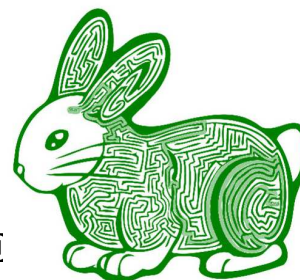




**ALWAYS “FIXED FORMULA”
FOR CONSISTENT
QUALITY, SAFETY & PERFORMANCE**



THE DIGESTIVE STRATEGY OF THE RABBIT

The rabbit's digestive process is designed to eliminate fibers from the gut as fast as it can and focus its digestive processes on the readily digestible components. When roughage or non-digestible fiber is consumed, it passes through that intestinal tract rapidly. The digestible portion, not absorbed in the stomach and small intestine, is brought back to the cecum and fermented.

There are two types of feces produced by the rabbit. The non-digestible fiber/roughage that the rabbit eats and cannot digest; is excreted out rapidly as hard feces. Material which is recycled back into the cecum, fermented for awhile, and then expelled, is excreted as soft feces. The fiber portion of the diet, therefore, is not necessarily for nutrition, but to keep that rabbit healthy. The hard feces will pass out during the first 4 hours after an animal eats, and the soft feces is passed soon after this. The soft feces is then consumed from the rectum. This is called coprophagy. The rabbit will get many nutrients from soft feces.

BEWARE OF LOW –FIBER DIETS

Motility is what moves material throughout the intestinal tract. On a low fiber diet, more material passes back up into the cecum; reducing the flow of material through the intestinal tract. This reduced motility results in a reduction in the flow of soft feces and prolonged retention time of the material in the cecum which may result in the development of organisms which produce diarrhea.

The rabbit's stomach is normally never empty; even after 24 hours, it may be half full. The rabbit's stomach is a pouch-like organ which meters feed into the small intestine where most digestion and nutrient absorption occurs. The remaining material then passes down to the hind gut.

A rabbit will chew about 120 times a minute so food particles are relatively small. When these particles travel down the intestinal tract and enter the hind gut, they're separated mechanically. The large fibers pass out as hard feces and the small particles move up to the cecum, for fermentation and recycling, via the soft feces. The cecum is large in the rabbit, and is where the fermentation of the readily digestible portion of roughage occurs. The separation and rapid excretion of fiber allows the rabbit to utilize

roughage without having an overly large gut. With the cow, the roughage that goes into the stomach may stay in there for 48-72 hours. Roughage in a rabbit goes through very fast. When roughage is consumed, the non-digestible portion goes out relatively fast; leaving the digestive tract to concentrate on the remaining, easily digestible nutrients of the roughage.

The separation and rapid excretion of fiber impacts feed intake. When fiber passes through very quickly, the animal can consume more feed. If the rabbit were to hold that material for a long period of time to digest it, feed intake would be reduced and the animal would not consume enough feed to meet its nutrient needs. If the fiber passes through fast, the rabbit can eat a lot of feed, excrete the non-digestible fiber, and concentrate on the readily digestible feedstuffs meeting nutrient needs.

The trouble with rabbits is that there are different sizes of rabbits with some having unique digestive characteristics. An animal's metabolic rate is related to size. Large animals have slow metabolic rates and small animals have fast metabolic rates. In dwarf rabbits, for example, the metabolic rate is so fast that the rabbit will do an even poorer job of consuming enough roughage or feedstuffs to meet its nutrient needs. We have to be very careful with dwarf rabbits to make sure they are not getting a high roughage diet or a diet considered to be non-nutrient dense.

The rabbit may be the only animal that we deal with where fiber minimums are more critical than fiber maximums.

Young rabbits do not produce much amylase. Amylase is an enzyme which digests starch. So high carbohydrate (or starch) diets in young rabbits may result in the accumulation of carbohydrates in the cecum and a reduced motility of the intestinal tract. Scours often develop. Clostridia organisms can also proliferate in this kind of environment and produce diarrhea. In order to have a Clostridium outbreak, three things have to happen:

1. The organism has to be present. Clostridia organisms are everywhere. They are present in the intestinal tract of every animal.
2. We must have a substratum for these organisms to grow on very rapidly. These organisms grow well on carbohydrates. When we increase the carbohydrate content of the cecum, we have developed an atmosphere for a substratum in which the organisms will flourish.
3. Something must happen that slows down the passage of materials through the intestinal tract which allows this toxin (produced by the organisms) and the organisms themselves to build up in high numbers.

So, when we feed a diet high in carbohydrates (usually implying low fiber), we create an ideal environment for the organisms to grow and we reduce the motility of the intestinal

tract allowing that organism to stay in an environment (substratum) within which it can grow. The result is diarrhea.

BEWARE OF HIGH CARBOHYDRATE/STARCH DIETS ESPECIALLY IN YOUNG RABBITS

Feed companies that least-cost formulate their feeds (indications are color/odor/texture changes and periodic problems with fines), often reduce the amount of roughage (which is expensive) and increase the amount of grain (carbohydrates) which are relatively inexpensive.

KING™ and Integrifeed® Rabbit foods are “fixed formula” to guarantee their quality, consistency and safety. Our nutritionist, Dr. John Throckmorton designed the feeds specifically for the unique digestive processes of the juvenile and adult rabbit. We specify a fiber maximum and minimum – to guarantee fiber availability. Our feeds are low in starch and our labels are unique in specifying the levels. To minimize fines, we screen our pellets.

The result: quality feeds that ensure the health and longevity of these wonderful little animals.