Spray-on material forms an edible, even nutritious seal on silage. It reduces spoilage to 1 to 2 in., according to Berger.

Edible Bunker Silo Seal Inspired By Play Dough

After watching his wife make play dough out of flour, salt, and cream of tartar for their kids, Larry Berger got the idea of making an edible seal for silage stored in bunk silos. Berger, an animal scientist at the University of Illinois, has been working on the "recipe" for the past five years and thinks he finally has it right.

"We are now working with an equipment manufacturer to develop an applicator that can drive over a silage pile and spray on the material," says Berger. "We have sprayed it on with a hose by hand, but it's hard to get it as uniform as desired."

His spray-on material forms an edible, even nutritious seal on the silage. It reduces spoilage from 8 to 10 in. to 1 to 2 in.

Like play dough, the two basic ingredients are ground wheat and salt. Berger went through about 40 formulations to find the key ingredients that would create a 1/2 to 3/4-in. thick barrier to oxygen. All ingredients are off the shelf, and the animal scientist expects farmers to be able to mix it themselves, possibly renting application equipment.

The sticky, paste-like material sets up quickly and is firm to the touch within an hour. While it can shed a 2-in. rainfall and handle 2-3 in. of snow with no problem, a slow drizzle over a couple of days can begin to soften the material. Berger is experimenting with using a layer of waxed paper over the seal to protect it from excess moisture.

From a nutrition standpoint, Berger expects the seal will provide from 1 to 3 percent of the animal ration on a dry matter basis. While the cost will likely be greater than existing plastic covers, some of that cost will be offset by feed value and reduced spoilage.

"We have done some work on hay bales, too," reports Berger. "We have stacked them two high on end and sprayed the flat top surface so it sheds water. If you remove salt from the diet, the cattle are attracted to the salty covering and eat it along with the hay."

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Fold-up forks pin to a pair of brackets welded to each side of loader bucket. Forks can be quickly flipped up to use bucket for other work.

Bucket-Mounted Forks Flip Up Out Of The Way

"I made the bucket on my Deere front-end loader even more useful by equipping it with a pair of forks off an old forklift. I use it to lift logs onto a pile next to my sawmill. The forks can be quickly flipped up out of the way behind the bucket, allowing me to also use the bucket normally," says Henry Shouse, Happy Valley Goose Bay, Labrador.

The 4-ft. forks pin to a pair of brackets welded to each side of the 6 1/2-ft. bucket. He took the forks off an old forklift and then had a local machine shop make two brackets out of 3/8-in. plate steel. A big pin goes through each bracket and through a hole already in each fork.

"It was an easy conversion to make," says Shouse. "I use it on my Deere 4010 tractor, a construction model that's painted yellow. I had been using a bucket-mounted 15-ft. boom to pick up logs, but someone had to wrap the chains around the logs which made it a two-man job. Now I just drive up to the logs and slip the forks under them.

"I mounted a pair of metal rods (not shown) on back of the bucket to make sure the forks can't flip forward when doing loading work. The rods fit through another pair of holes already in the forks."

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A simple tow bar allows Kenneth Ramey to tow 19 and 21-in. push mowers behind his Cub Cadet, for a total swath of nearly 6 ft.

Tow Bar Gives Cub Cadet A 6-Ft. Cut

A simple tow bar makes mowing with three mowers at once a snap for Kenneth Ramey. It allows him to mow with his Cub Cadet and its 41-in. belly mower while towing 19 and 21-in. push mowers behind for a total swath of nearly 6 ft.

"If I get into a tight area, all I do is unsnap the push mowers and either use one of them or the Cub," explains Ramey of Ferrelview, Missouri.

To make his tow bar, he simply bolted a length of 1 1/4-in. angle iron to his Cub Cadet drawbar. The angle iron was pre-drilled, giving Ramey lots of holes to work with. He then drilled a hole in the front of each of the push mowers and installed eyebolts. Snaps attached to both ends of a short length of chain allow Ramey to connect the mowers to the tow bar. The chain lets the mowers flex as they follow the Cub and also make it easy to adjust the mower width as needed.

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Hartman uses a hand-cranked boat winch to raise and lower loader, and a long trip handle to dump the bucket.

Winch-Powered Mini Loader

"I was using a wheelbarrow to clean manure out of my lamb barn one day when I decided there had to be a better way. So I converted my old 1958 David Bradley garden tractor into a loader tractor.

The tractor has no hydraulics or electrical power supply, so I operate everything on the loader manually," says Dennis Hartman, who farms part time near Williamsburg, Mich.

He uses a hand-cranked boat winch to raise and lower the loader, and a long trip handle to dump the bucket, which measures 3 ft. wide and raises to about 4 ft. high. He made the bucket by cutting a section out of a galvanized steel water tank. A cutting edge made from 5-in. wide by 1/8-in. thick steel was then welded onto the front of the bucket. He used 1 by 2-in. tubing to build the loader arms.

The sheet metal engine hood on the tractor was removed to make room for the loader and a counterweight bracket that mounts on back.

There's a tripod lift frame at the front of the tractor with a pulley at the top. A steel cable runs from a boat winch up over the pulley and down to the loader arms. To raise or lower the loader, Hartman simply reaches forward to crank the winch.

A long handle off an old farm implement mounts just ahead of the steering wheel. The handle is attached to a metal rod that's connected to a pivoting mechanism at the back of the bucket.

"The bucket holds almost twice as much as a wheelbarrow. I wasn't sure how well the loader would work so at first I used a cable come-along (shown in the photo) which I later replaced with a boat winch. The tractor is small enough to fit through the barn door."

Hartman built a metal bracket on back of the tractor where he carries two cement blocks to provide a counterweight to the loader. After the photo was taken he poured cement into the wheel rims to add more weight.

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