

## CHAPTER 3

# The State of Mountain Agriculture in China

### Introduction

Mountains, hills, and plateaux occupy 65% of the total land area of China. Most of the mountain areas are located in the western parts of China; they contain one third of both the population and the area of cultivated land. The mountain region of south-west China covers the Tibetan plateau and the Yun-Gui plateau. It covers an area of about 2.4 million sq.km (approximately 25% of the total land area) and contains about 16% of the total population of the country. Southwest China includes the Sichuan, Yunnan, and Guizhou Provinces, as well as the Xizang (Tibet) Autonomous Region. The climate ranges from subtropical-humid in the south-east to frigid-arid in the north-west. This chapter is concerned with three mountain provinces — Tibet, Yunnan, and Sichuan.

### Yunnan

Yunnan is a mountainous province with an area of 390,000 sq.km of which 28,000 sq. km or 2.8 million hectares are arable land. The most important crops are grain crops (82.5% of the total arable area in 1987) followed by cash crops (11.1%) and other crops (6.4%). Yunnan is bounded on the north-west by the Qinghai-Tibet Plateau and lies close to the sea in the south. It is strongly influenced by dry continental monsoons in winter and by moist maritime monsoons in summer. This, together with its complex terrain, gives Yunnan a special high-altitude monsoon climate, with year-round temperate weather and neither hot summers nor cold winters. Summer and winter barely exist in the greater part of the province, and spring and autumn follow each other, lasting together for 9 to 10 months.

### Sichuan

Sichuan is another mountainous province with river valleys and river basins suitable for the production of food grains. It is one of China's most important grain producing areas. In 1987, 79% of the total area used for crops (8.5% of the national total) was sown with grain crops and the grain output accounted for 9.7% of China's total, ranking first among all the provinces and autonomous regions. The Western Sichuan Plateau is cold and dry, with a long winter but no summer. The high mountain valleys in the southern part of Sichuan show the most striking differences in climate at different elevations.

## Tibet

Tibet lies on the main part of the Qinghai-Tibet Plateau at an average elevation of over 4,000 masl, the 'Roof of the World'. The economy is based on a mix of farming and animal husbandry. In 1987, animal production made up 54.6% of the total value of agricultural production, crop farming 35.4%, forestry 1.5%, and sideline occupations 8.5%. Tibet now has 221,500 ha of cultivated land and 53.3 million ha (1ha=15mu) of grasslands. The Tibetan Plateau extends across four climatic zones from south-east, the subtropical mountain zone to north-west, the high-altitude temperate frigid zone. Generally, it has thin clean air, long hours of sunshine, and intense solar radiation. There is a distinct contrast in winds between winter and spring; the rainy season starts from the south-east in February and spreads gradually to the north-west until it covers the whole of Tibet in June/July

## Cropping Systems

### Yunnan

Different agricultural systems are found in Yunnan, depending on the altitude and temperature. There are three distinct agroecological zones: highland cold areas; midland warm climate areas; and lowland tropical areas. The different crops grown in these areas are shown in Table 3.1. Rice and corn are the main crops grown in the lowland areas and rice, corn, and wheat in the midland areas, whereas potatoes, barley, and buckwheat dominate at higher elevations.

Table 3.1  
Classification of agroecological zones in Yunnan

Zones	Highland cold	Midland warm	Lowland tropical
Elevation (metre)	Above 2300m in the east and 2500m in the west	1300-2300m in the east and 1500-2500m in the west	Below 1300m in the east and 1500m in the west
Maturity system	Almost one season	Almost double season	Double seasons or triple seasons
Main crops	Potato, highland barley, buckwheat, oats, medicinal plants	Rice, corn, wheat, broad beans, rape, cured tobacco, fruit, mulberry for breeding silkworms	Rice, corn, sweet potato, peanut, sugarcane, tea, tropical cash crops, southern medicinal plants
Percentage of total area of Yunnan province	18.4	54.0	27.6

Source: Shi Qing and Hu Ping (1992)

### Sichuan

Table 3.2 shows the vertical distribution of agroecological conditions in Sichuan. Only one crop per year (either barley or spring wheat) can be cultivated in the cool mountain areas above 3,000m, whereas two crops per year can be grown in warm mountain areas, and two to three crops in the warm to hot mountain river valleys.

Rice, wheat, potatoes, and maize are the main crops, accounting for about 89% of the total area sown and 95% of the total grain production. Rice is grown mainly in the Sichuan Basin and is the

Table 3.2  
Characteristics and crops of agroecological zones in Western Sichuan

Region	Altitude	Temperature			Crops	Number of Crops per Year
		Avg.	Min	Max		
Freezing High Mountain	>4700	<-5	<-15	<5	No crops, livestock, or forestry	
Cold High Mountain	4700-4200	-5 to -1	-15 to -11	5-8	No crops or forestry	
Semi-cold High Mountain	4200-3500	-1 to 3	-11 to -6	8-12	No cereal crops, rapeseed and flax can be grown	1
Cold-cool Mountain	3500-3000	3-7	-6 to -3	12-15	Spring barley and spring wheat	1
Cool Mountain	3000-2500	7-10	-2 to 1	15-18	Mainly spring barley and spring wheat, early mature maize	1, or 2 crops in 3 years
Warm Mountain	2500-2000	10-13	2-5	18-21	Winter wheat, mid-late mature maize	2
Hot River Valley (Upper)	2000-1300	13-17	6-10	21-23	Mid-mature rice, late mature maize, and winter wheat	2 to 3
Hot River Valley (Lower)	<1300	18-21	11-14	24-26	Rice (twice a year), sugar, and bananas	3

most important grain crop, accounting for 32% of the total area sown and 51% of the total production of all grain crops in the province. Wheat is mostly produced in the Sichuan Basin, particularly its northern and western parts. Potatoes are grown mostly in the dry hilly land in the basin and maize in the surrounding mountains and the western plateau.

## Tibet

Tibet can be divided into five agroecological zones (Table 3.3). The vast majority of the area is covered by the rangeland found at high altitude. Pastoralism, the raising of yak, sheep, and goats, is the mainstay of the farm economy.

Table 3.3  
Agroecological Characteristics of Tibet, China

Zone	Altitude (masl)		Mean Temp. in Warmest Month (°C)	Days over 0°C	Days over 5°C	Lowest Temp. (°C)	Main Livestock	Main Crops	Farming System
	West and Central	East							
Freezing Cold	> 5000	> 4700	<6	<120	<50	-	Yak, sheep, goat	-	Grazing in the summer
Cold	4500-5000	4200-4700	6-10	120-128	50-120	< -23	Yak, sheep, goat	Scattered barley distribution	Predominantly pastoral
Cool	4000-4500	3800-4200	10-18	180-330	120-250	> -23	Yak, sheep, cow	Spring barley, spring wheat, rape seed, peas	Agro-pastoral system with one crop per year
Temperate	<4000	3000-3300	10-18	180-330	120-250	> -23	Yak, sheep, cattle, pigs	Spring barley, winter wheat, maize, apple, peach	Cropping dominated system with a spring crop and winter crop
Warm and hot		<3000	>18	>330	>250	-	Cow, pigs, goat	Winter wheat, maize, rice, apples, oranges	Mixed agro-pastoral-forestry system. Multiple cropping

Source: Tibet Bureau of Land Management (1992)(with minor modifications)

Agro-pastoralism is practised in the cool and temperate mountain areas at altitudes of 3,000 to 4,500m. Animals like yak, sheep, and goats are raised and crops like barley, wheat, and maize cultivated. In the warmer lower altitude areas (<3000-4000 m), two crops can be harvested and apples, peaches, and plums are common. Growing of vegetables during the spring and summer seasons is becoming popular following the introduction of the use of plastic for greenhouses. Farmers can make more cash income from the cultivation of vegetables than from other agricultural activities like growing food grain or raising livestock.

## Food Grain Crops

### Yunnan

The main staple crops grown in Yunnan are rice, maize, and wheat, and others are broad beans and tubers. Rice is a staple food and accounts for 30% of the total area sown with grain and 49% of the grain production. It is grown widely, but mainly in the south. Maize, the second most widely grown crop after rice, accounts for 28% of the area sown with grain, and 27% of the total grain production. Wheat accounts for 13% of the area sown with grain and 8% of the total production. In 1997 Yunnan produced 5.3 million tonnes of rice, 3.7 million tonnes of maize, and 1.4 million tonnes of wheat from cultivated areas of 939,000 ha, 993,000 ha, and 664,000 ha, respectively (See Table 3.4).

### Sichuan

Sichuan produced 39.2 million tonnes of staple crops in 1987, including 19.8 million tonnes of rice in husks, 6.6 million tonnes of wheat, 5.2 million tonnes of maize, and 5.6 million tonnes of potatoes. By 1997 this had increased to 21.8 million tonnes of rice, 7.2 million tonnes of wheat, and 7.2 million tonnes of maize from areas of 3 million ha, 2.3 million ha, and 1.8 million ha respectively (See Table 3.4).

Table 3.4  
Area and production of cereals in three mountain provinces of China, 1997  
(area in 1000 ha, production in 1000 tones)

Crop	Sichuan		Yunnan		Tibet	
	Area	Production	Area	Production	Area	Production
Rice	3020.1	21823.0	939.2	5361.0	1.0	5.0
Wheat	2364.9	7203.0	664.3	1467.0	51.0	249.0
Maize	1762.1	7169.0	993.8	3692.0	3.0	13.0

- Sources: 1 Statistical Yearbook of Sichuan 1997  
2 Statistical Yearbook of Yunnan 1997  
3 Statistical Yearbook of Tibet 1997

### Tibet

Grain production is the main crop farming activity in Tibet. In 1987, the area under food grain crops (mostly highland barley and wheat) accounted for 91% of the total, cash crops for 4%, and other crops for 5%. Highland barley accounted for 70% of the total area sown with grain crops and 75% of the total grain production and wheat for 20% of the total area sown with grain crops and 23% of the total production. Rape is the main oil crop and grown extensively. Tibet's major farm products in 1987 included 467,000 tonnes of grain crops (including 107,000 tonnes of wheat); 12,000 tonnes of rape seed; 544 tonnes of tea; and 4,687 tonnes of fruit, including 3,784 tonnes of apples. In 1997 the total food grain production included 5,000 tonnes of rice; 249,000

tonnes of wheat; and 13,000 tonnes of maize; from areas of 1000 ha, 51,000 ha and 3,000 ha for rice, wheat, and maize, respectively (See Table 3.4).

### Economic analysis

Table 3.5 shows the average annual growth rate between 1983 and 1997 in the area, total production and yield of rice, wheat, and maize in the three regions.

Table 3.5  
Average annual growth rates in the area, production and yield of various food grain crops in the mountainous provinces of China (%)

Province	Rice			Wheat			Maize		
	Area (ha)	Total Production	Yield (per ha)	Area (ha)	Total Production	Yield (per ha)	Area (ha)	Total Production	Yield (per ha)
Sichuan (1983-97)	-0.1	1.4	1.5	0.3	1.4	0.0	0.1	1.4	1.5
Yunnan (1983-97)	-0.6	1.4	1.9	1.4	0.5	2.4	0.0	1.8	1.8
Tibet (1983-97)	2.1	0.5	-1.9	0.5	0.6	0.2	1.6	-0.2	-1.3

In both Sichuan and Yunnan, the area under both rice crops and maize remained constant or declined slightly between 1983 and 1997, but the yield increased significantly so that there was a net increase in the total production of both crops. In Yunnan, both the area under wheat and the growth rate increased significantly. In Tibet, the area under rice and maize increased considerably but the yield decreased significantly, resulting in a minimal increase and slight drop, respectively, in the total production. The area and growth rate for wheat increased slightly.

### Horticultural and Cash Crops

The mountainous provinces of China have a range of agro-climatic conditions suitable for growing a large variety of temperate to subtropical fruits such as apples, pears, peaches, plums, apricots, cherries, grapes, almonds, walnuts, pecan nuts, citrus fruit, litchis, guava, *amla*, kiwi fruit, and strawberries. The area of land allocated to total production of, and yields of various fruit and other cash crops is shown in Table 3.6.

#### Yunnan

The major cash crops in Yunnan are rapeseed, sugar cane, cured tobacco, and tea. Yunnan is one of China's leading tea producers and is known for its *puer*, *dianhong*, *dianlu*, *tuo*, and *quizibing teas*, all of which sell well on the international market because of their delicate fragrance and delightful aroma, richness in caffeine and tea tannins, and sugar content. Oil-bearing crops account for 74% of both the area and the output of cash crops. Tobacco plantations cover 174,930 hectares; the area and output rank second in the country. The area and the output of sugar cane plantations in the province rank third in the country.

The total output of these cash crops in 1997 was 68,000 tonnes of tea; 188,000 tonnes of oil crops; 901,000 tonnes of tobacco; and 11.4 million tonnes of sugar, from 164,000 ha, 149,000 ha, 504,000 ha, and 202,000 ha, respectively (see Table 3.6).

Table 3.6  
Area and production of cash crops and horticultural crops in three mountain provinces of China, 1997 (Area in 1000 ha, Production in 1000 tonnes)

	Sichuan		Yunnan		Tibet	
	Area	Production	Area	Production	Area	Production
Potato	584.6	162.5	226.4	651.0	0.8	1.0
Cotton	154.4	1233.3	1.8	0.6	18.3	35.1
Tea	101.0	59.4	164.5	68.2	0.1	0.1
Oil crop	1024.1	1568.2	148.5	188.1		
Sugar cane	34.1	1726.7	202.6	11434.0		
Tobacco	147.3	261.7	503.9	901.9		
Silk(1993)	148.7	185.7	7.0	3.2		
Apple	34.5	138.8	47.2	65.8	1.4	3.0
Orange	202.9	1443.1	15.7	62.4	962.0	
Pears	32.6	209.0	29.0	136.2		
Vegetables	32.6		144.9			

Sources: 1. Statistical Yearbook of Sichuan 1997  
2. Statistical Yearbook of Yunnan 1997  
3. Statistical Yearbook of Tibet 1997

Less important cash crops include potatoes and other vegetables, various fruits, silk, and cotton. In 1996, 783,000 tonnes of potatoes were produced on 306,000 ha of land. In 1997, 145,000 ha were planted with vegetables other than potatoes and 66,000 tonnes of apples, 62,000 tonnes of oranges, and 136,000 tonnes of pears were produced from 47,000 ha, 16,000 ha and 29,000 ha of orchards respectively. In 1993, 3,210 tonnes of silk were produced from 7,000 ha and, in 1997, 608 tonnes of cotton from 1,800 ha (See Table 3.6).

### Sichuan

In Sichuan, the area sown with cash crops is only 13% of the area sown with grain crops. The major cash crops are rape, bast fibre crops, cotton, peanuts, and sugarcane. Rape accounts for 54.3% of the area sown with cash crops and for 83% of the area of oil-bearing crops. The sown area ranks second and the yield (productivity) ranks first in China. Rape is mainly grown on flat land and in the hilly areas of the Sichuan Basin. Cotton is grown mostly on the hilly platforms in the central and northern parts of the basin. Sugar cane is grown mainly in the areas along the banks of the large and medium-sized rivers in the southern and central parts of the basin, especially along the middle and lower reaches of the Tuojiang River.

In 1997, the production of fruit in Sichuan was 139,000 tonnes of apples, 1.4 million tonnes of oranges, and 209,000 tonnes of pears. Areas cultivated with these fruit crops in the same year were 35,000 ha, 202,000 ha, and 33,000 ha respectively for apples, oranges, and pears. The area cultivated with vegetables in Sichuan in 1997 was 33,000 ha. Total output of cash crops in 1997 in Sichuan was 1.2 million tonnes of cotton, 59,000 tonnes of tea, 1.6 million tonnes of oil crops, 1.7 million tonnes of sugar, and 261,000 tonnes of tobacco. Areas cultivated with these crops in the same year were 154,000 ha of cotton, 101,000 ha of tea, 1 million ha of oil crops, 34,000 ha of sugar cane, and 147,000 ha of tobacco. Silk production and area in 1993 in Sichuan were 186,000 tonnes and 149,000 ha, respectively (see Table 3.6).

Four counties in Sichuan (Xiaolin, Maoxian, Yanyuan, and Yuexi) have been selected for high quality apple production for export and for the domestic market, and, in these counties, apple production has now become the main source of income. In 1996, the total apple growing area in the three prefectures Ganzi, Aba, and Liangshan was 24,667 ha and the total output reached 82,327 tonnes. About 500 households achieved earnings of more than US\$ 1,200 each per year.

Liangshan Prefecture is the only prefecture in Western Sichuan with a comparative advantage for orange growing. In 1981, a new variety, the Navel orange, was introduced in the prefecture and commercial production of oranges became very popular. Navel oranges command a price one and a half times higher than that of normal varieties and orange growers changed from old varieties of oranges and began to cultivate Navel oranges. The sweet and seedless oranges grown in the prefecture mature early and have a high quality, comparable to that of those produced in the Sichuan Basin, one of the biggest citrus production areas in China. By the end of 1996, the total area under orange cultivation in the prefecture had reached 7,133 ha and the total output 3,567 tonnes.

Until the early 1980s, off-season vegetables were not grown on a commercial scale in western Sichuan because of lack of transportation facilities and markets. Two factors then stimulated development of vegetable cultivation on a large scale: the improvement of transportation, including highways and railways; and an increased demand for vegetables in the big cities, especially in northern China. Now production of off-seasonal vegetables in the hills and mountains of Sichuan is growing each year, providing productive employment and cash income to farm families. Two kinds of off-season vegetables are cultivated in the region: tropical vegetables cultivated in the warm areas in winter and temperate vegetables cultivated in the high altitude areas in summer. Tropical vegetables include tomatoes, sweet pepper, eggplant, garlic bolt, onions, cucumber, pumpkin, and balsam pear; temperate vegetables include Chinese cabbage, cabbage, cauliflower, radish, and tomatoes.

### *Tibet*

In 1996 in Tibet, 3,000 tonnes of potatoes were produced from 1,300 ha of planted area. In 1997, 3,000 tonnes of apples were produced from 1,400 ha of land, 35,000 tonnes of oil crops from 18,000 ha of land, and 123 tonnes of tea from 100 ha of land. An additional 962,000 ha of land was cultivated with other vegetables. As a result of greenhouse technology, growing vegetables has been a practice among local farmers, especially in villages close to Lhasa. The growing demand for green vegetables among the urban and semi-urban population in Tibet has provided local farmers with an opportunity to generate cash income through cultivation of vegetables by themselves or renting out their land to migrants from other parts of China.

### *Economic analysis*

Table 3.7 shows the average annual growth rate between 1983 and 1996 in the area, total production, and yield of apples, oranges, and pears in the three regions. Overall there was a considerable increase in the total production of these three fruits in the region. Yunnan showed the most growth per annum overall in both the area allocated to and the total production of apples (4.9% and 4.4%) as well as the area allocated to and the total production of citrus fruit (4.4% and

Table 3.7  
Average annual growth rates in the area, production and yield of various selected fruits in the mountainous provinces of China (%)

Provincee	Apples			Oranges			Pears		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
Sichuan (1983-97)	1.5	1.7	0.3	1.3	4.7	3.4	2.6	1.6	-1.0
Yunnan (1983-97)	4.9	4.4	-0.6	4.4	5.3	0.9	1.3	-0.1	-1.4
Tibet (1984-97)	1.1	2.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0

5.3%). In both Sichuan and Tibet, the annual growth rate in the area of apple orchards was more than one per cent. Sichuan showed the greatest rate of increase in area of pear orchards at 2.3% per annum. At the same time there was little or negative growth in yield except for apples in Tibet.

Table 3.8 shows the average annual growth rate between 1983 and 1997 in the area, total production, and yield of various other cash crops in the three regions. The area under tobacco grew considerably in both Sichuan and Yunnan with annual growth rates of 2.3% and 5.3%, respectively. In Tibet, both the area under potatoes and oil crops and the growth rates of both crops increased resulting in a more than 4% average annual increase in production of both. In contrast, there was little increase in either of these crops in Sichuan and Yunnan. Among other cash crops, the area contributing to silk production grew significantly in Sichuan, as did the area of both tea and sugar plantations in Yunnan.

Table 3.8  
Average annual growth rates in the area, production and yield of various cash crops in the mountainous provinces of China (%)

Province	Potatoes			Cotton			Sugar			Silk		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
Sichuan (1983-96)	0.5	1.2	1.4	0.7	0.7	0.0	-1.2	-2.9	-1.6	5.6	2.6	-2.9
Yunnan (1983-96)	0.7	1.7	1.0	-2.2	-1.0	2.8	3.8	5.0	1.1	-0.3	0.6	1.0
Tibet (1983-96)	2.7	4.2	1.5									

## Livestock

As in any mountain area, livestock are an integral part of mountain farming systems in China. Cattle<sup>1</sup> (including cows) are commonly raised. Horses are commonly used as draught power in transporting agricultural products using carts with wooden wheels. Male buffaloes are used for draught power for ploughing agricultural land. Pigs are very commonly raised and are popular among Chinese farmers. Sheep and goats are also common.

<sup>1</sup>The author has used the term cattle here to mean strictly cows and bulls and not all domesticated quadrupeds, or all species in the *Bos* species.

## Yunnan

With some 6.7 million hectares of mountainous and hilly areas under grass, long hours of sunshine and abundant rainfall, Yunnan enjoys favourable conditions for livestock breeding. It ranks third nationally in the number of large livestock found (Table 3.9). Cattle (cows and bulls) are reared widely in the province. The province ranks second nationally in the number of cattle kept. The horse is a vital means of transport in the mountain areas of central and northern Yunnan and the Lijiang horse is one of the best breeds in China. Pig raising is the principal sideline occupation in rural areas. In 1997 Yunnan had 8 million cattle, 2.9 million buffaloes, 23.3 million pigs, 6.5 million goats, 1.2 million sheep, 570,000 mules, 932,000 horses, and 320,000 donkeys.

## Sichuan

In Sichuan, livestock raising is common among farming communities. Pig raising and buffalo husbandry are concentrated in the basin area; sheep, horses, donkeys, and mules are raised mainly in western Sichuan; oxen are raised mostly in the surrounding mountain areas and in the hilly areas of the basin; and goats are distributed throughout the surrounding mountain areas and the western part of the province. In 1997 Sichuan had 11.3 million cattle, 3 million buffaloes, 70.8 million pigs, 9.7 million goats, 3.6 million sheep, 67,000 mules, 630,000 horses, and 65,000 donkeys.

## Tibet

Tibet is one of China's major pastoral areas; its grasslands make up 18.7% of the nation's total. The northern Tibetan plateau is the principal pastoral area, and, there, yak and sheep are the main animals. Local oxen, mule, donkey, and pig breeds are raised in the valley areas in southern Tibet. Tibetan yaks, known as 'ships of the highlands', are highly adaptable to cold weather and capable of carrying heavy loads; and they are the main draught and pack animals. Milk, butter, and beef/yak meat are staple foods for the Tibetan herdsmen.

At the end of 1987 Tibet had 5.6 million large animals (5.2 million oxen, 308,000 horses, and 122,000 donkeys), 5.8 million goats, 11.7 million sheep, and 156,000 pigs. The province produced 88,000 tonnes of meat, including 44,000 tonnes of mutton and 41,000 tonnes of beef; 185,000 tonnes of milk products, including 141,000 tonnes of milk; 8,900 tonnes of sheep's wool, 960 tonnes of goat's wool, and 3.7 million tonnes of fine wool. In 1997 Tibet had 5.1

Table 3.9  
Livestock population 1997, China (population in 10,000)

	Sichuan	Yunnan	Tibet
Cattle	1133.3	802.2	510.0
Cow	817.8	495.9	
Buffalo	296.9	290.3	
Pig	7081.6	2334.4	22.6
Goat	971.7	653.8	583.2
Sheep	363.7	122.8	1109.8
Mule	6.7	57.0	1.0
Horse	62.9	93.2	36.2
Donkey	6.5	32.1	13.6

- Sources: 1. Statistical Yearbook of Sichuan 1997  
2. Statistical Yearbook of Yunnan 1997  
3. Statistical Yearbook of Tibet 1997

million cattle, 230,000 pigs, 5.8 million goats, 11.1 million sheep, 10,000 mules, 932,000 horses and 140,000 donkeys.

### *Economic analysis*

Table 3.10 shows the average annual growth rate between 1986 and 1997 in the total number of various types of livestock in the three regions. The goat population appears to have increased more than the populations of other animals, such as cattle, buffalo, and sheep, particularly in Sichuan. Although the sheep population increased slightly in Sichuan and Tibet, it decreased significantly in Yunnan. The increase in cattle was slightly higher in Sichuan and of buffalo in Yunnan (17% in total over 11 years compared with the other provinces). In Tibet the main change was an increase in the number of pigs.

Table 3.10  
Average annual growth rates in livestock populations in the mountainous provinces of China (%)

Province	Cattle	Buffaloes	Horses	Donkeys	Mules	Pigs	Goats	Sheep
Sichuan (1986-97)	0.7	0.1	1.6	1.7	4.8	0.7	2.0	0.4
Yunnan (1986-97)	0.2	0.5	0.0	1.7	2.4	1.3	0.4	4.5
Tibet (1986-97)	0.2	0.0	1.0	1.0	0.1	1.7	0.2	0.1