

## Coal-Fired Lime Pile Creates Powerful Fertilizer

Here's an old recipe for fertilizer: Layer 7 1/2 tons of coal and 30 tons of blue limestone around a wooden chimney and set the whole thing on fire. That's what Eli Shetler did this past New Year's Eve.

"My dad started building these lime piles in the 1930's, and the last one was burned in 1964," says Shetler. "My personal reason for bringing this back is so farmers can learn the great value of this kind of lime."

Shetler says his dad's piles were impressive in their size but even more so in their results. One time Shetler's dad built a large pile near a poor quality hay field. He burned it and then spread it on the field.

"We took five loads off the first crop before we spread the lime and ten loads from the second crop after it was spread," recalls Shetler. "On another farm, treated corn fields performed so well we had to build extra corn cribs."

Shetler is working with an agronomist to study the effects of the burned lime that he has spread on gardens and fields. "My agronomist says the coal has carbon as well as 125 trace minerals with close to 100 trace minerals in the lime," says Shetler. "Burning them together will give us a combination with 40 we can identify and the rest just a trace. We used a local coal that has a lot of tars and burns very, very hot."

After building his pile, Shetler understands why the practice fell away. It is a lot of work. Though in his 60's, he broke up nearly all the blocks of lime with his sledgehammer.

He then layered it with the coal on top of a wooden platform covered in straw. In the center of the pile, a wooden chimney provided air and draft to the burn. A layer of clay built up around the sides worked like a kiln to hold the heat in.

"It's very important to have enough clay soils at least half way up the pile," says Shetler. "You should have at least 2 to 3 in. packed in around the platform. Pack the clay and wet it a bit."

Before starting the fire, Shetler poured diesel fuel over the pile and around the wooden chimney. He also soaked corn cobs in diesel fuel and dropped them down the chimney. The idea was to have the hottest fire at the center to stabilize the pile as the wood burned away. It worked. After 15 minutes of black smoke, flames came out the chimney. Within the hour the chimney was gone, but the heat had set the coal and stone on fire.

Shetler's first pile burned for 9 days. He then left it to smolder, turning into powder. "The stone cracked and popped like popcorn all night long and for days after," says Shetler.

While he has yet to see the results of this first fire, Shetler is already planning the next. Instead of breaking up large blocks of limestone by hand, he will be ordering it from a quarry in pieces the size of his hand and 2 in. thick. He plans to use 2-in. coal as well.

"I'll put down a 2-in. thick layer of coal and follow that with about 6 in. of lime laid on edge out from the chimney, repeating layers to the top," says Shetler. "The ratio of stone to coal is three to one. It is very important that



Photos by Arlen D. Miller

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the pile be built to taper and not built square."

He says the burning process makes the nutrients in the lime and coal immediately available to the soil. Shetler also suggests that it remains effective longer than (unburned) lime will.

While Shetler had some help in the

process, he did most of the work himself by hand. "I had to hammer stones, some 2-ft. square," he recalls. "Some had to be hammered 50 times to break them in half."

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## Driver Sits Up Front On One-Wheel Vehicle

Jake Lyall of San Rafael, Calif., says his RIOT Wheel (Re-Invention Of The Wheel) is different than any one-wheel vehicle ever built because the driver rides ahead of the wheel, instead of inside like other one-wheel contraptions built in the past.

Lyall came up with the idea for the RIOT Wheel in a dream. In it, he was flying low and sitting in front of whatever was driving him.

"I thought about it and various contraptions, and I came up with just one wheel. I just couldn't let the idea go," he says. The computer programmer and jack-of-all-trades started picking up parts to build his 1,100-lb. wheel, which uses the concepts of a seesaw and hamster wheel.

The seesaw component is Lyall's weight up front, counterbalanced by 400 lbs. of lead in back. The hamster wheel is an 8 hp moped motor that pulls itself around inside the large industrial tire.

He spent about 18 months and \$4,000 to build the vehicle, using a 65-lb. flywheel, shocks from mountain bikes and a Mustang windshield wiper motor, which moves a Volvo jack to level the driver's position (according to weight).

The RIOT wheel travels at speeds up to about 18 mph, but isn't very stable and is nearly impossible to steer.

"There's absolutely nothing practical about it," Lyall says, who calls it a piece of "engineering art".

The RIOT Wheel was part of the Burning Man art show that is held in the desert, and it was on the Discovery Channel and in Popular Science magazine.

Lyall has already gathered parts to build another wheel that would be easier to steer.

He plans to make it a hybrid by replacing the lead weights with batteries to power two electric motors.

"There is a speed record of about 53 mph for one-wheel vehicles. I'm interested in building a hybrid vehicle to beat that," Lyall says.

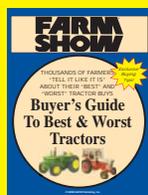
Lyall is interested in hearing from anyone who would like to know more about it.

Contact: FARM SHOW Followup, Jake Lyall, info@theriotwheel.com; www.theriotwheel.com).

**Jake Lyall's RIOT Wheel works somewhat like a hamster wheel, with an 8 hp moped motor pulling itself around inside a large tire.**



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