

Always open to new ideas, this California farmer cuts through the ever-increasing demands of farming with a cutting-edge approach.

STORY BY RICHARD BANKS / PHOTOS BY CHRISTIAN PARLEY

PETER RIETKERK doesn't necessarily consider himself a computer geek, but a farmer looking for an edge.

In addition to monitoring moisture in his fields using his iPad, he's turned his truck into a rolling, computerized office. He sends and reads emails, watches the markets, monitors his own weather stations and makes calls, all without having to make the drive home. He was also a relatively early adapter of GPS technologies and variable field applications, and has recently stepped up efforts to study his soil on a near-granular level.

They're all investments that already have or probably will pay off in the form of better yields for this San Joaquin Valley farmer. Yet each requires a commitment of time, faith and money, and each is a little bit of a gamble, Peter says, echoing plenty of other like-minded producers. "When you're doing one of these projects, you're paying for it before you earn your production. It's something that you've got to remain committed to, because you know, or at least hope, in the long run it's going to pay off."

Fortunately for Rietkerk, it has, more often than not.

Soil Rx, Probes and Pulse Irrigation

"We started doing precision ag back in the early 2000s," says Rietkerk, a third-generation farmer who raises winter wheat, tomatoes, cotton, corn, and alfalfa, and more recently pistachios and olives. "We were testing the soil and then using GPS to amend it and fertilize, and vary the seed rate. We've continued that throughout the years and just made our ground better and made our production go up."

Through a better understanding of his soil quality and what he needed to do to improve it, Rietkerk says he's seen his yields increase substantially over

the years. For instance, fields that once produced 30 to 35 tons of silage corn per acre, have increased by as much as 30%. So, when he decided to plant his pistachio and olive trees about 5 years ago, he figured he'd go a few steps farther with technology.

With the help of farming consultant Jim Yager, Rietkerk studied the soil on the 210 acres of what are

now orchards. Then, based on what they learned about the soil's conductivity, texture and type, the two men carved the orchards into zones and wrote a customized "prescription" for each to improve growing capacity. That formula includes variable rates for amendments, fertilizer and irrigation that are applied using GPS technology. "We don't put a cookie cutter system in where everything gets the same," says Rietkerk, "but put materials where they belong in the field."

"It may not be cutting-edge technology anymore," he says, "but it still works for me."

His use of moisture monitors is, however, forward-leaning. In each of 9 zones, Rietkerk placed multiple probes, from 12 to 60 inches long and each with monitors at various depths that measure moisture movement at 15-minute increments. The probes and their monitoring software, developed by Pure Sense, not only allow Rietkerk to see when his plants are too dry, but when they are too wet as well. "When the soil is saturated," says Yager, "the plant can't take any more water. Photosynthesis, respiration and transpiration stop. If you saturate the soil, the trees can't breathe; they can't get oxygen."

You're not only harming the plants, but also wasting water and money, says Rietkerk, which is one of the reasons he's begun applying water for shorter, more frequent periods during the day, using drip irrigation. "For instance, I still flood the cotton fields,



Moisture monitoring via an iPad