SAC Products

Fibre (Wool)

The wool of the *alpaca*, or simply "fibre"as it is called to distinguish it from sheep's wool, is a product of high quality and has special properties which are greatly appreciated by artisans as well as by the modern textile industry. *Alpaca* wool has a high commercial value because it contains little kemp, has a low felting quality, is very fine, and can be woven into lightweight, soft, and lustrous fabric.

A considerable variation exists in the quantity of wool produced by the *alpaca*, depending upon various factors, such as age, sex, breed, genetic selection, and management conditions. The annual wool yield of an adult animal is about 1.8kg (range 0.8 to 4.2kg); average wool fineness is about 24 microns (on the Bradford scale, grade 80', compared to 60' for Merino wool). Shearing is annual or biennial or longer. Technically, annual shearing is better because the fleece is then less damaged by the environment (solar radiation, rain, dust, dryness, etc), it allows for better external parasite control, and weighing the live animal and his fleece allows for better control of production and genetic selection.

There is a highly significant correlation between body and fleece weight in the *alpaca*. How far fleece weight is inherited has not been estimated, but the considerable variation between individuals that are similarly managed and fed suggests a high hereditary value. As white fleece commands a better price in the market, commercial farmers pay more attention to selection for colour than to other traits.

The annual production of *alpaca* wool in Peru is around 3,500 metric tonnes and in Bolivia around 1,000 tonnes, from which 20 to 30 per cent is used locally by textile artisans.

The *llama* wool is coarser and stronger than the *alpaca* wool, and this fibre is mainly used for carpets, bags, sacks, and coarser clothing. In the woolly breed of the *llama* (*Chaku*), the fleece may average 1.3kg per animal, per year, and the average fineness is 28microns. The *llama* belonging to peasant communities are sheared every two years or more, depending upon how much money they need. The fibre accumulating on their backs is often safer than capital in the bank. They serve as mobile rural banks.

Meat

Alpaca meat is said to be similar to mutton and venison, but it is not strong smelling. It has a high nutritive value, similar to the meat of other domestic animals, but with the advantage of a very low fat content (1.33%). Meat from young animals is even superior in taste than lamb but, under practical farming conditions, only surplus males and adult animals are slaughtered, usually old males and females.

The carcase dressing percentage in *alpaca* is very high, between 52 to 55 (depending upon age, sex, breed, body condition, etc). These figures indicate unquestionably that *alpaca*, even when not selected for meat production, have a higher carcase yield than sheep or cattle. The off-take of most *alpaca* farms is only eight per cent, due to a high neonatal mortality and low fertility rates. The annual production of *alpaca* meat in Peru is around 5,000 metric tonnes, and it is marketed in cities of the *sierra* and highlands.

The meat of the *llama* is very similar in taste to that of the *alpaca* meat, but a little drier. The carcase dressing percentage is between 55 to 60. Animals of the *Kara* breed are considered to be meat producers. The off-take of most *llama* herds is around 10 per cent and the annual production of *llama* meat is about 4,900 metric tonnes, of which more than 50 per cent is sun-dried for storage. Dried meat, produced through freeze-drying during the cold and dry winters of the Southern Hemisphere, is called *charqui* in Peru. It was an important export product during the colonial era. A comparison of SAC meat with other livestock in terms of nutritional standing is presented in Table 15.

Table 15: Nutritional Status of SAC Meat in Comparison to Other Meats

Species	Proteins %	Fats %	Cenizas %
Pigs	14.50	37.00	0.75
Sheep	17.00	28.00	1.00
Chicken	18.00	0.34	0.99
Alpaca	18.93	1.06	1.11
Cow	21.00	5.05	1.00
Llama	21.72	2.50	1.00

Source: Benel 1990. Frigorific "Cabañillas", Puno-Perú; By Dr. Juan Fernán-dez Benel. *Corporación de Desarrollo de Puno*, 1978. Reproduced in FIDA : 1990.

Hides and Pelts

Hides of adult animals and pelts of very young animals represent a very important income for *alpaca* and *llama* dealers. It is calculated that around 100,000 hides and 50,000 pelts are handed annually to the

fur industry, which is mostly run by artisans. Hides are used for manufacturing leather goods and the pelts for fur coats, which are in great demand in the international market. Arequipa in southern Peru has traditionally established its reputation and tradition in the production of *llama* hides while Juliaca, in the neighbouring highlands, has become the centre of the *alpaca* pelt industry. In 1987, Peru exported about 4 million dollars' worth of different articles made from *alpaca* and *llama* skins.

Work

The *llama* is the only South American camelid used as a pack animal. It can transport loads weighing 25 to 30kg, sometimes close to 50kg, over distances of 20 to 25km daily. It is employed for both local and long distance inter-Andean trade for obtaining non-*puna* products, such as maize, wheat, barley, and other goods. They easily adapt to the glacier-bound regions and highland passes as well as to lowland humid and warm valley conditions.

The pre-Inca civilisations domesticated the *llama* and by selective breeding made the *llama* a natural pack animal. Native to high altitude ecologic zones, *llama* have an intrinsic thriftiness, efficiency, and compatibility with the wilderness. Wilderness packing in the USA has brought about a great demand for *llama;* backpackers are concerned about the destructive impact of horses and mules, with their hard hooves on natural resources, and are looking for a way to travel in the wilderness with least environmental impact.

Pets

The *alpaca* and *llama* are pets and companions. The continuing urbanisation of society over the last twenty years has resulted in the rapid expansion of the pet market in the developed world. The *llama* approaches the ideal as a pet animal. Docile and low-key with a predictable temperament makes the *llama* easy to handle, even by novices. Intelligence, personality, and an elegant carriage makes it appealing. Natural hardiness and low maintenance requirements make it easy and economical to maintain and it does not need intensive care.

Fertiliser

Lamoid excreta are important in maintaining soil fertility in the Andean highlands. Almost all the "bitter potato" crops in the highlands depend on wastes from the *alpaca* and the *llama*. At high altitudes the SAC dung pellets decompose slowly, thus gradually enriching the soil over several rotational periods after initial application (for further information on SAC dung refer to Part A).

Fuel

Another product of the *alpaca* and *llama* is *taquia*, dried camelid dung. Since most of the SAC habitat is treeless grassland, dung is an important source of fuel for cooking and heating. The excrement is pellet-shaped and can be gathered efficiently because, as we mentioned, the *alpaca* and the *llama* "thoughtfully" use common 'latrines'. With forced air, *alpaca* dung fires can even reach a sufficient temperature to forge metal.

Capital Reserve

The *alpaca* and *llama* are often seen as assets that can be readily converted into cash in times of need, e.g., hospital expenses, school fees, emergency food purchases during drought, for weddings, etc. They serve as mobile rural banks. The fibre accumulating on their backs is often safer than capital in the bank. When the need arises, they can be sheared and the fibre sold.

Cultural

The *alpaca* and *llama* feature in many Andean highland societies in recreation, religious festivals, sacrifices, social gatherings, etc. They are traditional symbols of wealth and of communication between the spirit world and humans. They are a rich source of folk wisdom as expressed in metaphors registered in myths and tales. The national emblems of Peru and Bolivia depict members of the SAC family.

Others

The sinews and bones of both animals provide thongs and weaving tools. The fat heated and mixed with some essential oils is used as medicine. Fat and foetuses resulting from miscarriages are also used in magic and fertility rites.

Productivity Levels under Varying Conditions

Preliminary research on productivity enhancement of lamoids through adequate breeding and rearing practices are indicative of their potential under improved conditions. Tables 16 and 17 clearly show this.