

## **Dietary modification for rabbits with urinary tract disease**

Dietary modification to increase water intake and reduce calcium and phosphorus levels is indicated for all types of urinary tract disease. Oxalate may also play a part in the development of stones in the urinary tract and is best avoided in rabbits with urinary tract disease. An increase in water intake and urine flow is beneficial to dilute excreted calcium in the kidneys and bladder. In order to provide such a diet, the following recommendations can be made:

- **Offer water from a bowl** rather than a drinker. It has been shown that rabbits drink less water from sipper bottles.
- **Feed plenty of fresh grass.** This is the ideal food for rabbits, it has a high water content and the correct amount of calcium and phosphorus with no oxalate. It is also a good source of fibre.
- **Fresh greens are beneficial.** These are mostly water and will therefore increase water intake. Even plants with a high calcium content (kale, chinese cabbage, watercress, parsley and spinach) can be fed as they are mostly water, which dilutes the calcium. Plants with a more moderate calcium content include broccoli, cabbage, celery, lettuce and most culinary herbs, such as parsley or coriander. Many garden plants and weeds such as raspberry and bramble leaves, leaves from fruit trees, ground elder, young dock leaves, groundsel, chickweed are ideal.
- **Hay can be offered** although it has a minimal water content in comparison to grass and other plants.
- **Low calcium foods** include peas, beans, bread, banana, apples, carrots. Care is required with these items because their calcium content is very low. They need to be fed alongside other foods
- **Avoid any cereals**, such as sweetcorn, wheat, oats and barley not only have a low calcium content but have a high phosphorus content, which is not recommended.
- **Avoid plants containing oxalate**, such as swede, turnip and spinach.
- **Cut out alfalfa** altogether as it contains high levels of oxalate and calcium.
- **If possible, offer wild plants** such as dandelion, goosegrass, yarrow and plantain that have diuretic properties and will increase the flow of urine. Although these plants have a high calcium content, they also have a high water content and are enjoyed by rabbits.
- **Feed a SMALL amount of a pelleted or extruded food or none at all.** In contrast to high calcium vegetables, pellets or nuggets contain very little water so the calcium is concentrated. It is easy for a rabbit to ingest large amounts of calcium if they eat large amounts of nuggets even if the percentage of calcium in the food appears low.
- **Cut out any mixed cereal rations.** These are high in carbohydrate (i.e. fattening) and low in fibre. Many of the palatable ingredients are severely calcium deficient and high in phosphorus. Muesli mixes are never a good idea.
- **Avoid vitamin or mineral supplements** that go in the water or on the food
- **Small quantities of fruit juices containing Vitamin C may be beneficial** because they are sweet and palatable and therefore increase water intake. Theoretically, they could also acidify the urine and decrease the amount of sediment that is formed. Cranberry juice is a traditional remedy for bladder problems but apple, pineapple or blackcurrant juice can be used instead.