

Green Agro Valley - Low-cost Laser Spray irrigation system saves water while boosting food production

Agriculture is the main driver of economic growth in Côte d'Ivoire, with almost half the working population employed in this sector. However, the country's agricultural productivity remains low, partly due to low levels of mechanisation, particularly low irrigation rates. Although irrigation holds great promise for strengthening the agricultural sector, the high costs associated with its design, acquisition and installation limit its expansion.

Background

Green Agro Valley CI is one of the 20 innovators selected through a call for innovation by the West Africa Hub of the Water and Energy for Food (WE4F) programme whose mission it is to scale water and/or energy friendly innovations in the agricultural sector.

Green Agro Valley is an Ivorian company founded in 2018 and based in Abidjan. It employs 21 people, including seven women. The company aims to improve access to and the overall use of irrigation systems by making them affordable to smallholder farmers.

Facts

- In Côte d'Ivoire, 65% of the territory is classified as agricultural land, and 46% of the country's workforce is employed in this sector.
- Only 2% of cultivated land in Côte d'Ivoire is irrigated.
- With global warming, farmers who don't use irrigation systems have seen their production drop by 20%.

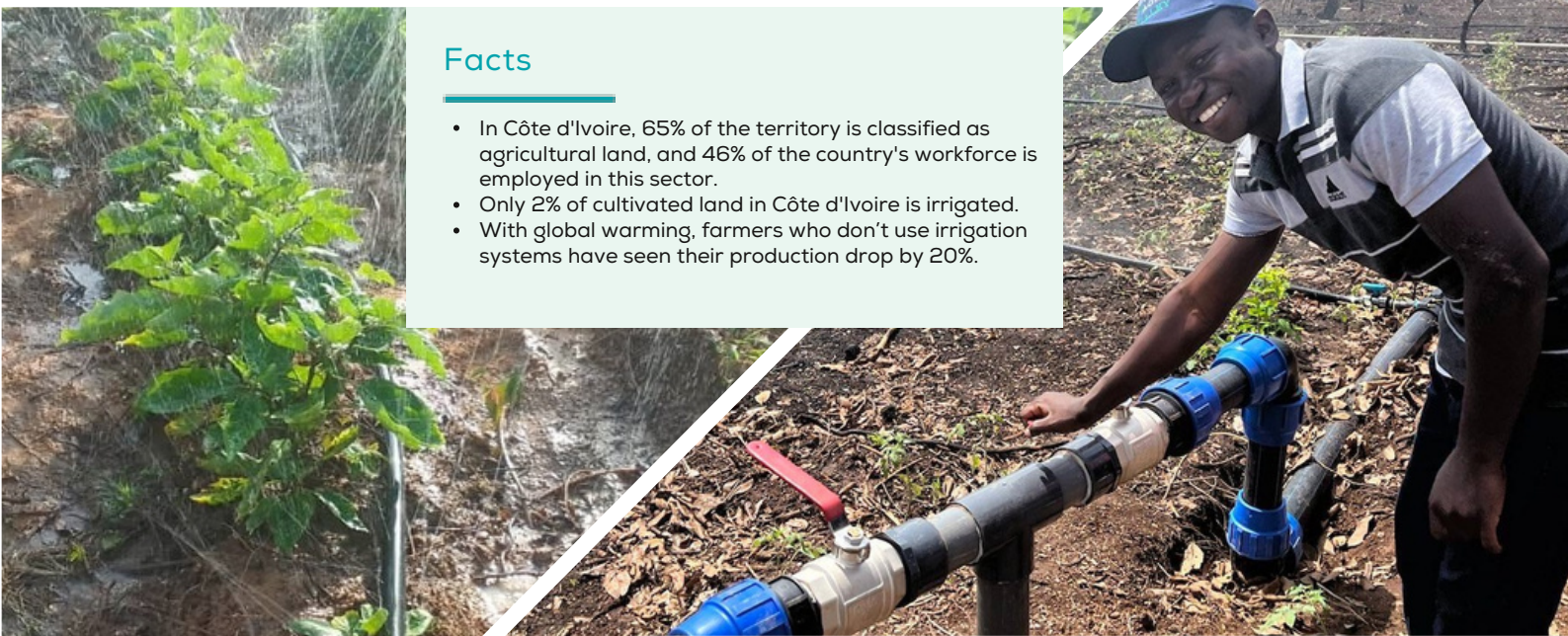


Photo credits: GIZ and Green Agro Valley

Innovation

Green Agro Valley offers boreholes equipped with solar pumps and Laser Spray irrigation kits. The Laser Spray irrigation system consists of low-density polyethylene (PELD) sheaths laser-perforated to micron-sharp diameters. These are connected to a hydraulic pump through a pipe made of polyvinyl chloride (PVC) or high-density polyethylene (HDPE), both of which are plastic materials. Once in operation, the sheaths produce rain-like jets of water that slowly infiltrate the soil.

The system operates at low pressure and requires less energy than a conventional high-pressure system. The PELD sheaths can be cut to the desired size according to the surface area of the plot to be irrigated.

Green Agro Valley aims to make irrigation accessible to as many farmers as possible by offering low-cost systems. Prices are competitive with other commercial products available on the Ivorian market. In addition, several versions of the irrigation system are available to suit different customer needs.

Advantages and achievements to date

- Green Agro Valley's Laser Spray irrigation system makes efficient use of water and energy possible, while its low cost makes it affordable for farmers.
- The company has installed irrigation systems on 250 ha and has over 400 customers in six countries.
- Farmers using Laser Spray have tripled their yields and are able to grow three crop cycles per year instead of two.
- Fuel consumption by farmers using conventional pumps has been cut by a third.

Photo credit: GIZ



Goals at a glance

- Build a factory where the Green Agro Valley team can produce and assemble irrigation systems.
- By 2027, install Laser Spray irrigation systems on at least 10,000 ha of agricultural fields in West Africa.
- Green Agro Valley aims to impact 50,000 farmers over a 5-year period.

Funded by: Water and Energy for Food (WE4F) Grand Challenge, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ)

Main Implementers:
Translight Solar and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Main Partners:
Federal Ministry for Economic Cooperation and Development (BMZ)
European Union (EU)
Ministry of Foreign Affairs of the Government of the Netherlands
Norwegian Agency for Development Cooperation (NORAD)
Swedish International Development Cooperation Agency (Sida)
US Agency for International Development (USAID)

Duration of the WE4F programme: January 2020 - December 2024

Contact: we4f@giz.de

More about the international initiative Water and Energy for Food (WE4F) Grand Challenge: <https://we4f.org/>

November 2023



Government of the Netherlands



Norad



Sweden
Sverige



USAID
FROM THE AMERICAN PEOPLE