



Compact "Cobra" crane is shown here attached to a Bobcat 1600 front-end loader but can also be attached to a skidsteer. Its 22-ft. boom folds up when not in use.

Compact "Cobra" Crane Reaches Out 22 Ft.

When Dennis Gosch was working on his compact crane he dubbed it "Project Cobra."

"It reminded me of a snake standing on its tail," says the Sac City, Iowa, fabricator. He was inspired by expensive "telehandlers".

He attached it to a Bobcat 1600 front-end loader, but it would also attach to a skidsteer.

The crane's most unique feature is how the 22-ft. boom folds up when not in use. "It takes up almost no space. It's 2 ft. wide by 4 ft. long and stands just 6 ft. tall," Gosch says. "It can be parked in a small space."

With a 2,000-lb. lift rating at maximum extension, he mounted a remote control 2,000-lb. electric winch on the top. Experienced with crane work, the 75-year-old says he tested it out.

The project required a lot of trial and error and figuring out the right hydraulic cylinder sizes and leverage.

Gosch considers the crane a concept device and is interested in talking to anyone who would like to develop it into a marketable product.

He believes people such as contractors



Remote control, 2,000-lb. electric winch mounted at top of crane does the lifting.

would be interested in a quick-tach, compact piece of equipment that could lift and set rafters on a pole barn, raise shingles, etc.

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Brett Hundertmark made this low-cost quick-hitch for his Mustang skid loader by removing the 3-pt. quick-hitch brackets from his Deere tractor and welding them onto a new skid mounting plate.

He Made A Low-Cost Skid Loader Quick-Hitch

By removing the 3-pt. quick hitch brackets from his Deere 3010 tractor and welding them onto a new skid mounting plate, Brett Hundertmark was able to make a low-cost quick-hitch for his Mustang 2040 skid loader.

He bought the skid plate for \$220 and had a neighbor weld the quick-hitch brackets onto it.

"A new commercial skid loader quick hitch would have cost at least \$500, so I saved money," says Hundertmark.

"I use the skid loader to blow snow in the winter and mow road ditches in the summer.



If I want I can mount a drawbar with holes in it across both of the quick-hitch's lower brackets. It really comes in handy if a trailer's tongue is down in the dirt, because I can hook up to it without having to jack the tongue up. I'm also building a quick-tach grader blade which I'll use to move snow and to level my driveway."

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Process Turns Manure Into Liquid Gold

Alberta Agriculture researchers are turning manure into high-quality plant food with an aerobic bioreactor. Successful in the laboratory, the researchers' next step will be setting it up at a poultry farm with the end product being used in a greenhouse or nursery. The process first turns manure into a slurry and then in 3 weeks turns it into mineralized, organic plant food.

"It is a nutrient recycling, recovery system for livestock manure that makes utilization by plants near 100 percent," says Nick Savidov, senior research scientist, Bio-Industrial Opportunities Branch, Alberta Agriculture and Rural Redevelopment. "We've been running trials for 3 years on high-value crops inside and outdoors, including one year in a greenhouse with tomatoes, and results are comparable or better than commercial fertilizer."

Called "digestate", the liquid fertilizer doubled the height of lodgepole pine and white spruce in 2 months. Seedling root mass was enhanced as was health, with improved resistance to root pathogens and greater nutrient uptake. Greenhouse tomatoes produced 15 percent higher yields with digestate than with commercial, synthetic fertilizers.

Savidov says the size-neutral system could be scaled up or down to match the manure output. It could also be used for human waste. Field crops will be the next step in research.

Manure is fed into a container with bacteria and a built-in agitator. Oxygen and water are added to create a slurry. The continually agitated mix ferments in an odor-free process for approximately 3 weeks. Once remaining solids have been filtered out, the digestate is ready to use.

Benefits include removing or reducing microbial problems like E. coli and salmonella that are present in manure. "During the process, E. coli drops an order of 10,000 times," says Savidov. "It can't survive the oxygenated fermentation process."

Heavy metals can be problems in solid composting where 10 tons is concentrated into 1 or 2. With the liquid process, volume remains the same, keeping heavy metals at the same diluted levels as in the manure. Savidov says heavy metals could be precipitated out of the solution if necessary.

"The fermentation process also speeds up breakdown of antibiotics and other pharmaceuticals. "Our process speeds up what happens in nature," he adds. "Things that take years in nature or months in dry composting happen in 2 weeks in our process."

Savidov estimates the process could be ready to commercialize in 2 to 3 years. He says the system is built on aquaculture research done at the Crop Diversification Centre South, Brooks, Alberta.

"We separated solid waste from fish water and used aerobic reactors to solubilize it," he says. "It was the first system that didn't produce any waste at all, either in the aquaponic or food system. This project expanded that work to other livestock industries."

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Two-wheeled mini mover can be used to move big round bales with a 20 hp Kubota tractor. Hinged spear is controlled by a hydraulic cylinder.

Mini-Mover Handles Big Bales Fine

When a neighbor needed a way to move big round bales with her 20 hp Kubota, Eugene Lochhead made it possible.

"I probably overbuilt it," he allows. "I suspect it could carry as much as 10,000 lbs."

The mover is a 2-wheel trailer. Wheel hubs with rubber block suspension mount to a center axle made from 6 1/2-ft. lengths of 7-in. angle iron. The 2 by 3-in. steel tubing tongue is welded to the axle and reinforced with 2 lengths of 3-in. angle iron. They run to the ends of the axle from near the mid point on the tongue.

The triangular spear base is about 3 1/2 ft. to a side with a center post of 2 by 3-in. steel tubing and angle iron sides. The spear base is hinged to the axle. A hydraulic cylinder is

pinned between ears welded to the tongue and the center post of the spear base. It pushes the spears into a horizontal position for spearing the bale and then pulls them back to about a 45-degree angle to carry the bale.

The center spear is a standard commercial bale spear. Lochhead fabricated smaller spears that he attached to the lower corners of the spear base. They grab and hold the bale, keeping it from spinning on the main spear.

Lochhead doesn't put a price on the mover. "For the most part, I just used whatever I had around the place," he says.

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