

How much will my chickens eat?

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INTRODUCTION



Before purchasing chicks (or chickens) it is important to consider the cost of keeping them. Much of this cost is the feed they will 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.

1. Breed of the 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 lbs 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 lbs in about 6 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 simply 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 higher the maintenance requirement. 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.



2. Age of the chicken



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.

3. Sex of the chicken

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 (i.e., both males and females) it is common to formulate feeds to meet the average nutritional requirement. This 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.

4. 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, which non-producing hens would not need. Growing meat-type chickens require more protein than growing pullets of egg laying breeds.



5. Type of feed being given

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 is known as ‘cafeteria feeding.’

Poultry feeds can be given as a mash, crumble or pellet. Layers are typically feed 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. There is also less feed spillage, and thus less waste, when it is pelleted.

6. Water consumption



Chickens typically require twice as much water as feed—so if they eat 1 lb of feed they will drink 2 lbs of water (1 quart). There are always exceptions. In healthy adult chickens, for example, 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 that 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 problem with the watering system is discovered when the consumption of feed decreases suddenly.

7. 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.

8. Management

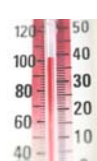
Several management factors will affect feed intake. Pasture-raised or free-range chickens are more active and will therefore have higher energy needs. As a result, they will typically eat more feed.

It is important that all the chickens can eat at one time. If there is insufficient feeder space, the smaller and/or weaker chickens will not get enough to eat.



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

9. Temperature

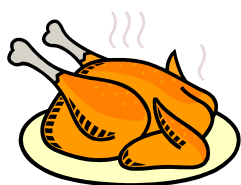


As previously mentioned, chickens typically eat less when it gets hotter, especially with temperatures higher than 86°F. It is for this reason that higher energy diets (referred to as being ‘more dense’) are fed since it allows the chickens to meet their nutritional requirements with reduced feed intake.

Table 1. Typical body weights and feed requirements of broiler chickens fed well-balanced diets providing 3,200 kcal ME/kg (1452 kcal ME/lb)

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

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 very fast, it is common 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 U.S. (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 also 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 very fast for the first 4-5 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 chicks age. This 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 7 weeks to raise a 5 lb 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.

Table 2. Typical average body weight and feed consumption for replacement pullets.
 Leghorns: Fed well-balanced diet with 2850 kcal ME/kg (1293 kcal/lb) 0-12 weeks of age and 2900 kcal ME/kg (1315 kcal ME/lb) 12-20 weeks of age
 Dual-purpose/brown-egg laying strains: Fed well-balanced diet with 2800 kcal ME/kg (1270 kcal/lb) 0-12 weeks of age and 2850 kcal ME/kg (1293 kcal ME/lb) 12-20 weeks of age

Age (weeks)	Leghorn (white egg layers)			Dual-purpose (brown egg layers)		
	Body weight (lb)	Feed (lb)	Cumulative feed (lb)	Body weight (lb)	Feed (lb)	Cumulative feed (lb)
0	0.08	0.11	0.11	0.08	0.15	0.15
2	0.22	0.31	0.42	0.26	0.35	0.51
4	0.57	0.57	0.99	0.72	0.62	1.12
6	0.99	0.75	1.74	1.10	0.77	1.90
8	1.46	0.79	2.54	1.65	0.84	2.73
10	1.65	0.84	3.37	1.98	0.88	3.62
12	2.16	0.88	4.25	2.43	0.93	4.54
14	2.43	0.93	5.18	2.73	0.99	5.53
16	2.69	0.95	6.13	3.04	1.04	6.57
18	3.03	0.99	7.12	3.31	1.10	7.67
20	3.25	1.10	8.22	3.53	1.21	8.88

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 1270-1315 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 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 1/4 lb of feed daily.

SUMMARY

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

For chicken meat production

- Commercial-type broilers:
 - ⇒ 5-6 bags to raise fifty 3 lb chickens
 - ⇒ 7-8 bags to raise fifty 4 lb chickens
 - ⇒ 10-11 bags to raise fifty 5 lb chickens
 - ⇒ 13-14 bags to raise fifty 6 lb chickens
 - ⇒ 16-17 bags to raise fifty 7 lb chickens
- Slow growing broilers:
 - ⇒ 5-6 bags to raise fifty 3 lb chickens
 - ⇒ 9 bags to raise fifty 4 lb chickens
 - ⇒ 12-13 bags to raise fifty 5 lb chickens



For raising replacement pullets for egg production:

- Commercial white-shell egg layer: 3-4 bags for 25 pullets to 18 weeks of age
- Dual purpose type breed: 4-5 bags for 25 pullets to 20 weeks of age
- Commercial brown-shell egg layer: 3-4 bags for 25 pullets to 18 weeks of age

For egg production:

- Commercial white-shell egg layer: 3-3½ bags each month for 25 hens
- Dual purpose-type hens: 4-4½ bags each month for 25 hens
- Commercial brown-shell egg layer: 3-4 bags each month for 25 hens