Sustainable farmers

Together, model farmers from various parts of the world form an online school for sustainable farming systems. Others can explore their approach through distance learning methods including a hologram.

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It must sound strange to the Dutch, but there is a 4000-hectare dairy farm in Latvia where milk is not the main product. 'What the farmers are interested in is manure,' says Rogier Schulte, professor of Farming Systems Ecology in Wageningen. 'They put the cow dung and other organic waste into digesters and use generators to convert it into enough electricity for 2000 households.' But even the electricity generated is not the main product: that is the heat produced in the digesting process, which heats an eel and sturgeon farm, boosting production of fish and in particular caviar. 'Ultimately it's all about that one kilo of caviar produced by each sturgeon.'

The Latvian farm is just one of the seven farms Schulte selected in 2018 for the 'lighthouse farm' project. The project includes existing farms on different continents that have developed a sustainable and cost-effective farming system by adopting a radical approach. A beef farm in Ireland produces climate-neutral beef enriched with omega-3 fatty acids. A community of farmers in northern Ethiopia has created a green valley in a totally eroded desert area using a mix of careful water harvesting, dam and terrace construction and rotational grazing. In Brazil, farmers are trying to restore forest and biodiversity on a degraded nature reserve of one million

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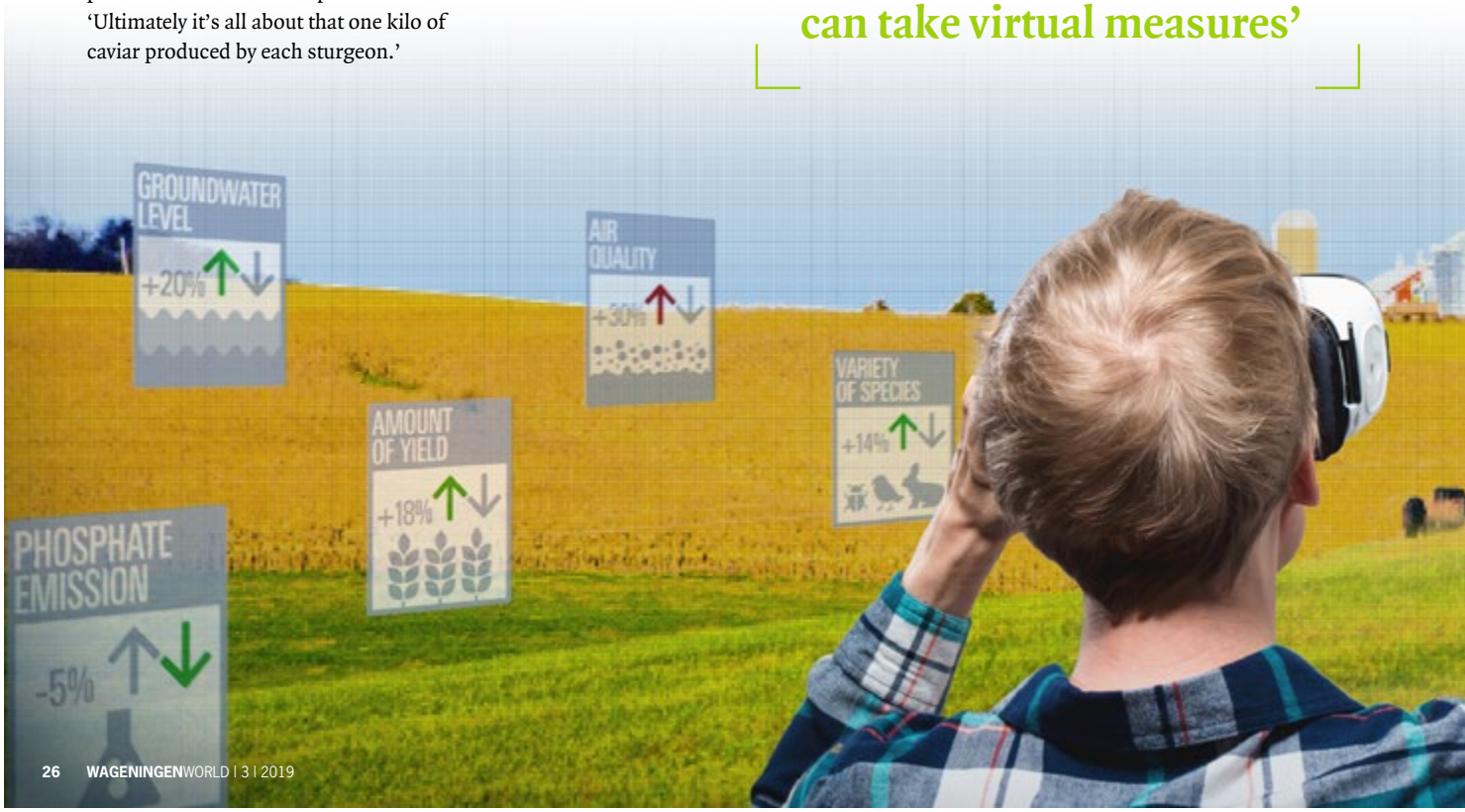

light the way

hectares, in combination with organic arable farming. A Finnish organic farming cooperative is working on circular food and energy production for the regional market. In Indonesia, farmers are combining rice farming with fish farming.

'These farms were selected because they are all developing farming systems that excel in one or more of the sustainability criteria for the future. The idea of the network is that, together, they show the diversity of solutions available to address the challenges of the future,' says Schulte. As lighthouse farms, they are a light on the horizon guiding others on their way.

HOLOGRAM

Schulte describes the network as a 'global classroom or laboratory for sustainable farming systems'. Farmers all around the world can be inspired to apply the innovations on their own farms, or to develop their own variations on them. The classroom is diverse, with large industrial farms, small individual farmers and cooperatives, and both livestock and arable farms. Schulte is thinking of adding three Dutch farms at the end of the summer, from the livestock and arable sectors.

One of the means of international communication used is an interactive technique with which it will soon be possible to visit the projects using a hologram lens.

The Irish beef project has already been completed. Researcher Annemiek Pas Schrijver clicks on different maps on her laptop to see information about the acidity of the soil, the archaeology of the landscape and livestock farming's current phosphate emissions into the river. 'Participants, including students or policymakers, can take virtual measures during a session, such as planting trees, installing drains, increasing biodiversity or improving water purification. The model shows the effects on production and on the farmers' income,' she says. In June, King Willem-Alexander and Queen Máxima had a look at the activities in Ireland.

Schulte thinks that about 200 different farming systems can be improved through 12 to perhaps 20 model projects. 'Through the diversity in climate conditions, soil types, cultures, diets, livestock species and crop varieties, farmers all around the world will be in a position to improve their farms in terms of efficiency, sustainability and income.'

EXPERIMENTAL FARMS

With their collaboration with scientists and the welcome they extend to students, PhD and post-doc researchers, the lighthouse farms are like international experimental farms. A series of institutions is involved in funding the project, says Schulte. The EU supports the research in Ireland to the tune of 1.4 million euros. That enables five PhD students to do research on topics including farm system analysis, ecology, economics and health. Thanks to a Swiss charity, a PhD researcher and a post-doc will be doing research in Brazil too.

Schulte's chair group will organize a workshop in Wageningen in December, with contributions by all 12 lighthouse farm projects. ■

www.wur.eu/lighthouse-farm