

CAPRINE MEAT FROM FARM TO TABLE





MARKETING OF MEAT GOATS AND GOAT MEAT IN TEXAS: *WHAT, WHERE AND WHEN*

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MAY 22, 2019

Objective

Objective and Covered Topics

- **The objective of the project is to connecting small-scale goat producers, meat processing establishments and consumers in Texas**
- **Overview of the Goat Industry in the US and Texas**
- **Marketing of live goats and goat meat in Texas**
 - Where to sell ?
 - What to sell?
 - When to sell ?
 - Whom to sell?

Covered Topics

- Overview of the Goat Industry in the US and Texas

Major caprine meat consumers and marketing seasons for caprine meat in large metropolitan areas

Consumer preference for caprine meat cut ups (both Chevon and Cabrito or Capretto)

- Processing (portioning, deboning), and grading of fresh caprine meat cut ups.
- Composition and nutritional value of caprine meat types, both Chevon and Cabrito.
- Further processing of caprine meat as a means of improving quality and developing value added commodities.
- Quality categories of live goats and goat carcass

Small Ruminants

According to NRC, the term Small Ruminants includes the following eight species of animals:

	Common Name	Species Name
1	Sheep	<i>Ovis aries</i>
2	Goats	<i>Capra hircus</i>
	Cervids	
1	White tail deer	<i>Odocoileus virginianus</i>
2	Red deer	<i>Cervus elaphus</i>
3	Elk	<i>Cervus elaphus</i>
4	Reindeer	<i>Rangifer tarandus</i>
	New World Camelids	
1	Llamas	<i>Lama glama</i>
2	Alpacas	<i>Vicugna pacos</i>

Small Ruminant Animals

Domestic Small Ruminant



Sheep (*Ovis aries*)



Goat (*Capra hircus*)

New World Camelids



Llama (*Lama glama*)



Alpaca (*Vicugna pacos*)

Cervids



White Tail Deer (*Odocoileus virginianus*)



Photo: Red deer stag (by Richard Harris)

www.uksafari.com

Red Deer (*Cervus elaphus*)



Reindeer (*Rangifer tarandus*)



Elk (*Cervus elaphus*)

Small Ruminant Production

- **Small Ruminant are characterized as :**
 - Cloven- footed animals
 - Have four compartmentalized stomach
 - They play important roles in the socio-economic and cultural lives of the MILLIONS OF people :
 - They provide meat and milk to humans
 - Serve as source of income and employments
 - Provide non-food products such as
 - ✓ Wool and mohair
 - ✓ Skin
 - ✓ Manure

- **Why do we raise goats**
- They are important producers of
 - Meat [Chevon and Cabrito or *capretto*]
 - Milk [dairy goats]
 - Fiber [Cashmere and Mohair]
 - Companionship or pet
 - Worldwide, over 100 different breeds of goats have been developed

Breeds of Goats and their Primary Products

Breed name	Primary purpose	Origin
• Alpine	Dairy	Alpine
• Angora	Mohair	Turkey
• Boer	Meat	South Africa
• Spanish goa	Meat	Spain/ Mexico
• LaMancha	Dairy	California/ US
• Nigerian Dwarf	Pet/show	West Africa
• Nubian	Meat, milk and hides	Nubian Africa
• Saanen	Dairy	Saanen (Switzerland)

Types of Goats by Primary Products

Examples:

- *Angora* goats are used primarily for fiber production



Types of Goats by Primary Products

Examples:

- *Boer goats* are more suited to meat production.



Boer known meat type of goat



Types of Goats by Primary Products

Examples:

- *Alpine, Saanen are dairy goat breeds* primarily used for milk production in the U.S and elsewhere

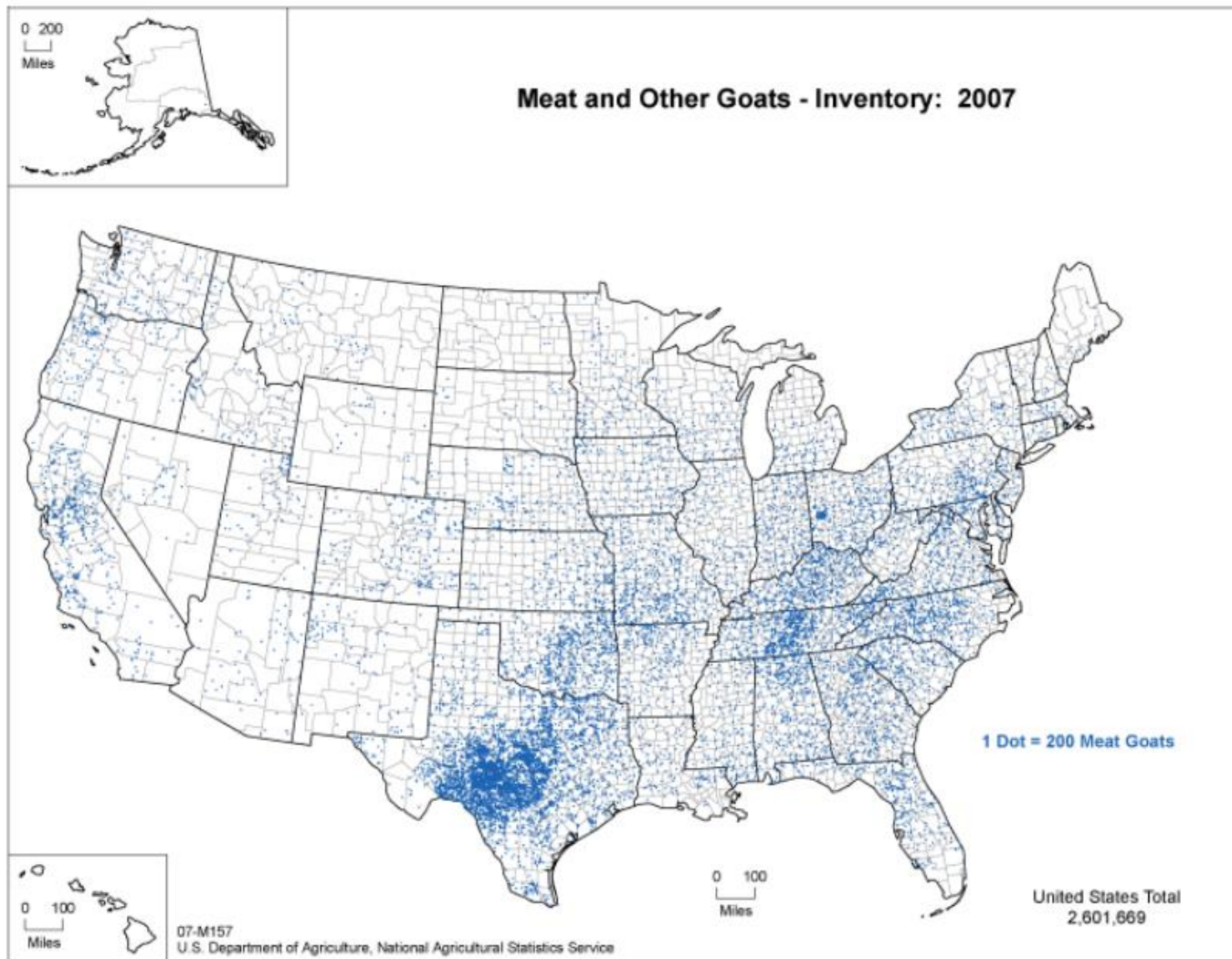


Alpine known dairy goat



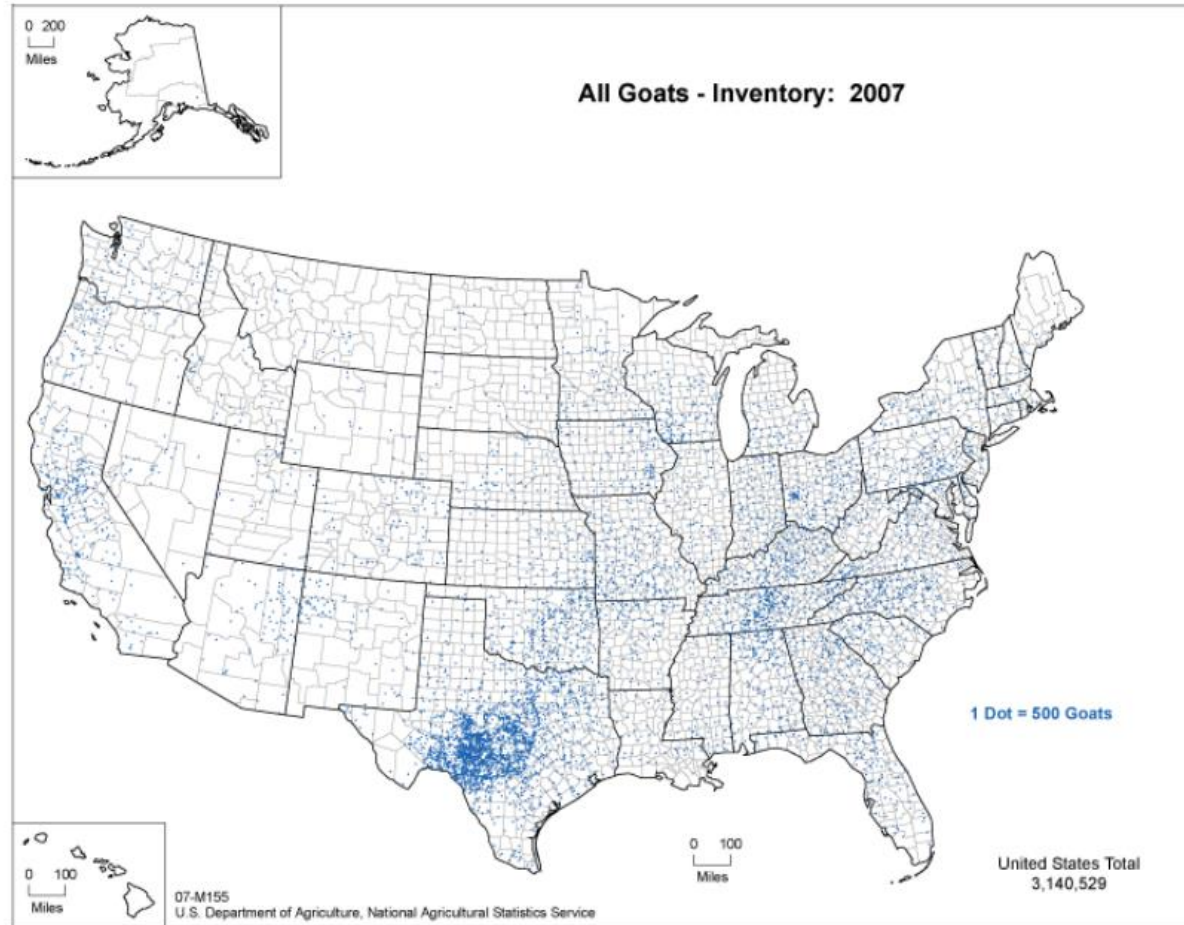
Meat and Other Goats In the U.S

- Goats are more heavily concentrated in the eastern parts of the U.S



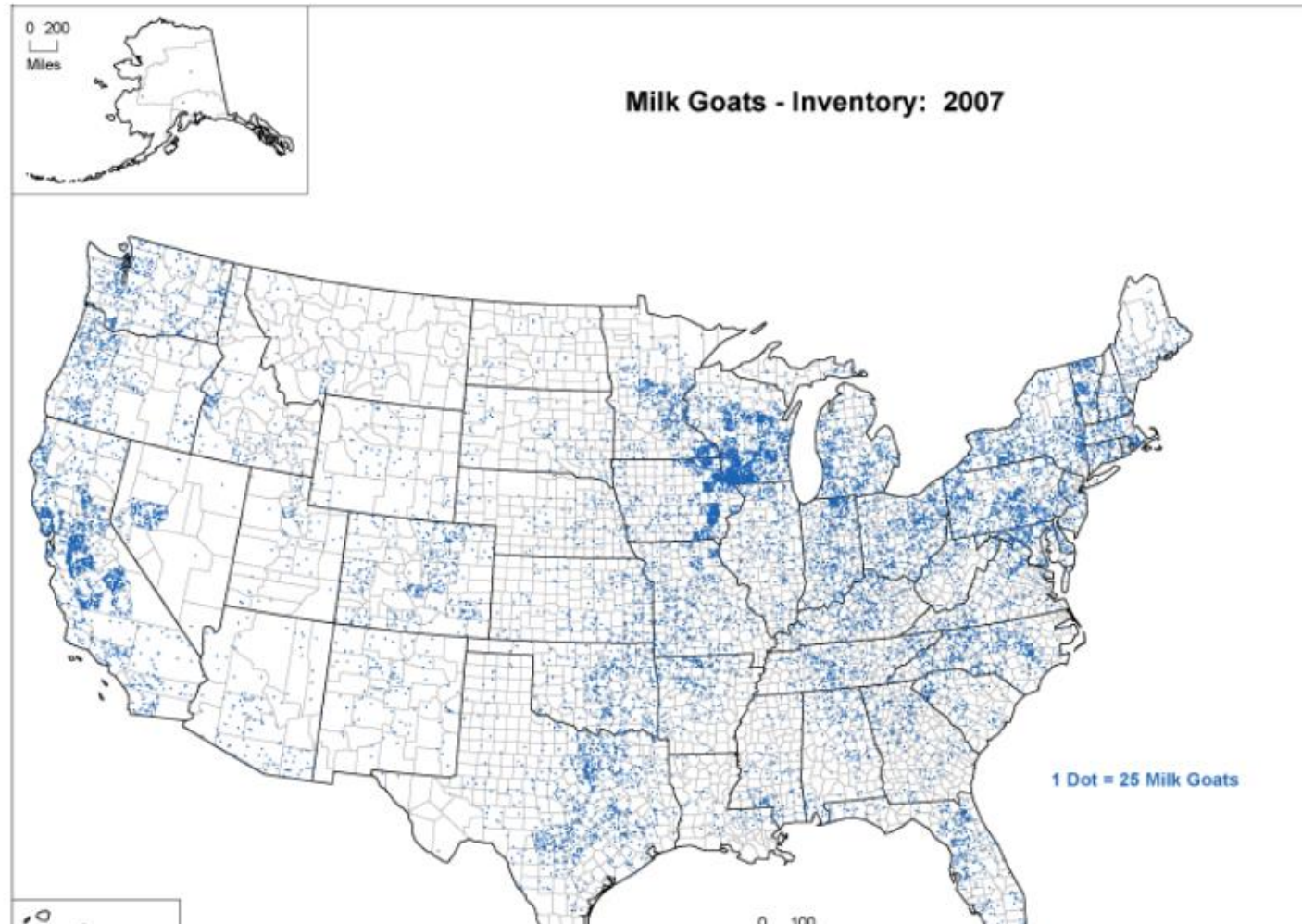
Distribution of Goats In the U.S

- Texas has about one-third of the goat population in (36.3 percent)



Distribution of Dairy Goats

California and Wisconsin account for nearly one-fourth of all U.S. milk goats (22.6 percent).



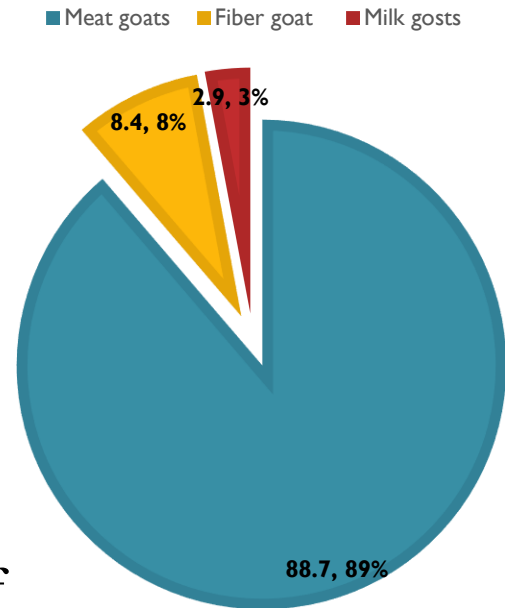
Texas Goat Population and Distribution

- Texas is the first goat producer in the USA
- There are about 890,000 goats across the state

It also ranks first in goat meat production

- Meat goats
- Fiber goats
- Dairy goats
- Most of the goats are located in the West-central part of the State
 - Edward Plateau region
 - West Texas

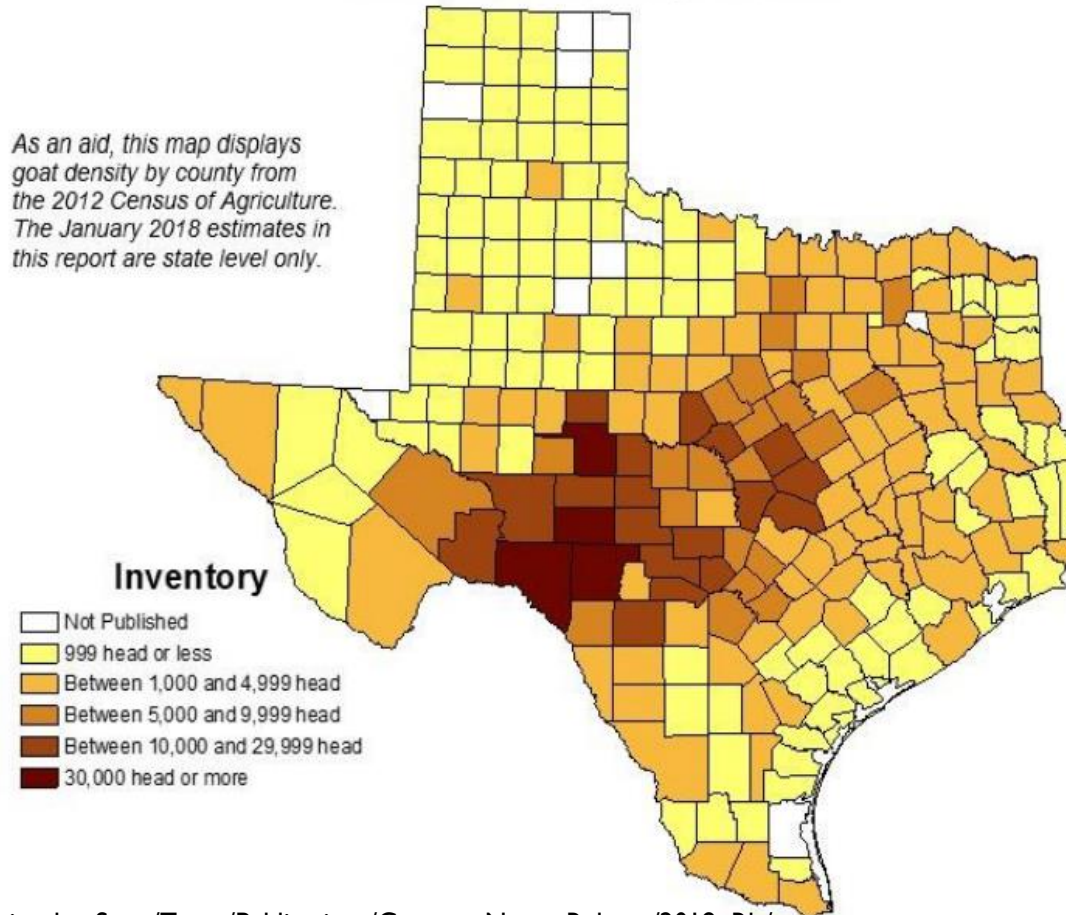
PERCENTAGE OF GOATS IN TEXAS RAISED PRIMARY PRODUCTS



Distribution of Goats In Texas

Texas All Goats Inventory by County 2012 Census of Agriculture

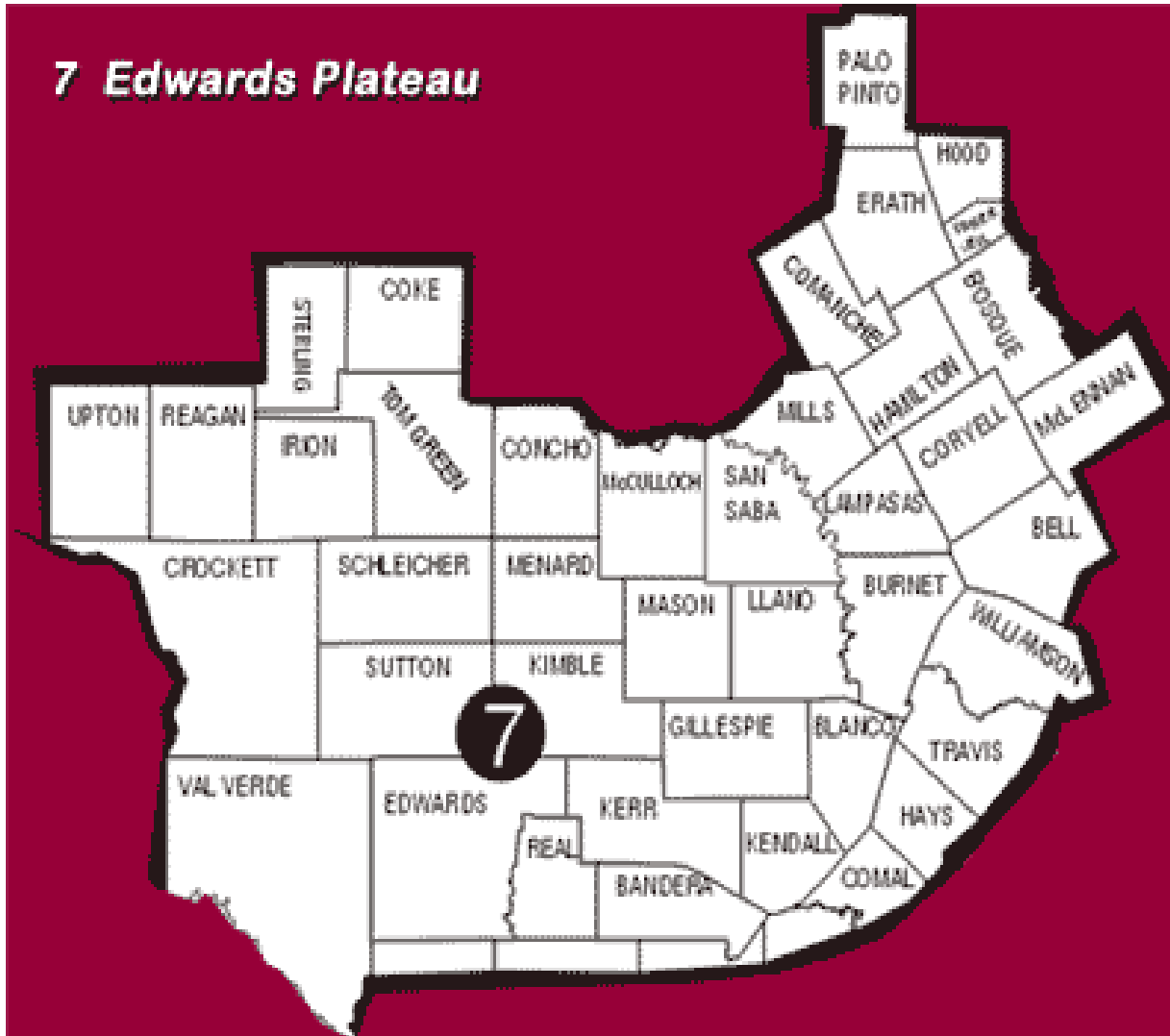
As an aid, this map displays goat density by county from the 2012 Census of Agriculture. The January 2018 estimates in this report are state level only.



https://www.nass.usda.gov/Statistics_by_State/Texas/Publications/Current_News_Release/2018_RIs/tx-goat-inv-2018.pdf

Overview of the Texas Goat Production

7 Edwards Plateau



According to 2012 USDA census three counties

- Sutton County (98,000)
 - Edwards County (45,700)
 - Schleicher County (21,935)
- are among the ten top goat producers in the US.



Important reasons:

- First because of Texas's dry climate and suitable forage and browse species that are palatable for goats.
 - Ecologically, the Southwest and West Central Texas are generally characterized by arid and semi-arid ecological conditions.
- In Texas goat raising occurs under extremely varied conditions.
- Access to inexpensive forage/browse forbs, woody plants, vines, brush is critical for economical production

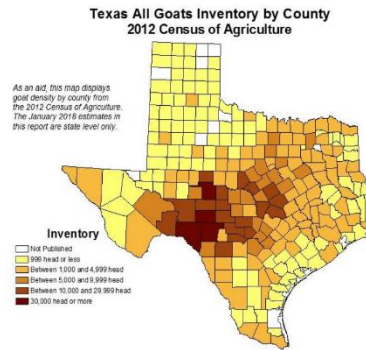


Important reasons:

- First because of Texas's dry climate and suitable forage and browse species that are palatable for goats.
 - Ecologically, the Southwest and West Central Texas are generally characterized by arid and semi-arid ecological conditions.
- Second the presence of ethnically diverse large metropolitan areas, namely
 - Houston
 - Dallas- Fort Worth
 - San Antonio
 - Austin

Goat Meat In Texas

Major Ethnic groups that consume goat meat in Texas



- Immigrant population from:
 - Africa
 - Caribbean
 - Hispanic
 - Middle East
 - Eastern Europe

These ethnic groups have different cultural and religion backgrounds:

- Muslim
- Orthodox Christian
- Catholic
- Jewish

Types of Goat Operations in Texas

1. Types of goat operations

A. Open or fenced range with uncultivated acreage is the most common production setting used for goats intended

for meat or fiber production.

B . A dry lot, where feed is delivered to the goats, is typical of dairy goat operations,

Feeding Goats

c. **Combination:**

Many producers will use a combination of some or all of these, depending on seasonal feed availability and access.

2. Feeding Goats

- Goats are ruminant like sheep and cattle
- Goats have a preference for **browse**
- Pasture grasses, either native or cultivated, are

the primary feed source used by goat operations

Goats can be grazed with other livestock, and can **complement** sheep and cattle, thus maximizing the use of marginal pastureland

Goat Production



A. Free grazing range goat production



B. Dry lot fenced goat production

Average Seasonal Diet Comparison of Goats.

Season	% Browse	% Grass	% Forbs
Spring	34	49	17
Summer	33	53	14
Fall	53	37	10
Winter	53	42	5

Source: What Range Herbivores Eat and Why TAEX Pub B-6037. Cited in Chris Rice <http://agecon.okstate.edu/meatgoat/files/Chapter%204.pdf>

Browsing Goats



Goats are very agile and will stand on their hind legs to reach vegetation.



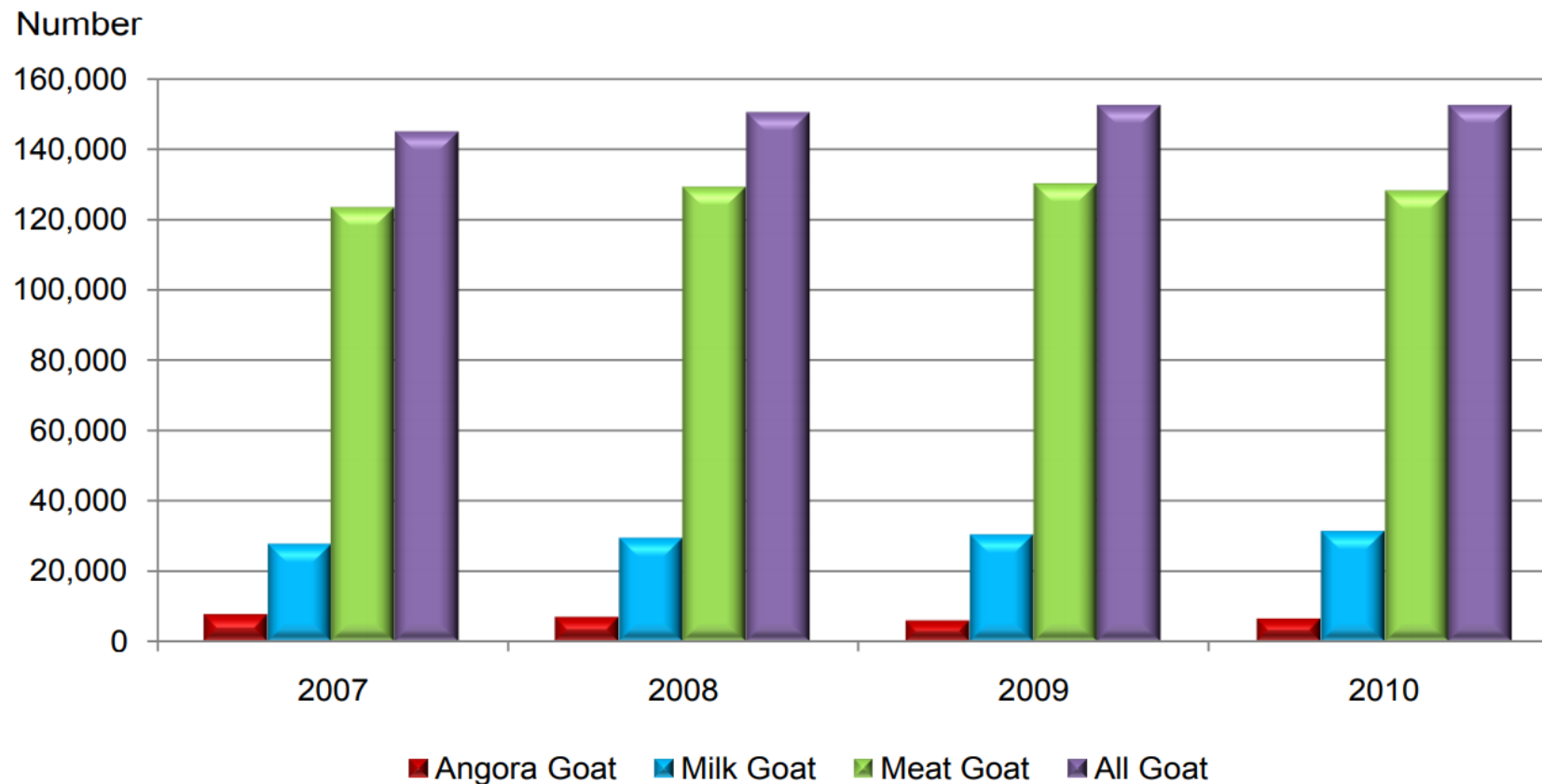
Grazing Goats



Overview of the U.S Goat Production

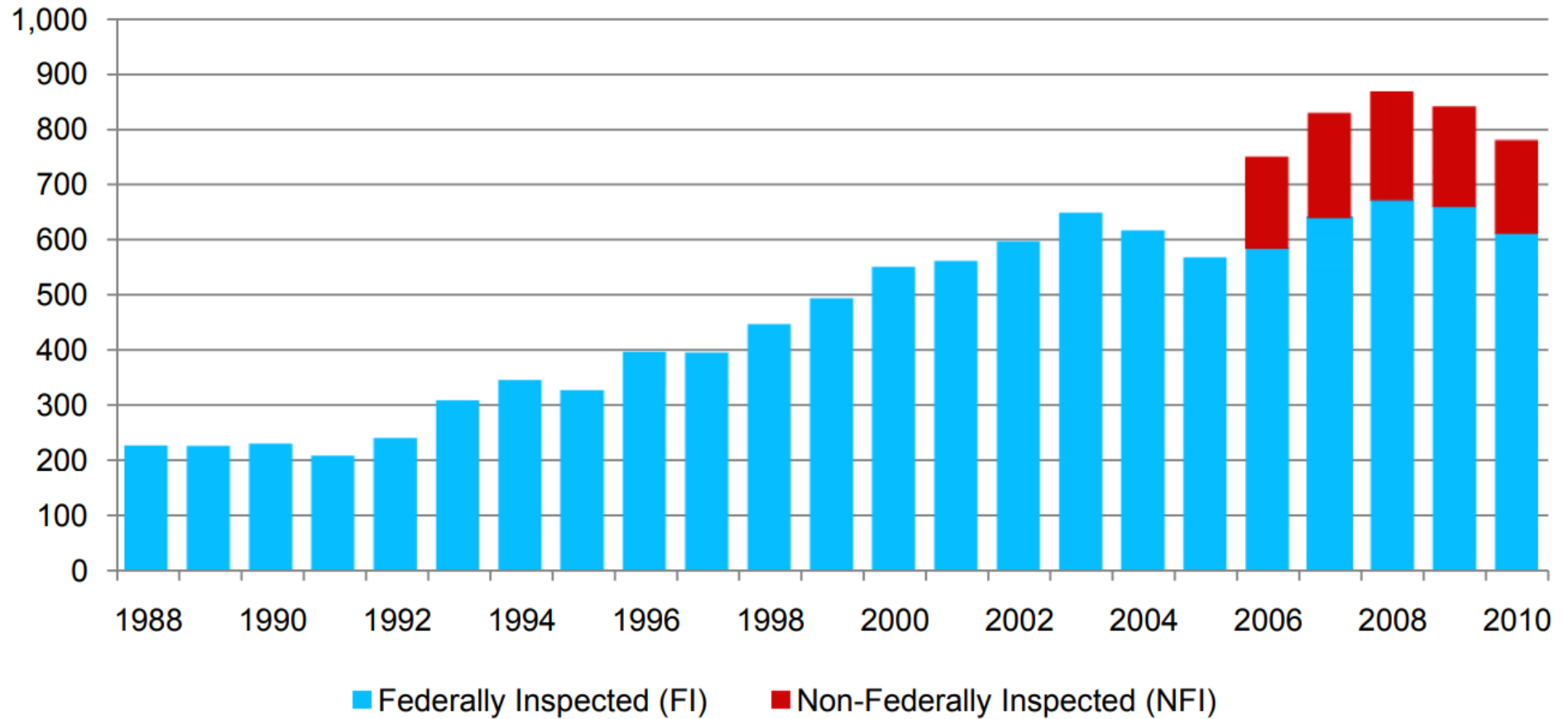
- The U.S has a total of 3.5 million goat population

Graph 17. Number of Goat Operations by Type - United States



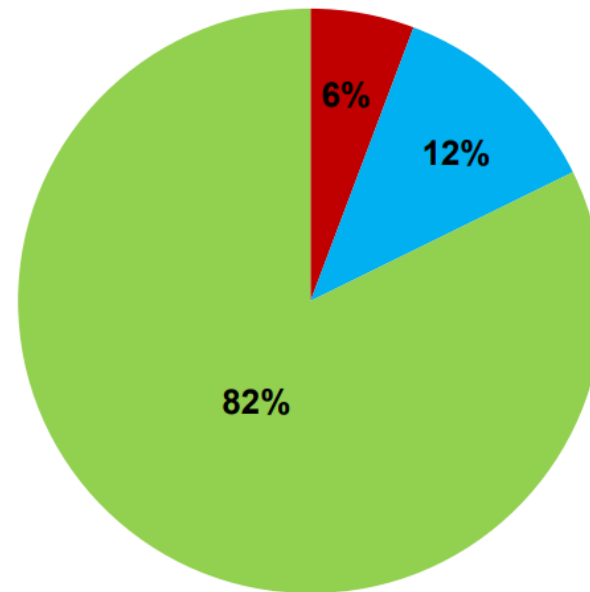
Graph 22. Goat Slaughter - United States

Thousand head



Graph 24. Distribution of Goat Inventory by Type of Goat - United States

January 1, 2011

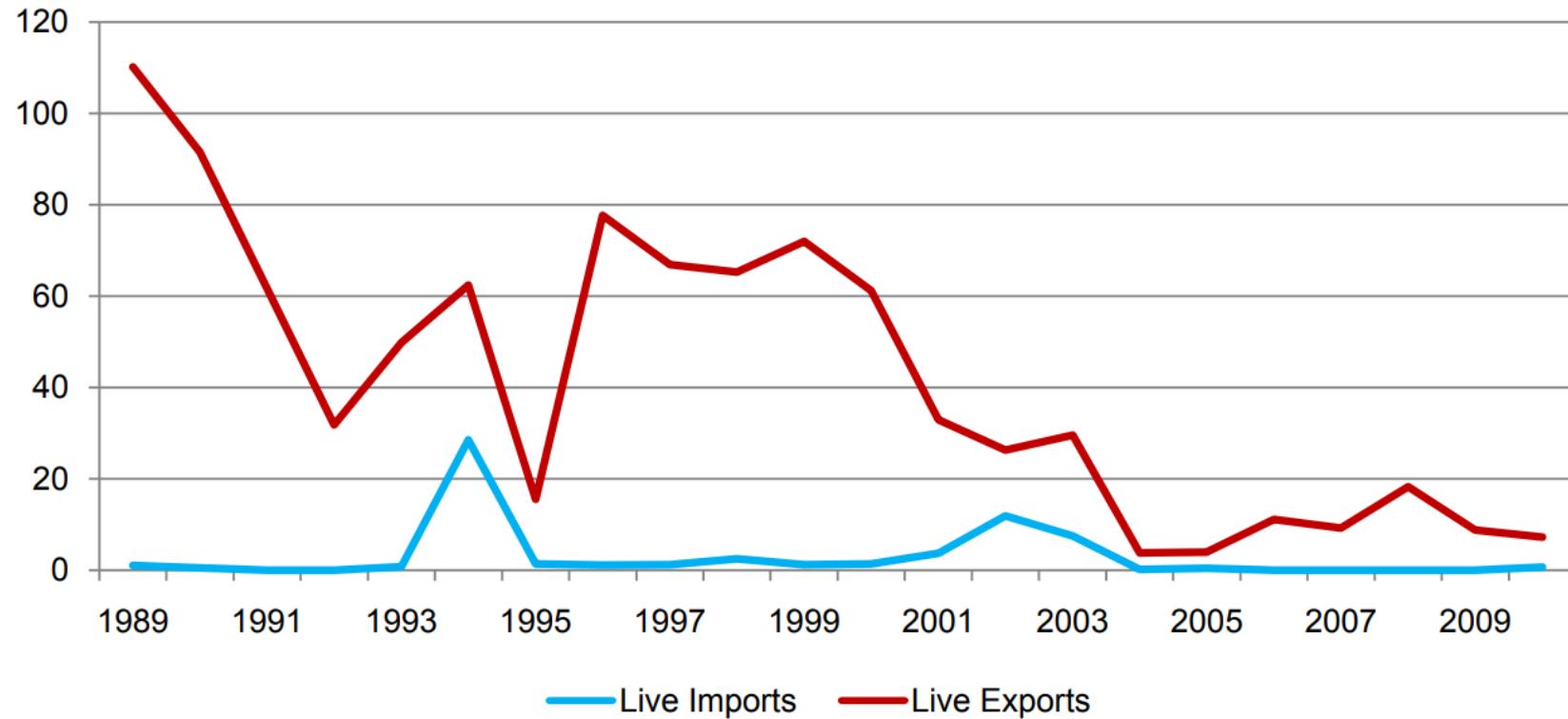


■ Angora Goat ■ Milk Goat ■ Meat Goat

Graph 23. Live Goat Imports and Exports - United States

Source: Foreign Agricultural Service and United States Census Bureau

Thousand head



Classification of Goats:

The simplest classification is by the product of the animals:

1. Dairy goats
2. Fiber goats
3. Meat goats
4. Pets or companions

Classification of Goats

Meat goats: meat from all breeds can be used.

- 45 breeds are most common meat goats worldwide.
- In the US there are seven breeds used for meat
- In addition goats are raised for
 - brush control
 - livestock shows
 - lively companions

Marketing Goats and Goat Products

Age Classifications of Goats (USDA Standard)

Description	Definition
Kid	Under 9 months of age, male or female
Yearling	9-16 months of age
Nanny/Doe	Mature female over 16 months of age or earlier bred
Billy/buck	Uncastrated male over 12 months of age
Whether	Castrated male of any age

MARKET GRADES OF LIVE GOAT AND GOAT CARCASS

- According to the USDA guideline for grading carcass quality:
 - Live goat
 - Carcass from goats are categorized into four classes
 - USDA Selection 1
 - USDA Selection 2
 - USAD Selection 3
 - Utility

The description for each class is presented as follows:

Marketing Goats and Goat Meat

SLAUGHTER GOAT GRADING

Live Goat or Carcass Quality

Quality

i. Selection No. 1



Selection 1

Description

- They are live goats and/or carcasses that have a superior meat type conformation without regard to the presence of fat cover.
- They shall be thickly muscled throughout the body as indicated by
- a pronounced (bulging) outside leg (biceps femoris and semitendinosus)
- a full (rounded) back strip (longissimus dorsi), and
- a moderately thick outside shoulder (triceps brachii group).

Marketing Goats and Goat Meat

Live Goat or Carcass Quality

Quality

ii. Selection No. 2




Description

- Live goats and/or carcasses have an average meat type conformation without regard to the presence of fat cover.
- They shall be moderately muscled throughout the body as indicated by
 - a slightly thick and a slightly pronounced outside leg (biceps femoris and semitendinosus)
 - a slightly full (flat or slightly shallow) back strip (longissimus dorsi)
 - a slightly thick to slightly thin outside shoulder (triceps brachii group).

Marketing Goats and Goat Meat

Live Goat or Carcass Quality

<u>Quality</u>	<u>Description</u>
iii. Selection No. 3	<ul style="list-style-type: none">• Live goats and /or carcasses have an inferior meat type conformation without regard to the presence of fat cover.• The legs, back, and shoulders are narrow in relation with its length• they have very angular and sunken appearance.



Selection 3

SELECTION # 1



SELECTION # 2



SELECTION # 3



Marketing Goats and Goat Meat

Live Goat or Carcass Quality

Quality

iv. Utility

• Description

- Utility goats exhibit symptoms of poor management including nutrition and/or parasite
- Genetic deficiencies
- Utility goats are very thin fleshed with a hair coat that is rough and dull in appearance.

***INSTITUTIONAL
MEAT
PURCHASE
SPECIFICATIONS***



Dressing percentages, shrinkage and yield

- The “dressing percentage” is the amount of the live weight that will enter the cooler in the form of a carcass and can be calculated as:
- **$(\text{hot carcass weight} \div \text{live weight}) \times 100$**
- For goats the dressing percentage range from
- **45 to 48%**

MAJOR MEAT TYPE GOAT BREEDS



- The Boer goat originally imported from South Africa (1990's)
- White body with red head
- Large muscular body frame
- Hardy animals with great capacity for adaptation arid lands
- known for their high prolificacy and high dressing percentage

Table 8. Reproductive performance characteristics of Boar Goats

<u>Characteristics</u>	<u>Definition</u>	<u>Percent</u>
Conception rate	Does kidding/does mated	90
Kidding rate	kids born/does mated	189
Fecundity	kids born/does kidded	210
Weaning rate	kids weaned/does mated	149
Weaning weight	weight at 120 days	64 lb. (29 kg)



MAJOR MEAT TYPE GOAT BREEDS



Spanish Goats in barn in the PVAMU IGR Center

- The Spanish goats came from Spain to the U.S through Mexico
- Relatively small goats and have relative lower dressing percentage than the Boer goats
- Spanish goats are used in brush control projects with nicknames
- “wood”, “brush”, “barrier”, “hill” or “scrub” goats

WHAT, WHERE AND WHEN

- Goat meat have been used as major red meat source by many ethnic groups
- Islam, Jewish and Orthodox Christian religions

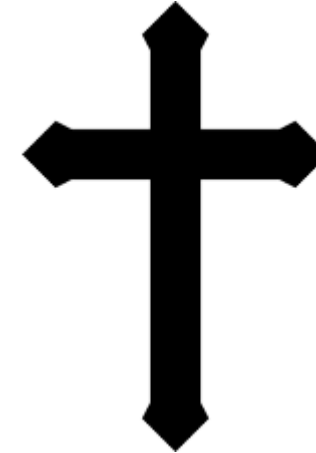
Slaughter and process according to their belief or dietary laws

- Different ethnic groups have traditional holidays
- Demand for goat meat exceeds supply in many metropolitan areas of Texas

MARKETING OF MEAT GOATS AND GOAT MEAT IN TEXAS



Islam



Christian



Jewish

Table 2. Targeted ethnic holidays with high demand for caprine meat

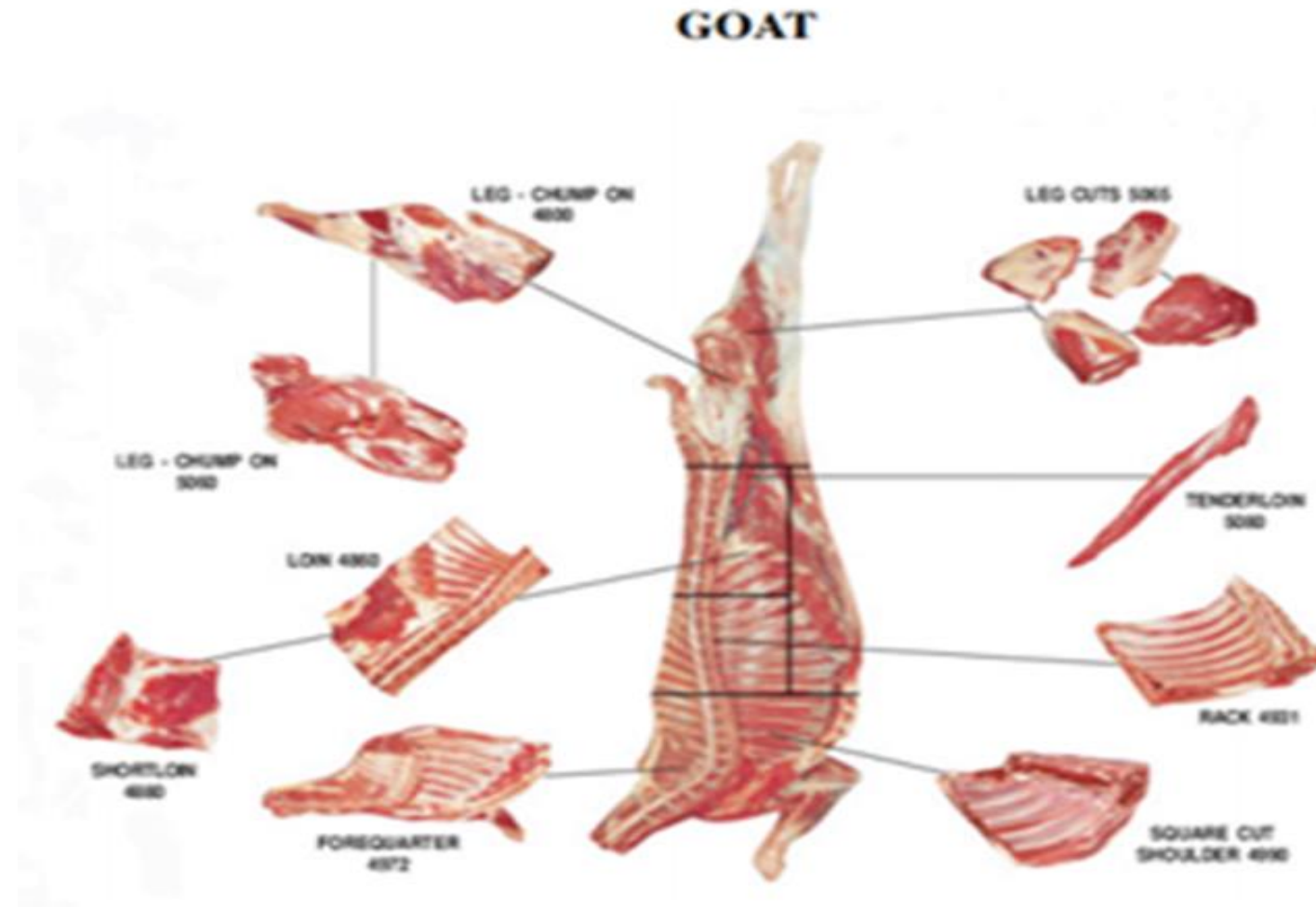
No	Ethnic Holidays	Date	Preference	Required Optimum (Weight in Pounds)
1.	Western Roman Easter	March-April	Mild fed kids, 3 months or younger	30
2.	Eastern Orthodox Easter	April-May	Mild fed kids, 3 months or younger	35
3.	Mother's Day	May	Suckling kids or Larger	60
4.	Cinco de Mayo	5-May	Suckling kids	15-30
5.	Ramadan	June-July	Male or female with all milk teeth ≤12 months, intact or castrated	60
6.	Id al Fitr	July-August	Male or female with all milk teeth ≤12 months, intact or castrated (wethers)	60
7.	Navadurga, Dashain	October	Castrated male (wethers)	60-120
8.	Eid al-Adha	September-October	Yearlings	60-100
9.	Muharramn	October-November	Male or female with all milk teeth, ≤12 months, whole or castrated	60
10.	Diwali	October-November	Castrated male	60-120
11.	Christmas and New Year	Dec.25 & Jan. 1	Milk fed kids	18-30
12.	Caribbean holidays and Chinese market for goat		Young, smelly bucks, older animals of all sexes	60-80
13	High school and College graduation Days**	May-June	Male or female with all milk teeth ≤12 months, intact or castrated (wethers)	60

Table 3. Purchaser Special Requirements For Ordering Fresh Goat Meat

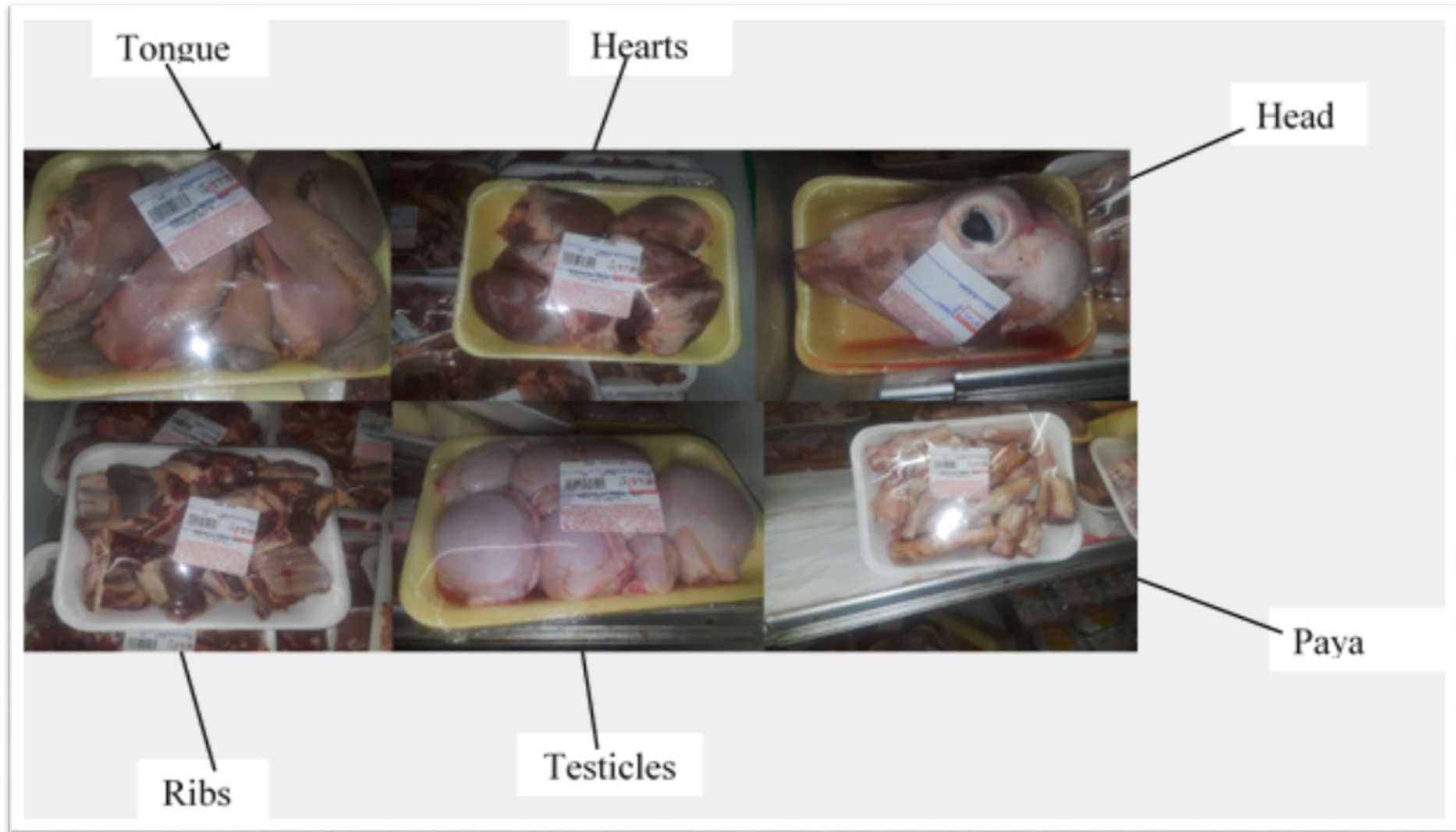
No	Selection Number	Class	Maturity	Breed Type	Slaughter Method
1	Selection #1	Buck (male)	Kid goat (14 months or less)	Diary	Halal
2	Selection #2	Doe (female)	Yearling goat (14 to 24 months)	Meat	Kosher
3	Selection #3	Wether (castrated)	Goat (more than 24 months)		Conventional

Source: Institutional Meat Purchase Specifications 2001 for more detail definition of Selection number see table 4)

COMMON GOAT MEAT CUTS AVAILABLE ON MARKET



COMMON GOAT GIBLET AVAILABLE ON MARKET



WHAT TYPES OF GOAT MEATS ARE AVAILABLE?

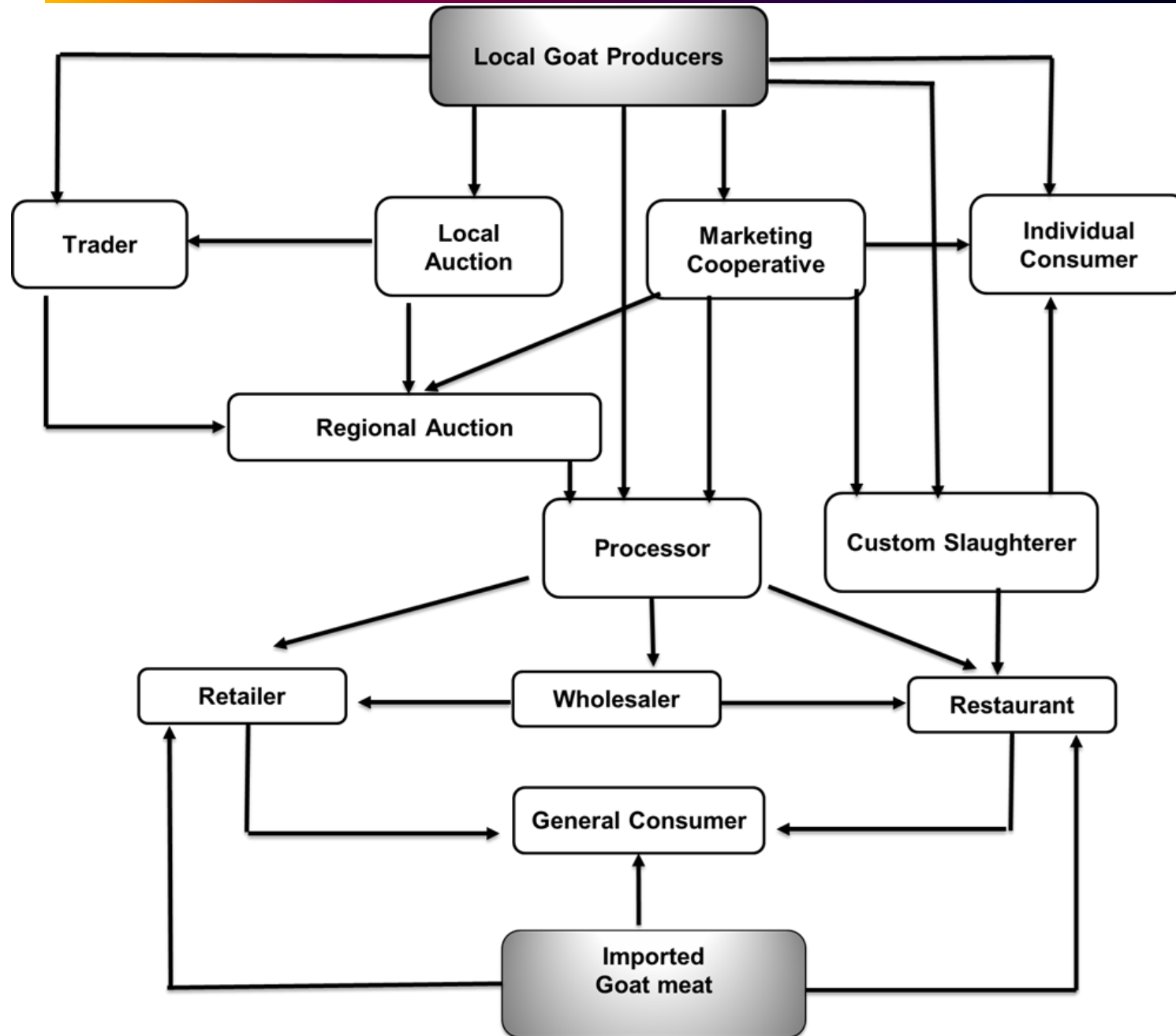
Based on age

- Chevon
- Cabrito or Capretto

Based on slaughtering method

- Conventional Meat
- Halal Meat
- Kosher meat

Figure 6. Market channels for live goats and goat meat



When to sell goats ?

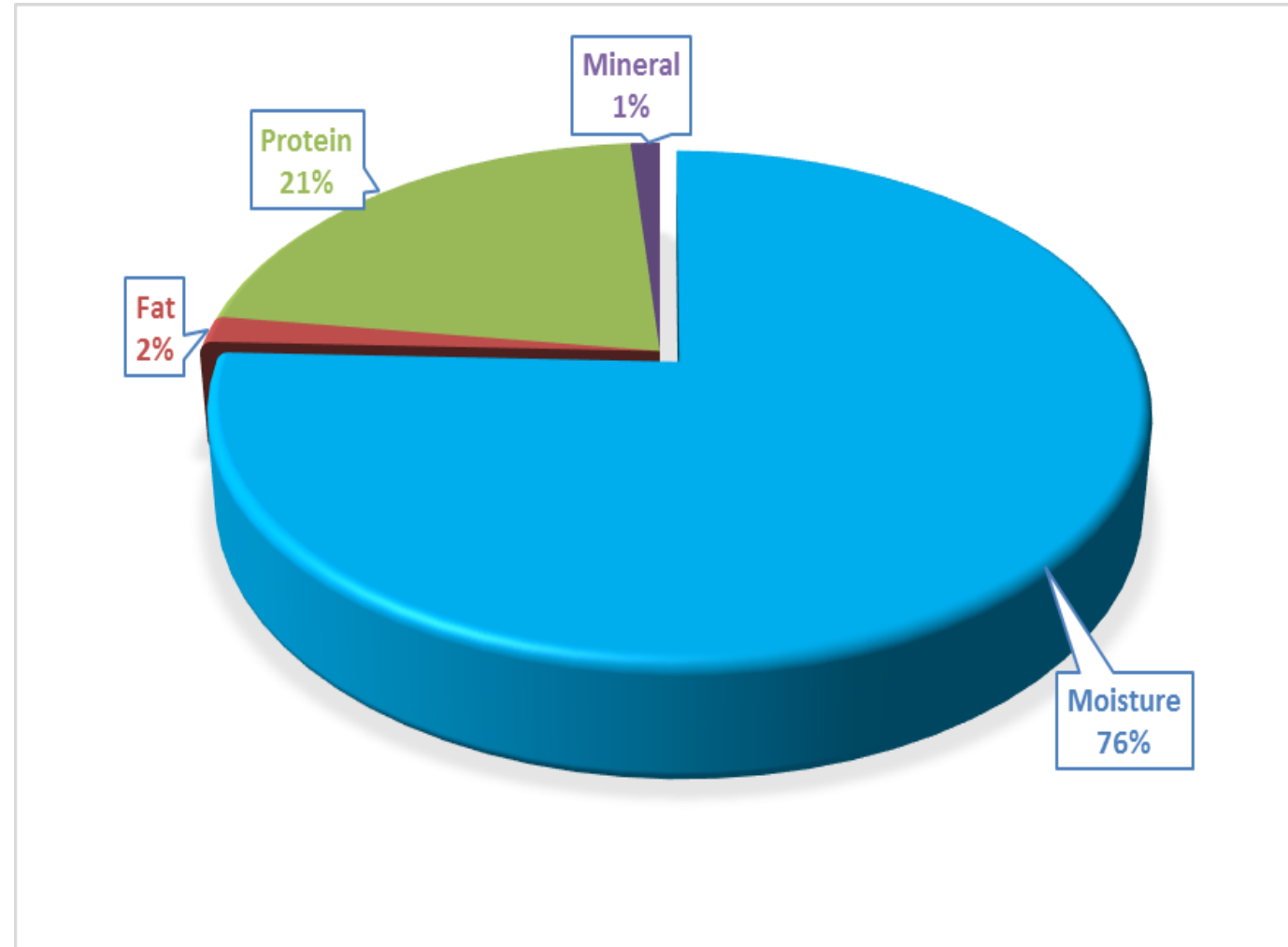
The best time to sell goats largely depends on the type of goats

- Age
- Weight
- Sex
- Whom to sell/ consumers
 - Religion and culture
- **Example:**
- Holiest months of year for Islam May through August
- Ramadan (fasting period)
- Id al-Fitr (Festival of the breaking of the fast)
- For better returns, therefore, producers can sell their goats two to three weeks before the holiday

What to Sell?

Different ethnic and religious groups have preference for different goat class and types

Figure 7. Percentage of the protein, fat and moisture contents of goat meat



Protein Contents OF GOAT MEAT

Table 5. Amino acid composition (g/100g) of muscle of male kids, young female, castrates and does

<u>Amino Acid</u>	<u>Male Kids</u>	<u>Young female</u>	<u>Castrates</u>	<u>Does (mature female)</u>
Alanine	4.83	4.82	5.03	5.10
Arginine	5.53	5.44	5.67	5.95
Aspartic acid	7.65	7.73	8.01	8.13
Cysteine	0.92	0.94	0.92	0.93
Glutamic acid	13.4	13.25	13.8	14.14
Glycine	3.76	3.91	3.93	3.88
Histidine	2.26	2.44	2.48	2.55
Isoleucine	3.93	3.82	3.86	4.04
Leucine	7.03	6.83	7.1	7.34
Lysine	8.36	8.11	7.52	8.04
Methionine	2.22	2.22	2.29	2.25
Phenylalanine	3.63	3.5	3.43	3.61
Proline	3.15	3.27	3.32	3.34
Serine	3.76	3.79	3.89	3.99
Threonine	4.64	4.67	4.67	4.82
Tryptophan	0.99	1.00	0.79	0.77
Tyrosine	3.07	3.01	3.24	3.27
Valine	3.97	4.02	4.06	4.24

Source Webb et al. 2005

What Makes a Goat Meat High Quality and Healthy?

FAT CONTENTS

Table 6. Comparison of the chemical composition of goat meat with that of other species on 85 g roasted meat

Species	Energy Calories	Fat (g)	Saturated fat	Protein (g)	Iron (g)
Goat	122	2.58	0.79	23	3.2
Beef	245	16	6.8	23	3.0
Pork	310	24	8.7	21	2.7
Lamb	235	16	7.3	22	1.4
Chicken	120	3.5	1.1	21	1.5

Source Malan (2000)

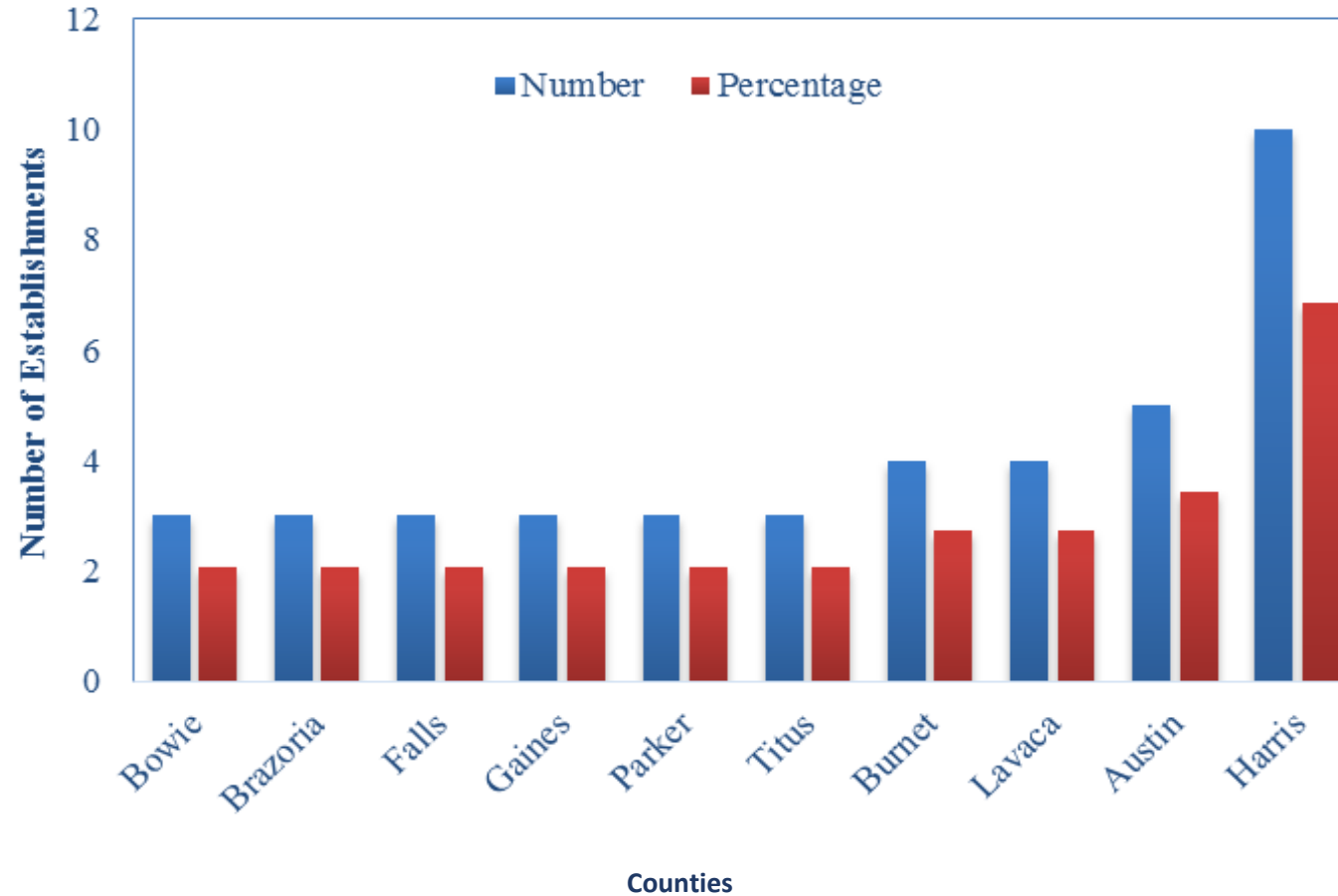
What Makes a Goat Meat High Quality and Healthy?

PROCESSED VALUE ADDED GOAT MEATS

- Smoked sausages
- Fermented sausages
- Deboned carcasses
- Fabrication of goat carcasses into cuts and cut sizes

SLAUGHTERING AND PROCESSING ESTABLISHMENTS IN TEXAS

Figure 8. Number and percentage of granted meat processing establishments in ten top counties in Texas



- CUSTOM EXEMPTED ESTABLISHMENTS



- USDA-INSPECTED ESTABLISHMENTS



GOAT MEAT SLAUGHTER AND PROCESSING ESTABLISHMENTS?

Table 7. Small scale granted slaughter and process establishments in Harris county

<u>Slaughter House Name</u>	<u>City</u>	<u>Address</u>	<u>Phone</u>
Texas Farm Fresh Halal Meat	Houston	13221 Old Richmond Rd, Houston, TX 77083	(281) 564-9088
Cabrito Garza Meat Processing and Taquera	Humble	4519 Theisis drive, TX 77336	(281)-443-8185
Tai Hung Farm Poultry	Houston	13227 Old Richmond Rd, Houston, TX 77083	(281) 495-8847
Mercy Slaughter	Katy	2755 Porter Rd, Katy, TX 77449	(281) 650-0300
Harris Country Farms	Houston	15437 Miller Rd 1, Houston, TX 77049	(281) 452-3250
Old Richmond Farm	Houston	13235 Old Richmond Rd, Houston, TX 77083	(281) 495-3099
Jimmy's Goats & Sheep	Houston	4110 Hopper Rd, Houston, TX 77093	(281) 449-2067
Hamza Farm	Rosharon	9002 Puritan Way, Rosharon, TX 77583	(713) 459-3556
Texas Livestock and Halal Meat Processors	Houston	7206 McHard Rd, Houston, TX 77053	(346) 888-6535

The most common cuts produced by USDA-inspected plants

- Fresh meat (Chevon and Cabrito) cuts
- Chilled or frozen whole carcass
- Chilled or frozen cuts with bone in
- Chilled or frozen boneless cuts
- All these products reach to individual consumers through
 - Wholesaler
 - Retailers

MEAT TYPES ACCORDING TO SLAUGHTER METHOD

- **Halal Meat**

- According to Islamic Food and Nutrition Council of America

“halal meat” or Zibaha

Requires the pronouncing of God’s name (Allah)
at the time of slaughtering

- **Kosher meat**

. **Jewish eat Kosher**

According Jewish religious dietary law, meat from land animals, including goat should be processed following the laws of slaughtering known as Shehitah.

Figure 7. Whole goat carcass while being weighed for sale per pound in ethnic grocery



- Trend shows that demand for leaner and healthier meat is expected to increase
- Particularly with increase ethnic population in the Texas demand for goat meat is expected to rise substantially.
- Yet goat meat is not part of the American mainstream eating habit
- (African American and none Hispanic White American populations)
- No ready-to-cook goat meat products on market
- Fabrication of goat meat into different further-processed products (hot dog, ham and sausage)
- will add value to the product
- Will enhance marketing



Thank You!!!

Negusse F. Kidane May 22, 2019



Questions

Comments

Suggestions!!!