

He's Been Flaming Weeds For 8 Years

Weeds have been "feeling the burn" at Scott Shriver's organic farm for the past 8 years. Flame weeding has proven to be an effective part of weed management - specifically in his corn.

"We're only trying to get weeds close to the row and in the row - the weeds that the cultivator can't get," Shriver says.

Years of research at the University of Nebraska, Lincoln, helped develop flame weeding equipment now sold through Agricultural Flaming Innovations (www.agriculturalflaming.com).

The Jefferson, Iowa, farmer is on his second flaming system. He purchased the burners from AFI and mounted them on a 16-row cultivator bar stripped of its cultivating shanks.

"We put (4-ft. long) shields on this one to hold in the heat better and to keep wind from being a factor," Shriver says.

The burners tilt down at a 30-degree angle, about a foot from the ground and 14-in. apart to burn 7 in. on either side of the corn.

"Ideally you have some height differential between the weeds and the crop," Shriver says. He has good success when the corn is 12 to 14 in. tall and the flame is directed at weeds underneath.

The 1,500 F degree temperature from the propane burners doesn't cause the weeds to catch on fire. The intense heat hits the leaves for a very short time and ruptures and boils water in the cells. Two or three hours later, the color of the weeds changes to a grayish green, and later they shrivel up. Shriver follows up

with the cultivator, which throws dirt over the dead weeds.

"It might also flame (kill) the lower leaves of the corn. But that's OK, because that makes more room for the dirt to go up against the stalk when cultivating," Shriver says. The corn stalks can handle the heat.

"We start with a clean seedbed and typically flame once (a season)," Shriver says. "Last year we had a wet spring and it was hard to do weed control. We flamed twice in a couple of fields because the grass and weeds were so thick."

Flaming works best on broadleaf weeds. Grass will grow back, so that's why cultivation after flaming is essential.

Shriver tows a 500-gal. propane tank behind the flamer bar and turns the gas on and off with a hydraulically controlled valve in the tractor. Usually the pressure is set at between 35 and 50 psi, and he drives between 3 1/2 and 5 mph. The flame can be set higher when weeds are larger in size or number. Shriver has auto-steer, but says that flaming could easily be done without it.

He typically uses between 5 and 7 gal. of propane per acre and estimates his costs run about \$10 per acre. Combined with cultivating, it is less costly than chemicals. Flaming weeds is nontoxic, doesn't affect groundwater and is an acceptable organic weed control method, Shriver notes.

A growing issue with herbicide-resistant weeds is making flaming a viable option for conventional farmers as well, says George Gogos, an engineering professor at



Scott Shriver mounted flame burners on this 16-row cultivator bar that was stripped of its cultivating shanks. He tows a 500-gal. propane tank behind.

U of N and one of the three flame weeding researchers who own AFI. For example, flaming units have been purchased by a few conventional farmers struggling with a type of pigweed no longer killed by glyphosate.

He adds that corn producers report yield increases of 10 to 40 bu. per acre because flaming kills the weeds close to the corn that compete for nutrients and water. Flame weeding is also helpful in many weather situations. When its dry, flaming doesn't reduce moisture like cultivating does. When it's too wet to cultivate and weeds are getting ahead of the crop, flame weeding can be used as a rescue operation.

Research indicates that flaming year after year, followed by one cultivator pass, significantly reduces the weed seed bank, resulting in cleaner fields.

Gogos says research has also come up with techniques for flame weeding soybeans,



Flamer's 4-ft. long shields hold in heat and keep wind from being a factor.

sorghum and sunflowers.

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Marvin Pierce says few cow dogs can match the herding abilities of Hangin' Tree Cow Dogs.

Cow Dog Bred To Stop, Herd Cattle

If you're going to have a dog, why not have one that can work *and* hang out with you? For team ropers and people who work cattle, Marvin Pierce recommends Hangin' Tree Cow Dogs. The breed was developed by Gary Erickson over a couple of decades, specifically with ranchers in mind.

"The breed is unique because it will stop cattle and bring them to you," Pierce says, noting most cow dog breeds can do one of the tasks, but not both. With their innate herding instinct and proper training, the dogs track and find cattle, herd them and move them to where desired.

The shorthaired, medium-sized dogs (35 to 65 lbs.) also instinctively hit both the heads and heels of cattle. To achieve fearlessness along with loyalty and intelligence, Erickson started with four breeds. The Catahoula Leopard traits include a slick coat (to easily shed dirt and burrs) and the ability to trail, find and hold cattle. The Australian Shepherd added courage and the ability to hold cattle. The Kelpie added herding instinct and short hair along with endurance. Finally, the Border Collie has an intense herding desire and is easy to train and handle. Erickson named the breed after his ranch's brand, Hangin' Tree.

The breed has become an important part of Pierce's lifestyle. He initially purchased dogs from Erickson for team roping and working cattle on his Oregon ranch. Now he raises and trains the dogs and puts on cow dog demonstrations. He's written books and made videos about training and working with them.

"The biggest thing is you have to learn how to train them. People who don't know how can ruin a good dog," Pierce says.

One of the most important things to do is to keep them from getting hurt. By instinct, an 8-week-old pup will try to fight a goat, for example.

The typical price for registered pups is about \$650. Older dogs with some training start at \$2,000.

Pierce has sold Hangin' Tree Cow Dogs to customers in Canada and the Deep South so they can thrive in a variety of weather conditions.

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This combination of a slurry injector and rotary grass "slitter" injects manure into the ground as it aerates pastures. Note manure hose running along top of unit.

Slit-Style Liquid Manure Injector

Frequent British contributor Andy Sewell recently attended a grassland show in England on our behalf and spotted this combination of a slurry injector and rotary grass "slitter" that saves nutrients by injecting manure into the ground.

Invented by Phil Blake, the slitter has a bigger than normal tube equipped with slitting knives. Inside that tube is another one with a slot along its length. As the outer tube with the knives rotates, once a revolution the outer holes in the tube line up allowing liquid manure to feed out.

There's no bearing on the rollers as the machine relies on the slurry to lubricate them. The system can be used on a tanker truck or behind a tractor using a large diameter rubber supply hose.

You can watch the slitter-injector in action on YouTube at www.youtube.com/watch?v=0XYv_12TyDA.

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Tube equipped with slitting knives has another tube inside it with a slot along its length. Once a revolution, the outer holes in tube line up allowing liquid manure to feed out.