

## Chain Extenders Grab Down Corn

When Buddy Itzen was helping a couple farmers combine down corn a couple years ago, he noticed that most of the missed ears fell back out of the header because debris - broken stalks and leaves - piled up over the gathering chains.

He also noticed that when that pile of plant debris finally did feed into the header, it came in all at once and often choked the feeder auger.

Itzen owns Elkhorn Equipment, Fort Dodge, Iowa. He figured if he could make the gathering chains more aggressive, he could solve both problems. "The plant debris would be pulled through the combine more evenly so the ears would feed into the gathering chains instead of bouncing out."

He made some small extensions that bolt into the existing holes on the gathering chain fingers. His gathering chain extenders reach about 1/2 in. past the tip of the existing finger

and are about 3/4 in. higher. It doesn't seem like much of a change, but he says they work. "It's the added height that seems to make most of the difference," he notes.

Itzen makes the extensions from a high-density plastic material. "It's safer than using steel because it can't generate sparks and cause a field fire," he says.

Itzen sells kits with extenders for each finger and all the hardware needed for \$25 per row.

He says they should work with all combines that have two holes in the gathering chain paddles. "They won't work on some older combines without drilling holes, but should fit all the more recent models," he says.

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**"Extenders" bolt to existing holes on gathering chain fingers. They reach about 1/2 in. past the tip of existing finger and are about 3/4 in. higher.**



**Tom Leue turned his family's maple syrup business into a manufacturing plant for biodiesel. He uses cooking oil from restaurants.**

## He Makes His Own Biodiesel

In 1998, Tom Leue, Ashfield, Massachusetts, turned his family's maple syrup business into a manufacturing plant for biodiesel. However, his product, Yellow Brand PREMIUM Biodiesel™, is still sold only as a parts cleaning solution since he has not been able to get approval for highway fuel use by the appropriate people from the Environmental Protection Agency.

What makes Leue's business work is the fact that he doesn't have to buy vegetable oil. He uses cooking oil from restaurants and sometimes even gets paid to haul it away.

"I have a 200-gal. tank with a pump and long hose mounted on the back of my Ford diesel pickup. Restaurants contract with me to haul away their used oil," he notes.

Leue makes use of some of the equipment he used in making syrup. He made most of the other equipment he uses, including pumps for moving oil and other liquids around.

He uses a batch system, making 20 gal. of biodiesel at a time.

"We fill a tank with oil, and then pump in a methyl alcohol and lye solution," he explains. Once a reaction between the two liquids has occurred, what remains is methyl ester (biodiesel) and a solution of water, glycerin and alcohol, otherwise known as glycerol. Every gallon of oil yields a gallon of finished biodiesel.

He packages the biodiesel in 5-gal. containers for sale as parts cleaner. So far, he's not found a market for the glycerol byproduct, so he's working on a system to burn it. "It's high in water, so it doesn't burn easily. Once you get it going, though, it



**To haul used cooking oil, he has a 200-gal. tank with a pump and long hose mounted on back of his Ford diesel pickup.**

produces a steady heat," he says.

While he can't sell his biodiesel as car or truck fuel, Leue is legally allowed to burn it himself, or sell it for off-road use. He uses it in his tractor, as well as his pickup and car. He usually burns it straight, rather than mixing it with petroleum-based diesel fuel.

At this time, Leue is considering the possibility of franchising his Yellow Brand Biodiesel product name to others. He says there is no "correct" way to build a biodiesel factory. But if you'd like to see what his plant looks like, you can take a "tour" at his Website.

A 5-gal. container of Leue's Yellow Brand Premium Biodiesel sells for \$12.50, FOB Ashfield, Mass.

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**Frostfree Nosepump sits on top of a length of corrugated culvert that's set vertically into the ground.**

## Frost-Free Waterer Lets Cattle Pump Their Own Water

Cattle, horses and other livestock can get water in any weather without the need for a water heater with this Frostfree Nosepump. What's more, they pump the water themselves.

Jim Anderson, a Rimbey, Alberta, rancher, borrowed the idea from a friend, Walter Diehl, who came up with the idea for this type of pump to get water to cattle in cold weather. Anderson tried it out on his own herd. It worked so well that, with Walter's blessing, he redesigned the pump, applied for a patent, and formed Frostfree Nosepumps Ltd. to put it on the market.

The waterer consists of a small trough about the width of a cow's head. A nosepad attached to a lever activates a down-hole piston pump that brings up water with each stroke. When an animal reaches into the waterer for a drink, it pushes against the nosepad and pumps its own water. A short riser nipple in the water trough prevents backflow contamination of the well. Water in the riser pipe drains back down, so it doesn't freeze.

The Frostfree Nosepump sits atop a length of corrugated culvert that's set vertically into the ground. The culvert, which extends two feet above ground, becomes a reservoir for the nosepump to draw from (whether in a well or dugout situation) and makes a stable base for the waterer. Geothermal heat in combination with an insulation sleeve prevents freezing. Anderson says the pump will raise water at least 50 ft. An insulated



**Geothermal heat, in combination with an insulation sleeve, prevents freezing.**

concrete pad around the waterer also helps prevent freezing.

To use it with a dugout (pond), lake or stream, water needs to be diverted underground to the culvert, with the nosepump waterer installed overhead.

Besides saving energy, the nosepump eliminates the need for cattle to wade into ponds or streams for water. This protects streambanks and means less silting in ponds, providing easy access to clean water.

Anderson says cattle learn to work the pump quickly. He suggests the system be installed during the summer, though, so cattle learn to drink from it before cold weather hits.

A Frostfree Nosepump waterer sells for \$975 (Canadian).

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