

OSU Urban Farming Study: What's the Best Way to Turn a Parking Lot into a Garden?

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WOOSTER, Ohio - An old asphalt parking lot might not seem like a good place for a garden.

But in urban areas it can be. It tends to be cheap open land. And an Ohio State University expert on intensive small-scale horticulture has started a three-year study on what works best there.

Joe Kovach, who specializes in maximizing fruit and vegetable production in limited spaces, is comparing three ways to do it in empty, abandoned parking lots:

in giant-sized pots and in raised beds on top of the blacktop, and in trenches cut right through it.

"There are a lot of vacant parking lots in places like Cleveland and Youngstown," said Kovach, who works at the Ohio Agricultural Research and Development Center (OARDC) in Wooster and holds a joint appointment with Ohio State University Extension. "We're hoping to learn if the trenches work, if the pots are worth it and of all three techniques, which is the best?"

His work could boost the use of abandoned urban land. It could help people who live in urban food deserts - areas having little or no access to affordable, nutritious foods - grow more of their own tomatoes, spinach and other fresh produce. And it could help them do it more easily.

Turning blacktop green isn't new. It's part of the growing wave of urban farming. But Kovach wants to see if there's a better way to do it.

Commonly, parking-lot gardeners use raised beds. The bottomless wood or plastic boxes - typically something like 4 feet wide, 8 feet long and 10 inches deep - rest on a layer of wood chips. The wood chips cover the asphalt. The beds hold the soil mix and plants.



Some growers tear out the asphalt instead. They "depave" the entire parking lot. It's doable but hard work. (There's even a group dedicated to it: <http://www.depave.org/>.) Then they plant in the ground.

Kovach wants to see if depaving only the trenches is a simpler but still-productive option; if waist-high pots are easier to tend than ankle- or knee-high raised beds; and what sort of freezing, drying or overheating problems might come up in any of the systems. Asphalt holds in heat, after all, which may be a boon in March but a bane in August. He'll look at yields, pests and high tunnels (unheated, plastic-covered greenhouses) as well.

"I don't think anyone else is doing this bonkers research, quite frankly," he said with a laugh on a late fall day at his test site. "(Starting it) seemed like a good idea at the time."

Dorm Closes, Idea Grows

Kovach recently completed a six-year study of fruit and vegetable polyculture: "ecologically designed" mixed-crop plots that maximize biological diversity, minimize pest problems and earn the equivalent of nearly \$100,000 an acre a year. Dozens of big, healthy apple trees, peach trees, raspberry plants and blueberry bushes were grown for it. And then they weren't needed anymore. But Kovach just didn't want to trash them.

He had an idea.

He'd use some of them to establish a polyculture demonstration site. In the past few years, he's been hard-pressed keeping up with people's interest in the project. A place for tours would help.

He'd put it in a busy location - on U.S. 250 just south of Wooster - on the lawn of an obsolete, recently closed dormitory at the Agricultural Technical Institute (ATI). ATI, too, is a part of Ohio State. It's next to OARDC.

And he'd start a new study in the dorm's adjacent parking lot. There he'd put the rest of his plants and the parking lot, too, to new use.

"We're trying to come up with different ways to use asphalt like this," Kovach said as he walked the site on a cold, gray day in November. "Instead of saying, 'It's wasted land, let's rip it all up,' we're saying, 'Let's figure a way we can use it.' "

He started the project in October. The trenches were cut (done in a day with a rented pavement cutter). The pots were bought (black, plastic and the size of a small hot tub). The soil-mix materials were gathered. Then the fruit trees and plants were transplanted. Further, final planting of other crops will

take place this coming spring. An irrigation system and six high tunnels will go in then, too.

Pots vs. Beds vs. Trenches

The study features three replicated plantings under each of the three systems.

The first system will grow apples, peaches, blueberries and blackberries in the giant pots; deep-rooted vegetables, such as tomatoes, in normal-sized buckets with drain holes; and shallow-rooted crops, such as green beans and strawberries, in wide gutters hung on cattle panels (stiff, welded-wire fencing). This is the system that's highest off the ground and so may be easiest to care for: less stooping. Will all the containers be worth it?

In the second system, all the fruits and vegetables, including the fruit trees, will grow in 3-by-30-foot trenches cut out of the asphalt. A low raised bed will surround each trench. The bed will raise the trench's sides; make it deeper to plant in; and also make it easier to reach, at least compared to planting in the ground. Is taking out only part of a parking lot, instead of all of it, a viable option?

The third system will grow all the crops in tall raised beds - about 30 inches high, or up past your knees - set on, not into, the asphalt. They'll be higher than the trench beds but lower than the pots. The bottom 15 inches in each bed will be wood chips for drainage and height.

The polyculture demonstration site, meanwhile, located on the grassy lawn, will serve a second purpose: as a study control for the systems on the asphalt.

All three systems will use the same soil mix: wood chips, compost, sand and topsoil in a 4:2:1:1 ratio, respectively.

Parts of all three systems, too, will grow beneath the high tunnels. Will the asphalt capture and retain enough heat to make a difference inside them? Can this be used to advantage in spring?

The site in December is covered by snow but is fresh in Kovach's mind.

"For now I'm getting a bad feeling about the survival of the (transplanted) trees and bushes in this treatment (the tall beds), and I don't know if it's because of the normal panic when starting a big project or something more. Hopefully, I'll have clarity by March," he said.

"There are still a lot of issues to be addressed. But if this research is

successful, land that was paved and considered unusable for food can become productive again."

Kovach is an associate professor in Ohio State's [Department of Entomology](#). He heads the university's [Ohio Integrated Pest Management Program](#).

[OARDC](#), [OSU Extension](#) and [ATI](#) are part of Ohio State's [College of Food, Agricultural, and Environmental Sciences](#).

Photo: Ohio State University's Joe Kovach cuts trenches at his parking-lot test site in Wooster last fall.

Note: Learn more about Kovach's polyculture plantings at <http://ipm.osu.edu/default.asp>. They're good for urban areas, too, and for suburbs and small farms in general.

Resources:

[Joe Kovach.jpg](#)
[Joe Kovach.jpg](#)

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