

VARIETY

## Experimental sunken greenhouse in Minneapolis is weathering its first winter – and growing food

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By Kim Palmer (<http://www.startribune.com/kim-palmer/10645576/>) Star Tribune |

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It was a typical snow-covered winter day, but something very atypical was happening — cabbages, broccoli and even strawberries were improbably green and alive in a northeast Minneapolis backyard.

“It’s working,” said Greg Strong of the garden he tends several times a week. “It’s very warm, the plants are growing.”

“It” is Sophia, the nickname for an experimental garden project built by an enthusiastic group of volunteers. Sophia is a walipini, a South American word for a sunken, solar-heated greenhouse with earthen walls. Strong and his fellow gardeners are optimistic that Sophia will become a prototype for how to grow food in harsh climates.

While digging giant holes for underground greenhouses may seem extreme to many Minnesota gardeners, walipinis reflect a broader search for new growing strategies.

“There is this push — we do need to find low-tech, low-cost ways to grow food year-round,” said Paula Westmoreland, an agroecologist and permaculture designer who founded the Permaculture Research Institute-Cold Climate and now operates Ecological Design in Minneapolis. Passive-solar greenhouses above ground are more common in Minnesota, she said, but she’s heard about walipinis in recent years, and visited one in Wisconsin that was successfully producing food. “People will continue to experiment.”

Strong is one of them. “I’ve been interested in experimental growing for some time,” he said. Still, he was dubious at first. “When I first heard about it, I thought it was strange, but I was intrigued.”

Sarah Lawton, whose backyard hosts Sophia, also had her doubts when the crew started digging the gaping 11- by 7-foot hole, almost 6 feet deep, on her small city lot.

“I was thinking ‘This is crazy — that’s my yard!’” she said. But now she’s happy Sophia is there. “I like that it brings people together. It’s all part of our mission.”

Lawton is a pastor, and her home is the parsonage for her church, Northeast United Methodist, which has a large organic garden covering its front yard. Several years ago, the church launched a mission to make better use of its land by tearing up the grass to produce food for food shelves and community dinners. Adding a walipini turned out to be the next step.

The seed for the project was planted by a mysterious and charismatic stranger who attended a canning class at the church last year. Michael, as he called himself, told church members about his Seasons Unity Project ([seasonsunityproject.com](http://seasonsunityproject.com)) and its free workshops related to cold-climate growing. He offered to help the church build a walipini, at no charge, with the agreement that the church share the walipini as a model for others.

### Salvaged materials

Sophia was built on the cheap, using scrounged and donated materials, including pallets and playground lumber, old fencing and reclaimed windows. “It made construction more difficult but it really did work for zero dollars,” said Lawton.

The makeshift structure utilizes passive-solar design — the sun comes through the glass windows and hits the north wall, where stones and buckets of water are placed to absorb heat. On a recent day, when the outdoor temperature was about 20 degrees, the temp inside the walipini measured 44 degrees, and the soil close to 50 degrees.

So far, no food has been harvested from the walipini, in part because of construction complications that delayed planting, followed by bad weather. That’s why Strong considers it a work in progress. “We kept saying, ‘Is this gonna work?’ But it’s pulled through.”



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Sara Jane Van Allen tended the plants growing in a walipini, or sunken solar-heated greenhouse, in a northeast Minneapolis

This first winter, the walipini has been more of an incubator than a food producer. “For now, we’re sustaining them, keeping them alive,” Strong said of the several dozen veggies and herbs planted inside. “In coming years, we will plant quite a bit more.”

Sophia isn’t the only new walipini in Minnesota, although it’s the most fully developed. R Farm near Lindstrom, Minn., laid the groundwork for a walipini, a much larger one, also inspired by the Seasons Unity Project. Farm owner Tim Reisdorf met the mysterious Michael, who uses variable surnames, when he contacted Reisdorf seeking his raw, organic goat milk.

Reisdorf and his family, who moved to their farm from Minneapolis several years ago to “exit the rat race” and pursue a more self-sufficient lifestyle, were intrigued when Michael told them about walipinis.

“He asked if we would like one, as a test, to showcase what can be done,” Reisdorf said. Michael lived in their home for about six weeks last summer, working in exchange for food and lodging. “He wanted nothing to do with money,” Reisdorf said.

#### ‘An opportunity’

In late summer, R Farm hosted a workshop, involving about 30 volunteers, to build a walipini on the Reisdorfs’ property. The workshop was scheduled to last several days, but construction took longer than expected, and the project wasn’t completed.

“The size of our walipini is pretty ambitious,” said Reisdorf of the 12- by 30-foot pit, more than 12 feet deep. “It was a big project, and we miscalculated the amount of time it would take.”

They excavated using a Bobcat, cut timbers from the property and stripped their bark. But without additional manpower, the Reisdorfs can’t finish the walipini. “It became a project out of control,” he said.

Meanwhile, Michael, the walipini mastermind, has moved on. Reisdorf, Strong and Lawton have tried to reach him without success, and don’t know where he is.

“He’s a traveler and a dreamer,” said Strong, who misses someone he now considers a friend, but still appreciates what he left behind. “It wouldn’t have happened without him.”

Even Reisdorf, left with a giant crater, has no regrets. “I’m discouraged, but I’m not giving up on it,” he said. “We have a big hole in the ground, we’ve got most of the materials. It’s an opportunity. We’ll see what we can do with it.”



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Greg Strong tends to the plants inside a Walipini, an underground greenhouse, in Minneapolis.