Stan and Nancy Lammers of Sioux Center, Iowa, both enjoy spending time with their Angus cattle.

Stan Lammers, Sioux Center, Iowa, is a practical person whose ideas reflect respect for efficiency and a conviction that no resource should be wasted. It would be safe to say, in fact, that his ideas deserve attention, especially in an age when careful use of the nation's resources is becoming increasingly important.

His ideas are agriculturally based; his background sets the scene . . .

When Lammers (a Sioux Center-area native) graduated from high school, he went to work at a skating rink, later buying the enterprise with money from 4-H and FFA projects. Since he spent only evenings tending the rink, he had the whole day to devote to another interest, auctioneering. Apparently he saw more future in livestock than in skating, because the auctioneering experience led to employment at Sioux City Dressed Pork, first as head of the buying department, then as vice president and manager of its new beef facility in Luverne, Minn. When Sioux City Dressed Pork merged with Iowa Beef, Lammers was vice president under that firm's name for two years. Then when the pork plant was sold to Armour, Lammers went with it, stayed two years, then returned to Sioux Center to build his own operation—Sioux-Preme—a plant devoted to converting hogs to edible products. That was 10 years ago.

Northwest Iowa

Sioux Center, incidentally, lies in Sioux County, a piece of northwest Iowa real estate separated from South Dakota by the Big Sioux River. It's famous for its livestock feeding capabilities; in fact, most of the 600,000 hogs processed yearly at Sioux-Preme have been fed in the county within 25 miles of the plant.

Lammers' ideas are at work there and Sioux-Preme, consequently, is an efficient place that is impressive in several respects. Perhaps most pleasant is the fact that the plant doesn't make its presence known on approach. Odor is minimized, almost nonexistent, in fact, as intended in Lammers' original construction plans.

Also impressive is the 2,500 head a day slaughter, 5½ days a week, with a crew (including office staff) of no more than 60.

Most impressive, though, and probably unique is the plant's alcohol production facility, a fledgling project really. With the use of obsolete equipment and waste products, Lammers is producing daily 250-300 gallons of alcohol suitable for use as fuel—at an estimated 25-30¢ a gallon.

Fermentable Material and Heat

Alcohol can be produced from anything that will ferment, and carbohydrates (corn, for example) are ideal for the process. Enzymatic actions break down carbohydrates; yeast promotes fermentation; water, solids and alcohol remain. Separating these three requires heat; when heat is applied, alcohol boils off before water, then is condensed and collected. So alcohol takes quantities of only two things—fermentable material and heat.

Here's what happens at Sioux-Preme. Undigested feed—mostly corn—from the slaughtered hogs' paunches (which is sometimes wasted and at best used for fertilizer) provides the fermentable material. After a hog is slaughtered, this feed is recovered, washed and drained, then retired to a large vat where 36 hours later (with the help of already present enzymes and added yeast) it has become water, corn solids and alcohol.

The heat required to boil off alcohol is provided by waste steam from the packing plant's blood drying process (which is, incidentally, another procedure that uses a potential waste product by drying it to a protein-rich powder suitable for animal feed).

End Products Put to Use

Once the alcohol is boiled off and collected, the water is drained from the solids, the solids are dried (again using waste steam), then all three products go to work.

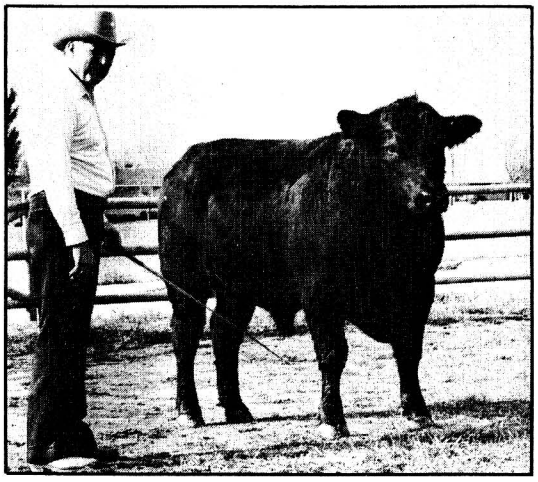
The solids—32% protein, having lost only carbohydrates (energy) during fermentation—are recycled as animal feed.

The water joins other Sioux-Preme waste water in lagoons near the plant, then is transferred via two pivotal irrigation systems to Lammers' surrounding corn fields. There the water's extra nitrogen, compliments of its role in the fermentation process, reduces fertilizer requirements by an estimated 15%. Incidentally, it took the Environmental Protection Agency one year to decide whether the waste water could be so used.

Then there's the alcohol, the object of the whole process. This substance (at 185-190 proof) is currently used in several vehicles with only minor modifications. Lammers' personal pickup, equipped with an extra tank and an extra fuel pump, uses the home-made (and governmentally approved) alcohol in a 50-50 mixture with gasoline. Successfully. And several gas-

Iowan Wages War on Waste

by Ann Gooding



This young bull, Bon View Connection 279, spent last summer and fall virtually in the Lammers family's back yard.

burning tractors are running on 100% alcohol with no problems. And all this is costing 30¢ a gallon or less.

Next, Expansion

But that's only the beginning. Next, depending in part on governmental blessings, is an expansion that should double daily production to 500-600 gallons. A rendering vat that's out-lived its original usefulness will be brought back to work. Sioux-Preme's fermentable material will be supplemented with material from a nearby cattle packing plant. Then the increased production is intended to go to a 450-KVA generator powered by a diesel engine with a turbocharger. The result, electricity.

Using alcohol in combination with diesel fuel (diesel provides lubrication and must supply about 30% of the energy, i.e., heat), Lammers believes he will be able to provide 50% of the plant's electrical requirements. Even better, he will be able to supply electricity during peak periods, those hours when use of electricity typically rises as do fees for that electricity.

Since the plant's yearly power bill runs in the neighborhood of $150,000 and energy prices are projected to rise about 30% annually, using waste products to generate electricity no doubt will have a desirable effect on the plant's operating expenses.

Then There Are Angus

Although they tell a lot about his sentiments for efficiency and against waste, the packing plant, its subsidiary alcohol plant and its surrounding corn fields tell only part of Lammers' story.

He also feeds cattle, about 5,000 head a year, in a confinement operation near the plant. And he says he has to be able to see Angus in the calves he buys. Black baldies with a touch of exotic blood are his preference. They're efficient.

Then there's the Angus herd—Walking S Farm, Ltd.—40 cows which, by the way, comprise the only cow herd in Sioux County, an area that lays claim to feeding cattle, not to birthing them.

The herd started with two heifers intended only as 4-H projects for the family youngsters; but after the heifers had served their original purpose, the kids wouldn't sell them. Besides, Lammers and his wife Nancy enjoyed them, so Lammers simply expanded to 40 head and bought 120 acres overlooking the Sioux River Valley to accommodate them. Then 10 acres adjacent to the Lammers residence on the edge of Sioux Center (original home of the 4-H heifers) became headquarters for the bulls.

Herd Description

Included there last fall was Bon View Connection 279, a February 1979 son of Bon View Connection out of a Bon View Winton 1342-bred cow, jointly owned with Anderson Angus, Hudson, S.D.

The original cows, most from the Wayne Lacock herd at Farnhamville, are primarily Marshall Pride 4 breeding. Blacklock McHenry 13Y ("Great Northern"), Wetonka 2446 and Eileenmere Masterpiece JAO ("Masterpiece") have been introduced recently through A.I. And the use of Masterpiece on a Marshall Pride 4 granddaughter produced a calf last spring of which Lammers is particularly proud. He's registered as Walking S Masterpiece Eileenmere; Lammers calls him him "The Meat Machine."

Lammers' business interests take a lot of time. And he's also director of the American Meat Packers' Assn. and serves on the board for the Sioux Empire Fair. But although the Angus cows share time with other interests, they, like his other interests, are well managed. And they are a source of pleasure and a point of pride for Lammers (who finds relaxation spending time with them) and for his family.

Lammers Family

Daughter Dana, who enrolled at the University of South Dakota in nearby Vermillion last fall, has had to bow out of some of the cattle-related activities at home; but son Grant, a high school freshman, will be in Sioux Center at least a few more years, and his cattle interests will take him and several heifers to both local and regional shows.

Nancy, too, is interested in the cattle and associated youth projects in which her children have been and are involved. She, by the way, is also a student, having started toward a degree in elementary education 16 years ago on a part-time basis. She'll graduate in 1982.

But not only does the Lammers family enjoy Angus, they have an important place in the future of the beef cattle industry, in Lammers' opinion. It's an industry he's watched closely; and the direction it takes in the future, he believes, will hinge on feeding, something he believes will undergo more change in the next four years than it has in the last 20.

Feeding the world is going to be the issue, he projects, and more grain will have

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to find its way directly to humans, not to livestock, so roughage will be the dominant cattle feed. The cattle business, Lammers believes, will have to have animals that can convert roughage efficiently into pounds of red meat. (And the roughage he has in mind probably best could be described as any plant that's suitable for human consumption only if it's first converted to meat by a ruminant. Grass, corn cobs, citrus pulp—items considered waste material—would fall under this definition.)

Nutritious Palatable Protein

And Angus qualify for the job. An Angus can convert roughage efficiently to highly nutritious, not to mention palatable, protein. The Angus cow, as he points out, can produce offspring that will grade low choice without ever seeing grain.

So Angus fit Lammers' philosophy, a philosophy that doesn't tolerate waste, that says this country had better learn to be independent, had better be able to fend for itself. It's the same sort of philosophy that prompted him to devise a method using waste materials to produce energy.

With Angus, Lammers sees waste materials efficiently converted to food for human consumption. And if Angus were ever in a position to take the lead, he says, it's now. But, he adds, the facts have to be out in front of the people. People have to be told how efficient the Angus cow is.

He suggests a slogan for Angus breeders—"From the waste of our farmers, we can feed the country." Lammers believes that's not only possible but may well prove necessary. Just as necessary as producing our own energy.

The Meat Machine, a 1980-born bull bred in the Lammers herd, is by Eileenmere Masterpiece JAO.