

Tallow can be used in place of paraffin wax for candle making.



## She Makes Candles With Beef Tallow

Kelly Brandlee's candles are fragrant with many of her favorite aromas, such as coffee and cheesecake, as well as Wild Horses (leather) and Take a Backroad (oakmoss and lemon grass). But what sets her candles apart is that their main ingredient is beef tallow.

Tallow has been used to make candles since the Roman Empire. Compared to paraffin wax, a petroleum by-product typically used in candles, it's a simple, clean product. As South Dakota beef producers, the Brandlees have beef tallow available.

She and her husband, Clint, started selling beef directly to consumers in 2021 through their business, Back Forty Beef, and Brandlee had a freezer full of tallow she didn't want to waste. So, she started experimenting with candle making, first rendering the tallow in an electric roaster. She adds soy wax to make the candles whiter and firmer and to remove the beefy smell. She also adds essential oils.

Brandlee pours the wax into glass jars

and clay and dough bowls in various shapes.

"They make cool décor pieces that can be reused as decorations," Brandlee says. "It's really fun to create something for people to have in their homes."

It's also an opportunity to educate people about how beef is part of everyday life.

"The cool thing about beef is there are so many uses for it. There are so many byproducts," she says, including cosmetics, medicines, adhesives, leather, and so much more.

Brandlee enjoys creating candles, and wax melts for people to use with wax melt warmers in their homes. It's satisfying to know she isn't wasting the beef byproduct.

Making and selling candles is just one more way to tell their farming story.

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Photo courtesy of Alan Lee, doctoral student in anthropology at UW-Madison

Gently hitting the bloom of steel to weld it together with the residual heat from the furnace.

## His Hobby Is Backyard Steel Making

Richard Furrer has a pile of iron ore in his backyard, waiting to be smelted into steel and made into knives and more. Furrer has been practicing the blacksmith trade and art for 33 years. He usually works with bronze, aluminum, stainless steel, and titanium. In addition to architectural work, he also forges knives and swords. Many of the latter are made from his backyard ore pile. He learned the process the hard way, pre-YouTube and internet postings.

"My first smelt was with a University of Wisconsin, Madison, professor of archeological studies," recalls Furrer. "He was trying to recreate the basic chemistry and physics of ancient steel making. It was a mixed bag of success and failure, but I

never gave up on it."

Furrer continued to refine the process, improving the outcome. He credits the internet for expanding on information once found only in archeological texts. However, he gives the most credit to trial and error.

The basic process involves building the furnace, a stack of bricks, or even mud walls. Furrer uses an insulated blanket to create a taller stack without the increased weight of more bricks. A tap allows waste to flow out of the furnace while the bloom of steel settles in the bottom.

One of the keys to success is the quality of iron. Iron ore in places like Great Britain is very poor quality, while ore in Australia can be 90 percent pure iron. Furrer prefers bog or

## Double Amputee Owned Mobile Rust Removal Business

Mitch Wittmer, the owner of Profleetcare Central Southwest Minnesota, has undergone an unconventional journey to manage his own business.

"I was born with bilateral fibular hemimelia, meaning I'm missing the fibula bone," he says. "At 8 mos. old, my right foot was amputated, so I grew up with a prosthetic leg. But my left leg was never quite right, either. At 9, it was intentionally broken to reset the alignment and prevent my foot from turning in."

Still, Wittmer refused to slow down. "I had a great childhood and played hockey, tennis, gymnastics, swimming, and wrestling. And when I entered the workforce, I was blessed to be a leader and an example of perseverance."

Unfortunately, his medical complications weren't over. "When I was approaching 40, I joined my oldest downhill skiing and broke my only ankle. I managed to push through the pain for 2 years but was advised by my doctor to consider amputation, so I did. This recovery proved much harder at 40. It was like trying to walk on two stilts."

In June 2022, Wittmer started the journey of becoming a business owner of Profleetcare. "I previously managed a large manufacturing workshop with a global footprint," he says. "Still, Bob, founder of Profleetcare, and his son, Greg, had many doubts and questions about my physical abilities. But they gave me a chance. They've been amazing to work with and have a great business model to get someone up and running their own business."

Profleetcare is a 100 percent mobile rust prevention business. After 40 years in the industry, they've set the standard for rust-proofing. Tar and wax were popular options until founder Bob Lawrie developed a light chemical that migrates into seams and crevices for better protection. The company sprays specialty products annually to prevent corrosion, covering vehicles from the undercarriage to the roofline. "Think about a cast iron skillet," says Wittmer. "If you keep the right oil protection on it, it'll last forever. Your vehicle has multiple metal pieces, and we aim to protect them all through our process."

The company aims to lower maintenance



Wittmer has overcome his personal mobility issues and has a successful business.

costs by protecting equipment from harsh elements that cause corrosion and servicing equipment right at the customer's location during non-peak business hours. A unique two-step application process allows spraying exterior trim, door handles, mirrors, bumper rails, and high-traffic areas that need extra protection. "My customers range from dairy farmers, co-ops, lawn and snow companies, salt distributors, horse farm services, concrete companies, utility contractors, auto body shops, and residential," says Wittmer.

There are many challenges with running a mobile business when personal mobility is limited. "The biggest impact my amputations have on my life is that I use so much more energy than a person with two normal legs," explains Wittmer. "A good example would be a blister on your stump. The sore has to be cleaned, bandaged, and walked on. The prosthetics have titanium rods holding fixtures on the bottom. When temperatures drop below freezing and the rods get cold, it transfers the cold to my stumps. I use hand warmers and attach them to my prosthetics to overcome this. This way, I can maintain my busy fall schedule."

"I'm driven to help people protect their equipment and to be a partner in proactive preventative maintenance. Most importantly, to give people hope. I hope to be an encouragement to others. Follow a dream once you've made a plan. It's not how you get knocked down but how you get back up. Be kind, have faith, and do your best."

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lake iron concentrated by bacteria once found in some lakes. It had one molecule of oxygen and one of iron. The bog iron would be found in clumps the size of a baseball or softball. Perhaps due to environmental reasons, the bacteria are no longer found. Furrer's pile of ore is from mine tailings from northern Minnesota.

Once charcoal and ore are introduced and the fire starts, the results are a matter of getting the correct mix of air, fuel, and ore.

"You can always expect something to go slightly wrong," he says. "However, a few months ago, I did a smelt, and we got a 30 percent yield, which is almost perfect for bloomery steel."

For Furrer, an optimal effort would produce 15 lbs. of bloomery from 50 lbs. of ore and charcoal. After working the bloomery over in a forge, the result would be 5 to 6 lbs. of finished product."

Furrer uses his ore for himself and in the

classes he teaches. Classes are multi-day affairs and small in size. Prices vary. A 5-day class for a group of four can cost \$1,000 each.

"We had one class with eight students, and we built two furnaces, one in the European style and one in the Japanese style," recalls Furrer. "Both furnaces yielded bloomery that we melted together and worked in the forge. Each student was able to make a knife blade from the steel."

While some classes he teaches involve producing a knife or other object, that often isn't what attracts students.

"Some just want the experience," he says. "Others want to make steel. While they could just experiment, a class can take years off the learning curve."

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