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Keeping it local *from farm to table*

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20
years of
innovating

*AURI begins third decade
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How big is the local foods appetite?

Opportunities abound for Minnesota-grown produce, but AURI study finds market barriers are formidable

BY LIZ MORRISON

If you're planning to compete in local food markets, be prepared. The bite can be more than a small grower can chew.

That's advice from a recent AURI market study of local foods.

There is strong demand for Minnesota-grown foods, and small-scale direct marketing is flourishing. But when it comes to accessing larger wholesale outlets, the study found that supply, handling and pricing are significant barriers.

AURI surveyed farmers, grocers, food-service management companies and wholesale distributors. The study, co-sponsored by Minnesota Farmers Union and released in June, describes demand, trends and markets for locally and sustainably produced foods. It also offers guidance to Minnesota farmers who want to pursue wholesale-food channels.

What's needed to expand "local foods" markets is "a larger, more reliable and varied supply of product that meets today's standards for post-harvest handling and food safety," says Dennis Timmerman, AURI project director in Marshall. Small and mid-size Minnesota farmers could gain access to mainstream distribution channels by pooling their farm products, raising specialty items for niche markets, and developing a memorable brand story, he says.

Local demand on the rise

An earlier shopper survey by University of Minnesota economist Robert King found that consumers "overwhelmingly indicated a preference for buying locally-produced fresh foods." King surveyed 500 shoppers at six Twin Cities food outlets in the summer 2006.

"In Minnesota, consumers want locally-grown produce," agrees Gary Pahl, an Apple Valley, Minn. commercial vegetable grower. "And they search it out at local supermarkets, roadside stands and farmers markets."

That's confirmed by the rising number of Minnesota farmers selling directly to consumers. About 4,300 Minnesota farms sold fruits, vegetables, meat, poultry and dairy products directly to consumers in 2007, according to the latest U.S. Agricultural Census. That's up 25 percent from a decade ago. The value of direct-marketed Minnesota farm products grew by 140 percent during the same period, reaching \$35 million.

The Minnesota Department of Agriculture's popular Minnesota Grown program publishes an annual directory of nearly 750 pick-your-own farms, on-farm retail stores and farmers markets. Direct-marketing sectors that have taken off in the last few years include state wineries, which now number over 20, and "CSA" or community-supported agriculture farms, which sell seasonal garden produce on shares, says Paul Hugunin, Minnesota Grown coordinator.

Food purveyors respond to demand

Minnesota grocery stores, restaurants and college food-service providers have started offering more local foods to attract and retain customers, says Bob Olson, director of the sustainable-farming certification agency Food Alliance Midwest, which performed the market study for AURI.

Minnesota-based grocery store chains, such as Kowalski's Markets, Coborn's and Cub Foods, are using local foods to differentiate themselves from their competitors, Olson says. They are regularly buying foods from area farmers and "telling the story of where the food is grown." And as national discount retailers crowd into the fast-growing organic foods sector, "the local aspect has become even more important in their marketing efforts," the AURI report says.

Food-service management companies are also responding to demand for local foods, especially on college campuses. Food Alliance Midwest is working with more than 30 colleges and food-service

providers to source local ingredients for cafeteria meals. Bon Appetit, which manages a dozen food-service operations in Minnesota, recently launched Farm to Fork, a program to buy local produce, meat and dairy products.

"The demand for local and sustainable is growing immensely," says Don Kulick, campus services district manager for Sodexo, which runs food service operations at 10 Midwest college campuses, including the University of Minnesota, Morris. "Our customers — students — want to see much more locally and sustainably-grown food."

Wholesale distributors, who supply grocery stores, restaurants and institutions, report strong demand for local produce. Says one state distributor: "If Minnesota farmers have the product, we'll buy it. If they could supply staple items like cucumbers, zucchini and peppers, we can sell that product, no problem. We'll bring in local when we can get sufficient volumes. This is a growth area with some of our clients."

Wholesale hurdles

Nearly all food sold in this country goes through wholesale channels. "This is where we see important growth opportunities for local foods," Olson says. But he cautions: "Most individual growers are going to find it hard to get into these markets."

Some of the challenges for Minnesota farmers:

Consistent quality. Retail and food-service companies need dependable, consistent supplies. Products must be graded and sorted according to accepted quality standards — usually USDA #1. Uniform sizing, packaging and labeling are required. "It's a different mindset than direct marketing," Olson says.

In the meat sector, product variability is often a problem, the AURI report notes. "Large chain restaurants want product consistency and low cost," says Michael Cheng, director of the culinology program

at Southwest Minnesota State University in Marshall. Likewise, in sourcing local ingredients for processed foods, "consistent quality is often an issue," says AURI food scientist Charan Wadhawan.

Sufficient volume. Few food outlets accept product in small volumes, or caseloads. Pallets are usually the minimum acceptable volume, and "products must move off the shelf quickly," the AURI study says.

Reliable supply. "What we can buy locally is unpredictable given the weather," says one distributor, a study participant. "And sometimes farmers don't deliver when they say they will." Supply outages leave distributors and restaurants scrambling to find the products they need.

Short growing season. Minnesota's short and unpredictable growing season is a significant barrier to expanding local foods markets. One food buyer complained that "either all the growers have too much supply, or everybody is short, all at the same time."

Competitive pricing. "Low cost is the most fundamental determinant in distributors' purchasing decisions. A penny-a-case can make a difference ... testament to the extremely competitive environment faced by distributors," the AURI study says.

Distributors usually sell local products at "commodity" prices, unless it's an unusual or out-of-season item. Local-produce growers must compete with large, efficient producers in California, Florida and South America, Olson says. These producers "have huge advantages in scale, year-round production and very low transportation costs."

There is intense price competition among local growers, too, Pahl says, especially at the height of Minnesota's brief harvest when a glut of perishable produce often floods the market. Local vegetable and fruit growers usually don't have supply contracts with distributors, the AURI study notes, but instead must rely on "verbal agreements that establish an understanding about price and quantity."



Post-harvest handling. Produce suppliers must be able to quickly cool, clean and transport products at appropriate temperatures. Customers “buy with their eyes,” Pahl says.

Many food products, such as meat, also need some initial processing. “Getting processing facilities in place is a challenge,” King says. “Many times, there are significant economies of scale in processing, so you need a lot of product to make it cost-competitive.”

Food safety and traceability. Food safety is a growing issue at every link in the food supply chain. In the produce sector, for example, distributors are requiring farmers to have costly hazard analysis, or HACCP plans, third party food-safety inspections, insurance, facilities upgrades, irrigation water standards and a host of other things to ensure safe production and handling, Olson says.

More food outlets are also demanding traceability to the farm of origin, making distributors and retailers reluctant to deal with a large number of individual farmers. “These may become new barriers for growers in the Midwest,” Olson says.

Liability insurance. Growers may be required to carry liability insurance of \$1 to \$5 million, depending on the product, according to the AURI study.

Food-service contracts. Food-service companies “buy in tremendous quantities at very competitive prices,” Olson says, contracting for nearly everything they distribute to restaurants and institutions. Food suppliers, in turn, may offer volume discounts or other incentives to get their products specified in contracts, he says. “These agreements are usually exclusive and limit flexibility to purchase local products.”

One area that is not usually covered by contracts is fresh produce, Olson says. This represents an opportunity for local growers.

However, food-service companies often write exclusive contracts with distributors. So local produce must be delivered on that distributor’s trucks. A grower in west central Minnesota might be dismayed to learn that he has to truck his produce to the Twin Cities “so it can go on a distributor’s truck back out to west central Minnesota,” Olson says. “But that’s the way it works.”

Opportunities do exist

Yet despite these barriers, “it’s not impossible” to break into wholesale markets, Olson says. And “we know consumers will pay attention to locally-grown food.”



Pete Ravinski (left), chef manager of Chester Creek Cafe in Duluth, serves french toast made with Minnesota-produced eggs, milk, bread and maple syrup. Chester Creek, which uses fresh, local ingredients almost exclusively, finds products through the Southeast Food Network, with 90 farmers who collectively market their goods.

Among the opportunities for Minnesota farmers:

Raise specialty products. Retailers and distributors say there is demand for “a greater diversity of local products,” the AURI study found. “They would encourage growers to grow complementary products and avoid everybody growing the same stuff.”

Growers must understand what their customers want and build it into their production practices, distributors say. For example, there’s a demand for small, consistently-sized apples for school cafeterias, and milk in 5-gallon dispenser bags. Organic-certified meats and pasture-raised beef and chicken are other opportunities, the AURI report says.

Partner with a local-foods distributor. Distributors vary a lot in their commitment to buying local foods, the AURI study found.

Some specialty distributors, such as Co-op Partners, which supplies Twin Cities natural food stores, have longtime relationships with local farmers. Minnesota distributors, such as Bix Produce Company and H. Brooks and Company, also buy local products. “Distributors expressed interest in exploring opportunities to work together” with farmers, the AURI study reports.

Cultivate restaurant chefs. Chefs at local, independent restaurants “are looking to differentiate themselves” through the use of local ingredients, says Minnesota Grown’s Paul Hugunin. There are opportunities for farmers to develop “a one-on-one relationship with a chef,” Olson says. “A grower might supply eight or 10 restaurants and that could be a good fit.”

The hospitality industry “will use local if it’s available at the right price,” Cheng says. Green Bistro, a cafe on the Southwest

Minnesota State University campus, buys “as many local foods as possible,” he says. The restaurant serves all locally-grown chicken and beef, and uses Pastureland butter made in southern Minnesota.

Minnesota has several programs that bring chefs, farmers and consumers together. Minnesota Cooks at the State Fair, founded by Minnesota Farmers Union and sponsored by AURI, pairs local farmers with leading Minnesota chefs to demonstrate the use of locally-grown foods. Minnesota Grown’s Farmer-Chef Network also connects chefs and local farmers. “We get folks in a room together so they can exchange business cards and see who needs what,” Hugunin says.

Bring it to the store door. Some Minnesota grocery stores buy produce and other foods directly from local farmers, a practice known

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as Direct Store Delivery. Farmers taking this route will need a strong marketing program that includes store visits, demonstrations, samples and sales promotions, the AURI report says. An advertising budget and point-of-sale merchandising materials are also helpful.

Extend seasonal production. Out-of-season local produce is in demand, the AURI survey found. Extended season production in greenhouses, hoop houses or high tunnels would boost local produce sales. The University of Minnesota is working on season-extending horticulture techniques.

Market collectively. Midwest growers could gain wholesale market access by aggregating their products, Olson says. Group marketing could give farmers the “supply and efficiency needed to compete in these markets.”

A local fit

Minnesota ranks seventh in the nation in agricultural production, and the state exports more than \$3.5 billion of corn, soybeans, livestock and other farm products. Obviously, “we’ll continue to produce commodities here,” King says. “We’re good at that, and we have a comparative advantage.”

Still, he says, “There’s room to grow the local sector. This deserves some attention to see what sorts of changes will attract more land into local food production.”

Expanding local foods markets would add diversity to the landscape and help sustain rural communities, says Doug Peterson, Minnesota Farmers Union president. And producing high-value food crops for local outlets could be a good fit for farmers with small acreage. “It’s not for everybody,” he acknowledges, “but we need all types of farms in Minnesota.”

Read the entire AURI 2009 Local Foods Market Study at www.auri.org/research

Getting it together

Growers pool products to fill local-foods niches

BY LIZ MORRISON

In the food-distribution business, it’s no longer a small, small world.

Food companies used to be able to buy small volumes of locally-grown products from area farmers — but no more. Minimum volume requirements shut smaller Minnesota growers out of wholesale food channels, according to an AURI market study released in June.

“We used to be able to buy 20 cases at a time, but we can’t anymore,” says one Minnesota distributor, who participated in the study. “No local farmers should have to throw away product, but they have to change how they move it. We need farmers to pool the supply, agree

on prices among themselves and sell us multiple products.”

A few Minnesota grower groups are already trying this, says Dennis Timmerman, AURI project manager in Marshall.

The Southeast Minnesota Food Network, with 90 farm members, collectively promotes, sells and distributes farm products to Twin Cities outlets. The cooperative sells dozens of items, including fruits and vegetables, eggs, poultry and meat.

Another example is Whole Farm Co-op, based in Long Prairie, Minn. The 30 member farms, mainly in Todd County, sell to consumers and natural foods stores in the Twin Cities. Part of Whole Farm’s mission is to give consumers “a clear sense

of who and where their food came from,” its website states. Customers place their orders on-line, and the co-op delivers weekly to about three dozen drop sites.

The AURI marketing study looked at half a dozen of these local foods distribution networks around the Midwest. Although most have struggled to be profitable, Timmerman says, all “have successfully created or opened up new markets for members.”

The AURI report draws several lessons from these groups’ collective marketing experiences:

Big city advantage. Most distribution groups rely on a large, nearby urban market.

Dedicated leaders needed. Groups tend to rely on a few committed individuals who often work without pay, especially at first.

Decision-making key. Internal conflicts are common in marketing groups. Good communication and group problem-solving skills are essential.

Profitability uncertain. All the groups studied have struggled financially, especially in the start-up years.

Sense of community strong. Farmer-based distribution groups build a sense of community, hope and common purpose, and their success should not be defined by profitability alone.

Food with a face

Freshness and intangibles drive ‘local’ buying decisions

Why do consumers buy “local” foods?

By far the most important reason is to get better quality, says University of Minnesota economist Robert King, who did a 2006 survey of consumer attitudes about local foods. “People feel local foods are fresher and taste better — and probably hearing the story of how the food was produced makes it taste better, too.”

Other reasons consumers give for buying local include boosting the local economy, supporting

family farmers and lowering the environmental impacts of food production and distribution, King says.

Personal values are also a factor in food buying decisions, says Bob Olson of Farmers Alliance Midwest, which certifies farms and ranches that follow sustainable practices. Consumers “want to connect with farmers that represent their values.”

Public concerns about pesticide use, animal treatment and the environment are “fueling interest

in food that offers more than quality, convenience and price,” Olson says. Natural foods sales, for example, are growing about nine percent a year, and organic foods sales are posting 20 percent annual gains, according to trade association reports.

This is one reason farmers markets and other direct-marketing avenues are popular, King says. “Seeing farmers puts a human face on food.” Consumers “get the feeling they can ask how the food was produced and get an answer.”

This connection to farmers is usually lost in the food-distribution channels. So “a lot of grocery stores are now identifying local products when they have them and even the farm they came from,” says Minnesota Grown coordinator Paul Hugunin, “because people want to know that.”

What exactly is “local” food?

The definition is up for grabs. An AURI market study found that every retailer and food service company surveyed had a slightly different definition of local food.

In general, though, food companies said local means produced in Minnesota or the surrounding states. Some food buyers include products sold by suppliers headquartered in this region, even if the food is not produced here.

A separate 2006 survey of Twin Cities consumers found that most people define local food as grown in Minnesota or Wisconsin, says University of Minnesota economist Robert King. But a significant number say local means just the Twin Cities region.

Beyond geography, “many consumers also associate local foods with small farms and sustainable production,” King says, although “they may not be able to say what they mean by that. Consumers also associate local with organic.”

Source: Robert King, University of Minnesota; based on 2006 survey of 500 shoppers in six Twin Cities food markets.



Promote and sell

Intensive marketing a must, says
Apple Valley vegetable grower



Gary Pahl plants sweet corn on his 1,000-acre farm near Apple Valley where he and his brother grow vegetables and flowers for Twin Cities retail and food-service markets. While growing is seasonal, marketing local produce is a 365-day a year job, Pahl says.

BY LIZ MORRISON

Apple Valley, Minn. — Gary Pahl grows more than 1,000 acres of vegetables and flowers in Dakota County. But that's just his seasonal job. He spends 52 weeks a year promoting and selling his farm products.

"People raising local products should be marketing it 365 days a year," says Pahl,

who farms with his brother Brian. "It's all about building relationships. You have to be out there shaking hands, promoting yourself and your business."

Gary Pahl was one of six Midwest farmers who shared their expertise as part of an AURI market study. All agree that a strong sales plan is a must for competing in wholesale food-distribution channels.

Gary and Brian Pahl raise a dozen sweet corn varieties, six types of squash, green beans, cucumbers, tomatoes, peppers, cabbages and pumpkins. They also raise annual and perennial bedding plants in their greenhouses. The family sells into both retail and food-service markets, primarily in the Twin Cities. They also operate a year-round, on-farm retail store and garden center.

Gary Pahl's great grandfather began farming along the Minnesota River in the early 1900s. In the 1970s, the family began selling homegrown produce out of the back of a truck. They built an on-farm store in 1982, the year Gary graduated from the University of Minnesota and joined the family business.

The Pahl family expanded rapidly over the next two decades, increasing the operation eightfold, Gary says. Today, the farm encompasses 1,100 acres around Apple Valley and Rosemount and employs 10 full time and 100 seasonal workers. The farm is certified as "sustainable" by Food Alliance Midwest, which provides third-party site inspections.

About five percent of the farm's fresh produce is sold at Pahl's Market, the family's farmstead store. The rest is distributed to Cub Foods, Super Valu and Rainbow Foods stores in the Twin Cities, where the vegetables are merchandised as Minnesota Grown. "We also ship some product out of town to Wal-Mart Distribution Centers," Gary says.

Produce spoken for in advance

"I never plant a crop unless I know I have some buyers prepared to buy it," Gary says. Before the season begins, he coordinates variety selections and production plans with his customers' weekly advertising programs. "Then we plant accordingly."

During the growing season, he talks to his customers every day, so they know what to expect. Cold, rainy weather or harvesting delays "can wreck your marketing plan for a time," so clear communication with distributors is essential, he says.

During the harvest season, which runs from late June to October, the Pahls pick and ship produce daily. For dependable quality, you need an efficient system for

field packing, rapid cooling and cold storage, Gary says. "You can sell just about anything once." But to be successful year after year, "you have to have consistent quality for the customer."

The same goes for sanitation and food-safety practices, he says. "It's up to our industry to make sure we have safe food-handling practices." Food borne disease outbreaks "hurt us all, whether it's a tomato grown in Arkansas or a tomato grown in Apple Valley."

The local advantage

Selling locally is a big advantage for Pahl Farms, on the southern edge of the Twin Cities Metro. The brothers run a fleet of eight refrigerated trucks, and their location keeps shipping costs low. Product freshness and quality benefit from market proximity, too, and "we can grow varieties for taste," rather than shipping sturdiness, Gary says.

Gary, who often speaks to grower groups, has one main piece of advice for farmers who want to produce food for local markets:

"Make sure you have a decent marketing plan. If you're going to expand your operation, make sure you have a market for it first. End of story."

Tips from successful local foods growers:

- Write a detailed business plan.
- Understand your customers' needs.
- Develop a good sales program. Make store visits, do product demonstrations, and listen carefully to what consumers say.
- Set high quality standards.
- Assure safe handling.
- Create a memorable brand story.
- Work closely with your distributor.



Source: AURI Local Foods Marketing Study, 2009

20

year history

spiced with VARIETY

**AURI begins third decade
of service to Minnesota**

BY TERESA SPAETH
AURI EXECUTIVE DIRECTOR

For 20 years, working in the realm of innovation, AURI has seen an endless supply of unique and interesting ideas for agricultural products. Economic times have changed and social influences have varied, but there have always been new markets and value-added opportunities for Minnesota's farm goods.

AURI has helped develop food products, industrial materials, biofuels and even uses for animal wastes. Some ideas we evaluated have been truly unique — snake-food pellets made from animal mortalities, building materials from recycled plastic and barley, grass-seed chaff burned for energy and even rhubarb spread. Some found niche markets. Others achieved widespread retail success. Many never made it past their initial assessment. Such is the nature of pioneering ventures.

Innovation involves a certain amount of risk and not every idea pursued will achieve commercial success. But AURI has worked with thousands of Minnesota entrepreneurs, businesses and cooperatives to tip the scales of success in their favor.



Spaeth.

We are often asked to identify the “top projects” AURI has assisted. That is difficult because many projects have had significant impact. And some of our most important work is advising against investment in value-added ventures that our evaluations show are not feasible. Both scenarios demonstrate AURI successfully carrying out its mission.

While we can't single out the most successful venture, here are a few project examples that show the range of AURI assistance — from product development to feasibility testing ...

Pet Care Systems of Detroit Lakes produces Swheat Scoop cat litter and Swheat Stall horse bedding. The cat litter is sold in about 30,000 stores nationwide and shipped to Russia, Japan, South Korea, England and other Asian and European countries. The litter is scoopable, flushable and biodegradable. In April 2009 alone, more than 60,000 bushels of nonfood grade wheat went into the litter. Pet Care products were developed and tested at AURI's coproduct lab in Waseca.

Northern Excellence Growers, a grass-seed growers group in northwestern Minnesota, annually produces 8 million pounds of Kentucky bluegrass, Timothy, rye and other grass seeds. Northern Excellence also operates a grass-seed cleaning plant in Williams that generates about 2 million pounds of screening waste each year. It costs the growers \$10,000 to \$15,000 for screening disposal, so they are installing a 100-kilowatt gasifier



PHOTOS BY ROLF HAGBERG



to convert waste screenings to syngas and will produce electricity that should save about \$60,000 a year in disposal and energy costs. When completed this fall, it will be the nation's first grass-powered gasification system. AURI has been involved in several project phases, from feasibility to cost-share assistance.

Alternative Energy Solutions, a family business, is affiliated with Pork and Plants of Altura, Minn. The company processes agricultural biomass, such as native grasses, corn stover and soybean straw, into pellets on the Kreidermacher farm. The pellets are burned in two large on-farm boilers to heat water that is circulated through pipes to heat 65,000 square feet of commercial greenhouse, also located on the family farm. AURI technical services helped with pellet formulations.

Mahnomen Baked Chips produces formed, baked, stackable chips — an alternative to fried snacks. A new \$8.5 million, 30,000 square-foot facility in Mahnomen, owned by the Midwest Minnesota Community Development Corporation, was built in an economically-disadvantaged area.

When it begins operation this fall, it is expected to create 30 jobs initially and up to 55 when at capacity. The chip recipe was developed at AURI's food lab in Crookston.

French Meadow Bakery in Minneapolis produces a full line of breads, wraps and other bakery items. Products such as Men's and Women's breads use healthy "functional food" ingredients to meet specific dietary needs, and some are distributed nationwide. French Meadow also operates restaurants in Minneapolis and at the Minneapolis-St. Paul International Airport. Many of its products were formulated with AURI technical assistance.

Limpert Environmental in Litchfield produces erosion-control products and soil amendments using locally-grown straw, composted bison manure and other agricultural ingredients. Limpert Environmental reopened a closed Litchfield factory and created about a dozen jobs. AURI provided technical assistance for product development.

Turkey Valley Farms in Marshall produces about 50 turkey products including whole birds, bone-in breasts, tray packs, ground chubs

and bulk, commodity meats and ethnic Halal products. Turkey Valley processes about 100 million pounds of Minnesota turkeys annually with 300 employees. AURI provided new-product formulation and testing.

Farmers Union Industries, which operates a 3 million gallon-per-year biodiesel plant in Redwood Falls, is testing crude glycerin — the primary coproduct of biodiesel production — as a feed ingredient and potentially a combustion fuel. AURI has provided quality-assurance assistance for biodiesel production.

Mississippi Topsoils of Cold Spring produces premium compost products using arbor trimmings and waste from a nearby chicken-processing facility. Using a containerized system, the company takes waste that was costly for the poultry processor to dispose and converts it to a revenue stream. AURI tested various feedstocks for the company's compost system and assisted with new product feasibility.

USA Solutions in St. Joseph makes corn-stalk based Compost-A-Mats for swine farrowing and nursery facilities. Distributed nationwide, the single-use, biodegradable mat is an

alternative to rubber and tests show it improves animal comfort and health. AURI connected USA Solutions with a northern Minnesota company that could produce the mats and provided technical assistance and testing.

Industry-wide initiatives

Not all AURI efforts focus on commercializing products for individual businesses. Some projects help entire industries examine emerging opportunities. For example ...

Biofuels. AURI has provided thousands of hours to biodiesel development since the early 1990s, including technical assistance to every biodiesel producer in the state. AURI has helped with quality assurance, troubleshooting and identifying uses for coproducts such as crude glycerin. AURI and collaborating partners also completed a comprehensive review of the biofuel industry's training and education needs, including job market potential. The Minnesota Renewable Energy Roundtable, which AURI facilitates, is using the information for curriculum development.

Coproduct and biomass utilization AURI aggressively supports development of new uses for ag-processing coproducts and biomass. AURI's coproduct lab and pilot plant in Waseca is helping to densify biomass for fuels, testing new uses for processing leftovers, and assessing biomass collection, storage, transportation, combustion and economic issues.

New steak cuts. AURI, in conjunction with the Minnesota Beef Council and meat processors, is raising awareness of new, higher-value cuts of beef chuck, such as flat iron and ranch-cut steaks. Chuck is typically processed into roasts or ground beef and this effort offers higher-value opportunities for the beef industry. ■



For 20 years, AURI has helped develop innovative food and industrial products, biofuels and new uses for waste and coproducts. A sampling of AURI initiatives, pictured from the left include: biodiesel made from soy oil, cornstalk-based Compost-A-Mats for swine facilities, biomass pellets burned for fuel (above left), French Meadow breads made with "functional" ingredients for special dietary needs, and seed-grass chaf that Northern Excellence Growers gasify for electricity.

Gas in small batches

AURI study: small-scale ethanol plants will not bring riches, but possibly energy self-sufficiency

By Cindy Green

Interest in energy independence tends to go up and down with price postings at the gas stations.

“When fuel prices went way up, we started to see a lot more interest in people saying, isn’t there a way I can make my own ethanol?” says Doug Root, AURI renewable fuels scientist in Marshall.

That was when gas was \$4 a gallon and ethanol plants’ profits were up. AURI received calls from farmers, processing plants and entrepreneurs seeking technical advice on building smaller plants that could produce enough gas for their own use, plus some.

“People would ask AURI’s opinion on small-scale ethanol. We didn’t have the documents

to back up our sentiments, but we thought it would be tough to make it go,” says Jen Wagner-Lahr, AURI project director. “

She decided to do some homework and, last year, AURI commissioned a study on the financial viability of plants that produce up to 2 million gallons of ethanol annually — small compared to commercial plants that average 50 million gallons per year.

Results of the study, conducted by BBI International Engineering and Consulting of Lakewood, Colo., were released this spring. BBI analyzed small-scale facilities’ ethanol yields and revenues, and the costs of feedstock, shipping, labor, energy, project development, financing, engineering, construction, start-up and working capital.

The firm produced 10-year financial forecasts

for 100,000-gallon, 1-million and 2-million gallon per-year ethanol facilities. “All three of the small-scale ethanol scenarios yield negative financial results,” the study stated. “This is due to the current and forecasted low ethanol prices that make profits challenging for existing large-scale plants with no debt.”

“Even if corn prices were lower and ethanol prices were higher, it is still clear that these small-scale plants would be troubled to weather any economic downturns,” the study said.

“Mostly, it’s not positive given commodity prices, but there is a chance that things will change — people predict that oil prices are going to go up,” Wagner-Lahr says. “But it’s a matter of whether or not you would want to bank on that.”

“If you can maneuver and have a means to get capital costs down or use feedstock that’s free, it might work. But you have to make sure you’re at least covering all your bases — like transportation and safety of employees.”

Red tape barriers

Home-grown ethanol enthusiasts may see the possibilities while overlooking technicalities, Root says. “There are fairly serious regulations that producers have to be aware of,” Root says, and recommends every prospective fuel-maker read BBI’s section on regulations, safety provisions and training — “what you’d have to do to run any size ethanol plant,” Root says.

Permits are required by the Clean Air and Clean Water Acts, the Alcohol and Tobacco Tax and Trade Bureau (because ethanol is

Sweet sorghum road show

Plant built on a semi-truck trailer demonstrates sorghum ethanol

BY CINDY GREEN

Montevideo, Minn. — David Eid, a former corn farmer who grew up in sugar-beet country, is championing sweet sorghum for fuel. Why advocate growing the nontraditional sugar crop in corn territory? Because sweet sorghum produces more sugar with less inputs than beets per acre, and it doesn’t have to be converted from starch to sugar before fermenting to ethanol, as corn does.

Eid’s start-up company, Encore Bioenergy LLC, has constructed a small demonstration plant that will eventually make ethanol from sorghum and other high-biomass crops — after trial runs with corn. Though his original vision was to build a full-scale sorghum-ethanol plant, Eid downsized to a portable facility on a semi-truck trailer bed. In the process, he discovered his small plant’s greatest value may be in applied research and training, rather than making small batches for personal or commercial use.

Starting small

Encore Bioenergy’s plant will produce 200,000 gallons of fuel per year. The system uses a simple conversion, with basic enzymes, to convert sorghum juice to ethanol. “The juice doesn’t require the long fermentation process and cooking time needed for corn-based ethanol,” Eid says.

Eid briefly considered using the plant as a model for replicating nationwide for small-scale ethanol use. “Farmers were interested in, ‘Could I buy one and make fuel for myself?’ But you realize that having a thousand of these floating around the countryside could

be a big challenge. We need to monitor these facilities. It’s probably a training vehicle.”

“I’m cautious about promoting small-scale ethanol production to be perfectly honest.”

“I’ve gone down the road of, ‘let’s build a plant so we can process a few thousand acres of sorghum’ to a small scale. But we always ended up with the same types of problems — storage and start-up. How do you scale up to a size that makes sense from 0 to 60? So that’s what led to building a 10-million gallon plant on a 1/50 scale and once we were building that, there was interest.”

This year, an investment group expressed interest in using Encore’s sorghum-ethanol system to build a 10-million gallon system “because they don’t want to build a corn-ethanol plant in the current environment and they know cellulosic isn’t ready.”

He convinced them “to start with a 200,000-gallon facility so they can work on developing test plots, growing 200 acres the first year and putting on a complete demonstration while they are educating farmers, generating enthusiasm and raising money.”

For decades, sorghum has been tested for Minnesota ethanol production as it yields up to twice the fuel of corn per acre, and fermenting sugars into ethanol is a one-step process. But sorghum will rot in piles and can’t be dried and stored in bins like corn, so most groups interested in using Encore’s sorghum-ethanol system are in “southern states where they can raise and harvest sorghum nine months out of the year,” which solves the storage problem, Eid says.

“Transporting sorghum any distance is not feasible — 20 miles is the maximum.”

Eid has been working with chemists in Maryland on converting biomass to liquid sugars in the field, and the syrup could be stored and transported. But that technology “won’t be available for a couple years,” he says.

“It’s been a challenge because I started this whole project with an enthusiastic attitude. Within the first year, I went to Watertown, S.D. and gave a presentation in front a whole bunch of people — from the governor’s office to growers. There was a warm reception to the concept, but I didn’t have answers to all their questions like: ‘If we invest in growing a plant like sweet sorghum, are the fuel-processing systems sufficient? What do processors use the other eight months of the year when sorghum isn’t available?’ ”

That’s why Eid says he deployed the portable demonstration unit. “We have worked toward answering those questions.”

From corn to sorghum

A North Dakota State University graduate, Eid farmed in the Montevideo area for 25 years, then spent five years brokering commercial real estate, primarily farmland. “Partway through that I became interested in advanced biofuels, because obviously I raised a lot of corn and spent a fair amount of time promoting corn ethanol. So I’m certainly not anti-corn ethanol.”

“Then I just basically got interested in sweet sorghum,” and building an ethanol facility

that used the sugar crop. “Even though I was on the Internet, looking all over the world, there was almost nobody doing it yet — just a little in China and India.”

Sweet sorghum, native to Africa, was introduced to the United States in the 1600s but not grown extensively as a forage crop until the 1850s. Eid says the United States funded considerable research into growing sorghum for ethanol during the 1970s oils crisis, and high-yield, high-sugar varieties were developed.

The annual crop can be planted with a grain drill or corn planter in late spring or early summer. Warm soil is needed for germination, but cold-climate varieties are being developed that can be planted in early April to allow for two cuttings over the growing season. Eid says sorghum tolerates drought and some flooding better than corn, grows well on marginal lands and produces high yields in a short growing cycle with minimal fertilizer, pesticide and irrigation.

Most U.S. sweet sorghum is grown in the Great Plains where rainfall is too low and temperatures too high for profitable corn production, such as Texas, Kansas and Nebraska, although some sweet sorghum has been grown in Minnesota and Wisconsin for silage and syrup, which is extracted by crushing the plant stalk. The syrup is used primarily as a food-sugar substitute and a livestock-feed ingredient.

Eid’s business plan states that University of Nebraska-Lincoln research finds “there’s enough juice in an acre of sweet sorghum to make 400 to 800 gallons of ethanol,” and

alcohol), Comprehensive Environmental Response Compensation and Liability Act and the Community Right to Know Act. A Minnesota air permit is also required.

“Sometimes those requirements are ignored in initial planning,” Root says.

“There has always been concern about people making their own beverage ethanol.” But the bigger issue Root says is “concern about anyone making their own fuel and not paying gas tax,” which is required for road-use gasoline blends. However, fuels for on-farm operations are not taxed.

Fueling up at home

Several companies across the country have started marketing small systems, although there are no visible success stories yet.

A California company is marketing a home ethanol distiller that’s “about the same size as a gas pump at the station,” Root says. “It produces enough fuel for one or two vehicles.”

EFuel100 sells pre-packaged feedstock, a sugar and yeast blend, to feed into a

fermentation/distiller unit and, in a week, 30 gallons of ethanol are ready for pumping into vehicles. The MicroFueler converts 10 to 14 pounds of sugar to one gallon of ethanol and can also use discarded beer, wine and distilled liquor for feedstock.

The company recently started offering systems for presale on its web site: efuel100.com, and it announced that Sierra Nevada Brewing Company in California will use the MicroFuelers to turn brewing waste into ethanol. Each unit costs almost \$10,000 — although buyers may claim a federal tax credit of about \$3,000. Pre-packaged feedstock cost-per-gallon isn’t clear.

The E100 ethanol has to be blended with gasoline as even flex-fuel vehicles use E85, not 100 percent ethanol. Standard vehicles run on E10 and, some claim, can run efficiently on E20 to E30. “You have to fill up your car with a quarter tank of gasoline and the rest of the way with ethanol to get an E75 blend,” Root says.

“That’s really aimed at home use. It’s expensive and not a great return on investment but it’s ‘green.’ You can have

control of your fuel source.”

To keep costs low, “there is a way to get control of feedstock. Then you aren’t buying a blended feedstock from the supplier but making your own,” Root says.

Modular ethanol

A southern Minnesota company, Easy Energy Systems, introduced three modular ethanol systems in December 2007 that are portable. “Rather than hauling feedstock hundreds of miles to an ethanol facility, you take the system to the feedstock,” says Tom Gallagher, Easy Energy sales manager.

The smallest system, with eight modules, produces 500,000 gallons of ethanol per year and the largest produces 2 million gallons. “Our intention is to build the modules in our factory and ship them to customers anywhere in the world,” Gallagher says.

Easy Energy, founded three years ago, is an affiliate of Easy Automation Inc, the largest U.S. provider of software and automation systems to the feedmill industry. “We are just

now promoting commercial (ethanol) units ... As we’ve developed, we intentionally stayed under the radar,” Gallagher says.

Most interest has come from “private individuals, large farmers and farm cooperatives with convenience stores that have gasoline pumps. If they produce their own ethanol, and if they are blending for the convenience store, they get the national blenders credit.”

Easy Energy is trying dozens of prospective feedstocks, such as sugar cane, sweet sorghum and waste paper, as well as corn. “There is interest from people in the refuse business — like a grower with watermelons that don’t meet his specs; he would love to make ethanol out of them.” The company is also working on efficiencies to decrease operating costs. “Right now we’re upgrading the continuous distillation to utilize even more heat recovery,” Gallagher says.

“Obviously \$7 corn doesn’t work; you can only make corn work right now if you have a

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with intensive plant breeding and cultivation research, could reach 1,000 gallons — or even more with cellulosic technologies. In comparison, Eid says an average corn crop yields 420 gallons of ethanol per acre.

Between corn and cellulose

For now, Eid says sweet sorghum may be an acceptable intermediary as the ethanol industry moves from corn to non-food cellulose.

He recently spoke on processing sugar crops into ethanol at a national biofuels conference in Washington D.C. that focused on such developments as thermochemical conversion, algae biodiesel and cellulosic ethanol.

Eid was surprised by negative attitudes toward corn ethanol when it “built the industry. There are some really good attributes to corn – it’s readily available, stores easily and there really are no waste products ... we can use the distiller’s grains.

“The cellulosic-ethanol panel was asked when we’d see cellulosic on the market and the answers ranged from 2011 to 2014. When asked, ‘what have you done for collection and delivery?’ there wasn’t an answer.”

“I hope somebody makes progress on cellulosic — and we can triple our gallons per acre. But we have to start somewhere.”

Conference participants interested in building cellulosic plants “assume that farmers will just show up at their door with trucks of biomass. From my 25 years of farming experience, I know it’s not that way and if you’re going to introduce a new crop — sorghum, switch grass — there’s a lot of issues involved. You need the farmer to have a comfort level with the new crop and their lender also has to be convinced. Who is going to withstand the production risks? And can it compete with traditional crops?” Eid says.



Dave Eid, owner of Encore Bioenergy in Montevideo, holds sorghum “beer” that will be distilled into ethanol in a demonstration plant built in a semi-truck trailer.

“Sitting in the audience, listening, it became really clear that there wasn’t enough sympathy for corn ethanol and there was too long of a time delay before cellulosic is going to have an impact.” With sorghum ethanol, “we can fill the niche in between – and help build the infrastructure.”

Demonstration platform

With the help of Doug Root, AURI biofuels scientist in Marshall, Encore’s ethanol plant recently completed its first test run using corn

feedstock “to benchmark where we fall in the industry” before converting to sweet sorghum, sugar beet pulp or other biomass, Eid says.

“It provides a platform for things we hope to demonstrate,” such as non-distilled, continuous ethanol production that is less expensive than the current batch process, Root says. “We might be able to demonstrate the process on a small scale and come up with an estimate of the energy required to produce pure ethanol without distillation on a large scale.”

AURI is also employing the plant to investigate butanol — a biofuel that has 95 percent of gasoline’s Btu’s versus 73 percent for ethanol. Butanol can be used in existing internal combustion engines and can be blended at any rate with gasoline.

The Encore Bioenergy company is “right now just me and some private investors,” Eid says. “But I have a team of people helping push things along — from a legal team to engineering to a capital-raising firm to community development to research. ... They believe in it.” ■

Bumping up biodiesel

BY DAN LEMKE

North Mankato, Minn. — Minnesota's biodiesel consumption got a power boost this spring when the state's requirement for biodiesel blends more than doubled.

Beginning May 1, diesel sold in Minnesota must have a five-percent biodiesel blend, up from two percent required since 2005. Biodiesel legislation, passed in 2002, made Minnesota the first state to require biodiesel blends after the state reached eight million gallons of capacity, which it did in 2005.

Biodiesel can be made from soy or other vegetable oils and animal fats. Research shows that the renewable fuel significantly reduces harmful vehicle emissions.

"Reducing our carbon footprint is probably one of the most important benefits of biodiesel," says Lance Peterson, an Underwood, Minn. soybean farmer and former Biodiesel Task Force member. "Every year since the two-percent requirement began, 258 million pounds of carbon dioxide have been removed from the atmosphere. Annually, the five-percent blend will remove 644 million pounds."

Minnesota's biodiesel requirement will increase to 10 percent in 2012, removing 1.3 billion pounds of carbon dioxide and 20 percent by 2015, removing 2.6 billion pounds, Peterson says.

The five-percent blend will increase biodiesel consumption by about 40 million gallons per year, and, by law, a minimum of 50 percent must come from Minnesota. The state's annual production capacity is more than 63 million gallons, but not all plants are at capacity.

"This is a big deal to have two and a half times more biodiesel going into the market because we have available capacity that will come into use," says Doug Root, AURI biomass and renewable-products scientist. "The industry has faced some hard times and this is a step in the right direction."

While the biodiesel industry in Minnesota was largely built by soybean producers, the opportunities aren't limited to one crop.

"Soybean oil will continue to be a big part of the industry ... but biofuels of the future will create opportunity for others, too," says Mike Youngerberg of the Minnesota Soybean Research and Promotion Council and Executive Director of the Minnesota Biodiesel Council.

Emerging technologies are improving the feasibility of using other feedstocks such as corn oil and animal fats. While current market and economic conditions have challenged biodiesel production, industry proponents say it remains strong.

National Biodiesel Board President Ed Hegland of Appleton, Minn. says, last year alone, U.S. biodiesel producers supported 50,000 green-collar jobs, contributed \$4 billion to the nation's economy and displaced almost 700 million gallons of petroleum.

Biodiesel up, carbon dioxide down

As of May 1, Minnesota requires that all diesel sold in the state contain a five-percent biodiesel blend (B5 diesel), up from the B2 requirement in place since 2005. As biodiesel use increases, carbon dioxide in the atmosphere goes down and will continue to decrease as the requirement goes up to 20 percent in 2015.

Biodiesel blend	Annual carbon dioxide reduction	Year implemented
B2	258 million pounds	2005
B5	644 million pounds	2009
B10	1 billion, 300 Million	2012
B20	2 billion 600 million	2015

Source: National Biodiesel Board website calculator



2009 AURI Ag Innovator of the Year: Alternative Energy Solutions

BY DAN LEMKE

Altura, Minn. — The Kreidermacher family has a history of innovation — from producing and marketing their own flowers, vegetables and pork to making their own energy. Family members' newest business, Alternative Energy Solutions, has been named AURI's 2009 Ag Innovator of the Year.

In 1985, after years of growing vegetables and flowers for family and friends on their Winona County farm, Ed and Joyce Kreidermacher plunged into building a full-scale greenhouse and retail store. Today Pork and Plants has 65,000 square feet of covered greenhouses, producing thousands of perennial and annual plants and vegetables. Everything the business sells in its retail store, including pork, is grown on-site.

But with the high cost of heating greenhouses in the winter, brothers Eric and Paul Kreidermacher decided to make biomass pellets that could be burned in boilers to heat the greenhouses. Their successful experiments

led to another business, Alternative Energy Solutions. "When people think of biofuels, most think of big operations like ethanol plants," Eric Kreidermacher says. "But this is another example of what can be done."

Made with corn stalks, oat screenings, soybean straw, prairie grasses, ag-processing leftovers and wood waste, the biomass-pellet fuel has helped Pork and Plants cut energy costs by about half.

"This is a great example of producer-owned energy because they are using a renewable biomass product, some that they produce themselves," says Alan Doering, coproducts scientist in Waseca. "What they are doing is truly innovative."

The Ag Innovator of the Year Award recognizes a Minnesota business that has shown innovation in developing an ag-based product that has positively impacted Minnesota producers. Alternative Energy Solutions is the eighth Minnesota business to receive the award. ■

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feedlot next door and can feed the distiller's grains (ethanol byproduct) to cows. If you're using a feedstock that you're paying for and then paying to get rid of the byproduct, that's tough. The idea is to take it to the location of the feedstock."

The right economics

Not long ago, the ethanol industry was booming and new plants came online as quickly as they could be constructed. But when oil prices plunged in late 2008, it also lowered ethanol prices while corn prices

rose and ethanol supplies exceeded demand. Nationwide, 20 plants are bankrupt or mothballed. Two of Minnesota's 17 ethanol plants have closed, although they may reopen if economics improve.

Ethanol blends for regular gas are capped at 10 percent but industry and policy leaders, including the U.S. Secretary of Agriculture, want to increase the cap to 15 percent, which would again increase the demand for ethanol. Ethanol supporters argue that the industry has to be economically viable so more investment can be made in improving cellulosic ethanol technology. Currently, the enzymes required to break down cellulose for fermentation are expensive and heat/pressure techniques are energy-intensive.

"It is possible to make cellulosic ethanol with a very bad carbon footprint" with current technologies, Root says. Other potential nonfood feedstocks, such as native prairie grass, is only harvested in the fall and is expensive to store and transport.

Some small-scale biofuels entrepreneurs "are thinking there are niches in ethanol production where small-scale plants may be profitable ... and gambling that feedstock prices will go down."

"Small-scale plants are often built without reserves on hand to weather a financial storm, but they also lose less if the ethanol plant has to shut down," Root says.

For ethanol entrepreneurs, the AURI-sponsored study is "a very useful tool ... just to make sure they have covered everything they need to think about," Wagner-Lahr says.

"Maybe it will stop the investment. But maybe, in the end, they decide to do it and it works."

The feasibility study on small-scale ethanol production is available on AURI's web site: www.auri.org ■

Reducing fat on the swine menu

BY DAN LEMKE

Marshall, Minn. — It's not often that removing a key ingredient makes a recipe better, but reducing oil in distiller's grains may improve swine diets as well as ethanol-plant profits, according to a recent study.

Dry-mill ethanol plants generate thousands of tons of granular leftover — distiller's grains — each year. The ethanol fermentation process also yields fat-containing syrup, called solubles, which are usually sprayed

on distiller's grains and dried. The result: distiller's dried grains with solubles, or DDGS, which are typically used as a feed ingredient in dairy, beef, poultry and swine diets.

Sometimes the syrup is not put back onto dried grains. For example, the Corn Plus ethanol plant in Winnebago combusts solubles for energy to reduce natural-gas use. Otter Tail Ag Enterprises of Fergus Falls has evaluated anaerobic digestion of the stillage to produce methane gas for thermal energy. Other ethanol plants are considering simply extracting the oil. All these processes result in a lower-oil feed ingredient that is showing promise for Minnesota's hog industry.

A study of distiller's grains in finishing hog diets, by a University of Minnesota research center in Waseca, proved that including 20 percent low-soluble grains in hog diets did not

hinder growth or affect pork quality. In fact, the hogs were leaner with a better gain-to-feed ratio. Also, protein in the low-oil DDGS feed was easier for the animals to digest.

"The standard, higher-oil DDGS had negative impacts on the pork-carcass characteristics and pork-fat quality," says Dennis Timmerman, AURI project director. "We were looking at lower-oil distiller's grains to possibly alleviate those challenges."

But the value may extend beyond the pork industry to ethanol plants, which use the extracted oil for additional revenue. For example, biodiesel could be produced from the oil and used to reduce a plant's fossil-fuel use.

Plants can determine the best use for the oil, "without affecting the net value of the DDGS to swine producers," Timmerman adds. "In fact it may be an improvement." ■



PHOTO BY DAN LEMKE

Tests on young pigs at a University of Minnesota research center in Waseca shows hogs do well on a diet including de-fatted distiller's dry grains with solubles, an ethanol byproduct.

AURI GUIDE TO SERVICES

A nonprofit corporation created to strengthen rural Minnesota's economy, AURI helps businesses respond to market opportunities with new and value-added uses for agricultural goods. The Institute builds working partnerships with business innovators, agricultural groups and researchers, and provides technical support to clients conducting new product research and development.

AURI programs are available to legally-organized businesses or cooperatives with projects that have the potential to create new uses or new markets for Minnesota agricultural commodities. AURI assistance is designed for the early stages of a product's life cycle, while an element of feasibility is yet to be determined.

Project proposals are evaluated on the following criteria:

- Innovation/uniqueness
- Market viability
- Use of Minnesota commodities
- Number of farmer-producers impacted
- Amount of value added from further processing
- Economic impact
- Cost savings

Programs are designed to assist with:

- Identifying emerging value-added opportunities
- Developing innovative commodity-based products
- Developing production processes for feasible products
- Promoting products developed with AURI technical assistance
- Providing resources to bring new products and processes to the marketplace

Assistance may include:

- Access to AURI's scientific and business staff
- Access to laboratory and pilot plant facilities
- Product development and feasibility testing
- Process evaluation and improvement
- Technology transfer and applied research
- Business needs evaluation
- Links to available resources
- Potential for grant funds to qualifying applicants

AURI provides resources proportionate to the project's impact. Smaller-impact projects may be eligible for technical assistance only, while projects with industry-wide impact may be eligible for financial assistance.

AURI Facilities

AURI operates several laboratories:

- Coproducts Utilization Laboratory and Pilot Plant, Waseca
- Fats and Oils Laboratory, Marshall
- Meat Laboratory, Marshall

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The doctor is in (the kitchen)

BY MARY STEIDLER

Minneapolis, Minn. — Dr. Alison Levitt wants to “spread the health.”

A medical doctor with a lifelong passion for promoting healthy lifestyles, Levitt has developed Flackers, a line of all-natural crackers made from flax seed. Developed initially in her own kitchen for clients, Flackers will now be commercially marketed and distributed by Levitt’s company, Dr. in the Kitchen.

While practicing medicine, Levitt says, “I saw a lot of patients who needed to lower their cholesterol and manage their weight better, but they weren’t always sure about how to make good food choices.” Levitt conceived an all-natural, sugar-free snack with high nutritional value.

Flax seeds contain a high concentration of Omega 3 fatty acids and fiber, which help to maintain normal cholesterol levels and promote digestion. Flax is also low in carbohydrates and high in protein, vitamins and minerals, including plant lignans, making it “nutritionally perfect,” Levitt says.

Unlike other snack crackers on the market, Flackers are not baked but dehydrated at low temperatures to preserve nutrients and to give them crunch. They don’t contain

wheat-binding agents so they’re gluten free. The sugar-free Flackers are “also great for diabetics,” Levitt says.

Charan Wadhawan, AURI food scientist, helped Dr. in the Kitchen with commercial scale-up to bring Flackers to the marketplace. At AURI’s product development laboratory, “we were able to test samples and provide food labeling information for the Flackers,” Wadhawan says.

The crackers come in three flavors: dill, rosemary and savory, and are available at several Twin Cities natural foods and specialty grocers, including Lunds and Byerly’s.

The Flackers cracker is only the beginning, Levitt says. As Dr. in the Kitchen grows and brings additional products to the market, “we want people to know they can trust our brand to provide food that is high-quality, health-promoting and, most of all, delicious.” ■

For more information on stores that sell Flackers, an online order form and nutritional information visit: www.DrInTheKitchen.com. Also, Flackers has a Facebook page.



PHOTO BY ROLF HAGBERG