

Portable Canopy Provides Instant Shade For Livestock

"Blazing sunshine and excessive heat are a serious problem for livestock producers who graze their animals," says Wisconsin beef producer Vince Hundt. He and his business partners, Guthrie Knapp and Peter Bergquist, came up with a simple solution called The Shade Haven. It's a 1,120 sq. ft. portable canopy that sets up in minutes and provides livestock with a shady spot on pasture that can be easily moved around.

"Hot days can stress livestock," says Hundt. "If they're beef cattle excessive heat cuts down on their rate of gain. If they're dairy cattle, their milk production suffers."

The Shade Haven is ideal for livestock producers who use rotational grazing in open fields. The 40-ft. dia. canopy is made of black polyethylene shade cloth. It's 80 percent solid and 20 percent perforated. "The black color absorbs sunlight and radiates it upward, creating a light breeze under the canopy with temperatures about 20 degrees cooler than in the direct sunlight," Hundt says. "It works

like a giant oak tree that moves wherever you need it."

Hundt and his business partners, who have a background in engineering and architecture, developed a prototype 2 years ago, refined the design last year, and sold initial production units in 2013. "I used it first on my own farm," says Hundt. "The cattle spent time under it whenever the sun was shining from May through September." The canopy is large enough to provide shade for 50 to 60 mature animals at one time. It's built like a large Chinese fan, supported by tubular trusses and a tripod that's mounted on a tricycle transport. The canopy lays completely flat when it's open, about 10 ft. off the ground, Hundt says. The Shade Haven can easily withstand winds up to 35 miles an hour when deployed. "If there's a big thunderstorm headed your way, it only takes a few minutes to fold the canopy and secure it."

Hundt says the portability of The Shade Haven is a very important selling point. An ATV can easily pull the device from one location to another. "Moving The Shade Haven in a paddock helps with nutrient distribution. In the shade, the cattle will



Portable 40-ft. dia. canopy is made of black poly shade cloth. It sets up in minutes and is easy to move.

naturally apply more manure in one spot, or if you've got a problem area with weeds, they'll grind those down with their hooves," Hundt says.

Hundt and his business partners have a patent pending on The Shade Haven and hope to promote it at farm shows during the winter. They're gearing up for larger scale production and will sell the product direct to farmers for \$16,900.

"Under normal summer weather conditions we think the The Shade Haven should pay for itself in 2 to 3 years," Hundt says. "The cost is under \$15 a square foot, which is definitely less than a pole shed."

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Grant Chambers bought this vintage 1933 Sunshine Waterloo self-propelled combine at an auction and restored it. Some features of the old combine were quite advanced for their day, he says.

Vintage Combine Works Almost Like New

Grant Chambers has a 1933 Sunshine Waterloo self-propelled combine that works nearly as well as it did when new. Unfortunately, according to Chambers, that isn't very well due to the machine's problematic design. Even restoring it couldn't fix all the problems. However, some features of the old combine were decades ahead of the competition.

"Our problem is that it has a single clutch that operates both the threshing mechanism and the forward motion of the combine," says Chambers. "If you hit a clump of grain in a swath, you can't stop to let it clear."

Among the design features that were ahead of their time is a large hopper that sits low to the ground for increased stability. The combine also has a very fast loading elevator and a grease bank to speed up greasing the many bearings.

"The turning radius is very short, and it has a floating header that was not common for another 20 years or more," says Chambers. "The seed cleaning shell is the same as grain cleaners used in the 1980's."

When he bought the combine, it needed a lot of work. He started with the Waukesha motor.

"In order to get the pan off and pull the head to check for seized pistons, I had to pull the engine," says Chambers. "Water had gotten into one cylinder, and the piston had seized. We removed it and replaced the sleeve."

The biggest challenge was rotted wood. One side of the shaker mechanism was rotten and had to be rebuilt. The 4-ft. pitman had to be replaced as well as two 12-ft. long, 12-in. wide boards. Once Chambers found the 12-in. wide boards he needed, he turned them over to a cabinet-making neighbor.

"He tongue and grooved the boards, made patterns, and cut the correct holes and shapes," says Chambers. "When he was done, we put it all back together."

New bearing blocks were needed for the shaker pan and straw racks, as were sickles on the cutting knife. Chambers since discovered his combine was missing sieves. He has not yet decided whether to fabricate new ones for it.

To start the engine the first time, Chambers bolted cleats on the steel drive wheels and had his wife tow the combine. He engaged the clutch and drove while Al Crompton, a mechanic friend, set the timing and carburetor.

"There was no muffler on it, so we deflected the exhaust away from the machine," says Chambers. "The 4-cylinder Waukesha model VIL10 is 4 3/8-in. bore by 5 1/4-in. stroke with a governed speed of 980 rpm's. It has quite a bark to it."

Once he had it running, Chambers was able to try the gear-driven mechanical lift for the header and the threshing mechanism. Parts of the cast drive chain were completely worn

out, as were the roller chains. He replaced the cast chain with flat chain and eventually had to replace the feeder chain in the cylinder as well. The all chain drive combine had no shields.

Chambers discovered the Sunshine Waterloo had no separation fan, but it did have a fan on the threshing cylinder. The cleaning shoe shakes from side to side rather than front to back. Shutters on the threshing cylinder have to be opened to get air under the grain and chaff or it will plug up with straw. The weed seed separator for cleaning the grain worked fine, though it did need a new wooden roller.

Luckily for him, when he bought the vintage combine at auction, both the pickup header and the stripper header were still with it.

Chambers describes the Sunshine Waterloo as very compact and not all that comfortable. "You sit on a small platform beside the motor and a straight pipe with the dust from the header and the heat from the engine," says Chambers.

"It's definitely not a combine for an older man to operate," he adds. "It's an interesting machine, but I think I'll be selling it in a few years."

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