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SPEAKERS

NPR promo, Christopher Conover, Nicole Cox, Joaquin Murrieta-Saldivar, Zac Ziegler, Jose Garcia



Zac Ziegler 00:03

Welcome to The Buzz, I'm Zac Ziegler. This week, bringing a second life to what we use in southern Arizona. The Buzz continues its series examining the three R's this week with a look at how we reuse what we have. We start with efforts to get the most out of our food waste. The City of Tucson FoodCycle program is relatively new, but it's already producing compost for a variety of community and household gardens as well as other purposes. The program came out of the University of Arizona's Compost Cats, as did the person who heads it up Jose Garcia of the City's Environmental and General Services Department.



Jose Garcia 00:47

Composting isn't new to Tucson you know, there's so many grassroots local gardens, community gardens, school gardens that have been doing composting like in a small scale. The University of Arizona Compost Cats had their, they started their compost facility in 2013, I believe at the San Javier Co Op farm. And they partnered with the city in the capacity that the city would provide the collections aspect of of compost to a food waste collection basically back then I think they had somewhere around 100 local Tucson businesses that had containers outside of their business where they collected food waste organic waste, and the city would collect it bring it to San Javier Co Op farm and the Compost Cats would then produce the compost there. I became a University of Arizona Compost Cat in my junior year when I was in college, just working on all sorts of projects until the point that I became the the team lead for the FoodCycle program. We then partner with the cCty of Tucson Environmental Services at a new site which is here at the Los Reales Sustainability Campus. We inaugurated the compost facility in April of 2021 and has been fully operational since then. Every single week we see about eight to 10 average tons of food waste through our doors, and we're producing compost every single week. We produce windrows that are about 100 to 150 cubic yards every week with the food waste that we receive. We have also partnered with Reid Park Zoo and besides composting, their food waste, we also compost some of their zoo maneur from the herbivores. The end life of the compost that we're producing here is to be donated. We're currently donating all of our compost. The end of May of this year, we've donated about 130 tons to community gardens of Tucson, a couple of school gardens, Compost Cats, the university has

taken some of that, that compost, and we're going to keep on donating that compost. At the start of the 2024. We extended our commercial food waste collection program, which is FoodCycle and started food cycle at home, which is the first time the city has offered like residential collection of food waste. It's still a pilot program to this day. People sign up online. And they can attend one of our training sessions that we have like Ward offices, libraries, community centers. We give him a bin, it has stickers on them that tells them what can and can go in. And we just educate them about all of that. And it's been remarkably successful for us because contamination is probably one of the biggest issues that a compost facility will encounter. Plastics, metals, just random materials that people will put into their compost bin.

Z Zac Ziegler 03:44

You mentioned those buckets when it gets filled up or maybe just a little too stinky for the homeowner. What do they do with it? I mean, it's getting set out by the curb like their trash? Is it being taken somewhere for drop off.

J Jose Garcia 03:57

Yeah, so it's to explain the full kind of process of the program is when people sign up online, they attend those trainings, they'll receive their kitchen pail and they're free to start collecting their food waste at home. They are not limited by that kitchen pail. It's just like as I mentioned, it's just like under like a starter kit. Once their bucket is full, our drop off sites. We currently have seven drop off sites. I believe there's one in every single ward office of the city of Tucson, and we're working on expanding that number. We're trying to double that amount. That food waste that is collected at those drop off sites, our City of Tucson collections division picks it up and brings it to the Los Reales Sustainability Campus. It gets weighed and it gets dropped off in our compost facility and an operator, myself included, we'll go through the foodways check make sure it's clean. If there's any anything like plastics, metal, just random materials in there. We'll remove them and then incorporate them into our compost piles.

Z Zac Ziegler 05:01

It seems like packaging is maybe one of your your big oopsie things that gets into the compost stream here. Are there other things that people put in there that it's like yeah, that doesn't actually quite work or?

J Jose Garcia 05:14

Yeah, definitely. It's definitely something that varies from region to region. So we have a lot of like Tucson transplants. And they tell us, you know, they have fully developed compost programs over there and they're like, Oh, we can put anything in there. Anything that's labeled as organic or compostable, it can all go in there. Here in Tucson, we like to tell our participants especially the our residential participants that they need to be careful about the any compostable plastics that they might purchase or that they might receive like takeout or anything like that. Anything that looks and feels like plastic, but is biodegradable, marketed as biodegradable or marketed as compostable. They need to be wary of adding it to their bucket

because most of the times and we've tested it before, it doesn't break down in our compost facility here in Tucson. A lot of people are very fond of the green compostable bags. I don't know if you're familiar with them.

Z Zac Ziegler 06:09

I have dogs, I know exactly what you're talking about.

J Jose Garcia 06:12

People love them. And they're great bags, except that they don't break down here in Tucson, we've tried it. But even through a full composting cycle, we still see them at the end of the of the cycle. We have a little bit of issues with people putting their pet waste, we don't accept it here just because of the vectors that they could produce here. In the end, we, as a landfill, we have to protect against those type of things, odors, things that might get into the like, if we have a storm, storm water runoff etc. are like the rubber bands on broccoli that sometimes are on there, like the zip ties that are on like cilantro, it's that are a lot of people will miss those or skip those, and don't remove them.

Z Zac Ziegler 06:52

So for someone who you know, has their little compost roller at home, or their own bin system, how does composting at this scale differ from what they're doing at home?

J Jose Garcia 07:07

So in essence, the process the cycle is exactly the same. We're only dealing with such larger volumes that we have to take care of a lot of other stuff. So for example, if you're a household and you have one of those roller drums for composting, you have, I would say a little bit more flexibility on the materials that you add in there, just because you have a lot more time. For example, on your in your kitchen drum roller, you can add for example, if you have like a cardboard carton of eggs, a lot of people like adding leaves from the yards,

Z Zac Ziegler 07:44

Get more of the dry stuff you need

J Jose Garcia 07:45

Yeah, the drier stuff. And they'll add that into their tumbler, we like to call it our recipe but we have, you know, strict like proportions ratios of the type of materials that we'll add it into our compost windrows, our piles. So to ensure that, you know we at the end of the product, the end of the cycle, it's a good product. From feedback that I've heard from people that have their own drums at home, they struggle a lot with balancing how much water they need to add. It's

difficult in the Southwest is because it's dry, it's hot. And I mean some people have even said you know a composting in the Southwest is, you know, is a water problem because of the amount of water that is needed for composting. However, for residential like small scale composting, you shouldn't have an issue with the amount of water that you're adding in there.

Z Zac Ziegler 08:39

So we talked a bit about how people can take part in giving you stuff to compost, what if they want a little compost for their home garden or whatever? How do they pick it up?

J Jose Garcia 08:48

So from now, we've, as I mentioned, we've The city has partnered with community gardens of Tucson, they're a local organization and they have about a little over 20 community gardens just scattered around Tucson. They've been our main I would say gateway for compost donations. And it makes for a more centralized way for residents to obtain that compost. So for our participants in our food cycle at Home program, we announce whenever the city is dropping off compost at those different gardens and they have the ability to show up to those gardens with their buckets with a wheelbarrow with anything that they want, collect some of that compost and take it home. So at the moment we're not opening for like residents to come pick up here at Los Reales is just because we're very busy facility and we have large pieces of equipment moving around, we have you know, huge trucks coming in and out. And it just it's for the moment it's kind of like a safety hazard to have people just you know in their small sedans or just small pickups just driving inside into this. Which what it is it's a large commercial industry industrial facility. To pick up compost.

Z Zac Ziegler 10:02

Jose, thanks for chatting compost with me.

J Jose Garcia 10:05

Thank you so much for the invite.

Z Zac Ziegler 10:06

That was the city of Tucson's Jose Garcia. You're listening to The Buzz. After the break, we turn our attention from the ground to the sky. Stay with us. Here at shortwave space camp,

N NPR promo 10:18

we escape our everyday lives to explore the mysteries and quirks of the universe. We find weird, fun, interesting stories that explain how the cosmos is partying all around us. From stars to dwarf planets to black holes and beyond. We've got you listen now to the shortwave podcast

from NPR.

Z

Zac Ziegler 10:41

Welcome back to The Buzz. I'm Zac Ziegler, and for Christopher Conover, who's off this week. We're examining ways to reuse our resources today. We now head back to an interview from our archives. Getting the most of our water supply is of growing importance around Arizona. And with the monsoon underway, many people are thinking about the water that, on the good day, comes from the sky. The watershed management group has been on the forefront of rain harvesting for years. Dr. Joaquin Murrieta-Saldivar with the group spoke to Chris back in 2022.

J

Joaquin Murrieta-Saldivar 11:16

We are working on the Santa Cruz watershed and the Santa Cruz River is the only river that cross the border twice in Arizona and Sonora. And it starts in the San Rafael Valley in Arizona, goes into Sonora, San Lazaro and all that, comes back in eastern both Nogales, ambos Nogales and then it pass through Tubac Tumacacori, Tucson, Marana and eventually to the Gila River. So that whole complex is the watershed of the Santa Cruz River and Tucson is part of it. So what is the role of Tucson in the health of that system?

C

Christopher Conover 11:55

Okay, so let's ask that question, what is the role of the greater Tucson in that?

J

Joaquin Murrieta-Saldivar 12:01

I like to think in very simple terms, when you put a city on top of nature, a lot of things change. And Tucson is on top of the Sonoran Desert, which is part of the Santa Cruz watershed. Therefore, the water cycle change with the hard surfaces that the city brings. The streets, the rooftops, the sidewalks, compact soils, all those things have an implication on our waterways. So what happens when he rains in Tucson, for example, a lot of things happen, a lot of things don't happen. And we want things to happen. So it's very interesting to start thinking what is the role of the city in the water cycle of the Sonoran Desert.

C

Christopher Conover 12:51

Of course, one of the things that doesn't happen, and those of us who drive around know this is the water doesn't travel, it sits in the middle of the intersection. So when I'm driving, or I ride my bike, I have to go through puddles. But if you look off either side, you don't see puddles like that in the desert. So that's got to be one of the big changes.

J

Joaquin Murrieta-Saldivar 13:10

Exactly, the cities all over the world have hard surfaces like streets. So water moves on the

street. And what nature says and does is, you know, this is a lot of speed. And this is a lot of volume. I'm not going to deal with this. The way I'm going to deal with it, I'm just going to evaporate it. So water that we didn't harvest, water that we didn't infiltrate on the ground, suddenly is escaping from us. It's going somewhere else as a vapor stage, so Watershed Management Group is an expert on water harvesting is an expert on water infiltration before it gets into the street, if it isn't a stream, there is additional things that we can do. But if you start at home, that's even better, because it's more efficient. It costs less all those water harvesting techniques that we can do.

C Christopher Conover 14:06

Before we get into what you can do at home, are there things that the City of Tucson, the government, Pima County can be doing to help out that can make water harvesting better or send it to places where it needs to be as opposed to running down the middle of Speedway Boulevard?

J Joaquin Murrieta-Saldivar 14:27

Yes, they do. And they are doing and it's a fascination to work with Tucson Water for example, or to work with Pima County Flood Control. They've been very attentive in the last few years, particularly Tucson Water. They have created for home level the rebate program for what a harvesting for example, but before I go into more details, all these things used to be illegal here in Tucson, the water harvesting thing or the curb in the curb on the street to harbor some of by water, and Brad Lancaster, which is God in water harvesting started these pre legal elements of cutting curbs harvesting water from the street in front of his house. So he learned a lot of things. And we learned a lot of things from him. And thanks to that we've been changing policies with Tucson Water. We've been changing programs with Pima County, so they're doing actually good stuff, Tucson Water has the green storm infrastructure program. So they're doing more of that green storm infrastructure, the water that runs on the street, how do we take advantage of that water and put it for beneficial use water harvesting? And when I say beneficial use is water infiltration. In that process, we can create shade, we can increase the canopy shade for the city, we can diminish heat, we can infiltrate water in the ground, we can have wildlife corridors for pollinators for birds, for lizards, in our streets, in our sidewalks. So at the end, we're bringing nature back to the city where nature belongs as well.

C Christopher Conover 16:14

I think people are going to be really surprised to hear that all of these things were illegal at one point. Do you all still have fights obviously not with the city in the county, but with like HOAs and those types of groups to get them to allow homeowners to do different things?

J Joaquin Murrieta-Saldivar 16:36

It's I don't want to call it fights, but they are disagreements, for example. And that opens up for a great dialogue. Yes, we do have issues with HOAs, for example, that limit the conditions for water harvesting for example, or limit the arrangements of native plants to be allowed to grow

in their front yards or backyards. 'No, no, no, you cannot plant that tree because my neighbor is going to see it.' And that's probably not a good thing or no don't put that tank in there. So HOAs sometimes are harder to work than with the government. To put it like that. The government lately has been fascinating. We have created some wonderful partnerships and and those programs are moving along very nice. As an example with Pima County Flood Control, the whole Cholla Boulevard in section of flow of Flowing Wells neighborhood, with collaboration with Flowing Wells Junior High, the neighborhood association, other private owners private businesses, we are transforming that section of the of the street into a green street. By the fall 202e, it's going to be one of the greenest streets in Tucson I think.

Z Zac Ziegler 18:00

After they chatted Dr. Murrieta-Saldivar took Christopher for a tour of his backyard, which is filled with all kinds of water harvesting and saving ideas.

J Joaquin Murrieta-Saldivar 18:09

So this is set tank that you don't suppose to store water in it because is water from the laundry machine. This water, this tank it just gives us elevation. So this water is connected to a house which is here and the water very slowly starts coming out. You can see the water right there. So we are recycling the water from the laundry machine. And with that water, we're irrigating or we garden. And what that means is a change of culture, our culture human culture, we need to change the detergents that we use, they need to have no sodium, be biodegradable, mainly it's the sodium that we don't want. We don't want salt in the soil or in the plants. Therefore we can use this water for the plants. Even for fruit trees, this water is really really good. So therefore right there, we're saving water because we're irrigating our garden with laundry water, as opposed to with drinking water.

C Christopher Conover 19:24

So somebody I'm sure will hear this and say okay, so if I set up this system, I have to change my laundry detergent. Is it more expensive or at the end of the day does it even out?

J Joaquin Murrieta-Saldivar 19:37

it if it is more expensive is going to be like 50 cents or \$1 for the same gallon that you get. And I believe you can do more loads of laundry with grey water detergent to call a lie out. Yeah,

C Christopher Conover 19:58

And you're using less water to water your yard so it might even out in the end anyway.

J Joaquin Murrieta-Saldivar 20:03

Correct? Yeah.

C Christopher Conover 20:04

All right, well, let's continue the tour of the yard here.

J Joaquin Murrieta-Saldivar 20:07

So that's one thing. The other thing we do, as, for example, this vegetable garden that we have here. Right now there is some little radishes going there. We have some cilantro. Some calabacitas are growing, they're starting to pop up. But this water is rainwater. So the roof of the house, this section of the house collect the water whenever it rains in Tucson, and it does rain. So that water, you can see those blue pipes over there from the roof. So there is the pipe to the right, is bringing in the water from the roof is underneath here. And he's got into this cistern This is a 2500 gallon cistern that we stole water from the rain. We use that water to produce vegetables for our home. Therefore, again, we're not using drinking water to produce our vegetable garden. And rainwater is much better for the plants than city water because we don't have the chemicals that we add to the city water. So that's why the plant loves at even better.

C Christopher Conover 21:28

So how long will 2500 gallons of rain water last because it does rain in Tucson, but not all the time.

J Joaquin Murrieta-Saldivar 21:38

The beautiful thing of the Sonoran Desert is that we have two rainy seasons. It rains in the winter las [indiscernable] in Espanol. I love that word, which that's what it means in the Yacqui language. [Indiscernable] is a gentle rain. In the winter, we get that. And we usually four to six inches in average. And then in the summer, the monsoon El Agua Cerro or El Chubasco, same thing four to six inches. So at the end it's an average of 10 to 12 inches of rain that we harvest in here. How long would it last? We use mainly these water for the driest period of the year, which is anywhere between April through the first monsoon in July. So right now we're heavily using that water to start our production in our vegetable garden. And it will and ideally is going to last those four months to irrigate just with rainwater. And also we're using it for some fruit trees that we also have here. So it it lasts for five, six months. Yeah. So it's pretty good. And then you have the winter raining so it feels up again. So it just you play with that time and you measure your behavior and how much can you grow and that type of thing. So it's a constant observation.

C Christopher Conover 23:05

Especially with the monsoon, the Chubasco, it rains really hard. In the winter, as you said much lighter rain, how long does it take to fill up or how much water comes off the average roof in Tucson?

reason.

J Joaquin Murrieta-Saldivar 23:19

Yeah, and that's part of the engineering that Watershed Management Group is so good at. Think of 1000 square feet of an area, one inch of rain, it provide us with 600 gallons of water. So for this to fill up the 2500 gallons in my house on the roof I have, I require four inches of rain.

J 23:42

And

C Christopher Conover 23:42

And then we went to see the composting toilet in the back corner of the yard. This is the one that everybody talks about. And I think everybody is afraid of

J Joaquin Murrieta-Saldivar 23:52

People that are afraid of this. But check that out. Your aim will help. We humans, we are a factory of nutrients. Whenever we pee, there is nitrogen in there. So whenever I'm out, this is what I use. I come here and pee. This is a urinal, so we call it a uri-gator. So this pee goes to that basin that you saw it there. And that's isn't pee, and then you put a little bit of water here. So pee doesn't crystallize on the pipe. But that water eventually makes it to the basin. So and it brings nutrients. So that's the pee. But then the poop. This is the compost toilet. We have been trained, we humans have been trained to use a regular flushing toilet since we are born. So to change that pattern is pretty hard. But once you're there, oh my God, you're creating this wonderful humaneur, we call it and that's what we use for our plants in our garden. So we're saving money again. We're not flushing toilets. That's the biggest thing because each toilet on each home in Tucson, use 25% of water for that house. So therefore I'm saving 25% on water in my house because I'm using a dry toilet. And it's not a big deal. I mean, it's a regular toilet you can see it here, if you don't mind I can open it. there's poop. But do you see any flies? Do you see any smell Do you seen because nothing is?

C Christopher Conover 25:36

That's always the big question though is the smell and flies and things like that. How does a composting toilet not do that?

J Joaquin Murrieta-Saldivar 25:45

Earth the planet exist because of four elements, C H, O N, carbon, hydrogen, oxygen and nitrogen. In order to have life you need to balance that. That's what's happening in the composite. Carbon, what is the carbon? Carbon is sought us from our neighbors that have a

woodshop here. So instead of that sawdust going into the landfill of Tucson, he comes to my compost toilet. That's the carbon. The oxygen you do need to air this like every seven to 10 days and you air it with compost stake, I think they call it but since there is no smell, there is no flies. There is no nothing that's that's fine. You can air it. So that's the oxygen. Nitrogen. Nitrogen comes with the poop that you put in there. The hydrogen, it comes with a little bit of squirt of water that you put in there. That's rainwater. And that helps to start decomposing everything.

Z

Zac Ziegler 26:51

That was Dr. Joaquin Murrieta-Saldivar with the Watershed Management Group, speaking with The Buzz's regular host, Christopher Conover in 2022. And that's The Buzz for this week. You can find all our episodes online at azpm.org And subscribe to our show wherever you get your podcasts, just search for The Buzz Arizona. We're also on the NPR app. Production help this week came from Deserae Tucker, and our encore interview was originally produced by Samantha Larned. Our music is by Enter the Haggis. I'm Zac Ziegler. Thanks for listening.

N

Nicole Cox 27:37

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