A STATISTICAL ANALYSIS ON THE WEIGHT OF LIVESTOCKS (CHICKEN) BASED ON FEEDS

(A CASE STUDY OF ANUOKIKI FARMS, ILORIN, KWARA STATE)

BY

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CERTIFICATION

This project work has been read, supervised and approved as meeting the requirement for the award of the National Diploma (ND) in Statistics Department, Institute of Applied Science (IAS), Kwara state polytechnic, Ilorin, Kwara state.

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DEDICATION

This project is dedicated to the Almighty God and to my parent (Mr. and Mrs. Abdulsalam)

ACKNOWLEDGEMENT

I give praise and adoration to the creator of heaven and earth; the Alpha and Omega for His blessings and grace bestow upon me. And for the wisdom, knowledge and understanding given to me to be able to accomplish this task.

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ABSTRACT

This study evaluated the effect of weekly treatments on weight gain in broilers and layers using a ***Completely Randomized Design (CRD)****. Four treatment periods (weeks 1 to 4) were applied, and weight gain was measured weekly. Data were analyzed using* ***Analysis of Variance (ANOVA)*** *and* ***Least Significant Difference (LSD)*** *post-hoc tests to identify significant differences between weeks. The ANOVA results revealed* ***statistically significant treatment effects*** *for both broilers ($F = 42.547$, $p < 0.001$) and layers ($F = 11.785$, $p < 0.001$), indicating that weekly changes had a measurable impact on growth. Post-hoc comparisons showed that broilers experienced a* ***consistent and significant increase in weight gain*** *each week, with all pairwise comparisons between weeks being statistically significant. Layers also showed a general upward trend in weight gain, though* ***some week-to-week differences were not statistically significant****, especially between mid and later weeks. The results suggest that the treatment protocols were* ***more effective and consistent in broilers*** *than in layers. The CRD was appropriate for this experiment, and it successfully captured the treatment effects across homogeneous experimental units. These findings highlight the importance of week-specific management or nutritional strategies to optimize growth performance, especially in broiler production.*

Keywords: *Broiler, Layers, weight, Feeding pattern, Statistical analysis, Poultry farming, Growth performance.*

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

The poultry industry in Nigeria is a significant contributor to the agricultural sector, providing a crucial source of protein and employment opportunities. Broiler chicken production, in particular, is a rapidly growing segment due to the relatively short production cycle and high demand for poultry meat. Efficient and cost-effective feeding practices are paramount for the sustainability and profitability of poultry farming operations across the country.

Feed constitutes the largest single cost in broiler production, often accounting for 60-70% of the total operational expenses. The nutritional quality and formulation of feed directly influence the growth rate, final body weight, health, and overall productivity of chickens. Nigerian poultry farmers have access to a variety of feed options, ranging from commercially produced feeds by national and international companies to locally formulated feeds utilizing available agricultural by-products and grains.

Commercial feeds are often formulated based on extensive research and are designed to meet the specific nutritional requirements of chickens at different stages of growth (starter, grower, finisher). However, these feeds can be expensive, especially for small-scale farmers. Locally formulated feeds, on the other hand, can be more cost-effective but may vary significantly in their nutritional content depending on the availability and quality of local ingredients and the expertise in feed formulation.

While general guidelines on poultry nutrition exist, there is a need for localized research that evaluates the performance of specific feed types readily accessible to Nigerian farmers under typical management conditions. This study aims to contribute to this body of knowledge by conducting a statistical analysis comparing the impact of (hybrid starter, hybrid finisher and hybrid layer formulae) on the weight of broilers and layers in a controlled setting within Anuokiki farms.

The findings of this research are expected to provide practical insights for poultry farmers in Nigeria, enabling them to make more evidence-based decisions regarding feed selection and ultimately contributing to a more efficient and profitable poultry industry.

This project aims to investigate the relationship between different types of feed and the resulting weight of livestock, specifically focusing on chickens. Efficient poultry farming relies heavily on optimal feeding strategies to maximize growth and productivity. Understanding how various feed formulations impact the weight gain of chickens is crucial for farmers to make informed decisions regarding feed selection, ultimately affecting their profitability and the overall efficiency of poultry production. This statistical analysis will employ quantitative methods to compare the average weights of chickens raised on different feed types, determine if statistically significant differences exist, and potentially identify the feed types that promote the most substantial weight gain.

1.2 SIGNIFICANCE OF THE STUDY

The significance of this research as a tool of analysis lies in the application of real life situation using two variables to determine the mean difference that exist between layers and broilers, and of course, it is highly significant because the findings would reveal the conditions attached to the growth of both chickens which will help the poultry farmers to optimize feed efficiency.

1.3 AIM AND OBJECTIVES OF THE STUDY

The aim of this project is to know the change in the weight gain of livestock base on feed, while the objectives are:

- To study the change in weight of livestock
- To check if there is significant between the two livestock
- To check if the change in weight is only base on feed.

1.4 STATEMENT OF PROBLEM OF THE STUDY

The Nigerian poultry industry faces the persistent challenge of optimizing feed utilization for efficient and profitable chicken production. Farmers are often confronted with a wide array of feed options varying in composition and cost. However, there is often a lack of clear, statistically-backed information specific to local conditions and available feed types to guide their selection. This uncertainty can lead to suboptimal growth rates, increased production costs and reduced profitability due to the use of less effective or unnecessarily expensive feeds. Therefore, there is a need to systematically investigate and quantify the impact of different feed types commonly available in Nigeria on the weight gain of chickens to provide evidence-based recommendations for farmers.

1.5 SCOPE OF THE STUDY

This study will focus on analyzing the effect of feeds on the body weight of 2 specific breeds and age range (e.g., day-old to 4 weeks) raised under controlled environmental conditions in Anuokiki farms, Ilorin Kwara state, Nigeria.

The study will:

- Measure and compare the weekly weight gain of chickens in each feed group, analyze the final body weight achieved by the chickens at the end of the study period.
- Focus solely on the quantitative relationship between feed type and weight, without extensively evaluating other factors like disease resistance, meat quality, or feed conversion ratio, although these may be noted as observations.
- Be limited to the specific feed types and chicken breed selected for this investigation.
- Collect data over a defined period (4weeks), representing the typical growth cycle for broiler and layer chickens. This scope aims to provide a focused and statistically analyzable dataset relevant to the practical challenges faced by poultry farmers in the Nigerian context regarding feed selection and broiler chicken growth.

1.6 LIMITATION OF THE STUDY

This study, while aiming to provide valuable insights, will be subject to certain limitations:

- Limited Feed Types: The analysis will be restricted to (HYBRID FEEDS) available and chosen for this study. The findings may not be generalizable to all other feed types available in the Nigerian market.
- Specific Chicken Breed: The study will focus on different breeds (layers and broilers) have varying growth potentials and responses to feed, so the results might not be directly applicable to other breeds.
- Controlled Environment: The chickens will be raised under controlled environmental conditions within Anuokiki farms. These controlled conditions may not fully reflect the diverse and sometimes challenging environmental conditions experienced by typical poultry farms across Nigeria, potentially affecting the generalizability of the findings.
- Limited Duration: The study will be conducted over a specific period of 4 weeks. The long-term effects of these feed types beyond this period will not be assessed.
- Focus on Weight: The primary outcome variable is *body weight*. Other important factors influencing poultry production, such as feed conversion ratio, disease susceptibility, mortality rates, and meat quality, will not be the primary focus of this statistical analysis, although observations may be noted.
- Sample Size: The generalizability of the findings will be influenced by the *sample size* of chickens used in each feed group. A larger and more diverse sample could provide more robust results.
- Single Location: The study will be conducted in Anuokiki farms. Environmental and management practices can vary across different regions in Nigeria, potentially influencing the results.

- Cost and Resource Constraints: Practical limitations related to cost, time, and available resources may influence the sample size, the number of feed types investigated, and the duration of the study.
- Potential for Unforeseen Factors: Despite efforts to maintain control, unforeseen factors such as minor variations in feed batch quality or individual chicken health could potentially influence the results.

1.7 DEFINITION OF TERMS

Here are the definitions of key terms relevant to this study:

- Broilers are chickens specifically bred for meat production. They're known for their rapid growth and high feed conversion efficiency, meaning they grow quickly and put on weight efficiently compared to other breeds.
- Layers are chickens bred for egg production. Their primary purpose is to produce eggs consistently over a long period.
- Feed constitutes a significant portion of the operational costs in poultry farming. The nutritional composition of feed directly influences the growth rate, final weight, and overall health of chickens.
- Body Weight: The mass of a live chicken, typically measured in grams (g) or kilograms (kg) at specific time intervals throughout the study. This is the primary dependent variable being analyzed.
- Feed Type [hybrid starter feed]: A commercially produced poultry feed specifically formulated for young chicks to support early growth and development, with a known composition.

- Feed Type [hybrid finisher feed]: A commercially produced poultry feed formulated for older chickens nearing market weight, designed to promote final weight gain and muscle development, with a known composition.
- Controlled Environmental Conditions: The housing and management practices implemented in the study to minimize external influences on chicken growth, including consistent temperature, lighting, ventilation, and access to water. These conditions are maintained as uniformly as possible across all treatment groups within the poultry
- Weekly Weight Gain: The difference in an individual chicken's body weight measured at the end of a specific week compared to its weight at the beginning of that week. This metric indicates the rate of growth over time.
- Final Body Weight: The body weight of a chicken measured at the conclusion of the experimental period (4 weeks of age). This is a key indicator of the overall impact of the different feed types on growth.
- Statistical Significance: A determination made through statistical hypothesis testing that the observed differences in the average weights of chicken groups are unlikely to have occurred by random chance and are likely due to the effect of the different feed types. Typically assessed using a p-value below a predetermined significance level (e.g., 0.05)

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

The literature review for this study will explore existing research on the impact of different feed types on broiler chicken weight, focusing on studies conducted in Nigeria and similar environments. Key areas to be covered include:

2.2 REVIEW OF RELATED LITERATURE

Anderson (2018) provided a comprehensive review of the application of statistical methods in poultry farming. The study explored the use of regression models, hypothesis testing, and correlation analysis in identifying key growth determinants. It emphasized the role of data-driven decision-making in optimizing broiler production. Anderson's research demonstrated how statistical tools could be applied to predict weight trends, assess feeding efficiency, and evaluate management practices. This study serves as a foundation for understanding how statistical analysis contributes to improving broiler farming outcomes.

Williams and Thomas (2019) investigated the impact of stocking density on broiler growth and feed efficiency. They found that overcrowding led to decreased feed intake, increased competition, and higher stress levels, all of which negatively impacted weight gain. Their research used controlled environments where birds were placed in different stocking densities, ranging from low to high. The results indicated that moderate stocking densities led to the highest weight gains, while excessive crowding caused a significant decline in productivity. These findings highlight the necessity of optimal space allocation to enhance broiler performance and welfare.

Smith and Brown (2020) conducted an in-depth study on the effects of nutrition on broiler weight gain. Their research emphasized the significance of protein-rich diets and balanced nutrition in achieving optimal growth. The study included an experimental design where broilers were divided

into groups and fed different protein compositions. Results indicated that birds receiving a diet with a higher percentage of protein exhibited faster weight gain and improved feed conversion ratios. This research highlights the critical role of diet formulation in poultry farming and provides insights into optimizing feed efficiency for better weight outcomes.

Johnson et al. (2021) explored the influence of lighting conditions on broiler performance. Their study analyzed the effects of different lighting schedules and intensities on feed intake, stress levels, and overall weight gain. The findings suggested that continuous or strategically timed lighting improved growth rates while reducing mortality rates. Specifically, birds exposed to intermittent lighting demonstrated better feed conversion efficiency and less aggressive behavior, leading to a more uniform weight distribution across the flock. This study underscores the importance of environmental management strategies in optimizing broiler growth.

Garcia and Patel (2022) examined the effects of environmental factors such as temperature, humidity, and ventilation on broiler productivity. Their study revealed that heat stress and poor ventilation significantly hinder weight gain and increased mortality rates. The research included real-time monitoring of environmental conditions and their correlation with growth performance. Results indicated that broilers raised in temperature-controlled environments exhibited higher weight gain and lower mortality rates compared to those exposed to fluctuating climatic conditions. This study underscores the importance of maintaining optimal environmental conditions to ensure maximum productivity in poultry farming.

Each of these studies provides critical insights into the factors influencing broiler and layers weight gain. The integration of findings from these works into the present study will enhance the understanding of weight variations at Anuokiki Poultry Farm and contribute to developing evidence-based recommendations for improving broiler and layers productivity. Several studies have explored the impact of various factors on broiler growth. Research has shown that high-protein diets enhance weight gain, while poor environmental conditions can negatively affect growth. A study by Smith et al. (2020) found a significant correlation between feed

efficiency and final broiler weight. Another study by Johnson et al. (2021) demonstrated that optimized lighting schedules improved growth rates and reduced stress in broilers. These findings highlight the importance of data-driven decision-making in poultry farming.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This study, the statistical analysis on chicken weight at Anuokiki Poultry Farm will be carried out using ONE-WAY ANOVA to ensure accurate and meaningful interpretations. Below is a detailed discussion of the specific techniques used:

3.2 METHODOLOGY

ONE-WAY ANOVA:

One-Way Analysis of Variance (ANOVA) is a statistical method used to compare the mean of three or more independent groups to determine if at least one group mean is significantly different from the others. It tests the effect of a single categorical independent variable (factor) on a continuous dependent variable. In this study, it will be applied to determine if there is a significant difference in broiler and layers weight before and after feeding interventions

When to Use One-Way ANOVA:

You are comparing three or more groups (e.g., types of diets, treatment groups, teaching methods).

Each group is independent (i.e., participants belong to only one group).

Your outcome variable is continuous (e.g., test scores, weight, blood pressure).

You suspect that at least one group may be different from the other

Hypotheses

Null Hypothesis (H_0): $\mu_1 = \mu_2 = \mu_3 = ... = \mu_k$ (all group means are equal)

Alternative Hypothesis (H_1): At least one group mean is different

An ANOVA (Analysis of Variance) table is used to summarize the results of an ANOVA test, which examines whether there are statistically significant differences between the means of three or more groups. Here's a standard format for an **ANOVA table**, along with explanations for each component:

Source of Variation	**Sum of Squares (SS)**	**Degrees of Freedom (df)**	**Mean Square (MS)**	**F-ratio (F)**	**p-value**
Treatment	SSTreatment	t−1t - 1	SST / (t - 1)	MST/MSE	p-value
Block	SSBlock	b−1b - 1	SSB / (b - 1)	MSB/MSE	p-value
Error	SSError	(t−1)(b−1)(t - 1)(b - 1)	SSE / (t-1)(b-1)		
Total	**SSTotal**	**bt − 1**			

Completely Randomised Design (CRD)

A Completely Randomised Design (CRD) is an experimental design where treatments are randomly assigned to experimental units without any blocking or stratification. It assumes that all experimental units are homogeneous, meaning any variation in results can be attributed primarily to the treatments applied.

Statistical model for CRD

A **statistical model for a Completely Randomized Design (CRD)** is used in experimental design where treatments are assigned completely at random to experimental units. Here's a breakdown of the model, its assumptions, and components.

Where :

yij: the observed response for the jth replicate of the ith treatment

μ: overall mean

τi: effect of the ith treatment (deviation from the mean)

ϵij: random error associated with the ijth observation

Then, the **statistical model** is:

$$yij = \mu + \tau i + \epsilon ij$$

Hypothesis Testing

To compare treatments, we test:

$H_0 : \tau_1 = \tau_2 = \ldots \tau_t = 0$

$Ha : at\ least\ one\ t_1 \neq 0$

3.3 SOURCE OF DATA

The data used in this research work is a secondary data obtained from Anuokiki poultry farm record of change of weight in their livestock (broiler and layer chicken).

3.4 DATA PRESENTATION

The data below is the record of livestock change in weight based on feed within four weeks of feeding. Consisting of weight before feeding and weight after feeding.

CHICKEN TYPE	WEEK 1	WEEK 2	WEEK 3	WEEK 4
BROILER	1.0	1.5	1.9	2.5
LAYER	1.0	1.2	1.2	1.5

CHICKEN TYPE	WEEK 1	WEEK 2	WEEK 3	WEEK 4
BROILER	1.0	1.9	2.2	2.9
LAYER	1.0	1.5	1.9	2.0

CHICKEN TYPE	WEEK 1	WEEK 2	WEEK 3	WEEK 4
BROILER	1.0	1.8	1.9	2.0
LAYER	1.0	1.3	1.5	1.7

CHICKEN TYPE	WEEK 1	WEEK 2	WEEK 3	WEEK 4
BROILER	1.2	1.9	2.4	2.5
LAYER	1.0	1.6	1.9	2.2

CHICKEN TYPE	WEEK 1	WEEK 2	WEEK 3	WEEK 4
BROILER	1.5	1.7	2.7	3.0
LAYER	1.1	1.4	2.2	2.8

CHICKEN TYPE	WEEK 1	WEEK 2	WEEK 3	WEEK 4
BROILER	1.4	1.9	2.5	3.0
LAYER	1.2	1.7	2.1	2.6

CHAPTER FOUR

DATA ANALYSIS

4.1 INTRODUCTION

This section deals with the analysis of data and interpretation of the analyzed data.

4.2 ANALYSIS OF DATA

Anova:

H_o: There is no significant relationship between feeding patterns and broiler weight gain.
H_1: There is a significant relationship between feeding patterns and broiler weight gain.

Confidence Interval

95% C.I $\alpha = 0.05$

Decision Rule:

If p-value < 0.05, reject the null hypothesis; otherwise accept.

Oneway

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
broilers_weightgain	Between Groups	7.935	3	2.645	42.547	.000
	Within Groups	1.243	20	.062		
	Total	9.178	23			
layers_weightgain	Between Groups	3.895	3	1.298	11.785	.000
	Within Groups	2.203	20	.110		
	Total	6.098	23			

This ANOVA table shows the results of two Completely Randomized Design (CRD) experiments analyzing the weight gain in (broilers and layers), with four treatment groups in each case (df = 3 for between groups, meaning 4 treatments). Here's a clear interpretation for each dataset:

Interpretation for broilers:

The F-value is 42.547, which is very large and the p-value (Sig.) is .000, which is much less than 0.05. This indicates a highly significant difference in weight gain among the 4 treatment groups for broilers.

Interpretation for layers:

The F-value is 11.785, also large. The p-value (Sig.) is .000, also much less than 0.05. There is a statistically significant difference in weight gain among the treatments for layers. So, at least one treatment group differs significantly in effect on layer weight gain.

Conclusion:

For both broilers and layers, the ANOVA results suggest that the treatment applied had a significant effect on weight gain.

Post Hoc Tests

Multiple Comparisons

Dependent Variable		(I) week	(J) week	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
broilers_weightgain	LSD	week 1	week 2	-.6000*	.1440	.000	-.900	-.300
			week 3	-1.0833*	.1440	.000	-1.384	-.783
			week 4	-1.5500*	.1440	.000	-1.850	-1.250
		week 2	week 1	.6000*	.1440	.000	.300	.900
			week 3	-.4833*	.1440	.003	-.784	-.183
			week 4	-.9500*	.1440	.000	-1.250	-.650
		week 3	week 1	1.0833*	.1440	.000	.783	1.384
			week 2	.4833*	.1440	.003	.183	.784
			week 4	-.4667*	.1440	.004	-.767	-.166
		week 4	week 1	1.5500*	.1440	.000	1.250	1.850
			week 2	.9500*	.1440	.000	.650	1.250
			week 3	.4667*	.1440	.004	.166	.767
layers_weightgain	LSD	week 1	week 2	-.4000*	.1916	.050	-.800	.000
			week 3	-.7500*	.1916	.001	-1.150	-.350
			week 4	-1.0833*	.1916	.000	-1.483	-.684
		week 2	week 1	.4000*	.1916	.050	.000	.800

	week 3	-.3500	.1916	.083	-.750	.050
	week 4	-.6833*	.1916	.002	-1.083	-.284
week 3	week 1	.7500*	.1916	.001	.350	1.150
	week 2	.3500	.1916	.083	-.050	.750
	week 4	-.3333	.1916	.097	-.733	.066
week 4	week 1	1.0833*	.1916	.000	.684	1.483
	week 2	.6833*	.1916	.002	.284	1.083
	week 3	.3333	.1916	.097	-.066	.733

. The mean difference is significant at the 0.05 level.

This Multiple Comparisons table (using LSD - Least Significant Difference test) compares average weight gain across weeks for broilers and layers, based on pairwise differences between weeks.

Interpretation for broilers: Weight gain increases steadily each week, with each week's gain significantly higher than the previous one.

Conclusion for Broilers: All weekly comparisons are statistically significant ($p < 0.05$). There is a consistent and significant increase in weight gain from week to week. This suggests that whatever treatment or condition is applied is effectively promoting steady growth over time.

Interpretation for Layers:

Weight gain increases over time, but not as consistently or as sharply as in broilers.

Significant gains only appear when comparing early weeks to Week 3 or 4.

Several week-to-week changes (e.g Week 2 to 3, or 3 to 4) are not statistically significant.

Conclusion for Layers: Overall, there's a clear increasing trend in weight gain, but it's less consistently significant* than in broilers.

Homogeneous Subsets

broilers_weightgain

			Subset for alpha = 0.05			
	Week	N	1	2	3	4
Duncan[a]	week 1	6	1.183			
	week 2	6		1.783		
	week 3	6			2.267	
	week 4	6				2.733
	Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 6.000.

layers_weightgain

			Subset for alpha = 0.05		
	Week	N	1	2	3
Duncan[a]	week 1	6	1.050		
	week 2	6		1.450	
	week 3	6		1.800	1.800
	week 4	6			2.133
	Sig.		1.000	.083	.097

Means for groups in homogeneous subsets are displayed.

Uses Harmonic Mean Sample Size = 6.000.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

5.1 SUMMARY OF FINDINGS:

From both the ANOVA result, broilers f value **(**42**.**547**)** and p-value (< .001**).** There is a highly significant effect of week (treatment) on weight gain which Indicates that weight gain varies significantly across weeks. For layers F value (11.785) and p- value < (.001). There is also a significant effect of week on weight gain. Week has a statistically significant impact, though the variation is less pronounced than in broilers.

For the LSD Test result, every week-to-week comparison shows a statistically significant difference in broilers. Broilers experience a consistent, significant increase in weight gain across the four weeks. Layers show a general upward trend in weight gain, but some week-to-week differences are not statistically significant**.** The effect is strongest in the early weeks, with the increase slowing or stabilizing in later weeks.

5.2 CONCLUSION

The analysis conducted using a Complete Randomized Design (CRD), demonstrates that weekly treatments significantly influenced weight gain in both broilers and layers, with broilers showing a more consistent and pronounced response. However, the pattern, rate, and consistency of weight gain differ markedly between the two types of poultry.

Broilers exhibited a rapid and consistent increase in weight gain from Week 1 through Week 4. The results of the ANOVA test ($F = 42.547$, $p < 0.001$) confirmed that weekly differences in weight gain were highly significant. Furthermore, the LSD test analysis indicated that most week-to-week comparisons showed significant differences, suggesting that broilers respond strongly to time-related growth factors such as nutrition, age, and physiology. However, the non-significant difference between Week 3 and Week suggests a potential growth plateau as broilers approach maturity or the limits of their growth curve within this timeframe.

In contrast, layers displayed a slower and more gradual increase in weight gain. Although ANOVA results also indicated a significant effect of week ($F = 11.785$, $p < 0.001$), the LSD test showed that fewer week-to-week differences were statistically significant. This suggests that layers have a more stable growth trajectory, likely due to their physiological focus on egg production rather than rapid weight gain. The non -significant differences between consecutive weeks (e.g., Weeks 2–3 and 3–4) support the idea that layers grow in a more incremental fashion compared to broilers.

5.3 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made to optimize broiler weight gain at Anuokiki Poultry farms:

1. Optimal Harvest Time for Broilers:

- Since broilers showed rapid weight gain with a plateau observed between Week 3 and Week 4, it is recommended to:
- Consider harvesting at the end of Week 3 or early Week 4 to maximize profitability and reduce unnecessary feed costs.
- Monitor growth beyond Week 4 only if economic conditions (feed cost vs. meat price) justify extended rearing.

2.Feeding Strategy:

Broilers:

- Implement a high-energy feed program especially in Weeks 1–3 to support rapid growth.
- Introduce feed efficiency tracking tools in Week 3 to assess cost-effectiveness as growth slows.

Layers:

- Use a balanced and consistent diet to support slow but steady weight gain and early reproductive health.
- Avoid overfeeding, as excessive weight gain in layers can negatively affect future egg production.

3. Monitoring and Evaluation:

- Set up a weekly monitoring system to record weight gain and adjust feed and health interventions as needed.
- Use growth charts tailored separately for broilers and layers to set realistic benchmarks.

4. Housing and Space Management:

- As broilers grow rapidly, ensure that adequate space and ventilation are provided from Week 2 onward to avoid overcrowding and stress.
- For layers, gradual growth allows more flexibility, but the environment should support long-term development and reproductive health.

5. Economic Planning:

- Use the data to plan marketing and sales cycles:
- For broilers: align with peak weight period (Week 4) to ensure optimal market weight.
- For layers: base transition to laying phase on growth benchmarks rather than fixed timeframes.

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