


Jacob (sheep)

Jacob sheep	
	
<p>A multi-horned Jacob ram at the Royal Show in Stoneleigh Park, Warwickshire, England</p>	
Conservation status	threatened (ALBC)
Nicknames	Spanish sheep, Many-horned sheep, Piebald sheep
Country of origin	unknown (ancient breed, from Old World)
Traits	
Weight	Male: 120 to 180 pounds (54 to 82 kg)
	Female: 80 to 120 pounds (36 to 54 kg)
Wool color	black and white spotted is most common
Face color	"badger-faced", consisting of black cheeks and muzzle with a white blaze
<p>Sheep <i>Ovis aries</i></p>	

The **Jacob sheep** is a rare breed of small, piebald (colored with white spots), polycerate (multi-horned) sheep. Jacobs may have from two to six horns, but most commonly have four. The most common color is black and white. Jacobs are usually raised for their wool, meat, and hides. They are also kept as pets and ornamental animals, and have been used as guard animals to protect farm property from theft or vandalism and defend other livestock against predators.

Generally referred to as an unimproved or heirloom breed (one that has survived with little human selection), the Jacob is descended from an ancient Old World breed of sheep, although its exact origins remain unclear. Spotted polycerate sheep were documented in England by the mid-17th century, and were widespread a century later. Unlike most other old world breeds, the Jacobs of North America have not undergone extensive cross-breeding and selective breeding; their body habitus resembles that of a goat. Relative to their American counterparts, British Jacobs tend to be larger and heavier, and have lost many of their original characteristics through artificial selection.

English



Peter Paul Rubens, *The Reconciliation of Jacob and Esau*, 1624. Two long-tailed sheep are visible in the foreground of this painting.

The origins of the Jacob are obscure, but it is certainly a very old breed. Piebald sheep have been described throughout history, appearing in works of art from the Far East, Middle East, and Mediterranean regions. A piebald breed of sheep probably existed in the Levant, specifically in the area that is now known as Syria, about three thousand years ago.

Among the many accounts of ancient breeds of piebald sheep is the story of Jacob from the first book of the Hebrew Bible and the Christian Old Testament. According to the Book of Genesis (Genesis 30:31–43), in what may be the earliest recorded attempt at selective breeding, Jacob took every speckled and spotted sheep from his father-in-law's (Laban's) flock and bred them. The Jacob is named for the Biblical figure of Jacob. The resulting breed may have accompanied the westward expansion of human civilization through Northern Africa, Sicily, Spain and eventually England. However, it was not until the 20th century when the breed acquired the name

"Jacob sheep".

A limited amount of circumstantial evidence from the historical record lends support to a related theory that the Jacob is a descendant of the fat-tailed sheep, another ancient breed from Mesopotamia. The earliest records of the fat-tailed sheep are found in the Sumerian cities of ancient Uruk (3000 BC) and Ur (2400 BC) on stone vessels and mosaics. Another early reference to this breed is found in the Book of Leviticus (Leviticus 3:9), where an animal sacrifice is described which includes the tail fat of sheep. Despite the scant evidence from the historical record, a recent genetic analysis has provided compelling evidence supporting a direct link between the Jacob and certain unimproved breeds in Southwest Asia and Africa rather than other British breeds. Using retroviruses as genetic markers, the authors found that sheep dispersed across Eurasia and Africa via at least two separate migratory episodes. Descendants of the first migrations include the Mouflon, as well as other unimproved breeds, such as the North Ronaldsay sheep, Soay sheep, and the northern European short-tailed sheep. A later migratory episode shaped the great majority of present-day breeds.

Some people believe that the Jacob is a descendant of a subarctic breed of sheep introduced by Vikings to the British Isles during the Middle Ages. Norsemen are believed to have introduced certain robust types of sheep to Northern Europe and the British Isles between the late eighth century to the middle of the eleventh century. However, the sheep introduced by the Norse were of a short-tailed variety native to an area stretching from the British Isles to the Baltic, known as the northern European short-tailed sheep. In fact, all Scandinavian breeds belong to the Northern European short-tailed group of sheep. The northern European short-tailed sheep are a group of sheep breeds and landraces which includes the Finnsheep, Icelandic, Romanov, Shetland, Spaelsau, and several other breeds. The Jacob bears little resemblance to these. The Jacob is a long-tailed breed, and is therefore unlikely to be related to any breeds introduced by the Vikings.

One persistent legend holds that the Jacob washed ashore from shipwrecks in England after the destruction of the Spanish Armada in 1588. Despite the fact that there is little if any reliable evidence to support this claim, the Jacob was referred to as the "Spanish sheep" for much of its early recorded history. It has been bred in England for at least 350 years, and spotted sheep were widespread in England by the mid-18th century. By that time, Jacobs were often kept as ornamental animals grazed in parks, which probably kept the breed extant. In recent years, Jacobs have been used as guard sheep in Gloucestershire, in the manner of guard dogs, to protect farm property from vandalism.

Jacobs were first imported into parks and zoos of North America in the early 20th century. Some individuals acquired them from zoos in the 1960s and 1970s, but the breed remained rare in America until the 1980s. Most of today's population of American Jacobs is descended from those imported at that time. The Jacob Sheep Breeders Association (JSBA), organized in 1989, was the first breed association to be established in North America. Jacobs have become popular among small flock holders as well as handspinners and weavers.

Conservation status

Conservation charities such as the American Livestock Breeds Conservancy (ALBC) of North America and the Rare Breeds Survival Trust (RBST) of the United Kingdom are responsible for the documentation and preservation of rare breeds of domesticated animals, including the Jacob. There are also several breed registries whose only focus is the Jacob, such as the American Jacob Sheep Registry and the Jacob Sheep Breeders Association. In the United States, identification of Jacobs as endangered and ensuing registration of sheep began in 1985. As of 2009, the ALBC has listed the American population of the Jacob as a "threatened breed" and a conservation priority. The breed is estimated to have fewer than 1,000 annual registrations in the United States and a global population of less than 5,000. Identifying purebreds is a continual challenge for American breeders, and the marketing of crossbreeds (such as the Jacob-Dorset) as purebred Jacobs to unsuspecting buyers has presented a significant obstacle to the conservation of the American population. However, the RBST in the United Kingdom do not view the Jacob as being at risk as there are in excess of 3,000 registered breeding females.

Physical characteristics

General

The Jacob is a small, multi-horned, piebald sheep that resembles a goat in its conformation. However, it is not the only breed that can produce polycerate or piebald offspring. Other polycerate breeds include the Hebridean, Icelandic, Manx Loaghtan, and the Navajo-Churro, and other piebald breeds include the Finnsheep and the West African Dwarf.

Mature rams (males) weigh about 120 to 180 pounds (54 to 82 kg), while ewes (females) weigh about 80 to 120 pounds (36 to 54 kg). The body frame is long, with a straight back and a rump that slopes toward the base of the tail. The rams have short scrotums free of wool which hold the testicles closer to the body than those of modern breeds, while the ewes have small udders free of wool that are also held closer to the body than those of modern breeds. The head is slender and triangular, and clear of wool forward of the horns and on the cheeks. The tail is long and woolly, extending almost to the hock if it has not been docked. Jacob owners do not usually dock the tail completely, even for market sheep, but instead leave several inches to cover the anus and vulva. The legs are medium-length, slender, free of wool below the knees, and preferably white with or without colored patches. The hooves are black or striped. It is not unusual for Jacobs to be cow-hocked. They provide a lean carcass with little external fat, with a high yield of meat compared to more improved breeds.



A multi-horned Jacob ram with fully grown horns at Wildpark Schloss Tambach, Weitraamsdorf-Tambach, Germany

Horns



Jacob sheep skull on display at the Muséum d'Histoire Naturelle, Bordeaux, France

The most distinguishing features of the Jacob are their four horns, although they may have as few as two or as many as six. Both sexes are always horned, and the rams tend to have larger and more impressive horns. Two-horned rams typically have horizontal double-curved horns. Four-horned rams have two vertical center horns which may be two or more feet in length, and two smaller side horns, which grow down along the sides of the head. The horns on the ewe are smaller in diameter, shorter in length and appear more delicate than those of the ram. British Jacobs most often have two horns, while American Jacobs are more often polycerate. Polled (hornless) sheep are not registrable, since this trait is considered an indication of past cross-breeding, and as such there is no such thing as a polled purebred

Jacob.

The horns are normally black, but may be black and white striped; white horns are undesirable. Ideally, horns are smooth and balanced, strongly attached to the skull, and grow in a way that does not impede the animal's sight or grazing abilities. Rams have larger horns than ewes. The horns in two-horned sheep, and the lower horns in four-horned animals, grow in a spiral shape. The rostral set of horns usually extend upwards and outwards, while the caudal set of horns curls downwards along the side of the head and neck. On polycerate animals it is preferred that there is a fleshy gap between the two pairs of horns. Partial or deformed horns that are not firmly attached to the skull, often referred to as "scurs", are not unusual but are considered undesirable.

The multihorned trait is genetically linked to a condition known as *split eyelid*. In mild cases the eyelid shows a "peak" but does not impair vision or cause discomfort. Extreme cases (Grade 3 or higher) result in a complete separation of the upper eyelid in the middle, and these sheep should not be used for breeding.

Markings

Each Jacob has distinctive markings that enable the shepherd to identify specific sheep from a distance. Desirable color traits include an animal which is approximately 60% white, with the remaining 40% consisting of a random pattern of black or "lilac" (brownish-gray) spots or patches. The skin beneath the white fleece is pink, while skin beneath colored spots is darkly pigmented. Both rams and ewes exhibit black markings, some of which are breed specific and some of which are random.

Breed specific markings include large, symmetrical dark patches incorporating the ears, eyes and cheeks, and a dark cape over the dorsal part of the neck and shoulders. The face should have a white blaze extending from the poll to the muzzle. The muzzle itself should be dark. The classic Jacob face is often referred to as "badger-faced", consisting of black cheeks and muzzle with a white blaze running down the front of the face. In addition to these markings, random spots may occur on the rest of the body and legs (including the carpi, hocks, and pasterns). Certain markings are common in particular lines: large muzzle markings, lack of leg markings, lack of muzzle markings, etc.

Wool and hides

While other British and Northern European multi-horned sheep have a fine inner coat and a coarse, longer outer coat, Jacobs have a medium grade fleece and no outer coat. The grade of Jacob wool is of a spinning count (S number or Bradford count) of 46–54, which corresponds to an average fiber diameter of about 32.7–27.9 micrometers, or *Low 1/4 Blood–1/4 Blood* on the American or Blood grading system. Lambs of the more primitive lines are born with a coat of guard hair that is protective against rain and cold; this birth coat is shed at 3–6 months.



A Jacob ewe in full fleece

In general, the fleece is light, soft, springy and open, with little lanolin (grease). The fleece generally weighs 3 to 6 pounds (1.4 to 2.7 kg) and varies in crimp and fineness. Staple length is generally 3 to 5 inches (7.6 to 12.7 cm) and may be up to 7 inches (18 cm). Similar to other unimproved breeds, most Jacobs have some white, kinky, kemp (coarse wool) in their fleece, though excessive kemp is undesirable. In some sheep (particularly British Jacobs, which have denser fleeces), the black wool will grow longer or shorter than the white wool. This is called "quilted fleece" and is an undesirable trait.

Jacobs are shorn once a year, most often in the springtime. Some individual sheep may develop a natural "break," or marked thinning, of the fleece in springtime, which can lead to a natural shedding of the fleece, particularly around the neck and shoulders. The medium-fine grade wool has a high luster, and is highly sought after by handspinners if it is free of kemp. The colors may be separated or blended after shearing and before spinning to produce various shades of yarn from a single fleece, from nearly white to nearly black. Tanned pelts also command high market prices.

Husbandry

Further information: Glossary of sheep husbandry

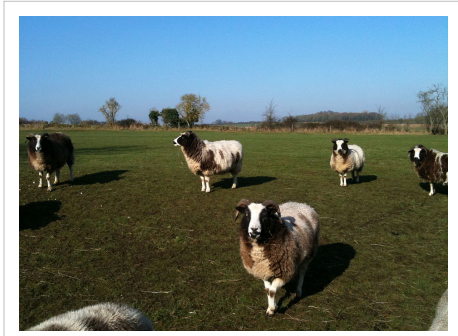


A Jacob ewe nursing her lamb

The Jacob is generally considered to be an "unimproved" or "heirloom" breed (one that has survived with little human selection). Such breeds have been left to mate amongst themselves, often for centuries, and therefore retain much of their original wildness and physical characteristics. American breeders have not subjected Jacobs to extensive cross-breeding or selective breeding, other than for fleece characteristics. Like other unimproved breeds, significant variability is present among individuals within a flock. In contrast, the British Jacob has been selected for greater productivity of meat, and therefore tends to be larger, heavier and have a more uniform appearance. As a result, the American Jacob has retained nearly all of the original phenotypic characteristics of its Old World ancestors while its British counterpart has lost many of its unimproved physical characteristics through cross-breeding and selective breeding. The British Jacob has thus diverged from the American Jacob as a result of artificial selection.

Jacobs are typically hardy, low-maintenance animals with a naturally high resistance to parasites and hoof problems. Jacobs do not show much flocking behavior. They can be skittish if not used to people,

although with daily handling they will become tame and make good pets. They require shelter from extreme temperatures, but the shelter can be open and simple. They tend to thrive in extremes of heat and cold and have good or excellent foraging capabilities. They can secure adequate nutrition with minimal to no supplementation, even in the presence of suboptimal soil conditions.



Jacob in a field

Due to their low tail dock and generally unimproved anatomy, Jacob ewes are widely reputed to be easy-lambing. Jacobs are seasonal breeders, with ewes generally cycling in the cooler months of the fall. They will begin to cycle during the first fall following their birth and most often the ewe's first lamb is a single. Subsequent gestations will typically bear one or two lambs in the spring, and triplets are not unusual. The lambs will exhibit their spotting and horn characteristics at birth, with the horn buds more readily apparent on ram lambs. Lambs may be weaned at two months of age, but many shepherds do not separate lambs and allow the ewe to wean the lamb at about 4 months of age. Jacob ewes are instinctively attentive mothers and are protective of their lambs. They are included in commercial flocks in England because of their ease of lambing and strong mothering instincts.

Tay–Sachs disease model

Tay–Sachs disease is one of several related genetic disorders in humans known as lysosomal storage diseases. It is caused by a deficiency of hexosaminidase A, an enzyme involved in the hydrolysis of GM2 ganglioside. This enzyme deficiency is caused by a mutation on the *HEXA* gene on chromosome 15. An autosomal recessive pathophysiology, Tay–Sachs disease is characterized by progressive deterioration of mental and physical abilities, usually resulting in death by the age of four years.

Recent research has revealed that this entity exists in some flocks of Jacob sheep. Four Jacob lambs from St. Jude's Farm in Lucas, Texas were examined for an unusual, progressive and ultimately fatal neurologic disease. Clinical findings included ataxia in all 4 limbs, proprioceptive deficits, and cortical blindness. The diagnosis of GM2 gangliosidosis was confirmed by biochemical and molecular genetic studies. Furthermore, the biochemical mechanism for this disease in the Jacob sheep (diminished activity of hexosaminidase A resulting in increased concentrations of GM2 ganglioside) is virtually identical to that observed in humans. Sequencing of the cDNA of the *HEXA* gene of affected Jacobs reveals an identical number of nucleotides and exons as in the human *HEXA* gene, and 86% identity in nucleotide sequence. A missense mutation, now referred to as the *G444R mutation*, was found in the *HEXA* cDNA of the affected sheep. The mutation consisted of a single nucleotide change ("point mutation") at the end of exon 11, resulting in defective transcription and translation of its enzyme protein product. The model of Tay–Sachs disease provided by the Jacob sheep is the first to offer promise as a means for clinical trials of gene therapies which may eventually prove to be useful in the treatment of the disease in humans.

Bai Zeng and Paola Torres of the Department of Neurology at New York University School of Medicine examined DNA samples of 443 Jacobs from various flocks within the United States. 51 of these specimens were identified as carriers of the G444R mutation (a carrier incidence of 11%); 90% of the flocks were found to have one or more mutation carriers. Either Jacob parent can carry the mutant autosomal recessive gene. Carriers appear normal and live a normal life. Turner 183K, a bloodline foundation ram and the apparent source of the mutation in North America, was born of imported Jacobs. The primary suspect is Turner's mother. The identification of this type of genetic defect in a foundation ram is particularly concerning because in North America, the Jacob is considered to be a bottleneck breed, representing a very small gene pool.

References

General

- Ryder, ML (2007). *Sheep and Man* ^[1]. London: Gerald Duckworth & Company, Ltd. ISBN 978-0-7156-3647-3. Retrieved 2011-05-05.
- Simmons, P; Ekarius, C (2009). *Storey's Guide to Raising Sheep* ^[2]. North Adams, Massachusetts: Storey Publishing, LLC. ISBN 978-1-60342-459-2. Retrieved 2011-05-05.
- Wooster, C; Hansen, G (2005). *Living with Sheep: Everything You Need to Know to Raise Your Own Flock* ^[3]. Guilford, Connecticut: The Lyons Press. ISBN 1-59228-531-7. Retrieved 2011-05-05.

Specific

[1] http://books.google.com/?id=S4_yPQAACAAJ&dq=%22Sheep+and+Man%22

[2] <http://books.google.com/?id=80eYTtaMcPGMC&printsec=frontcover&dq=%22Storey's+Guide+to+Raising+Sheep%22#v=onepage&q&f=false>

[3] <http://books.google.com/?id=igG2heYyjEUC&pg=PA18&lpg=PA18&dq=%22unimproved+breed%22+definition#v=onepage&q=%22unimproved%20breed%22%20definition&f=false>

Further reading

- Heise, L; Christman, C (1989). *American Minor Breeds Notebook*. Pittsboro, North Carolina: The American Minor Breeds Conservancy.
- Dýrmundsson, ÓR; Niznikowski, R (2008). "North European short-tailed breeds of sheep: a review" (http://www.eaap.org/Previous_Annual_Meetings/2008Vilnius/Papers/published/33_Dyrmundsson_Presentation.pdf). 2008 Annual Meeting of the European Federation for Animal Science (EAAP). Vilnius, Lithuania: EAAP Sheep and Goat Commission. pp. 1–24. Retrieved 2011-05-05.

External links

- American Jacob Sheep Registry (<http://jacob.sheepregistry.com/>)
 - Jacob Sheep Breeder's Association (<http://www.jsba.org>)
 - Jacob Sheep Conservancy (<http://www.jacobsheepconservancy.org>)
 - Jacob Sheep Society (<http://www.jacobsheepsociety.co.uk/>)
-

Article Sources and Contributors

Jacob (sheep) *Source:* <https://en.wikipedia.org/w/index.php?oldid=589945236> *Contributors:* 28421u2232nfencenc, 3644Jacobus, Artistjakefoster, Axeman89, Badagnani, Beth Maxwell Boyle, BlindEagle, Bretthodges, Burzmali, CantonDem, Cgoodwin, CharlesC, ChrisGualtieri, Clare1928, Closedmouth, Colonies Chris, CowboySpartan, Coycan, Dave souza, Debka notion, DiverDave, Donama, FunkMonk, Gimmer, Good Olfactory, Gregdonohoe, Hampshire2004, Haxwell, Immunize, J. Spencer, Jk2q3jrklse, Jnothman, JoshuaZ, Jprg1966, Kaldari, Kusma, Marhawkman, Mhockey, Nirame, Novangelis, Nv8200p, Pingku, Rhillman, Richard New Forest, Rmhermen, Saanen, Sicilianu101, Starfire777, Stencillate, Steven Walling, Theroadislong, Thundergod, Trabelsismail, Uploadvirus, Wintonian, Wizardman, Woohookitty, 80 anonymous edits

Image Sources, Licenses and Contributors

File:Jacob Ram at Royal Show.jpg *Source:* https://en.wikipedia.org/w/index.php?title=File:Jacob_Ram_at_Royal_Show.jpg *License:* Creative Commons Attribution 2.0 *Contributors:* David Merrett from Daventry, England

File:Rubens Reconciliation of Jacob and Esau.jpg *Source:* https://en.wikipedia.org/w/index.php?title=File:Rubens_Reconciliation_of_Jacob_and_Esau.jpg *License:* Public Domain *Contributors:* Bukk, Dauster, Ham, Johnbod, Jonund, Mattes, Sailko, Vincent Steenberg

File:Wildpark Tambach.jpg *Source:* https://en.wikipedia.org/w/index.php?title=File:Wildpark_Tambach.jpg *License:* Creative Commons Attribution-Sharealike 2.0 *Contributors:* Crosa from Nuernberg

File:Jacob sheep skull.jpg *Source:* https://en.wikipedia.org/w/index.php?title=File:Jacob_sheep_skull.jpg *License:* Creative Commons Attribution-Sharealike 2.0 *Contributors:* Dam's from Bordeaux, France

File:Jacob ewe.jpg *Source:* https://en.wikipedia.org/w/index.php?title=File:Jacob_ewe.jpg *License:* Creative Commons Attribution 2.0 *Contributors:* John from Wareham, Dorset, England

File:Jacob ewe nursing a lamb.jpg *Source:* https://en.wikipedia.org/w/index.php?title=File:Jacob_ewe_nursing_a_lamb.jpg *License:* Creative Commons Attribution 2.0 *Contributors:* Brooke from Oakland, CA, USA

File:Jacob sheep in field.JPG *Source:* https://en.wikipedia.org/w/index.php?title=File:Jacob_sheep_in_field.JPG *License:* Creative Commons Attribution-Sharealike 3.0 *Contributors:* CharlesC

License

Creative Commons Attribution-Share Alike 3.0
[//creativecommons.org/licenses/by-sa/3.0/](https://creativecommons.org/licenses/by-sa/3.0/)