

# Frustrating Harvest Produced Innovative Cutting System

In 2015 custom harvester Randy Burns was frustrated by poor header performance as he harvested lodged milo. Meanwhile, his son-in-law, Kansas farmer Kyle Kopper, was looking for a way to lower machinery costs and get more consistent residue management for no till planting.

About the same time, Alan VanNahmen, a former engineer for Deere, was looking for an improved header for cellulosic ethanol crops. The Kansas trio teamed up to design, build, and patent an alternative rotary row crop harvesting system called ARRO®. The device retrofits to existing corn heads and achieves effective milo, millet, sunflower, corn, and bio-mass crop harvesting. In three years more than 100 of the ARRO units have been installed, and cutters who've used them say they're getting more bushels per hour without as much material going through the combine.

Kopper says that after the ARRO system is installed, cutting height can be adjusted to leave 12 in. or more of stubble on the ground. "That preserves moisture while reducing wind and water erosion, providing a good setup for future no till planting." Kopper says the system is also an inexpensive way to achieve better harvesting results without investing in a new or specialized cutting head.

Cornhead components including the chain drives, gear case, row unit slip clutches, poly center shields and divider points are left in place when the ARRO system is put on. Installation is done by removing the existing trash knives, stalk rolls and stalk roll shaft housings. Stalk guides for the ARRO system are bolted in place of trash knives on some corn head models. Gear case cover plates are bolted onto front-of-row-unit gearcases while front chain idlers, chain guides and deck plates are removed.

Two new holes in the row unit frame bolt the ARRO sprocket-disc assemblies in place. Front deck plate spacers and chain tensioners are reinstalled and adjusted for the crop being harvested.

ARRO units currently retrofit several Deere, CaseIH and New Holland heads.



Rotary row crop harvesting system retrofits to existing corn heads and can be used to harvest milo, millet, sunflowers, corn, and bio-mass crops.

VanNahmen says test units and validation should be completed for Claas and Gleaner corn heads during fall, 2018. Shield Agriculture Equipment of Hutchinson, Kan. is the authorized distributor and several Deere and Case IH dealers in the High Plains sorghum belt are dealer/installers.

Because of its unique harvesting characteristics, VanNahmen says the ARRO is also being used to harvest lettuce seed, industrial hemp stalk fiber and seeds, and on forage cutters to harvest sorghum "headlage". An ARRO3 version with expanded capabilities is under additional patent pending development.

Long time Oklahoma farmer JB Stewart says he's waited 50 years for something this effective, a product that co-developer VanNahmen says "makes harvesting fun again."

Contact: FARM SHOW Followup, Kopper Kutter LLC, 10602 State Road 23, Cimarron, Kansas 67835 (ph 620 855-2988; ARRO@KopperKutter.com).

## Add-On Support Keeps Gate From Sagging

No matter how well you mount a heavy swing gate, it's likely the gate will eventually sag down, making the gate difficult to open and close. Lyle Davis and his 3 sons say their new 4d Gate Support solves the problem.

The support is available in different models for use with both wood and pipe metal gates. The company even offers an internal support model that installs inside a pipe gate.

All models come with a horseshoe on the bottom of a metal cylinder which is free to ride up or down inside a pipe. The cylinder locks in place by tightening a catch handle. The horseshoe can be rotated to any position.

The internal support model sells for \$180 plus S&H. All other models sell for \$200 plus S&H.

Contact: FARM SHOW Followup, Lyle Davis, 340 Lower Valley Rd., Kalispell, Mont. 59901 (ph 406 250-7934; info@4dgatesupport.com; www.4dgatesupport.com).

Gate support has a horseshoe at the bottom of a metal cylinder that's free to ride up or down inside a pipe. Cylinder locks in place by tightening a catch handle.



Skid steer attachment uses bucket-mounted rotating forks to load rocks into bucket. It requires no modifications to the bucket or loader.

## Skid Steer Picks, Packs And Piles Rocks

Barry Anderson's skid steer attachment picks up individual large rocks, loads them into the bucket and when the bucket is full, piles them as high as the loader can go. Best of all, it requires no bucket or loader modifications.

"I didn't want to drill holes or make other modifications to the bucket like other pickers on the market," says Anderson. "I also wanted to be able to dump rocks in a pile. Other, smaller, pull-behind pickers seem to have trouble dumping in piles more than 2 ft. high."

Nearly 70, Anderson credits a bad back with forcing him to think about alternatives to picking rocks by hand. "I had work done to fuse vertebrae, and picking rocks had become difficult," he says. "Sometimes I could only do it for an hour or so."

Anderson figured his old skid steer was the answer. He just needed to figure out how to roll rocks into the bucket. When he replaced a garage door opener, he salvaged the rail, cutting it into teeth for a rock fork. To keep the rocks from rolling off, Anderson cut off the last 25 percent or so of the teeth and welded them back on at an angle.

Angle iron from an old bed frame was repurposed for the picker frame. In order to bolt it to the bucket, Anderson removed the hardened bucket edge to expose pre-drilled holes.

He bolted the picker teeth to a short length of steel pipe using U-bolts and mounted the pipe to the angle iron frame that extended out past the edge of the bucket. The pipe rotates in place with the help of a hydraulic cylinder.

The cylinder mounts to a piece of square tubing that is bolted to the picker frame and extends over the rear of the bucket. The ram's clevis pins to a steel arm fixed to the pipe.



Attachment piles rocks as high as the loader can go.

"When I extend the cylinder, the teeth extend down into the dirt under a rock, and when I retract it, the teeth rotate back to drop the rock in the bucket," says Anderson. "When the bucket is full, I can drive to a rock pile, raise the arms and dump."

Anderson notes that getting the hydraulic hose lengths right was one of his biggest challenges. He used steel pipe for a rigid set of connections from the cylinder to near the bottom of the bucket. This considerably reduced the length of hoses needed.

"It took 3 or 4 tries to get the lengths right, but now it works fine," he says. "I can sit in the skid steer and pick rocks much longer than I could by hand."

Contact: FARM SHOW Followup, Barry Anderson, 170 Skyline Dr., Granite Falls, Minn. 56241 (ph 320 564-4500 or 507 828-0613; bkanerson1@mchsi.com).



Rock picker teeth are bolted to a short length of pipe that's rotated by a hydraulic cylinder.