

As climate change continues modifying water availability patterns it also causes a crisis of this invaluable resource.

The agricultural industry in Latin America and the world faces various challenges to increase efficient use of water resources in all areas and to provide solutions, innovation and technology for the management and preservation of water in agriculture.

To commemorate World Water Day, FreshFruitPortal.com spoke with sources in the agricultural sector around the world and asked them about the actions they take to combat the water crisis.

The following responses have been edited for clarity.



Marina Rosenberg, Israel's Ambassador to Chile

The first thing to think about when looking at the water problem is to understand that water is a vital resource that is limited and must be protected on all levels, from education to public and regulatory policies.

The second is to articulate the different public, private and academic participants. What we do in Israel through the Israel Water Authority is coordinate who is responsible for the national water issues.

A third point is the actions aimed at saving or making efficient use of the available resource, and in Israel, this is achieved in two main ways. First through the efficient use of water in agricultural processes like drip irrigation, precision agriculture and artificial intelligence.

And second, through a refined treatment and recycling process, which currently allows more than 90 percent of the water to be reused, which is sent according to its treatment levels to agriculture, industry, municipal irrigation or aquifer recharge.

This is the generation of new sources of water, from cloud seeding to desalination. In Israel, the use of desalinated seawater already provides more than 60 percent of the water for human consumption, reaching one of the most competitive prices in the world.

"A mix between technology and ecology. The knowledge application and research to produce new water resources, to take care of those that exist and for sustainable management of the different processes that happen in the water cycle, from natural reservoirs to the ocean coasts."



Gerbrand Jung, Agricultural Advisor at the Dutch Embassy in Chile

The Netherlands and Chile are working together in the field of water with the aim of exchanging scientific and administrative knowledge, sharing (concrete) short, medium and long-term solutions that lead to tackling the challenges that both countries have in this area. The Netherlands does this by offering innovative solutions based on the principle of integrated water management.

Store water - in the natural underground aquifers before it flushes into the ocean. Deltares is currently coordinating the execution of a pilot project in the Elqui basin to refill the aquifers in the region. This underground water can be used in times of drought.

Retain water - by improving soil management. By increasing organic matter in the soil or making space for permanent vegetation on farms the retention capacities of farmlands can be enhanced. A more technical solution is offered by Drainblock, a product to create sustainable water retention reservoirs by using foam blocks.

Reduce water footprint - by using the available irrigation water as efficiently as possible. Based on satellite data online platforms offer precise irrigation advice that can improve water efficiency. The Irriwatch platform combines digital data of water usage with production and evapotranspiration to optimize the water footprint on the farm level.

Reuse water - for a second or third time by optimizing the treatment of residual water flows. For example, Bluecon offers proven compact wastewater purifying units, in which domestic wastewater is transformed into irrigation water.

 **Leslie Sarná, General Manager of Irrigadora Cerro Prieto in Peru**

Beyond differences of country or culture, there are general strategies to mitigate the impacts of climate change and ensure water is a fundamental right. From my perspective in the agriculture sector, I consider the following:

Reduction plans and improving efficiency: There must be a real commitment from water users to implement reducing actions that result in the water efficiency of productive and non-productive processes, improving the quality of used water and/or reusing it, optimizing the use of supplies and energy, etc.

Innovation, research and development: It is important to promote innovative processes from our institutions, companies and governments, as well as being fundamental to encourage solution development for these challenges.

Sowing and harvesting water: Proper management of rainwater allows the increase of retention, storage and regulation of water when rainfall is intense and then use of it in periods of drought.

Shared value: Efficiency measures will not be enough if you do not work together with the government, the company and the communities. Building a good relationship from the beginning, with social investment in the community that surrounds us, is a fundamental part of development.

Legality for the use of the resource: We must fight against the illegal use of water that prevents the resource from being managed in the most efficient way for all. There should be more supervision and severe penalties for illegal use.

Carolina Cruz, President of UVANOVA in Chile



Many years ago, at UVANOVA we decided to do a diagnosis and the first thing we did was to host seminars in all areas, though mainly focused in Aconcagua, the fourth region of Chile.

We invited engineering experts such as Gabriel Seguel and Raúl Ferreira among others who studied water in terms of irrigation.

Through the contribution of the UVANOVA advisors, we determined the critical areas, that is, where we could not go without water and also shed light on the products that could use the minimum amount of water, while still being feasible to produce table grapes.

Therefore we defined the minimum standards with which it was feasible to produce one hectare of table grapes. All that information (which is not always known and handled by the producers) we talked about in the discussion.

We reported on many strategies of incorporating technology based on lowering or optimizing water use. Then we created a protocol of water management in the face of water scarcity, which we distributed through different organizations such as SMA Chile.

Finally, together with UVANOVA advisors and irrigation experts, we created Water Balance, which consists of a platform so that the products were able to incorporate their data and know what their actual requirements were on the premises.



Mario Schindler, Executive Director of ANPROS

Sustainability: The seed industry is 100 percent committed to sustainability in all its processes, implementing new practices and using all available tools to comply with the global objectives established to reduce the effects of climate change.

Technology: Increasing water resource efficiency has an important basis in using the tools that exist for modernized irrigation. For a long time, a very high percentage of producers in the seed industry have used technical irrigation.

Training and information: Knowing about the available tools, using them correctly and making the most of them is essential for the adoption of new technologies to combat drought. In 2020, ANPROS made a series of webinars with the objective of managing water resources, the technological tools currently available and additional factors to consider for their maximum use were addressed.

Education: In the context of climate change, it is necessary to educate new agronomists from the beginning on the technologies, tools and processes available for the use of water resources. Whether with diplomas, technical workshops or other instruction, having the necessary knowledge to deal in practice with different situations that can be faced in periods of drought.

Selection of favorable agro-climatic zones: When thinking about production, it is important to select agro-climatic zones that are favorable to the type of crop that is going to be produced.



Felipe Martin, CEO of MAS Natural Resources

To combat drought, permanent and continuous work is required both to improve the water infrastructure and to manage the resources.

Regarding infrastructure, both superficial (reservoirs and micro-reservoirs) and underground storage (natural and artificial infiltration of aquifers), the conduction systems

through lining or tubing and the telec-ontrol and telemetry systems for monitoring in real-time is essential. Therefore, we have three key axes: storage, distribution and monitoring/control of water resources.

Concerning management, administration by user organizations is key and therefore the strengthening of organizations is key.

Additionally, the regularization and improvement of water titles are essential information for user organizations and government authorities. In management, there are two strategic axes: strengthening of the OUA and the legal ordering of water titles.

Both infrastructure and management allow us, as a whole to make informed decisions according to a reality, where the strong effects of climate change cannot be ignored.

This year the Agricultural Water Summit will be held in Chile, which will address key issues regarding the impact of water scarcity in the different regions, as well as the importance of applying new technologies and optimizing current irrigation systems for efficient management and use of the water. For more information, visit www.agwatersummit.com.