



Poultry litter falls from applicator into shallow trenches made by 18-in. coulters, and is then covered by two sets of wheels.



Prototype makes four trenches per pass, with adjustable spacing from 10 to 40 in.

Prototype Applicator Buries Poultry Litter

Instead of broadcasting poultry litter onto crop land, this new applicator buries it to reduce phosphorus and nitrogen runoff. After six years of research and development, Thomas R. Way, an agricultural engineer with the USDA's Agricultural Research Service, hopes to find a company interested in manufacturing the new patent-pending design.

Besides reducing harmful nutrients in runoff, the tool has other benefits - reducing odor and providing more accessible nutrients to crops.

The litter applicator creates four trenches with adjustable spacing from 10 to 40 in. apart.

"It's like a two-stage press wheel system," Way says. A trencher with a leading 18-in. coulters creates a shallow trench. Litter falls into the trench, and a first set of 12-in. wheels covers the litter with a couple inches of soil. A second set of dual 8-in. wheels presses soil down over the litter. The rate of application can be changed by how it's metered out of the hopper or by the speed of the tractor pulling the applicator.

With the litter buried, there are fewer nutrients in the runoff after heavy rainfalls. In a Bermuda grass forage plot there was 85 to 90 percent less nutrients in the runoff compared to the broadcast method.

According to results in a cotton test plots, there are also benefits to the crop when rows are planted about 6 in. from the trenches. "We're getting the nutrients closer to the plant roots," Way says.

Burying the litter also reduces odor, he notes.

The applicator has been used on a variety of soils in the Southeast and in Arkansas, where there are many broiler operations with a lot of available poultry litter.

Though it hasn't been used to spread turkey litter, Way says the applicator should work for that and for some other fertilizer applications. It worked well for an organic

pellet fertilizer, for example.

With its promising research results, Way hopes to find someone interested in putting the litter applicator into production.

"ARS has applied for a patent and would like to find a partner who would license, further develop and commercialize the technology," he says.

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Replacement Steering Shafts For Dodge, Chevy, Ford Pickups

"Your readers may be interested in our heavy-duty replacement steering shafts for Dodge, Ford, and Chevy pickups as well as Jeeps. They're built better than original parts," says Jeff Grantmeyer, Borgeson Universal, Torrington, Ct.

The company is a leading manufacturer of aftermarket steering universal joints for both cars and pickups. Grantmeyer says the company developed its first truck replacement steering shaft back in 1989 to solve a common problem with full-size Dodge pickups and Ramchargers.

"These pickups have a steering flex-joint that can wear in as little as 4,000 miles, depending on how the pickup is used," says Grantmeyer. "Any play in the steering causes nerve-racking wandering on the highway. Our replacement shafts are a big improvement over OEM parts because they can take anything you throw at them. We're so sure



Replacement steering shaft for 1979 to 1993 Dodge pickups is built better than original parts, says Borgeson Universal.

they'll outlast your pickup that we offer a 5-year warranty."

What makes the Borgeson steering shaft so good? Grantmeyer says it's the precision, zero-play, sealed needle-bearing universal joint that's machined from solid steel. "It's not a cheap stamping like the OEM designs. Our steering shafts telescope for easy installation and are permanently lubed and sealed. The telescoping shaft easily handles misalignment from body-lifts and extreme off-

road driving. The tight feel of the Borgeson steering shaft assembly will transform your pickup," says Grantmeyer.

The steering shafts retail from \$198 up to \$285, depending on model, plus S&H.

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Zero-play, sealed universal joint is machined from solid steel.

Beautiful Breed: Harvest Gold Turkeys

"They're the most beautiful turkey imaginable," says Dr. Tom T. Walker about the new breed of turkey he has developed called Harvest Gold. He wasn't sure what he'd get when he started breeding Black Spanish to Regal Reds, both heritage breeds.

Harvest Gold turkeys have gold-fringed, multi-colored neck and shoulder feathers and a burnt copper fan heavily peppered with black. Tail feathers have greenish bronze bands with an old gold outer edge.

It took three years to establish a couple of breeding lines between two pairs of solid black and red birds. It was a serendipitous find.

"I was working on Regal Reds to get them back to the right size for mating," Walker says, explaining the breed had been thought to be extinct when a breeder found some in Iowa. They had gotten too large for egg fer-

tility, so Walker experimented with breeding it to another solid color turkey, then breeding that offspring with another solid red turkey.

He was surprised - but delighted - when that mating resulted in the "new" bird.

"They're a strong, calm, even-tempered breed," says Walker. "They lay 16 to 18 eggs, do a good job setting on eggs, and are good mothers."

Breeding a pair of Harvest Golds doesn't ensure all the poults will be Harvest Golds, however.

"Like some other color patterns of turkeys, the Harvest Golds produce only a percentage of poults that are Harvest Golds," Walker says. On average, 60 percent are Harvest Gold, and the remaining 40 percent are divided between solid red and Blackwing Bronze breeds.



Harvest Gold breed is a cross between Black Spanish and Regal Reds.

Walker, 82, sells Harvest Gold poults (and other heritage varieties) to breeders from his two lines of birds. An experimenter and turkey breeder since he was in junior high, Walker finds satisfaction in his accomplishment. Even his wife, who doesn't get excited about turkeys, appreciates his Harvest Gold breed.



"She says that peacocks don't have anything to strut about compared to the Harvest Golds," he says.

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