

New Grain Dryer Runs Quiet, Uses 1/3 Less Fuel

A revolutionary grain dryer design is on the ground and running this fall. The first commercial DryTech units came out of the factory in early October. If they live up to the performance of an earlier prototype, the new design will catch on fast with commercial grain producers.

"Our numbers indicate that with LP at \$1.28 per gallon, our costs, including electricity, run between 1.2¢ and 1.3¢ per bushel per point," says Brad Ross, sales manager, DryTech. "Most people tell us that drying in a conventional dryer costs them between 2¢ and 5¢ per bushel per point."

With LP prices projected to soar by as much as 60 percent this year, DryTech's cost savings will soar, too. Ross reports the new dryer may also qualify for energy rebate credits.

Equally exciting is the new dryer's affect on grain quality. The flow-through design eliminates the potential for hot spots and even makes it possible to add moisture to overdried grain and beans.

Ross compares the dryer design to the conveyor belt used in pizza ovens or hamburger grills. The grain continuously moves from a 125-bu. surge hopper through the 35-ft. long dryer unit or a 24-in. wide chain mesh conveyor belt. Hot air is pulled through the stainless steel belt by fans, the biggest of which requires a 3-hp motor. Total fan power is only 15 hp.

Ross says the key to the low power usage is that the fans are pulling the heat through, not pushing it. The lower power fans also reduce noise levels. Unlike most commercial drying systems, conversations can be carried on in a normal voice within 10 to 15 ft. of the dryer.

While it's not legal to add moisture to overdried grain directly, it is acceptable to add moisture to the heated air. With the DryTech dryer, moisture can be added to the hot air to "humidify" grain or beans.

"If you take \$8 beans out of a bin at 8 to 10 percent moisture and can enhance moisture levels a couple of points, clean them and send them to town, you've added 16¢ per bushel to your price," says Ross.

Grain quality is also enhanced by the built-in screens that remove dirt and chaff and the design of the cores that pull the conveyor belt. As the belt passes over the core, its irregular surface cleans out any fines or seeds that have lodged and could impede airflow. Fines are collected in a lower chamber area equipped with a built-in auger.

A touch screen control panel lets the operator set moisture levels and walk away. Humidity sensors read incoming and outgoing air and adjust the dryer to meet desired target moisture levels.

DryTech dryers are designed as grain drying modules. Each unit is capable of fully drying 600 bu./hour, with each burner capable of heating two modules. Hooked up in tandem, a single control panel can handle up to four modules for a 2,400 bu./hour capacity.

"If a farmer prefers to steep his grain instead of running it through a cooling chamber, capacity increases to 800 to 825 bu. per hour," says Ross. "We also offer the DT 1200 that has a 48-in. wide belt and a 1,000 bu./hour capacity cooled or 1,200 to 1,300 bu./hour steeped."

An added advantage of the compact design is portability. DryTech is offering three variations on their units. A permanent, stationary



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unit hooked into a standard 120-amp system will retail for about \$65,000. Their Farm-duty Mobile unit is designed for use at remote grain bins. It will retail for up to \$8,000 more, depending on whether the buyer has his own flatbed and generator. A third unit, the Interstate Highway Mobile, is equipped to meet all DOT regulations.

"Farmers can take our dryer to the grain bins on a remote farm instead of hauling grain back and forth to a dryer on a second farm and then back to the first farm's bins," says Ross.

While DryTech is a new company, the parent company CemenTech is well established and ships products to 41 countries. Ross says dryer customers like knowing an established company is behind the dryer business. It is CemenTech's expertise in volumetric proportioning and continuous mixing that made possible the development of the new dryer.

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Special Greenhouse Produces Year-Round Vegetables

Thanks to a unique solar greenhouse design that's popular in China, Wenkai Liu of Elie, Manitoba is growing a wide range of Oriental vegetables year-round. Even in the harsh Canadian winter, Liu is able to economically produce squash, cucumbers, peppers, radish, lettuce tomatoes, and even bedding plants such as hothouse flowers. That's because the sun's energy is harnessed to provide much of the greenhouse's heating by efficiently conserving it to last overnight.

Wenkai erected three of these 2,300 sq. ft. greenhouses last fall as a research project funded by Manitoba Hydro and a government agency. The project is being overseen by researchers from the University of Manitoba.

Each greenhouse costs about \$14,000 to build. The special building materials were shipped to him from China, since none were available locally, and Liu also had a Chinese technician come over to provide expertise.

The original construction design was adapted for the Manitoba climate. The north wall is insulated with 6 in. each of sand and fiberglass, and covered with metal panels.

Heat from the daytime sun is absorbed by the metal wall, into the insulation layer where it is held and released into the interior at night to maintain an acceptable temperature. The building also uses specially designed thermal blankets that are rolled down at night to conserve heat.

"For tomatoes, the safe daytime temperature is 77 to 82° F," Liu says. "At night I try to maintain a temperature of 60° F. Compared with traditional greenhouses, this solar green-

house is warmer at night."

Depending on the severity of each particular winter, it is still expected that some supplementary heat will be required on the coldest days, which in Manitoba can drop down as low as 31 below F or lower.

Liu began the first trial of the facilities in February, 2005, and was able to produce his first harvest without any supplemental heat. He seeded again in June, and says his produce will be ready for Christmas.

In all, the three greenhouses produce an average of 20,000 lbs. of crop every six months.

He feels he is achieving the goal of extending the growing season at a reasonable cost, pointing out that there is a strong market for vegetables in the off-season.

"We've been importing a lot of vegetables and they are very costly for the consumer," he explains. "I think there is good potential for us to grow our own."

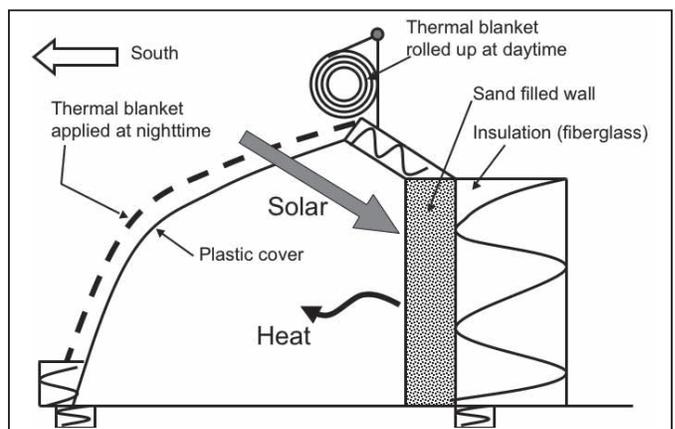
Liu sells his produce to markets in Chinatown, Farmers' Markets, and a large grocery store chain, "Superstore." He ships to Winnipeg, Saskatchewan and Alberta. He also just opened his own grocery store in Winnipeg in September.

"I wanted to farm all year round, and these greenhouses are letting me do that," he says. "You can make \$500 a week on only 800 sq. feet with this and that's good money."

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Greenhouse harnesses the sun's energy to provide heat overnight.