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Research Article

Complementary Effect of Mungbean Sprouts on Growth Performance of Broiler Chickens

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ABSTRACT

The profitability of any chicken industry can always be correlated with increasing production. In the Philippines, as of the first quarter of 2022, poultry production had expanded by 12.3% because Filipino's diet relies heavily on meat, thus placing livestock and poultry among essential segments of the country's agriculture. The study aims to determine the level of mungbean sprouts that can complement the commercial feeds, which can ultimately improve the weekly body gain weight (WBGW) of broiler chickens and low feed conversion ratio (FCR). The study used the standard Complete Randomized Design (CRD) with four treatments and three replications. The mung beans were prepared in advance, taking care every day. The sprouting period of mung beans took about a week. Significant differences were revealed among treatments. Analysis of Variance implied that broiler chickens whose feed ration was complemented with 15% of mungbean sprouts had the highest WBGW of 546,67 grams and the lowest FCR of 1.74 at 28 days, respectively. The study recommends mixing 15% mungbean sprouts into the feed ration of broiler chickens for up to 28 days to improve the weight gain.

Keywords: *Animal feeding, Feed rations, Mungbean sprouts, Broiler chicken, Feed complementation, Organic agriculture, Food sustainability*

Introduction

The profitability of any chicken industry can always be correlated with increasing production (Al-Nedawi, 2018).

In the Philippines, as of the first quarter of 2022, poultry production had expanded by 12.3%, contributing 15.0% to the total value of production in agriculture and fisheries (Department of Agriculture, 2022).

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Filipino's diet relies heavily on meat placing livestock and poultry among essential segments of the country's agriculture sector (Rathore, 2025).

Synthetic feed supplement means artificial nutrients found in dietary supplements and fortified foods (Kubala, 2021).

To survive, grow, and reproduce, broiler chickens need essential nutrients such as carbohydrates, protein, fats and oils, minerals, vitamins, and water (Lobaton et al, 2025). Still, raisers can do supplemental feeding in cases where feed resources on the range are insufficient.

Mungbean sprouts are a great source of vitamins and high protein (Oñal et al, 2024). They can be used as a feed supplement to enrich animals' rations, fulfill their maintenance requirements, and improve productivity. (Samir, 2019).

The results of this research can guide everyone on the appropriate level of mungbean sprouts, which could enhance the weight of broiler chickens with lower feed conversion ratio.

The study can really contribute to the research world, most significantly in organic agriculture and food sustainability.

Objectives of the Study

In general, the study examined the growth performance of broiler chickens when their feed ration was complemented with mungbean sprouts at different levels.

Furthermore, the study had determined:

1. The level of mungbean sprouts complementing the feed ration, which can affect the body weight gain of broiler chickens, and
2. The level of mungbean sprouts complementing the feed ration, which can affect the feed conversion ratio of broiler chickens.

Methodology

Experimental Design

The use of a Completely Randomized Design (CRD) with four treatments and three replications is standard and appropriate for the study.

Treatments:

T1 – 100% CF (control)
T2 – 100% CF + 5% MBS
T3 – 100% CF + 10% MBS
T4 – 100% CF + 15% MBS

Legend:

CF – commercial feed (available in the market)
MBS – mungbean sprouts

Feeding Guide for Commercial Feeds

Table 1 shows the feeding plan for commercial feeds in this study.

Table 1. Feeding plan for commercial feeds

Commercial Feeds	Age (days)	Average Daily Feed Intake (g)
Chicken Booster	1-7	30
	8-12	50
Broiler Starter	12-21	75
Broiler Finisher	22-28	105

Birds Used

Sixty (60) Cobb 500 chicks were used in this study and were purchased from an accredited supplier in the market.

Place of Study

The study was conducted in the Province of Negros Occidental, Philippines, last June 1-30, 2021.

Mungbean Sprouting Process

Mungbeans were placed in a plastic container and washed with tap water. Washed beans were spread in a clean cloth then and placed in a storage room for drying. Thereafter, beans were stored in a cool, dry area.

Constant washing with warm water was done daily until the beans sprouted in 5-7 days.

Gathering of Data

The weekly body gain and feed conversion ratio were the primary data collected.

Body weight gain was measured at 7, 14, 21, and 28 days (Hwa et al, 2023; Rauber et al, 2021). The weekly body weight gain (WBWG) was computed using the following formula:

$$WBWG = BWi - BWo - BWp$$

Where:

BWi - body weight of chicken at "i th" period of measurement

BWo - initial body weight

BWp – body weight of chicken from previous week's measurement

(Revision source: the author)

The weekly feed conversion ratio (FCR) was computed using the following formula:

$$WFCR = \frac{\text{Feed Intake (g)}}{\text{Average Gain (g)}}$$

Statistical Tool

The study was laid out in a Complete Randomized Design (CRD), while significant differences were computed through ANOVA (Analysis of Variance).

Treatment means differences were computed using the LSD (Least Significant Differences) at 5% level of significance.

Findings and Discussions

Weekly Body Gain Weight

Indicated in Figure 1 is the weekly body gain weight (WBWG) of broiler chickens fed complemented with mung bean sprouts. A significant effect on the weight of broiler chickens fed complemented with mung bean sprouts is revealed at 28 days.

The highest WBWG of 548.67 grams was observed for chickens fed with 100% CF + 15% MBS at 28 days (alpha = 0.05) while chickens fed with 100% CF had the lowest WBWG with 265.67 grams only.

Better weight of broiler chicken was also observed after 21 days of feeding mungbean residues (Momand et al, 2024) because of better consumption and lack of diseases. Correlations between body measurements and body weight were very significant (Al-Nedawi, 2018).

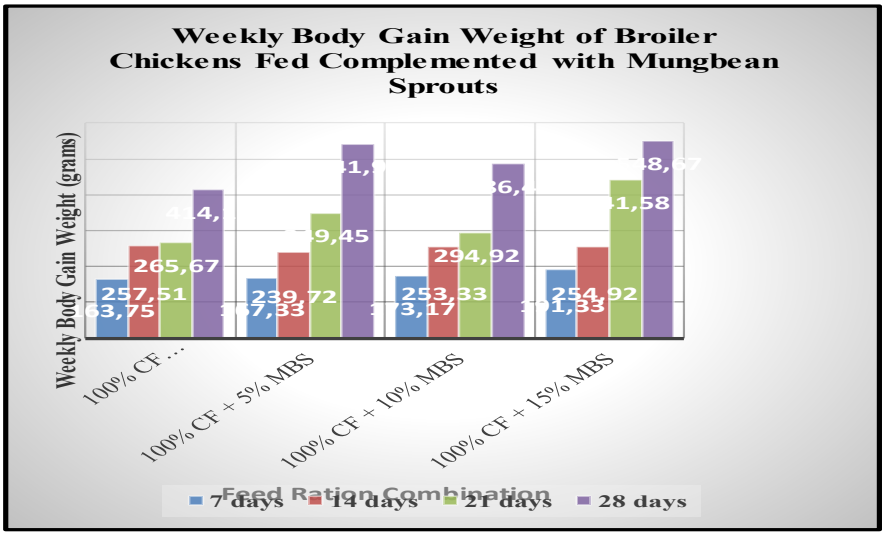

Fig 1. Weekly body gain weight (g) of broiler chickens fed complemented with mungbean sprouts.

Weekly Feed Conversion Ratio

The Fig 2 revealed that after 28 days, broiler chickens fed with 100% CF + 15% MBS had the lowest WFCR of 1.74 (alpha = 0.05). The highest WFCR of 3.40 was shown by broiler chickens fed with 100% CF, respectively.

Lower feed conversion ratio values mean that feeds given to animals are converted into weight gain efficiently (Bai et al., 2022). Commercial feeds mixed with 100%organic acid have the highest FCR (Hwa et al, 2023)

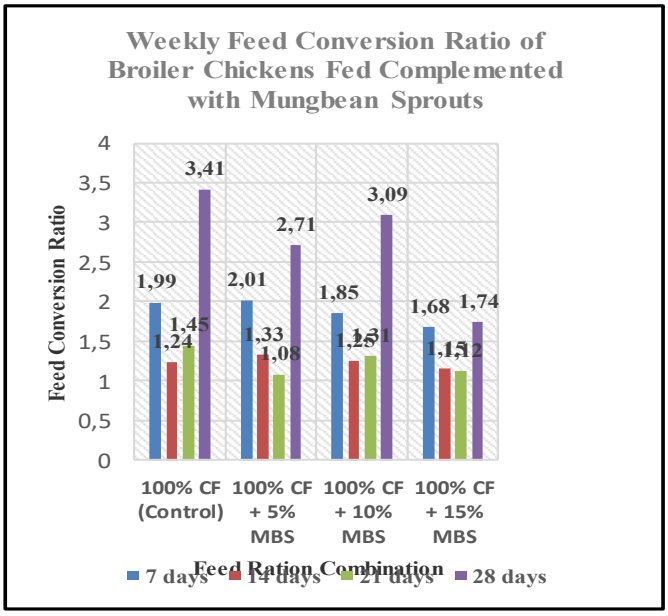

Fig 2. Weekly feed conversion ratio of broiler chickens fed complemented with mungbean sprouts.

Conclusion and Recommendation

Conclusions

1. Heaviest chicken were those feed ration complement with 15% MBS
2. Relatively lowest feed conversion ratio were also shown by broiler chickens whose feed ration was complemented with 15%MBS

Recommendations

1. Farmers are encourage to complement feed ration to their free-range chicken with sprouted mungbeans to improve the birds' performance.
2. Further study should be conducted along these findings by increasing the level of mungbean sprouts on the feed ration and lowering the commercial feeds.

Conflict of Interest

There is no conflict of interest in this study.

Acknowledgement

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Ethical Considerations

The authors take all the responsibilities for securing the confidentiality of all the data and results generated in this study.

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