

## 4020 Tractor Repowered With Combine Engine

“My 1971 Deere 4020 with its original engine was losing power and using oil, so instead of overhauling it, I replaced the engine with one from a 6620 Deere combine,” says semi-retired Iowa farmer Arlis White. “The engine from the 6620 turns 115 hp on the dyno. It sounds great and has a lot more torque than the original engine.”

White says he looked into overhauling the original tractor engine, but the cost was fairly steep. He was able to acquire the used 6620 engine at a price that was considerably less. He replaced the engine himself with help from his sons over a 2-week period. “It wasn’t very difficult to make the switch at all,” Arlis says. “We disconnected the radiator, the fuel line, removed the starter and just started taking bolts loose, supporting the frame before removing the engine. The new engine slid right in place and we connected everything back up and it started right up.”

White says he’s put close to 1,000 hrs. on the 6620 engine in summer and winter work over the past 3 years. In the summer he uses it for haying and some occasional field work, but during the winter the tractor has a loader, a bucket and snowblower. “It starts just fine in all kinds of weather, runs well and just sounds better than the original tractor engine. It’s fuel efficient and doesn’t use a drop of oil,” Arlis says. “I’d recommend this engine for anyone wanting to repower a 4020.”

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## Microwave Kit Lets You Extract Your Own Essential Oils

With a microwave oven and an EssenEx-100 oil distillation kit, you can extract your own essential oils in 6 to 8 min. The most popular model by far is the \$180 complete lab kit, it pays for itself quickly considering the cost of oils. It’s a smart investment for entrepreneurs who make soaps, creams and other products, and growers of crops such as lavender and mint can use the extractor to do their own lab work to determine optimum harvest times.

“Initially we created this for the home market, for do-it-yourselfers who grow small amounts of essential oil containing plants,” says Bill Dean, one of the product’s inventors. “As we started demonstrating our product, we found people with small acreages were able to assess the value of their crops by quickly extracting small samples for analysis.”

The kit includes a mold to freeze an ice core, which condenses the vapors produced when the plant material is in the microwave. The oil/water mix collects in a beaker inside the extraction unit. When removed from the microwave the oil containing liquid is poured into a separator flask to separate oil and water. Processing 1/8 to 1/4 lbs. of plant material at a time can yield up to 3.5 grams of high-quality oil.

Most standard microwave ovens work, as long as they are big enough to hold the 7 by 7-in. extractor unit and a mug of water that is also used in the process.

The EssenEx-100 is the result of years of research for Dean and students at Oregon State University. The idea came from research for extracting oil for mint growers in the region. Using large, expensive micro-



With a microwave oven and this oil distillation kit, you can extract your own essential oils from crops such as lavender.



wave units for the process reduced emissions and extracted the oil very quickly. That led to working with standard microwave ovens and figuring out how to create a condenser that worked inside the oven.

Since first published in Farm Show last year kits have been shipped throughout the USA!

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Reader Inquiry No. 91

## “Belted” Hay Feeder Reduces Waste

Bill Kurtz didn’t like watching hay go to waste around the outside of his round bale feeder. Cattle would pull large amounts of hay out which would get stepped on and wasted. So he came up with the idea of adding belts to his bale feeder.

“It’s based on the idea that cattle can put their heads through smaller openings than they can back out of. The animal can’t reach down and bury its head in the hay, then pull out large amounts,” says Kurtz, who a few years ago came up with another unique “waste less” horse feeder that was featured in FARM SHOW (Vol. 31, No. 4). The new patent pending feeder tapers in toward the top and has a 2-ft. high metal skirt at the bottom. Above the skirt are a series of 12-

in. wide rubber belts, each attached to a 1 1/2-in. wide steel upright. There’s about 8 in. of space between the belts.

“The belting design allows the use of a narrow opening that helps contain the hay,” says Kurtz. “As the animals put their heads in the feeder, the belts bend in alongside their necks. As they back out, the belts flip inward keeping excess hay in the feeder.”

He says the feeder is built tough to last, with 11-ga. tubing used for the frame and 14-ga. metal for the skirting. It comes unpainted but can be painted on request. Replacement belts are available, as well as an optional carrying bar. “The feeder is built so heavy that one person can’t pick it up by hand,” says Kurtz.



Bale feeder is fitted with 12-in. wide rubber belts spaced 8 in. apart.

The feeder is available in 7 and 8-ft. bottom dia. sizes. The 7-ft. model sells for \$795 plus S&H and the 8-ft. for \$895 plus S&H.

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