**The soilless cultivation embraces automation, robots and artificial intelligence**

*The 4.0 movement, the new wave of automation and digitalization, has already begun to invest the primary sector. Soilless culture is an ideal field of application to enhance productivity characteristics and optimize the use of resources. A session on cyber agriculture at NovelFarm. Appointment on 25 and 26 May at Pordenone Fiere.*

*May 16, 2022*. The soilless cultivation techniques, which have their maximum expression in vertical farms, guarantee a wide array of advantages. Very high productivity, unparalleled by traditional ones, very low water and nutrient consumption, no need for pesticides, total control of the product characteristics, no influence of climatic conditions and drastic shortening of logistic chains. On the other hand, especially in its more rigorous applications, whilst capable of providing maximum benefits, its high capital costs, energy costs, sophisticated management needs must not be ignored. The response of the producers has been and still is to invest huge resources in technology. At NovelFarm on May 26, the Cyber ​​Agriculture session provides an overview of some of the solutions developed to make soilless and vertical farming the most efficient solutions ever for the production of most of the crop varieties.

If by sustainability we mean all the declinations of the term, including the economic and social ones, as explained by Alberto Pardossi, of the University of Pisa, digitization and automation are fundamental in soilless culture. With the pervasive use of sensors it is possible to always have plant growth conditions under control, for example by optimizing lighting. But by building vertical farms and automated greenhouses, the need for unskilled and occasional labour is reduced to a minimum, which is causing so many problems, for example, in the Almeira region, in southern Spain, with its "sea of ​​plastic" of traditional, low tech greenhouses.

A greenhouse such as the one described by Carlo Castoldi of Automha, one of the world's greatest specialists in automated warehouses, actually built and functioning in the Netherlands, uses the technology of lift trucks to move the hydroponic blocks without any human intervention, optimizing the position on the basis of the growth phase and simplifying the harvest.

Compared to what happens with traditional methods, the success of soilless culture and of a vertical farm depends on its accurate design. There are now software tools and consultancy companies that help vertical farmers to create their own farm in a virtual way and to simulate its operation before building it, optimizing aspects that may not be considered critical but turn out to be so. One of these companies, Agritecture, explains it through Lead Agronomist David Ceaser. Agritecture has been collaborating for years with NovelFarm on its annual census on soilless cultivation around the world, the latest edition of which will be presented at NovelFarm in the opening session.

Some are taking the next step, a logical consequence of considering the farm as a fully automated system in which seeds, water and nutrients enter and food products exit. This is the case of ONO Exponential Farming, of which Thomas Ambrosi is the founder, which led to the development of fully automated and sensorized modular vertical farms managed by artificial intelligence applications. Real machines for producing food where operators do not have to intervene on crops except in exceptional cases and for plant maintenance. Exponential Farms can be placed anywhere: in warehouses, sheds, abandoned buildings where electrical and water connections are available and are supplied turnkey. The same philosophy is followed by the producers of container farms, as explained by Daniele Bertocchi, CEO of Greatit, an Italian example, with the added value of the extreme ease of transport and the possibility of being placed outdoors, which makes them ideal for temporary situations, such as emergencies, but also for retrofitting, for example on logistic, military and cruise ships.

Appuntamento quindi la settimana prossima a Pordenone Fiere il 25 e 26 maggio con la *Cyber Agriculture* e tutti gli argomenti più rilevanti e attuali della produzione sostenibile di cibo. Per partecipare gratuitamente, è necessario registrarsi e scaricare il biglietto: [www.novelfarmexpo.it/visitare/](http://www.novelfarmexpo.it/visitare/)

But robotics is also applicable in less sophisticated farm architectures. Research and development have brought greenhouse robots to the market dedicated to different stages of cultivation, especially harvesting which is the one requiring the greatest use of manpower. NovelFarm has hosted several examples of these automata in the past. In this edition it was decided to present to the Italian public a lesser-known type of robot: the flying one. Antonio D’Argenio, Vice President of ASSORPAS, the association that brings together operators of light drones, explains the increasing use of the same in agriculture and points out that one of the growing sectors is that of indoor machines. A fascinating example is Pats-Indoor Drone Solutions' pest control drones in semi-enclosed greenhouses, presented by CEO Bram Tijmons. The next step could be pollinating drones.

The moderator of the session is Alessandro Piscopiello, journalist of Edagricole, the historical publisher who has accompanied Italian agriculture in many stages of its development. A clear demonstration that soilless and vertical farms are just the new phase of crops.

Therefore next week we have an appointment at Pordenone Fiere on 25 and 26 May with Cyber ​​Agriculture and all the most relevant and current topics of sustainable food production. To participate for free, you need to register and download the ticket: www.novelfarmexpo.it/visitare/

***NovelFarm*** *is the most important Italian event entirely dedicated to* ***new cultivation techniques****, soilless and vertical farming.* ***AquaFarm*** *is the international exhibition-conference dedicated to* ***aquaculture and sustainable fishing*** *industry. This year accompanied by* ***AlgaeFarm****, an event dedicated to technologies and applications in* ***algae cultivation.***

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AquaFarm [**www.aquafarmexpo.it**](http://www.aquafarmexpo.it/)
NovelFarm [**www.novelfarmexpo.it**](http://www.novelfarmexpo.it/)
AlgaeFarm: **www.aquafarm.show/algaefarm-convegno-algocoltura/**

**Media relations**

Aurora Marin – Studio Comelli - aurora@studiocomelli.eu + 39 347 1722820

Simona Maldarelli – Pordenone Fiere – smaldarelli@fierapordenone.it + 39 380 3133728