

## Double-Hitched Lawn Mower On ATV

Josh Konze didn't have a lawn mower on the family's hunting property, but he did have an ATV and a pile of parts. His cousin contributed an old 48-in. mower deck and an 11 hp engine from a Toro mower, and Konze welded on other parts to create a front-mounted mower.

He was stumped how to mount it so that it could be turned and not be too rigid.

"My dad told me how to mount it with two ball hitches," Konze explains. "Two make it stationary to turn, yet the mower can pivot when it hits bumps."

He bolted a piece of angle iron to the front of his ATV's bracket to attach the 1 7/8-in. hitch balls. The hitch also comes in handy for moving trailers around, Konze adds.

He starts the mower with a 12-volt battery and jumper cables that were located near the hunting shack.

Konze notes that the engine could have been smaller, but overall the mower works well. His only purchase was 10-in. wheels to replace the smaller rollers on the mower deck.

"It's easier with a front mower to see what you're doing, and you can mow tighter around things," he says.



Front-mounted mower (above) mounts to ATV on two ball hitches, allowing mower to maneuver without being too rigid.

He credits his dad's idea of having two hitches for making it work so well.

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Hydroponic barley sprouting system makes it possible to grow high quality feed without the need for balers or other forage equipment.



## Barley Sprouts System Makes Fresh Feed Every Day

New spring grass is the mother of all animal feeds when it comes to weight gain, fertility and overall good health, says Jon Baker, distributor of FodderTech systems that makes it possible to grow the equivalent of spring grass 365 days a year. The system grows barley grass in a hydroponic system in just 7 days. It also makes it possible to grow feed with very little water and without the need for balers or other forage equipment on a lot of acreage.

Baker explains that there have been hydroponic sprouting systems in the past, but they often had problems with mold and mildew during the summer months. The FodderTech system, developed in Australia, has been tested in the heat and humidity of the Middle East and in the New Zealand Alps without any problems with heat or cold.

"The second thing that was important to me is that this is the only technology that allows commercial scale growing of sprouts," Baker says. "FodderTech starts with systems that grow over a ton a day. Now we have designs to go to 25 tons a day. That can feed a lot of livestock."

At the heart of the system is a specialized nutrient formula added to the water that circulates through the trays of barley. The seeds and sprouts take the nutrients they need and excess nutrients and water recirculate.

FodderTech systems require an insulated metal building on a concrete slab floor, a grain bin for the barley seed, and plenty of water and electricity.

Food-grade plastic trays are stacked 7 rows high on metal racks. On the first day of operation 1/8 of them are seeded with ordinary barley that can be purchased locally. Each day another 1/8 of the trays are planted so that there's a new 10 to 12-in. tall crop to harvest every day. With matted roots, the grass holds together like sod, ready to be cut to any length. It can be fed as is to animals on pasture or mixed in about a 1-to-1 ratio with straw in a TMR for animals in feedlots or barns. Harvest, cleaning and reseeded the trays requires about two hours of labor per ton.

The green feed can be fed to any grass-eating animal including cattle, swine, poultry, sheep, goats, rabbits, horses, deer, elk, bison, alpacas, llamas, etc. The various operators that have FodderTech systems report higher fertility rates, faster weight gain and quality gains for meat, eggs, milk and wool production. The barley contains 30 to 35 percent protein and is rich in sugars and easy to digest carbs. The sprouts also

contain amino acids, vitamins, minerals and important enzymes for efficiently digesting all of the feed overall TDN is more than 90 percent, much higher than dry feed.

In a 12-week-long, third-party feeding trial comparing two groups of 50 pasture-fed Holstein beef steers, the steers fed the barley sprouts averaged a 41 percent higher weight gain per day than the control group despite only being fed 75 percent as much dry matter, energy, and protein as the control group. Feed costs per day per head were the same for both groups, but in terms of cost/gain, the cost was 27 percent less than those on pasture.

Baker just recently started marketing the system in the U.S. He estimates the setup cost to start around \$150,000/daily ton for the smaller systems and about \$100,000/daily ton for incremental tonnages above the first daily ton of capacity. FodderTech sets up the system and provides 10 days of on-site training and up to a 20-year warranty on key components. Cost per pound for the electricity, water, nutrients, barley and labor normally runs 3 to 4-cents/lb.

"My sights are set on big feedlots," Baker says, adding he recognizes the challenge of converting traditional feeding systems. In order to convince producers of FodderTech's benefits, he offers a \$7,500 mini-system capable of producing 200 lbs. of fresh green feed a day. Producers can test it out, and if they choose to expand into a large system within a year, Baker will pay full price to buy back the mini system.

The Utah entrepreneur is convinced that FodderTech provides a great opportunity for new farmers who don't have a lot of equipment or land. Instead of buying those items they can invest in the fodder system. It has applications for small and large growers all over the U.S. and into Canada as proven by operations using FodderTech in other parts of the world. In the West, where about 75 percent of water is used for agriculture - mostly to produce forage - FodderTech's water demands for similar production are only about 2 percent.

"Growers are stunned by the results of feeding sprouts," Baker says "There's something in this fresh, all natural feed that allows the animals to thrive. When they try this, they see that it works."

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Patrick Roderick built a hitch to pull 5 mower decks behind his 11 hp garden tractor. The 5 mowers cut a 78-in. wide swath.

## Ganged Mowers Cut 6 1/2-Ft. Swath

"I have a 3-acre lawn and it used to take most of the day to mow it. Now I get the job done it about 3 hours," says Patrick Roderick, Welcome, Md., who built a hitch to pull 5 mower decks behind his 11 hp MTD garden tractor.

The 5 mowers cut a 78-in. wide swath with a 5-in. overlap.

A 1-in. sq. pull bar across the back of the tractor is pinned to the tractor's hitch. Metal brackets attached to the front of each push mower bolt to the pull bar.

He made the gang structure in such a way that each mower is free to move up or down independent of the other mowers. "The mowers flex smoothly over uneven terrain," says Roderick.

He bought the 5 new Murray mulching mowers equipped with 5 hp Briggs & Stratton engines for about \$160 apiece. "I spent about \$800 on the mowers and another \$100 for the metal used to hitch them up," says Roderick.

"I used mulching mowers because they don't blow grass into the other mowers. I used 5 identical mowers because I wanted all the mowers to cut the same. The only limitation with 5 mowers is there's a lot of maintenance. Every time I sharpen the blades I have to sharpen 5 sets of blades, and the same with cleaning the deck and changing the oil."

The tractor had an undersized battery so he bought a new car-size battery and set it inside a home-built metal box, which he mounted on back of the tractor. The weight also adds traction when going uphill.

The back wheels on the rear mowers are connected together but all mowers are free to float. Roderick designed a bolt and nut system that attaches the brace bars to the mower axles. "The bolt is tightened down tight, but because it's cut to length, it bottoms out before it contacts the strap, leaving about a 1 1/6-in. gap that allows the tie strap to float," says Roderick.

"I didn't want anything to collapse so I made it extra strong, with more bracing than was probably needed."

The mowers' original 8-in. wheels didn't work well when turning so Roderick replaced them with 6-in. anti-scalp wheels. "I wanted to use caster wheels, but the way I had my gang structure set up it wouldn't have worked.

"All nuts and bolts were Loctited so they wouldn't loosen while cutting," notes Roderick.

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