Precise Irrigation - Innovative sensor for crops water status

Saturas, a portfolio company of The Trendlines Group's Trendlines Agtech and the Migal Galilee Research Institute, is developing advanced sensor for precise irrigation.

Moshe Meron, Ph.D., a veteran researcher in the field of irrigation at the Migal Galilee Research Institute in Kiryat Shmona, invented the concept of the Saturas innovation: a miniature sensor embedded into tree trunks that measures the stem water potential of the tree. Stem Water Potential is a scientifically recognized, highly accurate parameter for determining water status in crops but, today it can only be measured by a complex and limited manual device.

With all due respect to saving water, in many countries, water for agriculture remains subsidized, but precision irrigation has added value, which is much more important to the farmer: the increase in yield, both quantity and quality. For the farmer, precise irrigation means higher income, less risk and losses, and saving water. Today, most farmers typically overwater crops by up to 20% "just to be on the safe side". Overwatering puts pressure on an already scarce and expensive resource, increases pollution from nutrient-rich runoff, affects the quality of the fruit, and reduces profitability.

Different water sensors for irrigation control have existed for 40 years, but Anat Solomon Halgoa, CEO of Saturas, explains why their sensor is innovative. "The older and simpler sensors are positioned in the soil and measure the moisture of the soil and provide statistical data. To water precisely, you would need six to nine sensors per hectare. "This is not economically viable," she says. "Other solutions measure the amount of shrinkage and expansion of the fruit or the trunk, but this measurement is problematic, insufficient, and are difficult to interpret," according to Halgoa.

Saturas' sensor is tiny, easy to use, relatively inexpensive and due to the accurate measurement only 1-2 sensors are required per hectare, therefor cost effective. For farmers in developed countries, who have achieved fairly precise irrigation, the solution can increase yields by 5%. For the farmer in Africa or Asia, the increase can be up to 20%. "It is clear to us that in the coming years, it is easier to talk with farmers from more industrialized areas," says Halgoa, "but the real potential is in Asia, Africa, and possibly South America."

In 2016, the company expects to have a product ready for market. First's tests in Avocado, Mango, Peach and Citrus obtained good and promising results. At the moment Saturas is raising funds to reach a final commercialized product.

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