



## **Comparative Study of Foreign and Domestic Feeds and Their Effects on Eggs Production in Golden Breed in Baghlan Province of Afghanistan**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author FA designed the study, performed the statistical analysis, wrote the protocol and the first draft of the manuscript. Authors AMH and ZAN helped in data analysis and revision of the manuscript. Author NZ managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

A study was conducted in Baghlan province to compare foreign and domestic poultry feeds on Golden Egg Layers. The study was started on 2019/09/15 and took 2.5 months. A small farm of 40 chickens was formed and the chickens were divided randomly into four equal groups (A, B, C and D). Each group of 10 chicks was housed in a special cage, and all environmental conditions such as humidity, heat, light, and darkness were kept constant during the entire period of experiment. Completely randomized research design (CRD) was adopted for the study. Groups A, B, C and D were fed feeds from Iran Shams Farahi company, Pakistan Islamabad company, Kabul Feed company and Jalalabad Habib Hussam company, respectively. The results revealed, there was no

significant difference in weight gain during the first three weeks. However, from the third week onwards there was a significant difference ( $p < 0.05$ ) between weights gains dietary efficiency per kilogram of body consumed. For gaining 1 Kg body weight during 3 weeks, the pullets consumed 11065 gram Islamabad company feed, 11295 gram Iran Shams Farahi company feed, 11656 gram Kabul company feed and 12945 gram Habib Hussam company feed. From the study it is clear that Islamabad company feed is more economical and effective feed as compared to feed from other three companies. A group produced 15 eggs, B group produced 129 eggs, C group produced 121 eggs and D group produced 136 eggs. Therefore, it is concluded that group B, managed on feed from Islamabad company produced significantly higher number of eggs than other three groups. In term of economical state, the net profit of Islamabad feed was 654.95 AFN, Jalalabad Habib Hussam feed 247.9 AFN, Kabul feed 229.5 AFN and Iran Shams Farahi feed was 135 AFN. Therefore, it is concluded. that the order of effectiveness (descending order) of the poultry feeds was Islamabad company of Pakistan followed by Jalalabad Habib Hussam, Kabul Feed Company and Iran Shams Farahi Company.

*Keywords: Completely randomized research design; feeds; egg production; Baghlan.*

## 1. INTRODUCTION

The provision of feed for livestock and poultry is one of the most important and complex issues, which requires a technical and professional knowledge, as feed an essential component for the health, growth and production of poultry and animals.

Animal and poultry breeders have been working in this field for many years and have made great strides in the field of poultry breeding, egg and meat production, and much more. As the demand for eggs and meat is increasing day by day in the world, genetics is the only science that is working to provide these vital nutrients sources (eggs and meat) to human beings [1,2]. The diet should be organized with adequate amounts of all nutrients, such as energy, protein, amino acids, minerals, vitamins, essential fatty acids for poultry. Proper management of the farm requires modern and advanced feeding and timely feeding of chickens to ensure that the feed has reached its current state. In the background, the poultry industry is growing over the past few years and we can see all these developments recently. Feed companies continuously working in this area are trying to use formulas that increase egg and meat production and market themselves accordingly [3]. On the other hand, to be able to compete with its competitors, which is a positive competition, means that the companies do not compete with each other unless to improve the quality and quantity of feed. Animals have different needs, they must be present in the feed, whether it is chemical or nutritional, to provide a high quality product to the community [3,4]. Therefore, it is necessary to know the necessary knowledge about the

composition of feed, the sources of feed and the preparation of chicken feed. To determine the extent to which feed can increase the fertility of animals and other poultry, this part of the diet is essential in poultry, which is why feed evaluation is so important [4]. Preparation of condensed and non-condensed feed is very important in the livestock sector, and there are many companies operating in the country that use these two types of feed. In the field of feed production, there are some domestic and some foreign companies that offer their products for sale in the markets. However, what is value for discussion about these companies is the quality of feed. Lack of tools and insufficient knowledge of nutrition has led to inability to conduct approximate analysis to judge the nutritional value of each company. If we look at the domestic feed resources, they have a low quality composition but the demand is at a high level. The first thing that is important in feed is the amount of energy, and protein in the concentrated feed [5,6].

Chicken protein is more potent than other foods and has many benefits, which is why egg-laying hens have been developed around the world and billions of tons of eggs are being produced in different countries to be exported to other countries [7]. The poultry industry plays a very important role in converting feed into eggs and meat, for human consumption. Eggs that are obsolete and unusable by humans are used for livestock. Studies have shown that chickens are more susceptible to malnutrition than other animals [8-10]. Poultry is also more valuable due to its low cost, abundance, breeding method and short duration and used in research and many researchers believe that poultry needs are similar to human needs and that other animals (cattle

and sheep) are less expensive and more economical in the short term [4]. The current poultry farming has become an industry that feeds on low quality non-perishable foods such as blood powder, bone powder, lime, meat powder, sesame seeds, ryegrass, ryegrass etc.

Due to the population and economic situation in Afghanistan, the annual consumption of individuals is exceeding that of livestock products. Given the current situation, the growth of livestock and agricultural products has also accelerated due to high demand. Animal products (eggs and meat) have increased, there are two reasons for this, one is that the economic situation of the people has improved and the level of animal products in the country has increased more than ever before, which anyone can easily afford. Find it in the cities and buy it cheaply. There are still many problems and technical shortcomings in the production of livestock and animal products in the country, which hinder the development and high production. At the national level, we need to work on a process that will take our products to the international level, and to have a strong economy in the future.

Until now, no basic work has done to address the evaluation of different domestic and imported feeds and their impact of egg productions in egg laying. Feed selection is one of the most serious issue faced by poultry farmers. As they do not know which feed can make a positive difference in their production (weight and egg production rate), Hence farmers are facing a lot of problem in selecting a poultry feed. in Afghanistan. Therefore, the present study was designed with the objectives to compare the effectiveness of poultry feeds from 4 different companies.

## 2. MATERIALS

The study was conducted to determine the quality of external and internal feeds, as well as their qualitative value in comparatively egg-laying (Golden) breeds, in order to determine which domestic and which foreign feeds are productive and economical. It is also to identify the better feed in terms of nutritional value to introduce to our farmers for feeding their chickens. In this experiment we fed the Golden hens with 4 types of different companies feed which were Iran Shams Farahi, Islamabad, Kabul feed and Jalalabad Habib Hussam.

## 2.1 Place of Study

The study was conducted in Khinjan district of Baghlan province. The feeds from above was given to the Golden hens. The experiment began and ended in exact place and on time.

## 2.2 Research Design

The hens, at 4 months and 10 days age with average body weight of  $880 \pm 10$  grams were randomly selected and divided in four groups cages. All the groups were housed in separate cages and each groups was provided feed from a specific company. Feeding was initiated, until the end of the study (6 months and 3 days). The traits which were recorded during this period were, amount of feed consumed, live body weight gain, FCR (Feed Conversion Ratio) and egg production. The feeding and watering was done twice a day from start to end of study. However, the amount of nutrients was increased subsequently because of the increase in weight., The remaining feed left in the grain was collected and weighed, as far as the egg-laying stage. The hens were weighed weekly and body weights were recorded in a research booklet before the other feed was added.

## 2.3 Tools Needed for Research

The equipment used for the research Includes electric lights, drinkers, feeders, thermometer, cages, digital scales, cuffs, feed and research notebooks.

## 2.4 Data Analysis

The data obtained were analyzed statistically using 5 Digo, Ca., USA (Graphpad.Prism.) All the generated data were analyzed by one way analysis of variance (ANOVA). However, the data pertaining to weekly weight gain and egg production of the experimental groups were analyzed using the two-way ANOVA. The means were separated with Tukey's test at a significance level of  $P \leq 0.05$ . Egg production rate and feeding efficiency during this period. FCR Feed Conversion Ratio is calculated in each group (Table 2).

## 3. RESULTS

The feed of Islamabad Company was observed to be economical as compared to feeds prepared by other companies and there were significant differences in egg production, weight gain, feed conversion capacity and egg weight of four

groups. The acquisition shown in Graph 1-4, where there is a significant difference  $p>0.05$  between them. In this study, four experiments were conducted and their consumption during this period is presented in Table as follows: Islamabad Company's food consumption is 53699 grams, Jalalabad Habib Hassam Company's food consumption is 53671 grams, Kabul Feed Company's food consumption is 66501 grams and Iran's Shams Farahi Company's food consumption is 50068 grams.

### 3.1 Feeding of Laying Hens

Hens that lay brown eggs start laying eggs from the 18th week to a maximum of 6 weeks, but typically lay eggs for 2-3 weeks (Table 1).

Poultry need food to grow during the growth stage. Poultry needs high amounts of protein, energy, vitamins, and minerals in the early stages. It is time to reach puberty and avoid obesity.

**Table 1. Shows the body weight gained and feed consumed per day**

| Age in months | Body weight (gram) | Feed intake per day |
|---------------|--------------------|---------------------|
| 1             | 13                 | 70                  |
| 2             | 20                 | 115                 |
| 3             | 25                 | 190                 |
| 4             | 29                 | 280                 |
| 5             | 33                 | 390                 |
| 6             | 37                 | 480-500             |
| 7             | 41                 | 590- 620            |
| 8             | 46                 | 680-750             |
| 9             | 51                 | 790-860             |
| 10            | 56                 | 890-970             |
| 11            | 61                 | 990-1080            |
| 12            | 66                 | 1090- 1170          |
| 13            | 70                 | 1180-1250           |
| 14            | 73                 | 1230-1310           |
| 15            | 75                 | 1300-1370           |
| 16            | 77                 | 1320-1380           |
| 17            | 80                 | 1420-1500           |



**Fig. 1. Shows the preparation of the experiment and placing the tools**

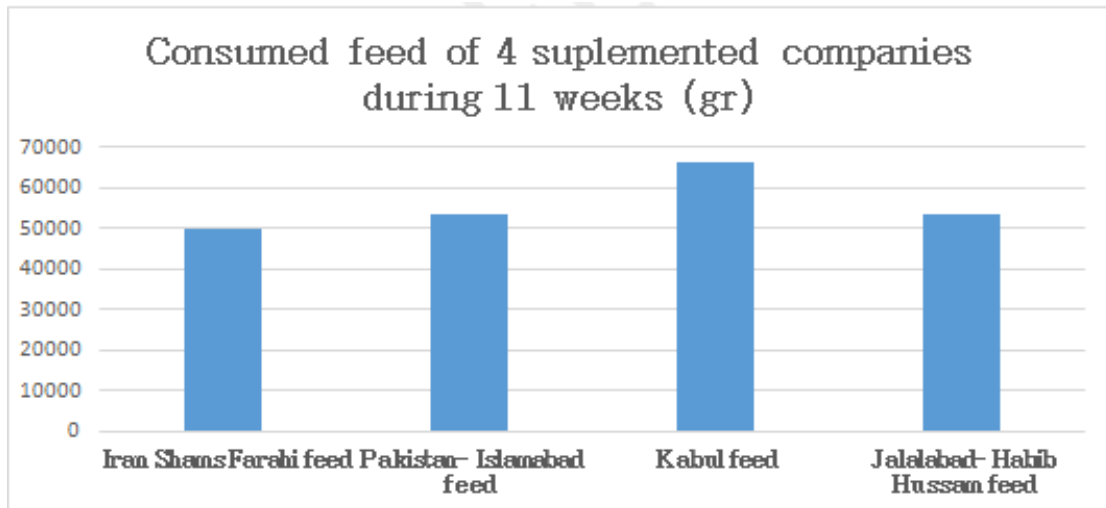


Fig. 2. Total consumed feed of selected companies in duration of 11 weeks

Table 2. Table show feed conversion ratio in each group

| # | Type of feed      | Consumed feed | FCR  |
|---|-------------------|---------------|------|
| 1 | Islamabad         | 11065         | 1.10 |
| 2 | Iran Shams Farahi | 11656         | 1.16 |
| 3 | Habib Hussam      | 11205         | 1.12 |
| 4 | Kabul feed        | 12945         | 1.29 |

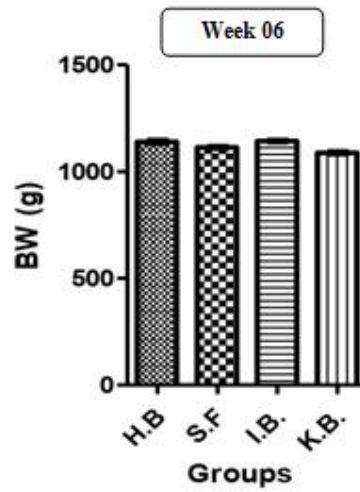
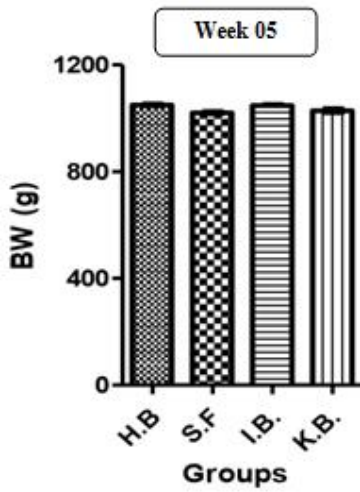
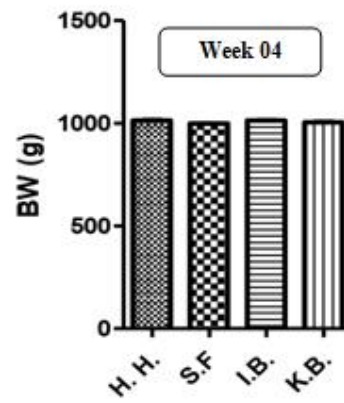
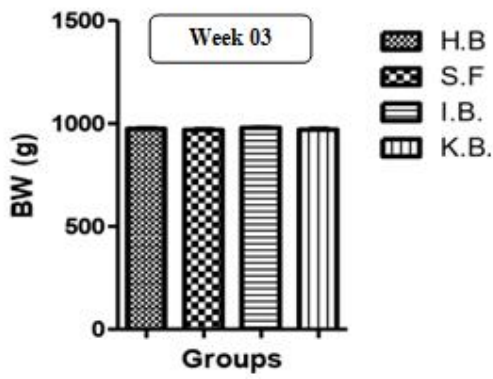
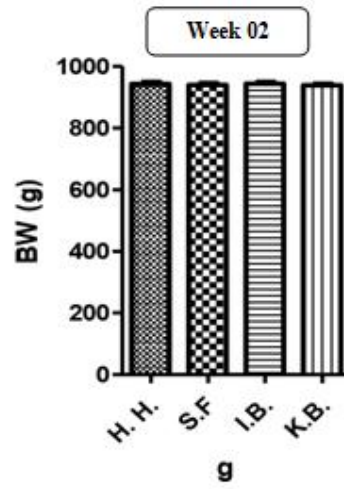
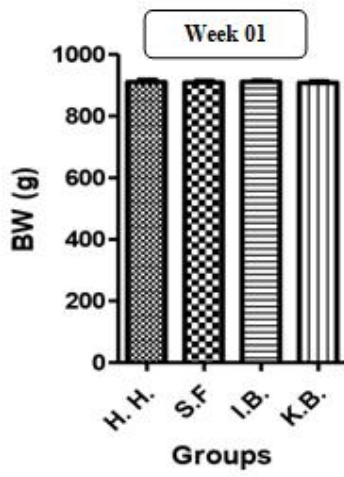
### 3.2 Weight Gain

There was very little difference between the group fed with feed of Jalalabad and Islamabad companies in the present study. However, the difference between groups fed feed from Islam Abad and Shams Farahi of Iran was very high. There was also a difference between feed from Islamabad company and feed of Kabul company which is more than Habib Hussam Company of Jalalabad. There was no difference in first week growth, but subsequently a significant difference was observed between these groups in the egg production, with no significant difference for the first three weeks but after third week to week eleven there was a significant difference in weight gain, as illustrated in the following graphs (Fig. 3).

The feed consumption in four groups during the period of study is presented in Fig. 3. Group A (Islamabad feed) consumed 3434 grams, group B (Kabul feed) consumed 3343 grams, group C (Iran Shams Farahi feed) consumed 3425 grams and group D (Jalalabad Habib Hussam feed) consumed 3188 grams during the first week alone (Fig 3).

Similarly, in the second week of the experiment, feed intake was observed in the experimental groups, ranging from high to low amounts this week: Kabul Feed Company feed consumption 4020 grams, Iran Shams Farahi company consumption 3783 grams, Jalalabad Habib Hussam company consumption 3611 grams Islamabad feed consumption was 3523 grams respectively (Fig. 3).

Week 3 and 4 are the same as the second week in the experimental groups. Similarly, in the fifth week, there is a significant difference in the feed consumption between the experimental groups. In recent weeks, there has been little difference between the Shams Farahi company of Iran and the Kabul Feed Company, which is not noticeable. The feed consumption of each company this week is as follows: Islamabad Company feed consumption 4895 grams, Jalalabad Habib Hassam company feed 4816 grams, Iran Shams Farahi company feed consumption 5591 grams, and Kabul feed consumption 55153 grams (Fig. 3).



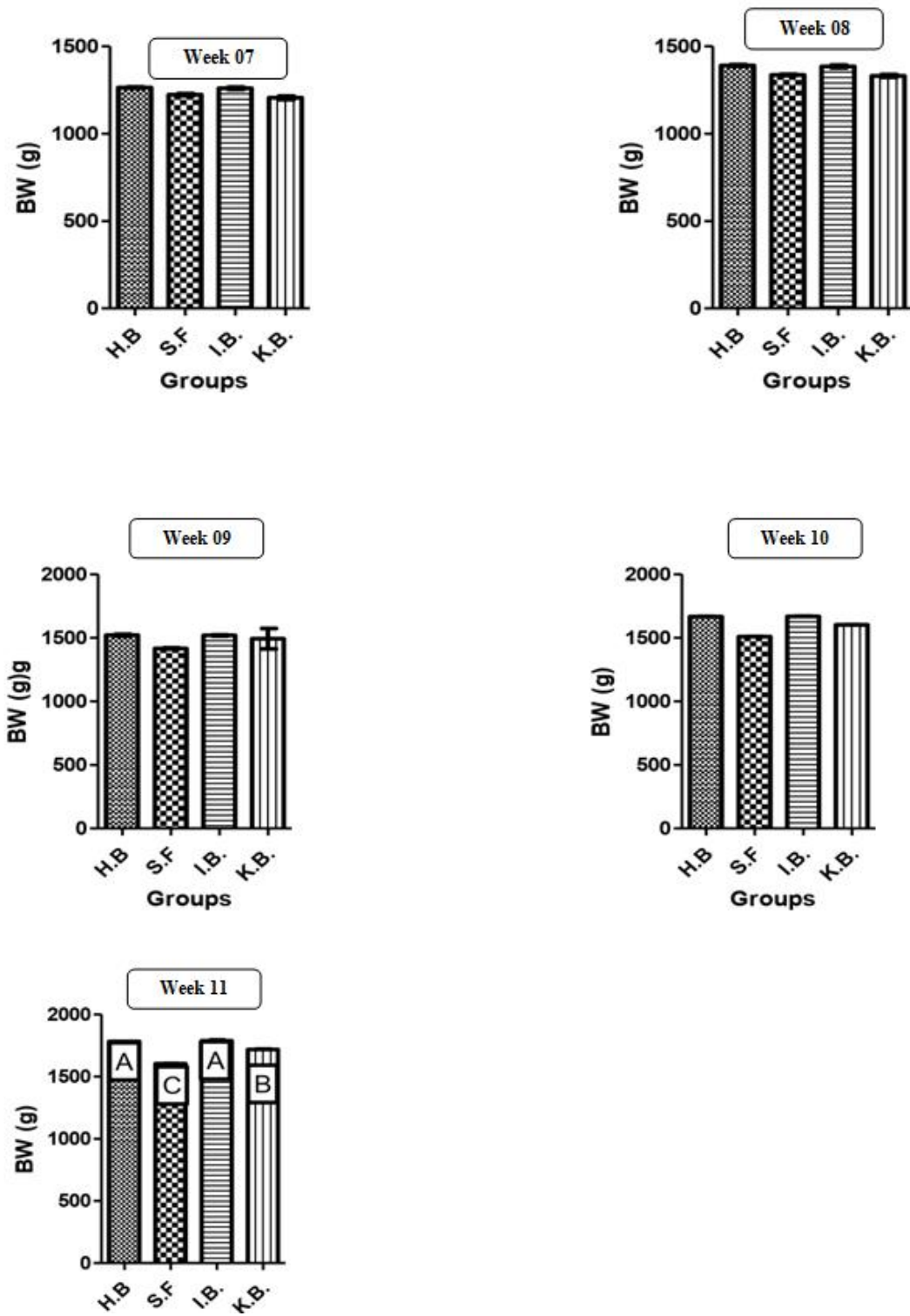


Fig. 3. Indicated weight gaining in each group during the experiment



In the 6th, 7th, 8th and 9th week, the level of feed consumption between the groups under experiment is similar to the second week, but with the exception of the feed of Shams Farahi company of Iran. Infections have led to a decline in feed intake in these weeks and adverse effects on weight gain and productivity as anti-cannibalism drugs have been used to treat cannibalism but have not been very effective. We mixed a small amount of blood powder in a few days. With this, cannibalism or self-indulgence stopped.

In the tenth week, the total feed intake is divided into four groups as follows: Islamabad Company Feed Consumption 6128 grams, Jalalabad Habib Hussam Company Feed Consumption 5610 grams, Kabul Feed Company Feed Consumption 7703 grams and Iran Shams Farahi feed company 3612 grams. There is no statistical difference between Farahi's feed consumption between Islamabad and Jalalabad's Habib Hussam and the highest consumption is from Kabul Feed Company and Iran Shams Farahi's feed cause has already been mentioned. The bar is infected with cannibalism, which reduce their feed intake subsequently.

Finally, the feed consumption in the eleventh week is as follows: Group C Kabul Feed

Company consumption 7773 grams, Group B Islamabad Company Feed Consumption 6294 grams, Group D Habib Hussam Company consumption 5643 grams and Group A Iran Shams Farahi Company feed Consumption 4415 grams for each of the above mentioned reasons.

The total consumption of feed in each group during the whole research period (11 weeks) was as follow. The Kabul feed company 66501 grams. Islamabad company feed 53699 grams, Jalalabad Habib Hussam company feed 53671 grams, and Iran Shams farahi company 50068 grams. Here it is clear to us which feed is economical for us and which is the best in terms of egg production. The feed consumption of Kabul Feed is the highest and the feed of Shams Farahi Company of Iran is lower than other groups.

Although weight gain is important in broiler chickens and is the focus of research, it is not so important in laying hens because their high weight has a detrimental effect on the production of hens. Weekly weighting was performed on experimental groups with a weekly record of calculation between them. Weight gain is described during each week in Fig. 4.

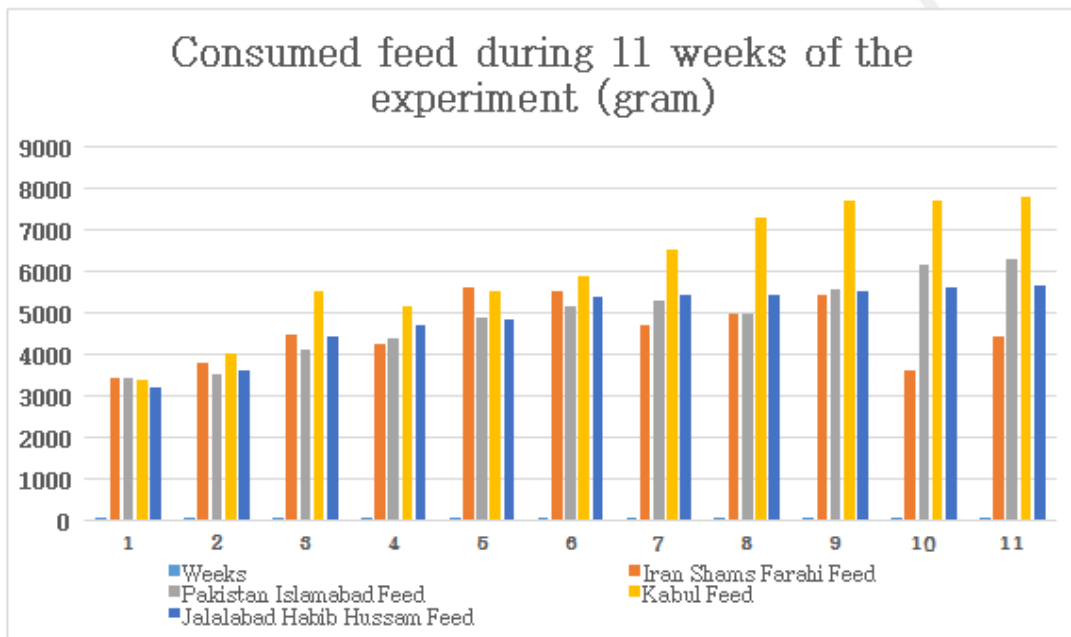


Fig. 4. The consumed feed amount during 11 weeks of the experiment



The Fig. 4 shows that by the third week, the weight of the chickens in all groups is at the same level. There is a close relationship between the four groups, or similar, but in other weeks the weights are in the ab category, meaning that the different companies that are fed if they are in a category show a significant difference  $p < 0.001$  (A and b categories also have a significant difference between the a and ab categories to indicate weight gain,  $p < 0.001$  is also bb to a, ab, and b categories respectively. The mean weight is ( $p < 0.001$ ). The difference between them from one number to another, from one category to another, is a number above 100, i.e. a difference of 100 grams from one category to another. As shown in the table. Weight gain in the first three weeks showed no significant difference in the four experimental groups fed different diets.

In the fourth week, there was a significant difference in weight gain between the experimental groups, with a significant difference between the chickens fed by the Islamabad company and the Iranian shams ( $p < 0.001$ ). There is also a significant difference in the feed ratio of Habib Hussam Company of Jalalabad to Shams Farahi ( $p < 0.001$ ), but there is no significant difference between Islamabad and Jalalabad companies and Iran Shams Farahi and Kabul Feed companies. Difference between Islamabad and Kabul Feed and Kabul Feed and Habib Hussam is 0.05 percent.

The fifth week is the same as the fourth week. There is a significant difference between the experimental groups. There is a significant difference between Habib Habib Company of Jalalabad and Shams Farahi Company of Iran. There is no difference between Kabul Fed and Habib Hussam ( $p < 0.001$ ), and there is a significant difference between Islamabad and Iran Shams Farahi ( $p < 0.001$ ). However, there is no significant difference between Iran Shams Farahi and Kabul Feed. There is also a significant difference between Islamabad and Kabul Feed Company which is  $p < 0.001$ .

In the sixth week, there is a significant difference between Habib Hassam and Iran's Shams Farahi. There is no significant difference between Habib Hassam and Islamabad companies. There is also a significant difference between Habib Hassam and Kabul Feed, which is  $p < 0.001$ . There is also a significant difference between Kabul Feed ( $p < 0.001$ ), and there is a significant difference between Islamabad and Kabul Feed ( $p < 0.001$ ) respectively.

In the seventh week, there is a significant difference between Habib Hassam and Iran Shams Farahi, which is  $p < 0.001$  but there is no significant difference between Habib Hassam and Islamabad while, there is a significant difference ( $p < 0.001$ ) between Iran Shams Farahi and Islamabad.

The difference between Iran's Shams Farahi and Kabul Feed is not noticeable, but there is a significant difference between Islamabad and Kabul Feed which is  $p < 0.001$ . Even in the eighth week, there is a difference between Jalalabad Habib Hassam and Iran's Shams Farahi companies, which means that there is no difference between Habib Hassam and Islamabad companies.

In the ninth week, there is a significant difference between Habib Hassam and Iran Shams Farahi Company ( $p < 0.001$ ) but there is no difference between Islamabad and Habib Hassam Company and Habib Hassam and Kabul Feed Company. The difference between Shams Farahi and Kabul Fed is less ( $p < 0.005$ ), then Islamabad and there is no significant difference between Kabul Feed respectively.

In the tenth week, there are significant differences between the groups. There is a significant difference between Shams Farahi and Habib Hassam of Iran, which is ( $p < 0.001$ ), but there is no significant difference between Islamabad and Habib Hassam. While, there is a significant difference between Hussam and Kabul Feed ( $p < 0.001$ ) and Iran Shams Farahi Islamabad ( $p < 0.001$ ). There is also a significant differences between Shams Farahi, Islamabad and Kabul Feed ( $p < 0.001$ ).

Week 11 also shows a significant difference between the experimental groups. Between Group D Jalalabad Habib Hussam and Group A there is a significant difference between the Iranian Shams Farahi companies ( $p < 0.001$ ). There is no significant difference between Islamabad and Group D Habib Hassam feed. Furthermore, there is a significant difference between Habib Hassam and Kabul Feed which is  $p < 0.001$ . Weight gain is recorded in the development of research between experimental groups.

Weight gain in laying hens makes it clear that there is no difference between groups in the first three weeks, but then there is a significant difference in diet between Islamabad and Habib

Hussam's feed compared to Kabul's. Fed and Iran Shams Farahi have a high difference of  $p < 0.001$ , but they do not have a significant difference, which has become clear in recent weeks.

Feed efficiency means that the amount of feed given to a hen per kilogram of body weight is FCR, which is essential for converting feed into weight calculation. The effectiveness of a diet in chickens is determined by its performance. This framework explains the FCR between feeds from top to bottom. Which is Islamabad Company, Jalalabad Habib Hussam Company, Iran Shams Farahi Company and Kabul Feed Company.

A diet is effective when it is quantitatively small and weighs less than a kilogram, this indicates good quality feed. From this it can be seen that Islamabad Company Feed 11065 grams, Jalalabad Habib Hussam Company Feed 11205 grams, Iran Shams Farahi Company Feed 11656 grams and Kabul Feed Company Feed 12945 grams in three weeks as a result one-kilogram weight was gained and above Feed nutrition shows that Islamabad feed is the best and most effective feed.

Four types of feed were purchased from Kabul at different prices. The one bag 50-kilogram feed cost for the experimental chickens is 1800 Afghani for Pakistan Islamabad Company, 1700

Afghani for Jalalabad Habib Hussam Company, 1650 Afghani for Shams Farahi Company of Iran and 1300 Afghani for Kabul Feed Company.

### 3.3 Egg Production Size

Hens laying eggs in 7th week of experiment and produced 10 in seventh week. in the 8th week, the Islamabad company produced 22 eggs as a result of feeding, in the 9th week produced 40 eggs, and in the 10th week, the Islamabad company produced 42 eggs. In the eleventh week, which is the end of the study, the Islamabad diet yielded 52 eggs, which increased the total number of 129 eggs in the period of study.

Kabul Feed Company's feed fed to experimental chickens, eggs were laid in the seventh week. In the seventh week, 1 egg was produced as a result of Kabul Feed Company's feeding. In eighth week, produced 11 weeks, in the ninth week, produced 29 eggs. In the 10th week, 35 eggs were obtained as a result of Kabul Feed and in the 11th week, 45 eggs were obtained as a result of Kabul Feed. In the period of study totally obtained eggs were 121.

Under the feed of Shams Farahi Company of Iran, the beginning of eggs was sixth week of the experiment dated on 26/09/2019.

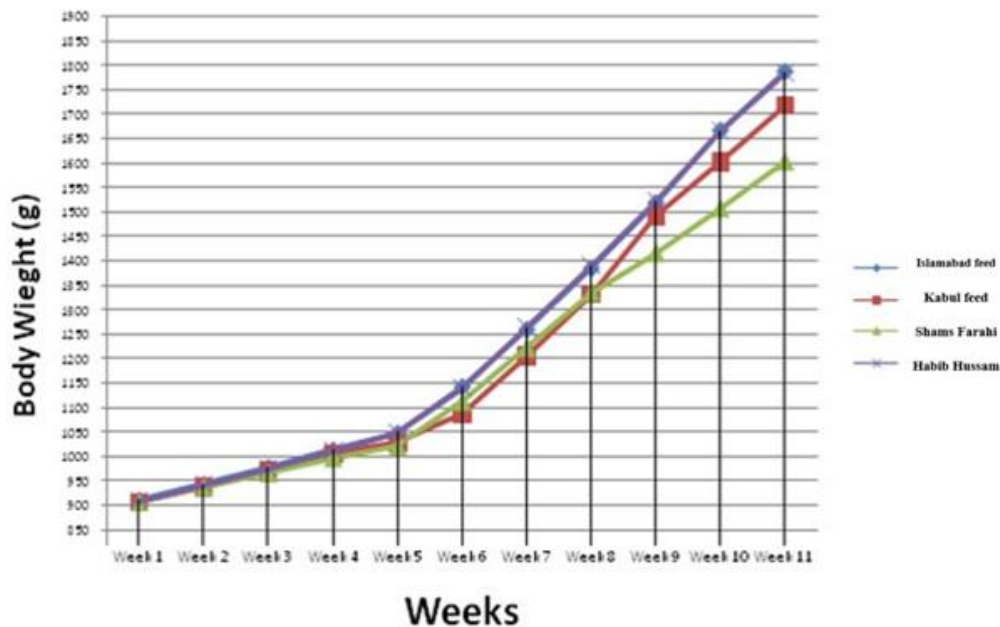


Fig. 5. Shows body weight gaining during 11 weeks of the experiment

In the sixth week, 2 eggs were produced feeding with Shams-e-Farahi Company of Iran. In the seventh week 2 weeks were obtained again. In the ninth week 5 eggs were obtained, and in the 10th week, 2 eggs were obtained and in the last week of the experiment 1 egg was obtained. In all, 15 eggs were produced during the study. Under the diet of Jalalabad Jabib Hussam Company, the eggs of hen were laid on the sixth week dated on 26.09.2019. In the sixth week, the number of eggs received by the Jalalabad Habib Hussam Company feed was 6 eggs and in the seventh week, gained obtained 6 eggs, and in the eighth

week, the feed of Jalalabad Habib Hussam Company feed laid 19 eggs. In the ninth week produced 27 eggs as a result of feeding of the company. In the tenth week, 32 eggs were obtained as a result of feeding of Habib Hussam Company of Jalalabad and in the eleventh week 46 eggs were produced respectively. Totally 136 eggs were produced during the experiment period.

### 3.4 Feed Economic Ratios

The table below showed the cost of per kilogram feed during the experiment.

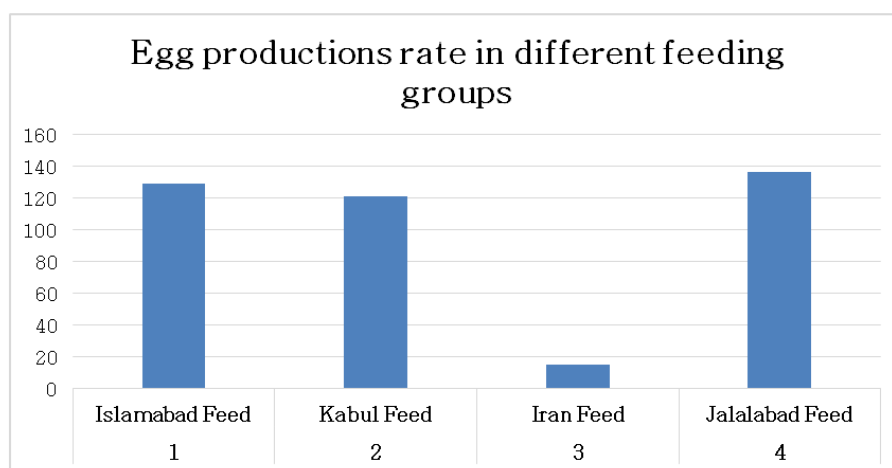


Fig. 6. Eggs production rate in different feeding groups

Table 3. Shows the economical differences among the four different company feeds

| S/N | Type of feed           | # of hens per group | Consumed feed | Cost of 1Kg feed / AFN |
|-----|------------------------|---------------------|---------------|------------------------|
| 1   | Jalalabad Habib Hussam | 10 hens             | 32144 gram    | 6.34                   |
| 2   | Islamabad              | 10 hens             | 28203 gram    | 7.36                   |
| 3   | Iran Shams Farahi      | 10 hens             | 28573 gram    | 6.33                   |
| 4   | Kabul Feed             | 10 hens             | 37001 gram    | 5.26                   |

Table 4. Below table shows the consumed feed cost and produced eggs cost

| S/N | Type of Feed      | Consumed feed (gram) | Cost of consumed feed (gram/AFN) | # of produced eggs | Cost of egg/ AFN | Benefit of eggs |
|-----|-------------------|----------------------|----------------------------------|--------------------|------------------|-----------------|
| 1   | Islamabad         | 28203                | 9.1035                           | 129                | 10               | 1290            |
| 2   | Iran Shams Farahi | 28573                | 9.962                            | 15                 | 10               | 150             |
| 3   | Habib Hussam      | 32144                | 11.1112                          | 136                | 10               | 1360            |
| 4   | Kabul             | 37001                | 5.980                            | 121                | 10               | 1210            |

**Table 5. The grant benefit of all groups during the experiment**

| S/N | Type of feed      | Cost of feed during the experiment | Benefits |
|-----|-------------------|------------------------------------|----------|
| 1   | Islamabad         | 5135                               | 654.95   |
| 2   | Iran Shams Farahi | 1112                               | 247.9    |
| 3   | Habib Hussam      | 5962                               | 229.5    |
| 4   | Kabul             | 5980                               | 0        |

#### 4. DISCUSSION

The findings suggest that significant differences in feed consumption, weight gain and feed efficiency between groups. The egg production and egg beginnings were observed on experimental groups. There are many domestic and foreign feed companies that sell their products to the cities for sale, but there are deep and superficial differences in the feed of these companies, which are also in terms of feed efficiency [11,12]. There is also a difference in price, even the feed of one company can be distinguished from the feed of another company, the feed of Pakistan Islamabad Company, the feed of Iran Khyria Company, the feed of Jalalabad Atal Pasarli Company and the feed of Herat Sadaf Company. Islamabad Company 2030 grams, Iran Khyria 2170 grams, Jalalabad Atal Pasarli 2380 grams and Herat Sadaf feed 2610 grams were present during the study period. There was significant difference in the weight of the chickens. The biggest difference was between Islamabad and the Sadaf feed. There was a slight difference between the Islamabad and Jalalabad Atal Pasarli Company compared to the Iranian feed [13]. The present study is in line with the many earlier studies.

The effectiveness of feeds can affect egg laying in hens and productivity in terms of weight gained FCR. The researchers believe that the main reason is a chemical composition of feeds from different companies. The difference in chemical composition affects feed intake leading to adverse effects on products such as eggs and meat. Increased feed intake increase growth rate and egg production whereas decreased feed intake has negative on performance and production. In this study, one of the above factors, which is the effect of different feeds on the weight of eggs and chickens are similar. The weight of eggs and chickens based on different diets was also affected. The best weight was obtained as a result of Islamabad feed [14], say that if feed consumption is low during the year, the effects on egg production and weight gain will be negative.

In contrast, if feeding is faster and has a positive effect on egg hatching, production, weight gain, and survival. It is a positive fact that the quality of feed is known. A quality feed always shows its effects on eggs, weight gain. In the morning and evening, the best feed was given by the company of Islamabad. In the second step, the feed of Jalalabad company was given [15,16].

Eggs and meat require a balanced diet, because inadequate nutrition or unbalanced diet not only leads to gain and productivity but also causes allergies and poisoning [10] and most allergies occur to energy products, protein and calcium. To meet the perennial needs of chickens, it is important to study the diet and choose feeds that are fully balanced in composition, as different companies produce feed for chickens, so it is important to choose feeds that are highly productive. The blood powder in the feed of Iran Shams Farahi Company was low and the chickens were repeatedly infected with cannibalism and could not be treated with anti-cannibalism drugs [15,17].

Domestic feed production is lower than foreign feed, which is why traders in our country import feed from abroad because the demand is high and eggs and meat are used in large quantities. The quality of the feed is very low, so its decided to compare the quality of domestic feeds, production and weight gain in order to clarify which foreign feed and which domestic feed is better in production and economic. Therefore, based on the research hypothesis, to identify the potential feed and introduce to my dear compatriots in the future. But this study is the first research in the country. Feed comparisons have been made to egg-laying chickens, and the findings are similar to those of other studies.

#### 5. CONCLUSIONS

The consumption of feed of Islamabad Company was 11065 grams, Habib Hassam Company was 11205 grams, Iran Shams Farahi Company was 11665 grams and Kabul Feed Company was 12945 grams to gain one kilogram of weight.

There was a significant difference between Islamabad Feed Company, Habib Hassam Company, Iran Shams Farahi Company and Kabul Feed Company. However, there was no significant difference in the first three weeks but then there was a significant difference between in the last weeks. Finally, there was a significant difference between Islamabad and Iran's Shams Farahi. In the second step, there is a big difference between Habib Hassam and Shams Farahi of Iran, there was no significant difference between Islamabad and Habib Hassam, there was a difference between Kabul Feed and Shams Farahi. The difference in weight was not significant until the third week, followed by a significant difference from the third week to the eleventh week. This group of chickens has outgrown other companies in the diet.

Egg started and egg production were not the same in all the groups. The chickens fed by the Islamabad company laid eggs 129 during this period. Habib Hussam laid 136 eggs during the period and Kabul Feed Company laid 121, while Shams Farahi of Iran produced 15 eggs. The economic value of feed was one of the main objectives. Therefore, the feed of the Islamabad company was the most economical than that of other companies. The diet of chicken eggs weighed more than that of other companies.

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## DISCLAIMER

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## REFERENCES

1. De Toledo Rodvalho MV, Paulino MDLMV, Da Silva HC. Estudo comparativo da digestibilidade de filhotes de ema (Rhea Americana). *Ensaio E Ciência: ciências biológicas. Agrárias E Da Saúde*. 2011;15(1):55-70.
2. Islam R et al. Performances of improved dual type backyard chicken in free range system. *A. Journal of Poultry Science*. 2020;8(02):32-40.
3. Morata RL. Valores energéticos e digestibilidade de nutrientes de alguns Alimentos Para Ema; 2004.
4. Gadzama I et al. Quality Assessment of Dusa-Rice Bran Multi-Nutrient Block (Drmb) in a semi-arid environment of North East Nigeria. *Journal Of Animal Production Research*. 2016;28(1):33-48.
5. Polcarp J. Evaluation of cattle finishing systems and availability of animal feedstuffs In Magu And Ilemela Districts, Mwanza Region. Sokoine University Of Agriculture; 2014.
6. Wuanor A, Carew S. Nutrient digestibility, carcass yield and production economics of west african dwarf goats fed pleurotus tuber-regium biodegraded rice straw and maize offal-brewer yeast slurry mixture. *Journal of Animal Husbandry And Dairy Science*. 2018;2(1):13-21.
7. Jiang J Et Al. Denatonium as a bitter taste receptor agonist damages jejunal epithelial cells of yellow-feathered chickens via inducing apoptosis. *Animal*. 2020; 14(6):1223-1233.
8. Hamdard E et al. Denatonium Benzoate-induces oxidative stress in the heart and kidney of chinese fast yellow chickens by regulating apoptosis, autophagy, antioxidative activities and bitter taste receptor gene expressions. *Animals*. 2019;9(9):701.
9. Hamdard E et al. Responsiveness expressions of bitter taste receptors against denatonium benzoate and genistein in the heart, spleen, lung, kidney, and bursa fabricius of chinese fast yellow chicken. *Animals*. 2019;9(8):532.
10. Hamdard E et al. Bitter Taste in chicken and its implication on nutrition. *Homo*. 1925;7902:T1r1.
11. Conroy C et al. Improving backyard poultry-keeping: A case study from India. *Agricultural Research and Extension Network*. 2005;146.
12. Conroy C et al. Improving backyard poultry-keeping: A case study from India. Paper 146. Working Paper Accepted For Publication; 2005.
13. Zafar M. First draft country report on the status and perspectives of the animal genetic resources development and

- conservation in Islamic Republic of Afghanistan. Kabul, Afghanistan: Fao; 2005.
14. Motlagh ME et al. Association of mental disorders and consultation with family members and friends in children and adolescents: The Caspian-Iv study. International Journal Of Preventive Medicine. 2016;7.
  15. Moahid M. Broiler farming in nangarhar province-an economic analysis; 2018.
  16. Sinha G. Economic analysis of poultry production systems in Palamu division of Jharkhand. Ivri, Izzat Nagar.
  17. Deka P et al. Production performance of vanaraja bird under traditional system of rearing In Assam. International Journal of Livestock Research. 2014;4(2):81-85.

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