

## Silkworms – A Healthy Alternative Feeder Insect



Silkworms offer a unique feature to the amphibian and reptile keepers - a nutritious meal to our insect eating pets. The reptile industry in the United States and Europe have been taking advantage of the benefits of silkworms for over two decades. Importation restrictions of silkworms, lack of commercial availability year round, and of course access to mulberry trees year round has prevented silkworms from being a commonly used feeder in Australia; however the availability of silkworm chow, a mulberry based food, allows keeping silkworms year round possible and silkworms are starting to become a readily available food source.

Several commercial feeder insect companies started providing silkworms on a large scale nearly two decades ago in the United States. This commercial availability prompted several studies to be published over the years examining the nutritional content of silkworms compared to that of commonly used feeder insects available commercially. These studies have all concluded that overall the silkworm is a highly nutritious feeder with several advantages over commonly fed insects.

The nutritional advantages include among others (a) **lower fat content**, (b) **high source of calcium** with a better Ca:P ratio, and (c) highly **digestible protein**. In one study silkworms were the only invertebrate tested that contained detectable levels of preformed **Vitamin A**. In addition to high levels of Vitamin A, silkworms have also been found to contain high levels of the **Vitamin B Complex** – all of which play a major role in reptile health.

An additional advantage that silkworms offer is the modest exoskeleton which allows optimal nutritional absorption. Mealworms, crickets, and other insects will have a chitinous exoskeleton making it difficult to digest. Often, intact mealworm and cricket bodies are passed in the feces of some insectivorous amphibians and reptiles resulting in minimal nutrient absorption from that meal.

Another component of silkworms is a proteolytic enzyme called serrapeptase, which allows the moths to dissolve the cocoons when they are ready to emerge. This protein is widely used in human alternative medicine and is associated with anti-inflammatory properties and arterial plaque reduction. Although no clinical studies have been performed on its benefits in reptiles, certainly these benefits have been reported by reptile keepers around the world rehabilitating sick and injured reptiles. Unpublished reports have also reported success in slowing the progression of corneal lipidosis in green tree frogs.

The Japanese have used silkworm pupae for centuries in breeding koi and they have associated the use of silkworms with fast growth rate and pure white coloration. They claim the enzymes contained in the silkworms maintain optimum liver health, allowing the koi to excrete toxins more efficiently yielding a strong immune system and pure white skin, which would otherwise have dull coloration due to buildup of toxins in the tissue.

There are many health and nutritious advantages to adding silkworms as a staple food source to your pet's menu. After all, variety is the spice of life and we should aim to offer a varied diet to our captive companions – silkworms are a great addition to the list of commercially available feeder insects.

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