



# Circumventing Climate Change

How Arable and Hologram are Helping  
Producers Grow More, with Less



# In global agriculture, uncertainty is the new norm

Rainfall, temperature changes, sun exposure, and extreme weather events all are uncontrollable factors that determine whether or not an agricultural business can flourish and feed the world's growing population — a job that is getting harder and harder every year.

From coffee growers in South America to spice growers in Southeast Asia, agribusinesses small and large face the same challenges; climate changes causing harder-to-predict conditions that drive plant stress and disease.

In 2018 the National Climate Assessment predicted that yields across the US would likely decline as growing season temperatures rise and crops become more likely to face severe droughts and wildfires.

Only one year later, the accuracy of that prediction was apparent. In 2019, severe flooding sparked by record rainfall delayed the planting of corn and soy crops across the Midwestern states. By August of that year, the US Department of Agriculture reported that more than 19.4 million acres of cropland had gone unplanted because of extreme weather.

The effects of equally dramatic climate changes are being felt across the world. And each fluctuation in temperature and rainfall can reduce the yield of an entire crop for that season—costing millions of dollars in lost revenue for everyone in the supply chain.

To stay afloat, each producer needs to know exactly when to plant, fertilize, water and harvest so they can efficiently leverage their resources and produce bigger crops in ever more challenging circumstances.

That's where Arable comes in.



## Agribusiness is only as strong as its ability to predict the weather

Traditionally, producers used seasonal dates and historical patterns to manage their crops.

“In Europe, many of our clients traditionally applied a fungicide to plants beginning at the same time each year. But with changing climate, that’s not always when it was needed or the most effective. And fungicide spraying is one of the most expensive parts of farming,” said Walter Jove, Head of Latin American Partnerships at Arable.

“If you can start applying that fungicide later in the season, based on better data, and still protect the plants, it makes a world of a difference for producers. It can save \$30 per hectare.”

That’s a savings of 40%-85% on the cost of disease prevention per hectare — a massive win for producers.

But the transition from relying on traditional predictions to data-informed decisions hasn’t been easy.

For years producers sent technicians into the fields to gather soil analytics, but they needed advanced technical knowledge and training in order to turn that into accurate predictions. With the advent of new technology, many producers moved to remote field sensors to monitor weather, soil composition, and hydrology. But they came with many of their own problems.

According to Jove, “Most field sensors are isolated systems. There’s standard weather stations that measure specific variables like rain. You need multiple systems to collect multiple variables, and then you have to go get the data from the sensor and combine all of the data manually. Not to mention, someone has to come and install each system and calibrate it. You have to clean them and maintain them. All of that costs extra.”

Because most small farmers are operating on shoestring budgets to begin with, that means most of the monitoring systems that were available to producers ended up inoperable and wasting away in the field.

Arable wanted to develop a better way to empower producers with scientific information and yield better crops. Better meant a system that could monitor multiple variables, directly upload to the cloud, analyze data automatically, and require no special installation.

Most of all, they needed their system to work anywhere around the world -- even in the most remote locations, often far from cell towers and certainly without the assistance of a Wi-Fi signal. That’s when they discovered Hologram.

# How Arable and Hologram empower farmers to save crops

To put scientific data in the hands of independent farmers, commercial agribusinesses, and government organizations all over the world, Arable Labs developed a smart, cloud-connected monitoring device. Each device captures data ranging from the more routine (like weather and climate monitoring) to more advanced metrics (like plant stress measurements). The result gives a producer everything they need to make the best decisions for their crops.

But to be a truly revolutionary product that could be used by any producer, Arable wanted to eliminate as many technical hurdles as possible, so that any farmer, anywhere in the world, could plug in their device and immediately start collecting insightful data.

“In the beginning, we were shooting in the dark. We didn’t have the resources to go to a country and test networks before we sold our devices,” Jove said. “When we looked at other options for getting our devices connected, they would only connect with one provider.”

It was challenging enough to find a cell carrier that would work in the US, but in places like Latin America, each country has multiple cell carriers that aren’t always reliable. Data is limited. And the contracts are a nightmare.

Hologram eliminated all of these problems. Hologram’s global IoT cellular connectivity network would enable Arable’s device to work out of the box, with more than 550 carriers (and counting). And by partnering with Hologram, Arable would only need one type of SIM for all of its devices, and only one contract.

“Working with Hologram was key,” said Jove. “If Hologram says you can connect, you will. That’s very valuable to a business like ours.”

That out-of-the-box connectivity has allowed Arable’s devices to fill a gap in agricultural monitoring that’s empowered thousands of producers.

“Our technology helps agribusinesses large and small navigate potential change in delivering what it takes to feed a growing population, especially in the context of climate change,” says Jess Bollinger, VP of Strategic Partnerships at Arable Labs.

“Our partnership with Hologram has shaped our entire business model — giving us the ability to tell our customers that they can actually have access to real-time data on their crop and the climate, for a low-cost and no fuss.”

JESS BOLLINGER, VP OF STRATEGIC PARTNERSHIPS — ARABLE

“With information at their fingertips, farmers can scenario plan more efficiently. In places where weather data is scarce, either because of poor satellite data, or lack of weather stations in a radius that would be meaningful. We’re able to offer a low-cost solution that could easily go into the farms, connect reliably to the cloud, and share weather data with local communities for multiple purposes,” says Bollinger.

## Four ways Hologram made scaling a breeze for Arable

### Hundreds of networks with just one SIM

Hologram’s global network and cellular-connected devices ensure that even the most remote rural communities have access to real-time data that captures the climate, weather, crop health and yields. With this data, farmers and their local communities have access to predictive analytics that can save them anywhere from thousands to millions of dollars. But to do that, they need reliable connectivity everywhere they work.

Their partnership with Hologram allowed Arable to launch in 14 different countries across six continents in their first season.

### Reliable out-of-the-box connectivity

Through their partnership with Hologram, Arable Labs is able to provide connected devices to small and large agribusinesses all over the world. Users can set up their system and start accessing data as soon as they take their devices out of the box. No more technicians needed to install, calibrate, clean, or maintain devices.



## Dashboards to track data of thousands of devices

“The tools that Hologram gives you to keep track of data and fleets are amazing. It was especially useful for devices when they’re outside of the US.” said Jove, Head of Latin American Partnerships.

While helping cacao producers in Ecuador, the Arable team noticed a cacao field they were monitoring was producing bizarre data. Arable notified their clients. Used to the malfunctioning sensors of the past, the producers thought perhaps Arable’s device was off — but when they went to check the field, the irrigation system had been down and wasn’t properly watering the field.

If that loss hadn’t been caught by Arable’s data monitoring, it could have cost the producers 25% of their revenue.

But with Arable’s device and Hologram’s data dashboards, they were able to save the cacao crop.

## Flexible pay-only-what-you-use data plans

Most SIM cards and cellular contracts begin charging for data usage as soon as they are shipped. But thanks to Hologram’s Preflight setup, SIM cards don’t draw data until they’re deployed — even if they sit idle for months.

And because each device is tracked for usage, Arable knows exactly how much they’ll be charged and when. There’s no need for guessing or paying in advance. As a start-up trying to model costs, this allowed Arable to get going before committing to paying for data when they weren’t sure how much of it clients would use.

“The tools that Holograms gives you to keep track of data and fleets are amazing”

WALTER JOVE, HEAD OF LATIN AMERICAN PARTNERSHIPS — ARABLE

## Building the future of a resilient food supply chain

With Arable, farmers and commercial agriculture businesses alike can pivot with precision. Based on the information they gather in real-time, they can adjust to even incremental changes in climate, making them better able to resist climate change and continue feeding the world's growing population.

“Anyone with a center pivot (irrigation system) can use our device to predict rainfall amounts for their field relative to crop water stress levels. This empowers growers to shut off irrigation without negatively impacting their yield goals, potentially saving \$500-\$1,000 in water and energy costs immediately, which pretty much pays for the device itself,” said Bollinger.

With the help of Hologram, Arable is changing the way producers respond to climate change. According to Bollinger, “Access to accurate and reliable data is the key to understanding shocks and mitigating risk, in order to build a more resilient global food system.”

## Want to try Hologram? Contact us.

We're ready to help you deploy your cellular devices anywhere in the world.

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