

# Insectivorous birds and reptiles.

Metabolic bone disease is an often-described problem in these animals: on the one hand, it is dependent on UV light, but on the other hand, it is dependent on diet. Other diet-related diseases, e.g. due to vitamin A and D deficiencies, have also been described in birds and reptiles. A stable and balanced base ration that compensates for the deficiencies of the feeder insects is therefore also beneficial for birds and reptiles.

The granulate 3763.66.F12, used at 50% in the ration, can supplement both unsupplemented insects and other ration components low in calcium, such as meat or fruit, to such an extent that no further supplements should be necessary. It is suitable for both insectivorous and omnivorous birds and reptiles. During the laying period, the feed can be offered to the birds as a complete feed due to its wide Ca:P ratio and sufficiently high protein content.

### **3763.G6.F12 –** Insectivore: Bird Breeding Granules

- Supplementary feed for insectivorous and omnivorous birds and reptiles
- During the laying period, the feed can also be offered as a complete feed for birds
- ♦ High proportion of insect protein meal
- ♦ Shrimp shell meal as a natural source of chitin
- Fish meal and linseed products as a natural source of omega-3 fatty acids
- ♦ With various carotenoids for beautiful plumage
- ♦ Wide Ca:P ratio (3:1)
- ♦ With phytase for better phosphorus utilisation (750 FTU/kg)
- Convenient granule form for dry or wet feeding depending on species and acceptance
- ♦ Not suitable for iron-sensitive species

# Product number 3763.G6.F12



Depending on the species, different fresh feed can complete the ration:



# Are you looking for answers on feeding and ration design for your insectivorous animals?

We are here for you – zoofeed@granovit.ch



#### Literature

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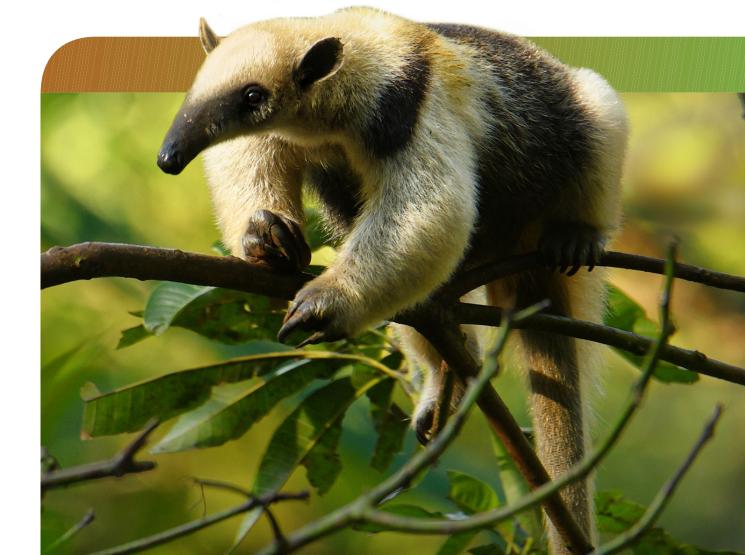
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Insectivore program



# Insects as food.





**Product number** 

3761.G6.F12



Insects form the dietary basis of many highly specialized insectivores but are also a valued source of protein for numerous animals with omnivorous, frugivorous or granivorous diets. While thousands of insect species are available as food in nature, the range of feeder insects in zoos is usually limited to single species. The most common feeder insects are generally characterized by a high protein content, a low to high fat content depending on the

insect, partly indigestible or difficult-todigest parts due to exoskeletons (chitin), as well as a low calcium content with an inverse Ca:P ratio and low vitamin A and D contents. These characteristics must be considered when feeding insectivorous animals and the resulting deficiencies must be compensated to avoid diseases such as metabolic bone disease or vitamin deficien-



# Giant anteaters and tamanduas.

These species from the group Edentata, which specialize in feeding on termites and ants, are usually fed a gruel in zoos. Tamanduas in particular are prone to tissue calcification and sometimes massive spondylosis in zoos. A too high vitamin A and D content in the feed is considered to be a predisposing factor. Besides the fact that conventional in-house mixtures are often difficult to reproduce in other zoos, they can also cause serious health issues, especially if they contain raw meat. In addition, they may have too high vitamin contents due to added cat food or other vitamin supplements.

A hygienic, tasty, homogeneous feeding that can be carried out in every zoo can be achieved with feed 3761. Mixed with water, it forms a porridge that the animals can easily ingest. For anteaters that are also used to dry feeding, the granules could also be offered in dry form. Access to outdoor enclosures should be provided, as the animals ingest a lot of soil material in their natural habitat.



True crickets and house crickets in particular, but also mealworms and grasshoppers can well and easily be kept and bred in zoos. For optimal breeding results:



- ♦ High quality protein source
- ♦ Suitable for maintenance and breeding
- Granulated form for a feed that does not segregate and yet has an easily edible, large surface for good feed intake

**Product number** 3600.G4.S25



Vegetarian formula with yeast as a natural source of carnitine

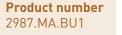
To avoid calcium deficiency in insectivorous animals, there are several methods to fortify the ration with calcium.

By feeding the feeder insects a gut-loading diet during the last 48 h before feeding them to the insectivorous animal, the gastrointestinal tract of the feeder insects can be filled with a calcium-rich diet and thus the calcium content of the insect can be significantly increased, for example with our gut-loading diet:

### 2987.MA.BU1 - Cricket Gut Loader Meal

- ♦ High calcium content
- ♦ Ca:P ratio of 10:1
- ♦ Vegetable and animal protein sources

Crickets fed in this way achieve a Ca:P ratio of up to 1:1. In order to achieve a positive Ca:P ratio and to substitute vitamins A and D, it is recommended to additionally sprinkle the feeder insects with the meal before feeding them to the insectivores.







### 3761.G6.F12 - Insectivore with insect meal

- ♦ Balanced complete feed for a diet that meets the needs of giant anteaters, tamanduas and other insectivores
- ♦ High protein content, including insect protein meal for a near-natural diet
- ♦ Contains shrimp shells as a natural source of chitin
- Contains taurine, arachidonic acid and formic acid
- Contains pre- and probiotics to support digestion
- Moderate vitamin A and D supplementation
- Supplemented with vitamin K and other vitamins Convenient granule form for wet or dry feeding

Developed and tested in cooperation with Dortmund Zoo and Institute of Animal Nutrition and Dietetics,











### Other insectivorous mammals.

Meerkats, aardwolves, armadillos, hedgehogs, sloth bears and many others - they feed largely on insects. Providing sufficient amount of insects can be difficult in a zoo, even more, proper vitamin and mineral supplies are not always easy to ensure. If approximately half of the diet of these animals (based on dry matter) is supplemented with our insectivore extrudate, balanced rations can be achieved with protein contents of approx. 20-45% and a balanced Ca:P ratio, even with a high proportion of low calcium ration components (mainly unsupplemented insects, meat).

### 3762.ES.F12 - Insectivore Extrudate

- ♦ High-quality supplementary feed for insectivorous and omnivorous mammals
- ♦ High proportion of insect protein meal
- ♦ Contains shrimp shell meal as a natural source of chitin
- ♦ Taurine-supplemented
- ♦ With prebiotics to support digestion
- ♦ Extruded for high acceptance and good digestibility
- ♦ Small size for easy scatter feeding
- ♦ Not suitable for iron-sensitive species

**Product number** 



3762.ES.F12



Depending on the species, the extrudate can be used with different fresh feed to complete the ration:









