

# How Energycane can improve sustainability in EAA cropping systems

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## 1 INTRODUCTION

Energycane (*Saccharum* spp. hybrid) is considered an important dedicated energy crop for sustainable U.S. bioenergy feedstock production in the future. Energycane has better regrowth after harvest and higher nutrient and water use efficiency than traditional sugarcane cropping systems in the region, resulting in higher yields on low-fertility marginal soils. Therefore, evaluating energycane on marginal lands (e.g., shallow muck soil) for its biomass production and ecosystem services is important.



Mature energycane



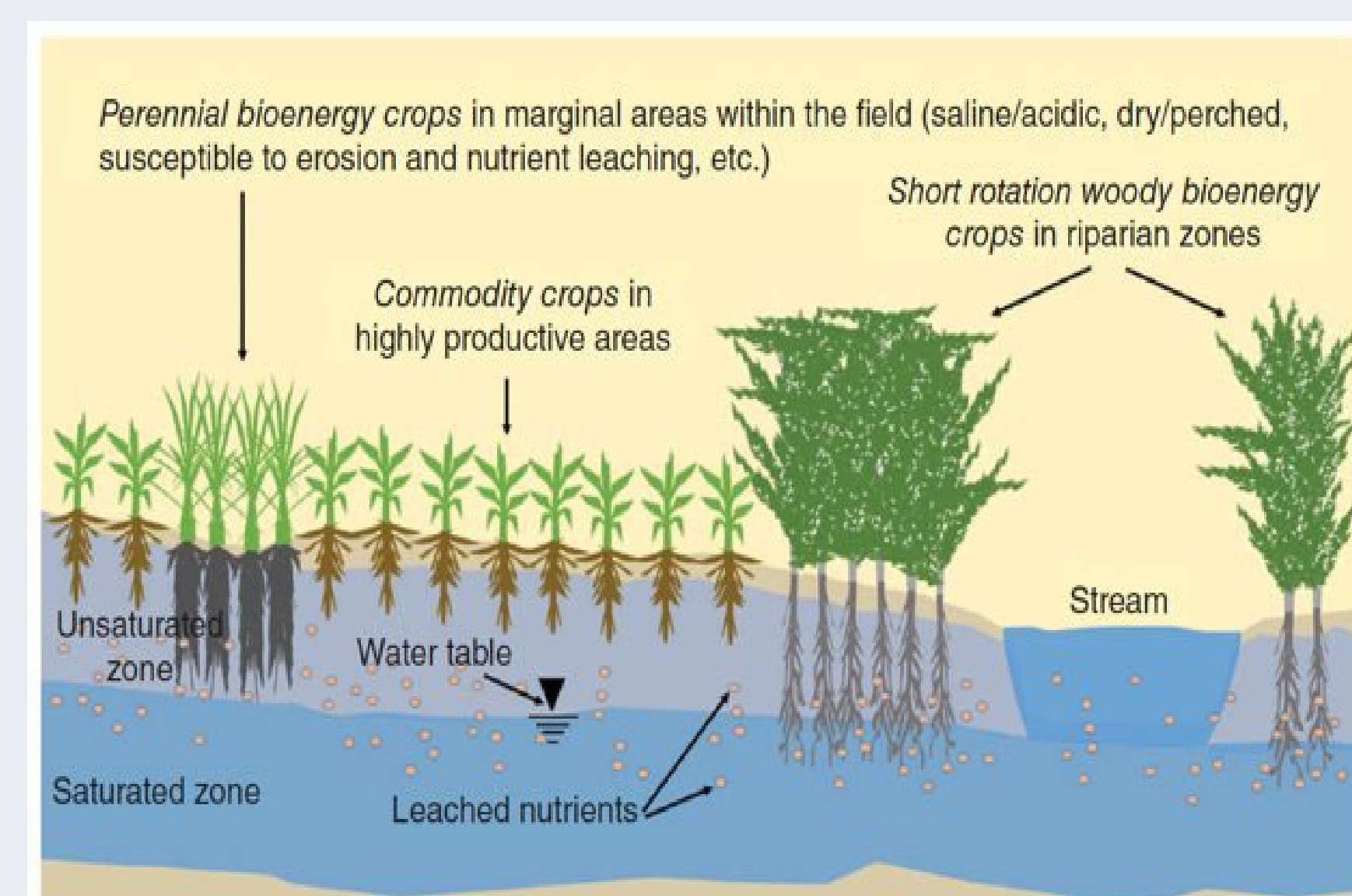
Extensive root system in energycane (left) compared to sugarcane (right)

## 2 OBJECTIVES

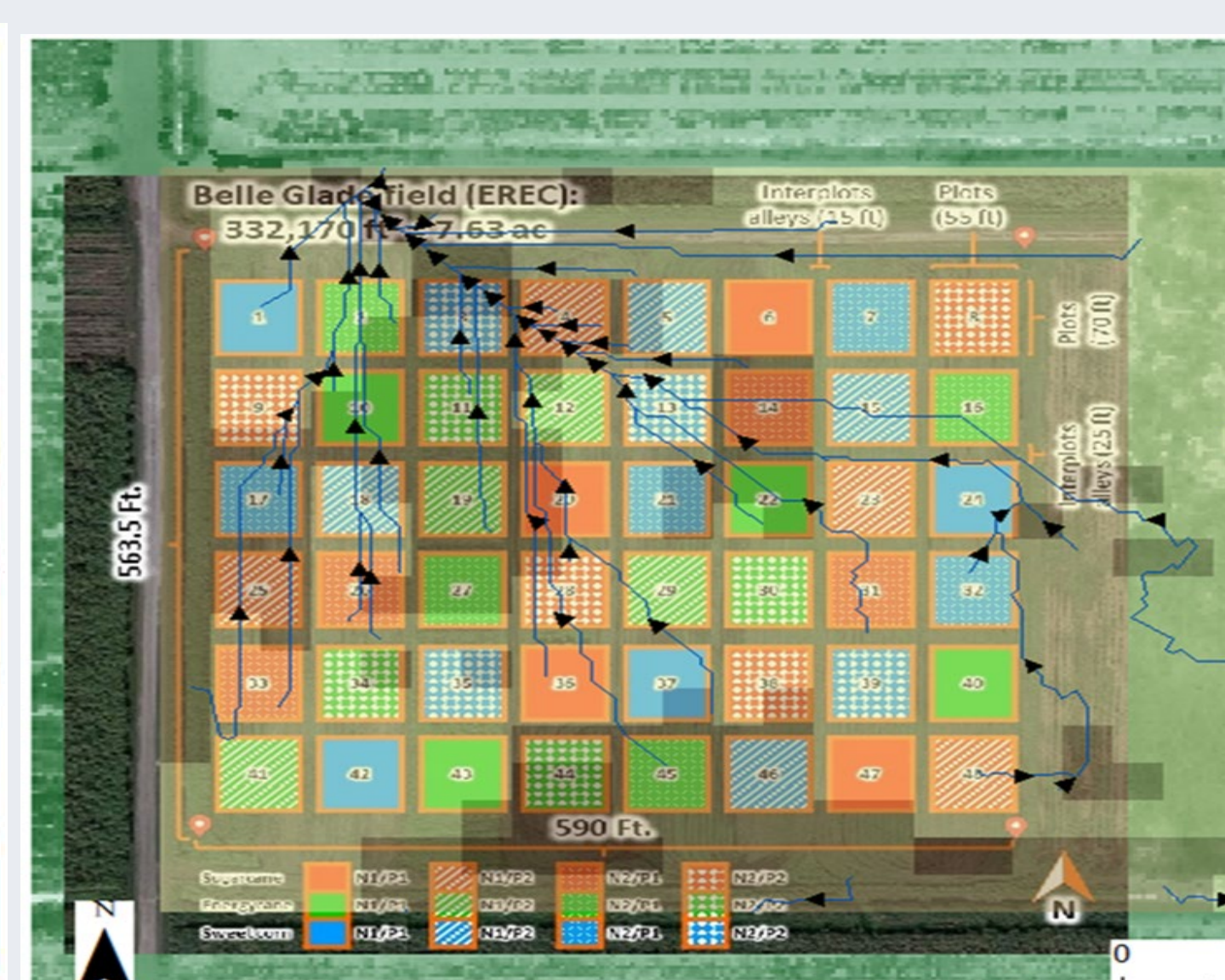
To evaluate energycane for biomass production and ecosystem services

## 3 RESEARCH TRIAL

- A field was planted at EREC in 2023, and data collection will be completed in December 2025..
- In this trial, energycane is integrated in traditional sugarcane and sweet corn cropping system. Important food crops of the region (e.g., sugarcane and sweet corn) are kept on fertile lands, while energycane can be more suited to marginal areas due to its deep rooting system, high water and nutrient use efficiency, and high-stress tolerance.



Integrated Landscape Management



Experimental Design

## 6 ACKNOWLEDGEMENT

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## 4 DATA COLLECTION

- ✓ Energycane biomass
- ✓ Soil health/ quality
- ✓ Biodiversity (avian and soil invertebrate populations)
- ✓ Water quantity and quality
- ✓ Greenhouse gas emissions



a) Ground water measurement, b) Runoff water measurements, c) Pitfall trap, d) & e) Avian Monitoring Sensor

## 5 EXPECTED RESULTS

- Energycane is expected to provide biomass feedstock to support the emerging bioeconomy.
- Energycane planted using integrated landscape management is expected to utilize fugitive nitrogen and phosphorus from commodity croplands and helps in restoring nutrient loss.
- Energycane is also expected to improve soil carbon and to reduce greenhouse gas emissions compared to fallow lands.
- Based on the data collected from plant cane, first ratoon and second ratoon, we will estimate the value of ecosystem services provided by energycane.