



RISE & Turning Iran's water crisis into a series of impactful opportunities in agriculture

In a collaborative project, Nestlé Iran is developing practical solutions on the ground – improved irrigation systems

For food processing companies, a reliable supply of raw materials is critical for stable production. Nestlé Iran is therefore making significant efforts to promote sustainable and efficient agricultural practices. In this project, RISE sustainability assessments were conducted to establish a solid base for decision-making. In collaboration with Chaltasian Farm, tangible solutions are being developed for improved irrigation systems and optimised spatial arrangement of crops to ultimately achieve significant water savings.



Good food, Good life

What does sustainability mean for Iranian farmers?

In Iran, water is one of the most valuable and vulnerable natural resources. About 65% of Iran is considered arid and 20% semi-arid. The distribution of water resources and rainfall throughout the year is heterogeneous and unpredictable. Studies by the Iranian Meteorological Organisation concluded that the country's average temperature has increased by 0.5°C over a 30-year period and evaporation has increased by 23% over the same period. Today, Iran is facing a looming water crisis that requires immediate action. As part of Nestlé's support for the sustainability of local dairy farms, and ultimately for the availability of high-quality and safe raw materials, Nestlé Middle East commissioned a RISE (Response-Inducing Sustainability Evaluation) study in 2015 in collaboration with Bern University of Applied Sciences (BFH) to assess the sustainability of dairy farms in the Qazvin region. The need to secure sustainable water resources was identified as one of the main outcomes of this study. Therefore, the team started benchmarking in the market to find the most practical solution suitable for the Iranian environment.

In 2012, Chaltasian Farm – one of the largest cereal and dairy farms in the country – launched a water-saving project to reduce water consumption in feed production. To follow up on the RISE results, Nestlé Iran contacted the farm in 2016 to learn more about its initiatives and its experience as a model for other suppliers and local farmers.

Our approach

Chaltasian Farm grows most of its own feed, which consists of maize, barley and alfalfa silage. The crops are grown on 700 ha of land. Irrigation is therefore one of the most important pillars to reduce in order to optimise water consumption at farm level. As a pilot project, a 300 ha area of maize was selected to develop initiatives to increase the water productivity of the crops. The following two initiatives were implemented:

- Improved irrigation efficiency by changing the irrigation systems: Due to higher temperatures and an increased number of windy days,, sprinkler irrigation systems were replaced with drip irrigation systems in 2012. Water use efficiency, yield and dry matter production were then measured and compared for each irrigation method.
- Optimised row planting and spatial arrangement of crops: Due to the high

cost of drip irrigation (750 USD/ha), the farmer was reluctant to invest in this system. An innovative approach to the spatial arrangement of the plants was proposed. The normal spacing between maize irrigation pipe rows is 70-75 cm. The distance between the rows was increased to 140 cm to reduce the cost of drip irrigation. At the same time, a twin-row arrangement with two different maize varieties was introduced to maintain the yield per hectare.

Increasing the distance between crop rows reduced the use of drip irrigation tubing, and thus its cost, by 50% (from 450,000 USD/year to 225,000 USD/year) without affecting the two-yearly production harvest.

Results & benefits

Initiatives such as those implemented on Chaltasian Farm can help alleviate the national water crisis in Iran at farm level.

Conversion of irrigation systems to drip irrigation (2012 to 2017) improved:

- water use efficiency: water use reduced by 30% for the same crop (estimated 1,320,000 m³ water savings - from 7200 m³/ha to 5000 m³/ha).
- yield: maize fodder production increased by 22% (from 45 t/ha to 55 t/ha).
- dry matter: increase of 32% (from 11.2 t/ha to 14.8 t/ha).

Next steps

- Cultivation of canola on 100 ha to further increase biodiversity and serve as improved fallow (cover crop to restore soil fertility). Drip irrigation is also used.
- Construction of a large lagoon to store slurry and optimise its use.
- Construction of a large lagoon to store purified water used for irrigation.

“Sustainability and economical profitability go hand in hand”

“The RISE project at Nestlé Iran provides a shining example of how economic and environmental sustainability in local dairy farming does not have to come at the detriment of quality of life for the livestock or the farmers involved. I’m proud to be part of a team that has shown that dairy farms can increase the quality of the raw materials they produce for the country and stay economically profitable, while still ensuring that the animals live happy lives and that the farmers go home every day with a smile.”



Ghazal Nemati – Head of Agriculture, Innovation & Renovation, Nestlé Iran

“RISE is an eyeopener”

“RISE is a door and eye opener for sustainability topics for farm managers, but also for employees of food companies. Water is the most important element in the entire food system. Scarcity jeopardizes availability and affordability of food anywhere. Therefore, Nestlé supports farmers to save water whenever possible, disseminates technology and training material around the globe. Resilience and sustainability of farming communities, the next generation of farmers, is only granted when also providing a living income to suppliers. This goes hand in hand focusing on water, its use and no waste.”



Hans Jöhr – Former Corporate Head of Agriculture, Nestlé SA, Vevey

What is RISE

RISE is an acronym for Response-Inducing Sustainability Evaluation. RISE assesses ecological, economic and social sustainability performance across 10 themes captured by a total of 46 indicators. The results provide a 360-degree view of the farm and identify where there is potential for optimisation. RISE was developed at BFH-HAFL and has so far been used on more than 4,500 farms in 62 countries.

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