

ASSESSMENT OF THE MEAT GOAT INDUSTRY AND

INTRODUCTION

Goats are the most popular animals in the world, and goat meat and milk consumption is most widely distributed in the world. Goats are popular with small holders because of their efficient conversion of feed into edible and high-quality meat, milk and hide. Goats are also used as holistic tools for land vegetation management and fire fuel load control. With proper grazing management, goats can eliminate noxious weeds, restore native grasses and prevent fires through fuel load reduction.

The purpose of this paper is to assess the current meat goat status in the world and meat goat industry in the United States to determine its future outlook. The data presented in this paper is drawn from five different sources—the 2000 population Census, the USDA 2002 Census of Agriculture, the USDA National Agricultural Statistic Service, the USDA Foreign Agricultural Service and United Nations Food and Agricultural Organization Statistic (FAOSTAT). In the United States, meat goat production has been gaining popularity in recent years particularly because of a growing population of ethnic and faith-based groups who consume goat meat. The national estimates, based on import data only, indicate that the United States is more than 750,000 head deficient in meeting current demands for goat meat.

Ethnic populations and faith-based consumers in the United States have increased more than 100% during the last decade, and this change may provide a great opportunity for meat goat production. A small herd of meat goats can be produced on 10 to 15 acres of pastureland and can fit into more than 90% of the U.S.'s farmsteads and enhance small farm diversity and profitability. Goat meat is also lean and healthier than other meats and can play a major role in the diet of health-conscious people.

GLOBAL GOAT STATUS

According to FAOSTAT, 2005, world goat population was almost 800 million goats, up 165% from 485 million in 1985. World goat population has been increasing about 8% to 10% per year in last twenty years (Figure 1).

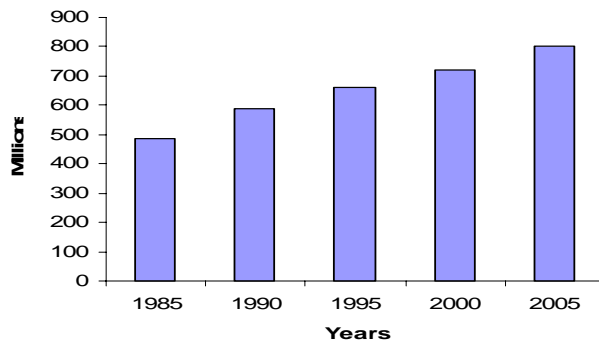


Figure 1. Goat population changes in the world.
Source: FAOSTAT, 2005.

Most of the goats in the world are produced in Asia, followed by Africa. The top three producers of goats are China, India and Pakistan, all located in Asia (Table 1). Although Australia and New Zealand are two major exporters of goats, they are not major producers of goats.

Table 1. Top countries in goat population

	Goat Numbers	% of total
World	807,600,000	100
China	195,758,954	24.2
India	120,000,000	15.0
Pakistan	56,700,000	7.0
Bangladesh	36,900,000	4.6
Nigeria	28,000,000	3.5
Iran	26,500,000	3.3
Indonesia	13,182,100	1.6
Kenya	12,600,000	1.6
Tanzania	12,550,000	1.6
Mongolia	12,238,000	1.5
Mali	12,050,000	1.5
Others		34.6
U.S.	2,522,500	
Australia	400,000	
New Zealand	155,000	

Source: FAOSTAT, 2005.

According to FAOSTAT, total world meat inventory in 2005 was 265.1 million MT (metric ton). In the world, most consumed meat is pork followed by chicken, beef, lamb, turkey and goat (Figure 2). In the United States, total meat inventory in 2005 was 39.6 million MT. Chicken is most consumed meat (40%) followed by beef (29%) and pork (24%). Goat meat represents only 2% of global meat inventory. However, it must be noted that goat meat may not be traded as other major meats and it is mostly consumed locally. Goat meat inventory for United States did not exist in 2005.



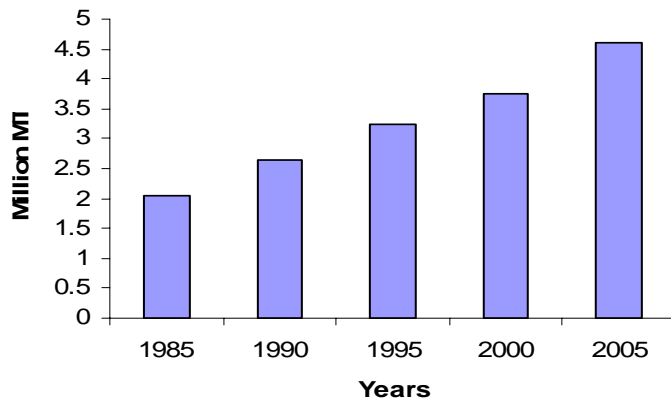


Table 3. Top exporters of goat meat

	Goat Meat (MT)	%
Australia	16,431	50
China	3,999	12.1
France	2,628	8
New Zealand	1,198	3.6
Industrialized Countries	21,194	64
World	33,087	

Source: FAOSTAT, 2005.

Total goat meat imported in the world is 52,477 MT. Top importers of goat meat are United States with 18% of the market, followed by China, with 10.9% and Italy, Canada and France each about 2% of the market (Table 4).

Table 4. Top importers of goat meat

	Goat Meat (MT)	%
U.S.	9,551	18.2
China	5,709	10.9
Italy	1,451	2.8
Canada	1,374	2.6
France	1,151	2.2
Industrialized Countries	16,097	30.7
World	52,477	

Source: FAOSTAT, 2005.

GOAT INDUSTRY IN THE UNITED STATES

Changes in Farms and Farming Acreage

According to the USDA Census (2002), the total number of U.S. farms and farming area has decreased; however, the average number of acres per farm increased slightly between 1997 and 2002 (Table 5).

Table 5. Changes in farm status from 1997 to 2004 in the United States

	1997	2002	2004
Number of Farms	2,215,876	2,128,982	2,113,170
Area in Farming (ac.)	954,752,502	938,279,056	936,600,000
Avg. Farm Size (ac.)	431	441	443

According to the 2004 USDA-NASS sample data, USDA-NASS, the average number of acres per farm was 443 acres. The majority of farms (84%) in the United States are considered small farms. Almost 35% of farms in the United States are less than 50 acres, more than 50% are below 100 acres, and almost 84% are less than 500 acres in size (Figure 4, Table 6).

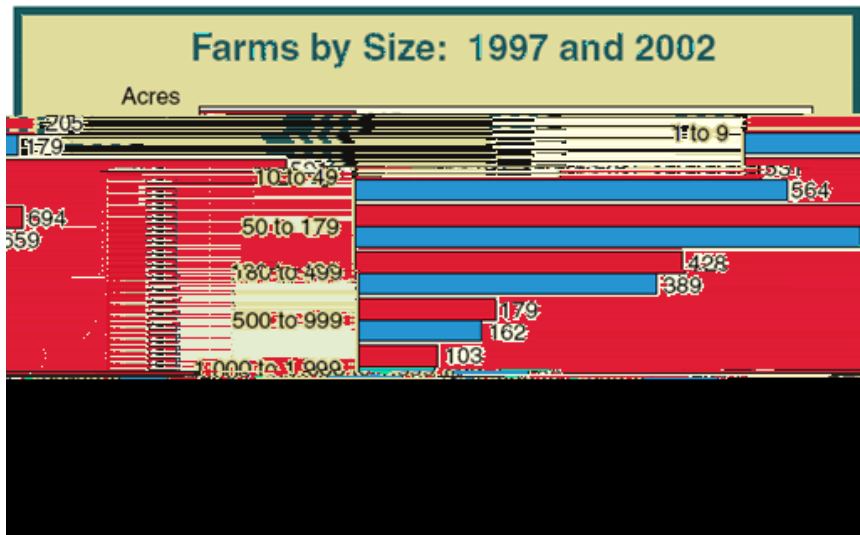


Figure 4. U.S. farm sizes and numbers

Source: http://www.nass.usda.gov/Census_of_Agriculture/2002/Quick_Facts/farms.asp

Table 6. The U.S. farm profile by size (acres) and number

Farm Size Acres	Farm Numbers	%	Accumulated %
1-9	179,346	8.4	8.4
10-49	563,772	26.5	34.9
50-99	342,551	16.1	51
100-179	316,154	14.8	65.8
180-499	388,617	18.3	84
500-999	161,552	7.6	91.7
1000-1,999	99,020	4.6	96.3
2000 or more	77,970	3.7	100

Source: USDA Census (2002).

According to the 2002 USDA Census, while the number of acres in total woodland, pastureland and rangeland in the United States decreased from 1997 to 2002, the number of farms claiming pastureland and rangeland increased (Table 7). This could be an indication that more numbers of smaller farms are practicing and utilizing grazing and browsing animals like cattle and goats.

Table 7. Number of farms and acreage in woodlands and pasturelands in the United States

	1997	2002	% of 1997
Farms w/woodlands	858,438	818,105	95.3
Total woodlands (ac.)	76,854,833	75,878,213	98.7
Farms w/woodlands pastured	402,490	379,795	94.4
Woodlands pastured (ac.)	31,078,705	31,128,955	100.2
Farms w/pasturelands/rangelands	645,548	850,913	131.8
Pasture/rangelands (ac.)	398,232,125	395,278,829	99.2
Farms w/all types pastureland	1,429,638	1,384,798	96.8
All types pastureland (ac.)	495,699,214	486,965,589	98.2

Source: USDA Census, 2002.

Status of Goat Farms in the United States

According to the USDA Census (2002), the number of goat farms increased more than 19% with over a 12% increase in the goat population from 1997 to 2002; however, the number of farms selling goats increased by over 45%, and goat sales were up by more than 55% (Table 8). USDA-NASS (2006)

sample data indicated that goat numbers are up 16% from the 2002 USDA Census and over 30% up from the 1997 USDA Census.

Table 8. Changes in all goat farming from 1997 to 2002 in the United States

	1997	2002	2006*	% of 1997
Number of farms	76,543	91,462		119.5
Number of goats	2,251,613	2,530,466	2,934,000	130.3*
Number of farms selling goats	29,937	43,495		145.3
Number of goats sold	843,773	1,314,310		155.8

* Reflects the 2006 USDA-NASS sample data.

It is notable that during the same period the number of Angora goat farms declined with over a 63% decrease in the Angora goat population. The number of farms selling Angora goats declined with over 61% fewer goats sold (Table 9) and farms selling mohair declined more than 36% with over 54% less mohair sold (Table 10). The number of Angora goats declined another 11% from 2002 to 2006 as indicated by sample data.

Table 9. Changes in Angora goat farming from 1997 to 2006 in the United States

	1997	2002	2006*	% of 1997
Number of farms	5,485	5,075		92.5
Number of goats	829,263	300,753	238,000	28.7*
Number of farm selling goats	1,883	1,662		88.3
Number of goats sold	238,674	91,037		38.1

* Reflects USDA-NASS sample data.

Table 10. Changes in mohair production from 1997 to 2002 in the United States

	1997	2002	% of 1997
Number of farms selling mohair	3,826	2,434	63.62
Pounds of mohair sold	5,287,312	2,416,376	45.70

Source: USDA Census (2002).

The number of U.S. dairy goat farms increased by 45% and dairy goat numbers increased by 52% from 1997 to 2002. The number of farms selling them increased by 71%; the number of goats sold increased 57% (Table 11). According to the 2006 USDA-NASS sample data, dairy goats gained another 10% in numbers from the 2002 USDA-Census.

Table 11. Changes in dairy goat industry from 1997 to 2006 in the United States

	1997	2002	2006*	% of 1997
Number of farms	15,451	22,389		145
Number of goats	190,588	290,789	296,000	155.3*
Number of farm selling goats	5,163	8,850		171.4
Number of Dairy goats sold	72,307	113,654		157.2

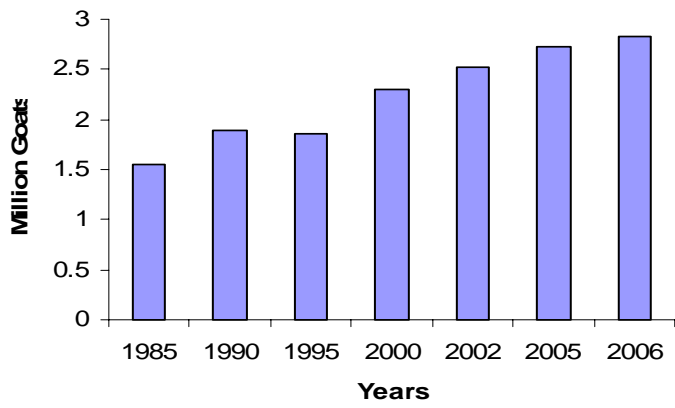


Figure 5. U.S. goat population changes from 1985 to 2006.

Table 13. Goat industry prof

Table 14. U.S. top ten states for numbers of all goats in 2006*

	All Goats	% of Total	% of 2002
U.S.	2,934,000	100	116
Texas	1,300,000	44.3	109
California	133,000	4.5	129
Tennessee	123,600	4.2	108
Georgia	98,000	3.3	141
Oklahoma	90,000	3.1	109
Missouri	81,000	2.8	166
Kentucky	79,300	2.7	116
North Carolina	75,000	2.6	111
Florida	73,000	2.5	183
Alabama	50,000	1.7	99

* Reflects USDA-NASS sample data.

Table 15. U.S. top ten states for numbers of meat goats in 2006*

	Meat Goats	% of Total	% of 2002
U.S.	2,400,000	100	124
Texas	1,090,000	45.4	116
Tennessee	117,000	4.9	109
California	100,000	4.2	163
Georgia	95,000	3.9	144
Oklahoma	81,000	3.4	110
Kentucky	74,000	3.1	120
North Carolina	70,000	2.9	119
Missouri	68,500	2.8	183
Florida	65,000	2.7	180
Alabama	48,000	2.0	101

* Reflects USDA-NASS sample data.

More than 57% of dairy goats are produced in the top ten states in number of dairy goats (Table 16). Most of the dairy goat producing states are located in the Midwest (Wisconsin, Iowa, Ohio, Michigan and Indiana), the Northeast (New York, Pennsylvania, and New England), and the South (Texas). Wisconsin, with a 27% increase in number of dairy goats from the 2002 USDA Census, leads the nation in the number of dairy goats, the position held by California in 2002. With more than a 200% increase in dairy goat numbers, Iowa surpassed Ohio, New York, Pennsylvania, Michigan and Missouri, claiming 4th place in the nation in the number of dairy goats. Although the state of Missouri showed an increase in the number of meat goats, the

Table 16. U.S. top ten states for numbers of dairy goats in 2006*

	Dairy Goats	% of Total	% of 2002
U.S.	296,000	100	102

Goat Herd Size

An average goat herd size in the United States is highest for fiber goats followed by meat and then dairy goats (Table 18). Fiber goats are mainly concentrated in large herds and in the hot and dry climates of the South and the Southwest. Dairy goats are mainly located in the cool

indicated by Figures 6 and 7, there is a sharp increase in goat meat imports and dollars spent for goat meat. This trend will most probably continue unless there is an increase in domestic production.

Table 19. U.S. Goat meat imports (MT) and its value (\$1000)

	1999	2003	2006*	% of 1999
Goat meat	3,360	8,462	11,070	329
Dollar Value	7,850	21,484	41,816	535
\$/lb	1.06	1.15	1.72	162

* Reflects USDA-NASS sample data.

Australia has been experiencing enormous growth in export of its goat meat (Figure 6), and this has pressured Australian exporters to market their bush or feral goats to fulfill their existing contracts.

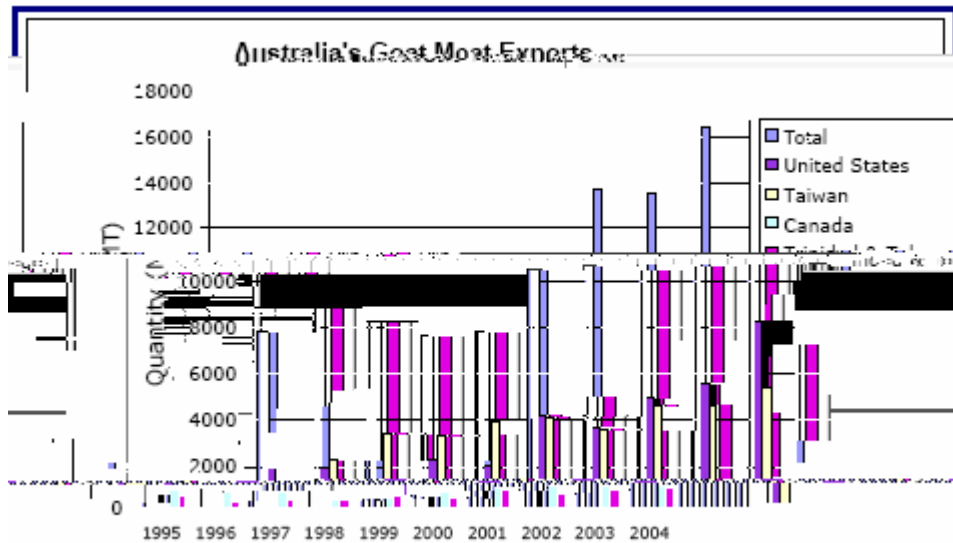


Figure 6. Australia exports to all destination of the world.

Source: USDA Foreign Agricultural Service, GAIN Report.

According to the 2006 USDA-FAS, the United States imported 5 and 18 MT of goat meat from Mexico in 2005 and 2006, respectively that are calculated in the total import (Figure 7).

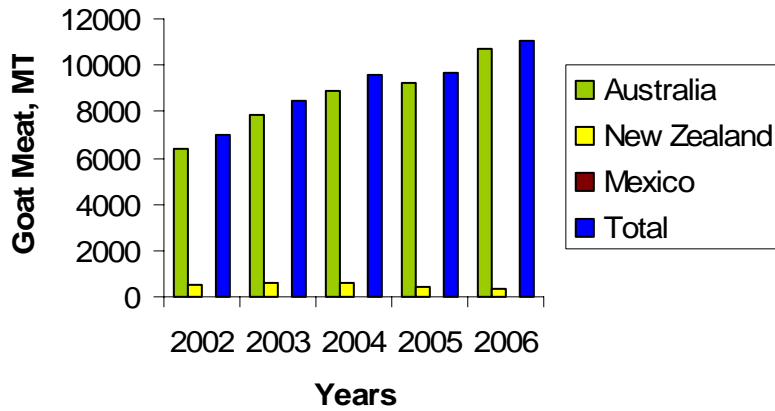


Figure 7. Changes in the goat meat imported to the U.S. from 2002 to 2006.

The United States continues to pay higher prices for imported goat meat. Imported goat meat prices increased sharply from 2003 to 2006. According to the USDA-FAS, price paid per pound of imported goat meat in 2006 was \$1.72, up 50% from \$1.15 per pound in 2003 and up 62% from \$1.06 per pound in 1999 (Table 19 and Figure 8).

Figure 8. \$ Value of goat meat imported to the United States

Source: www.fas.usda.gov/ustrade

According to the 2006 USDA-FAS, the United States

Table 20. U.S. live goats and goat meat export(MT)

	2002	2003	2004	2005	2006
Live goats	26,081	29,579	3,775	3,976	11,075
Goat meat (MT)	61.5	54.8	84.4	883.2	469.0

Source: www.fas.usda.gov/ustrade

Goats Slaughtered in Inspected Plants

The number of all goats slaughtered at the state and federally-inspected plants in 2006 were nearly 750,000, up 2.5 folds from 1990. Meat goat slaughter numbers have shown a solid increase since 1990 (Table 21 and Figure 9), and they likely will continue to increase due to trends in population growth that promote meat goat production. The meat goat industry in general is in its infancy; therefore, many on-farm slaughters are probably not reported. It can be conjectured that for every goat reported, there are at least four (estimated later in this report) that are not reported. Also it must be noted that 2006 was the first year that goat slaughtered in the state-inspected units were reported.

Table 21. Goats (numbers) slaughtered at the inspected plants in the United States

	1990	2006	% of 1990	% of 1990
U.S. Federal	229,600	581,743	254	
Total Inspected		749,300*		326

^a First reported year for non Federally inspected units.

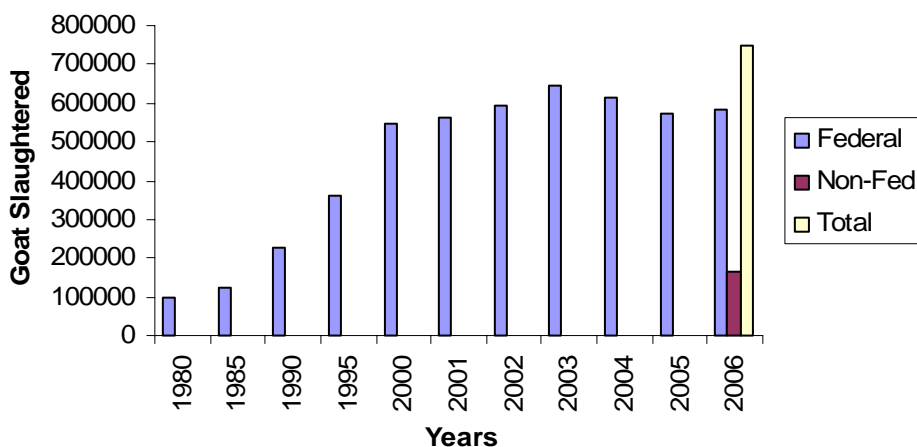


Figure 9. Goats slaughtered in federally and state-inspected plants in the United States

Goat Consumption Based on Import and Slaughter Data

Goat consumption in the United States can be estimated based on imported goat meat and slaughter data. Goats consumed in the United States are nearly 1.5 million heads of goats annually. This represents an increase of 150% from 2002 and over 320% increase from 1999. Total goats imported were estimated based on total goat meat import and an average carcass weight of 32.5 pounds (65 pounds of live weight is average slaughter weight reported by USDA). Goat consumption in the United States has increased steadily since 1999 and will likely continue to increase as the demand is growing (Figure 10). The sharp increase in the number of slaughtered goats may be a reflection of the reported data from the state-inspected plants initiated in 2006.

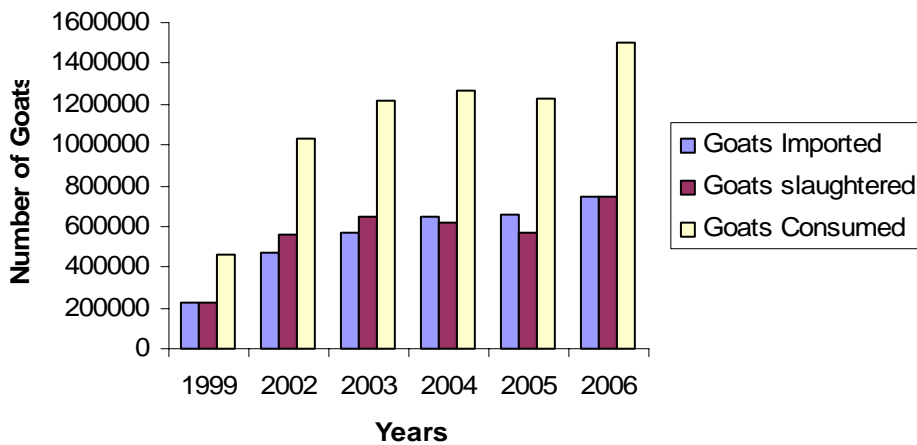


Figure 10. Changes in goat consumption in the United States

FACTORS THAT MAY AFFECT GOAT MEAT CONSUMPTION

U.S. Population Changes

The major contributing factor for the rise in interest in goat meat production in the United States is the shift in demographics. According to the 2000 Population Census, the foreign-born population in the United States is up 57% since 1990, from 19.8 million to 31.1 million and continues to increase on an upward trend that started in 1970. As of 2000, 51.7% of the foreign-born population was from Latin America and 26.4% from Asia. It is projected that the U.S. Hispanic population is rising at a rapid rate and will reach over 100 million or 25% of the population in the year 2050 (Table 22). This group of immigrants has a strong preference for goat meat and will add to the opportunity for this sector of agriculture to grow.

Table 22. Projections of total U.S. population changes by ethnic groups from 2000 to 2050

	2000	%	2005	%	2050	%
Total	281,421,906		295,507,000		419,854,000	
Asian	10,242,998	3.6	12,419,000	4.2	33,430,000	7.9
Black	34,658,190	12.3	38,056,000	12.9	61,361,000	14.6
Hispanic	35,305,818	12.5	41,801,000	14.1	102,560,000	24.4

Source: U.S. Population Census (2000)

Because of differences in growth rates, regional shares of the population have shifted considerably in recent decades. Between 1950 and 2000, the South's share of the population increased from 31% to 36%, in the West it increased from 13% to 22% and for the Midwest and Northeast it dropped (Table 23).

Table 23. Total U.S. population changes and changes by region from 1990 to 2000

	1990	2000	2005*	% Change		% of total		
				1990-2000	2000-2005	1990	2000	2005
U.S. total	248.7	281.4	293.6	13.2	4.3	100	100	100
Northeast	50.8	53.6	54.6	5.5	2.0	27	19	19
Midwest	59.7	64.4	66.0	7.9	2.4	29	23	23
South	85.4	100.2	107.5	17.3	7.3	31	36	37
West	52.8	63.2	68.3	19.7	8.1	13	22	23

* Estimate

Most populous states in the nation were California with more than 36.1 million people, followed by Texas and New York with more than 22.9 and 19.3 million population, respectively. Among the top ten counties in population growth, seven were in the South and four of them were in Georgia, according to the U.S. Census Bureau (Population Distribution in 2005) report.

Hispanic Population Changes in the United States

According to the (2005), Hispanics represent 42.7 million people or 14% of the U.S. population, up from 13% in 2000. This group is the second fastest growing group (after Asians) in the United States from 2000 to 2005. Table 24 indicates the changes of Hispanic population in different regions of the United States. In 2000, the Hispanic population was mostly concentrated in the West and the South.

Table 24. U.S. Hispanic population changes in the United States and by region

	1990	% of total	2000	% of total
U.S.	22,354,056	9.0	35,305,818	12.5
Northeast	3,754,389	7.4	5,254,087	9.8
Midwest	1,726,509	2.9	3,124,532	4.9
South	6,767,021	7.9	11,586,696	11.6
West	10,106,140	19.1	15,340,503	24.3

States with the highest Hispanic population in the Western and the Southern regions of the United States were New Mexico (43%), California (35%), Texas (35%), Arizona (29%), Nevada (24%), Colorado (19%) and Florida (19%), according to the U.S. Census Bureau (Race and Hispanic Origin In 2005) report.

Asian Population Changes in the United States

About 50% of the U.S. Asian population resides in the West with more than 70% in California alone. Goat meat is a popular staple food for this group of immigrants and represents an opportunity for increased goat meat production (Table 25).

Table 25. Asian population changes in the United States and by region

	1990	% of total	2000	% of total
US	6,908,638	2.8	10,242,998	3.6
Northeast	1,324,865	2.6	2,119,426	4.0
Midwest	755,403	1.3	1,197,554	1.9
South	1,094,179	1.3	1,922,407	1.9
West	3,734,191	7.1	5,003,611	7.9

According to the U.S. Census Bureau (Race and Hispanic Origin in 2005), the fastest growing ethnic group in the United States was Asian (24%) followed by Hispanics (21%). The U.S Asian population mainly lives in Hawaii (41% of state's population) followed by California (12%), New Jersey (7%), New York (7%) and Washington (6%).

Black Population Changes in the United States

According to the U.S. Census Bureau (2005), Blacks represent 37.9 million people or 12.8% of the population, up from 12.7% in 2000. More than 54% of the black population resides in the South, and some of them are undoubtedly new immigrants from Africa or Caribbean countries that have a preference for goat meat and warmer climates (Table 26). According to the U.S. Census Bureau (2005), almost 3.32 million of 34.2 million foreign-born populations are Caribbean and almost 1 million are

African. If climate affects one's choice of residence, probably a substantial percentage of these two groups reside in the South and consume goat meat.

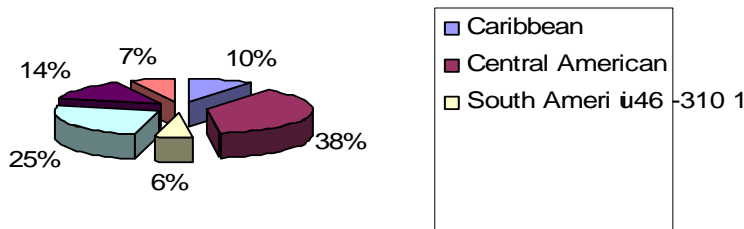
Table 26. Black Population distribution in the United States and by regions

	<u>2000</u>	<u>% of total</u>
U.S.	34,656,000	12.9
Northeast	6,100,000	17.6
Midwest	6,500,000	18.8
South	18,982,000	54.8
West	3,077,000	8.9

Black population in the United States mainly resides in Mississippi (37% of the state's population), followed by Louisiana (33%), Georgia (30%), Maryland (29%) and South Carolina (29%).

U.S. Foreign Born Population

In 2004 more than 32.4 million of the U.S. population or nearly 12% were foreign-born (Figure 11). Most foreign-born populations, Caribbean, South and Central American and Asian, historically have the preference for goat meat. This sector of population has increased in numbers during the last ten years, which may have contributed to the increased demand for goat meat.



U.S. agriculture to produce new products to serve the food preferences of this ever-increasing population (Table 27).

Table 27. Percent changes in selected U.S. ethnic and faith-based population changes from 1990 to 2005

	1990	2000	2005*	% change	
				1990-2000	2000-2005
Muslims	0.53	1.1	--	109	--
Buddhists	0.40	1.1	--	170	--
Hispanics	22.4	35.3	42.7	58	21
Asians	6.91	10.2	12.7	48	24

* Estimate, -- no data reported

Socioeconomic Changes Among Ethnic Populations

The average household income increased 18.79% with incomes of African Americans and Asians increasing by 25.76 and 51.32%, respectively (Table 28).

Table 28. Changes in household income in the United States from 1990 to 2000

Household Income	1990 Income (in 2000 \$)	2000	% Increase
All Households	48,024	57,047	18.79
White	49,962	59,280	18.65
African American	31,860	40,067	25.76
Hispanic	35,915	42,411	18.09
Asian	46,412	70,231	51.32

Socioeconomic changes in Hispanic populations are indicated by the increase in the number of Hispanics who are principal operators of farms or farm owners (Table 29).

Table 29. Hispanics as principal farm operators or farm owners from 1997 to 2002

	1997	2002	% Change
Farm operators	33,450	50,592	51.2

Estimating the Numbers of Goats Processed

products are plentiful in the Midwest and can be used as a good source of feed energy and protein for livestock including goats. These are by-products of the ethanol industry, one of the fastest growing segments of U. S. agriculture. These by-products include wet and dried distillers' grain, wet and dry distillers grain with solubles, modified wet cake and condensed distillers solubles.

California has the highest product value per acre in the United States and a large variety of agricultural products are grown on its fertile land. Energy-source cereal grains such as wheat, barley and sorghum are grown locally. Protein feeds such as cotton seeds, sunflower meal and other by-products are readily available. Roughages such as good quality hays and silages and by-products such as rice bran, wheat bran and sugar beet pulp are common. All kinds of leftover garden produce, sometimes sold in farmers' markets as compost, are a goat's favorite meal. California's diverse topography--valleys, foothills, coastal areas and deserts--make this diverse western state suitable for production of a variety of agricultural products including goats.

Goat production in rangeland, chaparral of Texas, Arizona and New Mexico can support minimum input goat production. Rangeland vegetation, brush, browse and other bushes and forbs are

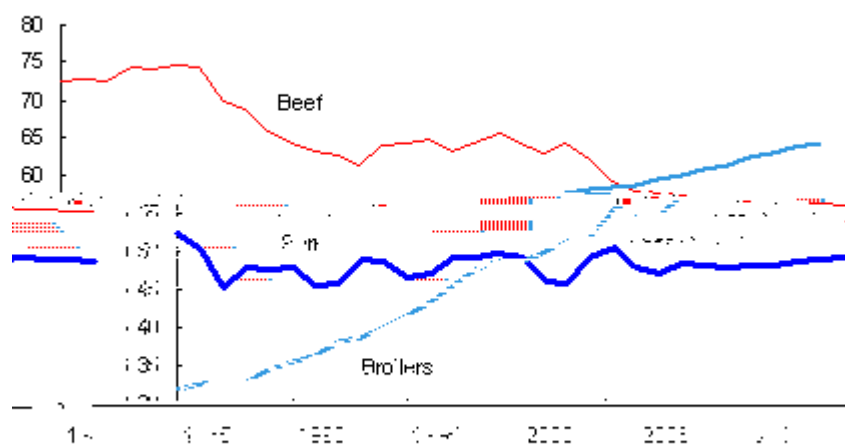
Table 32. Comparison of the chemical composition of goat meat and other meats (100 g)

Species	Energy Kcal	Fat %	Sat Fat %	Protein %	Iron mg	Cholesterol mg
Goat	144	3.0	0.93	27.1	3.8	67
Beef	288	18.8	8.0	27.1	3.0	>86
Trimmed	211	9.3	-	29.9	3.4	86
Pork	364	28.2	10.2	24.7	1.1	>86
Trimmed	212	9.7	-	29.3	1.1	86
Lamb	276	18.8	8.6	25.9	1.6	99
Chicken	190	7.4	-	24.7	1.1	>89
Skinned	141	4.1	1.3	28.9	1.8	76
Turkey	170	5.0	-	29.3	1.8	76
Ostrich	142	2.8	-	26.9	3.2	83
Veal	158	3.2	-	30.2	4.5	112

Source: South African Boer Goat Association.

Per capita meat consumption

Pounds (boneless) per capita



Source: USDA Agricultural Baseline Projections to 2013, February 2004.
Economic Research Service, USDA.

widespread distribution of recipes for different goat meat preparations. Producers should be educated on the best management techniques to raise uniform goats for meat. Utilizing some superior breeds with fast growth rates, especially those from South Africa, have revolutionized meat goat production.

However, the most important factor in the growth of any industry is marketing. Keeping in touch with state agricultural and farmer organizations in developing new markets is important. Producers can benefit from *federally-inspected* slaughterhouses that can process goats as well as enable interstate sales. With goat meat prices high, direct marketing may be desirable, either on farm or using the Internet. Considerations should be given to proper harvesting and handling techniques of goat meat for Jewish (Kosher) and Muslim (Halal) clientele.

Value can be added in terms of desired products such as specialty sausages and other ready-to-eat meat products that can enhance marketing and profit margins. At the retail level, a recent survey conducted in the southeast by Tuskegee and other university researchers concluded that retailers carrying goat meat confirm that purchasers of goat meat are indeed the ethnic groups cited in this paper, and they should be provided the cuts and type of processing desired (which are ribs for steaks and barbecue and ground meat) (personal communication).

CONCLUSION

There is an increased interest in goat meat consumption in the United States. Goats slaughtered in USDA-inspected plants as well as goat meat imported from Australia and New Zealand have sharply increased since 1999. The United States has changed from a net exporter to a net importer during the last decade. Increases in ethnic populations in the United States, especially Hispanics, Asians and Muslims, have contributed to this development. Also, goat meat is healthy meat and fits the designer diets of health-conscious Americans. Goat production is a great opportunity for small farm producers in United States to target these markets and diversify their farm products. There is a great opportunity for value-added products. However, consumer as well as producer education is needed and marketing structure must be strengthened.

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