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A PRA study (Participatory Rural Appraisal) was conducted to assess and evaluate the existing situation in the Yak prats of Arunachal Pradesh, India. Chhandra, a typical Yak rearing village of West Kameng district (Arunachal Pradesh) was selected for the present study. The main objectives of this study were:
(1) To assess the existing marketing system for yak produces;
(2) To study farmer's perception about the processing and marketing of yak produces; and
(3) To explore the suitable marketing strategies for yak products.
During survey it was found that yak herdsmen have been using age-old instruments and techniques for processing different types of yak products. The traditional methods are considered to be unscientific with low economic value and cannot attract the buyers or consumers in market. It was also observed that yak herdsmen rarely come to the market to sale their yak products. They bring their products like clarified butter, wet cheese, dried meat and wool to the village situated at the mid altitude where mobility of the people are comparatively better than high altitude and exchange them with necessary commodities like maize, rice, salt etc...
Keeping in view the present marketing system of yak produces there is need for introduction of scientific methodologies, proper pricing policies and marketing strategies for yak produces. This can act as a catalyst in determining the yak herdsmen's choice of economic activities, influencing the decision on resources allocation and secured demand and supply for yak produces.

2. Development of Yak Veal and its Related Technology (4-9 Sep 2000)

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Datong Yak Farm in Qinghai is the only state owned yak farm and had slaughtered 43000 yak calves aged at 6 months old and weighed up to 40 to 45 kg for veal production by 1997 which had contributed 20% of the total income of the farm. Yak veal has been considered as one of the top "green products" from the highland pasture with altitude over 3000 m. The contents of dry matter, crude protein, fat and ash, Ca and P of the yak veal and beef were 30.5, 24.1, 5.10, 1.40, 0.04 and 0.11%, and 35.4, 27.6, 6.20, 1.60, 0.06 and 0.12%, respectively which promised a kind of top veal with tender taste, low fat, rich of protein and mineral elements. With the increase of the veal production, the percentage of cows giving calving every year gone up from 20% to 35% with conception rate of 65%. The reproductive females increased from 49% in 1993 to 54.7%
in 1995 and the loss during the winter and spring season and the pressure to the pasture due to overgrazing had also been reduced significantly. Through AI with wild yak semen, the bodyweight of 1/2 yak-blood hybrid calves at birth and 6 months old had improved by 25 - 30% and 53 - 56% compared the pure domestic calves.

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3. Processing and Utilization of By-products from Slaughtered Yaks (4-9 Sep 2000)

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Due to the limitations of economic and ecological conditions, the processing and utilization of by-products including blood, internal organs, bone and waste hair from slaughtered yaks have not been fully attempted. Previous reports showed that medicines and biochemical reagents could be extracted from them or those by-products can also be made into feed additives and feeds to livestock and poultry. These all improve economic benefit of the yak husbandry.

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4. Beef Production of Kyrgyzstan Yaks and Issues for its Improvement (4-9 Sep 2000)

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Yaks were grouped based on their ages in state farms of "Alai" in Osh and "Son-Kul" in Naryn areas. Yaks selected for fattening were on natural pastures locating at height of 3 to 5 thousand meters above the sea level. During the period of fattening yaks received salt at the rate of 60 - 80g as an average per head per day. The duration of yaks fattening in state farm "Alai" was 120 days and in "Son-Kul" 142 days. The average live weight of castrated yaks aged 1.5 - 2.5 years old (248 heads) was 169.2 kg and 275.7 kg, 3.5 - 4.5 years old (454 heads) 257.8 kg and 359.6 kg, and 5.5 - 6.5 years (118 heads) 371.6 kg and 456.7 kg, respectively, at the beginning and end of the fattening period. Nearly all yaks gave a high daily gain from 708 g to 905 g and the highest value obtained from those castrated yaks aged over 3.5 years old.

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5. Beef Production and Quality Analysis in Jali Yaks (4-9 Sep 2000)

Q. Ji, C. Bhu, Y. Dawa, D. Tsering, Y. Zhang and S. Lob
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The main nutrition compositions and amino acids content of beef as well as beef production performance of yaks were determined by slaughtering experiment in Jali yaks to evaluate it's beef qualities and production potential. The purpose of this paper is to provide theoretical basis for further development and utilization of yak beef resources.

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6. Beef Production and Quality of Three Fine Yak Breeds in Tibet of P.R. China (4-9 Sep 2000)

Q. Ji, C. Bhu, Y. Dawa, D. Tsering, C. Dawa, Y. Zhang and S. Lob
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To investigate the beef yield, carcass composition and quality and to improve the production and economy of three fine yak breeds in Tibet, six animals for each breeds of Jiali, Pali and Sibu yaks were slaughtered for the measurements of beef yields, carcass compositions, nutrition, amino acids and rare elements of different parts of the carcass in autumns of 1997 and 1998. The results showed that the slaughter rates, net beef rates, ratios of net beef, area of longissium muscle and ratios of bone to beef of Jiali, Pali and Sibu yaks were 50.59%, 43.02%, 85.09%, 64.55 cm² and 1:4.21, 49.47%, 40.74%, 81.84%, 61.09 cm² and 1:4.56, and 46.67%, 37.40%, 79.62%, 45.41 cm² and 1:3.96, respectively. It was supposed that the three fine yak breeds in Tibet have excellent beef production performance with higher protein, lower fat and rich amino acids and rare elements, so the beef quality was desirable and the nutritional value was high. This paper also revealed that the yak beef production in Tibet promised a potential market for further development.

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7. Diversification in Processing and Marketing of Yak Milk Based Products (4-9 Sep 2000)

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Nepal is the first country to produce cheese from Yak/Chauri milk in the high alpine region of the world. This product is popularly known by the name of Yak cheese. Nepal produced around 350 metric tons of cheese during 1998/99, out of which around 150 Mt was from yak and Chauri milk. This activity is focussed in the districts of Mount Everest trekking route and the Rasa district, adjoining to the capital city of Nepal. Many more districts stretch over the northern alpine region, where yak is the means of livelihood in the region. Yak milk is traditionally processed into fermented milk, and then churned out to produce local yak butter and buttermilk. Buttermilk is further processed into Sher, a cottage cheese type product. If fermented becomes sewsew, and if pressed and dried or dried without pressing becomes Chhurpi; a dried hard casein product. Chhurpi is widely consumed by Himalayan people as a source of nutrients, and is chewed to maintain salivation during mountain climbing.

Traditional and indigenous technologies are in place to produce long life milk products in the yak rearing countries of China, Bhutan, India, Mongolia, Pakistan, Nepal and so on. There is a need to upgrade the existing indigenous technology to produce safe and hygienic yak milk products. Human resource development and training facilities, Yak milk processing industry association and marketing and advertising campaign are the major issues to be addressed to promote the yak trade. The International Yak Conference should come with a consensus to establish an International Yak Research Centre, that could carry out the research, education and training, appropriate technology development, products and process standardization, and other areas identified by the member countries. Diversification is very essential to generate sustainable income, and it is only possible when proper practical training and technology is transferred to the beneficiary community.

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8. Composition and Quality of the Yak Milk and Consumption of the Yak Milk in Mongolia (4-9 Sep 2000)

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The milk yield of yak and its hybrid, the "khainag", is 300 and 470 kg, respectively. Although the yield of milk is lower, the
density, fat content (6.7%) and amounts of protein (5.03%) and sugar (5.15) indicate the feature. The diameter of milk fat globules is 5 to 6 µm or larger than other livestock’s. It has been revealed that the milk butter for making cream is completely separated due to the above reason, while the time for churning milk to make butter is shorter. Therefore the yak milk is suitable for making milk cream. Because the yak milk is rich in the carotene amount, the butter is of yellowish color and very delicious. Also the amount of protein in yak milk is higher and in conjunction with it the acidity is higher. Among the fatty acids of yak milk, the saturated and unsaturated ones occupy 22 and 55.2% respectively. The concentrations of fatty such as capric and caprylic acids, which are the low molecular weight volatile acids, and vitamin F in milk of yak and its hybrid were higher than the cattle’s according to our investigation. Regarding the difference between the lipid amounts in the yak milk during winter and summer seasons the technology of butter production suited to the seasons has been developed. Mongolians produce a lot of kinds of products from the yak milk. They may be classified into the products of butter, fermented and protein origins. Butter products include milk skin (orom), yellow and white butter. The fermented products are yogurt, coumiss (airag), wet and dried curds (aaruul) are involved to proteinious products.

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9. Milk Production and Quality of Three Fine Yak Breeds in Tibet of P.R. China  (4-9 Sep 2000)

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Milk is a main product of yaks, which, together with its products like butter and cheese, serve as a very important food and nutritional source for nomads. Milk yield and quality play a key role in contributing to the total income of the herdsmen and they are also one of the major items to evaluate the genetics of yak breeds. The milk production and quality including the milk compositions and amino acids content of three fine yak breeds in Tibet were first measured from 1997 to 1998. The results should be the bases for further improvements of the yak breeds and for development of milk products.

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10. Issues of Development of Yak Products and their Processing and Marketing  (4-9 Sep 2000)

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Breeding and grazing in ecologically clean environment rich in energetically saturated forage, yak produces extremely valuable raw materials of food (beef, milk and fat) and non-food ones (wool, leather, down, horn, blood and bones). Working on the strategy concerning yak products’ processing and marketing, several issues should be considered such as an international standard on yak products, collection of marketing information of yak products, introduction of modern approaches into the traditional and ecological clean yak raw materials’ processing, development of new industrial yak products and establishment of enterprises to process the yak raw products in Kyrgyzstan.

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11. Study on Technology in Producing Yak Sour Milk  (4-9 Sep 2000)

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A production technology of sour milk produced with yak milk whose butter fat is skimmed and standardized is studied. The acidity of this sour milk is 90 - 100 T, the ratio of *Lactobacillus bulgaricus* to *Streptococcus Lactobacillus* is 2:1, the ferment time is 200 - 220min and the contents of sugar is less than 7%.

12. Study on Technology for Production of Yak Milk Beverage with Ginseng and Caladium. (4-9 Sep 2000)

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Yak milk beverage is processed by using root pieces of ginseng (*Potentilla anserina*) and caladium (*Fritillaria thunbergii*). The key of this technology is that the content of potassium sorbitol is 1.5%, the pressure of homogenization is 90 kg/cm², the sterilization temperature is 95º/20min, the vacuum seal is 350 mmHg and period of quality protection is eight months.

13. Study on Production Technology of Yaks Cheese (4-9 Sep 2000)

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The cheese was produced by using dilute cream from the yak milk through sterilizing, maturing, agitating and working. The sweet cream and the acidic cream were made by no fermenting and fermenting. The contents of water, salt and fat in the cream were 15%, 2.5% and 81%, respectively. The acidity was 20 T. The numbers of bacteria was less than 200/g and the numbers of *E. coli* was less than 40/g.

14. Study on Production Performances in Pali Yaks (4-9 Sep 2000)

Q. Ji, C. Bhu, Y. Dawa, D. Tsering, C. Dawa, Y. Zhang and S. Lob

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Pali Yak is considered as one of the top yak breeds in Tibet. The results of systematic determination of it's production performances and analysis of milk compositions showed that the mean body weight was 318 kg and 200.85 kg and area of longissimus muscle was 74.46 cm² and 47.72 cm² for male and female yaks, respectively. The mean dressing percentage and net meat percentage was 50.84% and 42.36%, respectively. The crude protein and crude fat in longissimus muscle was 22.56% and 25.29%, respectively. The crude protein and crude fat in rib meat was 17.82% and 25.29%, respectively. In August, the daily mean milk yield, milk fat percentage and glucose content were 1.22 kg, 5.95% and 3.77%, respectively.
The yak under hair yield was 0.15 - 1 kg, the mean real yield of under hair was 0.25 kg, and mean fineness of yak fiber was 23.46 µm.

15. The Characteristics and Problems of Leather Making with Yak Hide (4-9 Sep 2000)

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This paper discussed the characteristics and problems of leather making with yak hide, such as the histological structure, the defects of the raw hide, the key techniques of leather making with yak hide, and the special leather chemicals.

16. Wool and Undercoat Production and their Physical Properties of Three Fine Yak Breeds in Tibet of P.R. China (4-9 Sep 2000)

Q. Ji, C. Bhu, Y. Dawa, D. Tsering, C. Dawa , Y. Zhang and S. Lob
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For better understanding the wool and undercoat yields and qualities of three fine breeds of Jiali, Pali and Sibu yaks in Tibet, an systematic investigation was carried out from 1997 to 1998 to save as the base of further efficient utilization and new product’s developments. A random sampling method for wool and undercoat was used. The results indicated that the average wool yields for adult Jiali, Pali, and Sibu males and females were 0.69 kg, 0.71 kg and 0.80 kg, and 0.18 kg, 0.19 kg and 0.16 kg, respectively, the crude yields, pure yields, fineness and strength of undercoat from both male and female for average of Jiali, Pali, and Sibu yaks were 0.6 kg, 65.48%, 18.74 to 33.83 µm, 14.18 to 30.42 CN, 0.6 kg, 56.75%, 18.13 to 27.49 µm and 12.12 to 26.42 CN, and 0.5 kg, 47.87%, 19.90 to 32.89 µm and 13.38 to 29.68 CN, respectively. It was concluded that these three fine yak breeds in Tibet had promising potential for wool and undercoat yields with finer fiber but stronger strength which could be considered as qualified materials for textile.

17. Undercoat Production and Quality Analysis in Sibu Yaks (4-9 Sep 2000)

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The yield and quality of undercoat in Sibu yaks were determined and analyzed. The results showed that the mean hair yield and undercoat yield were 0.63 kg and 0.2 kg, respectively. The mean fineness of undercoat and hair was 25.74 µm and 67.82 µm, respectively. The mean stretched length of undercoat and hair was 2.97 cm and 10.78 cm, respectively. The strengthen and elasticity of undercoat was 21.4g and 42.9%, respectively.
An ethno-special and nutritional hygienically food was manufactured from the bone marrow and bone powder collected from the Tianzhu white yaks living on the natural pasture with altitude over 3400 m through mixture with wheat and bean flour. The food contained 11.5% protein, 3400 Kcal/kg energy, 13.3g/kg Ca and 639.9mg/mL. The high temperature & pressure and decompression & concentration protocols produced concentrated bone marrow and bone powder. Extrusion and expansion approaches increased its stability and dissolubility. Barrier technology controlled the microorganisms effectively and insured its safety.