A.J. MacArthur converted an Owatonna, self-propelled mower-conditioner to this hi-boy berry sprayer. He uses it to spray crops such as raspberry canes and strawberries.

Homemade Hi-Boy Berry Sprayer

A.J. MacArthur can spray the sides of raspberry canes or over the top of strawberries and other crops with his homemade hi-boy. The sprayer handles strawberries on 8-ft. centers and raspberries on 10-ft. centers equally well. With 25 acres of berries getting sprayed 8 or 9 times each season and parcels up to 7 miles apart, MacArthur's sprayer is perfect.

"I can do 12 rows of strawberries at a time with the two, 20-ft. wings and 10-ft. centers, or switch to the vertical booms and spray both sides of one row of raspberry canes and one side of the two neighboring rows," says MacArthur. "With electric-over-hydraulic valves, I can shut off individual booms. In the case of the vertical booms, I can shut off either the left or right sides of either boom so I am only spraying one row or one side of a row."

When he decided to build his own sprayer with the help of his dad Jerry, he wanted one he could move between fields easily. He also wanted a cab.

"A very light wind can put the spray over the operator without a cab," says MacArthur. "I wanted to be inside."

MacArthur started with an older Owatonna self-propelled mower/conditioner unit with hydrostatic drive for infinite speed control. The Owatonna was equipped with a cab and air conditioning. He stripped away the mower unit, including the pto drive. This allowed him to lower the cab by about a foot. He also added legs so he could straddle the raspberry rows.

"We hung the machine in the shop at the height we wanted and cut out 12 to 14-in. circles of steel to which the wheel motors attached," says MacArthur. "We used 5-in. wide, 1/2-in. thick steel strap to make legs for the 2 wheel motors."

MacArthur started heating each length of steel strap and bending it while in a vise. Once he had them partially bent, he welded one end in place to the frame and continued heating and bending to get the shape he wanted. He then welded the other end to the frame and welded a piece of 3/8-in. steel plate at the back of the bottom of the curve.

"I welded the wheel motor plates to the steel plates on the legs," explains MacArthur. "We also cut away the rear swivel wheels and remounted them to 5-ft. long steel tubes made out of 4-in. wide, 1/2-in. thick steel strap."

With the cab lowered, MacArthur revised the driveshaft on the engine, adding a pulley for the sprayer pump and one for the air conditioner, which had been relocated. He also trimmed the hood on the engine, leaving room between it and the cab for a 200-gal. spray tank.

MacArthur made a boom frame with 1-in. black pipe and mounted it to the header lift arms. A hydraulic cylinder at the ends of the center section deploys the side booms. Shock absorbers were added to each section.

Two 5-ft. boomlets attached to the center section can be released to pivot and hang from the corners. Separate spray lines feed spray tips mounted to either side of the vertical booms. Valves control each side of each vertical boom, as they do each section of the horizontal boom.

"The electric-over-hydraulic switches are mounted above the steering wheel for easy access," says MacArthur. "Before I added them, it was difficult to control the valves and the steering at the same time."

He also added a clean water tank to the rear of the sprayer, making it easy to clean out booms and spray tips. A hitch made from 2-in., heavy wall, steel pipe is mounted to the rear wheel legs. To move the sprayer quickly between fields, MacArthur drops the hitch into place on his truck and locks the drive wheels in freewheeling position.

"I spent about $10,000 on the Owatonna and several thousand more on parts," says MacArthur. "It was worth it. It is challenging finding something that will fit different bed sizes."

Contact: FARM SHOW Followup, A.J. MacArthur, 1150 Salina Rd., Lachine, Mich. 42753 (ph 989 379-3061; ajsberryfarm@gmail.com; www.ajsberryfarm.com).

Gate pivots up or down over uneven terrain without binding.

Pivoting Gate Hinge Great On Slopes

Donald Scholz has a 2-piece hinge that lets him swing a gate uphill or down without binding. The All Level Hinge (ALH) lets Scholz attach a gate to a T-post and also gang gates for extra large equipment. Most of all, it makes opening and closing any gate easy.

"I needed a gate that would swing uphill or down," says Scholz. "With this hinge, I can put a wheel on the end of the gate for easy opening and closing of even heavy gates."

He recommends 14-ga., 1-in. sq. steel tubing for the male and female components of the ALH. The male component is bolted to the gatepost end of the gate. It consists of a vertical leg with a short arm perpendicular to the vertical at its halfway point. Two lengths of steel tubing extend from top and bottom of the leg to the end of the arm, forming two right triangles with a hole at the end of the arm.

The female component is a matching vertical leg for the gatepost. It has a set of tabs at the halfway point and bracketing arms, also made from tubular steel. Holes in the tabs allow the gate end component to be pinned in place between the brackets, creating a vertical pivot point.

"The length of the perpendicular arm determines how much the gate can pivot vertically," says Scholz. "The longer the arm, the greater the gate can pivot."

The brackets on the female component are sized to match the length of the arm on the male. They are designed to both reinforce the hinge joint and also to discourage livestock from attempting to crawl under or jump over the pivot point. Two short lengths of pipe are welded to a 2-in. length of angle iron that reinforces the back side of the vertical leg. The receiver pipes accept either standard hinge bolts or an attachment leg Scholz devised.

The attachment is a vertical leg with 2 sets of pin receivers. Each set is offset from the other with one positioned on the opposite side of the leg from the first. Lengths of angle iron reinforce the leg. The leg can be attached to a gatepost and then pinned to an ALH.

"With the leg pinned to the gatepost, the gate can be swung a full 180° because both

Pivot hinge attaches directly to gate post. A second hinge can be mounted on end of gate to attach to a second section of gate to make an extra-wide, flexible gate.

the leg and the gate hinge swing," explains Scholz. "I use 3/4-in. pins on the hinge pivot points."

When 2 gates on opposite posts don't provide a big enough gateway, it can be expanded to allow a third gate ganged to one of the first two. With wheels attached to the ganged gates, one can be folded back on the other and the 2 gates easily wheeled into an open position, even on a slope.

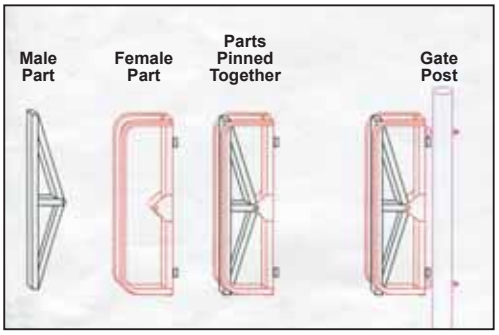
"I can open 1, 2 or 3 gates depending on what I am moving through the gateway," says Scholz.

Scholz notes that 16-ft. gates require heavy-duty posts, often with braces. With the ALH, a standard wooden fence post or even a T-post can support a 20-ft. gate. For the T-post, Scholz suggests welding short receiver pipes to a 2-in. pipe and butt-welding the pipe to a flat steel base with a 2-in. hole in the center. Slide the pipe and base over a T-post, and either an ALH or a leg attachment can be pinned to the pipe.

Scholz has used his ALH gates for about 4 years. He is glad to share his ideas, or would consider making hinges for those interested.

Contact: FARM SHOW Followup, Donald Scholz, 3757 West Prairie Rd., Grand Island, Neb. 68803 (ph 308 687-6430).

With electric-over-hydraulic valves, the operator can shut off individual booms.



Gate attaches to male part, which pins to a hinge point at center of female part. Female bracket bolts directly to the gatepost.