

Keeping Chickens: Nutrition Guide



Table of Contents

Nutritional Requirements	3
Proteins.....	3
Carbohydrates	5
Fats and Oils.....	7
Vitamin A	7
Vitamin B Complex	8
Vitamin D	9
Vitamin K.....	10
Calcium and Phosphorous.....	11
Zinc.....	11
Manganese	12
Iodine	12
Other things to feed your chickens	12
The 1/3 Rule.....	13
Food Consumption by Body Weight.....	13
Mixing Your Own Feed.....	15
Recipes	15
Table 4. Typical Nutrition Concentrations for Various Types of Poultry	16
Fermenting Your Own Feed.....	17
Supplemental Herbs	17
Favorite Treats	19
What NOT to feed your chickens.....	21

Nutritional Requirements



Chickens, like any other living thing, have certain nutritional requirements to live a healthy life. Table 1 introduces main nutrient requirements and sources for chickens.



It is important to remember that chickens are omnivores, which means they eat both animal proteins (from insects and larger animals) as well as vegetables and grains. They cannot eat only fruits and vegetables and stay healthy.

Basic requirements for chicken nutrition include:

- Fresh water
- Protein
- Carbohydrates
- Fats and Oils
- Vitamin A
- Vitamin B complex
- Vitamin D
- Vitamin K
- Calcium
- Phosphorous
- Zinc
- Manganese
- Iodine

Most important, chickens need access to fresh water, and this should be changed daily to every other day, unless you have an automatic water dispenser.

Table 1. Common Chicken Foods		
English	Khmer	Notes
Proteins Function: Body building and repair.		
 	Black soldier fly larvae	Can be grown from kitchen waste. VERY high in protein and create an easy way to compost.

	Bone meal	You can make your own by pulsing leftover bones in the blender 10-15 times. You can find a great tutorial here .
	Comfrey	Good to grow your own. Withstands extreme temperatures and will grow all year round.
	Duckweed	Can provide up to 40% protein content when dried. Can grow your own in a pond or tank, but make sure you do not have fish that outeat production rate.
	Earth worm	Easy to farm your own using vermicompost or to keep in your garden!
	Eggs	Yes! You can feed your chickens their own eggs...unfertilized eggs are full of protein and make a tasty treat (raw or scrambled) for your hens every once in a while, to give them a boost of protein. Do not feed them eggs too often though or you could increase their chance of becoming broody.
	Fish or fish meal	Cod, Salmon, Tuna, Sardines, Pollock, Catfish and Tilapia are good for them, but feed sparingly as too much can cause eggs to have "fishy" taste. Raw or cooked.
	Maggots	Can be grown from kitchen waste. Here is another great DIY tutorial from Justin Rhodes .



Mealworm

You can farm your own as a more cost effective method or buy them [in bulk](#) from a local feed store.



Pumpkin seeds

[Baked](#) or raw. Hens love whole pumpkins as well.



Skim milk

Low fiber, high protein

[Roasted Soybeans](#)

Soy beans must be [roasted](#) before feeding to your hens. It is good to note that many experts are shying away from feeding soy to hens because other [phytoestrogen](#) containing foods are healthier.



Stinging nettle

Can provide up to 40% protein content when dried











Tree nuts: oak, beeches, black walnut, pecan and hickory.

These must be smashed for the birds before given to them. They cannot eat the nuts whole. Caution if you have [allergies](#).

Carbohydrates

Function: Energy

	Barley	Can be fed to birds raw. Cooking tips found here .
	Bread	Great use for stale bread. Fun activity to make yourself . Do not feed too often or in large quantities.
	Corn	Break it up into individual kernels or give them the whole ear! You can use ears as a boredom buster . Both cooked and uncooked, kernels make great treats.
	Millet	Pear millet is higher in protein than corn.
	Oats	Oatmeal can reduce aggression and pecking behaviors. Cinnamon and cayenne pepper additives are encouraged to stimulate circulation and respiratory health. Can be fed raw or cooked.
	Rice	Cooked or uncooked , rice is an economical choice for chicken food. (photo from Cambodia Property Report) Can be locally bought from a rice miller .
	Rice Bran	Raw or cooked. (photo from Glutagen) Raw or cooked. (photo from Food and Drink Business Europe)
	Rye	Raw or cooked. (photo from Glutagen)



Wheat

Raw or cooked.

([photo from Food and Drink Business Europe](#))

Fats and Oils

Function: Energy



Fish

Cod, Salmon, Tuna, Sardines, Pollock, Catfish and Tilapia are good for them, but feed sparingly as too much can cause eggs to have "fishy" taste. Raw or cooked.



Meat and bone meal

You can make your own by pulsing leftover bones in the blender 10-15 times. You can find a great tutorial [here](#).



Peanuts (or nuts that ripen underground)

There are different types of [peanuts](#) and ground nuts. Birds like them cooked or uncooked, ground or whole.



Tree nuts: oak, beeches, black walnut, pecan and hickory.

These must be smashed for the birds before given to them. They cannot eat the nuts whole.



vegetables

Visit [Heritage Acres Market](#) for a complete list of Do's and Don'ts.

Vitamin A

Function: Normal growth, disease resistance, vision, reproductive health



Comfrey

Good to grow your own. Withstands extreme temperatures and will grow all year round.



Corn

Break it up into individual kernels or give them the whole ear! You can use ears as a [boredom buster](#). Both cooked and uncooked, kernels make great treats.



Dandelions

The whole part of the plant is edible. According to [Fresh Eggs Daily](#), anti-inflammatory, natural pain reliever, antioxidant, diuretic, improve kidney and liver health, General health tonic, detoxifier, improve digestion, laying stimulant, produce bright orange egg yolks.



grass

Can be 15-20% of a chicken's diet. If you are able to, let your hens forage in the [grass](#)!

Vitamin B Complex

Function: optimum growth rate and reproductive health







Cereal grains

Wheat, barley, millet, rye, etc. See above.



Comfrey

Good to grow your own. Withstands extreme temperatures and will grow all year round.

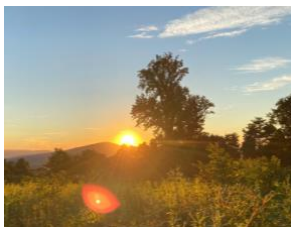
	Dandelions	The whole part of the plant is edible. According to Fresh Eggs Daily , anti-inflammatory, natural pain reliever, antioxidant, diuretic, improve kidney and liver health, General health tonic, detoxifier, improve digestion, laying stimulant, produce bright orange egg yolks.
	Fish	Cod, Salmon, Tuna, Sardines, Pollock, Catfish and Tilapia are good for them, but feed sparingly as too much can cause eggs to have "fishy" taste. Raw or cooked.
	Skim milk	Low fiber, high protein
Yeasts		In breads.
Vitamin D		
Function: Healthy growth, prevention of rickets, strong eggshells		
	Fish	Cod, Salmon, Tuna, Sardines, Pollock, Catfish and Tilapia are good for them, but feed sparingly as too much can cause eggs to have "fishy" taste. Raw or cooked.



Shellfish



Chickens can eat both the shell and the meat from shellfish (shrimp, crawfish, mussels, oysters, clams, etc.) but the shell needs to be crushed first. Crustaceans especially carry the risk of bioaccumulating heavy metals and harmful algal toxins, so feed sparingly (shells are okay) and check for red tide in your area if you are feeding fresh seafood.



Sunlight

Make sure your hens have access to the sunshine!

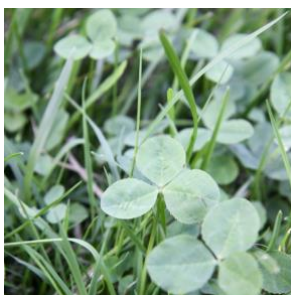
Vitamin K

Function: improve circulation and healthy blood



Dandelion

The whole part of the plant is edible. According to [Fresh Eggs Daily](#), anti-inflammatory, natural pain reliever, antioxidant, diuretic, improve kidney and liver health, General health tonic, detoxifier, improve digestion, laying stimulant, produce bright orange egg yolks.



grass

Can be 15-20% of a chicken's diet. If you are able to, let your hens forage in the [grass](#)!

Calcium and Phosphorous

Function: Healthy bones and strong eggshells



Bone meal

You can make your own by pulsing leftover bones in the blender 10-15 times. You can find a great tutorial [here](#).



Dandelion

The whole part of the plant is edible. According to [Fresh Eggs Daily](#), anti-inflammatory, natural pain reliever, antioxidant, diuretic, improve kidney and liver health, General health tonic, detoxifier, improve digestion, laying stimulant, produce bright orange egg yolks.



Ground oyster shells

Oyster and other bivalve shells (mussels and clams) contain lots of calcium which can help form and strengthen eggs. If you leave the grounds out, hens will take as they feel the need to. Ground eggshells work well too, but make sure to introduce new sources of calcium as well.

Limestone flour

Zinc

Function: Healthy skin and feather development



Dandelion

The whole part of the plant is edible. According to [Fresh Eggs Daily](#), anti-inflammatory, natural pain reliever, antioxidant, diuretic, improve kidney and liver health, General health tonic, detoxifier, improve digestion, laying stimulant, produce bright orange egg yolks.

Available as a supplement

Manganese

Function: Strong eggshells, good hatching rate

Available as a supplement

Iodine

Function: Control of metabolism

Seaweed extract

Available as a supplement

Other things to feed your chickens



Leafy greens

They can eat so much of this. Visit [Heritage Acres Market](#) for a complete list of Do's and Don'ts.



Fruit

Favorite treat. Visit [Heritage Acres Market](#) for a complete list of Do's and Don'ts.



Pumpkins and other gourds

Hens love the seeds or throw these into their run as a boredom buster. Easy to [grow your own](#)!



Ginger

Supplement diet with ~10-15 g (dry weight) a month (equivalent to 2-3tsp) per chicken to promote feather growth, increase egg size and increase antioxidants. See [this post](#) from the The Happy Chicken Coop for more info!

The 1/3 Rule

It is important to remember you can overfeed your chicken. A high caloric diet can lead to obese chickens (see [Justin Rhodes](#) for an example) which can cause your chickens to become less efficient at laying and will eventually kill your chicken. To avoid this, try rationing your chickens' food by feeding them 1/3 lb. a day per chicken and cutting back until you notice a decrease in egg production ([Rhodes](#)). Keep a log and continue feeding at the lowest amount when you saw consistent egg production.

Justin Rhodes also uses the 1/3 rule to feed his chickens:

- 1/3 of diet is leafy greens, grass, vegetables and kitchen scraps
- 1/3 of diet is grains
- 1/3 of diet is animal protein

If you are feeding your chicken 1/3 lb. a day, that would mean the above measurements are 0.11 lbs. a day of each category. You can watch how he carries this out (for cheap) [here](#).

If you did not hatch your chickens but instead bought them from a farmer who lets their chickens eat all day, it may take a few weeks to cut back their food to 1/3 cup a day. Again, it is best to feed the birds until there is none leftover at the end of the day, but they are not hungry.

Other important considerations are:

- What kind of bird are you feeding?
- What age are your birds (Starter, grower or layer)?
- Why are you raising them (meat or egg production)?

Food Consumption by Body Weight

Tables 2 and 3 from Poultry Hub are good feeding guides when considering the above questions.

Table 2. Body Weight and Cumulative Feed Consumption for Male and Female Egg Layers

Age (wk)	Body weight (g)	Feed consumption (g/bird/day)
1	70	13
2	115	20
3	190	25
4	280	29
5	380-390	33
6	480-500	37
7	580-620	41
8	680-750	46
9	770-860	51
10	870-970	56
11	960-1080	61
12	1050-1117	66
13	1130-1250	70
14	1210-1310	73
15	1290-1370	75
16	1360-1430	77
17	1500-1540	80

Table 1. Body weights and associated feed consumption for a brown egg laying breed during the growing period. Table from [Poultry Hub](#).

Table 3. Body Weight and Cumulative Feed Consumption for Male and Female Broilers

Age (weeks)	Male		Female	
	Body weight (g)	Cumulative Feed Intake (g)	Body weight (g)	Cumulative Feed Intake (g)
0	40	0	40	0
1	170	150	165	145
2	450	480	420	460
3	865	1120	780	1030
4	1410	2020	1250	1825
5	2250	3200	1750	2830
6	2700	4500	2300	4020
7	3350	6000	2800	5400
8	3900	7400	3300	6800
9	4400	8800	3700	8200

Table 1. Body weight and cumulative feed consumption for male and female broilers. Table from [Poultry Hub](#).

Mixing Your Own Feed

Recipes

Many recipes exist for mixing your own feed. Some great recipes include:

- [Garden Betty's Homemade Whole Grain Chicken Feed](#)
- [Art and Bri's whole grain chicken feed](#) on Youtube
- [The Happy Chicken Coop's ultimate guide to making your own chicken feed](#)

Justin Rhodes (again, referring to him because he is so great—check out his [Youtube channel](#) and [website](#)) has a wonderful recipe he uses:

- 30% Corn
- 30% Wheat
- 20% Peas
- 10% Oats
- 10% Fish Meal
- 2% Poultry Nutri-Balancer ([where to buy](#))
- Free Choice Kelp ([where to buy kelp](#)) and Free Choice calcium

Refer to Table 4 for typical nutrient concentrations for your bird.

Table 4. Typical Nutrition Concentrations for Various Types of Poultry

	Protein (%)	Methionine (%)	Lysine (%)	Calcium (%)	Avail. Phos. (%)	Fat (%)	Fiber (%)
Broiler (meat bird)							
Starter (1-3 weeks)	22	0.50	1.30	0.95	0.45	5.0	2.5
Grower (4-6 weeks)	20	0.45	1.15	0.90	0.40	5.5	2.5
Finisher (7+ weeks)	18	0.5	0.95	0.85	0.35	6.0	2.5
Pullet (young hen)							
Starter (1-6 weeks)	20	0.45	1.10	1.00	0.45	4.0	3.0
Grower (7-18 weeks)	17	0.35	0.80	0.95	0.40	4.0	3.0
Egg Laying Hen							
In production (19+ weeks)	16-18	0.35-0.45	0.75-0.85	3.50-4.50	0.35-0.50	4.0	3.0-4.0

Note: Scratch feed should never be fed as a complete feed for any type of bird.

Table from [The University of Georgia, Extension](#)

Fermenting Your Own Feed

Fermenting your own chicken feed can have many benefits:

- Increase probiotics in digestive system, helping chickens to break down fats and minerals.
- Increases nutrients available in the chicken's food by partially breaking it down before the chicken eats it.
- Strengthens chicken's immune system.
- *May* help chickens lay more eggs (scientific debate on this)
- Expands the food, meaning your chickens eat less, saving you money!
- Easier for chickens to digest because of an increase in probiotics, but also because it makes the food softer.
- Keeps chickens hydrated better because they increase their water intake as well!

Fermenting your chicken's food is easy and can be done for chicks or adult chickens using their normal dry grower or layer food (pellet or crumble).

Supplies: A clean bucket and loose-fitting lid (the bucket's lid not snapped down completely, an old feed bag secured with a rubber band, etc.), something to stir with, water, food and a strainer.

Step 1: fill a clean, empty bucket 1/4 full of your flock's normal chicken feed.

Step 2: fill bucket with clean water about 2 inches above the food level.

Step 3: stir well and loosely cover with the lid to allow oxygen exchange to occur.

Step 4: let food sit for two-three days before serving to your flock for the most benefits. Stir well at least twice a day, filling the bucket with water as the food absorbs it to keep the water level about 1 inch above the food.

Notes: If your food develops a film of white mold, that is normal. Just scrape it out before giving the food to your flock. You may want to restart your bucket if the mold becomes uncontrollable. We usually keep two buckets going at a time to allow food time to ferment.

If you need help, visit our [YouTube tutorial video](#).

Supplemental Herbs

Even chickens like their meals a little *spiced* up! Try adding these herbs in small quantities to your chickens' food to increase its nutrition. We usually add different herbs to our flock's food every morning to every other morning.

- **Basil**- immune support, repels pests and increases health of mucosal membranes.
- **Cayenne pepper**- improves blood circulation.
- **Cinnamon**- aids in respiratory health.
- **Garlic**- boosts immune system, aids in respiratory health and is thought to repel mites, lice and ticks. Feed in very small quantities or it can make eggs taste like garlic.
- **Ginger**- promotes feather growth and increases antioxidants in diet.
- **Oregano**- strengthens immune system and wards off internal parasites.
- **Red pepper flakes**- can keep other animals away from food (chickens don't taste spice), darker yolk, said to improve blood circulation but we just think they like it. It has been said to ward off worms.
- **Rosemary**- acts as a natural pain reliever and can aid with respiratory health.
- **Sage**- wards off internal parasites and acts as an antiseptic/antibiotic.
- **Thyme**- antibacterial properties and aids with respiratory health.

Apple Cider Vinegar

Apple cider vinegar is a great additive to your chicken's water for health benefits that include:

- Can be a potent replacement for the use of antibiotics
- Decreases harmful bacteria in the gut
- Increases the digestive system's ability to process and absorb nutrients (except maybe calcium...there is scientific debate about this) because it increases available probiotics (see also, fermenting feed)
- Increases the chicken's immune system
- *May* help with egg production (again, scientific debate)
- helps keep algae and harmful bacteria out of water containers

Favorite Treats

Here is a chart adapted from BackYardChickens.com of treats chickens like to eat. We have found corn, worms, watermelon, grapes, sunflower seeds and romaine lettuce to be favorites.

Table 5. Favorite Treats for Chickens

Treat	Type	General Opinions
Apples	Raw and applesauce	Apple seeds contain cyanide, but not in sufficient quantities to kill.
Bananas	Without the peel	High in potassium, a good treat.
Beans	Well-cooked only, <u>never dry</u>	Also, green beans.
Berries	All kinds	A treat, especially strawberries.
Breads	All kinds—this is a good use for stale bread or rolls.	Feed starches in moderation.
Black Soldier Fly Larvae		Grow faster than mealworms and are just about as nutritious.
Broccoli & Cauliflower	.	Tuck into a suet cage and they will pick at it all day.
Cabbage & Brussels Sprouts	Whole head	Hang a whole cabbage from their coop ceiling in winter so they have something to play with and greens to eat.
Carrots	Raw and cooked	They like carrot foliage too.
Cereal	Cheerios, etc.	Avoid highly sugared cereal such as Cocopuffs, etc.
Corn	On cob and canned, raw and cooked	.
Crickets (live)	Can be bought at bait or pet-supply stores.	Great treat—provides protein and it's fun to watch the chickens catch them.
Cucumbers		Let mature for yummy seeds and flesh.
Eggs	Hard-cooked and scrambled are a good source of protein, and a favorite treat.	Feed cooked eggs only because you don't want your chickens to start eating their own raw eggs.
Flowers	Make sure they haven't been treated with pesticides, such as florist flowers might be.	Marigolds, nasturtiums, pansies, etc.
Fruit	Pears, peaches, cherries, apples	.
Grains	Bulgar, flax, niger, wheatberries, etc.	.
Grapes	Seedless only. For chicks, cutting them in half makes it easier for them to swallow.	Great fun—they are the chief cause of many entertaining "chicken keep away" games.
Lettuce / Kale	Any leafy greens, spinach collards, chickweed included.	A big treat, depending on how much other greenery they have access to.
Mealworms	Available at pet supply stores or on the internet, <i>although shipping is expensive!</i>	A favorite treat, probably the most foolproof option in the books.
Melon	Cantaloupe, etc.	Both the seeds and the flesh are good chicken treats.
Oatmeal	Raw or cooked	Cooked is nutritionally better.
Pasta/Macaroni	Cooked spaghetti, etc.	A favorite treat, fun to watch them eat it, but not much nutrition.

Peas	Peas and pea tendrils and flowers	.
	(thanks to YayChick for the advice)	.
Peppers (bell)	.	.
Pomegranates	Raw	Seeds are a big treat.
Popcorn	Popped, no butter, no salt.	.
Pumpkins/Winter Squash	Raw or cooked	Both the seeds and the flesh are a nutritious treat.
Raisins	.	.
Scratch	Scratch is cracked corn with grains (such as wheat, oats, and rye) mixed in	Scratch is a treat for cold weather, not a complete feed. Toss it on the ground and let them scratch for it for something to do.
Sprouts	Wheat and oat sprouts are great!	Good for greens in mid-winter.
Summer Squash	Yellow squash and zucchini	Yellow squash not a huge favorite, but okay to feed.
Sunflower Seeds	Sunflower seeds in the shell are fine to feed, as well as shelled.	A good treat, helps hens lay eggs and grow healthy feathers.
Tomatoes	Raw and cooked.	.
Watermelon	Served cold, it can keep chickens cool and hydrated during hot summers.	Seeds and flesh are both okay to feed.
Yogurt	Plain or flavored	A big favorite and good for their digestive systems. Plain is better.

What NOT to feed your chickens

Table 6. What NOT to feed your chickens	
Item	Here's why:
Anything really salty	<i>Can cause salt poisoning in small bodies such as chickens.</i>
Avocado and Pit	<i>Skin and pit have low levels of toxicity. Fruit contains Persin, which is potentially fatal.</i>
Butter	Too fatty for chickens
Candy, Chocolate, Sugar	<i>Their teeth will rot... no, it's just bad for their systems, and chocolate can be poisonous to most pets.</i>
Cherry and pits	<i>Contains cyanide</i>
Citrus	<i>Can cause salt poisoning in small bodies such as chickens.</i>
Coffee grounds	<i>Caffeine is not good for chickens</i>
Dried or undercooked Beans	<i>Raw, or dry beans, contain a poison called hemagglutinin which is toxic to birds.</i>
Eggplant and leaves	<i>Contains solanine that can cause gastrointestinal and neurological disorders.</i>
Green tomato and leaves	<i>Contains solanine that can cause gastrointestinal and neurological disorders.</i>
Onion	<i>Can flavor eggs in small quantities and can cause anemia in larger quantities. Best to stay away from it.</i>
Raw eggs	<i>You don't want to introduce your chickens to the tastiness of eggs which may be waiting to be collected in the nest boxes.</i>
Raw green potato peels	<i>Contains solanine that can cause gastrointestinal and neurological disorders.</i>
Rhubarb and leaf	<i>NOPE. Can contain oxalic acid which is harmful to the birds.</i>

Resources

- Andrews, C. (n.d.). *Apple cider vinegar for chickens: Benefits, flaws, how much to use*. Raising Happy Chickens. Retrieved June 2, 2022, from <https://www.raising-happy-chickens.com/apple-cider-vinegar-benefits-for-chickens.html>
- Bowling, N. (2020, August 19). 12 Best Types of Fish to Eat. Retrieved September 25, 2020, from <https://www.healthline.com/health/food-nutrition/11-best-fish-to-eat>
- Happy Chicken. (2019, October 23). Mealworms vs Black Soldier Larva. Retrieved September 25, 2020, from <https://www.thehappychickencoop.com/mealworms-vs-black-soldier-fly-larva/>
- Head, V. (2010). *Keeping chickens and other poultry: Looking after hens, ducks, geese and turkeys*. London: Arcturus.
- Phil. (2020, February 21). Can Chickens Eat Potato Peels? (Yes, Only If..). Retrieved October 02, 2020, from <https://chickenandchicksinfo.com/can-chickens-eat-potato-peels/>
- Pinetree Garden Seeds. (n.d.). Comfrey. Retrieved September 25, 2020, from <https://www.superseeds.com/products/comfrey>
- Rhodes, J. (2018, June 07). How to Feed Your Chickens Without Grain - 20 Ways to Cut Your Costs 100%. Retrieved September 22, 2020, from <https://abundantpermaculture.com/how-to-feed-chickens-without-grain/>
- Sharpe, S. (n.d.). Here's What to Know About Using Maggots to Feed Aquarium Fish. Retrieved September 25, 2020, from <https://www.thesprucepets.com/maggots-for-aquarium-fish-1380907>
- Steele, L. (1970, January 01). The Health Benefits of Dandelions for Chickens and Ducks. Retrieved September 22, 2020, from <https://www.fresheggdaily.blog/2014/02/the-health-benefits-of-dandelions-for.html>