



The Livestock & Poultry Industries-I



Developed by:
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What are domestic “livestock” species?

- Cattle (beef & dairy)
- Poultry
- Swine
- Sheep
- Horses
- Others?



Terminology

- Food animals
- Recreational agriculture
- Vertically integrated business
- Horizontally integrated business
- Dual purpose animals

Cattle

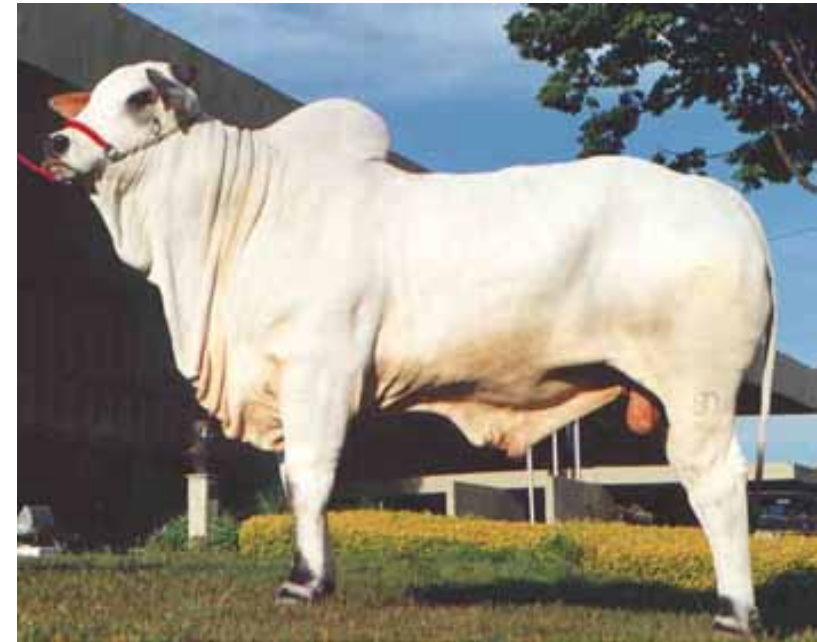


- Beef
- Dairy
- Dual purpose
- PURPOSE different
- Two species exist
 - *Bos taurus*
 - *Bos indicus*


Bos taurus vs. *Bos indicus*



<http://iserramar.globo.com/webcountry/criadores/bovinos.htm>



<http://iserramar.globo.com/webcountry/criadores/bovinos.htm>



What traits do we want to emphasize?

Beef

- Growth rate
- Feed efficiency (feed:gain)
- Milking ability of cows?
- Fertility
- Temperament
- Polledness?
- Color pattern?

Dairy

- Milk production
- Fertility
- Temperament
- Milk composition
- Polledness?
- Color pattern?

Phases of Beef Production

● Cow-Calf

- Forage abundant (TX, MO, OK)
- Commercial producers
- Seedstock (Purebred) producers



<http://www.breedingcattlepage.com/Iashorthorns/fieldday.htm>

Phase II Beef Production

- Stocker-Yearling
 - Intermediary step
 - Emphasis on **frame** growth
 - Replacement heifers
 - Utilize crop residue*



Photo Courtesy, Purdue University

Phase III Beef Production

● Feedlot (Finishing)

- Grain (concentrate) ration
- Rapid growth
- Harvest at 1000-1300 pounds+
- What is “finished?”



USDA Economic Research Service Photo



Cattle tidbits

- Age at puberty: 12-15 months*
- Age at weaning 5-7 months
- Gestation length: 283 days
- Goal: breed heifers at 15 months of age



Beef Industry

- Various “phases”
- Horizontal integration
- Very little vertical integration
- NCBA (National Cattlemen’s Beef Association)
- Beef check-off



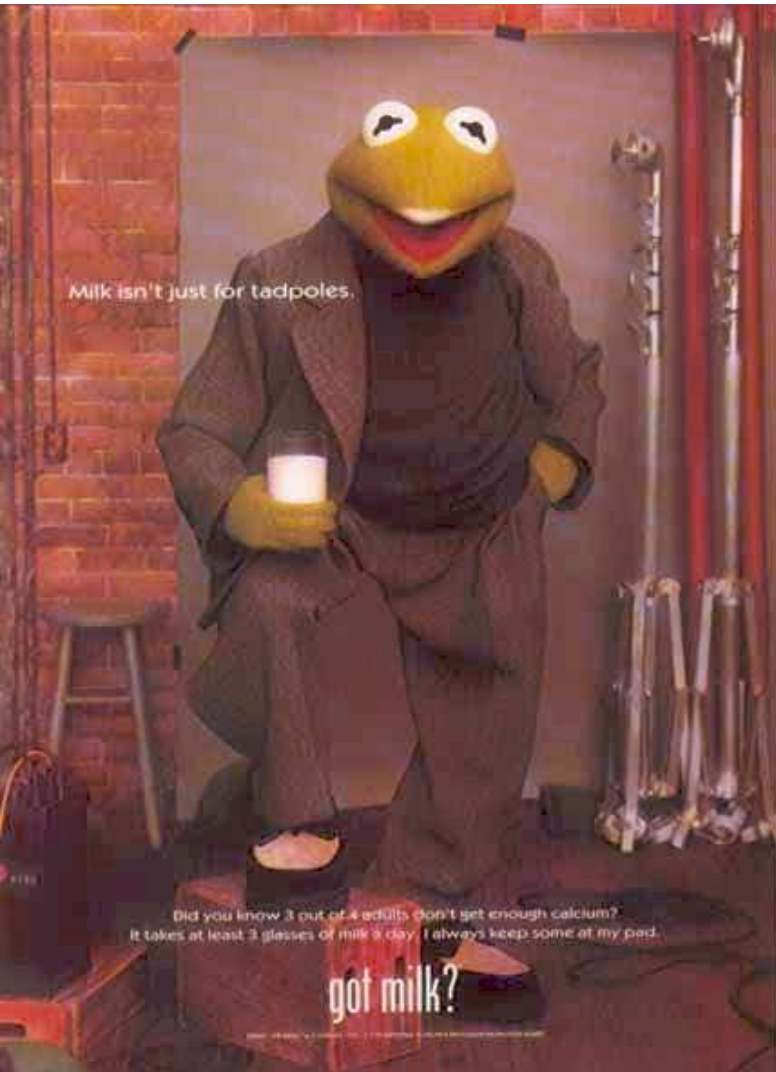
The Dairy Industry

- Milk & dairy products
- Secondary product: beef
- Production, processing, distribution of milk
- LABOR: 2 or 3 milkings/day typical
- Facility cost, capital investment



http://www.fbibuildings.com/Pages/DY_carousel3.html

Dairy Industry

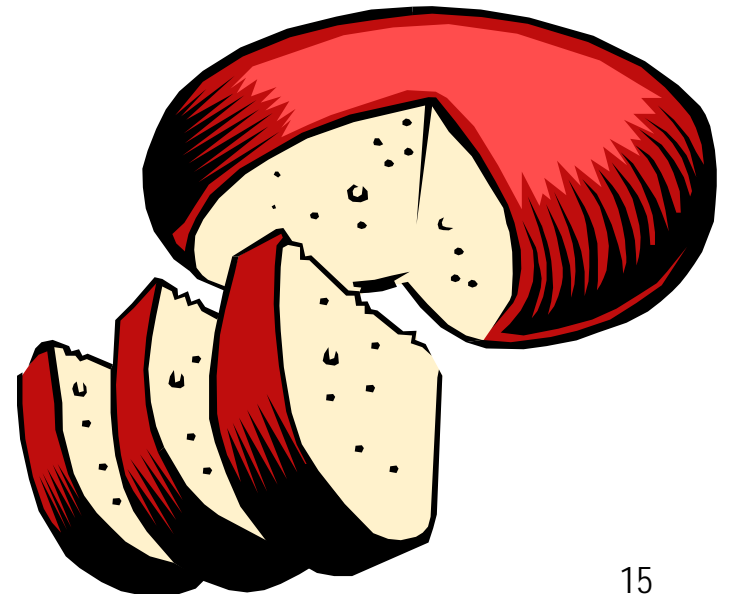


- Shift from smaller to larger farms
- Marketing genetics vs. marketing milk
- Much vertical integration
- National Milk Producers Federation
- Milk check-off

Milk Marketing



- Cooperative
- Mid-Atlantic Milk Marketing Association
- Processing*
- Grades of milk



The Poultry Industry

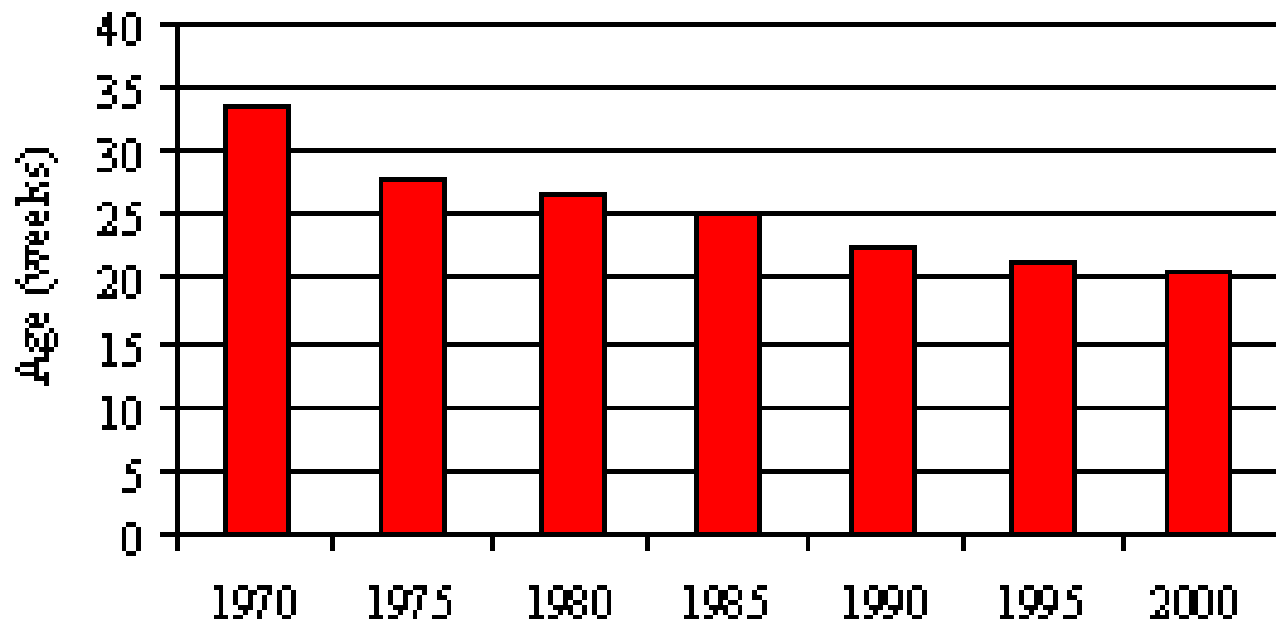


Provided by Robert Hockey

- Dual purpose: meat and eggs
- Other poultry products?
- Chicken, turkey, duck, goose . . . ?
- Feed efficiency and growth rate!

Growth and Feed Efficiency

Turkeys Toms – Age to 35 pounds



Ferket, 2001



More birds

Ratites

- Flat, “raft-like” keel bones
- Include *Camelus struthio* (ostrich), *Dromaius novaehollandiae* (emu), as well as cassowary and rhea
- 1995, 1,200 ostriches “processed” in US
- 1998, 100,000 ostriches processed in US
- 2006?

Ostriches: A story to learn from.



- Meat
- Oil, feathers, leather
- Large capital outlay for upstart
- Markets?

The Poultry Industry

- Vertically integrated
- Egg producers (breeders)
- Broiler producers (breeders)
- Perdue Farms, MD
- Holly Farms
- Breeds of less importance

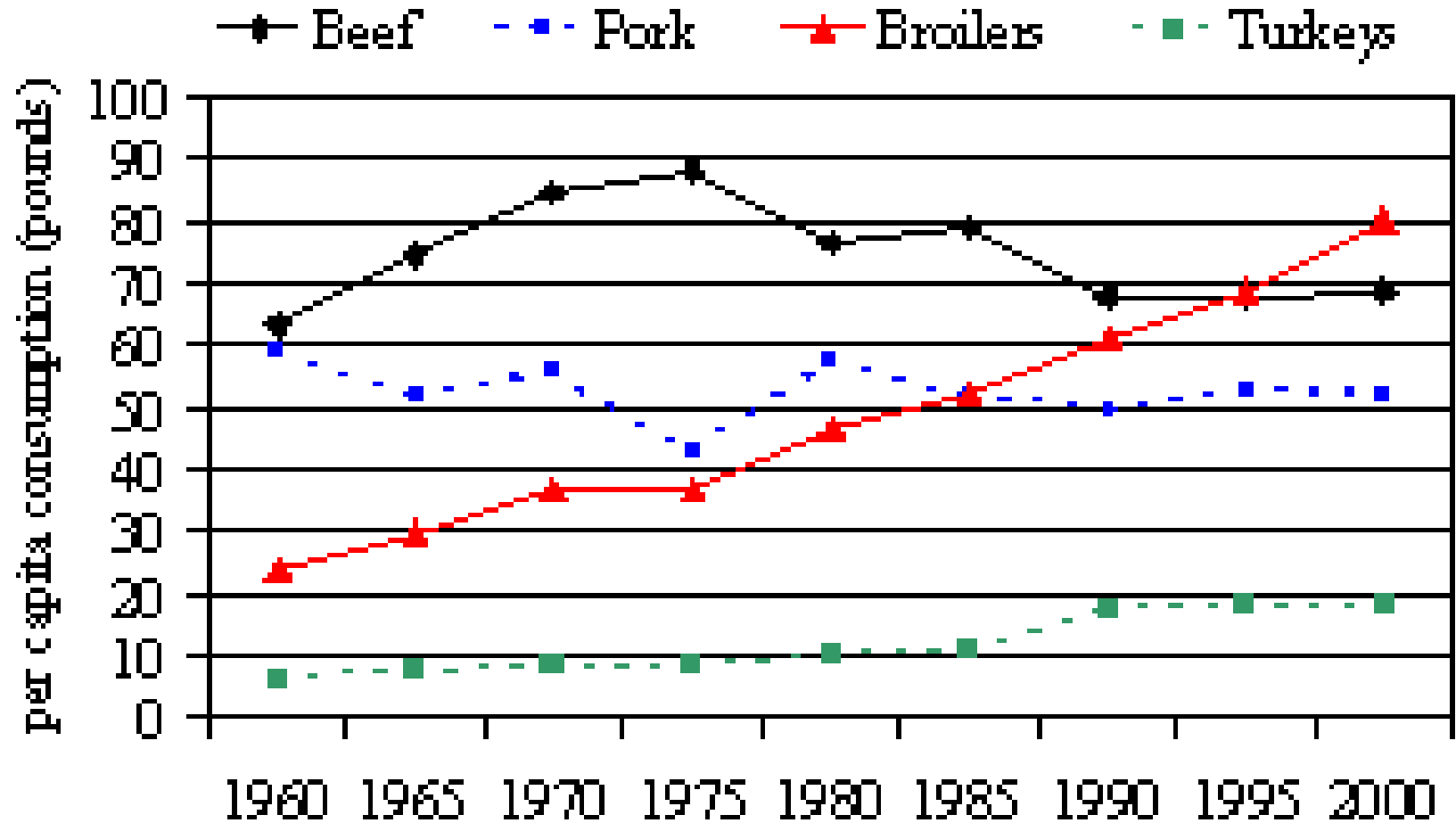




Chicken Tidbits

- Hatch time: ~21 days
- Precocious young
- Hens begin to lay ~18 weeks of age
- Broilers reach harvest weight 4-6 weeks*

US Per Capita Consumption





Industry Highlights of 20 years

- Check-off programs to promote products?
- Inexpensive meat: chicken
- Poultry production vertically integrated
- Competition to improve efficiency

- Delving deeper into the livestock industry
- Sheep
- Hogs
- Horses

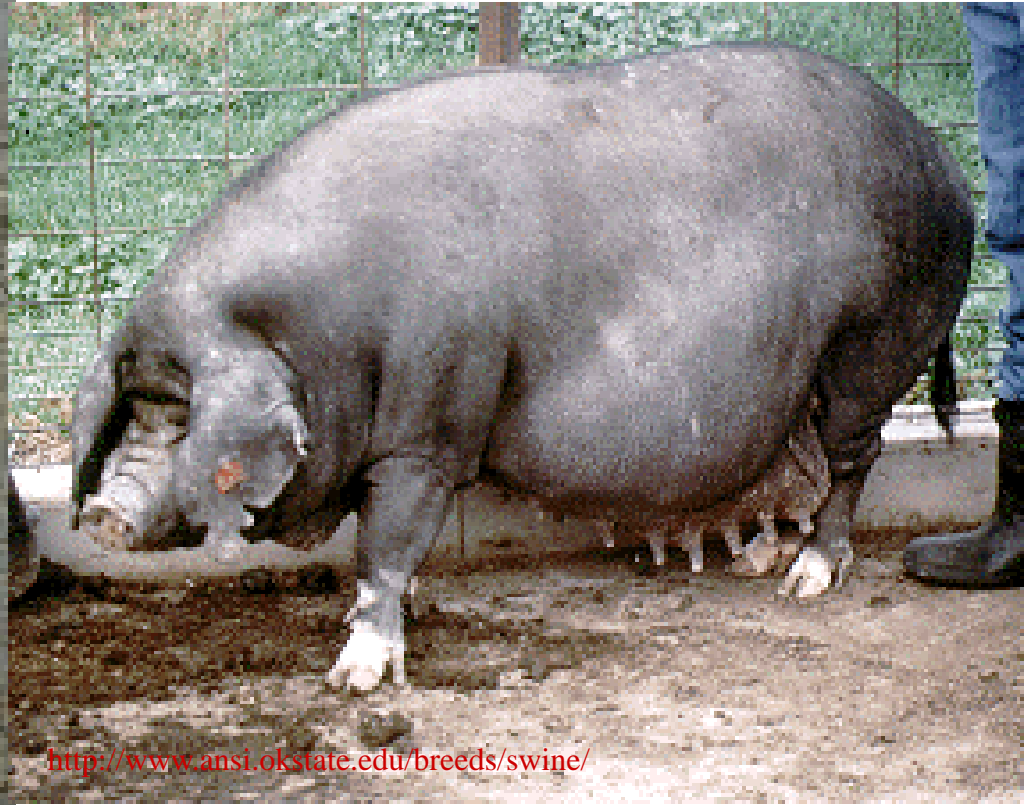




Domesticating Swine

- Meat
- Emphasis on:
 - Growth rate
 - Litter size*
 - Carcass traits
- Genus & species: *Sus scrofa*
- Other uses?

Sus scrofa?



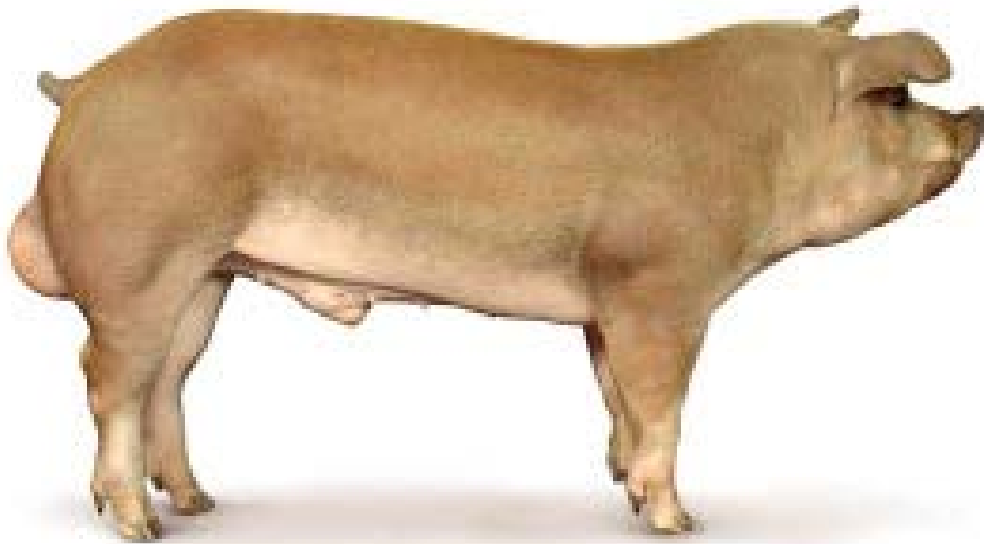
Phases of Pork Production

● Farrow to finish

- “All inclusive”
- VERY grain dependent
- Commercial producers
- Seedstock (purebred) producers



“Genetics” Companies



- DeKalb
- Pig Improvement Corporation
- Land o' Lakes
- Swine Genetics International
- Patterning after poultry companies?

<http://www.pic.com/index.asp?orgid=581&storyTypeID=&sid=&langID=>

Phase II Pork Production

- Feeder pig producers
 - Intermediary step
 - Sell weaned pigs
 - 40-50 lbs.
 - Efficiency . . .



www.lakesidefeeders.com/sew.htm

Phase III Pork Production



www.jrbfarms.com/swineproduction.htm

● Feeders (Finishers)

- Grain (concentrate) ration
- Rapid growth
- Harvest at 250-260 pounds+
- What is “finished?”



Swine tidbits

- Age at puberty: 6-8 months
- Age at weaning: 10D-3 weeks (SEW)
- Gestation length: 114 days
- Goal: breed gilts ~ 8 months of age*



Back to Grandin's Articles . . .

- Comfort in seeing other animals
- BUT . . . Are there other reasons to house animals w/common fence line?
- **Pheromones** and boars
- Promoting estrus



Pork Industry

- Various “phases”
- Horizontal integration
- More vertical integration—Carroll’s Foods, Tyson Foods
- National Pork Board
- Pork check-off



Domesticating Sheep

- Meat
- Wool
- Emphasis on:
 - Growth rate
 - Ease of production
 - Hair type breeds
- Genus & species: *Ovis aries*
- DUAL purpose

Primary Purposes



Enter a New Era . . .

● Hair sheep



Katahdin

- “Hair sheep”
- SHED
- White or reddish
- Campus Farm
- WHY?



Provided by Katahdin Hair Sheep International

Dorper

- Easy care breed
- Combo of hair & wool
- Skin value
- Breed “out of season”
- Campus Farm



© 1997 Oklahoma State University

Provided by Select Genes Ltd



© 1999 Oklahoma State University

Provided by Mr P J Cilliers

Phases of Sheep Production

- Farm Flocks
 - Secondary enterprise
 - Grain operations
 - 4-H projects
- Range Flocks
 - Grazing lands
 - Less handling*
 - Timed to lamb during less severe weather



<http://www.mth.msu.edu/~maccluer/Farm/sheep.jpeg>

Commercial vs. Purebred Flocks



Commercial flocks

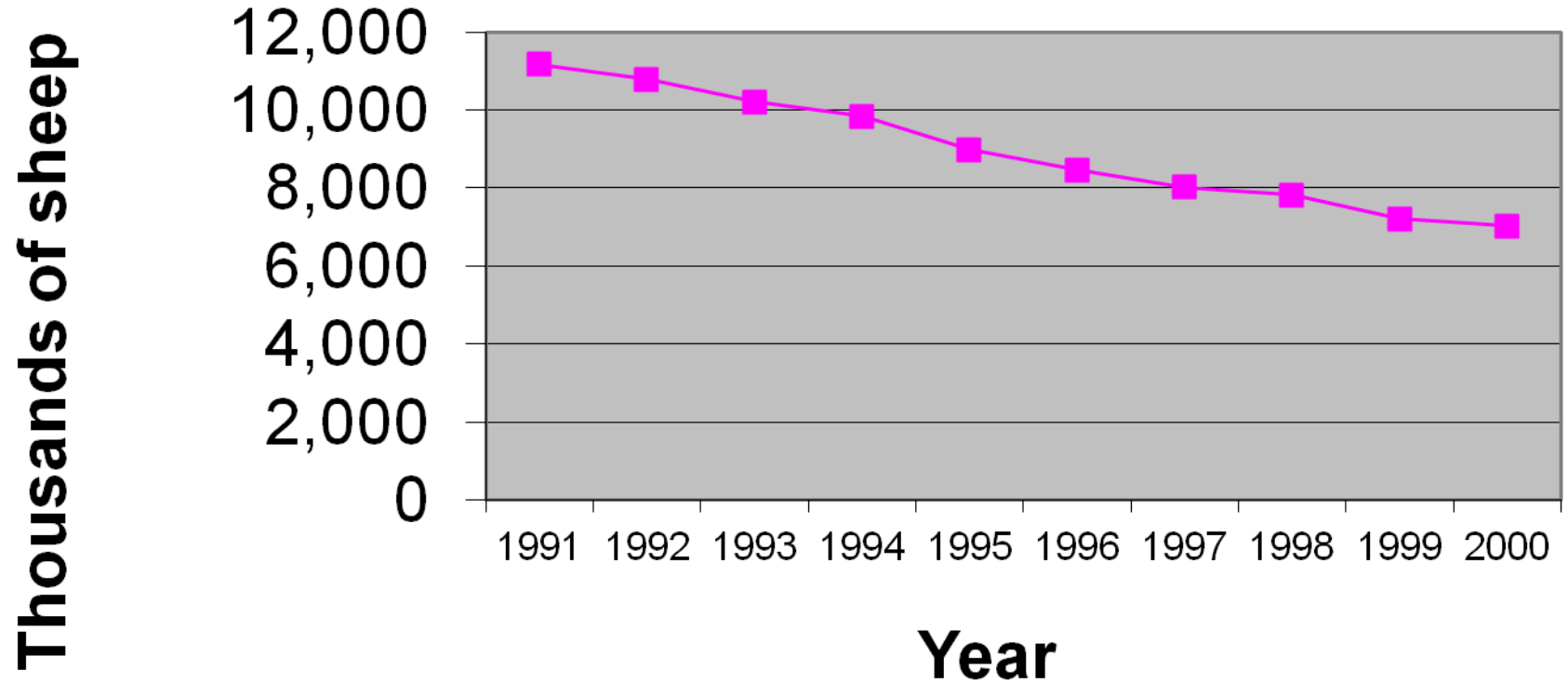
- Typically Xbred
- Castrate ram lambs
- NOT primarily marketing genetics

Purebred flocks

- Market genetics
- NO castration of ram lambs

<http://www.homestead.com/mstecker/salisbury.html>

Total US Sheep



NASS, Economic Research Service



Sheep Tidbits

- Age at puberty: 5-7 months
- Age at weaning: *WIDE* variation*
- Gestation length: ~147 days
- NICHE markets
 - **Meat**
 - **Wool crafters (specialty fleeces)**



Domesticating Horses

- Power
- Transportation
- Emphasis on:
 - Structure
 - Longevity
 - Strength/Speed
- Genus & species: *Equus caballus*

Purpose



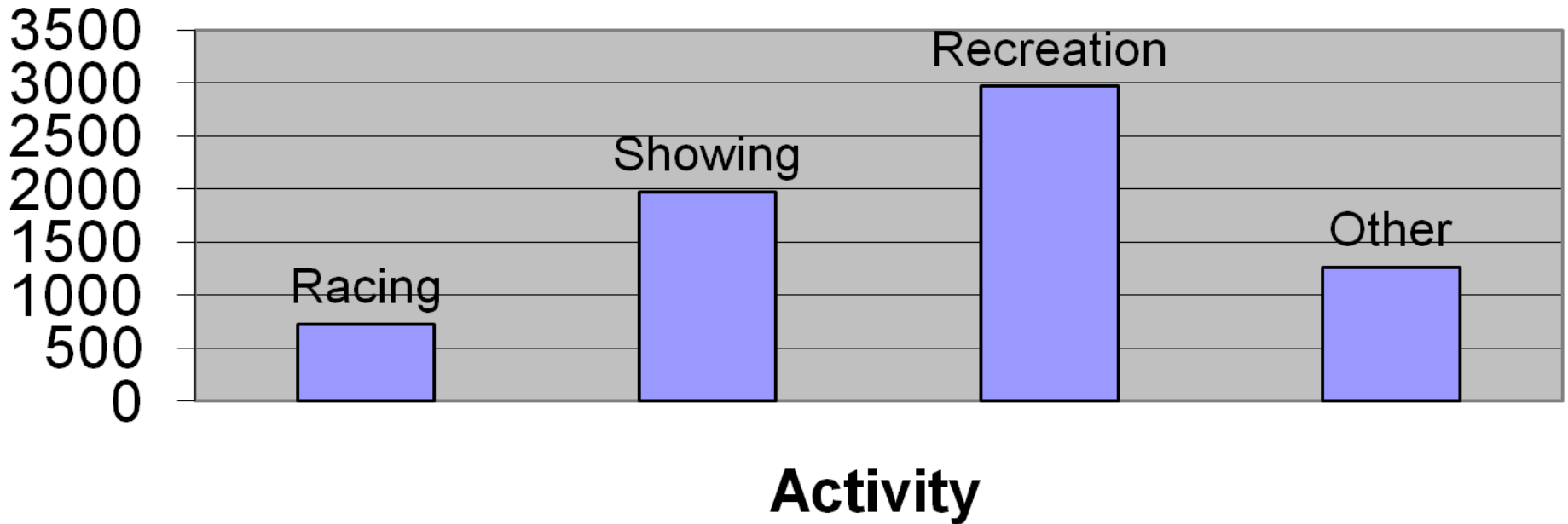
101

<http://www.kbrhorse.net/whb/must28.html>

<http://www.cnn.com/2001/WORLD/asiapcf/auspac/11/02/aust.horse/>

How Are US Horses Used?

Thousands of head



American Horse Council Study, 2002

Phases of Production



- Breeding farms
- Specialty (discipline) farms
- Training facilities
- Boarding facilities
- Unique to other species

<http://www.sheldakranch.com/photo.htm>



Horse Tidbits

- Age at puberty
 - Females: **Light horse** breeds 12-18 months** (36 mos.)
 - Females: **Draft** breeds 18-24 months
 - Males: 12-14 months** (60 mos.)
- Age at weaning: 4-6 months
- Gestation length: 340 days



So we've domesticated some species Now what?

- Breed development
- Breed: “animals of common origin with characteristics that distinguish them from other groups within the same species.” (Taylor & Field, 2004)
- HOW do we determine traits to “set” in a given breed?