



Dam across creek is 4 ft. high, 20 ft. wide and 18 in. thick. Water falls 33 in. onto a 12-in. dia. turbine that drives a modified Delco car alternator.

Mini Power Generator On Small Creek

“Can’t do it, won’t work”, was the answer John McMillian got when he looked into developing an electric power generator for a small stream running through his farm. The experts said the vertical drop had to be a minimum of 4 ft., but McMillian had only 2 3/4 ft. of drop.

He decided not to listen to the experts and designed his own hydro electric system that would work on a low-flow stream like his.

“Many landowners look wishfully at a creek flowing across their property and dream of tapping the power of the water,” says McMillian. “With a system like mine, they can produce useable amounts of power with just a small dam.”

Having built an earth sheltered home at a distance from power lines, McMillian had no interest in paying powerline hook-up charges.

Annual operating costs of an equivalent-sized gas-fired generator would have run him about \$850 per year for the power he needed on site. A solar-powered system would have cost about \$12,000, or \$600 per year over the 20-year life of the system.

McMillian estimates his hydro system cost him approximately \$2,500, including the dam, turbine and turbine nozzle. He estimates his annual operating costs at \$175, including replacing v-belts, bearings and brushes, etc.

The main part of the dam is less than 4 ft. tall. It is 20 ft. long and 18 in. thick. Water flowing over the dam falls 33 in. into a cross-

flow design turbine that is 12 in. in diameter and 5 1/2 ft. long. The turbine rotates at 120 rpm’s and turns a modified Delco car alternator via a belt drive system. The alternator produces approximately 14 volts alternating current. The voltage is increased to 140 volts using a step-up transformer. Power is fed through a conventional battery charger to charge six 6-volt golf cart batteries located at the house.

Normal operation requires a water flow rate of 5 1/2 cubic feet per second to produce the desired 400 watts or 9.6 kilowatt-hours per day. In late summer and fall, flow decreases to only 4.0 cubic feet per second and power falls to about 100 watts/day.

To help others considering such a system, he has developed a complete design and information packet which he sells for \$25.

The manual includes an overview of the system, how to determine the flow of your creek, the design and construction of the turbine and the nozzle, including pictures of the turbine construction. It provides dam construction techniques and describes in detail how to modify a Delco car alternator to produce alternating current. The package also includes professionally drawn turbine, nozzle and dam construction plans.

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After equipping his header with a down corn reel, Robert Dunton had trouble with stalks piling up on his feeder auger. To solve the problem, he attached flat metal strips to the edges of flighting.

“Quick Feed” Fingers Pull In Broken, Fluffy Stalks

Last fall Bob Dunton had more than 1,000 acres of downed corn on his Topeka, Ill., farm.

He fitted his cornhead with a spider-type down corn reel to rake stalks into the header, but he had to move along at a slow crawl of .7 mph because the fluffy, dry stalks would pile up on top of the feeder auger. He had to climb off the combine frequently to manually remove trash.

He decided he had to find a way to make the feeder auger more aggressive so it would grab stalks and pull them in. He first tried an old idea that many other farmers have tried. You simply take large lock washers and slip them over the edge of the flighting. The spring tension of the washers holds them in place but Dunton quickly found out they didn’t have enough “grabbing power” to really solve the problem.

So he started experimenting with other solutions and eventually came up with an idea that really works. He simply bolted flat metal strips to the auger flighting. The strips extend only about 3/8 of an inch past the edge of the flighting but he found out immediately that the idea worked great. He was able to move along at a brisk 2.5 mph and all the fluff would feed on through. Even in mid-



The modified auger worked so well, Dunton plans to leave his “Quick Feed” fingers in place permanently.

afternoon, when stalks were at their driest, he had no problems.

The idea worked so well Dunton says he plans to leave the fingers in place permanently. He feels the aggressive feeding of the auger will help harvest under any conditions.

He’s in the process of patenting the “Quick Feed” idea and plans to offer a do-it-yourself kit for sale later this year.

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Portable Chute Built To “Last A Lifetime”

By Janis Schole

A portable cattle loading chute mounted on four wheels offers flexibility and economy, according to an Alberta man who has made and sold several.

Barrhead cattleman Dan Capiuk had three locations on his farm where he needed to load stock from, and it was a lot cheaper to build one portable chute than three permanent ones.

“I can pull it with anything - a tractor, a truck, a trike, or even a riding lawn mower,” he says, adding that the chute worked so well he started selling them locally.

On the most recent chute he built, Capiuk used the front axle from a Massey 44 tractor. The back axle was made from the front spindles off a car. Space saver car spare tires work well, as do various implement tires.

Capiuk uses 2 3/8-in. steel pipe for the chute’s underlying frame and upright side posts. Lengths of 3/4-in. sucker rod complete

the sides while sections of tamarack or spruce 4 by 4s are bolted on for the floor. This can easily be replaced when the time comes.

On top of the wood, he adds metal slats spaced one foot apart, which give the cattle better footing. As an added safety precaution, Capiuk bolts a single 2 by 6 rough plank upright on the bottom of each sidewall. This prevents any animal’s foot or leg from slipping out the side.

He used 1/8-in. checkered plate to make a 1 1/2-ft. long ramp that is stored inside the chute when not in use, and then hooked to bottom rung of the chute for a final transition to the ground. This helps with stubborn cows that may not otherwise want to step up into the chute.

Capiuk makes a pipe hitch that swivels, making it easy to maneuver the unit.

The back end of the chute sits 4 in. off the ground and the front is compatible for use



Capiuk says it was a lot cheaper to build one portable chute than three separate stationary chutes.

with a 1-ton truck or bigger, right up to a cattle trailer.

The chute takes him 16 to 20 hours to build, and materials cost between \$500 and \$600.

If the unit is shedded, it should last a lifetime, according to its inventor.

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