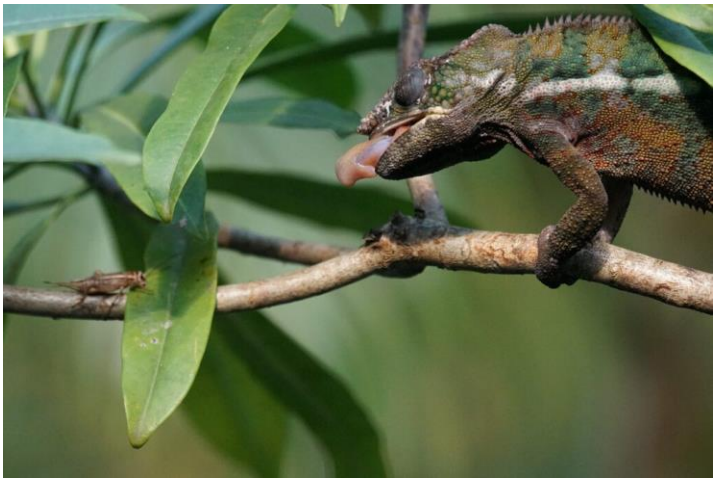

Feeder Insects Nutritional Guide for Your Pet Reptile!

Many species of pet reptiles in captivity are omnivorous to insectivorous, and require the proper diets, and nutritional supplementation and ratios consisting of suitable insects and other feeder invertebrates, in order to remain happy and healthy throughout their lives in order to thrive. Many species of lizards, such as well as even some chelonians (i.e. turtles and tortoises) may consume feeder insects readily as all, or portions, of their overall diets. There are many different types of feeder insects which are available at one's local pet and/or reptile specialty stores, reptile expos, local breeders and suppliers, or other sources online, and which should be incorporated into a healthy diet for these reptiles.

However, some types of insects are better and more nutritional than others for your pet reptile, and it is always helpful to know which types to choose for your reptile that are the healthiest and most suitable. These are the reasons why this reference guide will hopefully serve as a useful and practical resource for choosing the best feeder insects for your reptile! There are several nutritional components to look for and compare that one should become aware of. **Ca:P** refers to the ratio of calcium to phosphorous in the food item, and in order to provide a properly balanced diet, this Ca:P ratio must be taken into account as high or imbalanced levels of these ratios can lead to an inability to convert calcium, among other health problems.

Many calcium supplements and multi-vitamins that are commercially available contain **Vitamin D3**, which is essential to calcium metabolism, and is developed in your reptile's skin from contact with sufficient UVB wavelengths. Other nutritional components to be aware of, and compare include the percentages or ratios of **Proteins**, **Fats**, **Fibers**, and **Moisture**. **Ash** refers to the remainder of the nutritional components which are not proteins, fats, or fibers, and which are typically composed of salts, minerals, and metals (including the insect's gut contents). A higher level of Ash thus typically correlates to higher levels of these other vitamins and minerals, as well as a larger gut capacity.

It is also important to consider, that freezing insects may also oftentimes cause nutrients such as **Thiamine** (or Vitamin B1) to become lost and thereby reducing their nutritional value. When these

frozen feeder insects are fed over a long period of time, and no supplementations are made to add this Thiamine back into their proper diets, Hypothiaminosis, and other nutritional disorders can likely occur. More information can be found on the DubiaRoaches website, https://dubiaroaches.com/blogs/feeder-insects/dubia-roaches-vs-common-feeder-insects# as well as the Beautiful Dragons Reptile Rescue website: http://www.beautifuldragons.com/Nutrition.html

It should also be noted that each animal may be an individual, and may prefer or dislike some of these foods over others. Trying variety is key in finding out what your individual animal may like most. Without further a-due, here is a guide for the most recommended feeder insects, and their nutritional ratios and percentages which should be included in many species of pet reptile's diets, as well as which types may be suitable once in awhile with moderation, and which ones should usually be avoided.

Brown Domestic House Cricket (Acheta domestica):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:9
Protein: 15.4%
Fat: 3.3%
Fiber: 2.2%
Moisture: 77.1%
Ash: 1.1%

Banded Domestic House Cricket (Gryllodes sigillatus):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:9
Protein: 17%
Fat: 8.0%
Fiber: 2.0%
Moisture: 71%
Ash: Unknown

Field Crickets (Gryllodes linneaus) (Gryllus pennsylvanicus):
Good Staple?: Yes/No, with the right amount of gut-loading and nutritional supplementation. Wild, or field crickets can, however, have harder, and more chitinous exoskeletons which may be more difficult for your reptile or amphibian to digest properly.

Ca:P:
Protein: 20%
Fat: 5.0%
Fiber: 1.0%
Moisture: 75%
Ash: 3%

Dubia Roaches (Blaptica dubia):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:3
Crude Protein: 23.4%
Crude Fat: 7.2%
Crude Fiber: 2.9%
Moisture: 65.6%
Ash: 1.2%

Discoid and Death's Head Roaches (Blaberus discoidalis):

Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P:
Crude Protein: 20% (Discoid), 11% (Death's Head)
Crude Fat: 7.0%
Crude Fiber: 3.0%
Moisture: 66% (Discoid), 79% (Death's Head)
Ash: 1%

Red Runner Roaches (Blatta lateralis):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:5
Crude Protein: 18%
Crude Fat: 6.0%
Crude Fiber: 2.0%
Moisture: 71%
Ash: 2%

Madagascar Hissing Roaches (Gromphadorhina portentosa):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation. Especially for larger insect eaters.

Ca:P:
Crude Protein: 19.5%
Crude Fat: 6.3%
Crude Fiber: 2.6%
Moisture: 69.2%
Ash: 4%

Green Banana Roaches (Panchlora nivea):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Data Not Available.

Black Soldier Fly Larvae/Phoenixworms (Hermetia illucens):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 2:6.1
Crude Protein: 17%
Crude Fat: 11%
Moisture: 64%
Ash: 5%

Hornworms (Manduca sexta) (Manduca spp.):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:3
Crude Protein: 9.0%
Crude Fat: 3.0%
Moisture: 85%

Ash: 1%

Butterworms (Chilecomadia moorei):
Good Staple?: No, butterworms are high in fat, and should only be offered occasionally or as treats.

Ca:P: 1:18
Crude Protein: 16%
Crude Fat: 17%
Fiber: 1.4%
Moisture: 60%
Ash: 1%

Mealworms (Tenebrio molitor):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation. Also Monitor Fat Intake, But Otherwise OK.

Ca:P: 1:7
Crude Protein: 18.7%
Crude Fat: 13.4%
Fiber: 2.5%
Moisture: 61.9%
Ash: 2%

Waxworms (Galleria melonella):
Good Staple?: No, waxworms are high in fat, and should only be offered occasionally or as treats.

Ca:P: 1:7
Crude Protein: 14.1%
Crude Fat: 24.9%
Fiber: 3.4%
Moisture: 58.5%
Ash: 1%

Fruit Flies (Drosophila melanogaster):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P:
Crude Protein: 21.0%
Crude Fat: 5.9%
Fiber: 2.2%
Moisture: 69.1%
Ash: 3.1%

Silkworms (Bombyx mori):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:2.4
Crude Protein: 9.3%
Crude Fat: 1.1%
Fiber: 1.1%
Moisture: 82.7%
Ash: 1.1%

Superworms (Zophobas morio):
Good Staple?: No, superworms are high in fat, and should only be offered occasionally or as treats.

Ca:P: 1:18
Crude Protein: 19.7%
Crude Fat: 17.7%
Fiber: 2.7%
Moisture: 57.9%
Ash: 1.0%

Earthworms, Red Wrigglers, Nightcrawlers (Family Lumbricidae):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation. Good for Many Omnivorous Animals Such as Box Turtles, and Other Turtles and Some Tortoises.

Ca:P: 1:5.1
Crude Protein: 11.0%
Crude Fat: 1.77%/4.4%
Fiber: 2%
Moisture: 80.0%+
Ash: 1%/2%

Termites (Order Blattodea):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation. Not Nearly As Commonly Available.

Ca:P: Unknown
Crude Protein: 14.2%
Crude Fat: Unknown
Fiber: Unknown
Moisture: Unknown
Ash: Unknown

Springtails (Class Collembola):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation. Depending on Animal or Species.

Unknown Nutritional Data.

Pinky Rodents (Rats, Mice):
**Not Insects or Invertebrates, but Displayed For Comparison and For Some Amphibians and Reptiles. Good Staple? Yes/No, Depending on the Animal. High in Fat, Feed Sparingly for Amphibians and Lizards. OK as Staples for Small Snakes.*

Ca:P: 1:1
Crude Protein: 64.2%/57.9%

Crude Fat: 17.0%/23.7%
Fiber: Unknown
Moisture: Unknown

Mealworm and Superworm Adult Beetles (Tenebrio molitor)/(Zophobas morio):
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: Unknown
Crude Protein: 26%/26%
Crude Fat: 7%/5%
Fiber: Unknown
Moisture: 61%/62%
Ash: 2%/2%

Locusts (Schistocerca gregaria):
**More commonly available in Europe.*
Good Staple?: Yes, with the right amount of gut-loading and nutritional supplementation.

Ca:P: 1:6
Crude Protein: 22%
Crude Fat: 9%
Fiber: 4%
Moisture: 62%
Ash: Unknown

Other Insects to Avoid:

Fireflies or Lightning Bugs
**Toxic to Reptiles and Amphibians. Do Not Utilize.*


Any Other Wild or Field Collected Insects or Other Invertebrates
**Some can be toxic to reptiles and amphibians (i.e. ladybugs, millipedes, boxelder bugs). Others may have been exposed to chemicals, fertilizers, and/or pesticides. Only use wild or field collected insects when one is sure of what they are, their nutritional value/contents, and has done careful and significant planning and research.*

Gut Loading:

It should also be mentioned that no matter how good, or poor these above nutritional statistics may be, that a feeder insect's nutritional value is only as ever good as the food that they receive. This is why it is also important to provide one's feeder insects or other invertebrates with access to sufficient amounts of water, as well as nutritious foods high in calcium. This, in turn, will provide and maximize the nutritional benefit these food items can provide for your amphibian or reptile.

It is oftentimes a good idea to allow for up to 24 hours, prior to feeding to your reptile or amphibian, any gut-loaded insect or prey item to allow for their nutritional value to rise and become accumulated within their bodies and exoskeletons. Always be sure to look for specific ingredients in any gut loaded diet, such as alfalfa, spirulina, bee pollen, and calcium carbonates.

In addition to the many commercially available feeder insect diets, providing fresh vegetables, some fruits, and a source of fresh water should also be important in ultimately ensuring that your reptile or amphibian can lead a much longer, happier, and healthier life. Generally, a good quality feeder insect gutloaded diet overall should meet those insect's specific nutritional needs, be nontoxic to the reptiles which will eat them, and contain added vitamins, minerals, and calcium.