

Livestock

Livestock are domesticated animals raised in an agricultural setting to produce labor and commodities such as meat, eggs, milk, fur, leather, and wool. The term is sometimes used to refer solely to those that are bred for consumption, while other times it refers only to farmed duminants, such as cattle and goats.^[1]

In recent years, some organizations have also raised livestock to promote the survival of rare breeds. The breeding, maintenance, and slaughter of these animals, known as animal husbandry, is a component of modern agriculture that has been practiced in many cultures since humanity's transition to farming from hunter-gatherer lifestyles.

Animal husbandry practices have varied widely across cultures and time periods. Originally, livestock were not confined by fences or enclosures, but these practices have largely shifted to intensive animal farming, sometimes referred to as "factory farming". Now, over 99% of livestock are raised on factory farms.^[2] These practices increase yield of the various commercial outputs, but have also led to negative impacts on animal welfare and the environment. Livestock production continues to play a major economic and cultural role in numerous rural communities.



Cattle on a pasture in Germany

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Etymology and legal definition

Livestock as a word was first used between 1650 and 1660, as a merger between the words "live" and "stock".^[3] In some periods the words "cattle" and "livestock" have been used interchangeably. One instance is Old North French *catel*, which meant all kinds of movable personal property,^[4] including livestock, which was differentiated from immovable real estate ("real property"). In later English, sometimes small livestock such as chickens and pigs were referred to as "small cattle".. Today, the modern meaning of cattle, without a modifier, usually refers to domesticated bovines, but sometimes "livestock" refers only to this subgroup.^[4]

United States' federal legislation defines the term in broader or narrower ways to make specified agricultural commodities either eligible or ineligible for a program or activity. For example, the Livestock Mandatory Reporting Act of 1999(P.L. 106-78, Title IX) defines livestock only as cattle, swine, and sheep. The 1988 disaster assistance legislation defined the term as "cattle, sheep, goats, swine, poultry (including egg-producing poultry), equine animals used for food or in the production of food, fish used for food, and other animals designated by the Secretary"^[5]

Deadstock is defined in contradistinction to livestock as " animals that have died before slaughter, sometimes from illness". It is illegal in Canada to sell or process meat from dead animals for human consumption.^[6]



This Australian road sign uses the less common term "stock" for livestock.

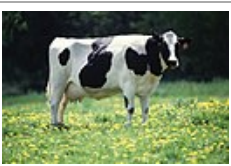
History

Animal-rearing originated during the cultural transition to settled farming communities from hunter-gatherer lifestyles. Animals are domesticated when their breeding and living conditions are controlled by humans. Over time, the collective behaviour, lifecycle and physiology of livestock have changed radically. Many modern farm animals are unsuited to life in the wild.

Dogs were domesticated in East Asia about 15,000 years ago. Goats and sheep were domesticated around 8000 BC in Asia. Swine were domesticated by 7000 BC in the Middle East and China. The earliest evidence of equine domestication dates to around 4000 BC.^[7] Cattle have been domesticated since approximately 10,500 years ago.^[8] Chickens and other poultry may have been domesticated around 7000 BC.^[9] Rabbits are said to have been domesticated in the 5th Century by the monks of the Champagne Region in France.^[10]

Types

The term "livestock" is nebulous and may be defined narrowly or broadly. Broadly, livestock refers to any breed or population of animal kept by humans for a useful, commercial purpose. This can mean domestic animals, semidomestic animals, or captive wild animals. Semidomesticated refers to animals which are only lightly domesticated or of disputed status. These populations may also be in the process of domestication.

Animal / Type	Domestication status	Wild ancestor	Time of first captivity, domestication	Area of first captivity, domestication	Current commercial uses	Picture	Ref
<u>Alpaca</u> Mammal, herbivore	domestic	<u>Vicuña</u>	Between 5000 BC and 4000 BC	<u>Andes</u>	<u>Alpaca fiber</u> , <u>meat</u>		
<u>Addax</u> Mammal, herbivore	domestic	Addax	2500 BCE	<u>Egypt</u>	Meat, hides		
<u>Bali cattle</u> Mammal, herbivore	domestic	<u>Banteng</u>	Unknown	<u>Southeast Asia</u> , <u>Bali</u>	Meat, milk, <u>draught</u>		
<u>Bison</u> Mammal, herbivore	captive (see also <u>Beefalo</u>)	N/A	Late 19th century	<u>North America</u>	Meat, <u>leather</u>		
<u>Camel</u> Mammal, herbivore	domestic	Wild dromedary and <u>Bactrian camel</u>	Between 4000 BC and 1400 BC	<u>Asia</u>	Mount, pack animal, meat, milk, <u>camel hair</u>		
<u>Cattle</u> Mammal, herbivore	domestic	<u>Aurochs</u>	6000 BC	<u>Southwest Asia</u> , <u>South Asia</u> , <u>North Africa</u>	Meat (<u>beef</u> , <u>veal</u>), milk, <u>leather</u> , <u>draught</u>		
<u>Capybara</u> Mammal, herbivore	captive	Capybara	Unknown	<u>South America</u>	Meat, skins, pet		
<u>Collared peccary</u> Mammal, omnivore	captive	Collared peccary	Unknown	<u>Brazil</u>	Meat, tusks, skins, pet		
<u>Deer</u> Mammal, herbivore	captive	N/A	First century AD	<u>UK</u>	Meat (<u>venison</u>), <u>leather</u> , <u>antlers</u> , <u>antler velvet</u>		
<u>Donkey</u> Mammal, herbivore	domestic	<u>African wild ass</u>	4000 BC	<u>Egypt</u>	Mount, pack animal, <u>draught</u> , meat, milk		
<u>Eland</u> Mammal, herbivore	domestic	<u>Common eland</u> , <u>Giant eland</u>	Unknown	<u>South Africa</u> , <u>Kenya</u> , <u>Zimbabwe</u> , <u>West Africa</u>	Meat, milk, <u>leather</u> , hides, horns		
<u>Elk</u>	captive	Elk	1990s	<u>North America</u>	Meat, antlers,		

Mammal, herbivore					leather, hides		
Fallow deer Mammal, herbivore	semidomestic	Fallow deer	9th century BC	<u>Mediterranean Basin</u>	Meat, antlers, hides, ornamentation		
Gayal Mammal, herbivore	domestic	<u>Gaur</u>	Unknown	<u>Southeast Asia</u>	Meat, draught		
Goat Mammal, herbivore	domestic	<u>Wild goat</u>	8000 BC	<u>Southwest Asia</u>	Milk, meat, wool, leather, light draught		
Guinea pig Mammal, herbivore	domestic	<u>Cavia tschudii</u>	5000 BC	<u>South America</u>	Meat, pet		
Greater cane rat Mammal, herbivore	captive	Greater cane rat	Unknown	<u>West Africa</u>	Meat		
Greater kudu Mammal, herbivore	captive	Greater kudu	Unknown	<u>South Africa</u>	Meat, hides, horns, leather, pet		
Horse Mammal, herbivore	domestic	<u>Wild horse</u>	4000 BC	<u>Eurasian Steppes</u>	Mount, draught, milk, meat, pet, pack animal		
Llama Mammal, herbivore	domestic	<u>Guanaco</u>	3500 BC	<u>Andes</u>	Pack animal, draught, meat, fiber		
Mule Mammal, herbivore	domestic	Sterile Hybrid offspring of Jack donkey x mare (female horse)			Mount, pack animal, draught		
Moose Mammal, herbivore	domestic	Moose	1940s	<u>Russia, Sweden, Finland, Alaska</u>	Meat, milk, antlers, research, draft		
Muskox Mammal, herbivore	domestic	Muskox	1960s	<u>Alaska</u>	Meat, wool, milk		

							
<u>Pig</u> Mammal, omnivore	domestic	<u>Wild boar</u>	7000 BC	<u>Eastern Anatolia</u>	Meat (pork), leather, pet, mount, <u>research</u>		
<u>Rabbit</u> Mammal, herbivore	domestic	Wild rabbit	AD 400-900	<u>France</u>	Meat, fur, leather, pet, research		
<u>Reindeer</u> Mammal, herbivore	semidomestic	Reindeer	3000 BC	<u>Northern Russia</u>	Meat, leather, antlers, milk, draught		
<u>Sika deer</u> Mammal, herbivore	domestic	Sika deer	Unknown	<u>Japan, China</u>	Meat, antlers, hides, leather, pet, tourism		
<u>Scimitar oryx</u> Mammal, herbivore	domestic	Scimitar oryx	2320-2150 BC	<u>Egypt</u>	Meat, sacrifice, horns, hides, leather		
<u>Sheep</u> Mammal, herbivore	domestic	Asiatic mouflon sheep	Between 11000 and 9000 BC	Southwest Asia	Wool, milk, leather, meat (lamb and <u>mutton</u>)		
<u>Thorold's deer</u> Mammal, herbivore	captive	Thorold's deer	Unknown	China	Meat, antlers		
<u>White-tailed deer</u> Mammal, herbivore	captive	White-tailed deer	Unknown	<u>West Virginia, Florida, Colombia</u>	Meat, antlers, hides, pet		
<u>Water buffalo</u> Mammal, herbivore	domestic	<u>Wild Asian water buffalo</u> (Arni)	4000 BC	South Asia	Mount, draught, meat, milk		
<u>Yak</u> Mammal, herbivore	domestic	<u>Wild yak</u>	2500 BC	<u>Tibet, Nepal</u>	Meat, milk, fiber, mount, pack animal, draught		
<u>Zebu</u> Mammal, herbivore	domestic	Aurochs	8000 BC	<u>India</u>	Meat, milk, draught, hides		



Farming practices

Farming practices vary dramatically worldwide and among types of animals. Livestock are generally kept in an enclosure, fed by humans, and intentionally bred. However, some livestock are not enclosed, are fed by access to natural foods, and are allowed to breed freely

Historically, raising livestock was part of a nomadic or pastoral form of material culture. The herding of camels and reindeer in some parts of the world remains dissociated from sedentary agriculture. The transhumance form of herding in the California Sierra Nevada still continues, as cattle, sheep, or goats are moved from winter pasture in lower-elevation valleys to spring and summer pasture in the foothills and alpine regions, as the seasons progress. Cattle were raised on the open range in the western United States and Canada, on the Pampas of Argentina, and on other prairie and steppe regions of the world.

The enclosure of livestock in pastures and barns is a relatively new development in the history of agriculture. When cattle are enclosed, the type of confinement may vary from a small crate, a large-area fenced-in pasture, or a paddock. The type of feed may vary from naturally growing grass to animal feed. Animals are usually intentionally bred through artificial insemination or supervised mating. Indoor production systems are typically used for pigs, dairy cattle, poultry, veal cattle, dairy goats, and other animals depending on the region and season. Animals kept indoors are generally farmed intensively as large space requirements could make indoor farming unprofitable if not impossible. However, indoor farming systems are controversial due to problems associated with handling animal waste, odours, the potential for groundwater contamination, and animal welfare concerns. (For a further discussion on intensively farmed livestock, see factory farming and intensive pig farming). Livestock source verification is used to track livestock.

Other livestock are farmed outdoors, where the size of enclosures and the level of supervision may vary. In large, open ranges, animals may be only occasionally inspected or yarded in "round-ups" or a muster. Herding dogs may be used for mustering livestock, as are cowboys, stockmen, and jackaroos on horses, in vehicles, and in helicopters. Since the advent of barbed wire (in the 1870s) and electric fence technology, fencing pastures has become much more feasible and pasture management simplified. Rotation of pasturage is a modern technique for improving nutrition and health while avoiding environmental damage to the land. In some cases, very large numbers of animals may be kept in indoor or outdoor feeding operations (onfeedlots), where the animals' feed is processed either offsite or onsite, and stored on site before being fed to the animals.

Livestock—especially cattle—may be branded to indicate ownership and age, but in modern farming, identification is more likely to be indicated by means of ear tags and electronic identification, instead. Sheep are also frequently marked by means of ear marks and/or ear tags. As fears of BSE and other epidemic illnesses mount, the use of implants to monitor and trace animals in the food production system is increasingly common, and sometimes required by government regulations.

Modern farming techniques seek to minimize human involvement, increase yield, and improve animal health. Economics, quality, and consumer safety all play roles in how animals are raised. The use of hard and soft drugs and feed supplements (or even feed type) may be regulated, or prohibited, to ensure that yield is not increased at the expense of consumer health, safety, or animal welfare. Practices vary around the world, for example growth hormone use is permitted in the United States, but not in stock to be sold in the European Union. The improvement of animal health using modern farming techniques has come into question. Feeding corn to cattle, which have historically eaten grasses, is an example; where the cattle are less adapted to this change, the rumen pH becomes more acidic, leading to liver damage and other health problems. The US Food and Drug Administration allows nonruminant animal proteins to be fed to cattle enclosed in feedlots. For example, it is acceptable to feed chicken manure and poultry meal to cattle, and beef or pork meat and bone meal to chickens.



Goat family with 1-week-old kid



Farrowing site in a natural cave in northern Spain

Predation

Livestock farmers have suffered from wild animal predation and theft by rustlers. In North America, animals such as the gray wolf, grizzly bear, cougar, and coyote are sometimes considered a threat to livestock. In Eurasia and Africa, predators include the wolf, leopard, tiger, lion, dhole, Asiatic black bear, crocodile, spotted hyena, and other carnivores. In South America, feral dogs, jaguar, anacondas, and spectacled bears are threats to livestock. In Australia, the dingo, fox, and wedge-tailed eagle are common predators, with an additional threat from domestic dogs that may kill in response to a hunting instinct, leaving the carcass uneaten!^{[11][12]}

Disease

Livestock diseases compromise animal welfare, reduce productivity, and can infect humans. Animal diseases may be tolerated, reduced through animal husbandry, or reduced through antibiotics and vaccines. In developing countries, animal diseases are tolerated in animal husbandry, resulting in considerably reduced productivity, especially given the low health-status of many developing country herds. Disease management to improve productivity is often the first step taken in implementing an agriculture policy

Disease management can be achieved by modifying animal husbandry practices. These measures aim to prevent infection with biosecurity measures such as controlling animal mixing and entry to farm lots, wearing protective clothing, and quarantining sick animals. Diseases also may be controlled by the use of vaccines and antibiotics. Antibiotics in subtherapeutic doses may also be used as a growth promoter, sometimes increasing growth by 10-15%.^[13] Concerns about antibiotic resistance have led in some cases to discouraging the practice of preventive dosing such as the use of antibiotic-laced feed. Countries often require veterinary certificates as a condition for transporting, selling, or exhibiting animals. Disease-free areas often rigorously enforce rules for preventing the entry of potentially diseased animals, including quarantine.

Transportation and marketing

Since many livestock are herd animals, they were historically driven to market "on the hoof" to a town or other central location. During the period after the American Civil War, the abundance of Longhorn cattle in Texas and the demand for beef in Northern markets led to the implementation of the Old West cattle drive. The method is still used in some parts of the world. Truck transport is now common in developed countries. Local and regional livestock auctions and commodity markets facilitate trade in livestock. In other areas, livestock may be bought and sold in a bazaar, such as may be found in many parts of Central Asia, or in an informal flea market-type setting.



Grass-fed cattle, saleyards, Walcha, New South Wales

In developing countries, providing access to markets has encouraged farmers to invest in livestock, with the result being improved livelihoods. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has worked in Zimbabwe to help farmers make the most of their livestock herds. ICRISAT works to improve local farming systems through 'innovation platforms' at which farmers, traders, rural development agencies, and extension officers can discuss the challenges they faced. One finding was that if farmers devoted half of three hectares to maize and half to mucuna (velvet bean) in a rotation system, they could obtain 80% of the biomass needed to see their livestock through the dry season. If they only grew maize, they could only meet 20% of their biomass needs. In the town of Gwanda, the platform helped create a strong local market for goats, raising the value of a single animal from US\$10 to \$60. This gave the farmers a great incentive to invest in their own goats by growing their own feed stock, buying commercial feed only as a supplement, and improving their rangeland management techniques. Because the platform has helped regulate prices, farmers now plan ahead and sell animals at auction, rather than just selling one or two animals at their farm gate as opportunities arise!^[14]

Stock shows and fairs are events where people bring their best livestock to compete with one another. Organizations such as 4-H, Block & Bridle, and FFA encourage young people to raise livestock for show purposes. Special feeds are purchased and prior to the show, hours may be spent grooming the animal to look its best. In cattle, sheep, and swine shows, the winning animals are frequently auctioned off to the highest bidder, and the funds are placed into a scholarship fund for its owner. The movie Grand Champion, released in 2004, tells the story of a young Texas boy's experience raising a prize steer

Environmental impact

Animal husbandry has a significant impact on the world environment. It is responsible for somewhere between 20 and 33% of the fresh water usage in the world,^[15] and livestock, and the production of feed for them, occupy about a third of the earth's ice-free land.^[16] Livestock production is a contributing factor in species extinction, desertification,^[17] and habitat destruction.^[18] Animal agriculture contributes to species extinction in various ways. Habitat is destroyed by clearing forests and converting land to grow feed crops and for animal grazing, while predators and herbivores are frequently targeted and hunted because of a perceived threat to livestock profits; for example, animal husbandry is responsible for up to 91% of the deforestation in the Amazon region.^[19] In addition, livestock produce greenhouse gases. Cows produce some 570 million cubic metres of methane per day,^[20] that accounts for from 35 to 40% of the overall methane emissions of the planet.^[21] Livestock is responsible for 65% of all human-related emissions of the powerful and long-lived greenhouse gas nitrous oxide.^[22] As a result, ways of mitigating animal husbandry's environmental impact are being studied. Strategies include using biogas from manure!^[23]

Economic and social benefits

The value of global livestock production in 2013 has been estimated at about 883 billion dollars, (constant 2005-2006 dollars).^[24] However, economic implications of livestock production extend further: to downstream industry (saleyards, abattoirs, butchers, milk processors, refrigerated transport, wholesalers, retailers, food services, tanneries, etc.), upstream industry (feed producers, feed transport, farm and ranch supply companies, equipment manufacturers, seed companies, vaccine manufacturers, etc.) and associated services (veterinarians, nutrition consultants, shearers, etc.).



Livestock production requires large areas of land.

Livestock provide a variety of food and nonfood products; the latter include leather, wool, pharmaceuticals, bone products, industrial protein, and fats. For many abattoirs, very little animal biomass may be wasted at slaughter. Even intestinal contents removed at slaughter may be recovered for use as fertilizer. Livestock manure helps maintain the fertility of grazing lands. Manure is commonly collected from barns and feeding areas to fertilize cropland. In some places, animal manure is used as fuel, either directly (as in some developing countries), or indirectly (as a source of methane for heating or for generating electricity). In regions where machine power is limited, some classes of livestock are used as draft stock, not only for tillage and other on-farm use, but also for transport of people and goods. In 1997, livestock provided energy for between an estimated 25 and 64% of cultivation energy in the world's irrigated systems, and that 300 million draft animals were used globally in small-scale agriculture.^[25]

Although livestock production serves as a source of income, it can provide additional economic values for rural families, often serving as a major contributor to food security and economic security. Livestock can serve as insurance against risk^[26] and is an economic buffer (of income and/or food supply) in some regions and some economies (e.g., during some African droughts). However, its use as a buffer may sometimes be limited where alternatives are present,^[27] which may reflect strategic maintenance of insurance in addition to a desire to retain productive assets. Even for some livestock owners in developed nations, livestock can serve as a kind of insurance.^[28] Some crop growers may produce livestock as a strategy for diversification of their income sources, to reduce risks related to weather, markets and other factors^{[29][30]}

Many studies have found evidence of the social, as well as economic, importance of livestock in developing countries and in regions of rural poverty, and such evidence is not confined to pastoral and nomadic societies.^{[26][31][32][33][34]}

Social values in developed countries can also be considerable. For example, in a study of livestock ranching permitted on national forest land in New Mexico, USA, it was concluded that "ranching maintains traditional values and connects families to ancestral lands and cultural heritage", and that a "sense of place, attachment to land, and the value of preserving open space were common themes". "The importance of land and animals as means of maintaining culture and way of life figured repeatedly in permittee responses, as did the subjects of responsibility and respect for land, animals, family, and community."^[35]

In the US, profit tends to rank low among motivations for involvement in livestock ranching.^[36] Instead, family, tradition and a desired way of life tend to be major motivators for ranch purchase, and ranchers "historically have been willing to accept low returns from livestock production."^[37]

See also

- Agribusiness
- Agroecology
- Amenable species
- Aquaculture
- Beekeeping
- Bovine spongiform encephalopathy
- California Proposition 2 (2008)
- Cryoconservation of animal genetic resources
- Cuniculture (rabbit farming)
- Environmental effects of meat production
- Fur farming
- Leave the gate as you found it
- Livestock's Long Shadow - Environmental Issues and Options (UN report)
- Pen
- Ranching
- Sericulture (silkworm farming)
- Sheep husbandry
- Western Fair
- Wildlife farming

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