

## Healthy Soil in Richmond's Concrete Jungle

Laura: This is the sound of eight teenagers figuring out how to turn a pile of lumber into six-foot high seed starting platform in the middle of a mostly vacant lot outside Richmond, California.

They're youth apprentices who are spending their summer working with Urban Tilth, a nonprofit based in Richmond, a big city in the San Francisco Bay Area. Urban Tilth has a pretty simple mission: help this community grow more of its own food, and do it in a sustainable, just way. Everybody who works for them, including these teenagers with the table saw, lives here, in and around Richmond.

And this three-acre lot where they're working, it's at the heart of this story. Urban Tilth is transforming it into a working farm. But it's a challenge. Reporter Graelyn Brashear is here to tell us why. Graelyn, first, tell us more about where we are.

Graelyn: Well, this spot is just outside the city of Richmond. It used to be a big manufacturing town, but it suffered when a lot of industries left. But Richmond is on the upswing. Its port is expanding, new companies are building, and crime has gone way down. But one thing it's short on, especially in the neighborhoods on the outskirts, is grocery stores.

Back in 2012, a local county official had this idea—why don't we try to turn some of the county-owned vacant lots out here on the edge of town into community gardens? And Urban Tilth said yes, us, this is our mission.

So fast forward through years of wrangling with zoning laws and we get to today, when Urban Tilth has worked out a deal to rent this little three-acre plot from the county for \$10 a year. But they had their work cut out for them.

Graelyn: What did this place look like the very first time you laid eyes on it?

Doria Robinson: It was radish and bristly ox tongue. And fennel above your head.

Graelyn: Doria Robinson is the director of Urban Tilth

Josh: About half the lot was covered in Himalayan blackberry, which was pretty shocking.

Graelyn: Josh Arnold is a Berkeley Ph.D. student studying urban agriculture.

Josh: Probably 10 to 12 feet tall in some areas.

Doria: We actually thought it was mounds of dumped material, and we didn't realize it was just all blackberry patch. There was like an area in the middle there is kind of a path that you could walk through it and it was just like you're walking through this forest of invasive species.

Graelyn: Doria and Josh and many, many other people have poured a lot of sweat into this piece of land. Because they are committed to seeing it transformed from this tangle of weeds and debris into a real, working farm, with an orchard, row crops, a chicken run, even a farm store.

Doria: It's sunny, it's great weather, it's in the middle of a flood plain. We're actually right between two creeks like our back or back border is San Pablo creek. The other tree line is Wildcat Creek. So it's a place where a lot of people settled over the years.

Graelyn: It's going to take a long time—10 years, before this place looks like the vision in their heads. But she and the rest of the Urban Tilth team had total heart-eyes for this spot from the start.

Doria: It's like classic Urban Tilth you know, stand in the middle of the most desolate, destroyed space and we're like, "This is our farm! We can see it. We can see it."

Graelyn: Josh, the Berkeley agricultural ecologist—he saw it, too.

Josh: You can tell when you're standing in that area. It's an area that's a special place. If you hit it during just the right time of year when the breeze is blowing fall those cottonwood leaves kind of shake and give you that wonderful noise that cottonwood does.

You can tell it's been a place where people have been at for a long time. You had wetlands you had a river you had you know beautiful soil that had you know swelled out of those creeks. So it's a really. It's a place that's kind of rooted in in humanity almost you can you can just feel it.

Graelyn: People have lived here a long time. Archeological digs show that Native Americans were living on this land long ago. When the cities of the East Bay sprang up in the late 1800s, this is where people grew their food. And later, flower companies grew orchids in long rows of greenhouses.

These days, this little corner of the Bay Area is mostly empty, grassy lots. There are a few warehouses here and there, and a scrapyards. You can hear trucks passing by and the Amtrak trains rolling through. The San Francisco Bay is just to the west, and it's otherwise surrounded by the city of Richmond, a big urban center that used to be an industry town. It's suffered since shipbuilding slowed down and the gunpowder works closed.

This spot, the future-farm, current vacant lot, is part of a kind of buffer zone between one of the last remaining industries here, the huge Chevron oil refinery, and the poor neighborhoods at the edges of the city. This is where the sidewalk ends, and for years, people have used it as a dumping ground.

Which means you have to wonder—what's in that ground? Can you even grow anything in it?

Sarick: Soil is a complex matrix of minerals, mineral particles.

Graelyn: Sarick Matzen is an urban soil ecologist at Berkeley.

Sarick: And then also organic matter and then the microbial life the bacteria the fungi the macrofauna, like the earthworms. So all of that working together to make this really complex system.

Graelyn: Sarick works with Josh Arnold, who you heard from earlier. Their whole area of research is urban agriculture, and they partner with nonprofits and with local municipalities to study city soils and figure out how to improve them. The North Richmond farm is like a living lab for them. So, Sarick's point: Soil is so much more than just dirt. A healthy soil is full of life. But it can also harbor some nasty stuff. Heavy metals like lead from old spilled gasoline, or paint, for instance. And manmade chemicals, byproducts of burning fossil fuels. And as Josh explains it, if those contaminants are in the soil where you're growing plants, they can get into you if you eat those plants,

Josh: You know soil-plant-human...

Graelyn: Or even if you're just digging around.

Josh: Just soil-human—you know we have to think about strategies in order to break that that chain.

Graelyn: And this is the tricky thing with urban soils that you're trying to convert to cropland. Healing it can be sort of like a medical mystery, since you don't know every toxic thing that could have touched it.

Josh: Do we have to worry about pesticides? do we have to worry about petroleum products?

Graelyn: And the soil under all those weeds? It didn't look great. It was hard as cement, and studded with stuff that had been dumped there over the years.

Sarick: Just sort of pale rocky soil that had a lot of car parts in it.

Graelyn: So with help from Urban Tilth's youth apprentices, they took on the huge, tedious job of methodically drawing a grid over this whole lot, and gathering soil samples from that grid.

Sarick: it was fun to work with the high school students on that because they got excited about applying their geometry skills. They also seemed to get excited about using the mattock.

TRACK: That's like huge hoe you swing over your head.

Sarick: Getting buff for science.

Graelyn: And then, they had to test the samples.

Graelyn: So tell me what we're doing here

Sarick: So we are going into 23 Hilgard, which is the shared soils facility.

Graelyn: Sarick dons a lab coat and black rubber gloves, and shows me what they did with all those carefully collected soil samples: Switch on what looks kind of like an old-fashioned coffee grinder and slowly pour in a sandwich-bag's worth of clumpy soil.

Sarick: Put the lid on...all right, are we ready?

Graelyn: It takes a few minutes to grind up the whole thing. And for the North Richmond farm site, they did this hundreds of times. All so they could ship these little bags of soil to a couple of

different labs for analysis—one in Ohio, one in Massachusetts. And this spring, they got the good news. The soil was clean.

It didn't have any dangerous levels of the nasty stuff they were worried about—the heavy metals, the fallout from the oil refinery. But, the bad news?

Doria: It's dead. It's just rocks, crushed rocks.

Graelyn: That's Doria again, the director of Urban Tilth. She's walked me through the three acres of the North Richmond farm, and we're standing toward the back of the lot on that hard, pale soil that they so painstakingly tested, surrounded by house-sized mounds of earth and debris.

Doria: Right now if you look out there you see machines and big piles of soil, because that's where we're at in this you know 10-year journey.

Graelyn: It was reassuring to know that the soil didn't have anything dangerous in it, she said, and maybe not surprising to learn that it also didn't have any good stuff in it either—all that stuff Sarick told us about, the organic matter and microorganisms.

Which brings us to the next big job in turning this land around from dump site to veggie paradise. And it involves an insanely labor-intensive two-step process. Step one: take out the junk. Urban Tilth is literally scraping up the top few feet of soil on this whole lot, and pulling out the car parts, the busted chimneys. Then they're chewing up all the dirt in this huge version of that soil grinder you just heard in the lab, and spreading it on the ground and painstakingly sifting out debris and the roots of all those invasive species by hand.

Doria: We will literally do this like walk with volunteers like you would do like searching for a lost person and we'll probably be doing this for another six months.

Graelyn: So that brings us to the second step: Put new good stuff in.

Doria: You know, we've got a great partnership with the local municipal composting and recycling facility, and they've been dumping 40 cubic yards of compost here every week

Graelyn: That's like a tanker truck's worth of compost.

Doria: And we're taking that, and mixing it in with manure from the local horse stable.

Graelyn: Gradually, all that good stuff is getting mixed into this scraped and sifted ground. But in the meantime, Urban Tilth is still finding ways to grow food—by planting it above ground.

D'Merris Hunter: My favorite is the purple cabbage. I love it. I love purple cabbage.

Graelyn: D'Merris Hunter is sixteen, going into her senior year of high school. She grew up in Richmond, and she loves this place. She's one of the teens who's working on the farm this summer—today, a crew of them are building a seed starting platform.

D'Merris has watched this place transform already. When she first saw it last summer, she said it was hard to imagine you could grow food here.

D'Merris: Like it was weeds everywhere, like it was nothing, another empty lot. There's a lot of empty lots we have out here in Richmond.

Graelyn: But she and others piled all this good dirt, full of compost and manure, and ringed the piles with big sock-like tubes of hay so they had raised beds about a foot high. And now, they're planted with vegetables that are filling weekly CSA boxes for 60 local families. D'Merris says it's a big deal for the neighborhoods nearby that don't have grocery stores.

D'Merris: I feel like doing this, it's a good thing. Get something fresh, like, that you can pick yourself. It's nice.

Graelyn: Meanwhile, the grading and sifting and compost-adding continues at the back of the lot—a fully working farm in the making.

It's hard work—tedious and exhausting work—to take land that people gave up on and turn it back into land people can live on. Nobody knows that better than Doria Robinson. She said sometimes it feels like they're just closing their eyes and trusting in sweat and science.

Doria: It only feels like an act of faith, because we're so removed from soil in cities, especially cities like Richmond, industrial, post-industrial spaces, you know? It feels like you have to like cross your fingers and hope that it happens by, you know, cleaning things up and bringing nutrients back to soil, that things will grow. It just takes re-mending and repairing those relationships.

Laura: You've been listening to Just Food, a podcast about cultivating justice and health. This is a production of the Berkeley Food Institute. For more details on Urban Tilth's North Richmond Farm project, visit [urbantilth.org](http://urbantilth.org). To see some photos of the farm and the youth making it grow, check out Berkeley Food Institute's website at [food.berkeley.edu](http://food.berkeley.edu). This episode was produced by Graelyn Brashear and Lacy Jane Roberts. The music was composed by Roy Baril and Podington Bear. I'm Laura Klivans.