

THE GREEN PAGES

Berks farmer turns profit by recycling oil filters

By KRISTINE PORTER
Business Journal Staff

Maybe necessity is the mother of invention. For a Bernville farmer, the necessity of supporting his family has produced a second business — oil filter recycling.

"This whole barn used to be full of calves. It's a great way of life but a tough way to make a living," said David Lucas, owner of Lucas Lane Inc. Today, instead of having 400 calves on his veal farm in Berks County, he has 200.

Lucas began planning his business in 2002, and had his first customer in 2004. Today he has about 350 clients within a 60-mile radius of Reading.

On a shoe-string budget and a \$100,000 loan obtained through the Kutztown Small Business Development Center, Lucas purchased a thermal processing machine designed to cook the last drops of oil out of the filters. He also renovated a portion of his barn for the recycling facility, and designed, with his mechanical engineer father, a machine that scrunches oil filters into cubes and then spits them out onto a conveyor belt.

Lucas said the machines on the market that do this job cost about \$50,000. By building his own, Lucas was able to do it for about \$10,000.

"As a farmer, I had a lot of time, but not a lot of money," he said.

Just getting the company up and running had its challenges. Even before Lucas could apply for his permit, he had to have insurance coverage, which skyrocketed from \$3,000 year to a minimum of \$10,000 a year by the time he needed to get it.

"It's an environmental nightmare when you're talking about oil," Lucas said.

The state Department of Environmental Protection was there to answer all of his questions.



David Lucas, president and owner of Lucas Lane Inc., stands beside a pallet of cubed oil filters. The filters were cubed by a crushing machine, at right, that Lucas and his father designed. From there, the pallet of oil filters will go into the thermal processing machine behind Lucas.

Photo by Kristine Porter

"My philosophy is, 'I want to do this right,' so you tell me what I need to do," Lucas said. "(DEP) wants to see this happen."

The agency was very clear about what he needed to do to recycle the oil filters, he said.

Lucas explained that oil will drain out of the filters when pressure and heat are applied. In landfills, the filters experience pressure from the machinery

compressing the layers of garbage. Heat also builds up, which thins the oil raising the viscosity and aiding in the drainage of the oil.

"A gallon of waste oil can contaminate 1 million gallons of water," Lucas said.

Because oil filters are not required by law to be recycled, about half of them are going to the landfills. "One trillion BTU's of waste oil is being thrown away," he added.

When oil filters are emptied in the shop, Lucas said, about 40 percent of the oil remains trapped in the filter. It's that oil that he recaptures for recycling.

One of his clients, Robert Swiatek, the Toyota, Ford, Scion service manager for Dick Milham Toyota in Easton, said, "A good chunk of the oil filters are still going into the landfills. That 40 percent goes into the ground. We're doing probably 600 oil changes a week."

PROFILE

Business basics

LUCAS LANE INC.

- **Principal:** David W. Lucas, president/owner
- **Address:** 10 Lucas Lane, Bernville, PA 19506
- **Telephone:** (610) 488-8087, (888) 488-8087
- **Web site:** www.HowDoYouRecycleOilFilters.com
- **E-mail:** LucasLaneInc@gmail.com
- **Number of employees:** 1
- **Number of locations:** 1
- **Operating since:** 2004

Lucas provides his clients with 55-gallon drum barrels. One barrel can hold about 250 oil filters, Lucas said. He usually picks up four barrels per trip to Milham. For each barrel,

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Here's how oil recycling works

After David W. Lucas collects the oil filters, he brings them to his Berks County farm and lets them sit in a specially designed drainage stall where gravity helps 30 percent of the remaining oil to drain out.

From there, he drops the oil filters into the machine that crushes them down to eight inches cubes that weigh 25 pounds each. The excess oil squirted out of the filters gets collected into the bottom of the machine. That oil plus oil from the stall are placed in a 5,000-gallon stockpile tank outside of the barn.

The filters' next stop is a pallet where they are stacked and loaded into the thermal processing

machine, which looks like a big kiln. Lucas calls it the "big oven." One load in the thermal processing machine equals 80 barrels worth of filters crushed into cubes, and yields five tons of scrap steel.

The thermal processing machine reaches temperatures of 1,300 degrees, he said. It runs in 20-hour cycles, Lucas explained. The purpose for this is to slowly raise the temperature in order to control the burn, which prevents a fire from occurring. This is called a starved air system. The slow temperature increase also ensures a 100 percent capture of any remaining oil, he said. If the temperature does rise to quickly, he can squirt some water into the chamber to cool it.

With only 10 percent of the oil remaining trapped in the tiny crevices of the filter, the heat burns up the remaining oil. The gas rises to 1650 degrees where it gets burnt up. The only thing released is hot vapor, which Lucas monitors for air pollution.

The remaining steel solids have bits of charred paper, which Lucas sells to steel manufacturers to be made into new products. The steel mills found that it is cheaper to use scrap steel than to mine for iron ore, Lucas said. The oil is sold to asphalt companies.

"Scrap prices around here have quadrupled since I started," Lucas said.

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"Oil filters are one of the few things in a shop that doesn't have to be recycled, but mechanics know it will come," Lucas said. "Personally, I think it gives them a boost in customers when people know they recycle. Most people want to recycle."

According to Charles Young, a spokesman for DEP, the department has had oil filter disposal on the list for the Solid Waste Advisory Committee for regulatory revision, but the current list does not include it. The topic is something he said would be considered over the next two years. The department is examining the requirement of having oil filters recycled, just as it does oil.

"We've grown every year. It's a slow grow," he said. "The ban would make a big difference to us."

Lucas said he could process oil filters from lawnmowers to locomotives. Size really doesn't matter, because the thermal processing machine has an inside chamber 11 feet wide, 6.5 feet deep, and 7 feet tall. Any business that runs machines probably has oil filters, he said.

About his client, Classic Harley Davidson in Reading, Lucas said, "They get some of the prettiest oil filters out of there." He explained that Harley filters are chrome plated because they are visi-

ble on the motorcycles. "When you see all of them piled with the colored ones, you just say, Wow."

If you would like to have yourself or your business considered for the Profile tell us what makes you or your business unique, what you have done to create a niche in your particular industry or what you have done that has made a difference. Send information to John L. Moore, Editor, EPBJ, 65 E. Elizabeth Ave., Suite 700, Bethlehem, PA 18018. You also can send an e-mail to john.m@epbj.com.

Partnering to keep used oil filters out of the landfill.



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Oil Filter Recycling

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President/Owner

10 Lucas Lane
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Photos by Kristine Porter

Top picture: crushed oil filters await thermal processing. Bottom picture: scrap steel remains after the oil filters have gone through the processing machine.

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Lucas can reclaim about nine gallons of oil from the 250 filters.

Swiatek said Lucas is always prompt and friendly.

"Even if it costs a little bit more, you like to see a person like that succeed," Swiatek said. "He doesn't get dirty. I don't know how he does it."

Lucas charges his clients \$50 per barrel, which comes out to about 20 cents per oil filter. The cost is mostly to cover the expenses for running his box truck, he said, which Lucas uses to pick up 15 to 20 barrels.

"Recycling is just my mindset. It's good for the environment," Swiatek said.

Lucas runs a one-man operation, but many of his eight children have helped out in both the recycling and the farming businesses. He hasn't taken a wage from the company yet, but he breaks even, and the number of customers keeps increasing each year, he said.

HowDoYouRecycleOilFilters.com