

JUST ONE MOVING PART - A FAN!

"Tornado" Grain Mill Turns Rocks Into Powder

"We're just beginning to scratch the surface of possibilities for this revolutionary new machine," say researchers working on a new "tornado" grain mill that uses powerful tornado-like forces to grind up everything from rocks to sugar.

Invented by Valley Center, Kansas farmer Frank Rowley, there's only one moving part in the machine - a fan - and a couple of funnel-shaped chambers. When Rowley first went public with the machine a couple years ago, he demonstrated its amazing capabilities by dropping a handful of rocks into the top and then catching the powder that came out the bottom in a plastic bucket. The machine has no hammers or flails or any other kind of mechanical grinding equipment. It just uses the same kind of "positive and negative pressure zones and resonant frequencies" found in the eye of a tornado.

What's truly amazing about the machine, according to those who've worked with it, is that in addition to rocks, metal and other hard materials, it'll also turn small granular materials - such as sugar - into a fine powder. No other machine has ever been able to work with such a diverse range of materials.

What's more, unlike a conventional hammermill grinder which uses mechanical impact to break up each kernel and its component parts, the "tornado" machine can be set to retain the integrity of one or more component parts. For example, it can supply ethanol plants with the intact germ portion of individual corn kernels and pulverize the rest.

"Grain and other feedstuffs have a resonance at which they will fractionate or pul-

verize - like a high soprano singer shattering wine glasses by voice resonance. Using this same principle, we can use resonance to break up grain along its natural fracture lines, maintaining the integrity of its component parts," says Rowley.

"If you're shopping for chicken, you can buy it whole or in packages of legs only, breasts only, or wings only. Our new machine gives you the ability to do the same kind of selective processing of grain and other feedstuffs."

Rowley's prototype machine, which was recently put on display at Farmfest near Redwood Falls, Minn., is powered by a 100 hp electric motor. An air lock meters grain from a 2-bu. hopper on top into a funnel-shaped cyclonic chamber where opposing air pressures and resonant frequencies pulverize grain. Grain is "exploded" into its basic components and then falls into a pressurized canister at the bottom.

Rowley admits that the concept of the machine is difficult to understand, but he says you really only have to concern yourself with the results.

"You don't have to understand electricity to turn on a light. All you have to know is that the light works when you turn on the switch. Same with my machine," says Rowley, who began experimenting with the concept 17 or 18 years ago. That was after he theorized that the energy in tornadoes comes from opposing air pressures. Much of his practical experience with the idea came from tuning exhaust systems for hot rods.

"I learned a lot about air flows, frequency cancellation and harmonic resonance building those exhaust systems," he says. "This

"BETTER THAN A TUB GRINDER"

3-Pt. Round Bale Cutter

"Our new 3-pt. round bale cutter lets you cut big bales into any desired size for easy handling or to feed as part of a total mixed ration in a mixer-wagon," says Mark Cooksey, Roto-Mix, Dodge City, Kan.

The bale cutter has a pto-driven double sicklebar mounted on a steel frame that's hydraulically raised or lowered. A pair of bale forks mount at the bottom, allowing the bale to be squeezed between the forks and sicklebar for transport. To cut the bale, you set it on the ground and lower the sicklebar into it.

"It does a better job than cutting bales up with a tub grinder because it keeps the leaves intact instead of hammering them to pieces," says Cooksey. "Another problem with tub grinders is that they cut hay into 1-in. long pieces that are too short for dairy rations. Our bale cutter gives you complete control over the length of hay. It also reduces wind loss that occurs from grinding or shredding. It's big enough to handle large 5 1/2 by 6-ft. bales. The hydraulic cylinders that pull the sicklebar down are attached to a cam that's also at-



This pre-production prototype mounts on a flatbed and is powered by a 100 hp. electric motor. Grain or other materials are loaded into the funnel at left and processed in the funnel at right.

is a controlled 'tornado in a can' that explodes kernels of grain into basic components."

That's why researchers are so excited about Rowley's machine.

"We've successfully broken down corn, wheat, barley, and buckwheat into their respective components. It really works," says Gordon Sonstelie. He's experimenting with the machine for Minnesota's Agricultural Utilization Research Institute (AURI), a Crookston, Minn., group that studies new technologies that add value to ag products (ph 800 279-5010 or 218 281-7600).

Meantime, there are a lot of other crop-processing possibilities for the machine, Rowley notes. For example, it can be used to dehydrate alfalfa rather than using high temperature drying to preserve more natural nutrients, he says.

Production of stationary and portable units is just getting underway.

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Photo courtesy Wichita Eagle

This photo shows farmer-inventor Frank Rowley dropping a rock into an early prototype of his machine. Tornado-like forces inside the machine turned the rock into powder that dropped out the bottom of the machine.



Bale is squeezed between bottom-mounted forks and sicklebar for transport. To cut the bale, you set it on the ground and lower the sicklebar into it.

tached to the bale forks. If you have to cut a dense, wet bale and the sicklebar starts to bind, the bale forks pivot up automatically to release the bale."

Sells for \$4,950.



Contact: FARM SHOW Followup, Roto-Mix, 2205 E. Wyatt Earp, Box 1724, Dodge City, Kan. 67801 (ph 316 225-1142).

Flame Weeders Catching On Fast

You might say business has caught fire for a Minnesota farmer/inventor.

Dennis Lutteke believes that "flaming" weeds is a better alternative than using chemicals to control them.

In an attempt to completely eliminate the use of chemicals on his 100 acres of corn, Lutteke, of Wells, Minn., designed and built his own flame cultivator five years ago.

It was bigger and more sophisticated than the 4-row units gas companies promoted for a time during the '60's for burning weeds out of crop rows. Lutteke's 12-row (30-in.) flame cultivator features burners he designed, mounted on a hy-

draulic-fold tool bar, and 250-gal. LP tank. Lutteke flames corn (he also cultivates it) one to three times during the growing season, using 4 to 7 gpa of propane (50 cents per gal.) traveling 3 to 4 1/2 mph. Control ranges from about 70% (one flaming) to nearly 100% (three flamings).

Lutteke's flame cultivator drew more attention than he ever imagined. At first, he began getting calls from neighbors asking him to build units for them. Soon he was getting calls from surrounding states. There's a reason, he says.

"Propane has gone up about 10 cents per gal. since I started flaming so it costs about 50 cents more per acre every time you

flame," Lutteke says. "But there's so much concern over farm chemicals and the environment, that interest among farmers is overwhelming.

"I've had calls to build whole 4, 6 and 8-row (30 to 40-in. rows) cultivators. Others want kits so they can build their own. The University of Oregon even ordered one from me so they could test it."

Last year, Lutteke built kits for about 200 rows as well as a few complete cultivators.

Lutteke's 6-in. wide by 12-in. long steel burners differ from most on the market. They feature a single-hole stainless steel disc orifice that helps reduce plugging problems. Brass or stainless steel screens

also help reduce plugging by filtering out the scale that forms inside steel pipes.

Cost is \$130 per row for burners, hoses and manifold lines. It's another \$250 for controls - fuel lock off, regulators, needle valves for pilot lights, filter for fuel lock off, electrical controls and gauges. If a farmer wants tank brackets and stands, it's another \$350. Lutteke charges his cost - \$300 to \$500 - for toolbars when he builds an entire cultivator.

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