

Nutrition 101 - Introduction

By: Lark Burnham

Why do we feed alpacas (cattle, horses, cats, dogs, or even people) certain feed/foods? That is, besides the fact that they may taste good to each animal, or that was what they were fed when they were young.

Each animal evolved in a specific environmental niche. Maybe alpacas eat grass because no other species were especially interested in forage (grass and weeds), or trees (branches and bark) in that vicinity. Or maybe it was too rocky or barren. Or maybe it was a wide open area, and the alpaca predecessor needed to

be on constant guard and ready to run at the slightest hint of a predator. Whatever the reason, species that could survive in each distinct environment developed the digestive physiology to help them get more out of whatever they ate.

Although grass is not especially nutritious or even tasty, herbivores seemed to have gravitated to areas dominated by it and other forages. They developed highly specialized stomachs to process these feed-stuffs. Of course, this didn't happen overnight.

Some believe that the natural feed for the wild animal should be the same feed (or as close as possible) for the domesticated version. This might be true if:

- The owner knew EVERYTHING the wild version consumed, including dirt and bark
- The domesticated version had not evolved since the wild type

Grass alone does not provide all the nutrients required for ruminants or pseudo-ruminants. Farming practices have altered vitamin and mineral content from the forages' wild cousins. This can be as simple as the introduction of iron into the soil via wear and tear on machinery or as complex as genetic manipulation.

Nutritional research has provided nutrient requirements for most domesticated animals, including al-

pacas. If chemical analysis of available feedstuffs has not been performed, there are texts that list generic values. This information is put together to design a diet that is individual to your herd and location. As discussed previously, blood values are poor indicators of nutritional status (http://natures-way.com/live-stock_articles/Alpaca%20mineral%20nutrition.pdf).

Water

Although water is arguably the most important nutrient, it is often overlooked, or taken for granted. There is a good reason they are looking for water on Mars, without it, there is no life as we know it. All animals depend on water, from the most miniscule bacteria to thundering elephants. Some of its functions include:

- Major structural element - gives turgidity to cells
- Temperature regulation - water's high specific heat allows for the dispersion of heat generated during metabolism
- Movement of nutrients within cells

- Removal of waste products
- Many substances dissolve in water and this allows them to be transported throughout the body
- Water plays a role in virtually every chemical reaction that occurs in the body

Carbohydrates, proteins, vitamins, and minerals would be useless without water. An alien on a science fiction television show once referred to humans as “bags of mostly water”. The same could be said for all mammals. Without water they are all just piles of minerals.

In each forthcoming issue, a major nutrient group (carbohydrates, protein, vitamins, and minerals), will be outlined and their role(s) in mammals, and specifically in ruminants, will be discussed. Next issue, we will look at carbohydrates, nutrients that have received a lot of bad press in human nutrition, but which are crucial to all mammals. Carbs, as they are often called, are actually a complex and fascinating group of nutrients.

About the author:

Lark Burnham received a B.S. in Animal Science (1979), from Kansas State University and a M.S. in non-ruminant nutrition (1995) from Kansas State University, Manhattan, and a Ph.D. Doctorate in ruminant nutrition (2004) from Texas Tech University, Lubbock. Her special interests are comparative nutrition, the role of the micro flora in all mammals, fiber digestion, and probiotics. Lark currently works for Natur's Way, Inc., Horton, KS, which produces MSE probiotics.

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