

How Much Will My Chickens Eat?

Jacquie Jacob and Tony Pescatore, Animal and Food Sciences

Introduction

Before purchasing chicks (or chickens) it is important to consider the cost of keeping them. Much of this cost is in the feed they consume. So the key question is, “How much will my chickens eat?” Chickens need a complete feed that contains protein (with the right balance of amino acids), energy, vitamins, and minerals. Today we know more about the nutritional requirements of chickens than any other animal. The amount of feed they need will depend on several factors.

Breed of Chicken

All the different breeds of chickens are descended from the red jungle fowl of Southeast Asia. After generations of genetic selection, chickens now come in many different shapes and sizes. Wild jungle fowl have a mature body weight of 2 pounds and lay about 10-12 eggs per year during the breeding season. Today we have meat-type breeds (known as “broilers”) that reach over 4 pounds in about six weeks and egg-type breeds that lay almost 300 eggs a year.

Typically the larger the chicken the more feed they eat. Part of the feed is used to maintain the health and condition of the chicken. Maintenance refers to the energy required for activities such as scratching and walking, digestion, respiration, circulation, maintaining body temperature etc. The remaining energy and nutrients in the feed are then available for growth and/or egg production.

The larger the chicken the more maintenance it requires. For example, standard-size chickens require more feed than their bantam versions. Similarly, brown-egg laying hens tend to be bigger than the commercial white-egg laying strains (leghorns) and thus eat more feed.

Age

As with children, the nutritional needs of growing chickens change with age. For example, the protein requirement of chicks is higher than that of adults. The amount of feed a chicken can actually eat also changes as they get older.

Sex

Because male chickens are typically larger than their female counterparts, they have higher nutrient needs. For example, male broiler chickens typically grow faster than female broilers. When feeding a straight-run flock (both male and female chickens), it is common to formulate feeds to meet the average nutritional requirement. This method often leads to supplying more nutrients than the female chickens require while not feeding enough for the male chickens to achieve their potential growth. Similarly, roosters are not producing eggs so their nutrient requirements are not as high as their female counterparts in a flock producing hatching eggs.

Production Level

Hens that are producing eggs have higher nutritional requirements than those that are not in production. The main nutrients of concern are calcium and phosphorus since they are major components of egg shells. Growing meat-type chickens require more protein than growing pullets of egg-laying breeds.

Type of Feed

When nutritionists formulate diets for laying hens they start by setting a dietary energy level. Animals typically eat to meet their energy needs—that is, they will eat more of a low-energy feed than they will of one high in energy. Modern broiler strains are not as good at regulating feed intake but are more able to select different feedstuffs to create their own

balanced diet. This method is known as “cafeteria feeding.”

Poultry feeds can be given as a mash, crumble, or pellet. Layers typically are fed a mash feed. Commercial-broiler feeds are pressed into pellets, which concentrate the nutrients into a single bite. Broiler chickens can eat more of a low-energy feed when it is pelleted. The heat involved in pelleting feed improves the digestibility of many ingredients, especially rye, wheat, and barley. Pelleting also helps destroy any salmonella that may be present in the feed. Pelleting also results in less feed spillage and, thus, less waste.

Water Consumption

Chickens typically require twice as much water as feed—so if they eat 1 pound of feed they will drink 2 pounds of water (1 quart). An exception is that in healthy adult chickens, feed consumption decreases as room temperature increases above 68°F while water intake remains the same up to 77°F then increases at higher temperatures. Water consumption also increases slightly when the feed is pelleted. Increasing the protein content of feed also increases water intake.

It is important the chickens have sufficient access to water and that all the chickens can drink without having to fight for space to do so. If water intake is restricted it will restrict feed intake as well. Often a sudden drop in feed consumption can be traced to a problem with the watering system.

Health Status

While feed and water intakes are reduced during an illness, the ratio between the two typically remains the same. Most chickens with a serious illness will stop eating but may continue to drink. So when giving a medication to sick chickens it is best to give it in the water.

Management

Several management factors will affect feed intake. Pasture-raised or free-range chickens are more active and will therefore have higher energy needs. As a result, they will typically eat more feed.

It is important that all the chickens can eat at one time. Therefore, there must be enough feeder space so all the chickens can reach the feed at the same time. If there is insufficient feeder space, the smaller and/or weaker chickens will not get enough to eat. In addition, lack of feeder space can lead to body scratching and cannibalism.

The number of hours of light available each day also will affect daily feed consumption, especially if feeder space is limiting.

Temperature

As previously mentioned, chickens typically eat less when it gets hotter, especially with temperatures higher than 86°F. It is for this reason that higher energy diets (referred to as being “more dense”) are fed since it allows the chickens to meet their nutritional requirements with reduced feed intake.

Meat Chickens

Through conventional breeding programs today’s commercial broiler chickens grow fast with high feed efficiency. Broilers are typically allowed to eat as much as they want to maximize their growth potential. However, because broilers do grow fast, it is possible to limit feed intake for the first two weeks

(by limiting hours of light) so that their skeletal system can be more developed before muscle weight is added.

Many people incorrectly believe that commercial chickens are fed hormones. Hormones are illegal in the United States (and most of the world) and are not required. The fast growth rate of broiler chickens was achieved through improved breeding programs, nutrition and management. Anyone labeling their chicken as “no hormones added” is required by law to add the statement, “Federal regulations prohibit the use of hormones.”

Table 1 indicates the typical body weights and feed consumption of broiler chickens when fed a commercial-type diet. Broiler chicks grow fast for the first four to five weeks. After that the amount of weight they add each week decreases. Feed consumption, however, typically continues to increase. As a result, feed efficiency declines as the chick ages. This information can be used to determine the most economical market weight. A body weight will be achieved where the income from the increased meat production is not sufficient to cover the cost of the additional feed consumed.

Expect to feed more to slower-growing strains of chickens that are used for meat production. With the commercial broilers it takes less than seven weeks to raise a 5-pound chicken. By comparison, it takes 11 weeks to raise the slower-growing strains to the same weight. Slower-growing chickens are considered better for range production, but the increased feed costs must be taken into account when determining production costs.

Pullets

Chicken breeds selected for egg production have a smaller body frame than those selected for meat. They also have a slower growth rate. As a result their feed consumption per week is less. In addition, breeds selected for white-shelled eggs are typically smaller than those breeds for brown-shelled eggs. Table 2 compares the typical growth rate and feed consumption of commercial leghorn pullets with pullets of a dual-purpose breed.

Throughout the growth of the replacement pullets the dual-purpose pullets have heavier weekly body weights and consume more feed than commercial-type pullets. It should be noted that the amount of feed consumed is influenced by the energy level of the diet fed. The data in Table 2 are based on diets with 1,270-1,315 kcal of metabolizable energy (ME) per pound feed. If a low energy diet is fed, feed consumption will be higher.

Egg Layers

A few poultry genetics companies have developed strains for alternative production systems. As an example, Centurion has two Bovans—one that lays white-shelled eggs and the other brown-shelled. Again the pullets that were bred for brown-shelled eggs are heavier and consume more feed than those bred for white-shelled eggs.

Regardless of the variety raised, when properly managed (housing, diet, light, nutrition, etc.) there is a rapid increase in egg production within the first few weeks of egg production until a peak is

Table 1. Typical Body Weight and Feed Requirements of Broiler Chickens.¹

Age (weeks)	Body weight (lb)			Weekly feed (lb)			Cumulative feed (lb)		
	Male	Female	Average	Male	Female	Average	Male	Female	Average
1	0.34	0.32	0.33	0.30	0.29	0.29	0.30	0.29	0.29
2	0.83	0.76	0.79	0.64	0.60	0.62	0.94	0.89	0.91
3	1.51	1.36	1.44	1.07	0.98	1.03	2.01	1.87	1.94
4	2.39	2.13	2.26	1.55	1.42	1.48	3.56	3.28	3.42
5	3.47	2.96	3.22	2.12	1.63	1.87	5.68	4.91	5.30
6	4.60	3.84	4.22	2.52	2.21	2.36	8.19	7.12	7.66
7	5.71	4.70	5.21	2.82	2.38	2.60	11.02	9.50	10.26
8	6.78	5.52	6.15	3.16	2.57	2.86	14.18	12.07	13.12
9	7.83	6.27	7.05	3.48	2.75	3.11	17.65	14.82	16.23

¹ Broiler chickens: Fed well-balanced diets providing 3,200 kcal ME/kg (1,452 kcal ME/lb).

reached. Production slowly declines after that. Eventually the level of egg production is not sufficient to cover the cost of production.

Hens laying brown-shelled eggs typically lay a larger egg than those laying white-shelled eggs. Egg weight slowly increases over the production cycle. Egg weight is related to body weight so that heavier hens lay larger eggs. In summer, if the heat goes up, the hens eat less and lose weight. As a result, during the summer hens typically lay smaller eggs.

A good rule of thumb is that each laying hen will eat a quarter pound of feed daily.

Table 2. Typical Average Body Weight and Weekly Feed Consumption for Replacement Pullets.

Age (weeks)	Leghorn (white-egg layers) ¹			Dual-purpose (brown-egg layers) ²		
	Body Weight (lb)	Feed (lb)	Cumulative Feed (lb)	Body Weight (lb)	Feed (lb)	Cumulative Feed (lb)
0	0.08	0.22	0.22	0.08	0.30	0.30
2	0.22	0.62	0.84	0.26	0.70	1.00
4	0.57	1.14	1.98	0.72	1.24	2.24
6	0.99	1.50	3.48	1.10	1.54	3.78
8	1.46	1.58	5.06	1.65	1.68	5.46
10	1.65	1.68	6.74	1.98	1.76	7.22
12	2.16	1.76	8.50	2.43	1.86	9.08
14	2.43	1.86	10.36	2.73	1.98	11.06
16	2.69	1.90	12.26	3.04	2.08	13.14
18	3.03	1.98	14.24	3.31	2.20	15.34
20	3.25	2.20	16.44	3.53	2.42	17.76

¹ Leghorns: Fed well-balanced diet with 2,850 kcal ME/kg (1,293 kcal/lb) 0-12 weeks of age and 2,900 kcal ME/kg (1,315 kcal ME/lb) 12-20 weeks of age.

² Dual-purpose/brown-egg laying strains: Fed well-balanced diet with 2,800 kcal ME/kg (1,270 kcal/lb) 0-12 weeks of age and 2,850 kcal ME/kg (1,293 kcal ME/lb) 12-20 weeks of age.

Chicken Feed Cheat Sheet

Assuming a 50-pound bag of feed, the typical feed requirements are as shown below.

For chicken meat production:

(50 chickens)

Commercial-type broilers

To produce 3-pound chickens 5-6 bags
 To produce 4-pound chickens 7-8 bags
 To produce 5-pound chickens 10-11 bags
 To produce 6-pound chickens 13-14 bags
 To produce 7-pound chickens 16-17 bags

Slow-growing broilers

To produce 3-pound chickens 5-6 bags
 To produce 4-pound chickens 9-10 bags
 To produce 5-pound chickens 12-13 bags

For raising replacement pullets for egg production:

(25 pullets)

Commercial white-shell egg layer

to 18 weeks of age 7 bags

Dual purpose type breed

to 20 weeks of age 9 bags

Commercial brown-shell egg layer

to 18 weeks of age 7 bags

For egg production:

(25 hens)

Commercial white-shell egg layer

3-3½ bags each month

Dual purpose-type hens

4-4½ bags each month

Commercial brown-shell egg layer

3-4 bags each month