



Rotary fork mounts on the push blades of most small utility tractors, making it easy to spread straw in poultry barns.



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Rotary Fork Makes Straw Spreading Easy

Canadian poultry growers are enthusiastic about a new rotary fork that makes it easy to spread straw in poultry barns. Inventor Scott Campbell plans to introduce it to U.S. poultry growers soon at the International Poultry Expo in Atlanta.

"It's like a thousand tiny pitch forks going round and round," Campbell explains. "The tines are set a certain distance from the floor. If the straw is above this set point it's kicked forward to fill in the next low spot. If the straw is below this level, it stays."

The rotary fork replaces hand spreading, tub grinding and blowing straw — dusty, labor-intensive methods that don't always leave an even layer of straw.

"Flat straw really helps the chicks. If the straw is flat, every chick in the barn has water nipples at the same level, and the starter feed set out on the paper spreads out and is easily accessible to them," Campbell says.

He uses just ½ in. of straw to start his chicks, but his rotary fork will spread straw up to 4 in. deep.

After five years of building prototypes, the Stratford, Ont., chicken producer, figured how to mount the rotary fork on the push blades of most small utility tractors - including Steiner, Ventrac, Deere and Kubota. The blade is left in place and simply slips into a C-channel at the top of the rotary fork. A couple of collars slip around the back of the blade, and the tool is secured by tightening thumb screws - no tools are required. Hook up the quick-attach hydraulics, and the machine is ready to go.

To test his rotary fork during development, Campbell spread straw for free for other poultry growers. It gave him a chance to test the rotary fork on different tractor models and different quality bedding. By early October this year he had raked 1.2 million square feet with the prototypes, and his latest design was holding up well.

"Although fine-chopped bales work best, it will spread any length of straw," Campbell says. "Since last season was such a rough year to put up good straw, I've been

challenged with lots of lumpy material but the rake handles it all quite well."

Campbell had a video made for his website to show how it's done. First he breaks apart the bales with the blade of the tractor. Then he attaches the rotary fork and spreads it evenly. Lumpy straw sometimes requires additional passes. It takes Campbell an hour to spread good straw in a 25,000 sq. ft. barn.

"The biggest benefit is you can do this yourself in a controlled environment. You don't have to rely on big equipment and high repair costs," Campbell says. One chicken producer told him it recently cost \$3,500 just to repair a tub grinder.

"Although I was raised on this chicken farm, I was educated as a mechanical engineer and I have more than 10 years experience in automotive design," Campbell says. "In automotive I learned that you need rigorous testing, bulletproof design and impossibly low cost. That was also my goal with the rotary fork."

He is working with local tool shops that once served the automotive industry to build parts for his rotary fork. He plans to assemble and market them himself.

"My goal is to have the assembled price lower than an enterprising farmer could buy the individual components," Campbell says. "Also, since I have set my eyes on a large geographical market, all parts on the rake need to be readily available at farm supply stores and dealerships."

He plans to sell the 5-ft. 8-in. wide rotary fork for \$3,500. He's also building a 7-ft. wide model. The rotary forks should be on the market by the end of this year. Campbell is interested in hearing from distributors in the U.S. and Canada.

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Poultry production

Rotary fork simplifies straw spreading

Getting straw spread evenly in a chicken barn can be tough - unless you're using this device

BY BOB REID
Ontario Farmer

Stratford - The dusty, time-consuming and labour-intensive job of spreading straw bedding in chicken barns has been made shorter and easier by the inventive genius of a Stratford area chicken farmer.

Trained as a mechanical engineer, Scott Campbell, 37, worked on his parents' farm for many years using a straw chopper and blower hose to spread straw in the two chicken barns. A leg injury playing baseball required his parents to handle that job while he stood watching, which gave him an opportunity to observe more closely.

"I thought this is the most ridiculous job in the world," recalled Campbell of the inspiration to invent a better way.

He began by making a small machine powered by a five-hp engine that spread straw mechanically but had to be

pushed manually. Finding that difficult and sweaty work he then mounted the machine on an 18 hp lawn tractor and began a series of refinements in 2004 which eventually lead to the Rotary Fork.

He and his father James traveled to a poultry show in London this past spring to determine what other people thought of his invention. If the reaction was cool he was just out the cost of a booth and some advertising, Campbell recalls.

However, the reaction was anything but, as numerous chicken farmers could immediately see the advantages. As a result he offered to spread straw in their barns for free to both demonstrate the advantages and perfect the design of the prototype.

The importance in having straw spread evenly is that it gives the tiny new chicks, when first introduced to a broiler barn, the same opportunity to reach feed and water from a similar height. It is a very competitive environment so chicks short-changed those essentials can be put behind in their development

by three or four days.

With the very short time frame in which broiler chickens reach market today - usually timed to the day or less - four days is a huge discrepancy, said Campbell.

Consumers demand uniformity in their food purchases so much of the work to provide the consistency in raising chicks has ultimately been driven by the consumer.

Campbell has already seen the difference providing an even bed of straw for starting chicks makes in their finely tuned growth rate performance. So have farmers for whom he has worked with the Rotary Fork.

Ten years he spent working in a factory proved to him the importance of design and perfecting a machine before beginning the mass manufacturing process.

He was also familiar with the concept of bringing together a number of resources to obtain the best results.

The many manufacturing businesses and tool and die machinists in nearby Stratford provided the facilities and



Scott Campbell got some positive reaction to his rotary fork design at a London poultry show.

expertise for fashioning the necessary parts while painting and assembly is done at Campbell's farm. He worked closely with the most competent and interested individuals in first presenting design drawings to them and making necessary changes along the way.

Eventually he had a lightweight machine that could adapt to any lawn-type tractor used for cleaning out chicken barns.

It took him an entire summer to create a better means of

attaching the Rotary Fork to the front blades of the small lawn tractors traditionally used for the job, which can now be done in seconds.

"It looks simple when you look at it now but it took a long time to figure it out," said Campbell of the attachment system.

The Rotary Fork can be seen in action by computer at www.rotaryfork.com or www.youtube.com