

Butak shortened the frame of an old front-wheel drive truck to 11 ft. and mounted a stationary engine used in lead mines at the rear. Seat is in front between the booms.

**"IT'S STABLE AND HAS LOTS OF TORQUE"**

## Homebuilt Loader Tractor

"It's heavy and stable enough to do a wide variety of jobs, and it never gets stuck," says John Butak, Chippewa Falls, Wis., about his homebuilt 4-WD loader tractor which he built from an old front-wheel drive truck frame, transmission and transfer case, a stationary engine used in lead mines, four equal-sized road grader tires, and a heavy-duty boom and bucket.

Butak shortened the frame of a 1934 FWD front-wheel drive truck to 11 ft. and mounted the engine at the rear. He installed the steering sector from an old International truck and mounted the seat in front between the lift arms, which can lift the 4-ft. wide, 30-in. high bucket up to 11 ft. high. Each axle weighs 2,000 lbs. and the entire tractor weighs 14,000 lbs.

"I've used it to load logs, pick up machinery and dead animals, move concrete feed bunks, scrape dirt, and load manure," says Butak, who built the tractor in 1959. "I wanted a loader tractor, not a tractor equipped with a front-end loader where the front wheels bear all the weight so you're more likely to get stuck in soft ground. These days many farmers mount front-end loaders on 4-WD tractors, but when I built this tractor 4-WD was unheard of. I bought the loader and bucket from a farmer who had built it for his own tractor but discovered it was so heavy that the tractor couldn't lift it. It weighs almost 1,600 lbs. The bucket can be replaced with two 4-ft. long forks which can carry two 16-ft. long, 30-in. dia. logs at a time. It has a rear drawbar and hitch for pulling wagons but it's too clumsy for field work."

Butak bought the diesel engine, a 1938 PD-40 International, for \$75. It was origi-

nally used in a Wisconsin lead mine to power conveyors and later in an ore-making facility to power a generator. The engine weighs 3,800 lbs. and is rated at 50 brake hp which is equal to about 200 flywheel hp. "The 505 cu. in. engine provides lots of torque," says Butak. "It doesn't have a starter so I hand crank. I don't use the tractor much in the winter because it's too hard to crank it. I start the engine on gas, then switch to diesel when the engine has warmed up. I shut off the valve on the gas tank and let the gas burn out of the carburetor. When I hear the engine begin to hesitate, I push a throttle to allow diesel fuel into the engine. Then I pull a lever to isolate the spark plug so it doesn't get fouled up with diesel fuel and to increase compression at the same time."

Butak made an oscillating front axle by welding a 4-in. dia. pipe perpendicular to the axle and welding two braces from the pipe to the spindle. He then welded a shaft through the pipe to two cross members on the frame.

The 38-in. long, 5-speed transmission weighs 1,200 lbs. and has a 3:1 reduction gear ratio. The tractor can go 25 mph on the road or crawl in low gears. Roller chain sprockets transfer power from the engine to the transmission. The tractor is equipped with four hydraulic cylinders to operate the boom and bucket and two hydraulic pumps - one to operate the steering and the other to control the hydraulic cylinders. There are weights totaling 2,200 lbs. at the rear.

Butak says he spent \$1,200 to build the tractor.

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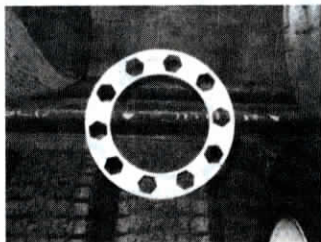
**QUICKER AND SAFER  
THAN CONVENTIONAL TOOLS**

## New Tire-Changing Tool For Semi-Trucks

"You can change semi-truck tires quicker and easier with my new Nut Holder," says inventor Paul Beerman, Atwater, Minn.

The Nut Holder is a 6-lb. steel disc measuring 14 in. in dia. and 3/8-in. thick. In the center of the tool is a 10 1/4-in. round hole surrounded by 10 hexagonal holes which fit over all of the nuts on the wheel. The tool is designed for large semi-trucks with wheels held on by two sets of nuts. When you try to remove the outside wheel, sometimes the outer and inner cap nuts both come off with the outside wheel. The Nut Holder simply holds the outside nuts in place while you turn the inner nuts outward.

Sells for \$39.95.



The Nut Holder's 10 hexagonal holes fit over all of the nuts on the wheel.

For more information, contact: FARM SHOW Followup, Paul Beerman, Box 292, Atwater, Minn. 56209 (ph 612 235-2770).



Crystals trap water when it rains and release moisture gradually as soil dries out. Note difference in root growth on untreated (left) and treated (right) ground.

**"A CRYSTAL THE SIZE OF A SESAME SEED  
SWELLS UP TO THE SIZE OF AN ACORN"**

## Absorbent "Crop Crystals" Trap Water, Boost Yields

Dryland farmers in western states have something to cheer about thanks to new water-absorbent "crop crystals" that trap water when it rains and release the moisture gradually as the soil dries out.

George Tucker of Colorado Springs, Colo., is U.S. distributor of the new Orton Crystals that are manufactured in England. The crystals are about the size of sesame seeds and will swell up to the size of an acorn after an hour or so of exposure to water. Once filled with water the crystals are dry and about the consistency of Jello.

The crystals are a petroleum by-product made from natural gas, ammonia, and propylene. They're side-dressed 1 to 2 in. deep onto growing crops. When it rains, the crystals absorb water and nutrients which are later released as the soil dries off. Under irrigation, Tucker says the crystals let you make more efficient use of water by keeping it from leaching away. When used in areas that receive plenty of rainfall, Tucker says the crystals help prevent erosion and prevent in-season stress between rainfalls, and they also provide protection against occasional drought.

"They've been tested for 6 years in England. Last year we worked with 26 farmers in Colorado, Nebraska, Kansas, Missouri, and Iowa. Most couldn't believe the results. Crops matured faster, yielded higher, and the fields didn't get compacted. Most of the farmers who've reordered for next year want to apply crystals to all their acreage. We've already got more than 10,000 acres lined up," says Tucker.

The crystals have been tested by the EPA, which neither endorsed nor restricted use of the crystals. The Occupational Health and Safety Organization has declared them to be non-hazardous.

"We've seen yield increases of 16 to 20 bu. per acre in corn and 6 to 8 bu. per acre increases in soybeans," says Tucker.

Aaron Zemler, who farms near Colorado Springs, planted 55 acres of corn with the crystals and another 55 acres without. Both

fields were irrigated. The fields received the same amount of water and fertilizers. Although Zemler was skeptical when he started the test, by harvest time, all his doubts had disappeared. "We got 3,000 more pounds of corn silage where we used the crystals. When you get a rain on this sandy soil, the water goes out of sight in an hour or two. The crystals hold it near the plant roots where it belongs."

Zemler notes that the crystals also improve soil condition. "The ground didn't compact. It was aerated by the crystals because they swell up and then dry down, leaving little pockets of air in the soil."

No one knows how long the crystals will last since they've only been tested for the past 6 years, but in laboratories researchers have rehydrated the crystals thousands of times, raising the possibility that the crystals could last many years. When they "wear out", they'll break down into carbon dioxide and nitrogen, both of which are good for the soil.

Tucker, who is rapidly setting up farmer-dealers all over the country, says Colorado State University is testing the crystals in corn, wheat, soybeans, and sunflowers. Researcher Tony Koski says that in addition to agricultural uses, there could be a tremendous market for the crystals for use on lawns and gardens. "They consume anywhere from 40 to 60 percent of water in metro areas. If we could cut that by 10 or 20 percent, an incredible amount of water could be saved."

Tucker recommends farmers apply the crystals at a rate of about 5 lbs. per acre over a period of three years, for a total of 15 lbs. Most farmers who used the crystals last year side-dressed them to the side of growing crops, along with fertilizer. A 15-lb. bag of crystals sells for about \$70.

For more information, contact: FARM SHOW Followup, George Tucker, Gyro Products Incorporated, 2940 N. Prospect, P.O. Box 7146, Colorado Springs, Colo. 80903 (ph 719 598-2586).