



Written by Amy Seigel

**ORIGIN:** A truly ancient creature, the water buffalo has been a dutiful servant of man for over 5,000 years. Not to be confused with the African Cape buffalo, North American Bison, or the endangered—and dangerous—wild Asian water buffalo from which it has descended, the domesticated water buffalo is a docile creature ideally suited to life as a dairy, draft, and companion animal. Originating in Asia, the breed was introduced in parts of Africa and the Near East around 600 B.C. and brought by returning Crusaders to Europe—and famously, Italy—during the Middle Ages.

**HISTORY:** Today, the water buffalo boasts a world population of around 168 million and produces between 5 and 15 percent of the world's milk as well as 20 to 30 percent of the farm power in Southeast Asia. In addition to milk, this placid creature provides families all around the world—from the lush tropics to the harsh Nepalese highlands—with meat, leather, and draft power. However, it's only recently that the water buffalo has been farmed as livestock in Western Europe and the United States.

**APPEARANCE:** Domestication changed the once formidable wild water buffalo (which weighed as much as 2,650 pounds) into a smaller (650- to 1,300-pound), slower, and considerably more tractable beast. These animals are intelligent and polite, typically lining up in orderly queues for their showers and electronic milking. They vary in color from a light cream to a dark mocha brown. Unlike the modern dairy cow, water buffalo can thrive on relatively low-quality forage. The breed is also known for forming lasting bonds with their human owners, and in many parts of the world they are herded and tended by the youngest members of the family. There are even stories of water buffalo protecting their masters by fending off attacks by crocodiles and tigers.

**MILK & CHEESE:** Water buffalo milk is creamy and smooth, with a beautiful snow-white color. A composition analysis

shows that buffalo milk is a rich source of iron, phosphorus, and vitamin A and that it contains 58 percent more calcium, 40 percent more protein, and 43 percent less cholesterol than cow's milk. It's also easier to digest for people with a cow's milk allergy and is milder tasting than sheep and goat milk. However, with 18 percent total milk solids and seven to nine percent butterfat, it's also extremely rich. Perhaps the most famous water buffalo product is Italy's mozzarella di bufala, but the animal's milk also makes fine butter, ice cream, and yogurt. And thanks to a high percentage of milk solids, buffalo milk offers significant advantages during processing—yogurts reach a natural thick set without the addition of milk proteins or gelling agents. **C**

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## Randall Cattle

Written by Amy Engle

### ORIGIN:

In the days before big agriculture converted much of our country's arable land to vast swaths of corn and soy, the American dairy cow lived a very different existence. Grain crops were a valuable resource reserved primarily for human consumption, and cattle were obliged to get by on whatever they could forage from the pastures on which they lived.

As a native landrace breed, the Randall cow represents a throwback to these bygone days of agriculture. The term "landrace" refers to a strain of animals or plants that developed naturally in isolation and with minimal interference from humans. Like all other American landrace breeds—most of which have long since vanished—the Randall is an amalgamation of stock imported from Europe by the first settlers.

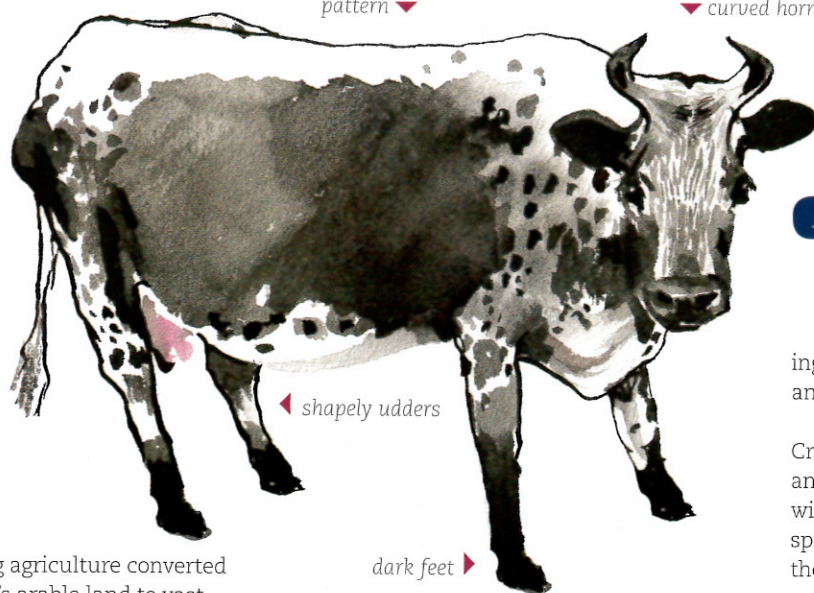
### HISTORY:

With the advent of modern farming techniques, U.S. farmers across the country were busy "grading up," converting their herds' genetics to keep up with the changing times. One man, however, Samuel J. Randall of Sunderland, Vermont, chose not to buy into the new fad. "Mr. Randall liked his cows the way they were and thought a lot of what was going on was foolishness," explains Phil Lang of Howland Homestead Farm, a breeder in South Kent, Connecticut. And so, as the world of dairy farming changed around him, Mr. Randall and his family kept, bred, and selected their cattle in virtual isolation for over 80 years. Still, by the time Everett Randall passed away in January 1985, the future of the Randall cow was in serious jeopardy.

In Jefferson City, Tennessee, Cynthia Creech read about the plight of this genetically rare breed in the *Country Journal*. Want-

coloursided lineback pattern ▼

▼ curved horns



◀ shapely udders

dark feet ▶

JERSEY-TYPE

ing to save this living piece of American agricultural history, Creech contacted the author of the story and with his help began the difficult process of recovering the 15 remaining specimens of the Randall breed from a farm in Massachusetts. Working with a geneticist from Virginia Tech, Creech helped cultivate the Randall breed back to a healthy population. Now, the Randall numbers are holding steady at around two hundred.

### APPEARANCE:

Randall cattle are a medium-size breed with a somewhat primitive conformation. On the whole they tend toward the dairy type, with shapely, well-attached udders and sound feet and legs. Three distinct types appear most frequently: a fine-boned Jersey type with tightly curved horns; a smaller, more dual-purpose variety; and a large, boxy, long-horned type reminiscent of a Holstein.

Most exhibit a striking "coloursided lineback" pattern characterized by a white body with dark sides, muzzles, ears, eye rings, and usually feet. The predominant colors are black or blue-black over white, but as breed numbers grow, new variations such as mahogany, blue, gray, and occasionally recessive red (a color trait known to have existed in Everett Randall's herd) are beginning to appear.

### TEMPERAMENT:

Randalls are able, smart, and tough, and it is this hardy character that makes them an ideal match for the homestead or hobby farmer. "This is a true subsistence-farm-type cow," explains Lang. "Randalls fit beautifully into the grass-farming paradigm—we've been rais-

ing them on grass and hay only for 20 years, and they do exceptionally well."

"They live a very natural existence," adds Creech. "They will grow fat in the summer and raise healthy calves, grow skinny in the winter, and then come back healthy in the spring ready to do it all again. If you handle them regularly and are very gentle and easy-going, they will become tame, almost doglike," she says. Lang remarks, "They know how to be a cow so perfectly—they don't really need our assistance or interference." Creech adds, "They have a genetic ability to carry on, almost a feral quality; they can carry on as a cow without much human interference."

### MILK & CHEESES:

According to Creech, the milking abilities of Randalls are "all over the map," which, she explains, is typical of animals that have not been single-trait selected. Though not ideal for large-scale operations, it does make them well suited to a small-production farm.

Jim Stampone of Winter Hill Farm in Freeport, Maine, has been making cheese from the milk of his small herd of Randalls for the past 15 years. In the beginning, Stampone experimented with soft cheeses before finally settling on what he feels is the best match for his Randalls' milk: an aged (8 months) cheddar. "It didn't really have the flavor I wanted at four months," says Stampone, "but when I let it go for another four, it suddenly became very sharp and wonderfully flavorful."

According to Winter Hill's customers, there is a quality about Randall milk and cheese that they haven't experienced with dairy products from other breeds. "Even though Randall milk has about the same butterfat as Holstein milk, it tastes much richer," explains Stampone. "In fact, my customers tell me it's the only milk their kids will drink!" c

Animal columnist **Amy Engle** lives in Madison, Wisconsin, where she writes poetry and contributes to various niche magazines.



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**ORIGIN:** Although Friesian sheep are found the world over, the breed originally hails from the coastal region of Friesland (Ostfriesland) in the Netherlands and northwest Germany. With the area's pastoral mix of moorland, sandy heath, and lush meadows, the Friesland countryside is ideally suited for grazing, rather than for growing crops.

**HISTORY:** Sheep have been used for milking since the dawn of agriculture—possibly even before cows—and cheeses made from sheep's milk are products born of the most ancient methods used for preserving dairy. Despite this long historical presence, the popularity of using sheep for dairying declined significantly when the bubonic plague swept through Europe in the mid-14th century, leaving too few farmhands to milk the relatively low-producing herds of ewes. Cows, with their higher milking capacity, quickly surpassed sheep as the dairy livestock of choice.

However, when Friesians were imported to Britain in the 1960s to improve the yields of commercial meat breeds, a small group of enterprising farmers turned to the age-old practice of milking sheep, with excellent results. Friesians have a relatively calm disposition and produce more lambs and more milk than other breeds. By the early 1990s, the sheep-dairying industry in both the United Kingdom and America was experiencing a full-fledged revival and the market for sheep's milk cheeses began to grow.



Sheep's milk is exceptionally rich . . . milk from Friesian sheep averages six to seven percent fat.

**APPEARANCE:** Friesian sheep are polled (hornless) in both sexes, though they can have scurs—underdeveloped horns that are generally loose and movable beneath the skin and unattached to the skull. Friesians have snowy white wool, though German Friesians can be black or gray. The breed has an elegant head with a long Roman nose; its ears, legs, underbelly, and udder are all clear of dense wool. Because of the breed's distinctive, short "rat-tail," the animals don't require docking (partial amputation of the tail—a common, though controversial, practice in cow dairying that is thought to improve cleanliness and ease of

milking the animals). Friesians are a relatively large breed, with mature ewes weighing in at 160 to 180 pounds—rams have been known to tip the scales past 200 pounds.

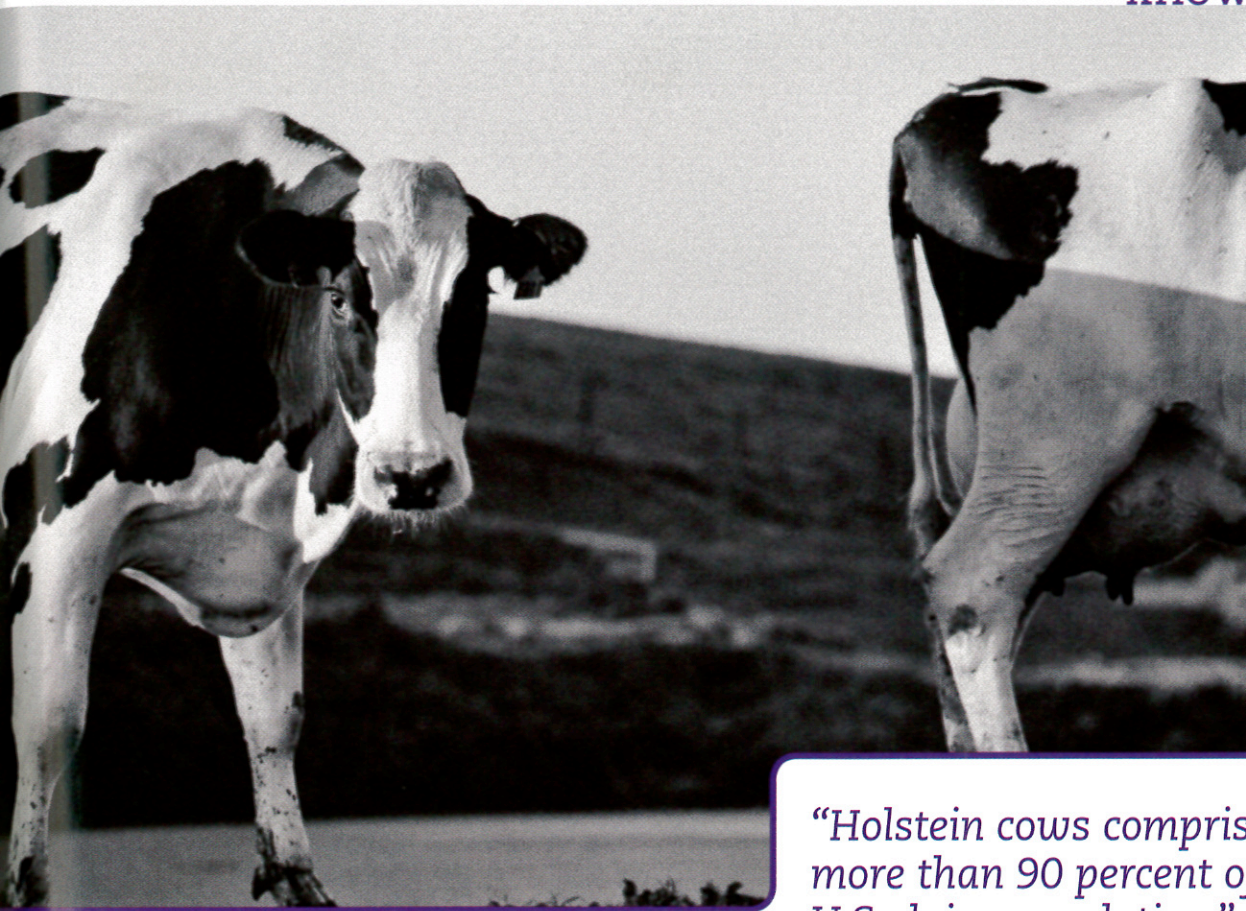
**DAIRY PRODUCTS:** Sheep's milk is pure white in color with a creamy, slightly nutty flavor. It is also significantly higher in total solids (18 percent) and protein (5.6 percent) than either cow's or goat's milk, and it is exceptionally rich—milk from Friesian sheep averages six to seven percent fat. Thanks to these high percentages, it generally takes only about five pounds of sheep's milk (with some seasonal variations) to make one pound of cheese—

compared to the ten pounds of cow's milk necessary to make the same amount.

Many of the world's most famous cheeses—including France's Roquefort, Italy's Pecorino, and Spanish Manchego—are classic sheep's milk cheeses. Another unique quality of sheep's milk is its smaller fat globules, which naturally renders the milk more homogenized since the cream isn't as quick to rise to the top. With its delicious, fresh taste and ultra-creamy texture, sheep's milk is also an ideal base for yogurts and ice creams. **c**

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*“Holstein cows comprise more than 90 percent of the U.S. dairy population.”*

Written by Amy Seigel  
Photography by Wil Edwards

### Origin

With its characteristic black-and-white spotted hide, the Holstein is truly the most iconic of dairy cow breeds, and with good reason: Holsteins comprise more than 90 percent of the U.S. dairy population and are found grazing everywhere from the California coast to the rolling hills of Vermont. The origins of the breed can be traced to the black cows and white cows of the Batavians and Friesians—migrant tribes who settled the coastal Rhine region more than two thousand years ago. Over time, these two kinds of cows were selectively bred together with the aim of developing an animal that would make the best use of limited land by yielding generous quantities of both milk and meat. The result was the efficient, high-producing two-toned dairy cow we know today as the Holstein. (In the UK, Australia, and Europe the breed is called Friesian.)

### History in America

Holstein cows unofficially arrived in the United States in the 1620s along with the Dutch farmers who settled in the fertile Hudson and Mohawk river valleys. The first documented importation occurred more than 100 years later, and by the late 1800s the stage was set for Holsteins to become an important part of the American dairy experience. With the expansion of the American West came increased demand for large, docile, hearty cattle that could handle a wide variety of conditions. The Holstein fit the bill perfectly and soon became the cow of choice for the majority of American dairy farmers.

### Appearance

Holsteins are eye-catching animals easily recognized by their distinctive piebald markings. Red-and-white coloring also appears in the breed, the result of a recessive gene. As with snowflakes, the precise pattern of

black and white on any given Holstein is unique to that animal—no two are exactly alike. Holsteins are also remarkably large, even by bovine standards. A healthy Holstein calf weighs 90 pounds or more at birth, and a mature Holstein cow weighs about 1,500 pounds and stands 58 inches tall at shoulder height.

### Milk and Cheeses

Thanks in part to their big size, Holsteins can produce a greater volume of milk than any other breed of cow. Top-producing Holsteins milked twice a day can yield up to 67,914 pounds of milk in a year, although the average total is closer to 22,833 pounds per year. Holstein milk is lower in fat (3.64%) and protein (3.06%) than that of other breeds and so is well suited to cheesemaking. While nearly any variety of cheese can be made from Holstein milk, edam and gouda are two of the most common traditional varieties. **c**

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