

CLIMATE CHANGE MITIGATION AND ADAPTATION

DRIP IRRIGATION LINKED TO WEATHER STATIONS FOR EFFICIENT WATER MANAGEMENT

BACKGROUND

Burkina Faso's agriculture is essentially extensive, and is largely dominated by pluvial cultivation of traditional cereal crops with an average annual area of around 4 million hectares. Unfortunately, this agriculture is subject to numerous constraints, the most important of which is climate change, manifested by rainfall that features strong inter-annual, intra-annual and spatio-temporal irregularities. Faced with the effects of climate change, irrigation is a solution that enables the resilience of populations to be strengthened. With reduced water resources in arid and semi-arid regions, many techniques and methods such as drip irrigation technology and hydro-meteorological stations represent major innovations in systems for agricultural production and increasing yields. The performance of these two technologies in combination within agriculture was analysed at three sites in Burkina Faso.

DESCRIPTION

The experiments and tests conducted at the three sites are part of the Info4Dourou 2.0 project in collaboration with the General Directorate of Hydro-Agricultural Facilities. On the control plots, irrigation was initiated following farmers' practices. On the experimental plot, irrigation was triggered by an audio signal or a message from the hydro-meteorological station. Several parameters were used to evaluate the water status of a plant.

At the Fada site, the experimental plots showed a 33% overconsumption of water compared to the control plots, but this overconsumption was compensated for by 47% overproduction. At the AMIFOB site (Ouagadougou), the experimental plot recorded a water saving of 16.44% and a slight production deficit of 1.63% compared to the control plot. Harvesting conditions do not guarantee a good degree of precision, so this deficit is negligible.

Several simulations have been carried out for the least favourable cases, highlighting the water savings and the increase in production, as well as the irrigation efficiency.

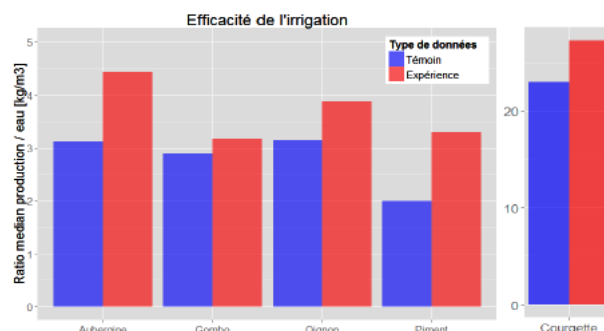


Figure 1: Water productivity by crop.

IMPACT

The model developed in this study allows us to encourage interest in rational management and water productivity against the background of the resource's scarcity. The results from the experiments allowed us to measure the impact of the hydrometeorological information within the agricultural production process.

LESSONS LEARNED

This project represents a step towards strengthening rural populations' resilience to climate variability. However, it must be continued in order to arrive at a model that could be applicable in the Sahel region. Experiments must be scaled up in order to consolidate the results, taking aspects such as the fertility of the soil and cultivation techniques into account. It is therefore necessary to seek funding for such studies.

Country: Burkina Faso

Sector: Water

Key words: Climate change, irrigation, resilience

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