

Annetts says using his Lift & Go livestock gate saves him more than 1,400 stops getting in and out of a vehicle over six months time.



Livestock Gate Moves By Remote Control

"I've heard cattle producers say for a long time they were tired of always having to get out of their vehicles or off a tractor to open and close their livestock gates, so I decided to do something about it," says Manitoba inventor Mike Annetts.

"Six years ago, we developed a lift device to raise and lower a gate by activating a handheld wireless remote control. It worked so well that now my family and I manufacture the product for sale, and it's become a steady business."

Annetts adds, "I've calculated that over six months the remote gate can save an owner 1,440 stops getting in and out of a truck or off a tractor to open and close a gate. That's based on feeding one large bale of hay a day or entering and leaving your property once a day. Customers using the gate are saving a lot of time, energy and money."

Annetts first built a small model to test the mechanics of the idea, then built a larger one out of wood and others out of metal until he had it perfected. "Now the gate has greaseable bushings on all moving parts along with weather-protected mechanical limit stops."

The Lift & Go looks like a regular 16-ft. steel gate. The mechanical lift device is on one end inside a concrete base cabinet. A special receiver bracket on the opposite end holds the gate in place when it's closed. The gate is lifted open or closed by pressing the remote, or it can be set to stay open for a specific amount of time. The heavy-duty lift base, which has a manual switch inside, is covered and can be locked. Annetts says "several remotes can be programmed for each gate, or several gates can be operated by one remote."

Beam sensors, like those on a garage door, can be installed above ground, or magnetic sensors can be buried in a roadway, to activate the lift. "Sensors prevent the gate from closing if there's an obstruction and can also

be programmed to open and close or turn on a light when a vehicle approaches or passes through," Annetts says.

The Lift & Go Gate can be used in farm settings or as a private property security gate. It's made of powder-coated steel and powered by a battery charged by a 30-watt solar panel. Annetts says, "The design is simple, portable, easy to operate and isn't affected by large snowbanks that accumulate during winter months."

Annetts produces the gates 10 at a time in his 36-ft. by 48-ft. heated farm shop. Metal parts are fabricated, welded and powder-coated by an outside supplier. He and his wife and teenage daughter assemble all the materials, so a gate is ready to install upon delivery. Priced at \$3,950 (Can.), it includes the gate panel, a concrete base, a deep cycle battery, a solar charging panel, two remotes, instructions and everything needed to operate the gate. Annetts says current users include western Canadian livestock farmers and several municipalities that use them at restricted access areas. The Saskatchewan Power Corporation also uses the gates to control access at the Nipawin hydroelectric dam. "Lately, more and more people are using them as security gates because of rising thefts in rural areas," Annetts says.

Annetts wants to set up a network of resellers in Canada and the U.S. Until then he says orders can be placed through the company website or by telephone. He can provide shipping quotes as needed or customers can pick up the product at his shop. The Lift & Go Gate was recently awarded second place in the "New Inventions" category at the Manitoba Agriculture Days Show.

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Simple Way To Make Garden Furrows

"Hoing 150-ft. furrows for planting sweet corn in our garden was getting to be a lot of work. So we came up with a more efficient way to make 'quick rows'," says James Miller, Clarkson, Kty.

"We tie a shovel to the front of our 4-wheeler and turn it so the back side of the shovel faces forward. It works surprisingly well. When we have to turn at the end of the row, we just pull back on the shovel to lift it out of the ground.

"We can quickly adjust depth of the furrow by raising or lowering the rope holding the shovel. Works best with moist, loose soil."

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Simply tying a shovel to the front of an ATV can make quick and easy rows for planting.



The M1 can mow about an acre in 6 hrs. on a single full charge of the swappable battery.

Heavy-Built Robot Mower

The M1 mower from URScrobot is designed for larger acreages and landscape managers with more work than people to do it. The 55-lb. unit can work alone or in fleets of multiple units.

"The M1 can mow about an acre in 6 hrs. on a single full charge of the swappable battery," says Alok Sama, URScrobot.

A single employee can service a fleet of M1s, swapping out the 7-lb., 28.8 Ah batteries for another 6 hrs. of unsupervised run time. Batteries have a 3-hr. recharge.

A user-friendly app and cloud management provides employees and managers real-time communication with each unit, as well as messaging and alerts. A built-in camera provides visual obstacle avoidance and is accessible through the app. The mower can be controlled through the app or with an RF control stick.

The mowers use a combination of GPS and 4G delivered RTK positioning to navigate with 3/4-in. accuracy. Features include smart technology to detect obstacles. It has 360-degree safety sensor bumpers as well as ultrasonic sensors that respond to human voices when triggered. It also features anti-theft technology that offers GPS tracing,

even when the M1 has been powered off. In addition, it features tilt and rain sensors.

Mechanical features include pivot blade technology for precision cutting of grass up to 15-in. tall, reducing it to a 1 to 4-in. turf as desired. The four stainless steel blades cut a 13 3/4-in. swath. It can cut on a slope of up to 20 degrees, and the waterproof body can mow in the rain.

Once a mowing area has been defined by GPS/RTK, the M1 finds the most efficient route for mowing parallel swaths. Multiple mowers can work in one larger area or in adjacent areas. No-go areas are quickly and easily identified within the defined area.

Battery safety is another concern that URScrobot has confidence in. Sama notes that M1 batteries are UL approved and use Tier 1 cells.

The M1 will be commercially available beginning in February. Individual units will be priced at \$11,700. Sama notes the company is seeking distributors regionally and nationally in both the U.S. and Canada.

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Tepary Beans Thrive in Drought Conditions

Mother Nature created a bean that is well adapted to hot dry climates which may be very important for agriculture in the future, says Robin Buell, who did genetic research on tepary beans at Michigan State University. As the previous Director of the Plant Resilience Institute at Michigan State University, she is one of many people working with the tepary bean to add its traits to its bean cousins for future commercial crops.

"The tepary bean originated in the Sonoran desert in the Southwest and was domesticated by ancient Indians," Buell says. With traits that allow it to grow well in heat and drought, it has the potential to have good yields without irrigation.

Genetic and field work is being done to cross the tepary bean with varieties that have 100 years of breeding. Pinto, black and navy beans are similar in size and have necessary traits for production. They have disease resistance in wetter climates and the plants are easily harvested.

"The tepary bean grows on a wild vine, so we need to change the architecture to make them upright and able to be harvested with a combine," Buell says.

"We are still in the early stages of understanding what genes facilitate interspecific crossing, and how to improve breeding efficiency. We have tested some of these interspecific lines under high-temperature stress and will test them under



The larger seeds in the photo are cultivated tepary bean lines and the smaller seeds are wild tepary beans.

drought stress in Juana Daz this winter," says Timothy Porch, plant research geneticist at the Agricultural Research Service, Tropical Crops and Germplasm Research Station, who has been breeding tepary beans since 2007. "The field trials are conducted mostly in Isabela and Juana Daz, Puerto Rico, and the crosses and some disease evaluations are conducted in screenhouses in Mayagüez, Puerto Rico."

Other experiments are being done in warm climate countries as well as in Colo., Neb., Arizona and Calif.

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