

STEP UP

FRESH FROM THE TUNDRA: BETHEL'S VEGETABLE FARMER

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A Bethel entrepreneur is helping feed his neighbors, and proving that vegetables can be grown in the Bush.

BY KALB STEVENSON

FRESH FROM THE TUNDRA

CRAIG BONE/SKI/LANE PHOTO

An oasis of green amid the peat-rich tundra of Bethel, the Meyers family farms seven acres, and hopes to have 14 acres of agricultural land by 2010.

WHEN THE PRICE OF OIL ROSE TO NEARLY \$150 A BARREL LAST SUMMER,

food prices in the Lower 48 soared as shipping companies passed the high cost of fuel on to their consumers. Many were shocked to pay more than \$4.50 for a gallon of gas and nearly \$5 for a loaf of bread, but those prices wouldn't raise an eyebrow in Bush Alaska. It has never been cheap to ship food to rural Alaska, and residents there have paid a premium for imported food, especially items that can spoil easily or require refrigeration, such as fresh fruits and vegetables. So when food prices rose across the rest of the United States, they hit the roof at village grocery stores. Combine that with rising utility costs, and many in the Bush were faced with a choice between heating their homes and eating a well-rounded diet.

One family in Bethel has a solution: locally grown, affordable vegetables, enough to feed entire communities. Tim Meyers and his family are proving the experts wrong with their sustainable, large-scale farm on the tundra.

The Meyers farm grows red, green and Napa cabbage, radishes, turnips, lettuce, kale, collard greens, cucumbers, zucchini, beets, carrots, potatoes and rutabaga.

"We are open four days per week selling boxes of produce to our neighbors at a low cost," Meyers said. "Meanwhile, food prices around the world have doubled. I want to get 30 more farms and teach other people how to run them."

While farming is now Meyers' full-time job—and one that involves his entire family—he is not motivated solely by profit. Meyers said he is most concerned with finding solutions to the rising energy and health problems in his community, and with helping his neighbors sustain themselves year-round.

"With heating fuel at \$6.50 per gallon and gasoline at \$6 per gallon, residents are certainly feeling the energy crunch," Meyers said. "Our farm provides people with twice

the amount of vegetables at half the cost of supermarket produce that's flown in from Oregon—and ours is all organic."

For years, experts said farming would never be successful in Bethel; the climate is too cold and windy, the soil stays frozen too long and greenhouse temperatures could never stay high enough to mass-produce food. Meyers, however, has challenged the conventional wisdom and has made farming in Bethel profitable.

"Our cold weather actually works to our advantage," he said. "All the books will tell you not to harvest (root vegetables) until the first frost to get the best taste. And our vegetables are some of the sweetest and tastiest around. I think it's our exceptionally cold climate that contributes to this effect."

His lettuce, spinach and radishes also have a distinct taste.

"I would not be surprised if there is one day a niche market for vegetables grown in the region," he said.

Meyers has farmed more than an acre of land on his 3.5-acre property for the past five years with the help of his wife, Lisa, and their four daughters. In 2009 their total farmed area will reach about seven acres



Last year, the farm experimented with an all-natural chum salmon fertilizer made from local-caught fish mixed with willow chips. "Things are turning green and exploding to life," said Meyers.



when he leases a parcel of peat-rich tundra adjacent to his property. His goal is to farm 14 acres by 2010 and, ultimately, to provide a substantial quantity of the vegetables consumed in Bethel.

The secret to Meyers' success is a combination of ingenuity, experience, persistence and scientific reasoning.

Until recently, Meyers had a successful career constructing energy-efficient, insulated, steel-framed houses in his private shop. One day, he said, he realized that the same energy-conserving concepts he was using in housing construction would work for farming. He turned his attention to designing and building greenhouses, reading the literature on Alaska agriculture and experimenting with his ideas inside his shop.

After building the greenhouses, Meyers built his farm equipment. He welded

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—Tim Meyers

a bed shaper, disc-hipper and a cultivator, any of which may be hitched to the small tractor in his barn once the soil thaws.

Meyers' steel-framed, plastic-lined greenhouses are cheap and easy to build, and designed for temperature regulation

in a cold and unpredictable climate. For a greenhouse floor, he sinks 30-foot-long beds of soil in wooden boxes into the earth. Beneath these boxes are three-inch foam beds that help hold in heat gained during the day.

The sun can actually make these greenhouses too warm for plants, even in Bethel, so the beds contain air pipes that regulate temperatures with a thermostat-controlled fan. When the indoor air temperature hits 70 degrees, the fan turns on and transfers heat from the air to the middle of the beds. When the sun goes down and outdoor temperatures drop, excess heat dissipates through the soil beds and out into the greenhouse.

“The greenhouse soil temperatures are 70 every morning just by running a fan and insulating the floor,” Meyers said. “The structures are heated up quickly by



Raised beds of vegetables covered by perforated plastic sheeting boost the soil temperature eight to 10 degrees, and protect plants from inclement weather.

the sun in the morning because of the plastic coverings and steel frames, and the earthen beds and ventilation system allow them to hold a lot of heat through the night.”

Meyers and his family plant vegetable seeds in their greenhouses every two weeks in the spring. Starting each new plant in their greenhouses allows for fast, consistent and uniform germination. It also provides a continual supply of produce to the Bethel community throughout the summer and into autumn. Once

the outdoor areas have thawed, Meyers transplants the maturing seedlings into rows of shaped soil beds. Raised beds provide necessary warmth and create an important temperature gradient between the air and the nearly frozen earth above the permafrost. Each bed of vegetables is covered by perforated plastic sheeting strung over a series of small wire hoops, forming a tunnel over every row.

“The raised beds and plastic lining elevate the soil temperature 8 to 10 degrees and allow our outdoor produce to

continue growing successfully,” Meyers said. “The wire-framed plastic coverings are important for this region, which can have a large number of windy, rainy and cloudy summer days. The coverings insulate the crops and provide protection from the elements that would otherwise negatively affect crop production.”

Unlike many gardens and farms on the road system, Meyers' crop production was hardly affected by last year's cold, wet summer.

The farm also uses blocks of earth about 3 feet tall for growing spinach, lettuce and radishes. These blocks have plastic hatch coverings on embedded hinges to regulate growing conditions, and eight-inch wind tunnels carved through their bases. These tunnels transfer heat from the warmer air to the colder ground, allowing the mounds to thaw faster in spring and lengthen the overall growing season.

The Meyers have also begun experimenting with an all-natural chum salmon fertilizer. They buy cheap, bycatch chum from local commercial fishermen, grind the fish, mix it with wood chips made from willows they collect, and place the mixture in 55-gallon drums to compost. That way, they have been able to avoid using chemical fertilizers, pesticides and herbicides.

“Things are turning green and exploding to life,” Meyers said. “The technology we are using, the acres and acres of land that could be opened and the availability of this renewable, organic fertilizer available for such little cost and effort are all extremely exciting.”

The Bethel farm is catching the attention of people across the state, including the University of Alaska, which has a satellite campus in Bethel. UAA biology professor Dr. Ian van Tets coordinates a summer research program for Alaska Native and minority students. He is hoping to recruit a local high school student to work on Meyers' farm next summer and bring national attention to the local vegetable production.

“Right now, we have funding for an Alaska Native student who is attending high school in Bethel to work with university faculty members in their own



With help from his wife and four daughters, Meyers' farm has become a successful family business in Bethel.

town on health issues important to their own community," explained van Tets, who has previously mentored Alaska Native students studying links between alcohol use, obesity and diabetes. These students have gone on to win research awards, obtain scholarships and major in biology or premedical science at prestigious universities around the country.

"I would like to see a student investigate the effects of temperature and wind on covered versus uncovered vegetables growing in the region," van Tets said. "A study on the benefits of chum salmon-derived fertilizers applied to different vegetable crops would also be very in-

teresting. Controlled, scientific studies could help other rural Alaska farmers fine tune their methods and help build a research base that would benefit agricultural projects across the state."

Meyers also recently won a \$30,000 award from the Alaska Federation of Natives' Marketplace competition, money he plans to use to expand the farm and eventually grow vegetables year-round.

Farming isn't the only thing on Meyers' mind, however. He is thinking about other ways people in Bush communities can cut costs.

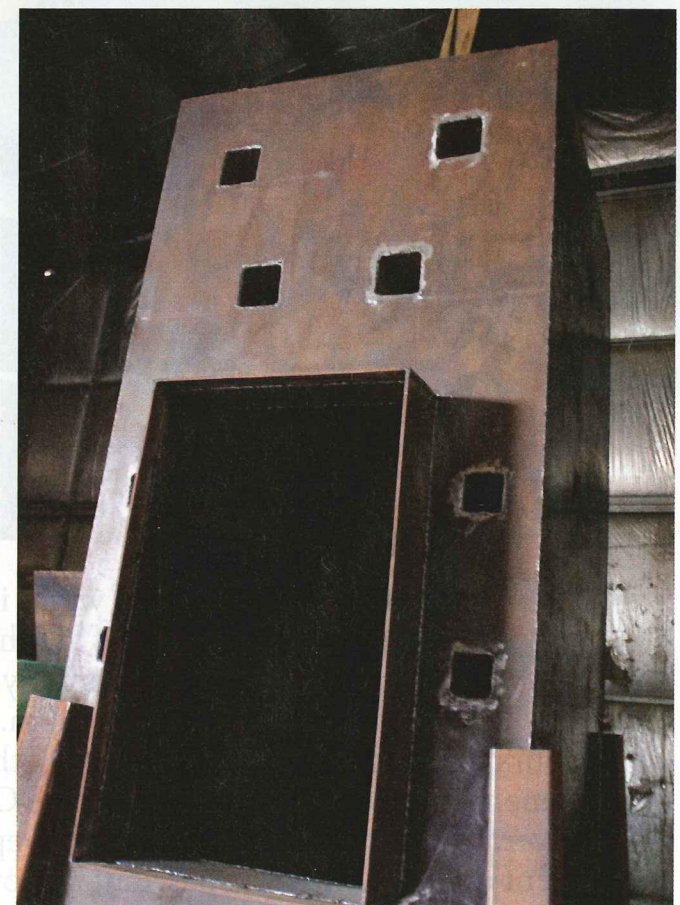
"There is hardly any solar or wind power out here," he said. "We need to be-

gin doing some basic things, like building smaller houses to get the costs of utilities down. We also need to get back to the basics of relying more on subsistence fishing.

"Yes, we are in the midst of an energy crisis, but we are trying to live very efficiently. We are growing our own food, we have a river full of fresh salmon, and I think this is a wonderful place to be for next the 50 years in these troubled times." ■

Kalb Stevenson is a biologist associated with the University of Alaska Anchorage and the University of Alaska Fairbanks.

OPPOSITE PAGE: With a background in energy-efficient home construction, Meyers created an innovative northern-climate greenhouse design [TOP LEFT] that is affordable and easy to build. Meyers' vision goes beyond farming [TOP RIGHT]—he sees wind and solar power and a return to subsistence fishing as part of the solution to high energy costs in Bethel. A custom-built furnace [BOTTOM RIGHT] in Meyers' workshop accepts an entire bundle of waste cardboard—which a local store donates to the farm. According to Meyers, one bundle of cardboard is enough to heat his shop for eight hours.



PHOTOS BY CHRIS PIKE