



Gary Mull smokes plain cheese using a firepit, 10-ft. long pipe, and two 55 gal. drums. The long pipe keeps smoke cool so it doesn't melt the cheese.

He Makes His Own Smoked Cheese

Gary Mull plans to build a small wooden smokehouse, but for now his 55-gal. drum cold smoking setup works great for smoking cheese and meat.

"Smoke enhances the flavor of cheese and preserves it longer," says Mull, who notes he loves the flavor of smoked cheese but not the high prices at stores. Instead he buys plain cheese to smoke.

The trick is to keep the smoke temperature low enough - between 60 to 70 F - so it doesn't melt the cheese. Mull's smoke source is the firepit on his Colfax, La., property. Smoke rises through a 10-ft. long 4-in. diameter steel pipe that goes into the bottom drum of two drums welded together.

The pipe angles up to create more smoke swirl that adds flavor, Mull says. As many as 30 blocks of cheese fit on the barbecue grill racks inside the top drum. Cheese also can be wrapped in cheesecloth and hung on hooks on bars near the top of the smoker.

"Generally it takes between 12 and 18 hrs. to smoke cheese," Mull says, noting the exterior is a crusty rind and the center is soft.

He adds flavor through the smoke by burning different woods and plants from his family's garden.

"Sassafras adds a good flavor. So does thyme, rosemary, garlic and onion tops," Mull says. To create smoke, the oak, pecan or sassafras wood is soaked in water and thrown into the fire wet.

He's experimented with all types of cheese, from cheddar, pepper jack and mozzarella to other cheeses and a variety of seasonings. Even soft cheeses such as gouda can be smoked in cheesecloth bags as long as the smoke is kept cool enough.

The process isn't that difficult, though the fire needs to be watched and fed and the cheese needs to be turned. The results are worth it, Mull says.

He has a video of the smoker on his YouTube channel: Off Grid Gary - Smoking Cheese.

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Rare Grain Attracting New Markets

Interest in drought-resistant crops and healthy, gluten-free grains is pushing U.S. research in teff, a native Ethiopian grain.

"It grows well in California but has grown in other parts of the U.S.," says Zion Taddese. As the owner of Queen Sheba Ethiopian Food in Sacramento, Calif., she has a personal stake in teff, a main ingredient in injera, a fermented flatbread that is a staple at her restaurant.

While there are a few U.S. growers, demand is growing - along with higher prices - and she sees opportunity for U.S. and Ethiopian farmers as well as consumers. Teff has 3 times more iron and about twice as much fiber as traditional U.S. grains, as well as many other nutritional benefits.

Taddese founded Sheba Farms LLC and collaborates with UC Davis (University of California) researchers to develop the best varieties and methods to grow teff in the U.S.

The grain has its challenges. As a tall grass it has lodging issues and it can lose as much as 20 to 30 percent of the ripe seed. Plus, the seed is tiny, creating challenges for harvesting and cleaning it. Made into flour, teff can be substituted for other flours. It is versatile and can be planted in April or July and is ready to harvest in about 3 mos.

Last year a couple of California farmers planted small 4-acre trial plots of brown and



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white varieties of teff, netting 2,000 lbs. of grain. (The grass can also be used for animal feed.)

Taddese's plans for Sheba Farms LLC include developing a processing center to mill and package teff according to USDA regulations. It is also a center for sharing knowledge of best practice methods that help both U.S. and Ethiopian farmers. Taddese welcomes calls from people interested in learning more and investing in Sheba Farms LLC.

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Bruggeman figures it takes 5 tractors to make one quad. A 682 supplied the hood and 1 transmission. The 1864 supplied its power steering, frame, and the second transmission.

Tractor Therapy Became His Business

Fighting advanced liver cancer left Norman Bruggeman with nothing to do, until he started what he calls "tractor therapy". Four years later he is still fighting the cancer and buying, selling and fixing garden tractors, mostly Cub Cadets.

"I was just getting over chemotherapy and figured no one would hire me with a diagnosis of stage 4 liver cancer," says Bruggeman. "My 3 sons, Nick, Alex and Eric, asked me what I was going to do. I had seen a self-propelled, articulated quad tractor made from a Cub Cadet. I told them I thought I could build one. At first they laughed at me."

A month later his sons had collected multiple Cubs, delivered them to his driveway, and said, "Have at it." So Bruggeman did.

"I told them I would build it as cheaply as I could. I figured I wouldn't get it finished because the cancer would get me first, and it would end up in one of their sheds," recalls Bruggeman. "I was wrong. It worked out just fine."

He started by stripping down an 1864 Cub, including removing the front and rear axles. He moved the rear axle beneath the steering wheel after mocking up the frame.

"I didn't have a plan or even a good idea of what it would look like," says Bruggeman. "I did drive through some IH dealerships to see what quads with articulation looked like. That gave me an idea."

He decided to stack the 1864 frame with the engine over a section of a rear frame. Once again, he arranged the lower frame section, so the "new" front axle was underneath

the steering wheel. A front hydrostatic transmission was bolted to it and connected to the engine with multiple belts and pulleys. A third tractor's rear frame with axle was chopped just ahead of its transmission and turned into an articulated rear end.

Bruggeman built the articulation joint out of 1/2-in. steel plate with upper and lower hitch arms. A section of steel plate sits under the rear transmission. A 3-sided, vertical steel collar is welded to the transmission floor and bolted to the frame of the rear section.

The lower hitch arm is a 2-in. wide piece of 1/2-in. thick steel that extends from the transmission floor forward. It connects to the tractor's front frame with a ball hitch from a 3-pt. arm. The upper hitch arm is a top link from a 3-pt. hitch.

"The 3-pt. hitch elements give the tractor both articulation and oscillation," says Bruggeman. "I attached hydraulic cylinders from power steering systems in the 1864 and another tractor between the 2 halves to control turning. I connected them to the steering valve."

A driveshaft from the engine connects to the rear transmission with a universal joint between the 2 frames. To synchronize the 2 transmissions, Bruggeman removed the trunnion spring from the rear transmission.

"I bolted an automotive cable to the front trunnion, ran it through the articulation joint, and bolted it to the rear trunnion," says Bruggeman. "I had the whole tractor up on blocks so I could adjust the cable until all 4 wheels were turning at the same rate backward and forward."

Bruggeman then ran a second cable from the front transmission to the hydrostat lever on the dash. A third cable runs to the brake pedal.

Hydraulics for the rear 3-pt. hitch come off the rear transmission with hoses running forward to valves on the dash.

Bruggeman figures it takes 5 tractors to make one quad. A 682 supplied the hood and 1 transmission. The 1864 supplied its power steering, frame and the second transmission. The rear fender pan alone took parts of 3 fenders.

"Building that first quad, which is powered by a 25 hp. Kohler, took 8 mos.," says Bruggeman. "I built a second one with a 19 hp. Kubota diesel in about 4 mos."

On the second tractor, he opted for a used transfer case from a Yamaha motorcycle instead of belts and pulleys to drive the lead transmission. He plans to replace the belts and pulley system on his first one as well.

Bruggeman says his tractor therapy continues to go well. "It gets me out of the house and going in the morning," he says. "In January of 2015 I was told I had 2 months to live. I started building my first tractor in 2017 and am still going. I have since built a custom-ordered 3488 with a cab and have orders for 3 or 4 more quads. I have around 40 Cubs ready to use for parts for my tractors and to sell to others."

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