Most native grass seeds are hard to harvest and naturally shatter quickly once they are mature. Lee and Maggie Arbuckle, Montana ranchers, figured out how to harvest more species with a "combine" that uses counter-rotating comb and brush drums, and a vacuum.

“Our Seedster seed harvester plucks the seed from the seed head with almost no chaff,” says Lee Arbuckle. “The plant is left intact for wildlife cover and soil protection.”

The Seedster mounts on a tractor loader and consists of rotating combs that position and hold seed stems. A rapidly rotating brush dislodges all ripe seed. Dislodged seed is drawn by a vacuum through a tube and a cyclone separator before being bagged on a trailer behind the tractor.

The cyclone dumps seed through a steel bagging cylinder. The operator clamps a large seed bag over the cylinder to fill with several hundred pounds of seed. The cylinder is hinged to swing back for bag unloading. One side of the trailer hides down, allowing the full seed bag to slide to the ground.

Currently most grass seeds are harvested by either combines or strippers, and neither is very effective with many species of native seed. There are two types of seed heads or “inflorescence”. The easiest to harvest are species with a spike inflorescence. This leads to extensive use of them in re-seeding and reclamation efforts.

Panicle inflorescence seed heads are harder to harvest, as they can be shatter-prone, difficult to dislodge and separate. Even off-loading a full hopper can require a lot of manual assistance. However, panicle inflorescence species are far more common in nature and best adapted for many circumstances.

Range scientist Dr. Brian Sindelar is a key team member of the Seedster effort. He points to Western coal land reclamation as an example of limited species re-seeding. Seven to ten native and introduced species, mostly spike inflorescence, have been used over the years, although there are over 60 native grass species in the region.

Producer and machine developer Arbuckle says the Seedster will expand the number of species that can be easily harvested and made available for re-seeding. Producers who grow those species will be able to collect a higher percentage of seed at a much higher ground speed. This will increase the income of grass producers and native seed collectors.

Harvester plucks seed from the seed head with almost no chaff. A rapidly rotating brush dislodges all ripe seed.

“Seedster” Vacuums Up Native Grass Seed

Mini 4-WD Articulated Deere 7020 Tractor

Kenny Fulk built a 1/4-scale Deere 7020 4-WD articulated tractor, complete with dual wheels, by putting two Deere garden tractors together.

The front tractor is a Deere 318 model, and the back tractor is a 317. Both tractors are about 20 years old. The tractor’s eight wheels are off the original garden tractors, and all of them drive.

“I built it because I’ve always liked Deere tractors,” says Fulk, of Dublin, Ohio. He cut the two tractors apart and rebuilt the 318 model’s 2-cyl. Onan gas engine which was worn out. He cut the front axle and wheels out from under the 318 model and moved its rear end and transmission forward 1 ft., which left the tractor’s front end hanging out about 1 1/2 ft. He built a drive shaft that connects the 318’s transmission to the 317’s transmission in back, with a universal joint in between.

He used a pair of 1-in. dia. steel pins to make the articulation point. Each pin rides inside a pair of pillow block bearings. Both transmissions are hydrostatically controlled with a hydrostat control that runs through the middle of the articulation point. The control lever for both hydrostat transmissions mounts next to the steering wheel. A throttle cable

Kenny Fulk put two Deere garden tractors together to build this 1/4-scale Deere 7020, 4-WD articulated tractor.

out of a race car extends to the back transmission and is synchronized so that both transmissions pull or are in neutral at the same time.

Steering is controlled by a pair of hydraulic cylinders which swivel on a steel pin that’s welded to the tractor’s articulation point.

“Whenever I turn the steering wheel, one cylinder pushes and one pulls,” says Fulk.

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Front tractor is a Deere 318 model, and the back is a 317. Tractor’s eight wheels are off the original garden tractors.

We will build the Seedster in Billings, Montana and ship direct,” he says. “We estimate the Seedster will cost about $48,000 and require about an 80 hp tractor to operate a 10-ft. wide machine. All a farmer will need is a tractor with pto and loader arms.”

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