

Nano-Oxygen Water Increased Productivity of Strawberries

According to a study carried out by Satakunta University of Applied Sciences (SAMK) at the berry cultivation farm in Sauvo, Finland, nano-oxygenation of irrigation water produced 15.3 % more strawberry yield than the reference crops in tunnel cultivation.

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Since last summer, **NONRE OY**'s berry farm has tested nano-oxygen technology in strawberry cultivation. Benefits of the nano-oxygenated irrigation water are being studied in the NABLE project of EOD Oy and SAMK Research Centre WANDER.

EOD Oy's Nanoboost device produces nanosized oxygen gas bubbles into irrigation water. The initial results show that when irrigating with nano-oxygen water, a 15 % greater yield was produced compared to the reference irrigated with non-oxygenated water.

— Already in the middle of the season we observed stronger growth of strawberries and healthier seedlings," says **Erno Mikkola**, the Managing Director at Nonre Oy.

— From the coming season we expect even bigger increase in the crop growth, as this year we will be able to utilise the technology right from the planting phase of the seedlings," says Erno Mikkola.

The research project also includes Agrifutura, which tests nano-oxygen water on tomatoes, and Robbes Lilla Trädgård, where Nanoboost is examined in salad and sprout cultivation. The farms monitor the growth and well-being of plants through parameters such as growth rate, productivity, health, and flavour.

ADDITIONAL OXYGEN IN IRRIGATION WATER SAVES ENERGY

According to **DI Henna Niskakoski** from EOD, too little attention is being paid to the oxygen content of irrigation water at the moment.

— Especially in warm water, the oxygen content of water drops rapidly to critically low levels (< 4 mg/l). In both experimental and case studies,



This year the Nanoboosted irrigation water is used in the Nonre Oy berry farm from the beginning of the season.

oxygen content of irrigation water has proven to be a critical factor in promoting healthy plant growth, improving growth rate, inhibiting growth of pathogens, and reducing crop losses.

In recent years, the subject of intense research has emerged from nanobubbles, which are providing a solution to increase the oxygen storing capacity of water.

— EOD Oy's Nanoboost device focuses on energy-efficient oxidation of irrigation water. With the Nanoboost device about 130 litres of oxygen is stored into water by consuming only up to 1 kW of energy. This amount of oxygen is sufficient to oxygenate around 12.5 cubic metres of water if the initial oxygen content is 5 mg/l and target concentration is 20 mg/l, Niskakoski calculates.

— Oxygenation of irrigation water with the device will therefore bring a minimal addition to the total energy consumption. Simultaneously, energy consumption per product grown

significantly decreases as plant growth accelerates, productivity improves, and crop losses decrease. A richer and healthier harvest is obtained from the same cultivation area using the same water, heating, light, and fertiliser resources.

CEO **Timo Kantola** of EOD says that the Nanoboost can also be commissioned with leasing funding. •



Henna Niskakoski is the Chief Scientific Officer at EOD.

