

# Home-Built Drill Used To Plant Orchard “Cover Crop”

Bill Spurlock built his own disc drill as an alternative to broadcasting seed in his orchard. He plants a grass and legume mix in the fall to hold soil over winter and provide mulch in the spring. When he broadcast the seed, a lot of it was wasted.

“I used to cut shallow furrows in the orchard soil with a spring tooth harrow, broadcast the seed, and then drag it to cover the seed,” says Spurlock.

He started out with a single front gang of an old disc harrow to reduce weight enough to use it with his compact Kubota BX1500 tractor. He also shortened and lowered the 3-pt. hitch, bringing the weight closer to the tractor.

He fabricated a seed hopper with 16-gauge steel sides and high-density poly ends, leaving about a 1-in. gap at the bottom of the hopper. Lengths of 3/4-in. angle iron bolt to the outside of the hopper to stiffen the sides and provide supports for Spurlock’s seed metering system, a 2 1/2-in. pvc tube.

The heart of the metering system consists of 6 neoprene impellers from an outboard motor water pump, one for each of the disc blades. They are drilled and threaded to lock them to a 7/8-in. steel shaft. High-density polyethylene discs on each side of the impellers contain the seed between the impeller blades. Pvc pipe spacers hold the discs lightly against each impeller.

The entire shaft runs inside the pipe with the impellers just 1/8-in. smaller than the inside diameter of the pipe.

“I cut the discs out with a hole saw and then turned them for a light-press fit inside the pipe,” says Spurlock. “I center drilled them for a free fit on the 7/8-in. shaft. They sit stationary inside the pipe and serve as bearings for the shaft, with the end discs fixed to the pvc pipe with screws to hold the shaft in place lengthwise.”

Spurlock made manifolds out of three 2 1/2-in. pvc couplers. These carry the seed from the metering pipe to the tubes that run down to the planting nozzles. He cut 1-in. opposing holes in the center of each coupler, inserted 1-in. pvc couplers in the holes and glued them in place.

He used a 2 7/8-in. hole saw to trim the protruding 1-in. couplers and remove the stop ridge in the larger couplers. He then cut the 2 1/2-in. couplers down the center, creating

6 seed manifolds, each with a 1-in. outlet.

The pipe has round entry holes for seed and rectangular exit holes. The manifolds were placed over the exit holes and secured in place with hose clamps bolted to the angle irons at the bottom of the hopper. This positions the round entry holes facing the inside of the hopper.

Spurlock mounted a 5/8-in. “agitation” shaft through the ends of the hopper and just above the seed entry holes. Both shafts are ground driven by a sprocket mounted on the disc gang shaft.

“I turned down one of the disc blade spacers to accept a small sprocket,” explains Spurlock. “A chain runs from it to a large sprocket on the agitator shaft. A chain drive between matching sprockets on the 2 shafts is mounted on the opposite end of the hopper to drive the metering shaft.”

As the impellers rotate, they sweep seeds into the manifold. Corrugated poly carry hoses attached to the manifold outlets carry the seed to the planting nozzles.

“I heated and bent the end on 1-in., schedule 200 pvc pipe to create a 3/8-in. opening,” says Spurlock. “The nozzles are mounted to a channel and angle iron frame. They drop the seed right into the groove cut by the disc blade.”

Individual angled plates on hinged arms are mounted to the same frame. They float over the ground, covering the seed with dirt loosened by the discs. After seeding the orchard, Spurlock pulls a ring roller over the orchard to pack the seeds in.

“Using only one gang of an offset disc causes it to pull to one side, so on steeper slopes I seed in one direction with the discs pulling up hill,” says Spurlock. “A box frame disc would be ideal, but my setup works for now. Depth control wheels might be added if used in softer soil, but it is about right for my dry, California soils.”

To see more photos of Spurlock’s home-built seed drill, visit the Farm Hack website. Farm Hack is a community of farmers and non-farmers of all ages who share their ideas.

Contact: FARM SHOW Followup, Sunny Slope Orchard, 3574 Cantelow Rd., Vacaville, Calif. 95688 (ph 707 448-4792; sunnyslopeorchard@gmail.com; www.farmhack.org/tools/home-built-no-till-seed-drill).



Bill Spurlock built this 3-pt. mounted disc drill on the single front gang off an old disc harrow. He uses it with his compact Kubota BX1500 tractor.



“Agitation” shaft runs through drill hopper and is ground-driven by a sprocket mounted on disc gang shaft (left). Drill’s seed metering system fits inside a 2 1/2-in. pvc tube.



Photo at left shows secondary drive to metering shaft. Photo at right shows metering tube attached to bottom of hopper.

## “Bio Disks” Reduce Weeding, Improve Watering

“My whole concept is to get healthier plants right from the start,” says inventor Scott Prill about his patented biodegradable ECO-disks.

“It blocks the weeds from growing around the base of the plant. And it has ridges that collect water and channel it to the base of the plant where it needs it the most,” he explains.

In his experiments before putting ECO-disks on the market in 2016, Prill discovered he needed less water between longer periods of time. By spraying water into the hole of the disk he gets more water faster where it is needed. He also liked that there is no weeding around the plant where weeds steal soil nutrients from the plant.

With an 8 1/2-in. dia., the disks cover the area most crucial to feeding plants, and they fit in 8-in. or larger pots for gardeners who prefer to grow plants in containers.

The disk’s ability to aid watering and avoid weeding is a concept gardeners appreciate. But Prill has also added a couple of twists regarding what the disks are made of and color choices.

The former biology teacher and long time salesman in plastics combined his

experiences to mold disks from biopolymer made of corn sugar and vegetable and fruit pulp. The infusion of carrot, potato, apple and cranberry pulp release nutrients in the soil if the disks are left in the garden to decompose. Or, the disks can be rinsed off and used for one or two more summers.

While the natural brown color disks with pulp appeal to some gardeners, Prill says his best-selling disks are red.

“Red promotes fruit and vegetable growth. The plant utilizes red wave lengths and stimulates multiple fruits,” Prill explains. In his testing, a Jalapeno plant with no disk had 8 peppers; one with a red disk had 64 peppers.

Another plant with a blue disk had 24 peppers, but Prill notes blue promotes plant growth and is more ideal for plants like broccoli and cauliflower.

He also makes disks in white, yellow, orange and green for customers who like to use them for plant identification. For customers who want disks that last for years, Prill makes a carpet fiber disk made from recycled carpeting.

He proudly notes that ECO-disks are



Biodegradable ECO-disk blocks weeds from growing and has ridges that collect water and channel it to base of plant.



non-GMO, BPH-free and U.S.-made at an injection mold plant in Holland, Mich. With about an 1/8-in. thickness they are a heavy and durable biopolymer. ECO-disks sell for \$47.95 for 12 disks through the business’s

website. Contact: FARM SHOW Followup, ECO-disks, 710 Bauer Rd., Hastings, Mich. 49058 (ph 269 870-0399; www.ecodisks.com; ecodisks@gmail.com).