

Conserving Water through Microbial Fertilizers

Texas Olive Oil Association Meeting – Irrigation

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Youssef Bargach
AgroMoor Biotech



Agenda

- 1 Introduction
- 2 Background
- 3 Technology
- 4 Results
- 5 Conclusion



Introduction



Acela Biotek

Research and Development lab, based out of Davis CA, focused on developing cutting edge technologies and **manufacturing** microbiological formulations for sustainable agriculture



AgroMoor Biotech

Texas-based company focused on **product deployment** and in-field **product support**



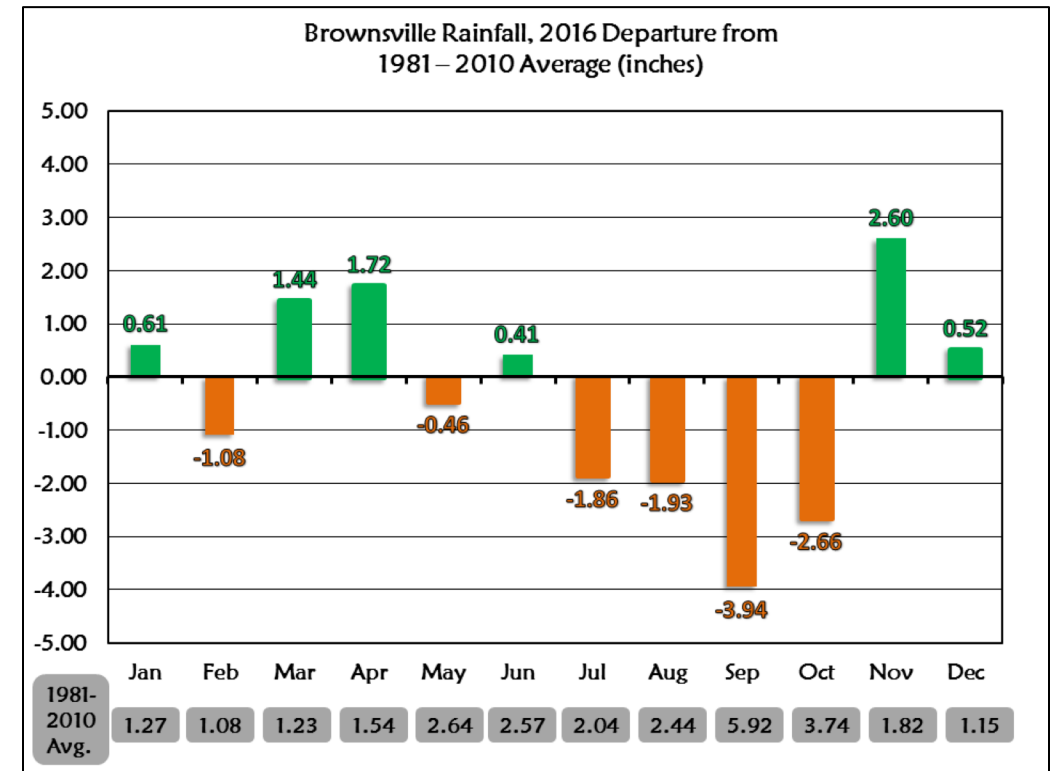
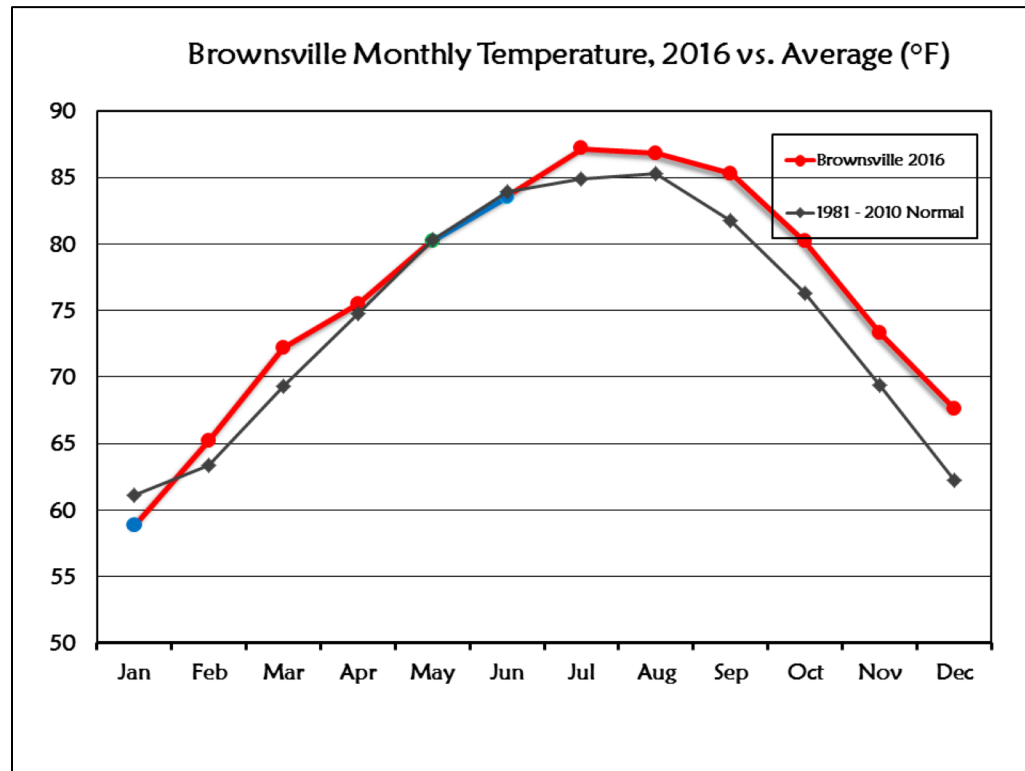
Youssef Bargach

Operations, Logistics, and Engineering Management



Background

Texas is undergoing marked climactic-changes that can reduce the availability of water and impact the productivity of the local agricultural-industry.

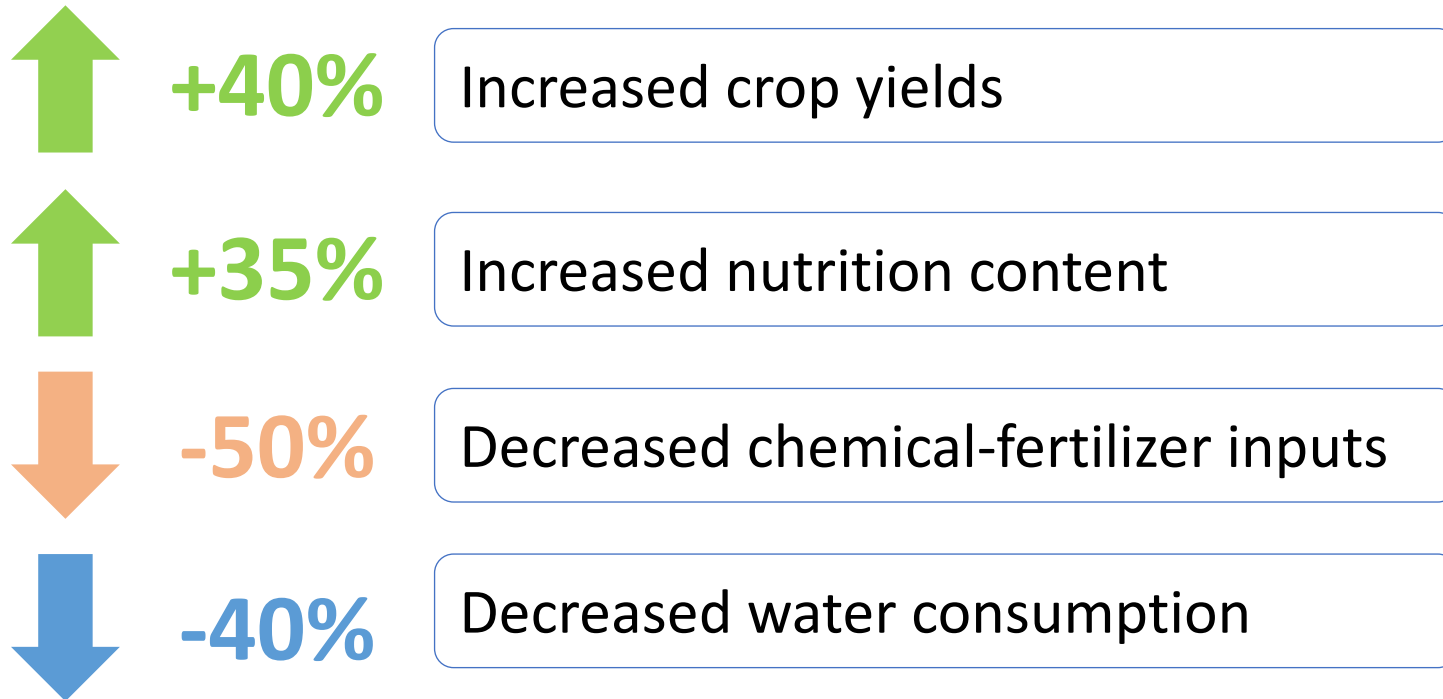


*Source: National Weather Service



Technology – Impact

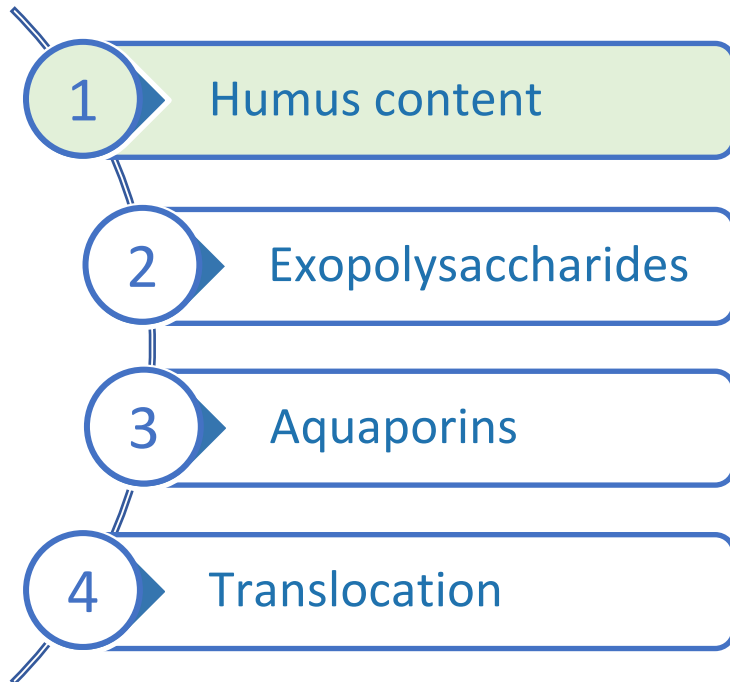
The LALITHA 21 formulation represents a consortium of beneficial microorganism working in harmony to boost sustainable agricultural-efficiency via:



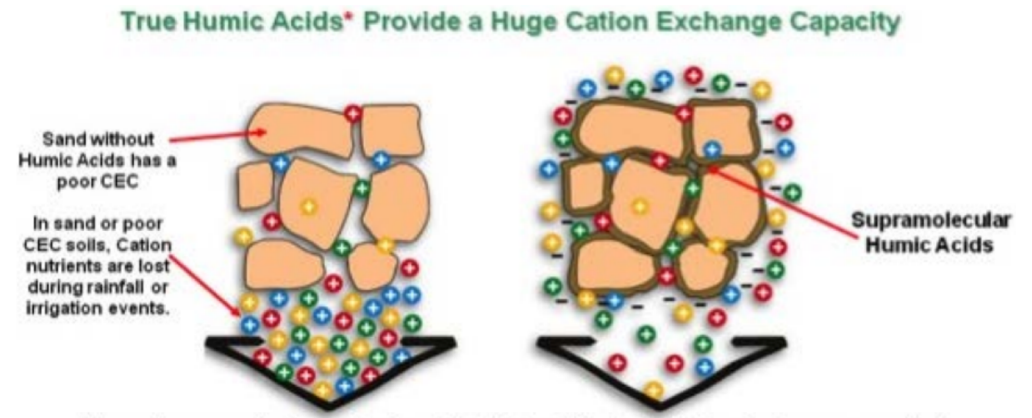
*These figure represent the average measured-impact observed over the course of 10 years worth of field trials conducted on over 60 crop varieties

Technology – Decreased Water Consumption

The LALITHA 21 formulation manipulates four primary aspects of the plant environment that each contribute to water savings.

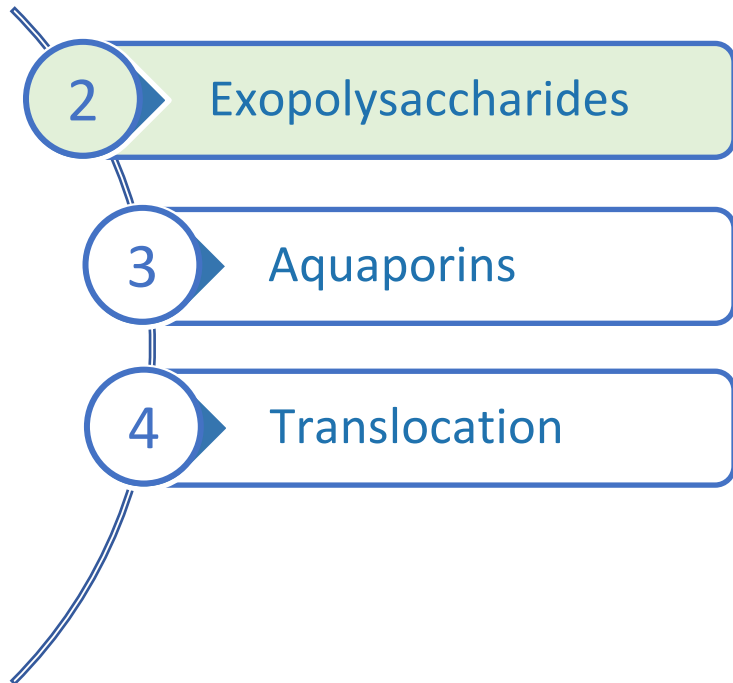


The formulation **increases the humus content** of the soil, creating a larger surface area to hold on to water molecules as well as nutrients.



Technology – Decreased Water Consumption

The LALITHA 21 formulation represents a consortium of beneficial microorganism working in harmony to boost sustainable agricultural-efficiency via:



The formulation **stimulates the production of exopolysaccharides (EPS)**, a glue-like substance that coats the root system, reducing water loss to the surrounding dry soil.



Figure 1. Initial Core Sample



Figure 2. Final Core Sample

*Photos from Abu Dhabi golf-course field-trial

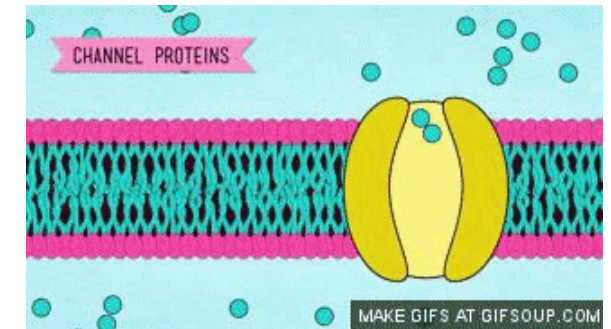
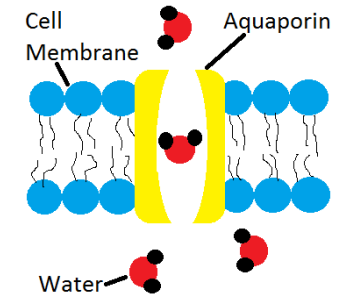
Technology – Decreased Water Consumption

The LALITHA 21 formulation represents a consortium of beneficial microorganism working in harmony to boost sustainable agricultural-efficiency via:

The formulation **produces proteins called aquaporins**, which regulate the opening and closing of the stomata (pores on the epidermis of leaves, stems, and other plant organs), thereby reducing water loss through transpiration

3 Aquaporins

4 Translocation



*Source: Biology 441

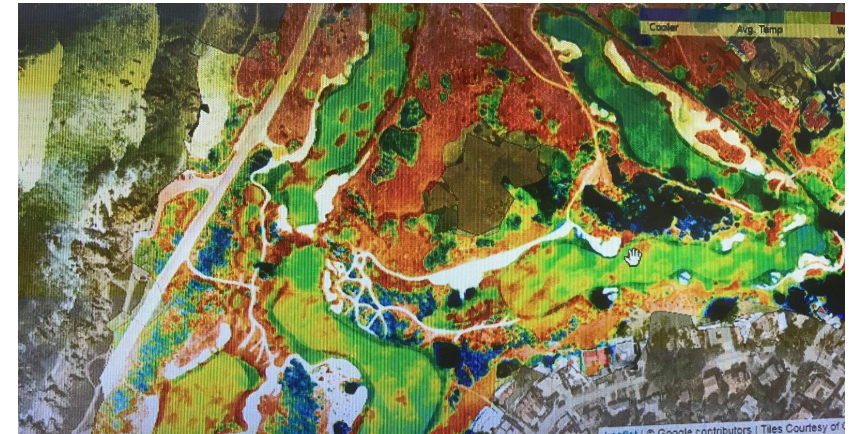
Technology – Decreased Water Consumption

The LALITHA 21 formulation represents a consortium of beneficial microorganism working in harmony to boost sustainable agricultural-efficiency via:

4

Translocation

The formulation **improves the efficiency of water translocation**, allowing for a very even distribution of moisture across the plant



*Field trial at Pebble Beach CA golf course

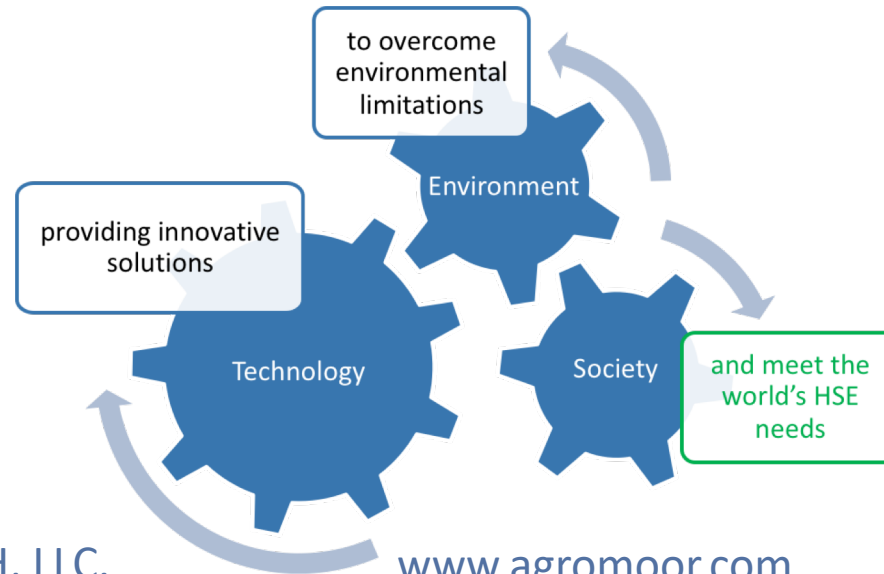
Results – Olive Field Trial

A field-test conducted at an olive orchard in Bellville Tx revealed striking differences between the treated and the control trees.



Conclusion

- Texas is undergoing climactic changes impacting the availability of water.
- Acela Biotek and AgroMoor Biotech have partnered to bring to Texas a microbial fertilizer capable of **increasing crop yields**, **increasing nutrition content**, **decreasing chemical inputs**, and **decreasing water consumption**.
- The microbial formulation enables water savings via increased humus content, development of EPS, creation of aquaporins, and stimulation of water translocation.
- Such a product can save farmers water and achieve our goal of:



Thank You!

Any questions?

Youssef Bargach

AgroMoor Biotech

713-305-4861

Youssef.Bargach@agromoor.com

