

SPECIAL REPORT

# AURI investment pays big dividends

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## AG INNOVATION NEWS®

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BIODIESEL** PAGE 3



PHOTOS BY ROLF HAGBERG

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EXECUTIVE DIRECTOR'S COLUMN

## Help where it counts

BY EDGAR OLSON

Last year, one Minnesota food processor added 10 new jobs to rural Minnesota; it expects to add 20 more this year as its markets grow. Another processor, which handles thousands of tons of peas and pea fiber, has created nearly 10 new jobs and



OLSON.

expects to contract up to 8,000 acres of local production in 2003. Still another has developed an innovative technology that could revolutionize meat processing in the United States and help rural processors increase meat profits.

These companies have four letters in common: AURI. Each one points to AURI as a key contributor to its success. They demonstrate precisely why AURI was established as an independent nonprofit corporation nearly 15 years ago — to improve rural Minnesota's economy by developing new uses and markets for the state's agricultural commodities. These businesses are creating rural opportunities in part because of AURI's help.

Minnesota still relies heavily on agriculture for economic growth. State economic studies show agriculture is the second-largest economic sector and employer, accounting for 16 percent of all jobs and more than 25 percent of rural jobs. Think that is all low-paying production work? Think again. Over 75 percent of all agricultural jobs are off the farm — in processing, marketing, distribution.

AURI clients have told us that over the past biennium they have created nearly 300 new jobs, invested over \$100 million and

processed countless quantities of raw commodities into higher-value products as a direct result of AURI's assistance. AURI has directly impacted at least 14,000 Minnesota farmers.

AURI's assistance is hands-on. We are with start-up businesses on the production floor, fine-tuning processes. We are with them in our labs; enhancing products, developing new opportunities and helping them meet emerging markets. In short, we help Minnesota businesses just where help is sorely needed.

AURI is a leader in value-added agriculture, both an important resource for Minnesota and a model for other states. In the past weeks, groups from as far away as Saskatchewan and as close as Wisconsin have sought help with developing organizations like AURI. They, like many others, recognize value-added agriculture's importance to rural economies.

They want what Minnesota has. ■

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:
- Pilot Plant and Product Development Kitchen, Crookston
  - Coproducts Utilization Laboratory and Pilot Plant, Waseca
  - Fats and Oils Laboratory, Marshall
  - Meat Laboratory, Marshall

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NEWS BRIEFS

## Is cuphea the future?

### AURI study explores industrial markets for Minnesota crop components

BY E. M. MORRISON

A New World plant with seeds high in lauric acid may someday be a profitable alternative crop for Minnesota growers.

The cuphea (KEW fee uh) plant, which grows from South America to the northern United States, has many industrial uses, from cosmetics to motor oil. Detergent makers are especially interested in cuphea oil as a domestic substitute for imported palm and coconut oils.

AURI is looking closely at industrial applications for cuphea and nine other Minnesota cereal and oil crops. The research is focused on the "functional traits," or components, of wheat, wild rice, buckwheat, small edible beans, barley, canola, amaranth,

flax, sunflower and cuphea. Crop components such as omega-3 from flax, vitamin E from barley, and lauric acid from cuphea can be used in a variety of manufactured goods.

The study, conducted with the help of Triveni Shukla of Food, Research and Innovation Enterprises, is due this spring. It will summarize the crops' functional traits and estimate refining costs and market demand for the most promising.

Currently, this information is sprinkled throughout the world's technical and scientific literature, says Michael Sparby, AURI project director.

"This is the first time it's been collected in one place for use by farmers and farm groups," Sparby says the study will inform growers about bio-refining developments and industrial uses for these crops. It could also lead to new crop varieties, bred for specific applications.

The ultimate aim: "To help producers capture the added value of these functional traits." ■



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# EMIT NO EVIL

**CAN BIODIESEL  
BACK UP THE  
LIGHTS AND  
REDUCE POLLUTION  
AT THE SAME  
TIME?**

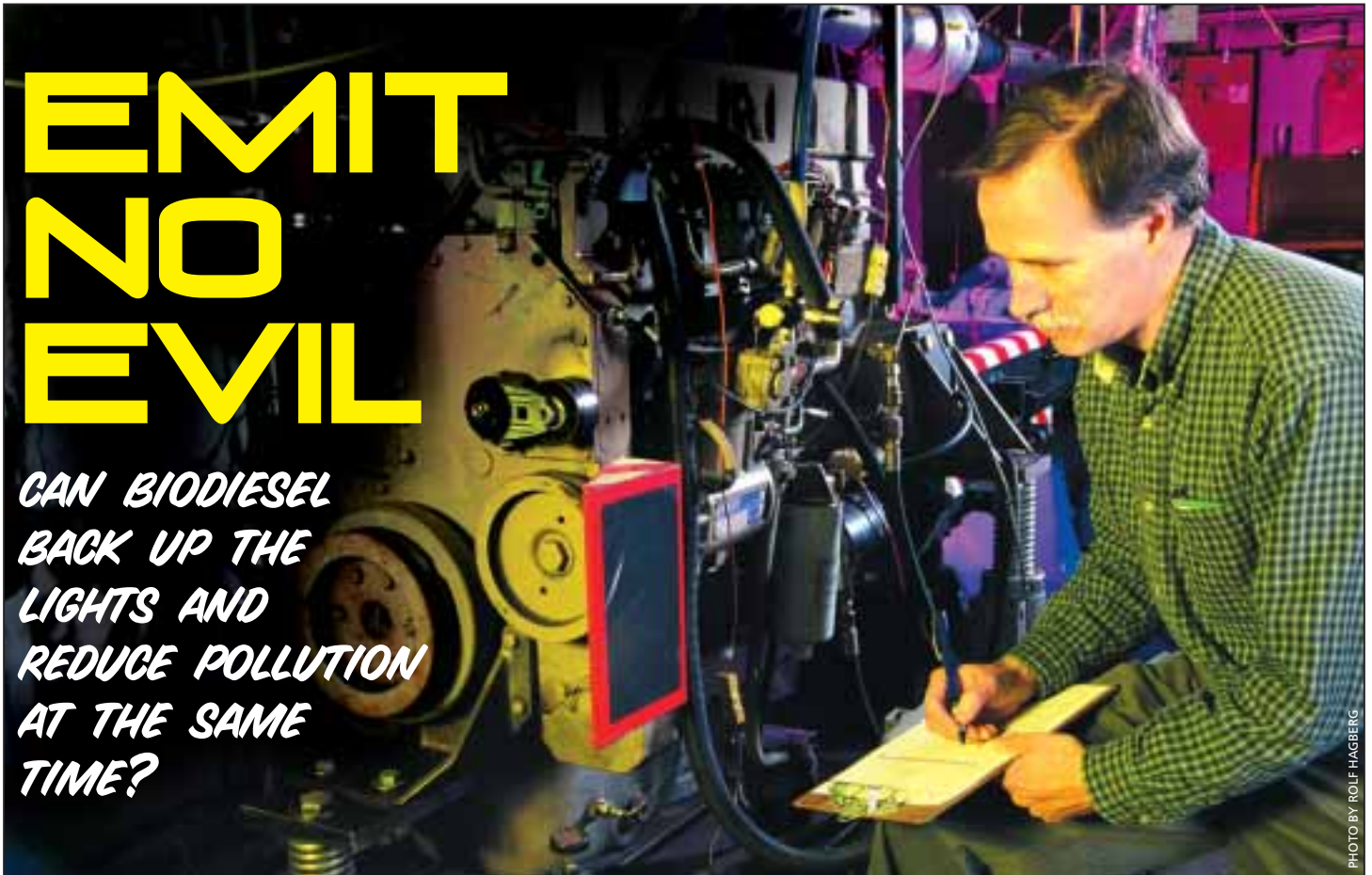


PHOTO BY ROLF HAGBERG

Ken Bickel of the Center for Diesel Research in Minneapolis monitors emissions from generators run on soy-based biodiesel. Tests partially funded by AURI show biodiesel emits less pollution than regular diesel and could be used in metropolitan-area backup generators.

BY DAN LEMKE

*Minneapolis, Minn.* — They're out there. Waiting in hospitals and schools. Biding their time, ready to spring into action and devour ... biodiesel?

They are backup generators, installed to provide power when the lights go out. The Minnesota Pollution Control Agency estimates there are enough generators in the 7-county Twin Cities area to produce 300 megawatts of power. A typical generator runs less than 150 hours a year to alleviate peak energy demands.

Still, Ken Bickel, research fellow for the Center for Diesel Research, estimates those generators could consume more than three million gallons of fuel a year. Some are fueled by natural gas; most run on petro-based fuels, including diesel. Bickel is researching a promising fuel for those generators: soy-based biodiesel.

## ***POLLUTE WHERE THEY STAND***

Generators are often in confined areas, including high-rise office buildings, hospitals and universities. "These may be stand-by or peak-shaving generators that produce power to meet demand or that have been contracted to produce power," Bickel says. "Most just provide power for where they are located."

It is estimated that if all Minnesota generator sets were running at the same time, they would emit more pollutants than a large coal-fired power plant, Bickel says. There is a "large concern with emissions, especially in the immediate area."

"A large percentage of the smog effect in metropolitan areas comes from standby generators," adds Max Norris, AURI scientist. "If we can reduce those emissions, it will open up another huge market for biodiesel."

## ***20-PERCENT PROMISE***

Last year, as part of a project supported by AURI, the Minnesota Soybean Growers, the Minnesota Department of Commerce, and the Legislative Commission on Minnesota Resources, Bickel began evaluating air quality results for generator sets run on biodiesel.

Although biodiesel emissions have been tested previously with vehicle engines, the research doesn't transfer to generators, Bickel says. "Peak-shaving generators run at one speed with high loads, compared to a vehicle that runs at variable speeds."

Lab tests evaluated different biodiesel blends, additives, and adding a charged air cooling system. Gases and particulates were sampled to determine the best options.

The lab tests gave the nod to a 20-percent biodiesel blend with charge air cooling. Researchers found that pumping cooled air

through the generators reduces nitrogen oxide emissions.

Comparing biodiesel-run generators to regular diesel, "we did see some reduced emissions, including carbon monoxide, particulates and hydrocarbons, in the lab tests. There's no reason to believe we won't see the same thing in field tests."

## ***INTO THE FIELD***

Field emission tests are scheduled for this spring, with the project completed by June. Energy Alternatives, part of Dakota Electric, is the industry partner for the field tests.

"The state has goals for producing up to 10 percent of our energy by 2015 from renewables," Bickel says. "And power companies are always interested in alternatives that are better." ■

## Ag on the Web

BY JENNIFER PEÑA

Sometimes we want to read on the Web, sometimes we just want to look at the pictures. These sites offer more looking than reading, and loads of graphics. Each offers either free agriculture photos or clip art. Then click to [www.auri.org](http://www.auri.org) — Ag Innovation News archives contain photo records of the innovative people of Minnesota agriculture.

### NREL photo information exchange

[www.nrel.gov/data/pix/pix.html](http://www.nrel.gov/data/pix/pix.html)

National Renewable Energy Laboratory's site is a great source for high-tech photos for biomass, recycling, energy-efficient buildings, and more. Low-resolution photos can be downloaded from the site; higher resolution photos can be ordered by e-mail. The NREL makes this fast-loading site easy to surf with just a few buttons.

### USDA on-line photo center

[www.usda.gov/oc/photo/opchomea.htm](http://www.usda.gov/oc/photo/opchomea.htm)

The USDA has developed a full section for agriculture photos from horses to farmers' markets. Divided into 25 categories, all are available free of charge, both in low- and high-resolution scans. This site works in conjunction with the ARS Image Gallery (see below). The USDA continues to update its collection of photos, so check back often; the main page points surfers to new collections.

### ARS images

[www.ars.usda.gov/is/graphics/photos/index.html](http://www.ars.usda.gov/is/graphics/photos/index.html)

Although this column has featured the ARS Image Gallery before, it's worthy of another mention. The Agriculture Research Service, the "chief agency of scientific research in the USDA," packs this site full of ag information. The gallery's a complimentary source of high-quality digital (300 dpi) photos, divided into nine categories and available in three sizes — just click and save.

### Farm photos

[www.farmphoto.com](http://www.farmphoto.com)

Here's another site that's grown leaps and bounds since we last visited. FarmPhoto.com is a site developed by Web surfers for Web surfers. Two brothers, one in Georgia and the other in Australia — both devoted ag photography enthusiasts — have expanded this site into a forum where visitors can submit their own photos and participate in a discussion (to post photos, you must sign up as a member). With over 16,000 images now available, there's something for everyone here.

### Texas A&M clip art

[agpublications.tamu.edu/clipart/](http://agpublications.tamu.edu/clipart/)

Hundreds of sites on the Web offer clip art. Some offer it for free, but limit its usage; others want royalties; and still others don't give you what they appear to promise. But the clip art available at this Texas A & M University site is free for use without restriction, with a handy search option to make finding what you want even easier. Search results are listed with a score to show the best matches.

### Microsoft clip art gallery

[dgl.microsoft.com/?CAG=1](http://dgl.microsoft.com/?CAG=1)

Microsoft has one of the best clip art collections available on the Web. The clip art is available for personal and non-commercial use, so begin your search with "agriculture" and scroll through over 700 results. If you're looking for a specific piece of art, type in your choice, choose the category it best fits, the type of result desired (clip art, photos, sound, or motion graphics) and hit Go. There's a wide variety of clip art to be had in the Design Gallery Live; bookmarking the site may be useful.

### Google image search

[www.google.com](http://www.google.com)

Google has fast become one of the most-used search engines on the Web, not just for web sites, but also for images. In the popular "Image Search," all results come up as images instead of Web links. This site boasts it's the "most comprehensive image search on the Web." Click it out to see if they're right. ■



American Crystal Sugar in East Grand Forks bagged more than 3,000 tons of beet tailings and pulp left over from the sugar-making process. Converting the tailings into silage preserves the nutritional value, plus reduces the expense of land applying waste tailings by making the silage available to local livestock producers.

# Turning tailings

## American Crystal Sugar ferments coproduct into cow feed

BY DAN LEMKE

*East Grand Forks, Minn.* — Like overstuffed sausages, huge plastic tubes filled with silage rest outside the American Crystal Sugar processing plant. The 250-foot tubes hold some 400 tons of silage apiece — and a promise for adding value to sugar beet processing.

Annually more than two million tons of beets are processed here into the familiar granulated sugar sold with the round Crystal Sugar logo. But as with nearly all ag processing, the process yields coproducts such as pulp and tailings. Much of the pulp is pelleted and sold as livestock feed. But the tailings, mostly beet tips, beet parts and a few leaves, must also be dealt with.

Process engineer Sheldon Seaborn says the East Grand Forks plant produces about 80,000 tons of tailings per year. Some are fed to cattle; ranchers have come from as far away as Dickinson, N.D., a distance of nearly 400 miles, just to pick up a load of tailings. When cattle are pastured during warmer months, however, or the weather is too cold to haul wet tailings, it is difficult to give them away. Significant amounts have to be land-applied to area farm fields at a net cost to the cooperative.

"We spent \$400,000 last year to land-apply tailings and pulp," Seaborn says.

To find a way to cut those costs, American Crystal Sugar began working in late 2001 with Alan Doering of the AURI coproducts utilization lab in Waseca.

Doering constructed a number of "mini silos" to allow the tailings to ferment and be used as silage. He mixed tailings with several other agricultural products to find a blend that was cost effective, yet reduced the moisture level to the point where fermentation could occur.

"Moisture is the critical element here because the tailings are so wet," Doering says. "We mixed them with different products to find the right blend."

In January, American Crystal Sugar filled eight 12-foot



AURI technical services specialist Alan Doering (left) and American Crystal Sugar process engineer Sheldon Seaborn examine beet tailings particle size prior before it is bagged and ensiled.

diameter bags with more than 3,000 tons of various blends of tailings and pulp. The sealed bags allow the fermentation process to preserve nutrients and extend the time that silage is available to producers.

Seaborn says the ability to market a consistent product over a long time could help the bottom line. Now the challenge is determining the silage's marketability and setting a fair price.

"The goal is to cut costs to zero," Seaborn says. "At this point we're not worried about making money on the tailings. The opportunity is to take advantage of the fall and winter months when it's difficult to move the raw tailings. Ensiling (fermenting in silos) will make tailings available as feed for a longer time."

"This is an excellent example of a business taking a material that costs them money for disposal and converting it into something that has value," Doering says. ■

# Farmer and food company both win race to health market

## Growers get premium prices for high-lysine corn in new puffed cereal

BY GREG BOOTH

Waconia, Minn. — Improve your eyes, save your skin and help a family farm — all over breakfast.

Tom and Donna Stacy say you can, and they have cooked up the food to prove it. At Organic Foods, Inc., their 12-year-old company, the Stacys stress nutrition, sustainable farming, good value and taste. Their sandwich wraps, salsas, soups, hummus and cookies are made only from organic ingredients.

Working with Welcome, Minn. grower Doug Hilgendorf, the Stacys have added a new product: an organic puffed-corn cereal with soy flour that is high in lutein and lysine. Currently sold in bulk, they hope soon to box the cereal for grocery shelves.

### Benefits for farmers

Organic Foods buys Hilgendorf's high-lysine corn directly for a higher price than he could get in the commodities market.

"One of our primary functions is to work with farmers," Tom says. "Typically, we give the farmer more money for his crops than what he can sell for out on the open market. It makes us money, and it makes him money.

"We bought beans from a farmer who was asking 50 cents a pound. We gave him 55, because we were paying 60 or 70 cents a pound (elsewhere). We do that with rice, flour, black beans, pinto beans, lentils, kidney beans and soybeans." Regular suppliers such as Hilgendorf can also earn royalties on Organic Foods products.

Tom and Donna understand that growing and manufacturing organic foods aren't enough to ensure farmers' stability. They see a need to educate consumers about farming and nutrition so they do "not just consume something because it tastes good," Tom says. "The most important thing in our lives, we know the least about — and that's food."

### All eyes on nutrition

Tom worked on the corn cereal formula for three years, researching the benefits of lutein and lysine. "The cereal is a unique blend of ingredients," he says. "We were looking for something to give us an edge in the marketplace, but at the same time a focus on health and nutrition."

Lutein was added for its benefits to the eyes, Tom says. Studies have shown that lutein helps reduce the risk of macular degeneration. Found in plants such as spinach and marigolds, lutein is also an antioxidant that



Organic Foods owners Tom and Donna Stacy (at right) and executive chef Andrew Weileder are producing nutrient-rich foods including sandwich wraps, dips, soups and cookies. Their latest product: a puffed cereal made with high-lysine corn and organic soybeans that Organic Foods buys from farmers at premium prices.

can reduce the effects of ultraviolet rays on skin, Tom says.

High-lysine corn was also chosen for its nutritional benefits. Lysine, an essential amino acid, helps the body absorb calcium. It also aids in the formation of collagen, antibodies, enzymes and hormones.

Like lutein and lysine, all the ingredients in Organic Foods products are chosen for nutritional value, Tom says. For example, their burrito-like "Healthy Wraps," in flavors such as Mediterranean and Spicy Thai, "are complete protein, not just protein."

AURI food scientist Charan Wadhawan has helped the Stacys measure nutritional values for Organic Foods products and has assisted

with formulation. Adding nutritional ingredients is "fairly easy" from a manufacturing standpoint, Wadhawan says. "It's not a major part of the formula. It's something to enhance the value of the product."

However, sometimes enhancements do affect product results, Tom says. For example, they tried adding soy flour to the corn puff mix, but it "looked more like dog food when it came through the extruder. And there's so much oil and fat in flax, it wouldn't let the corn puff."

### A market squeeze

With organic ingredients becoming part of many foods, Tom says the small company is

struggling to compete.

Organic Foods hummus and wraps are now sold in mainstream stores such as Byerly's, Lunds, Whole Foods Markets, co-ops, Kowalski's, Rainbow and Cub Foods, but they are up against heavily promoted foods from giant companies, Tom says.

"The organic world now wants to be like the commercial world in terms of profits," he says. "It's changing, not for the better. Now the big boys have jumped into the organic world, and they're beating everybody up with their money."

Corporate brands typically emphasize a single, organic ingredient, Tom says, while Organic Foods stresses the bigger nutritional picture. "It's not just lutein that is the leading edge, it's also high-lysine corn and organic caramel flavor," which the company developed. ■

## Why lutein and lysine?

Organic Foods adds natural lutein and lysine to some of its products as health enhancers.

**Lutein** is a carotenoid found in spinach and some other vegetables, marigolds, alfalfa and egg yolks. Carotenoids are pigments that act as anti-oxidants, helping protect the body from the sun's ultraviolet rays, other radiation, cigarette smoke and stress. The body does not make lutein; it must be obtained through diet or supplements. Medical studies have shown that lutein can help prevent or slow down age-related macular degeneration, a leading cause of blindness. It is not, however, a cure for the disease.

**Lysine** is an essential amino acid necessary for the body to absorb calcium. It helps form collagen, which is found in bone, cartilage and connective tissue. It also helps the body produce hormones, enzymes and antibodies. People who don't get enough lysine may feel tired, unable to concentrate, irritable, and experience anemia, hair loss and reproductive problems. ■

# A fashionable eōōō



PHOTOS BY ROLF HAGBERG

## Poultry producers could gather more income with omega-3 'designer eggs'

BY CINDY GREEN

The egg is back.

Derided for decades as a high-cholesterol artery clogger, egg consumption slid almost 50 percent from 1945 to 1991. Now eggs are gaining nutritionists' respect and sales are climbing. The average American cracked open 250 eggs last year — over 70 billion total in the United States.

Three billion of those were "designer eggs" — pasteurized, low-cholesterol, cage-free — and now the hottest on the market: omega-3 enriched. At double the price of conventional eggs, poultry farmers hope omega-3 eggs catch on here as they have in Canada, where they have four percent of the market.

### Six times the eōō

"Four percent is a ton of eggs," about 120 million in terms of Minnesota's production, says Jerry Crawford, an AURI chemist in Marshall, Minn. Minnesota is the nation's eighth-largest egg producer.

Crawford has analyzed eggs produced by the Southwest Minnesota Poultry Cooperative and confirmed they contain six times more omega-3s than typical eggs, are low in saturated fat and high in polyunsaturates. "Jerry's work was invaluable," says Ray Teeter, SMPC's manager.

To meet label claims, the co-op's 13 members have agreed to certain standards, including cage-free hens, chemical-free production and special feed.

A 10-percent flax blend in feed produces eggs with 350 mg of omega-3 fatty acids; a typical egg has 60 mg. There are no FDA recommendations on omega-3 consumption, but Canada recommends a daily average of 1100 mg for women and 1500 mg for men.

### Oily acid studied

Omega-3 is a fatty acid found in cold-water fish such as salmon, herring and tuna and in vegetable oils such as flaxseed, linseed, soybean and canola. An AURI-sponsored market assessment cites studies of Alaskan

Eskimos and Japanese fisherman that showed "increased consumption of omega-3 fatty acids can decrease the risk of heart disease by 50 to 70 percent. ... These benefits are attributed to the natural blood-thinning ability of omega-3."

The report also says omega-3s may improve the ratio of "good" (HDL) to "bad" (LDL) cholesterol in the blood, improve oxygen supply and brain function, and help relieve rheumatoid arthritis and inflammatory disorders.

On the downside, omega-3s have been linked to free radical production, which can cause cell damage, increase cancer risk and accelerate aging. Some egg producers fortify feed with vitamin E, an antioxidant that may neutralize free radicals.

AURI worked with Southwest State University marketing advisors to conduct the study, which was completed in December. Grain farmers as well as poultry producers have benefited from AURI's work — both the nutritional and marketing analyses, says DeEtta Bilek of the Buckwheat Growers Association in Wadena, Minn.,

where SMPC purchases its feed. "We just couldn't afford to buy that kind of research — and more is needed."

### \$2 a dozen

Omega-3 eggs sell for around \$2.50 per dozen in the Twin Cities and less in rural areas. Traditional egg prices can dip to 99 cents or less per dozen.

SMPC has been selling omega-3, free-range eggs for \$1.60 per dozen wholesale, but wants to gradually increase that to \$2. Members net an average of 20 cents a dozen in sales to southern Minnesota food co-ops and a few traditional groceries. Producers also sell directly to consumers, setting their own prices for individual sales.

So far, the markets are not huge; SMPC's biggest outlet is a St. Peter food co-op that sells 40 to 45 dozen a week. But recently the co-op received a request for 90 dozen eggs a day from a metro suburban co-op. "We can't meet that now," Teeter says, but it is proof of market demand.

"Cooperatives need to have the volume to satisfy the market," says Dennis Timmerman, AURI project director in Marshall. "The large producers will step in and take the omega-3 market if smaller producers can't. Then the opportunity will be gone."

Small co-ops like SMPC have two options. They can sell eggs to a distributor that already has a customer base for designer eggs and avoid the high cost of advertising, promotions and building brand recognition. Or members can reap higher profit and retain more control by selling eggs directly to consumers and retailers. "But that will require significant marketing to sell the public on the benefits of omega-3 eggs," through coupons, brochures, free samples and media promotions, the market assessment states.

The co-op could also emphasize the eggs' cage-free and organic elements, markets that are expanding every year. Exporting presents opportunities as well: consumers in Canada, Australia, Japan and England "are willing to pay a premium for omega-3 eggs," according to the report. In 2001, Canada imported 19 million dozen eggs of all varieties, valued at \$11.8 million.



Ray Teeter (right) manager of the Southwest Minnesota Poultry Cooperative, delivers up to 45 dozen eggs a week to Katy Young, produce manager of the St. Peter Food Co-op, one of several co-ops and grocery stores that sell SMPC's omega-3 enriched eggs at a premium price.

PHOTOS BY ROLF HAGBERG

## Secrets of the feed

The buckwheat, field peas, flax and other feed grains SMPC buys are grown in Minnesota or North Dakota — the nation's biggest flax supplier. Rich in lysine and other amino acids as well as omega-3s, the feed is reasonably priced, Bilek says. "People who compare our feed with their local store say there is not much difference (in price)." A 50-pound bag of conventional feed for hen layers (primarily a corn/soybean blend) sells for about \$7, the organic buckwheat/flax blend sells for \$7.75, and transitional feed is \$7.25. Farmers who buy by the ton get a discount. However, transporting the feed from northern to southern Minnesota increases the cost.

Not all SMPC members use the same feed; those with homegrown certified grain mix a concentrate into their feed. But the nutritional result must be the same, says Teeter, whose job includes verifying that farmers meet co-op standards. "Basically, my

job is to assist farmers in getting the right chickens, feed, management and to see to it that the quality is the same on all farms."

Co-op members grade, candle and package their own eggs. Teeter, a sprightly 79, picks them up and travels throughout southern Minnesota selling eggs to co-ops and small grocers. A \$125 annual fee charged to each member pays his salary.

## Broilers not far behind

For SMPC, the chicken comes before the egg, as broilers are a bigger market. "There may be omega-3 in the meat, too, but we don't have test results yet," Teeter says. Since the birds are range-fed, they are raised only from May through September.

The co-op's products include both organic and "transitional," meaning the feed-grain production is pre-organic, in the second of a three-year chemical-free requirement. Contracted processing plants are also

certified organic or in transition, including facilities in Hector, Browerville and Fairmont.

Natural broilers sell for about \$1.65 per pound, certified organic for \$2.40. Since they can be shipped frozen, SMPC sells broilers as far away as Grand Marais, Minn.

Both egg-laying and broiler chickens are raised without antibiotics and hormones, and the feed doesn't contain GMOs or farm chemicals. "We're raising chickens without all that crud," Teeter says, adding that many consumers are becoming concerned about antibiotic-resistant bacteria in poultry. Price is yet a deterrent, however. "Out in farm country, they don't like to pay \$2 a pound for chicken."

Producers are averaging about \$1.50 net profit per broiler "over all expenses, including electricity, labor and all production costs," Teeter says. The profit margins vary greatly from farmer to farmer, however. "One producer is netting over \$4 per bird on 1,000 head — he's been at it for a

few years. Some are netting only a few cents per bird. We have to sit down and work out whether it's lack of management or the feed or the water or what the trouble is — those hurdles have to be crossed by every producer."

Teeter says the challenge is worth the effort because there is consumer interest in buying local, naturally-produced poultry and eggs. He is reminded of a seminar where he heard "the 'tale of two chickens.' One was traced back to Alabama — every step of the way (from hatch to market) was owned by one corporation.

"That's what we're trying to get away from. The basic idea is to service as near the local trade as possible — because people are beginning to wonder where their food is coming from." ■

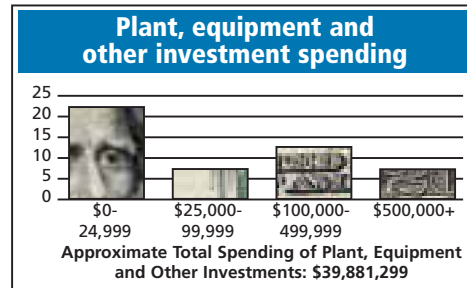
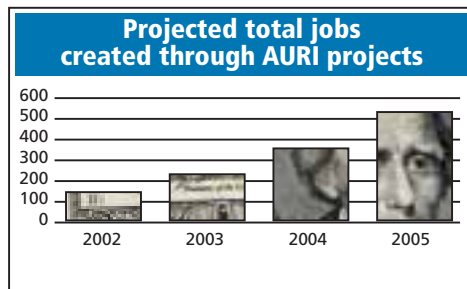
# MINNESOTA'S INVESTMENT IN AURI PAYS BIG DIVIDEND\$

## Show me the money.

Cuba Gooding Jr.'s famous movie line could be the theme of Minnesota's current funding battles. Don't tell me how great you are — show me the results.

AURI is paying Minnesota dividends many times over the state's investment. To check our progress and make sure we are positively impacting the rural economy, every year we survey businesses that are receiving AURI's help. We have found that when Minnesota innovators receive targeted technical assistance, the state reaps more profits from our abundant agricultural resources.

The results confirm that AURI is making an impact on rural Minnesota and is creating a positive return on investment. From the survey of clients AURI helped just over the past two years, here is how AURI has affected Minnesota's economy:

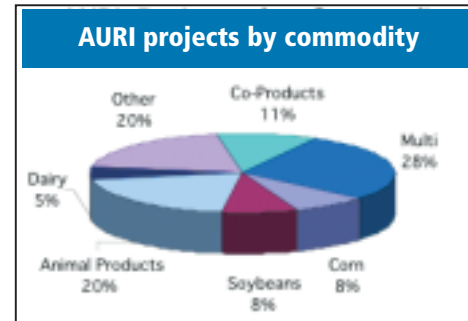


## INVESTMENT IN PRODUCTION

Small and medium-sized Minnesota agri-processors working with AURI expect to soon invest nearly \$40 million in their plants. This investment will expand plants, add equipment, improve processes and increase product lines. In the last biennium, AURI-supported projects have invested more than \$100 million in value-added processing. This includes the construction of several new ag-processing facilities.

## VALUE ADDED TO COMMODITIES

Minnesota is the land of rich agricultural diversity. From the northwest's sugar beets and wheat, to central Minnesota's dairy and alfalfa, to the southern region's corn, soybeans and hogs, more than 20 varieties of Minnesota-grown commodities have been impacted by AURI projects this past year. Whether it's ethanol from corn or cereals from wheat, each crop has its own supporting industry. That is why AURI has worked with nearly every Minnesota commodity group to develop value-added products.

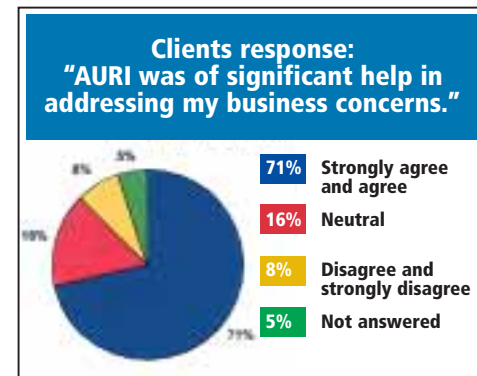


## MORE REVENUE FOR PRODUCERS

Value-added ventures directly impact producers, as well as communities and rural economies. Over the past biennium, more than 14,000 producers have been directly impacted by AURI projects, including producers who have invested in farmer-owned enterprises. The institute has also led more than 40 producer and processor training sessions during the past two years.

## INFORMATION SHARED STATEWIDE

AURI is an important information resource for people seeking information on innovative agriculture. The AURI Web site at [www.auri.org](http://www.auri.org) receives more than 80,000 hits per month. Ag Innovation News is mailed to more than 14,000 Minnesotan subscribers.



## JOBS ACROSS THE STATE

Current AURI clients expect to add more than 148 new jobs this next year as a result of AURI's assistance. These businesses now employ 186 people and expect to more than double that workforce by 2005. During the past biennium, AURI-supported projects created nearly 300 jobs, most in rural areas.

## HELP FOR LOCAL ECONOMIES

AURI currently assists more than 260 projects across the state — from Luverne to Cook, from Hallock to Harmony. These are real companies offering real jobs to real communities. Not only do these rural employers support their local communities, they offer value-added opportunities to area producers.

Ag-based processors and rural startups contribute to the local tax base, spin off jobs for support businesses, and contribute to rural Minnesota's overall vitality.

## THE AURI DIFFERENCE

Throughout AURI's 15-year history, hundreds of Minnesota businesses have been served by thousands of projects. Current clients place a high value on the resources AURI brings to rural Minnesota. Recent client survey results show:

- 70 percent of respondents said AURI offered significant help addressing business concerns.
- Nearly 50 percent said AURI greatly improved their product or process.
- Nearly 65 percent made use of AURI laboratory facilities.
- 40 percent saved money because of AURI's help.
- More than 20 percent significantly increased their profit margins.
- 31 percent saw increased sales as a result of AURI's involvement.
- 28 percent avoided costly mistakes because they worked with AURI.
- Nearly 70 percent place a higher value on AURI services now than when they started.

AURI and the projects it supports shows Minnesota the "money" every day.



THERE ISN'T ANOTHER PROGRAM THAT OFFERS THE HANDS-ON ASSISTANCE AURI PROVIDES TO BUSINESSES BRINGING NEW AG-BASED PRODUCTS TO MARKET.



# Hitting their milestones:

## These AURI clients mean to succeed



BY E. M. MORRISON

It is common knowledge that most new small businesses fail. Only the best survive and prosper.

AURI has supported many winners in



### Poultry power nearly here

**Benson, Minn.** — Sometime in the next few months, heavy equipment will begin transforming an 84-acre field just outside Benson into the nation's first poultry litter-powered electric plant.

Last October, the Fibrominn biomass power plant received key Minnesota Pollution Control Agency air emissions permits, clearing the way for the facility to be built. When completed, Fibrominn's plant will generate 50 megawatts of electricity per year — enough to power roughly 50,000 homes — by burning 500,000 tons of turkey litter and other ag biomass.

Fibrominn's parent company, Fibrowatt, operates three poultry litter-fired plants in Britain and is working on several more facilities in Europe and the United States.

"The MPCA permit was the final major permit we needed," says Ann Martinez, Fibrominn public affairs manager. "This is the first permit of its kind in the country. All the major questions have been addressed.

Martinez says Fibrominn has held monthly meetings with a 12-member community group to address Benson area residents

concerns. Developing community support was key to the project's approval, Martinez says. "The community was fully involved and has been fully supportive."

Litchfield turkey producer Greg Langmo first contacted Fibrowatt in 1998 to pursue building a plant in west central Minnesota. After numerous meetings and the arduous permitting process, "now we're ... finalizing financing, design plans and contracts," Martinex says. "We're looking at a late spring ground-breaking."

The \$100 million Fibrominn project is expected to create 30 jobs and generate more than \$8 million of economic impact per year.

**On the road:** 1998, when a Litchfield farmer approaches Fibrowatt of England.

**AURI pit stop:** AURI helps with early feasibility studies.

**Long and winding road:** Environmental permitting process takes a year and a half.

**Straightaway:** MPCA air quality permit approved in October 2002.

**Picking up speed:** Groundbreaking is expected in late spring of 2003.



### Bird cakes escape fire, are bundled in new packs

**Chaska, Minn.** — Wildlife Sciences has added three new seed-and-suet products to its line of premium wild bird food. And the company is again selling large birdseed blocks after a plant fire last fall interrupted production.

Wildlife Sciences makes 13 varieties of St. Alban's Bay and its own name-brand of birdseed cakes. The 11- and 13-ounce cakes are a blend of beef tallow, seeds and berries. In February, the company introduced a starter pack: five suet cakes plus a green coated-wire cage feeder to hold them.

Also new in February: an economy pack of twelve suet cakes. Wildlife Science's seven- and 10-pound birdseed blocks were back on store shelves in February, too.

These additional products give Wildlife Sciences a larger presence on store shelves, says former commodities trader Bill Gleason, who founded the company in 1996 with partner David Pichotta. This winter the company also began offering retailers a floor-stand display case for added merchandising pizzazz.

St. Alban's Bay wild bird foods are now distributed nationwide in independent pet and garden stores, farm stores and Hardware Hank stores. An economical plastic film package, introduced last year, helped the seed cakes gain entry to price-competitive "big box" retailers, including Petsmart.

AURI helped the company revise its suet formula for the new package. That turned out to be "a bigger engineering challenge than we



Karen Gleason, Wildlife Sciences office manager.

expected," Gleason says. AURI also helped the company open a processing plant in Chaska, where they make suet cakes under their own as well as others' private labels. Temporary labor gives the young company production flexibility while it builds sales. "Our biggest challenge now is market penetration," Gleason says.

For more information visit [www.suetplus.com](http://www.suetplus.com)

**On the road:** 1996

**Rough road:** Original cardboard and plastic packaging too expensive for mass market.

**AURI pit stop:** AURI reformulates suet cake to work with new packaging.

**Mile marker:** Wildlife Sciences opens manufacturing plant in Chaska.

**Roadblock:** Fire in 2002 interrupts birdseed block production.

**Straightaway:** Company gains shelf space in national chains, including Petsmart and Hardware Hank.

**Picking up speed:** Three new suet cake products introduced in 2003.





Minnesota's dynamic agriculture sector — helping energetic innovators solve technical problems and providing marketing expertise, research help and sound business advice. Here is a

progress report on some of the businesses that came to AURI for help in the last few years, then went on to develop successful markets for Minnesota ag products.

### Minnesota's only chevre is a world champion

*Kimball, Minn.* — The first five years have brought dramatic growth for Stickney Hills Dairy, Minnesota's only commercial goat cheese producer.

Brad and LeAnne Donnay, Brad's brother Kevin and Dave Lenzmeier started the venture in 1998 with 50 dairy goats and a farmstead cheese plant, built with help from AURI. Now, Stickney Hills milks 450 goats and makes 15,000 pounds of fine chevre a month.

Stickney Hill's growth spurt came last year. Kevin Donnay left the business to operate an organic dairy cow farm. The remaining partners added 350 goats, enlarged the milking parlor, and re-equipped the cheese plant to boost production and save labor. They also redesigned the label and package. "And then we had to market it all, too," says Brad Donnay, president. "It was a very challenging year."

Stickney Hills now dominates the Minnesota chevre market, Donnay says. He furnishes goat cheese for two dozen Twin Cities restaurants, all the Byerly's and Lunds grocery stores, and most Twin Cities food coops. However, Minnesota is a small market, he adds, so three-fourths of Stickney Hills chevre is shipped out of state. "Marketing hasn't come easy, but we're selling everything we make."

The Donnays now employ eight part-time workers, plus a herdsman and sales director. They're hoping to add another 200 goats this spring. Brad, who holds a dairy science degree, is also working on cross breeding for higher butterfat and protein — components for the best-tasting cheese.

It's an advantage to control quality at every step of cheese production, Donnay says. Last spring, for example, Stickney Hill's Chateau Chevre placed ninth in the 2002 World Championship Cheese Contest. "We're also very cost competitive, because we own our own goats," he says. "Our pricing helps us get

into new markets."

For more information about Stickney Hills Dairy products, visit [www.stickneydairy.com](http://www.stickneydairy.com).

**On the road:** 1998

**AURI pit stop:** AURI helps with nutritional analysis, labeling and technical consulting on farmstead cheese plant.

**Rough road:** A founding partner leaves in 2002; the dairy completes a major expansion.

**Mile marker:** Stickney Hills Chateau Chevre places in top 10 at 2002 World Championship Cheese Contest.

**Straightaway:** Dairy now shipping 15,000 pounds of chevre a month nationwide.

**Picking up speed:** Plans underway to add another 200 goats.



PHOTO BY ROLEF HAGBERG

Brad Donnay, co-owner of Stickney Hills Dairy

### Rhubarb wines selling out; owners keep expanding

*Laporte, Minn.* — Forestedge Winery has sold out its entire vintage three years running. The farm winery on the edge of the Paul Bunyan State Forest produces rhubarb and berry wines. Since its founding in 1999, Forestedge has tripled, then doubled, wine production and twice expanded its facility. Now, owners Paul and Sharon Shuster and John Wildmo are preparing to grow again.

Forestedge's first vintage, 5,000 bottles of rhubarb and rhubarb-blend wines, sold out in just six weeks. "Immediately, we were confronted with all the problems of being too successful too quick," Paul Shuster says. "It's just as easy to go out of business by having too much business as by not having enough."

In 2001, the Shusters remodeled the second floor of their winery for controlled storage and added more wine-making equipment. AURI, which provided technical assistance in the beginning, helped the company find fruit growers to supplement the winery's 1,000 rhubarb plants. That year's vintage, 15,000 bottles, also sold out in short order.

In 2002, the winery added 800 square feet and upped the vintage to 30,000 bottles, which sold out by December. For the first time, the business produced enough revenue to pay the owners a salary.

Production in 2003 will again be about 30,000 bottles. Meanwhile, the partners are expanding the production facility again, adding storage and freezer space. And they'll add a thousand more rhubarb plants this spring.

Forestedge, one of 11 Minnesota farm wineries, benefits from the Bemidji area's strong tourist trade, says Shuster, a longtime maker of fine wooden kitchen utensils. "We're a draw for people who have fished for several days and want to do something different." The winery gives tours, operates a gallery, and last August held an arts fair that drew more than 4,000 visitors.

"It's our mission to entertain as well as sell wine," Shuster says. "Plus, we're a value-added farm business that does have an impact on local growers. Value-added farming — that's the answer for rural development."

For more information, visit [www.forestedgewinery.com](http://www.forestedgewinery.com).

**On the road:** 1999

**AURI pit stop:** AURI helps with equipment, packaging and pricing information, licensing, technical needs and market feasibility.

**Rough road:** Strong sales require expansion sooner than planned, straining labor, capital and technical needs.

**Straightaway:** Winery develops supply agreements with local growers for rhubarb, strawberries, chokecherries and other northern fruits.

**Mile marker:** First annual winery arts fair in August 2002.

**Picking up speed:** The winery's third expansion now underway.



PHOTO BY GREG BOOTH

Paul and Sharon Shuster, part owners of Forestedge Winery

## Soy-wax patent keeps candle business burning

*Redwood Falls, Minn.* — In January, Redwood Candle Company received a patent on its soy-oil wax. The patent is a boost for founder Jill Anderson. She weathered a tough 2002, holding sales steady at her four-year-old company despite a severe gift-market slump.

AURI scientists helped Anderson improve her scented soy candles with hydrogenated oils for longer burn time. Later, AURI helped her sort out the pros and cons of a formula patent. The patent process is long and expensive — Anderson spent three years and about \$15,000. The payoff? She'll be able to license the formula, which is now being widely copied.

Anderson was the first in Minnesota to make scented soy candles commercially. Soy wax burns soot-free, a big advantage over paraffin. Anderson started the company in 1998, making candles in her basement and marketing them with energy and panache. Sales grew rapidly, passing the million-dollar

mark by 2001. Late in 2000, Anderson moved her operation to a 14,000-square-foot manufacturing plant and at her peak employed more than two dozen workers.

Growth stalled last year, though, as the economy faltered. "2002 was a horrible year for the gift market," says Anderson, who also manufactures scented soy lotions. "It was a year of just making it through. ... 22 of our customers went out of business last year. Normally, we lose about four a year." To compensate, the company is doing more private-label manufacturing.

If there was a bright side to a disappointing year, it's that "we had to go into other areas, so we're more diversified now." Though she had to reduce her workforce and watch every penny of expense, Anderson held sales flat last year, maintaining enough volume to run her manufacturing plant five days a week. And this spring, she will release a new line of Redwood candles. From that standpoint, she says, "you could say we had a successful year."

For more information, visit [www.redwoodcandle.com](http://www.redwoodcandle.com)



Jill Anderson, Redwood Candle Company owner.

**On the road:** 1998  
**AURI pit stop:** AURI improves soy wax formula for increased burn time.  
**Mile marker:** In 2001, operations move from founder's basement into a Redwood Falls manufacturing plant.  
**Rough road:** Gift-market slump forces company to reduce workforce.  
**Change of direction:** Company weathers 2002 downturn by stepping up private-label manufacturing.  
**Mile marker:** Redwood Candle receives patent on its soy-oil wax.  
**Picking up speed:** New line of Redwood candles in the works.



## Mattresses fluff up the state's wool business

*Harmony, Minn.* — High Pointe Coverings is becoming a significant consumer of local wool.

High Pointe makes soft-sided mattresses of pure domestic wool. The hand-made mattresses have seven layers of carded wool, which are double stitched, then encased in cotton ticking and hand-quilted.

Lloyd Peterson, a retired farm equipment representative, began producing the mattresses two years ago at his commercial tarp-sewing business. Driven by a near-missionary zeal for the comfort of woolen beds, Peterson has made lots of converts and is now selling about 100 mattresses per quarter. At 35 pounds of wool per mattress, "we use a lot of wool," he says.

At first, the company couldn't buy wool in the Midwest, where the industry virtually disappeared after World War II. "But it's starting to come back," says Peterson, who is cooperating with the Minnesota Sheep Growers Association. "Now, we're using Minnesota and Wisconsin wool in our mattresses and we like this wool better." Local wool is more resilient than other domestic

wool, he says; it makes a superior mattress.

So far, most of High Pointe's sales have come through word of mouth, public health referrals and the company's Web site. The mattresses, which rest on top of a regular mattress, come in four sizes and sell for \$269 to \$425. "We want to keep the price low so everyone can have one," says Peterson, who for 40 years has slept on a wool mattress that is over 100 years old.

Peterson makes a point of calling buyers after a few weeks to ask how they like their new mattresses. "We haven't had a dissatisfied customer yet."

For more information, visit [www.natureswool.com](http://www.natureswool.com)

**On the road:** 2000  
**AURI pit stop:** AURI helps with product roll-out.  
**Straightaway:** Sales volume grows steadily in the first two years; current sales are about 100 mattresses a quarter.  
**Mile marker:** High Pointe Coverings now buying wool grown in Minnesota and Wisconsin.  
**Picking up speed:** Exploring new products, including a foam-and-wool mattress.



PHOTOS BY ROLF HAGBERG

Lloyd Peterson, owner of High Pointe Coverings, and his wife Luanne.



Massoud and Ann Kazemzadeh, Kay's Naturals owners.

### Chips a-soy riding high, more snacks on the way

Clara City, Minn. — Kay's Naturals is riding a nationwide wave of interest in high-protein diets.

Kay's makes all-natural protein chips — small, cracker-like chips in five zingy flavors, including chili nacho-cheese and lemon-garlic-potato. The chips contain nearly 30 percent protein from soy and whole grains. Low in fat and high in fiber, the chips won first place in the cracker contest at the 2001 Natural Food Expo in Washington D.C. "For a protein chip to take first place is amazing," says Kay's CEO Ann Kazemzadeh.

With AURI marketing help, the chips were introduced in the Midwest in January 2001 and gained national distribution last September. They are sold at natural food stores, co-ops, health clubs such as Bally Total Fitness, and many grocery stores.

The chips are also winning a following among personal trainers and their clients, says Massoud Kazemzadeh, a cereal scientist who developed the patented chips. The best seller so far: Kay's gluten-free lemon-herb chip.

Massoud says he expects that strong consumer interest in high-protein diets, such as the Zone and Atkins, will push chip sales near the million-dollar mark by next September. He said the company is prepared to "invest substantially" in upgrading a Clara City facility where the chips are

manufactured.

Kay's is also attracting interest from major U.S. food companies. The company is earning a reputation for coming up with high-protein grain products that actually taste good, Ann says. Massoud is now developing several new soy-protein foods, including pretzels, crunchy salad bits and breakfast cereal.

In addition, the company is working with diet companies that want to sell Kay's chips under their own labels. Private label licensing benefits young, cash-strapped companies like Kay's, which lack the marketing dollars to promote new products, Massoud says.

"We started out thinking we would be a little snack company with a branded product," Ann says. "We're doing a lot more licensing and research and development than we expected. We're really pleased about that."

For more information, visit [www.kaysnaturals.com](http://www.kaysnaturals.com)

**On the road:** 1997  
**AURI pit stop:** AURI helps with product roll-out.  
**Mile marker:** Company buys manufacturing plant in Clara City.  
**Straightaway:** Chip sales approach \$1 million in 2002.  
**Picking up speed:** Four new products in development; licensing talks underway with other companies.



### Branded products are sweet deal for honey company

Marshall, Minn. — The Walnut Grove Mercantile brand has helped Klein Foods double sales in the last three years.

The old-fashioned brand is the latest brainchild of former schoolteacher Steve Klein, who turned a 50-year-old commodity honey operation into a specialty food business in 1991. Ten years later, the company built a \$500,000 manufacturing plant in Marshall and opened a retail store. Early this year, Klein added Internet sales.

Klein Foods has carved out a niche in contract manufacturing for small food companies, specializing in flavored honeys, syrups and other liquids packaged in glass. "We help a lot of start-up companies," Klein says. "We'll do small runs — say, 100 cases rather than 100,000 cases."

Klein, who took over his father's commercial beekeeping business in the 1980s, began making flavored honeys in the early 1990s. Over the last three years, honey product sales have surged, Klein says. Demand now far outpaces yield from the company's own hives, creating a market for other honey producers.

Besides private-label manufacturing, Klein makes several dozen products under his own label, Walnut Grove Mercantile. He started the brand in 1999 with assorted handmade soaps, fruit preserves and fruit syrups, all developed with AURI's help. The packaging, featuring 19th-century-style lettering and fictional shopkeeper Lars Olafson, has an old-fashioned country store look.

Last year, Klein added 10 flavors of

homemade fudge and a variety of sauces and dressings. There is a new line of Walnut Grove greeting cards based on old-time advertisements. More packaged foods are in the works.

Walnut Grove products are distributed in gift stores nationwide. In the fall of 2001, the company also opened its own Walnut Grove Mercantile retail store in Marshall, with a bygone ambience. The store has outperformed expectations, Klein says, posting a 25 percent sales increase this Christmas, despite the soft gift market. In January, the company also began selling all its products on the Web.

Growing from a commodity business into a food processing and retail company has been difficult, Klein says. "It's really an entirely different business. But the exciting part is seeing your name on products and seeing people buying them."

For more information, visit [www.walnutgrovermerc.com](http://www.walnutgrovermerc.com)

**On the road:** 1991 and 1999  
**Rough road:** Competitive pressure in the Midwest beekeeping business forces company to diversify into specialty food processing.  
**AURI pit stop:** AURI helps formulate Walnut Grove Mercantile's first branded products, including soap, preserves and syrup.  
**Mile marker:** Company builds a new processing plant in 2001; Walnut Grove Mercantile retail store opens the same year.  
**Straightaway:** Flavored honey sales surge.  
**Picking up speed:** New products added to the Walnut Grove Mercantile brand, including fudge, sauces and greeting cards.



## Elsewhere in ag utilization

BY JOAN OLSON

*Editor's note: As a service to our readers, we provide news about the work of others in the ag utilization arena. Often, research done elsewhere complements AURI's work. Please note that ARS is the USDA's research arm and DOE is the U.S. Department of Energy.*

### Sun's up, grab the soy screen

SoyScreen is an all-natural, skin- and hair-care product developed in the ARS National Center for Agricultural Utilization Research lab in Peoria, Ill. Soyscreen is made from soy oil and rice or oat bran. It is water-resistant and provides effective UV protection.

Source: [www.ncaur.usda.gov/nci079soyscreen.html](http://www.ncaur.usda.gov/nci079soyscreen.html)



### Ethanol sugar baby

Growers in California's Imperial Valley are looking at sugar cane as an economically-feasible feedstock for ethanol production. University of California researchers found the valley produces a much higher tonnage and sugar content per acre than other U.S. sugar cane areas.

Source: *The Furrow*, February 2003.

### Sorghum starch tinkering

A recent \$7.5 million DOE grant was awarded to NC+, Solvi-Gen LLC and Orion Genomics to genetically map sorghum and develop varieties for ethanol production. Researchers believe they can increase sorghum's starch content from 68 percent to 80 percent, reducing the cost of producing ethanol by 40 to 50 percent.

Source: *The Furrow*

### Stover gives up the stuff

Biomass Agri-Products, LLC of Iowa is developing new markets for corn residue. Currently 40 to 50 farmer-members supply corn stover fiber for green-dyed Hydromulch, among other products. Their goal is to separate corncob components and market them as higher-value commodities. Corn biomass, seed blankets, acoustical padding, paper products and particle board are some of the possibilities.

Source: *Successful Farming*, November 2002.

### Cash for corn research

The National Corn Growers Association received a \$2.4 million DOE grant to fund research aimed at converting corn fiber to high-value chemicals and oils. The grant provides half the project's funds; NCGA and ADM are underwriting the rest.

Source: *Doane's Agricultural Report*, November 1, 2002.

### Biorefining consortium

A consortium of DuPont, Diversa Corporation, the National Renewable Energy Laboratory, Michigan State University and Deere & Company has received \$19 million in matching funds from DOE for research leading to an innovative biorefinery. The biorefinery would produce ethanol and value-added chemicals from renewable resources.

Source: [www.dupont.com](http://www.dupont.com).

### A first for Michigan

Michigan Ethanol, LLC has constructed Michigan's first ethanol plant. Located near Caro, Mich., the plant will process nearly 16 million bushels of corn per year into 40 million gallons of ethanol and 120,000 tons of dried distillers' grain.

Source: *Doane's Agricultural Report*, November 1, 2002.

### Soy on skin

Soy oil is gaining a reputation for gently cleansing and moisturizing skin, and is increasingly finding its way into skin-care products. Johnson & Johnson Consumer Products, Avon and Henneberry Marketing are some of the companies incorporating soy into their skin-care lines.

Source: *Illinois Soybean Review*, December 2002.

### Great grapes of the Midwest

Vineyards are taking root in the heartland. Over the last decade, seven new wineries have been established in Minnesota, a dozen in Iowa and eight in Nebraska. Land grant universities in states such as Nebraska, Indiana and Iowa now have full-time viticulturists to consult with farmers. Missouri has a six-cent-per-gallon tax on wine; proceeds are used for developing and promoting Missouri grapes, wines and juice.

Source: *Cooperative Partners*, December 2002.

### A jug of wine ... and a book

Southern Illinois University at Carbondale has released a booklet to show prospective vintners what it takes to get into the wine business. It includes detailed enterprise budgets and sections on wine and grape production trends and wine tourism.

Source: *SIU Carbondale News*, <http://news.siu.edu>.

### Soy milk money?

The Soyfoods Association of North America is asking USDA to make soy milk a part of the national school lunch program. Adding soy milk to the menu could help USDA comply

with the national School Lunch Act, which requires that all children's dietary needs be met.

Source: *Illinois Soybean Farmer Leader Newsletter*, December 2002.

### Double-duty food

About 85 percent of American consumers want to know more about "functional" foods that have health benefits beyond basic nutrition, according to an American Dietetic Association survey. The U.S. functional foods market is \$8 billion per year and growing 8 percent annually.

Source: Zachary Fore, *University of Minnesota*, (218) 253-4401, [forex002@umn.edu](mailto:forex002@umn.edu)

### Soy lube jobs

The Ag-Based Industrial Lubricants Research program at the University of Northern Iowa has developed lubricants containing 80 percent soy oil. The soy-based lubricants are now available as part of FS Growmark's Home Grown Lubricants packages.

Source: *Illinois Soybean Association*, [www.ilsoy.org](http://www.ilsoy.org).

### Soy of the southeast seas

Aquaculture is the fastest growing animal feed market, especially in Southeast Asia where the American Soybean Association is launching AquaSoy, a marketing program that encourages Chinese, Vietnamese and Indian growers to incorporate soy meal in fish-feeding rations.

Source: *Illinois Soybean Farmer Leader Newsletter*, November 2002.

### Fat-fighting oil

ADM in Decatur, Ill. has introduced "Enova" cooking oil. Clinically shown to help fight body fat and obesity, the oil was introduced in 1991 to Japan, where it is now a best seller. Enova oil is produced with a patented process to increase the concentration of dicylglycerol, a naturally occurring component of all vegetable oils.

Source: *Doane's Agricultural Report*, December 6, 2002.

### Food puts on the miles

Worldwatch Institute, an environmental and social policy research organization, claims that U.S. food now travels between 1,500 and 2,500 miles from farm to table, 25 percent further than two decades ago. The report says economic benefits of food trade are a myth. "Home Grown: The Case for Local Food in a Global Market" is available for \$5 plus shipping at [www.worldwatch.org](http://www.worldwatch.org).

Source: *Sustainable Agriculture*, December 2002.

### Records in gallons

The Renewable Fuels Association reported that the domestic ethanol industry set an annual production record of 2.13 billion gallons in 2002, up over 20 percent from 1.77 billion in 2001 and 45 percent from 1.47 billion gallons in 1999.

Source: [www.ethanolrfa.org](http://www.ethanolrfa.org).

### Rice code's broken

The rice genome has been decoded six years ahead of target, according to the International Rice Genome Sequencing Project.

Source: *Doane's Agricultural Report*, 12/20/02.

### Grown in water

Ohio and Michigan hydroponic vegetable growers are joining forces to boost production and marketing, build stronger working relationships, and increase consumer awareness. The Great Lakes Hydroponic Association and marketing cooperative were born out of the Ohio State University Extension Hydroponic Vegetable Program.

Source: Mary Donnell at (419) 354-6916, [donnell.8@osu.edu](mailto:donnell.8@osu.edu).



### 231 projects get USDA's green light

The USDA's Value-Added Agriculture Product Market Development Grant program awarded more than \$37 million in matching grants last year to 231 U.S. value-added ag projects, from wild rice to alligators. Here are just a few:

The California Wild Rice Growers Association received \$130,000 in working capital to develop, package, evaluate and market a soy-enhanced line of wild rice snack chips.

The Alligator Trading Company in Dade City, Florida received \$132,660 to find new markets for finished products from alligator hides.

Wholesome Harvest, LLC in Colo, Iowa received \$149,000 to help market pasture-grown organic meat nationwide.

Galva Holstein Ag, LLC in Holstein, Iowa received \$75,000 to determine the feasibility of using dried distiller's grain, an ethanol byproduct, in environmentally-friendly fertilizer.

Western Plains Energy, LLC in Quinter, Kan. received \$290,615 in start-up costs for a 30-million gallon ethanol plant near Oakley.

The Imperial Young Farmers and Ranchers of Imperial, Neb. received \$40,000 to study the feasibility of developing a biomass ethanol and electric facility that uses waste crops such as corn stover and wheat straw.

Heartland Durum Growers Cooperative, Crosby, N.D., received \$500,000 for salaries, employee benefits and utilities for the value-added durum processing facility.

Source: [www.rurdev.usda.gov/rd/newsroom/2002/value\\_ad.htm](http://www.rurdev.usda.gov/rd/newsroom/2002/value_ad.htm).

# OATSCREME FIRMS UP

## Minnetonka company finds a ready market for oat beverages and ice cream-style frozen treats.

BY CINDY GREEN

*Minnetonka, Minn.* — Having your cake and eating ice cream too just isn't possible for the more than 40 million Americans who are lactose-intolerant.

The answer to their ice-cream cravings? It's "OatsCreme," says Steve Frances, CEO of American Oats, Inc. The company makes a patented, smoothly whipped frozen treat with only a tiny hint of oat — yet oats is the only ingredient besides water and all-natural flavorings and stabilizers. Long a soft-serve item, the hard-pack version of OatsCreme is now available across the country.

"We don't add any sugars; we convert the starch in oats to glucose and we're able to maximize the sweetness," says Frances, adding that OatsCreme flavors — vanilla, strawberry and chocolate — "have a nice creamy texture."

The sugar-free label is a big asset, Frances says. Diabetics like it, but "they should check with their doctor because it is a glucose, although it shouldn't spike insulin levels like refined sugars."

Still, OatsCreme's main selling point "has always been dairy-free; that category is huge."

### Coming up oats

Although OatsCreme entered the market in 1996, an improved, sweeter product was introduced in 2001. "We figured out a way to reduce the oat taste but still maintain high fiber," Frances says.

OatsCreme has one gram of soluble fiber per half-cup serving. (An FDA-approved claim says three grams of soluble fiber a day can lower cholesterol and reduce the risk of heart disease.) And OatsCreme is priced competitively with premium ice creams: \$2.49 to \$2.89 per pint.

For the growing ethnic market, especially Asian- and African-Americans who want lactose-free products, American Oats will expand into oat beverages this spring. "Oatrageous," an oat shake with fruit juice, is being marketed to youth. The nutritional content is "like having a glass of milk, bowl of cereal and glass of orange juice in one serving." The smoothie-style beverage is packaged in 16-ounce containers made to "grab and go," Frances says.

American Oats is also introducing an oat milk with calcium and vitamins A and D. Low in

fat, it still has two grams of fiber and tastes mild and pleasant "like the milk left over in a bowl of Cheerios." Packaged in quart containers, the oat beverage can substitute for milk in all recipes, including baked goods.

The oat milk's retail price hasn't been set yet, but "it will be very competitive," Frances says. "Our position is to be in the mid-range, affordable. We work hard to lower the cost of manufacturing so eating and drinking calcium doesn't have to cost a lot of money."

### A bite of oat history

American Oats, Inc. was founded in 1989 by Buck MacDonald, who left a career in business, law and banking to open specialty shops and a restaurant.

In 1994, MacDonald teamed up with Don Maxwell, a former General Mills food technologist who had worked on products like Cheerios. The two realized the versatility and composition of oats were ideal for frozen soft-serve. They patented OatsCreme and began producing a liquid mix for soft-serve machines at a Minnetonka facility in 1996.

AURI stepped in with product development, manufacturing and distributing samples of OatsCreme at the State Fair. "AURI is probably the reason (American Oats) got as far as it did, because of the support they gave this company when it was just getting started," Frances says. "They got it to the point where people became interested in investing; there was a product, market, track record. People became interested in seeing us grow."

Frances, a former International Dairy Queen executive, joined American Oats two years ago. Maxwell and MacDonald retired.

### Hard-pack sells

Although experienced in soft-serve, Frances changed the company's focus to hard-pack sales. "I understand the business and there are a lot of problems dealing with soft-serve — one, of course, is the machine." Grocers can't give the same attention to soft-serve that ice-cream stores

do, where "the maintenance and cleanliness of the machine is their livelihood."

In August 2001, the company test-marketed hard-pack OatsCreme in 48 Twin Cities groceries such as Lunds, Byerly's, Jerry's and natural food stores. By May 2002, when the test was done, "we realized we had a very good product" with a loyal customer following, Frances says. The company will continue to make soft-serve mix, "but it will be a secondary focus."

Frances also moved the company away from production to just marketing and distribution. "We didn't have any business being in the actual manufacturing — it's too expensive. We use the facilities of manufacturers who are not quite up to capacity. We get the benefit of their expertise at a lower cost. We don't have to buy equipment and maintain a facility."

Last May, the company started marketing through Blooming Prairie, a natural

food distributor that covers 11 Midwestern states. In July, OatsCreme was picked up by Tree of Life Southeast, a major natural foods distributor in Georgia, the Carolinas, Tennessee and Florida. American Oats products are now in 220 stores.

"We'll add more states — we're moving west this summer. But we're a small company and we want to first make sure we can service all our stores and that the consumer gets the highest quality products."

### A loyal following

American Oats' next step is to move to a 100-percent organic product, but organic grain is difficult to find. "If you know any farmers out there growing organic oats, we would love to get them."

OatsCreme has a loyal following and most sales are by word of mouth, Frances says: "We do little marketing."

"It is amazing to me ... I spent so many years at DQ — very rarely did we get a call from someone saying, 'Boy I love your ice cream.' But we get calls every day from people who say, 'I really love OatsCreme.' It makes you feel good." ■



# Control of the green

## Co-op grows seeds up north for courses down south

BY GREG BOOTH

*Roseau, Minn.* — A winter-hardy grass could be a Minnesota co-op's ticket to sustainable green of another kind.

RL Growers Cooperative, a group of 50 farmers in Roseau and Lake of the Woods counties, started cleaning its first batch of P-101, a perennial ryegrass variety, in January.

The ryegrass seed will find its way into lawn mixes used by groundskeepers, says RL President Richard Magnusson. "It's also used on southern golf courses. They overseed it in the early part of the fall." In the South, when many other grasses go dormant, P-101 will be "starting to green up, so they have green year round," Magnusson says.

RL Growers owns exclusive rights to P-101, which means they can control production and marketing of the ryegrass seed, Magnusson says.

### Seed partners

About half the RL Growers, along with Northern Farmers Co-op in Williams, Minn., have also invested in Northern Excellence Seeds, which built a \$2 million seed-cleaning plant across the street from Northern Farmers elevator.

The group was offered cleaning equipment from Marvin Seeds in Warroad, Minn., with the understanding that the cleaning plant — the third in the region — would be built in the area, says Magnusson, who is also a Minnesota Association of Wheat Growers vice president.

Teaming with Northern Farmers Co-op made sense from a production standpoint, Magnusson says. The co-op's elevator already had employees and a scale. The peak of the grass-cleaning season is opposite the elevator's peak season, so one manager runs both operations.

Much of the seed will be sold to wholesalers such as Scott's, Magnusson says. Some will be sold locally to companies such as LaCrosse Seeds in Wisconsin and Twin Cities Seeds. They have also

looked at the consumer market, Magnusson admits, but as yet, "it's a tough nut to crack."

### Grasses 'r us

In addition to winter hardiness, P-101 "is tolerant to Assure herbicide. There's no way we can market that to the end user, but it's a benefit to the producer," Magnusson says. "One problem in northern Minnesota is quack grass."

Ryegrass isn't the only grass seed produced in the border counties. Growers in northern Minnesota have been producing bluegrass seed for more than 40 years. "It's one of the crops that has enabled farmers to keep growing up here," Magnusson says. "It thrives in our climate."

Reed canary, timothy and birdsfoot trefoil are also grown in the region. Magnusson estimates that 50,000 northern acres are in production for grasses and clovers.

Northern Excellence can process up to seven million pounds of seed a year, Magnusson says, giving it ample growing room from its current two million. "Farmers are looking towards the future; they're expanding their acres. Grass seed is one of the most profitable parts of their farms."

### In their hands

RL Growers plans to test other new releases, Magnusson adds, and Northern Excellence is "pursuing contract production with other companies." RL-owned varieties will "put the power back in the producers' hands," Magnusson says.

"There's no sense in producing too much. If we control production, we don't glut the market ... and we keep the premium in the market." ■

