

On-farm alcohol production still has problems

There's a lot of interest right now in on-farm production of fuel alcohol, but we're still at least two years away from knowing how to make it pay on the average farm, says University of Delaware agricultural engineer, Kenneth Lomax. The problem is largely a matter of technology.

At present it costs about \$30,000 to build a farm plant capable of producing somewhere around 6,000 gallons of fuel alcohol per year. Just around the corner, though, are technological improvements that may make it possible to buy a plant for as little as \$6,000.

Reducing the capital cost by this much would make the

whole idea of on-farm alcohol production a lot more feasible. Today very few existing farm systems around the U.S. are turning a profit because investment costs are simply too high.

If you're interested in constructing a still on your farm, take a close look at all the factors involved before you invest any money in the idea, advises the engineer. Independence from the uncertainties and costs of petroleum-based fuels, an assured fuel supply, and an alternative market for farm commodities are some of the advantages you may hope for.

But make sure you consider the disadvantages, too. These include: (1) high capital investment and fixed

costs; (2) lower actual alcohol yield as compared to the theoretical potential; (3) the need for continuous supervision of the fermentation and distillation processes; (4) need for a high degree of technical control; (5) problem of disposal of fermentation by-products; (6) extensive engine changes required to burn the fuel produced; and (7) no direct access to the heavily subsidized highway alcohol market. There are also important legal and safety considerations.

One thing you may not be aware of is the low yield, in terms of pure ethanol, from on-farm systems. The small farmer just can't get as much out of his fermentation unit as big commercial operators can. Maximum use of the sugars involved in this process requires ideal conditions attainable only with very large batches.

The limiting factor is something which engineers call "economy of scale." It's rather like trying to cook oatmeal for 100 people in a one-quart saucepan. Every time you dish up, you waste a lot of oatmeal. It would take fewer oats, and less fuel, if you used one large pot and cooked all the oats at once.

About the best you can get with an on-farm still, says Lomax, is 160-180 proof "fuel alcohol" — an alcohol/water mix. The purer the product (the higher the proof), the more energy is required to remove the remaining water. Pure ethanol can't even be made on the farm. It's the result of a costly separate process that follows distillation.

Yields of alcohol per bushel of corn are also highly over-estimated for the farm plant, says Lomax. Though 2.5 gallons total

ethanol per bushel of corn is often quoted as the expected yield, studies indicate that it may be more accurate to expect only 1.7 gallons per bushel. And, as noted above, this will be in a dilute form (160-180 proof). Gasohol consists of 90 percent gasoline and 10 percent ethanol (200 proof alcohol)—which means you can't make it with farm-made alcohol.

Even if you could produce 200 proof alcohol in your still, you'd only be able to provide 10 percent of your fuel needs, assuming this went into gasohol. So you're actually better off making the lower proof product, and using this as is in modified spark ignition engines.

Which raises another problem. Once you've modified your engines to burn fuel alcohol, you need a constant supply of this because you can't burn gasoline or gasohol in an engine without reconverting

it. Furthermore, nobody's yet found a satisfactory way to adjust today's power diesel engines to burn only alcohol fuel.

Any farm still must have flexibility in the feed stocks used to produce alcohol, continues Lomax. There may be some years when it's more profitable to sell your corn as grain and instead use some other material such as wheat or other grains, potatoes, sugar beets, or molasses. There's also the possibility that in the future new crops will be developed specifically for use in alcohol fuel production.

One critical consideration is disposal of fermentation by-products. Unless you've got some kind of livestock operation that can use these wastes, it's probably not economically feasible to try to make your own alcohol.

Until such problems are

(Turn to Page E21)

PUBLIC SALE SATURDAY, JUNE 21

At 10:00 A.M.

Located next to Spring Grove High School, Spring Grove, Pa. along the Menges Mills Road. Antiques, Horse drawn equipment, Farm machinery, tools and Household goods, Antique church organ, of Donald and Marilyn Ruth and Viola and the late Melvin Ruth.

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HORSE EQUIP. — FARM MACHINERY — TRUCK

2-2 horse wagons, 1-4 horse wagon with sideboards in good cond., run about, spring wagon with seat, one horse cutter sleigh made by W.A. Patterson Co., Flint, Mich., 2 box sleigh, one is complete, wagon wheels and wagon parts, Dodge Bros. wooden spoke wheels, wagon rubber tires and new bed, 28 transport disc, F-12 Farmall tractor with cultivators, 1948 Dodge pickup truck, parochial restored, N.H. flail chopper, Ross fodder shearer, Auchey 1 row corn planter, 2 wheel rubber tire trailer, circle saw, grain fan, walking plow, Oliver colter disc, wooden wheel wheelbarrow, Hudson pump tank sprayer on rubber, 290 gal. skid gas tank and pump, Studebaker commander car for parts, 12+38 tractor chains, tow wench.

MISC. ITEMS

Board axe, 4 and 5 gal jugs, crocks, ice saw, lanterns, spittle, wine press, buck saw, ice hook, horse and pony saddle, harness, new drill stand, 600 good brocks, post vise, leg vise, old bath tub with legs and faucets, rotary mower, 2 sets gang mowers, 40 ft. belt, blacksmith fordge, tractor umbrella, fence charger, old door latches, sleigh bells, shaft bells, wire spoke 35 Ford wheels, hog trough, overhead garage door, air compressor, sawed and round 7 ft. locust posts, metal posts, metal window frames, milk cans, Foley reel type lawn mower sharpener, bag truck, wooden rake, single trees, 3-3 speed bicycles, hay fork and track, picnic table and benches, elec. motors, awnings, misc. lumber and wooden beams, and many items not listed.

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PUBLIC SALE REAL ESTATE

THURSDAY EVENING, JULY 10, 1980

7:00 P.M.

On the premises along Route 501, between Mt. Aetna and Bethel just North of Swatara Creek, Berks Co.

2 to 3 Acre tract of land fronting appr. 300 ft. along Route 501 having erected thereon a 2½ story Frame House with 5 large rooms on first floor (3 rooms paneled) Second floor has 4 bedrooms, bath & large hallway. Basement is partially concreted w/Laush furnace converted to oil. There is also a nice 3 car block garage & several other buildings on premises. There is a never failing dug well.

Note: The exterior of house needs repair, but this property has possibilities, such as 2 apartments, etc
For inspection of property call 717-866-4088 for appointment.

Partial Financing Possible

Conditions by

VICTOR & GRACE ZIEGLER

Attorney - Henry Steiner
Auct. G. Harvey Weik 717-949-3126

PUBLIC SALE FRIDAY, JUNE 20

BEGINNING AT 10:00 A.M.

Located 3½ miles east of Roxbury, Pa. or 4 miles west of Newburg, Pa. Off of Route 641 on Clover Hill Road. From Blue Mountain exit of the turnpike go east for ½ mile to Hilltop Road go ¼ mile to Clover Hill Road, turn right for 1 mile. Look for Esh's Harness Shop signs.

Esh's dry goods and novelty store going out of business due to ill health.

6 ft. oak show case w/curved glass; dry goods, dacron, cotton, organdy, whipped cream, mostly solid colors, thread, yarn, sewing notions; afghan, pillow tops, flowered water set, dishes, new toys, lots of novelties; pull toys w/blocks, antique child's drop leaf table, child's stove & cupboard (wooden); wooden animals, puzzles; wheel barrow; planters; iron floor registers; oak dresser; mirror frame; Singer treadle sewing machine in oak case; antique wicker baby carriage, bamboo fern holder; antique lamp shades in various sizes, shapes and designs, oak arm chair; square oak table; small butter churn; ladder back chair; iron sink; knick knacks; shelf; metal racks; wall racks; 3 burner oil stove; egg scales; rug material; box lots of miscellaneous items.

TERMS: CASH.

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PUBLIC SALE

FRIDAY, JUNE 20

1:30 P.M.

Located 4 mi. North of Martinsburg on Route 866, the Farm of Glenn R. & Geraldine Hoover in Blair Co., Penna.

Consists of approximately 147 Acres, 100 acres tillable. 14-room Brick house w/1st floor remodeled with modern kitchen and bath. Oil heat. Bank barn 50x65 ft. with attached free-stall Barn (42 freestalls w/space for 9 more). 60-foot automatic bunk feeder. 3 Silos with unloaders (sizes 20x60, 1 yr old, 16x50, & 12x50), elevators, TMR mixer w/7-t soybean-meal bin, milkhouse w/640 gal. bulk tank, pipeline milkers for 28 cows. Patz stable cleaner. 28x60 1-yr. old Heifer shed, 2 Implement sheds (34x68 & 16x32), 1-Acre pond, and stream running through two large meadows. Never failing spring All crops that are in the ground August 1st, go with the Farm.

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