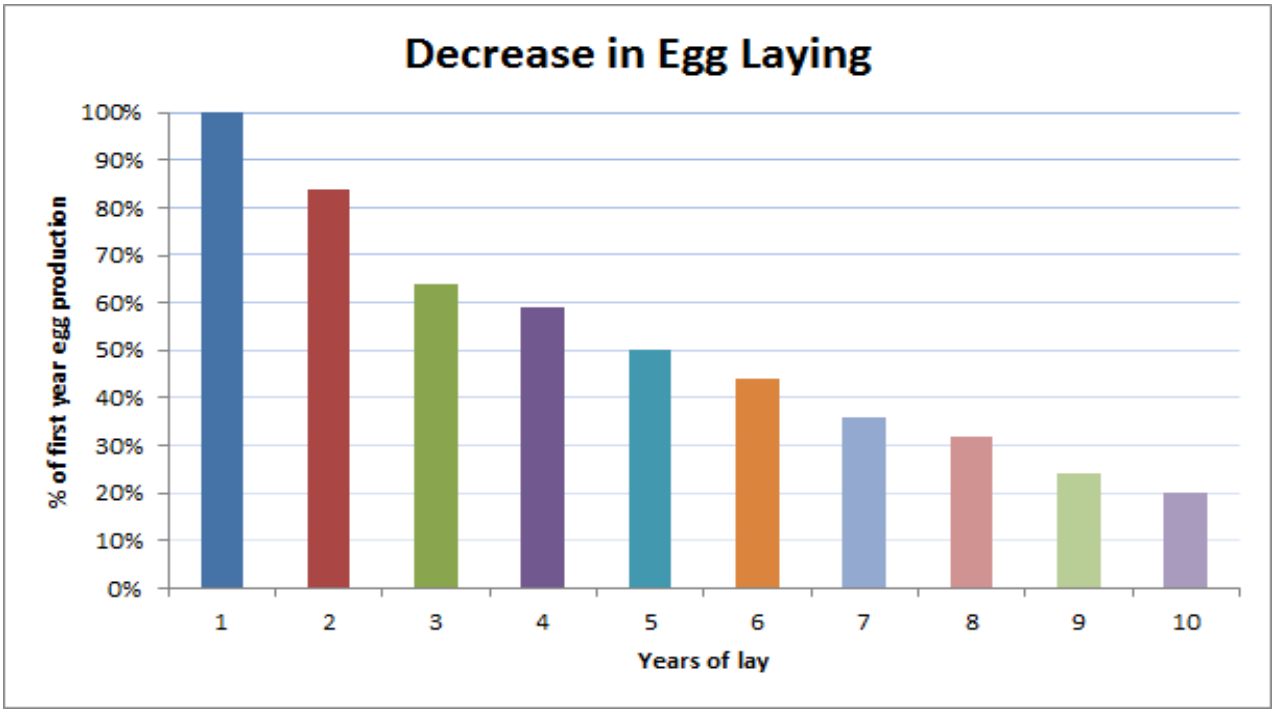

Fig.1. Chickens Egg Laying Reducing Over Time

1.2. How to present the different type of data – which format to choose

Since there are number of options available while presenting data, careful consideration should be given to the method being used.

- A basic understanding of the desired result/ form is helpful to choose the correct form of representation. One cannot expect to get liner data from a pie chart, thus basic knowledge and application of different type of presentation methods saves time.
- Additionally, there should be enough sample available so as to get some meaningful analysis and result. Some of the popular ways of presenting the data includes Line graph, column chart, box pot, vertical bar, scatter plot.
- Text is the principal method for explaining findings, outlining trends, and providing contextual information.
- A table is best suited for representing individual information and represents both quantitative and qualitative information.
- A graph is a very effective visual tool as it displays data at a glance, facilitates comparison, and can reveal trends and relationships within the data such as changes over time, frequency distribution, and correlation or relative share of a whole.
- Text, tables, and graphs for data and information presentation are very powerful communication tools. They can make an article easy to understand, attract and sustain the interest of readers, and efficiently present large amounts of complex information.

Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is Presentation of data? 1pts
2. Explain tata presentation techniques? 1pts
3. What consideration should be given to the data presentation techniques being used? 1pts

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-2	Storing farm data sheets according to enterprise procedure

1.1. Storing information

Data is very powerful; it can boost your farm efficiency and yield improvement or it could cause a real headache. Keep it secure and organized.

There are many ways of storing information. This varies from business to business. For instance, records can be centralized or decentralized. They can also be filed in different ways and stored in different types of equipment.

1.2.1. Centralized or decentralized records

A. Centralized filing system.

- store all their information together in one large filing system. For example, centralized paper records may be held in rolling storage shelves, while centralized electronic records are held on one specific computer server.

Characteristics

- The main records are stored in one location.
- There are specific staff to look after the records. In a small organization, this might be one person. In a large organization, there might be a whole department with a records manager and staff.

- Records staff create new files, keep track of file movements and transfer or destroy old files. They follow the organization's standard procedures for maintaining files.

  A centralized records system is often used in large organizations. However, many small organizations also store their records centrally. For example, a farm manger generally keeps all records close to the management office.

B. Decentralized filing system

- A decentralized filing system is when each department or section of the organization stores its own records. Decentralized paper records may be stored in filing cabinets in each department, office or drawer, while decentralized electronic files are stored in individual computers.

Characteristics

- Each area of the organization is responsible for its own records.
- The people who use the records have to keep the records in order.
- Record management procedures can vary from department to department.
- The classification system (for example, alphabetical, numerical or chronological) can vary from department to department.

1.2.1. Storage equipment

There are many different types of storage equipment. When deciding how to store records, an organization must think about:

- how much space is needed?
- how often the files are used?
- how much security is required?
- the cost of the storage equipment?
- how to protect the files from the effects of dust, heat, light and humidity?

The following are some common types of storage equipment. It is your responsibility to learn about how and where different types of records and information are stored.

Electronic data	Paper	image
Electronic data is often stored: • on a computer database • in computer files • on magnetic storage media such as tapes, portable hard drives, Zip and Jazz devices • on optical storage media such as CD-ROMs, DVDs, • magneto-optical drives • on solid state storage media such as Flashcards, Smartcards and USB devices.	Paper-based information is often stored in: • filing cabinets • flat storage (for maps, drawings, photographs) • lever-arch files • suspension folders (for large drawings, computer printouts) • shelves • rolling shelves • rotary storage.	Images are stored in: • filing cabinets • shelves • rolling shelves; • rotary storage.

table1. common types of information storage equipment

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write ways of storing information? 1pts
2. Write characteristics Centralized or decentralized records. 1pts
3. List information storage equipment. 1pts

Note: **Satisfactory rating - 3points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet#3	Entering poultry farm data into a computer

3.1. Introduction

3.1.1. What is excel?

- Excel is an electronic spreadsheet program that is used for storing, organizing and manipulating data.
- Data is stored in individual cells that are usually organized in a series of columns and rows in a worksheet; this collection of columns and rows is referred to as a table.

Fig1. dialog box

- Spreadsheets programs can also perform calculations on the data using formulas.
- To help make it easier to find and read the information in a worksheet, Excel has a number of formatting features that can be applied to individual cells, rows, columns, and entire tables of data.
- Since each worksheet in recent versions of Excel contains billions of cells per worksheet, each cell has an address known as a cell reference so that it can be referenced in formulas, charts, and other features of the program.
- As mentioned, each cell in a worksheet is identified by an address or cell reference, which consists of the column letter and number of the row that intersect at a cell's location.
- When writing a cell reference, the column letter is always written first followed by the row number – such as A5, C3, or D9.

- When entering the data for this tutorial, it is important to enter the data into the correct worksheet cells. Formulas entered in subsequent steps make use of the cell references of the data entered now.

3.1.2. What Are Excel Forms?

- Excel offers the ability to make data entry easier by using a form, which is a dialog box with the fields for one record.
- Using Excel to store data records is an oft-used — if sometimes frustrating — alternative to setting up a database. However, the data entry form in Excel is a pivotal tool.

3.1.3. Benefits of Using an Excel Data Entry Form

- In addition to being able to enter data quickly and accurately, the form allows users to see more content without scrolling because the data appears in a vertical format (rather than horizontal).
- The form can also include data validation, including a dropdown list of pre-selected items in a column or ensuring that an entry meets certain criteria (such as a date or character length).
- Spreadsheets are grid-based files designed to organize information and perform calculations with scalable entries.
- People all around the world use spreadsheets to create tables for any personal or business need.
- However, spreadsheets have grown from simple grids to powerful tools, functioning like databases or apps that perform numerous calculations on a single sheet.
- You can use a spreadsheet to determine your mortgage payments over time, or to help calculate the depreciation of assets and how it will affect your business's taxes.
- You can also combine data between several sheets, and visualize it in color-coded tables for an at-a-glance understanding. With all the new functionality, using a spreadsheet program can be intimidating for new users.

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is excel? 1pts
2. What are Excel Forms? 1pts
3. What are the Benefits of Using an Excel data Entry Form? 1pts

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Information Sheet-4	Analyzing and interpreting production data

4.1. Processing of data

Once all the data and other relevant information are collected, the next step is to process the information in order to obtain technical and/or financial results. In a later stage you can compare the obtained results with standard figures.

When calculating the financial results only the paid costs will be taken into consideration.

This means: the costs the farmer has paid to obtain his production. E.g. the cost of:

1. Day old chicks;
2. Feed;
3. Medicines and vaccines;
4. Litter;
5. Casual labour.

The calculated costs, like depreciation, interest and labour will not be included. The justification of this approach is that the different types of paid costs are similar for all poultry farms, whereas the calculated costs can differ depending on the specific situation at each farm.

The technical and financial results of a flock are strongly correlated. However good technical results do not necessarily lead to good financial results. For example, a broiler farmer might have switched to a slightly more expensive feed resulting in improvement of his technical results, whereas the financial results remained almost the same as before the feed change. Another aspect is that the farmer depending is on the market prices. A recommendation can be to use a separate recording system, technical as well as financial

As poultry production is becoming increasingly industrialized there is a need for specialization. Especially in the case of large commercial farms, this may even result in a separate location for each activity. For each activity (broilers - rearing pullets - parent stock) a set of specific technical and financial results is required. To enable flock or external farm comparison it is necessary for the technical and financial results to be calculated using formulas that are used all over the world. In other words, uniformity in implemented

calculation techniques (mathematical formulas) as well as production standards is required to facilitate comparison of results.

Once these records and statements are available, proper analysis can be carried out.

- Compare past records to the present and look for progress in the business.
- Areas where costs have risen and consider how they could be lowered.
- Compare volume of product and cost of production.
- Look at level of debt repayment.
- Is financing required?
- What is your most cost-efficient crop?
- Where have problems occurred in the past and where will they likely occur in the future?

All of this analysis and more can be obtained with proper record keeping, but it has to start with accurate and up to date records. Record keeping is but one step in successful farm management. If you feel that your present system is not able to cover the areas listed above then take the step to expand and improve upon it.

3.2. Guiding Principles for Approaching Data Analysis

1. To provide information to program staff from a variety of different backgrounds and levels of prior experience.
2. To create a “value-added” framework that presents strategies, concepts, procedures, methods and techniques in the context of real-life examples.
3. To appreciate that learning takes time.
4. Comfort, confidence, and competence take practice.
5. Data analysis provides opportunities to “reduce the burden.

1.3. Why Do We Need Data Analysis?

Data is short hand for “information,” and whether you are collecting, reviewing, and/ or analyzing data this process has always been part of Head Start program operations

We live in the era of data. Poultry farms are no exception to this, with more data than ever before available and collected. The days of knowing how much your birds have eaten simply because the feed silo is empty are, or at least should be, a thing of the past.

In the modern poultry producing environment, those poultry farmers that have invested in technology and on-farm computers have access to all the automatically collected data necessary to ensure good production levels. This information can include, for example: feed intake, water intake, body weight, egg production, egg weight, climate and ventilation.

The more data that we collect, the more useful information we have at our disposal - or at least that is the theory.

1.4. **The value of interpretation**

Yet the very information that is most important to keep farms running in the best possible way can sometimes become lost because of the growing volume of data available. Data without proper and timely interpretation are simply data. It does not offer insight into finding solutions to possible problems.

One of the remedies to this issue is to produce descriptive graphs, but spending hours interpreting these graphs is perhaps not the best use of the farm manager's time. Time spent on interpretation is not the only issue when dealing with data analysis.

Importantly, poultry farm managers are dealing with one of the most complex production processes that exist - living birds - with their own genetics and physiology. No two chickens are the same; they all respond a little differently to their environment. Consequently, detecting problems as they start to emerge can be particularly challenging.

Self-Check -3	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is data analysis? 1pts
2. What are the guiding Principles for Approaching Data Analysis? 1pts
3. Why Do We Need Data Analysis? 1pts
4. What is the need of interpretation of data? 1pts

Note: **Satisfactory rating - 4 points** **Unsatisfactory - below 4 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Short Answer Questions

Operation Sheet #1	Entering poultry farm data into a computer

Steps for Entering data into worksheet cells

Step 1: Create a Workbook

Step 2: Plan Your Needed Data

Step 3: Create Headings

Step 4: Label the Row

Step 5: Add Boundaries

Step 6: Create a Results Table

Step 7: Format and Write Formulas

Step 8: Script Conditional Formatting

Step 9: Enter Data and Watch the Calculations

Step 10: Create a Pie Chart

Operation Sheet # 2	Analyzing and interpreting production data

Step for analyzing production data

Step 1. Determine which records you want to keep technical and financial.

Step 2. Keep records of technical and financial data.

Step 3. Calculate all data, technical and financial, according specific methods (calculation formulas).

Step 4. Use targets/parameters, both technical and financial, applicable in your situation and compare the archived results with the targets.

Step 5. Identify significant differences and analyze them. Find possible reasons for negative items, but surely also for the positive items.

Step 6. Make concrete what you really can do to avoid the negative factors.

Step 7. Check whether your parameters have to be adapted for future flocks.

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 2 hours.

Task 1. Entering data into worksheet cells

Task 2. Analyzing production data

List of Reference Materials

2. WEB ADDRESSES

- https://www.slideshare.net/rubyocenar/presentation-of-data-37973327
- https://www.reference.com/world-view/presenting-data-1d737d20d4f52506
- https://planningtank.com/planning-techniques/data-presentation-and-analysis
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5453888/
- https://www.farmmanagement.pro/safely-storing-farm-data/
- https://www.lifewire.com/excel-step-by-step-basic-tutorial-3123501

The teachers (who developed the Learning Guide)

No	Name of Learning guide developer	TVET Represent	Phone number	e-mail
1.	**Abadi Brhanu**	Maichew ATVET College	0920870056	adonayabadi@gmail.com
2.	**Alemayehu Tolera**	Bako ATVET College	0994132626	toleraalex@gmail.com
3.	**Alemu Abate**	Burie Poly-technic TVET College	0912355534	adoni4@gmail.com
4.	**Alula Tesfaye**	Assosa ATVET College	0912004697	alula188@gmail.com
5.	**Bekele Abdissa**	Agarfa ATVET College	0920839098	bakeabdi@gmail.com
6.	**Dereje Kebede**	Nedjo ATVET College	0911530210	derejekebede2012@gmail.com
7.	**Ewunetu Bekele**	Bako ATVET College	0920096917	esewunetu@gmail.com
8.	**Mesfin Getachew**	Walaita Soddo ATVET College	0916475289	dukekeshamo@gmail.com
9.	**Terefe Tolcha**	Alage ATVET College	0911067132	terefetc@gmail.com