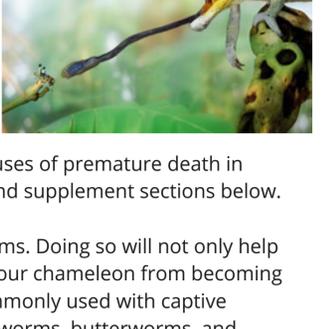


## Food & Nutrition

chameleon food and nutrition

### What Do Chameleons Eat?

Chameleons are insectivores. Their diet in the wild consists primarily of a wide variety of insects and other invertebrates. In addition to hunting live prey, some chameleon species are also occasionally observed eating plant vegetation. It's important to know that in captivity we're unable to provide the variety and quality of food that chameleons receive in nature, and to compensate for that gutloaded feeders and supplements are required. This is crucial to proper chameleon care, and long term failure to provide a balanced and nutritious diet is one of the leading causes of premature death in captive chameleons. Please make sure to review the gutload and supplement sections below.



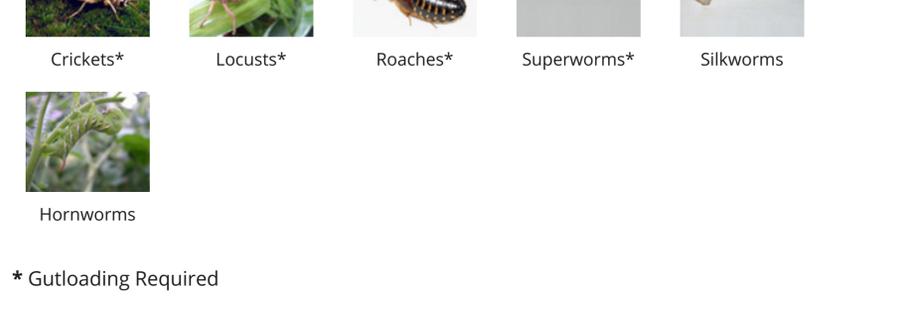
**Common Feeders** - Offer your chameleon a variety of food items. Doing so will not only help provide a balanced and nutritious diet, but also help prevent your chameleon from becoming bored with one particular insect. Some of the best feeders commonly used with captive chameleons include crickets, locusts, roaches, silkworms, hornworms, butterworms, and superworms. Feeders such as mealworms and waxworms are high in fat and harder to digest so they should only be used occasionally.

**Other Feeders** - Wild caught insects can be a great way to add additional variety to your chameleon's regular diet. Keepers should be careful about pesticides and also realize that wild insects are potentially more exposed to parasites. Some recommended insects to try and catch include crickets, grasshoppers, locusts, stick bugs, mantids, moths, and katydids. Be careful with wild hornworms that have been eating tomato plants as they can be toxic. To be safe it's best to know the species of insect you are dealing with before feeding to your chameleon.

**Plants** - Some chameleons, most notably veileds, may occasionally eat vegetation in addition to insects. That is why it's very important to keep only non-toxic plants in chameleon cages. The same vegetables used for gutloading can also be offered to your veiled chameleon to snack on. Leafy greens, sliced vegetables and fruit, and berries can all be attached to cage furnishings with a clip or placed in a feeding cup for easy feeding.

### Common Feeders

Crickets are a readily available staple food source but need to be properly gutloaded with calcium rich vegetables several hours before being fed to your chameleon as they have minimal nutritional value by themselves. Superworms and dubia roaches can also be easily gutloaded. These insects are conveniently found in most local pet stores or through online distributors.



\* Gutloading Required

### Feeding Methods

There are two methods keepers depend on to feed their chameleons: cup feeding and free range feeding. Both methods have their advantages and disadvantages.



**Cup Feeding** - Cup feeding involves a container (often a tall cup) in the chameleon cage that prevents feeders from escaping while still allowing your chameleon to hunt. Cup feeding allows you to monitor your chameleon's food intake and prevents uneaten crickets from potentially nibbling on your chameleon at night.

**Free Range Feeding** - Free range feeding involves releasing feeders loose into a chameleon's cage. This method enriches your chameleon's daily life as they have to move about the cage to hunt their food like they would in the wild. It's possible that some hungry aggressive feeder species may bite your chameleon at night.

### Feeding Tips

**Food Size** - The rule of thumb is to feed insects no wider than the width of your chameleon's head in order to prevent choking.



**Food Quantity** - Only feed as many crickets as your chameleon should eat at a time - this depends on the age, gender and species. See Species Specific Caresheets for more information about your chameleon. Crickets left in the cage overnight may bite a sleeping chameleon. Some people add a little gutload to the cage to distract uneaten crickets, but do not ever put gel crystals/cubes in the cage - accidentally eating these can cause fatal impactions due to re-expansion in the gut.

**Feeding Time** - Chameleons should always be fed in the first half of the day to give them time to bask and digest their food properly.

### Gutload

In the wild chameleons feed on a wide variety of insects and those prey items themselves feed on many different sources of nutrition. It is through this natural cycle of life that chameleons in nature receive a properly balanced diet. Unfortunately, it's impossible to replicate that system in captivity so to compensate chameleon owners must properly gutload the food items they feed their animals. Gutloading is the process of increasing the nutritional value of insects that you feed your chameleon. It involves feeding the insects a special diet so they can ultimately provide your chameleon with the proper nutrition it requires. Supplementing with a calcium and multivitamin powder is important, but not sufficient alone for any species.

Gutloading ingredients should be higher in calcium than phosphorus, as well as low in oxalates and goitrogens. High phosphorus levels inhibit calcium absorption. While convenient, most commercially available gutloads are low in calcium, imbalanced and/or insufficient for good nutrition. Creating a well rounded gutload at home can seem daunting but can actually be fairly inexpensive and easy to make! Use these brief guidelines to guide your choices of produce when going to the store. Each time you go get two or three options, then rotate them for something else next time. Make sure you wash all produce to eliminate pesticide residues and cut off the peel of fruits and vegetables as they have waxes and pesticides you can't wash off. The time from feeding insects, to your chameleon eating those insects, should be no more than 12 hours.

#### Suggested Ingredients

**Best** - These gutloading ingredients are best because they are highest in calcium, low in phosphorus, oxalates and goitrogens. They should be the primary components of your gutload: mustard greens, turnip greens, dandelion leaves, collard greens, escarole lettuce, papaya, watercress and alfalfa.

**Good** - These gutloading ingredients are good because they are moderately high in calcium and other vitamins/minerals. They should be used in addition to those from the previous category: sweet potato, carrots, oranges, mango, butternut squash, kale, apples, beet greens, blackberries, bok choy and green beans.

These fresh fruits and vegetables can be combined with dry gutload mixes or home made mixes for optimal well-rounded nutrition. Dry ingredients can include: bee pollen, organic non-salted sunflower seeds, spirulina, dried seaweed, flax seed and organic non-salted almonds.

#### Avoid These Ingredients

Avoid these gutloading ingredients because they are low in calcium, high in phosphorus, goitrogens or oxalates: potatoes, cabbage, iceberg lettuce, romaine lettuce, spinach, broccoli, tomatoes, corn, grains, beans, oats, bread, cereal, meat, eggs, dog food, cat food, fish food, canned or dead insects, vertebrates.

Vertebrates (pinkies, lizards, etc.) are not a notable part of a chameleon's normal diet in the wild. Too many animal proteins in the diet of an animal that's not a carnivore can wreak havoc on their kidneys leading to kidney damage and gout due to the difference in protein breakdown. Everything your chameleon needs can be obtained through an all-insect diet with good gutloading and supplementation.

### Supplementation

As explained in the gutload section above, the food we offer our captive chameleons is greatly lacking in quality and variety compared to what they would receive in their natural habitat. The truth is that for most keepers proper gutloading alone won't be enough for a balanced and nutritious diet, so to compensate calcium and multivitamin supplements are used. Inadequate dietary calcium, as well as an imbalance of vitamins and minerals, can lead to very serious illness and even death. The process of supplementation involves lightly dusting feeders with powdered supplement before offering those feeders to your chameleon. Supplementation is recommended even for those with the best gutloading methods. Three different types of supplements are needed:

1. Calcium without vitamin D3 - used almost with every feeding.
2. Calcium with vitamin D3 - used less frequently dependent on species.
3. Multivitamin - used less frequently dependent on species.

Excessive vitamins in the diet, especially vitamin D3, can lead to toxicity, and some species are more sensitive to overdose toxicity than others. In this case more is not always better. All commercial brands are unique and require different supplementation schedules. It's important to understand what you're doing and the risk of toxicity.

See [species specific caresheets](#) for dusting schedules and related details.

#### Dusting:

Place a small amount of the desired supplement into a small bag or tall plastic cup. Add your feeder insects, cover and give a little shake until all bugs are coated. Insects need only be lightly dusted before feeding to your chameleon. Once coated simply pour the bugs into the cage or feeding cup being careful to leave any unused supplements in the original container. Some keepers have separate cups labelled for the different supplements (calcium, vitamins etc.). Disposable cups can be found at dollar stores and there are even commercially made cricket dusters as well.

### Related Links

- Feeder Nutrition & Gutloading - [Resource Link](#)
- DIY Cricket Duster - [Resource Link](#)
- Why Different Vitamins and Supplements Matter - [Resource Link](#)

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Learn and share knowledge about these wondrously unique animals.