EXTENDING AND UTILIZING OF WILD YAK SEMEN  
IN YAK RAISING AREA

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PRESENT SITUATION OF YAK PRODUCTIVITY
Qinghai-Tibet Plateau is the main habitant of yak, which is an irreplaceable productive and living material in this area. The total number is nearly 15 millions, among of them 92% are spread in China’s Qinghai, Sichuan, Ganshu, Yunnan Province, and Tibet and Xingjiang Uigur Autonomous region. Qinghai has a number of nearly 5 million. According to the the project of “EVALUATION OF PRODUCTIVITY OF YAK IN SOUTHERN QINGHAI AREA” which was carried out in South part of Qinghai from 1997-1999 sponsored by EU. The results showed that the body weight of local yak aged from birth to 5 years old were measured at an interval of 6 months, a rapid growth before 2.5 years old and then a flat curve until 4 years old. From 4 years old on, the body weight varied with seasons. However, the average body weight obtained from this study was lower than the previous investigation in early 80’s, which indicated a degeneration of the local yak genetics. The body weight (kg) of local yak from newborn to 5 years of age animals were 11.74±1.27, 50.18±10.74, 83.01±12.89, 99.42±16.31, 109.68±16.63, 134.10±7.77, 135.23±18.59, 141.31±40.71, 143.89±25.74, 196.68±21.27 and 156.42±30.33.5. First calving heifers and another 5 cows were included into the test and comparison. The data showed a higher milk yield in the cows (1.06kg) than in the heifers (0.67kg). No matter the cows or the heifers, milk yield was higher in June, July and August than in May and September. Milk fat was 6.57% for the cows and 6.69% for the heifers. A test on body weight change was done from 10 May 1997 to 7 June 1998 on two groups of 7 cows calved (nursing) and 5 cows non-calved (non-nursing) in 1997 respectively. The body weight of cows in nursing and non-nursing states increased 3.4 kg (2.04%) and 13.65 kg (7.66%) respectively, of which the non-nursing cows showed an obvious increase of their body weight from later spring to autumn in 1997 but a rapid decrease from the autumn in 1997 to the next spring in 1998. 3 over 10 year old and 3 5-7 years old draft yak were selected from the Xueshan Township in Guole Prefecture and slaughtered in 1998 for the test of meat yield. The results indicated that the yak over 10 years old given higher measurements or all items. The live weight, dressed weight, net weight, bone, eyemuscle area for 10 year old animals were respectively 373.30±25.20 kg, 210.30±24.70 kg, 176.40±24.80 kg, 33.90±2.30 kg, 53.20±9.40 cm², while the above items for 5-7 years old animals were 203.30±27.50 kg, 110.80±25.50 kg, 90.60±35.30 kg, 20.10±7.0 kg and 41.40±10.80 cm².

SIZE AND DISTRIBUTION OF WILD YAKS
The wild yak (Bos grunniens) is larger than the domestic yak, reaching a body length of up to 260 cm. Wild yaks are found throughout the Qinghai-Tibetan Plateau area. These large bovines range across parts of Gansu and Qinghai Provinces as well as the Autonomous
Regions of Tibet and Xinjiang. However, based on the survey work carried out by Cai Guiquan in 1992 and 1993, the range of wild yaks in Qinghai Province should be extended beyond the boundaries set forth by other scientists.

The southern range of wild yaks rests at approximately 32 °N, near the Yarlung Tsangpo River watershed. The western border of wild yak distribution is Ladakh. Until recently, some wild yaks were found in Nepal. The Qilian and the Arjin mountains represent the northern borders of wild yak distribution. The estimated number of wild yak is about 20 000.

**REPRODUCTIVE PROPERTIES OF WILD YAKS**

Taming of wild yak bull was realized last century, in the 80’s. The total of 225 516 pelleted semen have been made from 1992-1995. Among of them, the wild yak and the semi-wild yak pelleted semen were 90 610 and 134 906, respectively. The results showed that the mean semen collecting volume in semi-wild yaks was 3.78 ml at 7 years old, which was higher than the age of 4.5 and 6 years old (p<0.01), reaching the highest volume of 4.22 ml on November and more than 0.43 ml semen can be collected at morning than at afternoon. Semen collecting volume at 3 days interval was higher than other intervals It can be obtained more than 0.66 ml semen for wild yaks with estrus yak cow than with no-estrus yak, but no difference for semi-wild yaks. The mean semen collecting volume was 2.83 ml for wild yaks with a semen density of 1.581 billion/ml, which was much higher than the 0.6 billion/ml of ordinary cattle, antiforce coefficient 8.995 was 6 000 times of ordinary cattle. More than 70 000 pelleted semen have been spread throughout India, Nepal. Bhutan, Mongolia and China provinces of Gansu, Qinghai, Heilongjiang. Luo Xiaolin et al. (1997) have done a lot of research related on the relationship between wild and domestic yak through reproductive endocrinology. The results showed that there were no much difference between wild yak and domestic yak.

**STUDY ON THE REPRODUCTIVE PERFORMANCE OF WILD YAK**

In five years from 1992-1997, 1 417 head of domestic yak cows were artificially inseminated with wild yak frozen semen. 1 145 calves were born of which 80.80 % survived. Reproductive rate was 75.72 %. 199 head of semi-wild yak cows were inseminated with wild yak frozen semen, the calves born, calves born which survived, reproductive rate were 158, 72.86 % and 75.37 % respectively.

**PRODUCTIVITY OF DOMESTIC YAK RENOVATED BY WILD YAK**

Crossbreeding between wild and domestic yak was a simple and feasible skill in the renovation of domestic yak under the circumstances of ongoing production system, with the advantages of improved ability in roughage utilization, growth and development in filial generation. The productivity of wild blood yaks has a positive correlation coefficient with content of the blood of wild yak. It has a decreasing regulation from 3/4, 1/2, 1/4 wild yak to domestic yak for its productivity. Great economic benefit can be obtained for the productivity of wild blood yak has increased by 20 % than that of domestic yak. The wild blood yak bull has been spread to all yak raising area in Qinghai Tibet Plateau. Due to the lower meat and milk productivity of the local yak, it was suggested that the crossbreeding by introducing wild yak genetics would be an easily practiced approach for the improvement.
RESTRAINING FACTOR FOR THE UTILIZATION OF A.I IN YAK

Yak are seasonal breeders. The onset and the end of the period in the year when female yak come into estrus is affected by climatic factors, grass growth and both latitude and altitude. When temperature and humidity starts to rise, the ground begins to thaw and grass starts to grow. The yak females then improve in body condition and gain weight-following their long period of deprivation and weight loss over the winter-and they come into season. The breeding season reaches its peak in July and August when temperature is at its highest and grass growth at its best. Thereafter, yak estrus decreases in frequency and stops around November. The yak was grazed at mountain area during the heat season so the utilization of A.I technique was extremely difficulty at this condition of no segregation with other yak bull and no cowshed for catching a estrus cow. So the effective estrus synchronization was extremely important for the utilization of A.I in yak. So, on the present production system, we establish the breeding system as the seed stock farm of pure wild yak and the reproduction farm of wild blood yak in Qinghai Datong Yak Farm, and popularizing the wild blood yak bull mated naturally with local female yak within whole yak raising areas, which proved to be a easy and feasible method to improve the productivity of yak within a short terms. the local herdsman are willing to accept this method.

REFERENCES