

Much to “Yak” About

These hardy and majestic bovines might be the next addition to your farm.

By Gregor Dike

Domestic yaks (*Bos grunniens*) share a common ancestry with Western cattle breeds (*Bos taurus*), Brahman and Zebu cattle (*Bos indicus*), and bison (*Bos bison*). The wild yak (*Bos mutus*) is believed to have diverged from this common ancestor 2 to 5 million years ago. Over the subsequent millennia, it interbred with indigenous *Bos indicus* cattle. The ancient Qiang people on Tibetan Plateau domesticated the yak, starting around 4,500 years ago. The resulting domestic yak, identified as a separate species, has been at the heart of Tibetan culture. It thrives at high altitudes. The domestic yak is a work/pack animal, a source of milk, meat, high-quality fiber, hair for making ropes and carpets, and hides for tents.

Domestic yaks are much smaller than the wild yak. Where there is good nutritional forage domestic yak cows weigh between 500 to 800 pounds, while the bulls can weigh between 1200 to 1500 pounds. Yaks have a gestation of eight and a half months and seldom have calving problems, with calves weighing between 25 to 35 pounds. Yak breeders in the US selectively increase the size of bulls through high-protein forage and breeding practices. Yak cows and bulls can reproduce at 3 years old, but continue to grow until 6 years old. Yaks live to be in their 20s and remain productive when properly cared for.

Today, the vast majority of the 14.2 million yaks (wild and domestic) worldwide live on the Tibetan Plateau, with yaks also found in Mongolia and countries near the

Himalayas. Roughly six thousand yaks live in the United States, mainly in the northwestern region because of the high altitude. Yaks also do well in the southern U.S., particularly eastern Kentucky. The foundation herd came principally from zoos and entrepreneurial ranchers who brought several hundred yaks from Alberta, Canada to the Northwest in the 1980s. As a result, the U.S. herd has a small gene pool, requiring breeders to be wary of inbreeding.

Raising Yaks for Meat

A main economic advantage of yaks is meat quality. Yak meat is rich, with a high protein to calorie ratio. It is leaner than bison. A 2022 test on a grass-fed sirloin cut from Zhi-ba Shing-ga Yaks revealed the meat was 98% lean and was 23% protein. Both values are higher than that of grass-fed bison and beef.

With so few yaks in the U.S., the demand for yak meat exceeds supply wherever there is a true yak meat market. This results in a higher price: ground yak typically wholesales for at least \$10 per pound and retails at \$14 to 16 per pound, with specialty cuts selling between \$25 to 35 per pound. A yak farmer in Virginia sells hanging yak halves for \$7 per pound. Slaughter-ready yak sold at \$2.25 per pound in 2021, and are increasingly sought after by those in the yak meat business.

Last spring, Dr. Jeffrey Lehmkuhler from the University of Kentucky's College of Food, Agriculture, and Environment (CAFE) surveyed the meat prices of 36 yak producers across the U.S. and revealed the following average prices (which includes wholesale prices): for ground meat, \$10.21 per pound; for roasts, \$12.50 per pound, and for steaks, \$18.35 per pound.



Yak calves are relatively lightweight at birth, which reduces birthing complications.



Check on the health of your herd daily, especially since yaks tend to hide signs of illness.



Test your pastures and forage to make sure that your yaks are meeting their nutritional needs. Yaks will lose weight if their needs aren't met.

The market for yak meat remains underdeveloped globally. Sellers often struggle with limited supply. However, you can't just take a slaughter-ready yak to the auction and expect to get a good price. Cultivate the market by selling to stores, to other yak meat producers to meet their demand, directly to restaurants, and directly to the public through farmers markets. The yak ranch Del Yaks (www.YakMeat.us), for instance, sells its meat online. The market will take entrepreneurial understanding the potential demand. Too many yak meat producers are boom or bust with their product, which makes restaurants and markets

hesitant to establish long-term customer relationships.

Fortunately, the limited supply of yak meat means that the market price doesn't fluctuate like beef does. The market for meat and other yak products will likely grow as consumer awareness increases and more farmers become involved.

How much meat do you get from a yak? At Zhi-ba Shing-ga yaks, we expect to get between 33% to 40% of its live weight, depending on if we have bones in the final product. So a 900-pound bull will yield from 300 to 360 pounds of meat. At an average sale price of \$12.50 per pound, this yields a total of \$3750 to \$4500.

All of our yaks are grass- or hay-fed year round. We don't provide grain or non-forage supplements, since that change the taste, fat, and protein content. It has been said that a beef producer is a forage producer with beef cattle, and the same is true of raising yaks. Know the quality of the forage you produce and buy. A recent study by Dr. Lehmkuhler revealed that yaks require 2.5% to 3.0% of their body weight in forage daily. Forage quality in terms of protein and palatability is critical. A yak will lose weight if not supplied with the proper forage.

Even though yaks are a different species from *B. taurus*, they can cross breed. Artificial insemination researchers in India and China developed a modified semen extender that is better suited for yaks and results in an 80% success rate. The yak and beef hybrid will achieve slaughter weight faster and have a more marbled meat than "pure" yak. The market potential for a yak-hybrid and "pure" yak meat is wide open with creative work. It's possible to label hybrid meat based on the percentage of yak present, e.g. 50% yak, 75% yak, etc.

For large-scale meat producers and small farmers, yaks can increase profit by decreasing costs. Yaks consume less forage than beef cattle, since yak cows are half the size of beef cows. They don't require as high a TDN (short for "total digestible nutrients," the calculated total of protein, fat, fiber, and simple carbohydrates in cattle feed) for successful growth. They also have an insulating down undercoat to protect them from cold temperatures,



A yak's outer guard hair can be processed into rope and rugs for supplemental income.

and can finish on forage alone. Furthermore, they have smaller calves, which reduces calving complications. Yaks also have a smaller environmental footprint than beef cattle in terms of the energy requirement to meet overall feed inputs and also in their grazing patterns.

Other Uses for Yaks

For the small acreage farmer, yaks offer more possible revenue alternatives than meat.

Fiber. Insulating down fiber is about 16 to 20 microns in diameter, and is “released” annually and “combed out” rather than shorn. It is of the same quality as cashmere. Yak fiber can be marketed in raw form to fiber artists for several dollars an ounce. The fiber can also be washed and carded into roving or further processed into yarn as value-added products. Yak yarn sells for \$30 to \$50 per skein, depending on whether the fiber has been dehaired and what kind of fiber it is mixed with such as bamboo, Merino wool, or silk. It can also be felted.

Their outer guard hair can be used to make ropes and rugs. Yak hides are often similar to bear hide, depending on the length of their hair at slaughter. Skulls with large horns retail at between \$200 to \$300.

Butter and cheese. Yak-based dairy products are an undeveloped market in the United States.

In Asia, yaks are milked to produce cheese and yak butter. Yaks don’t produce much: less than a pint per day when also nursing a calf. Tibetan nomads milk a string of yak cows based on the amount of butter and cheese they need for the home and market.

Training yak cows to calmly stand for milking, whether tied or in a station, takes time. It’s best to start when they are babies. Some people raise them as bottle babies so they can then be easily trained, since they’ll bond with their caregivers. When bottle babies grow up, however, they can be unintentionally dangerous. Because they will get so close, they can severely injure owners with a quick movement. Most injuries



The down fiber in a yak’s coat can be combed out and processed into yarn.

come from yaks that owners feel comfortable with.

Carrying equipment. In Tibet and the Himalayan region, yaks have traditionally been indispensable in nomadic culture. Yaks were and still are used as pack animals and in place of oxen. In fact, there is ongoing hybridization between yaks and oxen to produce larger and more powerful draft animals.

Himalayan yaks regularly carry equipment for trekkers and supplies to high-elevation base camps. In Alaska, Alpine Ascents (www.AlpineAscents.com) uses yaks to carry hikers’ equipment in remote mountain areas. A similar business could be developed in areas with trekking tourism.

Key Yak Husbandry Issues

Nutrition. We maintain between 70 to 90 yaks on 60 acres of pasture. We purchase hay to carry the herd through four

winter months, and we continually upgrade the pasture. We employ rotational grazing and also match yak forage intake to the pasture productivity. The key thing is to have grass that meets nutritional needs. Each category of yaks—open, preg-

nant, lactating, male or female, and age group—has its own forage requirements. Testing the pasture grass and forage confirms if their nutritional requirements are being met.

Health. Another key for yak health is monitoring levels of trace minerals (copper, selenium and zinc in particular); proactively preventing parasites, especially in warm and humid regions; and vaccinating for the same diseases as for beef cattle, though yaks don’t get pinkeye. Act quickly if you suspect that your yaks might be sick—they are stoic animals that hide their illness. Carefully check over your animals every day, especially if one’s acting different or looks like it has the flu.

Inbreeding. When purchasing a breeding bull, avoid inbreeding, which impacts animal health, fertility, size, and conformation. The recent “Match-A-Yak” software application looks at DNA profiles of the female and male to calculate the



Recently developed DNA-analysis software can help you avoid inbreeding when expanding the herd.

expected coefficient of inbreeding. For those with multiple bulls, this software allows them to select the right bull for each cow.

Faculty members of the Morehead State University's Department of Agricultural Sciences and the University of Kentucky's CAFE are developing an easily replicated artificial-insemination protocol under a USDA Sustainable Agriculture Research and Education Producer Grant. Artificial insemination in yaks will allow for better breeding bull selection and to cross yaks with beef cattle for meat production. Also, the small acreage farmer won't have to maintain yak breeding bulls—a considerable saving.

Handling equipment. Yaks require the same handling equipment as beef cattle: a squeeze chute for vaccinations, tagging, and foot trimming if needed; combing out fiber to sell; and a handling pen(s) and alley to move yaks into the squeeze chute or a loading chute. Yaks are curious, so if you don't want them in something, on it, or around it, they need to be fenced out. Always close the gate behind you.

Learn More about Yaks!

International Yak Association, www.IYAK.org

US Yaks, www.USYaks.org

Fencing. Our fences are 12.5 gauge woven wire attached to wooden fence posts every 30 feet, with T-posts spaced 10 feet apart. Gates are standard tubular ones. This fence works well for the farm perimeter.

Yaks like to play, and they'll try to push each other from opposite sides of the fence. They can easily tear woven wire and lift out T-posts. I've had bulls go down a fence, picking 6-inch wooden posts out of the ground every 10 feet. I put them back, and they would lift them

out again. Finally I set the posts in concrete. I've watched a yak bull use his horns to pick up a tubular gate from the bottom, turn it into a pretzel, and then walk away while remaining in the pasture. They are incredibly strong and fast, but with common sense and a few repairs, they are easily confined. The key thing is to minimize situations where they are across the fence from one another.

Shelter. Yak breeders recommend shade, a barrier from bitter winds or driving snow, and shelter from rain. I've built three-sided, 10x30 foot sheds in all of my pastures, and the majority of the time, they went unused. Sometimes, bulls used it to relax. Because yaks have a down fiber under their hair, cold temperatures are not an issue. 🌳

Greg Dike learned about yaks from Tibetan refugees while in Dharamshala, India in 2013, and has been raising them in Appalachian Kentucky ever since. He is a founding member of the USYAKS Yak Registry and directs the Cave Run Area Habitat for Humanity. He is currently working with faculty researchers from Morehead State University and the University of Kentucky on yak forage and nutrition studies and a study funded by the USDA SARE program on developing an artificial-insemination protocol for yaks.

Yaks thrive in high-altitude areas.

