



Llamas and Alpacas

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Introduction

Llamas (*Lama glama*) and alpacas (*Lama pacos*) are members of the Camelid family, which also includes the vicuna (*Lama vicunga*) and guanaco (*Lama guanicoe*). Their inclusion in this family is based upon their characteristic traits of being hornless, cud-chewing ruminants with an even number of toes and padded feet. Their gentle disposition, need for minimal care, and ability to adapt to a variety of climates makes them an easy species for which to care. Llamas and alpacas may be collectively referred to as “lamas.”

Background

Llamas are ungulate (hooved mammals) natives to the Andes of South America. It is believed that the llama is a descendent of the guanaco, while the alpaca was domesticated from the wild vicuna for fiber production. One distinguishing characteristic that links these species to other wild descendants is that both the alpaca and vicuna have no enamel on the tongue side of their incisors, which allows these teeth to continually grow as they wear down from grazing. These are different from the llama’s teeth which are fully enameled (Brehan, 1997). The

animals originated on the North American central plains forty million years ago and began migrating about three million years ago. Those heading west became camels and those moving south are the modern llamas, alpacas, vicunas, and guanacos (Norwood, 1996).

Camelids became extinct in North America at the end of the last Ice Age (10,000–12,000 years ago). Llamas were domesticated from guanacos in the Andean highlands of Peru 4,000–5,000 years ago and are among the oldest domestic animals in the world (Malouin). The Incas domesticated the llama in the higher Andes mountains. During the Incan reign, breeding and production of this species were controlled by state llama herders and all animals were considered government property. Llama breeding was closely monitored and hunting was forbidden. Llamas provided wool, meat, and fertilizer, and served as pack animals. The Incas sacrificed male llamas to the gods and their fiber was harvested to make clothes for the common people. Llama meat was consumed fresh, or salted and dried for later use. Some parts of the digestive tract were also used as medicines.

Alpacas are native to South American mountain regions and were first raised by Andean Indians. After the Incan conquest, al-



pacas became the basis of wealth for the Incan society. In the 1600s, Spanish conquistadors invaded South America and the alpaca herders were forced to move their grazing ground higher to accommodate merino sheep. The value of their fiber was first noticed by the English textile industry in the mid-1800s. Ninety-nine percent of the world's alpaca population still reside in Peru, Bolivia, and Chile, and they made their first appearance in the United States in 1983 (Alpaca Owner and Breeders Association, 1998).

Species Characteristics

Llamas are larger than alpacas, standing 40–45 inches at the withers and five and a half to six feet at the head. They can weigh between 280 and 450 pounds and the average lifespan is 15 to 30 years. Females usually begin breeding at 15–18 months and males at two and a half years. A llama's normal gestation is 350 days, giving birth to a single cria (pronounced *creeah*). Crias are usually born during daylight hours and weigh between 20–35 pounds. Within an hour post-parturition, the cria is standing and nursing from its dam. Average weaning age is 4–6 months.

Alpacas weigh about 100 to 175 pounds and stand about three feet at the withers. Their life span is about 15–25 years. A female alpaca is usually bred at 14–16 months and a male reaches full maturity in two to three years. The average gestation is 335 days and a cria may weigh 15–19 pounds. Alpacas generally have little trouble during parturition and the cria is usually found nursing after the first hour. Twins are rare and there is a low infant mortality rate. Alpaca mothers are very devoted and protective towards their young.

Llamas and alpacas share some characteristics. They both communicate through their posture and through ear and tail movements. Aggressive modes of communication are foot

stamping, kicking, and spitting. Both have two toes on each foot, with a leathery pad on the bottom. They are social creatures and do best when pastured together.

Both llamas and alpacas are induced ovulators, exhibiting no heat cycle. Ovulation occurs approximately 24–36 hours post-breeding, enabling them to be bred at any time during the year. It is recommended that females not be bred until at least 12 months of age and when they have reached 60% of adult body weight. They should not be bred during the hot summer months in North America when heat stress may be a problem. South American llamas are bred during cooler months for this reason.

There are a few differences between llamas and alpacas, including size, ear shape, hair, fleece, and back curvature. The alpacas have shorter noses and more symmetrical, pear-shaped ears, while llamas' ears are longer and banana shaped. Most alpacas have a full “top not” or “hair-do.” Their fleece is dense over all parts of their body and the alpaca's back has a slight upward curve, while the llama's back is straight (Brehan, 1997).

Uses and Economics

Some llama and alpaca uses are: packing, guarding, and wool production, the latter two of which predominate in North America. The packing capacity or maximum weight which a llama can bare is 70–120 pounds, and its padded feet make it a good pack animal, leaving the ground virtually unharmed. Llamas may be used in pet therapy programs for nursing homes and schools as these camelids make excellent pets and can be trained to pull a cart. Llamas are also raised for their wool, although it is not as fine as that of the alpacas. Their fiber is oil free and lightweight and may yield up to 93 percent of its original weight when processed. Llama fiber colors range from white to black, with shades of beige, brown, red, and roan. Its fleece

may be spotted, solid, or marked in various patterns.

Llamas have been shown to be effective guard animals against coyotes and dogs. It is recommended that the animals used for this purpose be at least 18 months old and in good health. All males should be gelded (neutered) after two years if they are going to be used as guards. Early gelding may contribute to abnormal skeletal development. Females with or without crias have also been used successfully. It is desirable for all potential guards to be in good physical condition and conformationally sound. Passive and timid animals or those that flock near feeding stations and barns are not considered good choices. Most important, those chosen to guard should not exhibit aggressive behavior towards humans (International Llama Association, 1997).

Alpacas are also prized for their wool or fiber, which is noted for its fine and soft touch and strength. It also holds dyes well. It is warmer than sheep's wool, less likely to produce allergens, and contains less lanolin. The average adult alpaca produces 6–9 pounds of fiber per year, and shearing one animal can produce enough fiber to make 4 to 6 sweaters. South American Indians use alpaca dung for fuel and fertilizer. Alpacas can be easily halter trained to lead for the show ring and are docile enough so that children can handle them. They can be used for packing but carry considerably less weight than llamas.

Nutrition

In general, camelid nutritional requirements are similar to those of sheep, and sheep data have been used to replace unknown llama requirements. Llama and alpaca nutrition is divided into life stages. Animals over three years of age that are not working or females in the first two trimesters of pregnancy are fed to meet maintenance (maintain body condition and weight)

needs only. The growing stage is from birth until three years of age. Feed intake is equivalent to 1.8–2.0% of animal body weight in dry matter, and normal daily water intake is about 4 liters per hundred pounds of body weight.

Recommended maintenance protein levels for llamas and alpacas are 8–10% of the diet dry matter. Periods of pregnancy and lactation require 12–14% protein levels. The growth stage has the highest protein requirement, 13–14%. Fiber is recommended at 20–30% of the diet dry matter, regardless of stage. Pasture and hay should comprise the bulk of the diet and fresh water is necessary. Loose salt and minerals are easier for these animals to lick than in block form. On a dry lot, camelids may consume 3–5 pounds of hay a day. Llama and alpaca requirements are similar, but amounts vary between species due to body weight difference. Check with your local county extension agent if you have questions.

Herd Health

Routine health practices include annual vaccinations, routine worming, toenail trimming, and shearing. The specific vaccinations that you administer to your herd should be based on the diseases present in your area, as well as those that are effective in other small ruminants, such as sheep or goats. Presently there are no vaccines specifically approved for llamas. Work with your veterinarian to determine a vaccine protocol specific to your herd and area.

Maintenance Costs

These camelids are relatively inexpensive to maintain. Up to four llamas can graze comfortably on one good acre of pasture, and an adult llama on a dry lot will require as much as a bale of hay per week. Yearly maintenance costs (including veterinary expenses) are estimated at \$150 to \$250 per animal. A small yard is

sufficient for a llama, but exercise room is needed. A three-sided shelter that provides a good winter wind break and ample shade in the summer is suggested.

Statistics

Nearly all the world's alpacas reside in Peru, Argentina, and Chile, with the number of llamas and alpacas in South America estimated at about 3 million of each. Today there are about 125,000 llamas and 27,000 alpacas in the United States (Alpaca Owners and Breeders Association, 1998).

Information Sources

Alpaca and Llama Show Association
P.O. Box 1189
Lyons, CO, 80540
Phone: (303) 823-0659
Fax: (303) 823-0643

Alpaca Owners and Breeder Association
c/o Hobert Office Services
1140 Manford Ave.
P.O. Box 1992
Estes Park, CO, 80517-1992
Phone: (800) 213-9522
Fax: (970) 586-6685
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International Llama Association
2755 S. Locust St., Suite #114
Denver, CO, 80222
Phone: (303) 746-9004
Fax: (303) 756-8794
E-mail: Intllama@aol.com

Llama Association of North America
1800 South Obenchain Rd.
Eagle Point, OR
Phone: (541) 830-5262

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