

Smart Drop

<u>Team Member Name</u>	<u>Year:</u>	<u>Major:</u>
Maria Isabel Aguirre Velasco	2nd year	Hospitality Management
Maria Emilia Alonzo Gurrola	2nd year	Hospitality Management
Natalia Clavel Rosas	2nd year	Hospitality Management
Marina Nahoul Abbud	2nd year	Hospitality Management

Advisor(s): Claudia Verónica De Lourdes Florín Torres

Topic Title: Intelligent Irrigation System for Sustainable Corn Production in Sinaloa

Audience: Board of Directors of Grupo MASECA (GRUMA)

Sustainable Development Goal

SDG #6: Ensure availability and sustainable management of water and sanitation for all

SDG #12: Ensure sustainable consumption and production patterns

SDG #13: Take urgent action to combat climate change and its impacts

Executive Summary

Sinaloa is one of the most important agricultural regions in Mexico and a major producer of white corn. However, the state faces increasing water scarcity due to recurring droughts and the high water demand required for corn cultivation. Traditional irrigation systems often operate on fixed schedules without considering soil moisture or climate conditions, leading to inefficient water use and additional pressure on regional water resources.

Grupo MASECA (GRUMA) is the most important company in tortilla and corn flour production worldwide. The company produces corn dough (masa) for tortillas and depends heavily on large-scale corn production, which requires significant amounts of water. As a result, this production chain indirectly contributes to water stress in agricultural regions such as Sinaloa.

Additionally, companies listed on the Mexican Stock Exchange are increasingly expected to reduce their carbon footprint and improve sustainability practices by 2030. Implementing more efficient agricultural technologies would support these environmental goals.

Smart Drop proposes an intelligent irrigation system that optimizes water use in corn production through soil moisture sensors and climate data. Our proposal focuses on providing consulting services that help producers implement this technology and improve irrigation management, supporting more sustainable agricultural practices and protecting water resources in Sinaloa.