

Importance of Different Products and By-products of Yak

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SUMMARY

Almost everything from the yak is used to sustain the life of the herdsman and their families and is used either directly or sold to provide an income. Milk in its raw form is used principally as a component of milk tea which is drunk liberally. The butter made in traditional form is the main product from the milk in most places. The skimmed milk is used in different ways including a form of cottage cheese. Meat is obtained mostly from animals slaughtered before the onset of winter when they are in good condition. Fresh meat is eaten around the time of slaughter but over a more prolonged period after being naturally frozen. Meat is also preserved by drying. Dried meat keeps longer than frozen. Sausage is made both from meat and from blood or from a mixture of the two. Some parts of the viscera are eaten others are used as casings for sausage or as storage containers for other products. Hooves after canning have become a popular and nutritious food in pastoral areas and other places. The blood apart from use in sausage is also used for making meal as a protein feed for animals. The bone is widely used for the manufacture of bone meal and glue. The hides are processed simply and dried before tanning locally or in factories. The leather has many different uses. Pelts of calves after processing are used for making garments. The coarse hair and the fine down find many uses from making ropes and tents. The hair of yak tail is used ceremonially and as a fly-whisk. Yak heads and tails are also used for making ornaments. Feces of yak is used as fuel after drying or in some localities it is also used in building of walls by the herdsman.

INTRODUCTION

The yak rearing states of India are Arunachal Pradesh, Sikkim, Uttar Pradesh, Himachal Pradesh and UT of Ladakh. From very earliest times the yak has been intimately associated with the culture, religion and social life of the herders and their families. Moreover no discussion of yak keeping can be divorced from the constraints imposed by the environment and the available grazing lands. Yak is relatively small in size. The mature cows weigh an average from 200 to 320 kg depending on breed and location while males are 30 % to 50 % heavier. The relative importance of milk and meat from yak varies with locality. In many parts of China milk represents an important component in the herd's economy. In Mongolia demand for meat is high and yak make an important contribution. In most of the remote areas the milk and dairy products are used mainly for consumption within the household. Most income in these cases is likely to come from the sale of surplus animals mostly castrated males mainly used for meat purpose. Large number of products is derived from milk, meat and by-products of slaughter animal. The hair and down fibre, hide and pelt and ornamental products from bone, head and tail. The most important milk product is butter which has a variety of uses apart from its use as food including its use as a cosmetic and for sculptures in temples. Other products include soft cheeses, yoghurt, and dried milk powder etc. According to Joshi *et al.* 1999 the production of a Swiss-style (Gruyère-type) cheese developed in Nepal based on Swiss technology from the 1950s onward. Joshi *et al.* 1999 recorded that 10 litres of milk from a yak produce about 1 kg of cheese. The fleece is useful for making blankets and down wool for making garments. The hide when tanned is useful for making usual leather products .

Milk and milk products of Yak

Raw milk

The whole milk is usually drunk only by people who are ill or weak but it is also given to children and old people. Some of this milk is drunk raw being considered more nutritious that way, but mostly the milk is boiled first as encouraged for health and hygiene. The yak milk has a high content of solids about 18 percent and around 7 percent fat. The milk has a fragrant, sweetish smell and whole milk also tastes somewhat sweet, even without adding sugar. The raw milk is mainly used for the beverage called milk tea which is a mixture of tea and milk which is a staple part of the diet of the herders and their families. Normally the whole milk is used in the tea, but skimmed milk is also used in order to increase the amount of butter that can be produced from the available milk supply. In pastoral areas, raw milk is customarily used to rear young yak calves and lambs or kids that have

lost their mothers or that cannot suckle enough milk from weakened mothers. Raw milk is also sold to milk-powder plants that have been built in recent years to produce milk powder as well as butter and other milk products.

Butter

Butter is the principal product from yak milk and it represents one of the staple foods of the local people. It is the principal milk product traded by herdsman. The raw butter contains about 12 - 15 % water, 1 % protein and the rest is fat. Butter production is regarded as the yardstick of the quality of yak milk and herdsman pay great attention to it. There are two main ways in which the herdsman make yak butter in China. The traditional and still most prevalent method is to churn the butter in a wooden bucket or it can be squeezed while in a bag made of hide. Milk separators are in use in some areas and reduce the amount of work needed to make the butter. Cream separated in this way prior to churning produces the best butter with a lower water content and a longer storage life than by older methods.

The butter is used for a number of foods, including *zanba*, pancakes and dishes fried in it. It is also added to milk tea and consumed salted or unsalted according to the area. When milk is not available butter is used in tea in some areas in place of raw milk.

Hard cheeses

Nepal was one of the first countries in Asia to establish a cheese industry and was the only country in the world producing yak cheese until the 1980s. More than four decades have passed since the founding of Nepal's yak cheese industry (Joshi *et al.*, 1999). Hard Swiss-style *Gruyere* cheese is now produced from the milk of yak.

Milk cake

This is a product mainly of whole milk though sometimes skimmed milk is used. It is similar in production to "milk residue" but is harder and looks like "cake". It is usually eaten with butter and sugar and is then considered more delicious by the herdsman; and it is one of the dishes offered to guests.

Whey

After butter milk residue and cheese have been made, the whey is rarely used in the pastoral regions. But in the agricultural-pastoral areas it can be used to feed pigs. The whey is also used in making leather by a traditional process.

Sour milk

Sour milk is a favorite among herdsman and their families all year round, but especially in the warm season when milk is being produced in substantial amounts. Freshly boiled milk is poured into a pail and when the temperature has fallen to 50°C, a little sour milk is added and mixed until the temperature has dropped to 40°C. The pail is then covered and wrapped in wool to keep it warm. Five or six hours later in the warm season, and longer in winter, the milk will have soured. The sour milk is drunk alone or sometimes mixed with *zanba*. A technology to produce yak sour milk is now being developed for wider application, as there is a demand for the product (Huang Y. K. *et al.*, 1999).

Toffee

Larrick and Burck (1986) refer to a product the consistency of toffee (*korani*, in Sherpa) made by boiling milk very slowly to dehydrate it.

Meat and meat products

Yak are an important source of meat for the herdsman and their families, but the meat is also sold. Even in areas and countries where religious taboos inhibit the slaughter of the animals, the meat is eaten, but professional butchers, rather than the owners of the animals, do the slaughtering. Many yak are slaughtered every year and this is normally done when the animals are in their best condition, before the onset of winter. Some of

the meat is consumed fresh and much else is frozen in nature's own "deep freeze" and stored that way. Meat is also dried and keeps longer than when frozen. The herders and their families eat meat mostly for the four to five months following slaughter. Yak are not slaughtered deliberately in spring or early summer because they are in poor condition and very lean at that time - though a few yak may die or be killed as casualties. Meat is therefore rarely eaten by herdsmen from April to July, although dried yak meat is still available.

Fresh yak meat

The quality of yak beef is at its best in the autumn because of the good condition of the animals at that time. The method of butchering and eating by the herdsmen is quite simple. The carcass is cut into large cubes then boiled in fresh water for a few minutes. The meat is eaten with salt and with the help of a Tibetan knife. Milk tea is taken at the same time. When guests are present, the meal is more elaborate as boiled rib-meat from the yak as well as from sheep is served and will be put on a plate and the meat eaten with the hand. There may be a steamed bun stuffed with chopped yak meat to which salt, condiments and fat have been added.

Air-dried meat

Prior to winter, the herdsmen living in the uplands cut yak meat into long narrow strips (approximately 4 - 5 cm wide and 30 cm long) and dry these suspended from woven-hair ropes. Drying takes only a few days. The air-dried meat will keep for one or two years either hung in a tent or stored in hide bags - this is a longer storage period than for the naturally frozen meat. The air-dried meat is very dry indeed and has a distinctive flavour. Some of this dried meat is eaten as it is, only cutting or tearing the strips into smaller pieces; and milk-tea is drunk as an accompaniment. When cooking the dried meat, there are two main methods. One is to roast it by burying the meat in the stove, fuelled by yak dung, until the meat smells fragrant. It is then taken out, cleaned and cut into pieces. The other method is to soak the dried meat for several hours and then boil it in water.

Smoked meat

There is also smoked "bacon-beef" which is similar to air-dried beef, but the fresh meat strips are first salted in a container for one or two days and then hung over the stove in the herdsman's tent to smoke. This again can be eaten either raw or cooked. The smoked meat is a product of the warm and rainy season and is made from the meat cut by the herdsmen from yak that have died of old age or from disease or have been killed by wolves.

Corned beef

Corned beef is salted "bacon-beef", which is very popular in the yak raising areas of Yunnan province, China. Frozen meat strips are rubbed for one or two minutes. When the meat becomes soft, salt and condiments are added. The meat is rubbed until it becomes wet and it is then transferred to a jar, which is sealed with paper or cloth. After 18 - 21 days, the salted meat is taken from the jar and dried in the air for about seven days. The best corned beef is reddish in colour, savoury and tasty and after boiling, steaming or frying, it can be eaten with *zanba* and accompanied by milk tea.

Sausage

There are two main types of sausage filling blood and meat. The casing for the sausages comes from the cleaned large or small intestine of the yak. Sausage, and in particular the blood sausage, is made at the time the yak are slaughtered.

Blood sausage

The blood used for sausage is from the thoracic cavity of the yak. To maximize the amount of blood in the thoracic cavity, herdsmen do not use what would be regarded as the normal method of slaughter but resort to a way of asphyxiating the yak. When dead, the yak is skinned and the heart and lungs are removed; the large quantity of blood in the thoracic cavity is then drained off and used for making the sausage.

Meat sausage

Meat sausage is usually encased in the large intestine. It is composed of 50 percent yak meat, 25 percent visceral fat and 25 percent blood. The meat and fat are chopped into pieces and salt, condiment and the blood added before the mixture is put into its casing. The filled large intestine is tied into segments as for blood sausage - though the segments are usually larger (about 50 cm long). In Tibet, the herdsmen normally consume the sausage fresh. It is boiled in water for about two hours, and the casing is pierced with a needle to prevent it bursting. Meat sausage can be stored for about one month. In more recent years, herdsmen living on the cold grasslands have taken to filling the intestine of pigs with a mixture of diced yak meat, diced pork fat, salt and condiment. The sausage is tied into short segments (15 cm long), small holes are pierced into the casing, and then it is hung up in the house to be dried prior to eating.

Bone

In local areas, yak bone is often made into exquisite handicrafts, such as combs, buttons and ornaments. Bone is also increasingly being sold for the manufacture of bone meal and glue. The bone marrow is used as a calcium supplement in medicine; bone meal, as animal feed, is rich in phosphorus and calcium and also as an ingredient of compound fertilizers. Yak bone is also used to extract bone fat. Bone paste is a new kind of food, which can be added into sausage, meat pie, meatball and dumpling (Huang X. S., 2000).

Hair and down fibre

Yak differ from other domestic cattle in that the hair is of economic use and importance. Use of the hair dates back to the time that yak were first domesticated. The hair from the yak is a valuable item and has become essential to the life of herder households. Generally, in traditional use of the hair, the down and the coarse fibres are left mixed together. Uses of mixed fibres depend on the fibre length, on the position of the body from which the hair is derived and on the down content. The long hair that grows on the fore and rear ends of the body and on the legs are used to make rope for tying up the tent. A rope will then be made from either three or four strands of yarn, the latter being the stronger. Rope made of yak hair is durable and withstands rain, wind and sun. Rope made from black and white yarn is admired for its appearance and is used to enhance the appearance of saddles and reins. In addition to ropes, the yarn spun from long hair is also used for weaving tents, bags, rugs and slings in Bhutan (Tshering *et al.*, 1996)

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