



Bale wagon picks up bales and sorts them into alternating positions so each layer “ties” to the previous layer.



Floor on wagon lifts hydraulically to stacks 6-bale layers against a pallet.

Wagon Loads Bales Onto Pallets In The Field

When new retiree Ken Anselm put 25 acres back into hay production, he knew he was a one-man crew, so he built a bale wagon to do the job. Not only does it pick up bales, it sorts them into alternating positions so each layer “ties” to the previous layer. What’s more, the wagon stacks the 6-bale layers against a pallet. Once the pallet has 4 or 5 layers against it, the bale wagon tilts the pallet and bales 90 degrees and sets the loaded pallet on a trailer.

“When I was a senior in high school, I purchased a ’49 Ford flatbed truck, and some of my buddies and I followed a baler around all summer,” says Anselm. “We had a lot of fun and made good money. However, these days there is no way you can get kids to help hay. I decided if I was going to produce small square bales for the horse market, I would have to make it a one-man job.”

Anselm saw various systems for larger scale hay producers, but they would have required large investments and a larger tractor. He knew his 30 hp. New Holland 1620 couldn’t handle a grapple full of bales.

A broken leg and 6 months forced recuperation gave him time to plan an alternative. By the time he was back on his feet, the plans were complete. They called for an all-hydraulic wagon, 86 in. wide and about 24 ft. long. He calls it his Hayday machine.

A programmable logic controller (PLC) is key to the machine’s operation. It is connected to sensors that provide it with information that activates various electric-over-hydraulic controls. This allows Anselm to concentrate for the most part on steering the tractor while the Hayday Machine does the work.

The machine consists of 4 parts. The first is a pickup conveyor that swings out from between the wagon and the tractor. A hydraulic motor drives pickup chains that grab bales and deliver them to the sorting platform. As bales arrive on the sorting platform, multiple arms operated by hydraulic cylinders push successive bales into 6 preset positions on the loading platform. Once all 6 bales are in place, 2 cylinders tip the loading platform to a vertical position, depositing the bales against a 4 1/2 by 6-ft. pallet.

While a bale is being sorted or the platform is moving, the pickup conveyor stops. When the sorting platform drops back into place, bale pickup resumes. If the platform has emptied, new bales are sorted into a different configuration.

The pallet with its layer of bales sits at about a 10-degree angle against the forks of a forklift mast installed on its back at the rear of the HayDay Machine. A series of slats extend across the face of the mast, supporting

the bottom edge of the bale layer.

“When the first layer of bales is pushed into place, the forks are near what would be the top of the mast,” explains Anselm. “As each successive layer is pushed into place, the forks move down the mast, and the slats move with them.”

When the desired numbers of layers are in place, a large cylinder tips the forklift mast upright. This puts the forks and pallet in a horizontal position. At that point they can be placed on the wagon for transport to storage.

“I can select either 4 or 5 layers per pallet in the PLC programming and do a manual override of the PLC to move the tongue or pickup left or right,” says Anselm. “Otherwise, the PLC controls the cylinders and the order of activation. Sorting alone requires as many as 5 cylinders to turn a bale a certain way.”

While there are a total of 14 cylinders and a hydraulic motor, the small tractor has plenty of power. No more than 2 cylinders are ever in action at any one time. While electronic and hydraulic components were new, many other components were repurposed.

“My 93-year-old dad Bernard is a big fan of FARM SHOW and has always made tools and any contraption he needed out of his scrap piles,” says Anselm. “He taught us kids to make do and not be afraid of tackling anything. That’s how I was raised.”

While he didn’t have scrap for everything he needed, Anselm did use the axle, wheels and some tubing from an old Allis Chalmers planter. The forklift mast was salvaged from a Hyster 50.

Anselm stacks 4 layers on his homemade pallets if storing them 2 high in his barn. He bought an old forklift for that part of the job. He stacks layers 5 high if they will be delivered to a customer. The system works well, he says.

“I only bale about 2,500 bales a year, and with the HayDay Machine, I can pick up as many as 500 bales a day,” says Anselm. He figures he has about \$45,000 invested in the machine, close to half of it just in the hydraulics. While a grandson did much of the welding for him, Anselm designed and installed the hydraulics and electronics as well as programming the PLC.

“I used to work in manufacturing and we built machines using controllers of various types. I also had experience developing programs for PLCs,” says Anselm.

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Once pallet has 4 or 5 layers against it, wagon tilts pallet and bales 90 degrees and then sets loaded pallet onto a trailer.

Weed Burner Cart Carries Propane, Water

“I mounted an inexpensive Harbor Freight propane torch flame weeder on an old hand cart, and find that it works great to control weeds on my property. It’s easier to use than a backpack flame weeder, and it costs much less to operate than using Roundup,” says Eric Holmes, Mount Hermon, La.

The propane torch is designed to attach by hose to a standard 20-lb. propane tank, which the operator normally carries with him. Holmes already had a 2-wheeled hand cart that had a broken wheel. He removed the wheel and mounted the big rear wheels off an old push mower onto the cart for easier rolling on rough ground. The wheels are connected by an axle made out of aluminum round stock.

The propane tank is secured to the bottom of the cart by a bungee cord. Holmes U-bolted a Harbor Freight 4-gal. backpack sprayer water tank equipped with a hand pump on back of the cart for fire control, clamping the tank’s carrying handle onto a cross bar between the cart handles.

“I put it together last spring and use it to control weeds along a 90-ft. long barrier located next to a dirt road on my property. The barrier is made out of old tires, and by spraying water onto the tires’ bottom edges I don’t have to worry that they’ll catch fire,” says Holmes. “I can use the torch one day, and when I wake up the next morning the vegetation will be brown and dead.”

Holmes says the propane weed burner cart saves him a lot of money compared to using Roundup. “Roundup costs about \$20 per gal., and it takes about 2 gal. to spray my fence line one time. I would need to spray 3 times per season at a total cost of about \$120. But using the flame weeder and a 20-lb. propane tank, I can make 10 passes along the same fence before the tank will be empty. A new replacement tank costs only about \$18.”

Holmes paid about \$20 for the torch. “My total cost for the torch, propane tank, and



Eric Holmes mounted a propane torch flame weeder on a hand cart in order to control weeds on his property. A 4-gal. backpack sprayer mounted on back of cart is used for fire control.

backpack water tank was only about \$60.”

He replaced the backpack sprayer’s original handle with a shorter one in order to save space. “I only fill the water tank about half full in order to keep the cart from tipping over backward,” notes Holmes.

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