

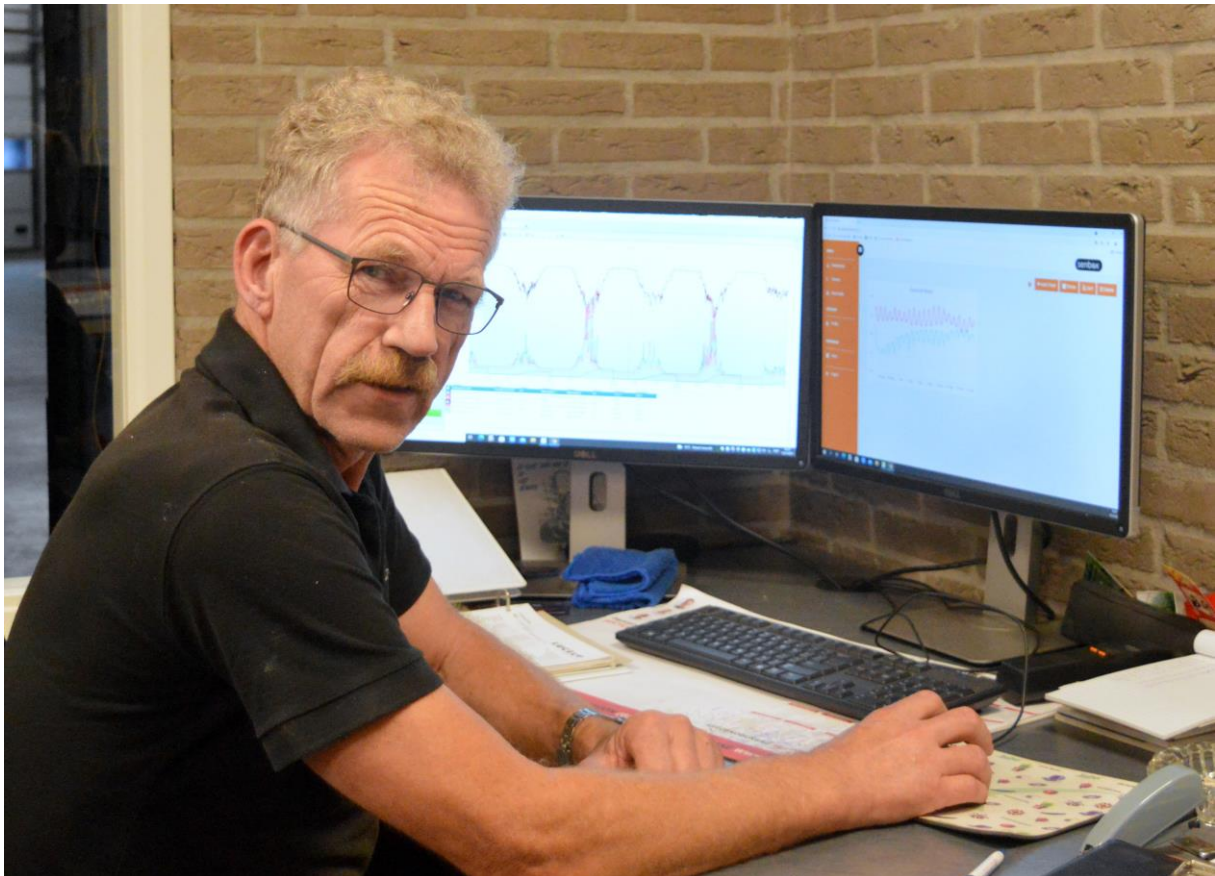
Tomato grower applies smart sensors as a tool for his cultivation control.

Tholen – Tomato grower Koos van der Burg from Berkel en Rodenrijs has been running for a while

along. He still paid visits to the Horticultural Research Station in the time when you saw all kinds of measuring equipment hanging on the plants when you arrived thought, 'What am I supposed to do with that?'

The techniques were for Koos and with him for many fellow growers back then 'abacadabra'. Now sometimes still, but gradually have more and more techniques found their way into the greenhouse. Also, or especially, at Koos. He follows new

techniques closely and dares to test them frequently in his own cultivation practice. Various sensors support him in these tests, including since this year photosynthesis sensors. "I want to be able to recognize plant stress early in order to prevent blossom end rot."



Measuring novelties

Koos came across Sendot oxygen sensors after investing in a nanobubble generator to enrich its irrigation water with oxygen. As soon as that When the installation started running, Koos wanted to keep track of what it was doing with its water.

"You can see the bubbles, but then it stops, with a sensor this will work."

Koos first became acquainted with such a technique in the last century

for oxygen enrichment. In the end, this technique turned out not to work optimally.

“Once the water got to the dropper, it was oxygenated no more water. With today's nanobubble technology, this is possible and I can also see that from measurements with the oxygen sensors.”

He also looks at other techniques in which Koos has invested over the years specific sensors. That way he knows for sure that the techniques do what they have to do. As another example, he gives the UV disinfection of his drain water. “I invested in this when the technology was still in its infancy and there was no control. Now we use sensors for this that detect the pollution to measure. In this way, the UV water disinfection remains optimal.”

Although Koos over the years showed himself willing to use new techniques quite early

to invest, it is not that he just chooses just about anything. Though you would think so when Koos starts with a summary. Laughing: “Over the years I have really tested everything, from seaweed substrates to spreading refined grape seeds and I also looked at growing on car foam rubber, for example when growers used it to research it as a substrate alternative.”

nose rot

None of those innovations made it, not even in Koos' greenhouse. The tomato grower

only invests in innovative techniques he believes in and that's it most importantly, in which he sees real added value. In the case of the photosynthesis sensor

which he bought from Sendot this year, that is the case. “The sensor provides me with a lot of data.

This year it is important in the first instance to see what happens with the photosynthesis in the greenhouse. The sensor is a tool for me to visualize that to get. I do not yet steer on the basis of the sensor alone. I especially want recognize plant stress at an early stage.”

The fact that Koos attaches great importance to this is because the type of tomatoes he grows,

plum tomatoes are traditionally more sensitive to blossom end rot, explains the grower. “Which

problem arises when the plant is under stress. As a grower, however, that is not always the case

easy to see and often you don't see it until it's too late.” Light radiation plays a role in this

an important role, in addition to humidity on which Koos also measures, albeit here no longer electronic, but analogous with 'a dry wet bulb'. “The

I have removed electronic sensors because the measurements are not reliable found.”

PHOTO WITH CAPTION: To prevent nose rot, Koos does not rely solely on the sensors. He also invested in diffuse coating on his greenhouse roof and applied it feeding schedule of his plants. He now grows with less nitrogen and potash and uses low-sodium fertilizers.

Practical

That reliability is crucial for Koos and goes without saying, but also user-friendliness plays a role of course, just like a product that is affordable must be. Koos explains both on the basis of previous experiences. "I have previously taken fruit temperature measurements. The sensors for that However, they were on a large arm and that turned out to be practically ineffective. For the people who did crop work, the sensor often got in the way and if accidentally once bumped, the measurements were no longer correct. With the current Sendot mobile photosynthesis sensors make it much easier. They are sitting on the blade fastened with a clip. I look them up once a week and then check everything. Which going fine."

Compared to the 'abacadabra equipment' of the past, there are now significant progress has been made in the area of affordability. Koos still remembers equipment he used to measure EC at the transition from soil cultivation to cultivation on rock wool. "Rijkswaterstaat also used that equipment and it was very expensive, especially because of the calibration fluid that was required. For a grower it was however, it is not necessary to measure the EC to two decimal places."

PHOTO SUBTRATE TESTS WITH CAPTION: Koos sorts with tests in his greenhouse for the use of sustainable substrate alternatives. Added to this are sensors useful to use data to provide insight into what the substrates do to the plant.

Smart tools

Growers can now take measurements much easier and cheaper, for example with Sendot's sensors. Erwin Gräfe, Commercial Manager at the sensor developer, sits at the table with Koos and listens carefully to his experiences. "When we started, we immediately focused on affordable, practical deployable sensors. No expensive laboratory equipment, but sensors that are suitable are for the hands-on mentality that characterizes horticulture. Only that way growers can take steps towards more data-driven cultivation. I expect that myself in a few years' time our photosynthesis sensors will have become 'simple' chips. With more sensors, a more complete picture of the plant in the greenhouse can then be obtained be obtained."

Erwin is therefore also curious about how Koos sees the future. Is autonomous growing the future? Koos does not expect that growers will no longer be needed to be. He agrees that the techniques are getting better and, above all, smarter, but also points to 'the art of being a grower'. "In the end, it is the grower who has to stay see if things go the way he wants, even if all kinds of techniques present themselves. For me In the end, they will always remain resources."



For more information:

Sendot info@sendot.nl www.sendot.nl