

**TECH TALK**

**Variable Speed Drives Boost Milk Pump Efficiency**

By installing a variable speed drive (VSD) on vacuum pump systems, farmers can reduce pumping costs by 50 percent. Traditional pumps with single speed drives operate at a constant speed of 7 to 10 cubic feet per meter (CFM) per milking unit. By installing a VSD on the pump system, this speed can be reduced to 2 CFM per milking unit. And it will still maintain enough pressure to keep bacteria from entering the cow's teat. The VSD unit adjusts the vacuum pressure in the line so that it only uses as much suction pressure as it needs.

To learn more about Focus on Energy and Agricultural Programs call 800.762.7077 or visit us at [focusonenergy.com](http://focusonenergy.com).

Russ and Lorie Ferg, owners of White Clover Dairy, milk 450 cows in a three-year-old freestall barn on their Manawa, Wisconsin dairy farm. They were introduced to Focus on Energy, Wisconsin's statewide energy initiative, by Ederer Dairy Supply, a Focus on Energy Program Ally. This referral will save the Fergs money and reduce their farm's energy-related operating costs by approximately \$3,870 each year. Focus on Energy also helped the Fergs obtain a \$7,356 Implementation Grant to offset the costs of making the recommended energy efficiency improvements.

Fred Daniels, an agriculture expert from Focus on Energy, met with Mr. Ferg, walked through his operation and made several energy-saving recommendations. "Fred understood my operation and he was easy to work with," said Mr. Ferg.

Fred Daniels made two key recommendations. First, he suggested that the Fergs consider installing high velocity, low speed (HVLS) fans in the barn instead of traditional box fans. These ceiling-mounted units range from 8 to 24 feet in diameter and each has ten, 10- to 12-foot aluminum fan blades. These long blades can move four times as much air as one standard 48-inch ceiling fan rotating at the same speed. One 20-foot diameter HVLS fan can circulate air over 15,000 to 20,000 square feet.

The Ferg's operation needed only six HVLS fans to ventilate the barn properly. This choice will cut electricity use by 33,566 kilowatt-hours each year and save \$2,350 in energy costs (when compared with the 35 box fans in a traditional system). In addition, the Ferg's utility will benefit from the 15.54 kilowatt reduction in electric demand.

<b>PROJECT TECHNICAL SUMMARY</b>		
<i>White Clover Dairy</i>	Electricity Savings (kWh)	Annual Cost Savings
Install variable speed vacuum pump on milking machine	21,744	\$1,522
Install 6 HVLS ventilation fans in freestall barn	33,566	\$2,350
<b>Total Savings</b>	<b>55,310 kWh</b>	<b>\$3,872</b>



Mr. Ferg did his research before deciding to install a relatively unique technology. "I started going to farm shows and talking with suppliers about my options," he said. "HVLS fans don't make much noise, but there's a nice, constant breeze. They definitely move a lot of air. I'm looking forward to the summer months to see how the system really works."

Second, Fred Daniels recommended replacing the old single speed vacuum pump on the milking machine with an energy efficient, variable speed unit. This replacement is projected to save 21,744 kilowatt-hours of electricity each year and reduce energy costs by \$1,522 each year.

"I'm very happy with the Focus program," said Russ Ferg. "It's a good way to help farmers make improvements, save energy, and reduce their operating costs."