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"As you cool the grain, it has a longer storage time. I've had guys cool it down to 2 to 3 C then they ship it next spring."

Natural air drying simply uses bins with fans but no burners or trips through the dryer. You may have to build more bins to store tough grain. You may also need to upgrade existing fans or double them. On large bins with flat floors, Wall often installs a second fan. The second fan is placed opposite the unload U-trough on the other side of the bin.

Bag it. Wall said you can put 18 percent grain in a bag and because it's sealed, it won't go bad for three months. Some producers are running so many combines, that bagging in the field is the only option. Bin storage costs \$2.50 a bushel. Bag storage costs 30 to 40 cents a bushel. There are thousands of bags on the Prairies every year, especially in western Saskatchewan.

"I've had guys leave it in the bag until spring but that's not advisable," Wall said. "You've got vandalism, birds, mice, rats — all kinds of wildlife wanting to eat that grain. The worst ones can be quads and snowmobile guys. They'll ride along the length of a bag with a knife or something and rip the whole bag open end to end. The longer you leave the bag, the more likely to have a problem."

One other negative aspect of bagging is the temperature can be -38C when it comes time to unload. It's tempting to stay in the shop in those conditions.

If your existing dryer isn't adequate to handle a large volume of tough crop, your grain terminal typically has excess capacity and some farming operations have enough extra capacity for custom drying. Wall said cost depends on the situation. Expect to pay 20 cents per bushel if the grain isn't too tough, up 80 cents if there's a lot of water to be removed. He pointed out that even 40 to 80 cents per bushel is a smart expenditure if cereals are selling at more than \$10 a bushel and canola more than \$22.

"Items five and six on my list are what I call my Band Aid solutions," he said. "They're not the best way to deal with tough grain, but you do what you can to save the day."

"One to five are very cost-effective ways to handle tough grain. When we do items seven to 10, that's when we're making real progress in protecting your grain. That's where you need a long-term investment to dry grain. You don't want to trust Mother Nature with your crop, do you?"

Add burners and bigger fans to existing flat floor bins. Flat bins with full floor aeration can dry grain six times faster if proper fans and burners are installed. He called this process fast dry. Wall said 80 percent of large acre farms already have flat floor bins. He adds that hopper bins are not as effective as flat bins.

"If you have a bin with \$2 million worth of canola, you don't want to skimp on fans. That's when a guy realizes he better put on a second fan and maybe make both of them oversized just to be safe."

He said they usually put the second fan on the opposite side of the

bin, opposite the unload port so air enters from both sides of the U-trough and any concerns about structural integrity caused by the extra hole in the side disappeared 20 years ago. The engineering that goes into modern bins is evolved, plus bins now have stiffeners that carry the load around the new hole. About 60-80 percent of farmers now order bins with stiffeners.

Add wet hopper or flat bins to your existing dryer setup.

Build more bins to do a combination of some of the above methods.

Build a dryer. "Farmers have had dryers for 30 years and some of them still use their 30-year-old dryer," Wall said. "But those old dryers are too small. They're too slow. Every farm has an existing plan in place that they've been adding to for years. So, our challenge is to design a dryer that fits into their existing setup and accounts for future expansion."

"When you install a dryer, you're going to be moving a lot of grain. Move it into the wet bin and move it away from the dryer. There are many ways to do that. But now we're getting into grain handling systems."

Augers and trucks aren't enough for this job

A new dryer won't necessarily fit in close to your lineup of bins. Moving all that product around the yard with augers and semis just isn't practical. It's labour intensive. A handling system becomes a necessity. Wall said more than half the farmers who upgrade opt for a Walinga pneumatic grain-moving system.

"You can bring in a new dryer for \$100,000 to \$150,000. It'll dry 500 to 1,000 bushels per hour. Put a Walinga blower behind it for \$100,000 and you can blow grain 400 to 500 feet. But as you go past 400 feet you reduce the volume of grain it can blow."

"Most dryers today drop straight into the blower system. Our smart technology can slow down and speed up according to the load, so you're not wasting power or causing excess wear on the components. The blower only runs as fast as it needs to get the job done. On any new system, all controls are automated. It's like a cookie cutter the way it all fits together."

Wall said in most cases the dryer may not be fully operational until after harvest because plumbers, electricians and contractors are busy installing other farmer's new bins. The closer you are to the top of the list, the better your odds of getting your work done before winter.

"Supply and demand also applies to the supply chain feeding our industry. Most dryers today, like everything else, rely on chips. Without the chip, controls won't function. If any of these obstacles get in your way, you may have to revert back to a combination of items one through six," Wall said.

"By the end of August, I know I'll be deluged with calls about fans, burners, dryers, and endless questions about how they can get through the harvest. I hope it will turn sunny and dry come harvest time."

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Consider power demands when system expands

BY RON LYSENG
WINNIPEG BUREAU

Single phase power won't do much to power a modern grain-handling system but the cost to bring three-phase to the bin yard ranges from \$200,000 to \$1 million.

It might make sense to buy a used three-phase genset from the oilpatch. The most common is a 440-volt three-phase unit delivering 100 kW up to 300 kW. A low-hour genset sells for about \$30,000. Some equipment dealers across all three prairie provinces buy them to keep in stock for farmers who might need one in a hurry.

A common scenario sees a grower expand his grain-handling system with

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considering electricity requirements. He starts with 40 horsepower to run 600 bushels per hour. Then the system escalates to 80 hp. Now three-phase is a necessity, especially if the farmer adds a pneumatic system requiring a lot of air and therefore a lot of electricity.

Most dryer installations need a 75 hp blower to move grain from the dryer to the bins and another 75 hp for various smaller fans and motors. But you can't do 150 hp with single phase.

Sometimes a farmer decides to build a new bin yard from scratch to have a well-thought-out system that has plenty of design options.

In picking a new site, even if it's miles from the home yard, it should have three things: natural gas, three-phase power and a hardtop road right to the driveway.

If you find a site with two of the three factors, natural gas and hardtop road, then it's easy to get the three-phase power with a genset.

If the electric utility plans to bring three-phase in the foreseeable future, then rent a genset temporarily. The other thing about a three-phase genset is they start right away, they run better and there are fewer service calls.

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Bringing three-phase into the bin yard can cost \$1 million. However, for \$35,000 a farmer can buy a used three-phase 150KW genset from the Alberta oil patch. | WALL GRAIN PHOTO



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Fast dry grain in five days

Boost dryer efficiency 30 percent by converting bins into dryers

BY RON LYSENG
WINNIPEG BUREAU

Bin management can lower capital costs while boosting the number of bushels dried in a week. It's all a matter of how you use your combine, bins, dryer and trucks.

The process is called fast dry. It's a cost-effective way to convert bins into grain dryers, said Dave Wall in a phone interview, adding that Wall Grain has shown hundreds of farmers how to extract more money from their crops and increase dryer efficiency by 20 to 30 percent.

The process uses heat to speed natural air drying in the bin. The four fast-dry factors are roof fans, multiple fans, self-adjusting grain spreaders and managing technology.

Roof fans — Mid-September has cooler nights and dripping water creates a mess on walls, reducing the amount of moisture removed. Wall Grain designed a roof fan that reduces dripping by pushing moisture out of the space under the roof. More importantly, it keeps the roof at a constant temperature so moisture doesn't condense.

- Multiple fans — Wall says that as bins got bigger, his engineers began installing multiple fans. Two 25 horsepower motors will dry 25,000 to 35,000 bushels in each bin of cereals or canola. In five to seven days each bin is done.

- Self-adjusting spreader — With bin diameters up to 54 feet, peaks are high. They should be level for more consistent drying. Taking a load or two out of the bin would do it but that's a lot of work. Grain spreaders can handle augers up to 16 inches and feature self-adjusting springs that allow constant feed on the spreading arms/pans. Having a spread rather than a peak means less over-dried grain that needs to be blended.

- Moisture-managing technology — Knowing how much water needs to be removed helps manage the batches. Wall Grain developed a fast-dry calculator for cereals and canola. Management advisers help match fans to each operation and teach customers to figure out what works and what doesn't.

The beauty of the fast-dry concept is that bins can be designed for later addition of accessories like a continuous flow dryer.

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The Fast Dry method increases dryer efficiency by 20 to 30 percent. It quickens natural air drying in the bin by adding heat, allowing farmers to dry grain in seven days or less instead of weeks or months. | WALL GRAIN PHOTO