

INFORMATION FOR THE PRESS

CLIMATE CHANGE AND AGRICULTURAL RESILIENCE

- Coldiretti, one of the main agriculturists farmer's association in Italy, has estimated that climate change has already caused damages to Italian agriculture for 14 billion Euro worth in the last decade, including losses in production, structures and infrastructures.
- Increased CO₂ in the atmosphere without a parallel increase in irrigation and nutrients may reduce the nutritional power of agricultural products.
- Tools of resilience: intensification of sustainability, artificial intelligence, genetics and urban farming.

January 20, 2020. Research and innovation are ready to help enterprises and society to cope with the implications of climate change in agriculture. The tools are intensification of sustainability, genetic techniques, artificial intelligence and urban farming using hydroponics, aeroponics and aquaponics. We will talk about it at NovelFarm, the trade conference on innovations in agritech scheduled for February 19 and 20 at Pordenone Fiere.

Climate change and human activity due to the increase in the population in various environmentally fragile areas, such as semi-arid and coastal areas, endanger the economic sustainability of many crops and of food security.

In the report "Climate change and territory" presented by the UN scientific committee (IPCC report of August, 8th 2019 www.ipcc.ch/srccl), 66 scientists predicted an increase in the alternation of drought periods to extreme rains throughout the world and exceeding certain levels of CO₂ with foreseeable consequences on agriculture. The growth of CO₂ in the atmosphere facilitates the growth of plants, but beyond certain limits the need for water and nutrients to preserve the same quality of crops also increases. If this does not take place, scientists predict a nutritional decline in agricultural products (5.9–12.7% less protein, 3.7–6.5% less zinc and 5.2–7.5 % less iron).

The combination of increasing average temperatures and population growth also leads to the risk of salinization of surface and groundwater. A high concentration of salt present in the water and in the soil adversely affects the yield of the crop, slowing down the growth of plants and causing nutritional imbalances and toxicity phenomena. Coastal areas should be taken into special consideration because the increase in groundwater pumping for agricultural or civil use (housing) causes the infiltration of sea water and consequently a higher risk of soil salinity.

Finally, the change in temperatures and humidity levels leads to a greater diffusion of parasites and alien species, such as the Asian bug.

Considering just Italy, Coldiretti, one of the main agriculturists farmer's association in Italy, has estimated that climate change has already caused agriculture damage by 14 billion over the past decade.

The solutions to tackle these changes however exist and the research and innovation will contribute to support this agricultural revolution.

The first NoverFarm session, featuring Teodoro Georgiadis, researcher at the Bioeconomy Institute of the CNR as a moderator will deal precisely with these issues.

We start from **intensification of sustainability**: a tool for the development of the agricultural sector that aims at increasing production and profitability by reducing the environmental impact of the processes thanks to the use of technology and agricultural and genetic sciences. The application of genomics and artificial intelligence, for example, will help plants adapt to new climatic conditions, survive and continue to be productive. These first topics will be discussed by: **Francesco Marangon**, professor of the University of Udine and President of the Italian Society of Agricultural Economics and **Roberto Papa**, professor of the Polytechnic University of Marche, who is also working on international cooperation projects with India.

Another challenge for the future will be to be able to use **waters with a higher percentage of salinity**. Higher temperatures mean an increase in evaporation and therefore a greater concentration of salt in the water of the coastal areas, to which must be added the infiltration phenomena already mentioned. **Wim Voogt**, a researcher at the University of Wageningen, who has conducted encouraging research on greenhouse tomatoes in the Netherlands, will talk about this issue.

Last topic addressed by **Mohsen Aboulnaga**, professor at the University of Cairo and UNESCO consultant - Policy Lab, is **urban resilience through urban farming**. A real solution to bring the places of production closer to those of consumption, shortening the logistics chain and reducing the impact of agricultural production on our ecosystem.

Vertical farming, indoor cultivation and hydroponics represent cultivation methods to respond to the growing demand for food products in this context. These aspects will be deal with in the other conferences over the two days of the event.

More information on NovelFarm is available on www.novelfarmexpo.it

The event will take place simultaneously with AquaFarm www.aquafarmexpo.it/, an international Trade show-conference dedicated to aquaculture, algoculture, shellfish and sustainable fishing.

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