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The Octagon is the student-run newspaper of Sacramento Country Day high school. The print edition is published eight times a year, and the website is updated daily. The Octagon is committed to unbiased and comprehensive reporting, serving as a source of reliable information for SCDS students and the school community. The Octagon will publish all timely and relevant news deemed appropriate by the editors-in-chief and adviser. We seek to highlight high-school-related events and spotlight the voices of those with a story to share. Further policies can be found on our website or by scanning the QR code below.



SCAN ME!

## ALMOND FARMING IN A CHANGING CLIMATE

BY ADAM AKINS &  
SAHEB GULATI

**A**lmond farming is a staple of California's agricultural industry and has deep roots with some Country Day families.

Some farms are passed down from generation to generation over centuries, like Benjamin King's Colusa almond farm. Others are just being created or change hands from time to time. All face an uncertain future with worsening droughts caused by a climate crisis.

King, who is the father of Country Day sophomore Annalucia King, is an adviser for the Colusa Groundwater Authority and has been an almond farmer since the age of 12. His almond farm has been passed down through his family since 1860, three years after his great-grandparents met on a wagon train in 1857. They acquired their original land package of 900 acres via land patent. The King family still owns 640 acres of land.

The Kings' business is not an uncommon one: the state of California grows over 80% of the world's almonds, according to the Almond Board of California.

The reason for California's unique position in agriculture is its climate. According to King, only 3% of the world has the climate necessary to facilitate almond growth, so the global population has depended on almonds coming from the San Joaquin and Sacramento Valleys.

"California has a Mediterranean climate," said Isaya Kisseka, Professor of Agro-Hydrology and Irrigation at UC Davis. A Mediterranean climate is characterized by rainy, cold winters and dry, hot summers. "That means we can grow things here that cannot be grown in many other parts of the country, or the world for that matter."

Consequently, almond farming has become deeply ingrained in the culture of the Sacramento and San Joaquin valleys.

Junior Shivom Sharma's family has been farming almonds for four years. He said his family was in real estate before they began farming. Sharma works on the farm during summers and helps

communicate with farm workers, many of whom speak languages such as Spanish, Hindi and Punjabi.

The rising issue for farmers is the worsening climate. According to Kisekka, research indicates that climate change will make climate extremes, such as droughts and floods more frequent and more severe. As this happens, the future for almond farmers grows uncertain.

“It's in our blood and our heritage. We're super proud to grow food.”

SUREENA THIARA

Unlike rice, corn and other crops that can be rotated annually, almond trees have a 25-year life-cycle, Kisekka said. Almond farmers are forced to adjust to the uncertainty created by the climate crisis, making decisions that will last decades.

Sureena and Ravi Thiara, parents of freshman Imani Thiara, are second-generation farmers in Yuba City. They have multiple properties and farm almonds, walnuts, pistachios, prunes, peaches, persimmons and some rice.

Like other California farmers, the Thiaras face the water dilemma. Because almonds are multi-year plants, the Thiaras cannot choose to leave fields empty in drought years like farmers raising annual crops.

Typically, the Thiaras rely on higher quality surface water from the Sacramento River for their farms. But in droughts, which are becoming more common in California, groundwater from their wells is playing a much larger part.

Groundwater isn't an infinite source though, and according to the California Department of Water Resources a state law called the Sustainable Groundwater Management Act was enacted in 2014 to stop the overuse of groundwater and the consequential lowering of the water table. SGMA aims to balance the pumping and re-

charge rates of groundwater, creating net zero water loss from aquifers. However, this can create added limits and risk for farmers like the Thiara family.

"We've sold a couple of farms because of water," said Ravi Thiara. The Thiaras currently hold around 5,300 acres of land. "We're running into issues of not enough water, and SGMA is really, really policing it all the time. We just wanted to get out of the way of that. We thought there was too much risk to stay."

Sharma's family relies mostly on its own wells for their almond farm. Most of their riparian rights, the rights to take water from a property-bordering source, have been taken by the state of California.

"But we have our own wells, so that's how we're handling that," Sharma said.

Sharma said SGMA regulations have not been a problem for their farm yet.

"It's impacted us, but it's not affecting us as much as it's affecting the south and areas around Solano County," he said. "They've really been affected."

As California moves further into drought, deeper wells are being tapped and farmers have to confront subsidence.

According to King, subsidence is a phenomenon that occurs when water aquifers are tapped enough that the land drops, and even a drop of one or two inches can cause catastrophic damage to roads, bridges and buildings.

In the future, Kisekka said the state needs to pivot water use to more efficient crops.

"You get into something called economic water productivity. Almonds, as well as grapes and a few other high value crops, make farmers more dollars per unit of water use compared to a crop like wheat or corn," Kisekka said.

Farmers face difficult decisions with planting crops like almonds, especially as water use is more strictly regulated.

"Farmers are not fools; they are very smart. That's

why they have planted more almonds and other economic crops, but of course, that exposes them to risk," Kisekka said.

"We have reached the point where we cannot sustain the rapid growth and expansion," Kisekka said. "And in some ways we have to reduce. We are irrigating way more land than water we have. The question is, do we reduce the number of almond orchards, pistachios, walnuts or other types of crops being grown?"

Finding the balance between managing risk, planting crops with high economic water productivity, and following water management regulations will be key for Central Valley farmers in the future.

Kisekka said that continuing to lead the world in almond production and exportation is an issue of national security. Almonds are essential to the nourishment of the American people and the world. Without the agricultural support of the San Joaquin Valley and Sacramento Valley,

America is less sustainable and less self-sufficient.

Despite the challenges, the Thiaras are optimistic.

"There are risks in a lot of different industries and water is going to affect everyone," Sureena Thiara said. "In our culture, we're children of migrant families, it's what our parents did back in India and it's what we do here."

"Even if the risks are there, we're probably still going to do it. It's in our blood and our heritage. We're super proud to grow food. A lot of people jump in to have their comments about what we do, but at the end of the day we grow food and that's a pillar of society."



**IT ROLLS IN THE FAMILY** Country Day ninth grader Imani Thiara (front right) rides on a bin carrier with her brother Ekram Thiara (front left) and her cousins Rohan Thiara (left) and Tarun Thiara (right).  
**PHOTO COURTESY OF SUREENA THIARA**