

## Guinea Pigs: Feeding a Special Rodent From the Saint Louis Zoo Nutrition Department

Many of us keep guinea pigs as pets, but did you know these little rodents have a special dietary need?

Guinea pigs have the same kind of digestive tract and ever-growing teeth typical of all rodents. But unlike most rodents that can make their own vitamin C in their liver, guinea pigs lack an enzyme that allows them to make this important vitamin. So they have to rely on their diet for vitamin C.

This is not normally a problem for a guinea pig that eats a natural diet of green plants – most plants are good sources of vitamin C. However, if the guinea pig is fed only pellets and vegetables that are lacking vitamin C, the animal can develop scurvy. The classic symptom of this disease is dry, cracked mouth parts. (Scurvy was recently experimentally produced and described in a herd of capybara – large rodents -- at Venezuelan and Argentine universities, and resulted in gingivitis, poor teeth and reduced reproduction rates.)

Properly formulated guinea pig pellets/diets include supplemental vitamin C. Stabilized additives are available that feed manufacturers use. Guinea pigs require about 200 mg vitamin C per kg of dry feed. A 1 kg pig may eat 30 to 50 g of dry food per day – thus receiving about 6 to 10 mg vitamin C daily.

The best source of vitamin C in typical Zoo diet ingredients is leafy, green **kale**. Fresh kale contains 1.2 mg vitamin C per g as fed, compared to other greens like spinach, dandelion or turnip greens (0.3 to 0.4 mg/g), and certainly better than iceberg lettuce or apples (both have 0.04 mg/g). Kale contains about twice as much vitamin C as oranges (0.6 mg/g).



Kale also contains added dietary fiber – another essential nutrient for guinea pigs. The best source of fiber for caviés is grass hay – guinea pigs will consume a volume almost equal to their body size in hay daily. In many ways, grass is superior to alfalfa for these rodents – and also better duplicates their natural Andean mountain diets.

Only a few companies make grass-based guinea pig pellets – most are alfalfa-based. Recent studies suggest that grass pellets may be much more appropriate, and this is something we may investigate in more detail in the Zoo ‘herd’ that lives in our “Children’s Zoo.” Alfalfa contains high mineral levels that can lead to kidney and bladder stones. Spinach, as a green, also contains high oxalate levels that may contribute to stone formation.