

## V101 - Canna and water.mp3

**Amanda Luberto** [00:00:02] Who are we running out of water? Every year we receive this question from listeners like you, sometimes multiple times a year. Water longevity is a natural concern to us desert dwellers, to longtime residents of Arizona. It's been a commodity with understood is precious. But for many, the 2022 low water reports from Lake Mead combined with the reallocation of the Colorado River conversation under the Biden administration as people questioning are we running out of water? As the question of water looms over Arizona, the state continues to grow. Maricopa County is one of the fastest growing in the country. If you live near downtown, Phoenix feels like a new apartment building pops up every month. The state is growing, but it's also evolving. In 2020, recreational marijuana became legal with the passage of proposition 207. Last year, it was reported that Arizona marijuana sales came out to more than \$1.4 billion. But as Arizona adjusts to conserve more water, maybe a new water question comes to mind. How much water does it take to grow marijuana in Arizona? Should our drought stricken state use its water resources on weed? Welcome to Valley 101, a podcast by The Arizona Republic and azcentral.com about metro Phoenix and beyond. I'm producer Amanda Luberto, and today I talk with a water expert to give us a sense of where our water is being used. I also spoke with a representative for cannabis company that's growing weed with as little water as possible.

**Amanda Luberto** [00:01:53] It might not seem obvious at first, but water is a pretty political issue in our state. At the end of the day, it's lawmakers and policymakers who decide how to handle our water scarcity. At the Kyl Center for Water Policy at Arizona State University. They study the impact of those decisions. Their goal is to help the public better understand our water supply.

**Sarah Porter** [00:02:25] Water policy is the gas and the breaks of our quality of life, our prosperity. Everything that we love about Arizona depends on good water policy, good water stewardship.

**Amanda Luberto** [00:02:49] This is Sarah Porter, the director of the Kyl Center. She's a lawyer by trade, but left almost 20 years ago in search of efforts to tackle Arizona's resources trouble. Currently, our water is being distributed into three sectors municipal, industrial and agricultural. Municipal would be anything that's hooked up to city water. This would be businesses and homes. Think of it as drinking water. Essentially, industrial is focusing on power generation like dairies and mining and golf courses. Agricultural is for farming, a major economic industry in this state. But it's not an even three way split between each sector.

**Sarah Porter** [00:03:34] Generally, in Arizona, agriculture is responsible for about 72% of water use or water demand. Municipalities are responsible for about 22% and then industrial would be the remaining chunk.

**Amanda Luberto** [00:03:51] Agriculture demanding the most water isn't because it's a key export. It's because, simply put, it takes a lot of water to grow plants in the desert. But it's always been an integral part of the state's culture.

**Sarah Porter** [00:04:05] There's a lot of logic in farming in Arizona as long as there's water. And farming was part of what drew people to the state. And many of the people that you might meet who you know, there are fourth or fifth or sixth generation Arizonans, very often those people came to Arizona for farming.

**Amanda Luberto** [00:04:33] You might assume that cannabis falls under agriculture since it is a plant after all. But actually, since most marijuana in Arizona is grown indoors or in greenhouses, they utilize municipal water. Not only is indoor growing easier to control. Farmers don't have to worry about the extreme heat or monsoon storms. But there's also a greater understanding of how to grow cannabis indoors. This generally makes the process more secure.

**Sarah Porter** [00:05:04] Indoor growing has a very different water consumption compared with outdoor growing, because there is less water loss through evaporation. People who grow indoor plants will say that the only water that leaves is in the product, like all the other water is staying, you know, and that's a bit of an exaggeration. But to some extent, you know, that is the case. If you think about, you know, let's say a lettuce field in Yuma, the farmers there irrigate, they flood, irrigate the fields. They do it very, very efficiently, as efficiently as flood irrigation can be applied. But a lot of the water is lost through evaporation and then water that goes into the soil, it may go a little bit of that water will actually go down and recharge the aquifer. But a lot of that water will sit in the soil and eventually evaporate. So that isn't happening with indoor growing.

**Amanda Luberto** [00:06:04] And one cannabis brand in particular is taking efficiency to the next level. They're growing marijuana with even less water than hydroponics. They're using something called aeroponics. Here's Jake Ritter, the sales director for Aeriz in Arizona.

**Jake Ritter** [00:06:28] Yeah, running water and roots will be sustained in running water. That's hydroponics. Aeroponics is a bit different, which is actually created by NASA to grow plants in space. So that's where the technology comes from. Because obviously in space you can't have running water nonstop. And what aeroponics is a mist system. So it's a former hydroponics where we have their roots suspended in the dark table. And then about every couple times an hour, we mist those roots with the exact nutrient mix they need with water. And so whatever they grab up, whatever they need and then whatever they don't need kind of drops off into a tray, which we have on a closed loop system, which allows us to utilize that water for almost the entire week for that one single table of plants. So we are constantly recycling our own water supply.

**Amanda Luberto** [00:07:19] So this system allows them to only use 11,333 gallons of water a week for their entire facility. Now, that might seem like quite a lot of water, but I had Jake put that into perspective for us.

**Jake Ritter** [00:07:38] We estimate that we use about 80 to 90% less water than any other grow technique with our closed loop system.

**Amanda Luberto** [00:07:51] But Aeriz dedication to sustainability doesn't stop at water use.

**Jake Ritter** [00:07:56] When we first started making the cannabis journey, our ownership and our founders are very heavily focused on creating sustainability, not only within our company, but trying to be very conscious about the environment and everything we do, to the point to where we use a safe Pet ocean bound plastic in our material. And we also use recyclable material in all of our packaging. On top of that, we give our electric bills to a company called Pachama, which monitor our carbon footprint, and we actually buy credits with this company. And what they do is basically we just give them funding to help stop

deforestation, help reforestation and river restoration, and not only the US but other parts of the country to help offset our carbon footprint as much as possible.

**Amanda Luberto** [00:08:41] The move toward aeroponics as a growing method and using clay beads instead of soil. Also, benefits Aeriz, not just the planet.

**Jake Ritter** [00:08:50] We get consistency with batch over batch. So a lot of times in soil wrap or cocoa packs, there's other mediums in there that can influence that plant because we just missed our planet with that exact nutrients. There's really no internal factors that can mess up that plant. If you like a flower one time and you get it, we grow another round of it. You will have that same experience with the same terpene profile.

**Amanda Luberto** [00:09:19] Now, terpenes for anyone who doesn't know, are fragrance compounds found in plants mostly associated with cannabis. This is what gives a flower, which is the version of cannabis that you smoke. A distinct characteristic sometimes terpenes give it a floral smell or a citrusy smell or a minty smell. The compound also has specific properties. For example, marijuana with the terpene limonene gives the flower a bitter citrus smell, and studies show that the properties can help with suppressing appetite or as a sleep aid. So the fact that the aeroponic method can help control the terpene profile ensures that users get the same reaction each time.

**Jake Ritter** [00:10:09] So I do call it the Wagyu beef of cannabis because, you know, those roots don't have to search. Where in even a hydroponic, they still have to kind of work use energy to find those nutrients as those nutrients are passing by within that water source. So here, they're not even using any energy at the roots. They're putting all the energy right up into the flower itself. And that terpene profile of that flower, which that serving profile is the key reason you should be buying the flower you're buying. And it has the most beneficial aspect to any medical consumer.

**Amanda Luberto** [00:10:41] While I was there Jake gave me a tour of their grow facility. I got to see the many rooms that housed the plants at different stages. The plants are laid out in rows in an elevated container. That's sort of like a box with a hole in it for the plants to sit in. There's multiple plants in each box. When you lift the lid that holds the plants, you'll see these wild looking roots underneath. It's very alien movie like. You'll also see the aeroponic system. Here's where the purified water that comes from the municipal source, combined with the secret source of nutrients, as Jake put it, is misted directly onto the roots. It's all very scientific.

**Amanda Luberto** [00:11:24] Because grow houses are using municipal water, it's nearly impossible to find out how much of that is directly going to marijuana. Rather than turning on your faucet or taking a shower. But what we do know is that cannabis is not a very water intensive plant compared to things like hay and alfalfa, which Arizona grows literally millions of tons of each year. So is it a good idea to use our most precious resource on growing cannabis? The answer is that it's such a drop in the bucket, if you will, that it's not really a pressing concern.

**Amanda Luberto** [00:12:06] But while I had Sarah, I wanted to get a big picture perspective where we are with the water situation in Arizona. Her answer is, in short, that it's complicated, and she thinks that complexity is what makes people anxious.

**Sarah Porter** [00:12:25] The biggest challenge that we have in Arizona relates to the Colorado River. And this isn't just Arizona, of course, because six other states and Mexico

share water from the Colorado River. And we are in a time of renegotiating the rules for how we operate the system primarily. And this how this relates to us is we get our Colorado River water from Lake Powell and Lake Mead. So does California, sort of southern Nevada. So does Mexico. We're in this big multistate, binational 29 tribes negotiation about how do we make sure that the reservoirs stay functional and if we have to have cuts? Who takes them? And when? It's really complicated. And we have a deadline in about a year. We need to know what are the new rules going to be, because those new rules need to be implemented in 2026, and the negotiations are pretty or fun for anyone involved. The negotiations are pretty contentious. There are some different proposals for, you know, what we should do. The lower basin states have a proposal. The upper basin states for proposal. Others have different competing proposals.

**Amanda Luberto** [00:13:43] She believes the people involved in negotiations will come down to a decision, though, simply because they have to. The time is now especially.

**Sarah Porter** [00:13:52] Let's just think Phoenix area is that cities that use Colorado River water are probably going to have to find ways of reducing it, probably going to mean cuts in Colorado River water, not forever, but some years more, some years less depending on snowpack. And so cities will transition to other supplies. They will push water users to become more efficient. We've seen things like that. You know, the city of Scottsdale has now banned grass as the landscape element in front yards in new home development. The other related challenge that we have is groundwater in the Phoenix area. And now the state Department of Water Resource has modeled out groundwater use for the next 100 years and concluded that there isn't any more groundwater available for new developments. And so there's a lot of pressure to figure out a response to that. Is the model wrong? Should we get rid of those rigorous rules, or should we go find new water? Or is it some mix of the three? And then people often worry about groundwater outside of the places where it's rigorously managed. In many rural areas, groundwater is basically there for the taking, and they don't have the rules that we have in our populous areas. And, you know, more and more, we're seeing that people are quite vulnerable. It's not good. It's not good to have communities vulnerable to losing their water.

**Amanda Luberto** [00:15:28] Thank you for listening to this episode of Valley 101 podcast by The Arizona Republic and azcentral.com about metro Phoenix and beyond. We rely on your questions. Send them to us at Valley 101.azcentral.com for a chance to be our next episode. If you love Valley 101 and want to support the podcast, consider subscribing to azcentral. Your subscriptions help us cover more stories and have more conversations like this. Don't forget to add value 101 to your favorite podcasting app. Go ahead and give us five stars while you're there. You can reach Valley 101 and all Arizona Republic Podcast on social media at AZ central and listeners. We also have a very exciting announcement. The newest season of rediscovering an investigative podcast by the Republic is coming out next Monday. All four episodes charting the state's history with radicalism drop on July 22nd. Be sure to subscribe by searching for rediscovering wherever you listen. This episode was edited and produced by me, Amanda Luberto, with additional support by Kaely Monahan. Episode overview is by Kara Edgerson. Today's music comes from Universal Production Music Valley 101 as an Arizona Republic and azcentral.com production. I'm Amanda Luberto. Thank you again for listening. We'll see you next week.