



## Farm-Built Continuous Flow Grain Dryer

Tim Kelly is one of those farmers who, if he can't buy something at the right price, will make it himself. His grain drying system is a prime example.

"I looked at a lot of different dryers and heard the same stories from all the salesmen," Kelly says. "They promised a few things, fudged on a few others, and always came back with a hefty price tag. The more I looked at what was out there, the more confidence I had that I could build my own dryer and save money in the process."

Kelly drew up a thorough set of plans and verified the design with friends in the construction business who knew engineering tolerances. He worked with a local welding shop to build the extra-sturdy main box frame. Then he integrated several used components from drying equipment suppliers, had a local manufacturing business build the drying chambers, and assembled it with the help of his son, who is a licensed electrician.

Kelly's dryer has 3 custom-built chambers that dry grain quickly and efficiently, removing up to 5 percentage points of moisture from 875 bushels an hour. The control panel has built-in time delay switches so clutches will energize slowly and gradually bring the augers to speed. He built his own augers with an oversized main shaft and oversized flighting. The 8-in. augers run at 178 rpm's and move as much corn as a 6-in. auger would at 440 rpm's. "Moving grain slowly preserves the quality and reduces cracking," Kelly says. "I've dried 32 percent corn and never had any problems."

Kelly's dryer has special fluted feed rolls built by a local business. They have a 90-degree twist so grain is lifted evenly and



Interlocking, rubber-based "scratch pads" can be mounted on any flat surface. Scratch pad is shown here bent over the top of a Dutch door or corner where it works great for scratching.

## "ScratchnAll" Getting Rave Reviews

The Pennsylvania-based pet products company is getting rave reviews, and Martha Stewart's pets are the ones behind it with several paws up. Their blog, *The Daily Wag*, is abuzz with the word that ScratchnAll self-grooming/scratching pad for a variety of animals – large and small – has hit the domestic diva's New York farm with great success.

"I wanted to find a way for my horse to scratch under his chin," says Cynthia Garry, inventor of interlocking, rubber-based 5 by 6-in. pads which can also bend over a corner. Not only are they perfect for chin scratching (when bent over the top of a Dutch door), they can be mounted on flat surfaces to scratch every part of the body of creatures of all sizes.

The 69-year-old senior entrepreneur admits she has been surprised how many uses her customers have found for her product. So far ScratchnAll has been purchased for 18 different animal species from barnyard animals to giraffes at zoos.

The 11-oz., 1-in. thick pads come in eight colors from bright purple to natural colors that blend in with the environment. The durable material won't crack in the heat or cold. Each pad comes with four stainless mounting screws and washers, and they can be interlocked to create big vertical or horizontal scratching areas on stalls and walls.

not forced against sidewalls where kernels could be crushed. As corn is dried, sensors trigger unloading and re-loading. If the dryer doesn't have more wet corn coming in, another sensor reduces heat in the drying units and gradually shuts them down.

Kelly built a gas injection system that adjusts pressure to compensate for ambient air temperature. "If the outside air temperature is warm, the gas flow pinches down and I don't use as much gas," Kelly says, "and that saves money on fuel." Buying a factory-made sensor would have

"Put it where the animal is scratching now," she suggests. "The animal finds it. I recommend that people do not put them on a post unless it's very big and solid. Rubbing loosens posts."

With 1/2-in. long nubs, Scratch 'n All pads are durable enough to give animals a satisfying scratch, yet are a safe alternative to trees, posts, and other possible hazards. Because of its unique design, it's a great supplement to acupuncture. Garry had one customer who ordered them after pulling a 2-in. wood splinter out of her horse. Many customers find them satisfying, too. One octogenarian has one, and he gets a little exercise doing knee bends while getting a good back scratch.

The \$15.99 (with free shipping offer) pads are made in the U.S., and Garry pays members of a senior center to package them, which financially supports the center. After a bad experience manufacturing in China, Garry has become a strong advocate for products made in America. Garry says "if the small business person would realize the TRUE cost of doing business in China, manufacturing in America would grow." The pads can be ordered on the website (with discounts for large orders).

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cost \$1,600 to \$1,800, but Kelly's system was less than a hundred dollars.

Kelly is a strong believer in "steeping" his grain rather than drying it to 13 percentage moisture in the dryer. He puts 16 percent moisture warm corn in the storage bin where he aerates it with ambient air. "I've never had spoiled corn with this system and I've been doing it this way for 10 years," Kelly says.

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