

Kaila: Previously on Valley 101.

bring up theme music

Maritza: Arizona was a young state in the 1920s. In order to attract people to move to the state, various groups like chambers of commerce used the 5 c's as a way to promote the area.

Philip Part 2: [00:04:31] By the 1930s, there is a famous WPA guide to the state of Arizona. And if it mentions the C's and by the late 40s, it's quite common to talk about the five C's .

Maritza: [00:00:22] What are the five C's of Arizona? [00:00:24][1.7]

Philip Part 1: [00:00:25] The five seas of Arizona's. I think you can probably see in many places it'll say every school child should know the five C's. [00:00:34][8.1]

Philip: [00:00:34] Its copper and cattle. Citrus, climate and cotton. [00:00:42][7.2]

let the music play for a bit

Kaila: Welcome to Valley 101, a podcast from The Arizona Republic and azcentral.com where we answer the questions you ask about metro Phoenix. I'm your host, Kaila White.

Kaila: Last week, producer Maritza Dominguez explored Arizona's 5 c's, focusing on citrus. This week, we've got another team member ...

Katie: Hey everyone, Katie O'Connell here.

Kaila: And she's taking a look at a different one of the five c's: cotton.

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Katie: Yes, I was really excited when we got a question from Arizona State University PhD student Douglas Lawton. It's a question about cotton and why it's one of the five c's. The history goes back to World War One. Plus the story of cotton includes something else that fascinates me: population growth.

Kaila: Alright, let's dive in!

Philip: There had been native cotton in Arizona, as in many places around the world, but this was a product that had some limited utility.

Katie: That's Philip Vandermeer. He's the retired history professor from Arizona State University. You heard from him in the last episode too. Philip said that Arizona's original cotton

type -- Yuma cotton -- caught the attention of the U.S. Department of Agriculture in the early 1900s. Yuma cotton is a short staple cotton.

Philip: [00:01:37] And a man named Hudson comes out and improves this and develops it into something called Pima Cotton.

Katie: And the need for Pima Cotton, or long grain cotton, would greatly increase due to one international event.

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Philip: [00:02:17] World War I is a time when there is an increased need, demand for cotton and cotton is used in truck tires, airplane tires and airplane wings.

Katie: Spotting an opportunity, the Goodyear Tire & Rubber Company bought 17,000 acres of land in the Valley. First they purchased land in the southeast part of the Valley. Then the Goodyear company purchased land in the part of the Valley now appropriately known as Goodyear.

Philip: [00:24:00] This is a huge increase in demand. And so the prices are really rising. And so Goodyear is not only growing its own on its own land, it's paying farmers to to grow also. And then additional farmers are growing on their own. And so in a very short time, in only a few years, you see cotton production going way out for people who had not grown cotton before.

Katie: Philip pointed out that it's not easy to get farmers to pivot to new crops. But the profit margins on cotton were so extraordinary during this time, it was a rather convincing argument.

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Katie: Then, the war ended.

Katie: Here's where the story of cotton in Arizona starts to ebb and flow. The end of World War I meant there was less of a demand for cotton. That caused the price of cotton to plummet.

Philip: [00:25:17] And so Arizona farmers are devastated. Some lose their farms, as happens to people across the country.

Katie: And the start of the '20s wasn't much kinder.

Philip: [00:02:54] Arizona farmers get into this with reckless abandon. But when the market, agricultural market, including the cotton market, collapses in 1921, everybody loses badly. They pull out. [00:03:10][16.2]

Katie: Those who stayed in cotton farming would once again develop a new and profitable variety.

Philip: [00:03:11] And so the during the 1920s, the shift from growing what was called Pima long staple cotton to upland cotton, and that then takes off.

Katie: That re-growth would be crucial. As Maritza uncovered in the previous episode, the five c's were developed as a marketing ploy in the 1920s. The Arizona Farm Bureau statistics show that there were 90,000 acres of high-quality, strong upland cotton planted in 1927. Cotton was a hugely influential crop. It makes sense that it would be included.

Katie: But that growth once again stalls.

Philip: [00:26:04] The 1930s is a time when, of course, the agricultural market around the world has declined because of the Great Depression. And so U.S. policy is to try to deal with this, involves limiting the amount of acreage that's planted in various crops. Cotton is one of those products.

Katie: The government stops that program in 1936, causing acreage to increase dramatically. Philip said this is partially because of the looming spectre of World War II, which would bring increased demand for cotton yet again.

Philip: [00:26:50] So in the period from the 1940s through the 19... into the 1970s, cotton is a major product for Arizona. [00:27:00][9.4]

Katie: A documentary from the 1950s called, "Arizona: Land of Color and Contrast" shows how big of a deal cotton was for the state.

[DOC:](#)[07:57] Arizona is a major cotton producing state. And not just ordinary cotton, but superior cotton produced in record yields per acres and used for fine fabrics.

Katie: According to the Arizona Farm Bureau, upland cotton acreage in Arizona peaked in 1953. There were more than 650,000 acres of it planted then. Again, it makes sense that it would be included in the five c's.

Katie: But where are we with cotton today? In 2015, just 89,000 acres of the crop were planted. That's an 86% drop in acreage from 1953. It's the lowest acreage ever recorded since estimates began in 1924.

Katie: However, despite its shrinking acreage, cotton still brings between 400 and 500 million dollars to our state's economy.

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Katie: So what's it like to be an Arizona cotton farmer today? I went to the Arizona Farm Bureau's annual meeting to find out.

(sound of people talking in the background)

Katie: The meeting was held at the Wigwam Resort in Litchfield Park. You might hear some noise behind our next guest because of that.

Ron: [00:00:33] I'm Ron Rainer r a y in E R. My family is farmed here in this Litchfield Park area and for many years. My dad was born here in 1915 and my grandfather and great grandfather came here from California in 1913. [00:00:52][18.3]

Katie: When it comes to cotton and water policy, Ron is a walking encyclopedia.

Ron: [00:09:28] I sat on the CAP board quite a few years ago.

Ron[00:12:12] And as part of the 1980 Groundwater Management Act, when it was implemented, we had to prove that. [00:12:20][7.9]

[00:16:51] So today we still have an element of that law where we can convert our irrigation grandfathered right over to a type 1 non irrigation right. [00:17:04][13.3]

Katie: The criticism most commonly heard about cotton farming is that it's a really thirsty crop. It requires a lot of water to grow. I asked Ron about this. Ron's family uses groundwater on their farm. They *do not* use water from the Colorado River that was transported via the Central Arizona Project canal system. And Ron said his family's farm has not experienced groundwater depletion.

Ron: [00:07:41] The depth, the water there is around 40 to 50 feet. It hasn't changed much at all over last 70 years that I was on that farm. [00:07:54][12.9]

Katie: But that water has a lot of salinity. That means Ron and his family *can't* use it to grow salt sensitive vegetables that require less water. Farmers who use groundwater are able to grow crops like cotton and grains instead.

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Katie: Ron said their family's cotton production has evolved over the decades. Right now, their annual cotton yield is about three bales. That's around 1,500 pounds of plant cotton. But there's one important thing to note about the Rayner's farming technique, both then and now: they're not a single crop operation.

Ron: [00:01:45] even today, I mean, cotton is only a small part of our of our cropping operation because we we keep a rather rigorous rotation scheme going [00:01:59][13.4]

Katie: That rotation scheme works something like this.

music begins -- something like the bouncy factory music from Kaila's recycling episode

Katie: They rotate through planting crops like alfalfa, wheat, sorghum and cotton. The wheat and cotton crops interact this way through the rotation.

Ron: [00:02:27] And and then after we harvest the wheat in the spring, we plant our cotton, no till, right into the standing stubble of the wheat. [00:02:39][11.9]

Katie: The felled wheat acts as a sort of mulch for the cotton.

Ron: [00:02:42] And the resulting cotton crop is growing under a much shorter compressed timespan than full season cotton. [00:02:53][11.4]

Katie: Ron said that they've been growing cotton crops that way for the last 20 years. And the results have been fruitful.

Ron: [00:03:17] Well, you know, we figured that between the two crops and the university extension specialist that deals with meteorology was developed some water consumption curves for us. And between the wheat and the cotton together that we save roughly 20 percent of the water that it would take just growing a single crop. [00:03:43][26.0]

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Katie: That's not to say that there aren't water concerns. Russ is Ron's son. He also works on the family's farming operation. Russ said that water is something that will have to be managed heavily into the future. But Russ doesn't feel like water resources are the main threat to farming in Maricopa County.

Russ: [00:25:18] Running out of water won't be the thing that makes people not farm anymore. It'll just be land space and population growth. There'll be a hundred percent like what it hits first.

Katie: This made me think of a previous episode I did on urban farming.

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Katie: In that episode -- which you can listen to after this -- I learned that metro Phoenix is losing its agricultural land to development.

Katie: Rather than closing their operations entirely, some Valley farmers have moved them to Pinal County instead. But there's one issue with that. Pinal County uses water from the Central Arizona Project, which is stored in Lake Mead. If a water shortage is declared on Lake Mead, farmers in Pinal County would face a water shortage.

Russ: [00:25:42] They were the ones that were gonna be hurt the most.

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Katie: But Russ said that's not necessarily a deterrent. Arizona farmers have evolved for decades.

DOC (8:15) - New farming methods, and the use of modern farm machinery plus reclamation, has changed Arizona from a bleak frontier to a land of wealth and opulence.

Russ: [00:26:17] But I think anywhere you go, if you've been farming in Arizona, which all of them have, and you know, we have for long enough, you realize that the like one of the first things you look for when you go to rent a piece or buy a piece is water. Like, does it have .. what's the water access like?

Katie: Ron and Russ both said that the cotton industry in Arizona has taken a lot of hits over the decades. Although technological developments have allowed each acre of land to become more productive, Russ said the price of cotton right now is pretty bad.

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Katie: Still, cotton helped build our state. It was the cash crop that allowed Arizona to grow right as we were reaching statehood.

Russ: [00:31:54] I think it's something that should definitely be considered as part of the five c's and as part of Arizona's like state identity for sure. [00:32:03][8.5]

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Kaila: You always find a way to bring it back to population growth, don't you?

Katie: Hey now, I don't find it. It just comes to me.

Kaila: I guess that's true. Since this was our 40th episode, I'm starting to see a lot of connections between episodes. How do you see this story of cotton fitting in with everything else?

Katie: Hm. Good question! It seems like we're such a new state, a lot of our history is tied to which economies were predominant at certain times. I'm interested to see how that changes as we continue to grow.

Kaila: Well Valley 101 listeners, I hope you enjoyed our exploration of two of Arizona's five c's. If you've got a specific question about the other ones, let us know. In the meantime, be sure to rate and subscribe to our show on Apple Podcasts, Spotify or wherever you get your podcast content.

Kaila: I'm your host Kaila White, signing off for this week.