

Comparison of Chicken Diets in Relation to Slaughter Weight

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Honors Thesis

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Project Background

- This Thesis studies a sample group of chickens to determine if free-range supplemented diets lead to increased slaughter weight over a primarily grain-fed diet. A free-range diet allows a chicken to eat grasses and insects that are not available to them in their enclosure.
- A positive correlation between free-range supplementation and slaughter weight may lead to an increase in farmers who allow their flocks to free-range.

Images



Methods

- This is a quantitative study using weight measurements over the course of five weeks, from the beginning of June through middle July. The six chickens were all female ISA Browns, with measurements starting at nine weeks old and continuing to fourteen weeks.
- The chickens were separated into two groups of three. Groups A and B both had unlimited Purina Start & Grow complete feed for chicks, water, and identical coops. Group B was allowed to free range, while group A was kept in a stationary pen.

Methods (Cont.)

- The weights of the chickens were measured once a week, with rain or other weather varying the day on occasion, and each chicken was identified with a colored band. Weights were recorded in grams.

Data

Chicken	Week 0 (grams)
1b	758
2b	743
3b	882
1a	720
2a	713
3a	818

- Starting weights for Group B averaged at 794 g, with results skewed by one chicken that weighed 882 g. Group A averaged at 750 g, once again being skewed due to a chicken weighing 818 g. This was done unintentionally.

Data Cont.

- Over the course of five weeks, Group B gained an average of 652 g, and Group A gained an average of 577 g. Live weights from the final day of measurements are shown here.

Live weight on butchering day (g)

Group A

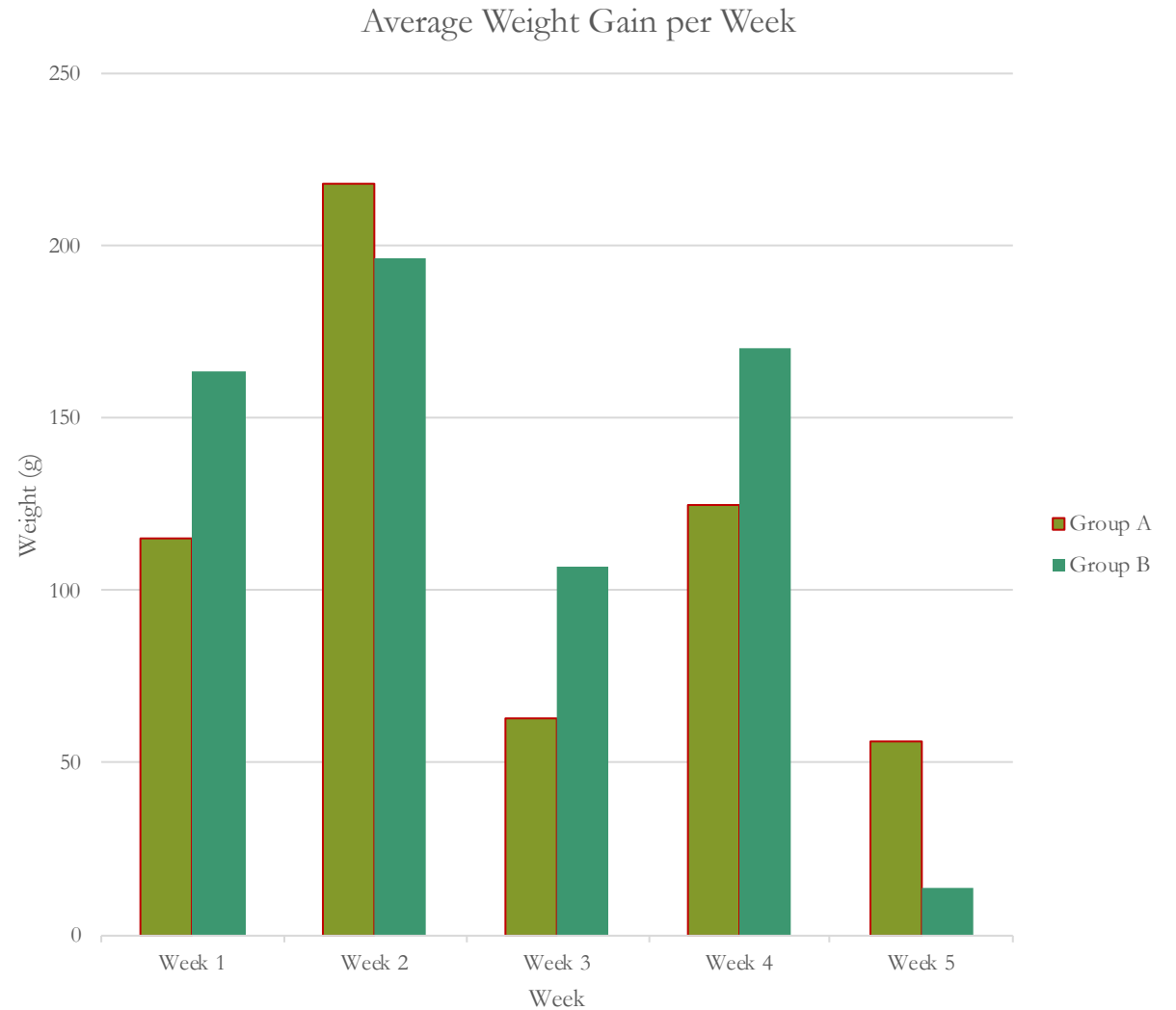
1a	1324
2a	1335
3a	1456

Group B

1b	1336
2b	1463
3b	1408

Data Cont.

Weight Gains peaked in Week 2 for both groups, and were lowest on week 5. Results for Group B were skewed by one chicken who lost weight.



Data Cont.

- Based on the data and final average weights vs starting weights, Group B gained the most weight.

Chicken Group A	Beginning Weight (g)	Ending Weight (g)	Difference (g)
1a	758	1324	566
2a	743	1335	592
3a	882	1456	574
Averages	794	1372	577.33

Chicken Group B	Beginning Weight (g)	Ending Weight (g)	Difference (g)
1b	720	1336	616
2b	713	1463	750
3b	818	1408	590
Averages	750.33	1402.33	652

Notes on Changes

- In the future, this experiment would have several dozen chickens, to obtain a better average that is less skewed.
- A more accurate scale and a more consistent measuring schedule would also be implemented.
- Due to budget restrictions, this experiment was small and not ideal, but with better funding, the results could be worthwhile to test.

Conclusion

- In summary, data collected over five weeks showed that chickens supplemented with a free-range diet gained more average weight by the final day of measurements than chickens who had only a grain-fed diet.
- Free range supplementation may help a chicken gain weight, because despite having a complete feed, chickens get extra nutrients and protein from grasses and bugs they eat, and more variety allows them to also enjoy their food more.