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# CHINESE MEAT GOAT BREEDS AND THEIR CROSSES

Jian Ying

Beijing Agricultural University, **Beijing** 100094, P.R. OF CHINA

## SUMMARY

Selection of meat goat breeds and crossing for meat production provides food and is a source of self sufficiency for man. The following four goat breeds are examples of meat production of, Manjiang yellow, Matou, Longling and Hual goat breeds. Recently, it was reported that the quantity of meat output was increased and quality of meat was improved of the local goats in some areas by crossing with Nanjing, Matou and Longling. The Huai breed is a very important breed for producing high quality meat and hides' It is also noted for its high prolificacy. The natural environments of China are well suited for goat production. Most of its harsher environments can be utilized efficiently only by goats. Especially southern agricultural region and northern agricultural regions develop and use the meat goat breeds as genetic resources for adaptation and production of unique and economically important meat products, and as a complement to cattle or sheep production.

## RESUME

Il existe des races caprines sélectionnées et croisées à aptitude viande pour permettre l'autosuffisance alimentaire de l'homme. Les races suivantes sont un exemple de chèvre pour la production de viande : Manjiang jaune, Matou, Longling et Hual. Récemment on a trouvé que la production de viande avait augmenté, ainsi qu'une amélioration de la qualité, chez les chèvres locales de certaines zones à travers le croisement avec la Nanjing, Matou et Longling. La race Huai est très importante pour la qualité de sa viande et pour sa haute prolificité. Le milieu naturel de la Chine est très approprié pour l'élevage caprin. La plupart des milieux difficiles peuvent être utilisés efficacement seulement par les chèvres. Dans les régions agricoles du nord et sud de la Chine, on utilise les races caprines à viande comme ressources génétiques pour l'adaptation et la production de produits caprins spécifiques et économiquement importants et en complément avec la production bovine et ovine.

## 1.0 INTRODUCTION

Goats are important farm animals in China. In 1992, the total goat population was 97.61 million with two-thirds in agricultural areas mainly in the Shandong Province, (Henan Province 11.002 million, Jiangsu Province 8.236 million, Sichuan Province 5.940 million, Yunnan Province 5.070 million, Hebei Province 5.037 million, Shaanxi Province 4.450 million, Anhui Province 3.121 million). The native breeds mature early, with an all-year-round high oestrus reproductive activity. However, their body weight remains low. Meat production and dressing percent are also low. If the native goats were to be crossed with selected meat-goat breeds their output would no doubt increase.

## 2.0 THE BREEDS

### 2.1 Nanjiang yellow goat

Their origin is in the county of Nanjiang of the Sichuan Province. The hybrid is created from crossing the crossbred Chengdu brown and Nubin buck with Nanjiang local goats, through a 30-year selection period and thus raising a new meat type breed in 1990. They can be suitably raised in mountain areas and on high land at an altitude of 300-1500m, with a mean annual temperature of 17°C, a rainfall of 1500 mm and 220 frost free days. The Nanjiang yellow goat can withstand year-round grazing and hand feeding. It has a large and meaty body with fast growth, high prolificacy, excellent hereditary stability and good fattening ability (Tables I and 2). These traits can be transmitted steadily in crossbreeding showing prominent hybrid vigour in progeny. The kidding percentage is 198.2% (785/1540).

**Table 1:** *Nanjiang yellow goat bodyweight (kg)*

Age	Male		Doe	
	No	$\bar{x} \pm s$	No	$\bar{x} \pm s$
birth	286	2.11±0.54	322	2.13±0.39
2 months	87	8.94±2.06	87	8.71±1.15
6 months	73	16.83±3.42	76	16.04±3.00
12 months	19	36.81±1.68	118	27.39±0.45
adult	41	59.15±7.08	870	38.99±0.18

**Table 2:** *Nanjiang yellow goat meat production*

Age	No	Sex	Slaughter Weight (kg)	Carcass Weight (kg)	Visceral Fat wt. (kg)	Dressing percent	Meat Wt. (kg)	Meat percent
6 months	6	W	21.82±1.30	9.68±0.85	0.51±0.03	46.49	7.24±0.81	33.03
12 months	5	W	25.90±0.68	12.06±0.43	0.50±0.04	48.49	8.50±0.41	32.82
12 months	5	F	27.98±2.56	11.76±1.20	1.17±0.14	46.91	9.07±1.05	32.42
adult	5	W	54.05±3.73	26.18±2.24	3.33±0.60	54.60	21.81±1.89	40.35
adult	8	F	44.79±2.06	20.04±0.85	2.36±0.18	50.01	16.03±1.62	35.79

Source: Cheng Shennou 1986



*Nanjiang yellow goats*

## 2.2 Matou goat

These goats originated in the mountainous areas of the Zhushan Sunxi county of the Hubei Province and the Szemen Changjiang county of the Hunan Province at an altitude of 3 00-1 00 m, with a mean temperature of 16' C, ranging from -1' C to 41.8' C. Rainfall 800-1600 mm, with 150-305 frostless days. They have a large and meaty body. They are highly prolific, their main use being meat and hides. Their coat is polled white (tables 3 and 4). Their meat production is 43.13% with an all year-round oestrus activity and kidding percentage of 196%.

**Table 3:** *Matou goat bodyweight (kg)*

Age	Male		Doe	
	No	$\bar{x} \pm s$	No	$\bar{x} \pm s$
birth	23	2.14±0.37	79	2.04±1.28
8 months	32	12.49±1.81	51	12.82±1.72
12 months	27	24.99±5.27	82	23.23±4.26
adult	42	43.81±1.91	155	33.70±0.51

**TABLE 4:**

*Malott goat neat production (all weather)*

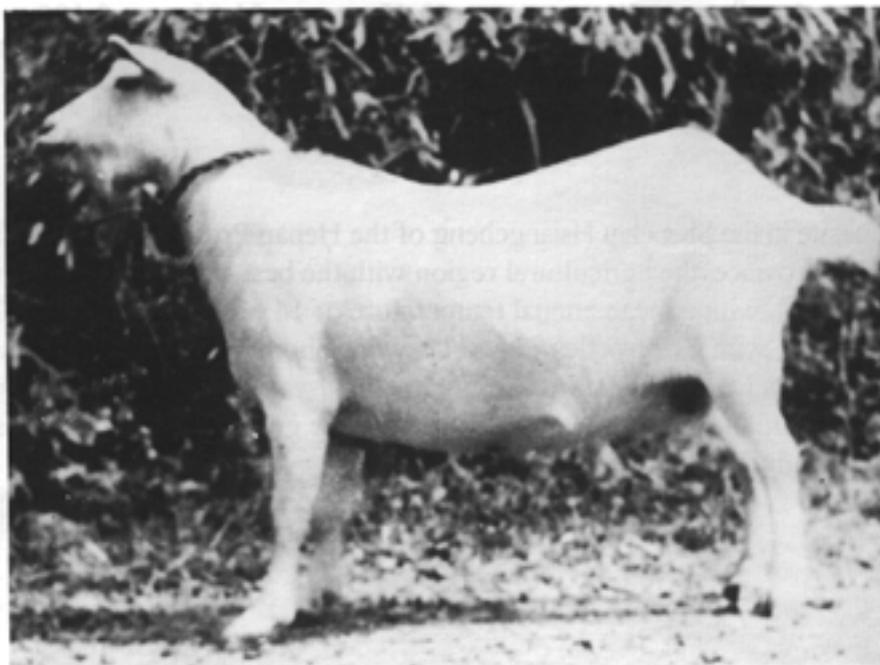
Age	No	Slaughter weight (kg)	Carcass weight (kg)	Visceral fat Wt. (kg)	Dressing percent	Eye muscle area (CM) <sup>2</sup>
12 months	5	28.90	14.20	1.71	54.10	7.81
24 months	17	32.00	14.94	2.30	54.85	8.77
adult	11	45.08	21.95	4.41	60.78	18.24

## 2.3 Longling goat

The Longling originates in the Longling county of the Guangxi Zhuangzu Zizhiqu mountain area, at an altitude of 600-1800m, with a mean annual temperature of 19. 1 'C, ranging from - 5'C to 35'C, rainfall 1300-1800 mm and 323 frost free days.



Weight (kg)	Weight (lb)	Weight (kg)	Weight (lb)
255.0	562.5	255.0	562.5
191.0	420.5	191.0	420.5
143.0	315.0	143.0	315.0
104.0	229.0	104.0	229.0
68.0	150.0	68.0	150.0



*Matou goats*

**Table 5:** *Longling goat body weight (kg)*

Age	No	Male	♂	No	Doe	♀
Birth	10	2.19 (1.5-3.1)		10	2.19 (1.5-3.1)	
2 months	10	7.90 (4.5-12.75)		10	7.0 (4.5-12.75)	
6 months	16	21.06 (13.5-28.5)		10	17.80 (11.5-25.0)	
12 months	11	52.50 (36.5-85.0)		20	27.80 (18.0-35.0)	
adult	11	72.25 (40.5-97)		93	40.29 (21.5-87.0)	

Source: Tan Paishen 1989

**TABLE 6:** *Longling goat meat production (kg. %)*

Age	No	Slaughter weight	Carcass Weight	Visceral fat weight	Dressing percent
8 months	3	23.18	11.00	0.275	48.64
	1	22.00	9.70	0.450	46.13
12 months	5	31.5	15.2	0.300	49.20
	5	40.69	20.70	0.480	46.64
adult	5	40.39	17.47	0.480	46.64
	5	60.45	31.05	3.190	57.83

Source: Tan Paishen 1989

## 2.4 Huai goat

They originate in the Shenchiu Hsiangcheng of the Henan Province and the Huaiyan Fuyang county of the Anhui province, the agricultural region with the best crop production area in China at an altitude of 20-100 in, with a mean annual temperature of 14.6°C, ranging from -17°C to 42°C. Rainfall 740-1000 mm, with 218 frostless days. They have horns, a polled white coat and medium body size. They are hand fed and mature early, with an all-year-round high oestrus reproductive activity and are highly prolific. They are fast growing and have good meat quality and superior hides. The Huai goat is slaughtered before 12 months of age.



*Longling goats*

**Table 7:** *Huai goat body weight (kg)*

Age	Male		Doe	
	No	$\bar{x}$	No	$\bar{x}$
Birth	64	2.57	61	2.47
2 months	77	7.62	77	8.69
6 months	7	21.98	5	16.00
adult	57	22.89 + 11.59	288	25.67 + 5.83

**TABLE 8:***H-uai goat neat production (Kg. %)*

Age	Sex	No	Slaughter Weight (kg)	Carcass Weight (kg)	Dressing percent	Meat Wt. (kg)	
Meat percent							
6-8 months	W	6	17.82±1.85	8.67±0.87	51.54±6.49	7.20±0.68	41.47±5.43
	F	5	15.02±1.21	7.18±0.87	47.87±2.50	5.71±0.40	38.06±1.80
9-11 months	W	20	20.22±4.27	9.73±2.44	48.01±2.07	7.85±1.88	38.68±2.17
	F	3	17.53±2.71	8.08±0.71	48.47±3.77	6.55±0.55	37.70±3.65
12 months	W	12	22.36±3.44	10.78±2.58	47.74±5.54	8.63±2.17	38.23±5.04
	F	6	18.75±2.58	8.61±1.64	43.43±4.76	7.03±1.4	35.44±1.47
	W	3	33.16±11.18	16.88±6.21	50.45±2.03	14.33±5.34	42.92±1.75
adult	F	6	29.91±4.07	12.05±1.76	41.94±4.32	10.66±1.77	35.72±4.281

Source: Liu Zhenzhong 1991

### 3.0 IMPROVEMENT OF LOCAL GOATS

#### 3.1 Cross with Nanjiang yellow goat

The Nanjiang yellow goat is crossed with local goats in the Queshan county of the Henan province.

**Table 9:** *Nanjiang yellow goat x local goats*

Breeds	Sex	Birth		6 months		12 months	
		No	$\bar{x}$ +s	No	$\bar{x}$ +s	No	$\bar{x}$ +s
Queshan local goat	M	30	1.69±0.23	30	12.80±02.72	30	18.20±7.69
	F	30	1.45±0.26	30	10.80±02.52	30	15.2±6.69
F <sub>1</sub>	M	30	1.45±0.26	30	24.12±12.37	30	50.9±4.48
	F	30	2.24±0.38	30	20.56±01.47	30	38.05±823

(P&lt;0.01)

Source: Queshan animal husbandry station - 1988



*Huai goats*

### 3.1.2 The Nanjiang yellow goat is crossed with Youyang county local goats of the Sichuan province

**TABLE 10:**  
Nanjiang yellow goat x Youyang county local goats

Breeds	Sex	Birth		2 months		6 months		12 months	
		No	Body Weight	No	Body Weight	No	Body Weight	No	Body Weight
Youyang local goats	M	50	1.86	17	7.71	31	11.41	41	17.32
	F	36	1.53	24	6.65	31	11.13	71	17.04
F1	M	45	1.99	36	11.76	28	19.78	23	36.60
	F	30	1.84	44	9.94	30	16.91	22	28.38

Source: Liu Liren et al. 1993

The F<sub>1</sub> is better than Youyang local goat breeds, with an increase in the body weight at birth, 2 months, 6 months, 12 months. On male 19.9%, 52.5%, 73.4% and 111.3% respectively; on female 20.3%, 49.5%, 49.2% and 66.55% respectively ( $P < 0.05$ ).

**TABLE 11:**  
Nanjiang goat x Youyang local goat meat production

	Sex	Age	Slaughter weight	Carcass weight	Dressing percent	Meat percent	Meat product. (kg)
Youyang local goats	W	10 months	16.75+1.41	07.03+2.16	41.85+2.16	31.84+2.38	05.35+0.85
F1	W	10 months	29.17+1.61	13.75+1.09	47.14+2.70	36.68+1.99	10.70+0.83

The F<sub>1</sub> is better than Youyang local goat increase in meat weight 100% ( $P < 0.01$ ).

### 3.2 Crossed with Matou goat

In Wenchiao of the Zhejiang Province local goat breeds are crossed with Matou goats.

**TABLE 12:**  
Matoli goat x Wenchiao local goat

Breeds	No	Birth	3 months	6 months	9 months	Adult
Wenchiao local goat	15	2.15	9.65	16.3	20.3	35.1
F1	15	2.44	13.3	23.8	29.8	42.4
F2	15	2.37	12.8	21.3	26.6	38.1

( $P < 0.01$ )

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Its F1 is better than F2. The F1 compared with local goats increase their body weight at 3 months, 6 months, adult, 37.8%, 46.0%, 46.8% and 20.8% respectively. Especially 6-9 months fast growth.

### **3.3 Crossed with Longling goat**

The F1 is better than local breeds. Body weight is increased at 3 months, 8 months, 12 months, in males 13.00%, 25.67% and 17.68% respectively; in females 13.78%, 32.16% and 21.48% ( $P < 0.01$ ).

## **4.0 REFERENCES**

- Jiang Ying, 1986. Some Chinese goat breeds. *World Animal Review* No. 58, p.34-41.
- Jian Ying et al., 1987. Goat production in China. *Proceedings of the 14th International Conference on Goats* (Brazil, 8-13 March).
- Jiang Ying, Tao Yung, 1989. *Chinese Goats* at Shaanxi Science and Technology Publishing House. pp. 159-167, pp. 168-182, pp.321-326.

