

WHITE PAPER

YIELD-BOOSTING HARVESTING DRIVEN BY ARTIFICIAL INTELLIGENCE

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Sugarcane plays a pivotal role in agricultural sustainability, serving as a sweetener and a key biofuel component. Yet, sugarcane farming poses unique challenges, with multiple cycles on the same land and intricate harvesting processes setting it apart from traditional crops.

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A myriad of considerations must be meticulously addressed to optimize harvesting operations:

- **Optimal Harvest Timing:** Determining the ideal moment to harvest a specific field is paramount, ensuring maximum sugar content. This necessitates a nuanced understanding of the crop's growth stages and environmental conditions.
- **Utilization of Plant Growth Regulators:** Employing plant growth regulators presents a potential strategy for managing crop development, influencing factors such as ripening and yield. Decisions regarding their application require careful deliberation to strike a balance between maximizing yield and preserving quality.
- **Logistics Planning:** Effective logistics planning is indispensable for streamlining sugarcane delivery to processing facilities. Coordinating transportation routes, scheduling harvest activities, and optimizing resource allocation are pivotal aspects of this process, ensuring seamless integration from field to factory.



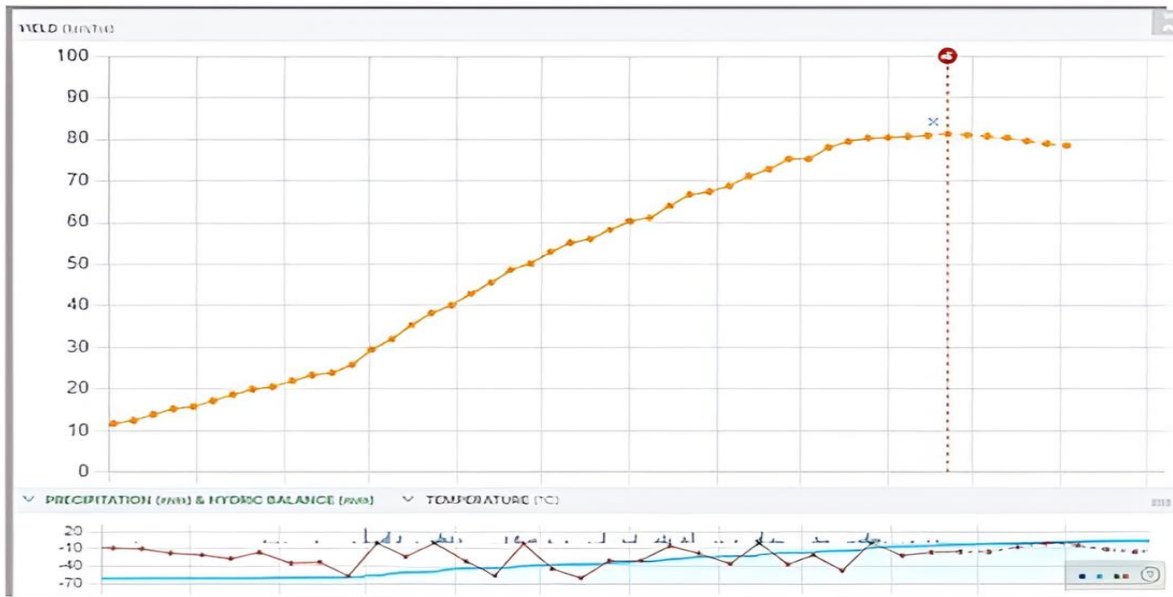
Addressing these intricacies with precision and foresight, the effort of planning sugarcane harvesting has evolved into a multifaceted and resource-intensive exercise. We are committed to simplifying this process through automation while simultaneously enhancing harvesting operations to yield significant financial gains for sugar mills. By augmenting sugar yield by tens of thousands of tons, and potentially up to 5%, our technology has the potential to boost sugarcane production incomes by several million dollars for an average sugar mill.

OUR SOLUTION SEAMLESSLY INTEGRATES KEY PROCESSES PROVIDING UNPARALLELED AUTOMATION FROM START TO FINISH



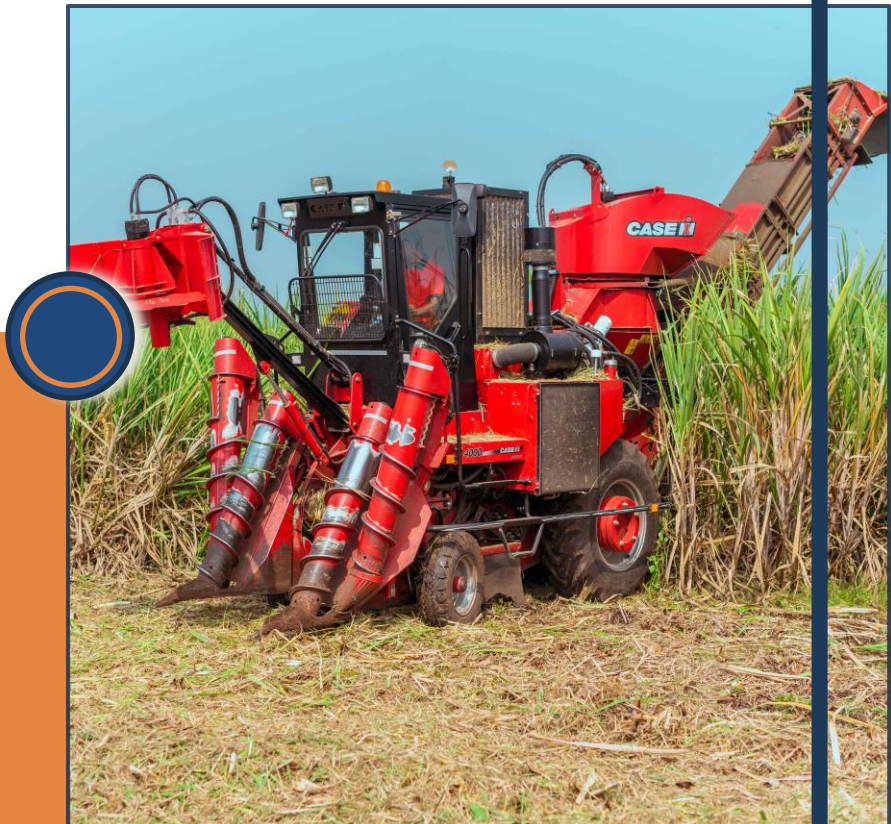
The cornerstone of our approach lies in the meticulous forecasting of biomass and sugar yield with exceptional precision. Through our advanced AI-powered forecasting engine, we have consistently achieved accuracy rates exceeding 95% in numerous trials. Our process involves weekly updates on crop status and yield forecasts for each individual field. This comprehensive approach integrates a multitude of factors, including geographical location, biomass development as observed through satellite imagery, fluctuating weather patterns, crop moisture levels, soil characteristics, and varietal traits, among others.

WEEKLY FORECAST UPDATES ALLOW US TO TAKE OPERATIONAL DECISIONS ALWAYS BASED ON THE LATEST CROP STATUS.



Unlike traditional forecasting methods, which typically provide insights 2-3 times per season, our technology enables real-time monitoring of crop development on a weekly basis. This agility allows us to adapt to evolving conditions, ensuring that our clients are equipped with precise predictions regarding the optimal time to harvest, field by field.

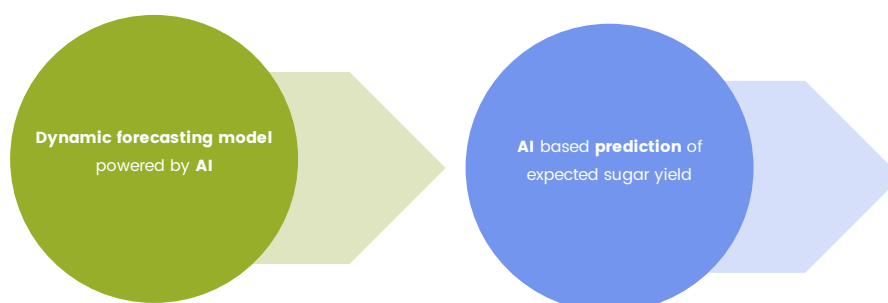
This revolutionary capability empowers our customers to maximize their returns by capitalizing on the peak sugar yield from every parcel of land throughout the growing season.



Next, we need to integrate another variable such as use of plant growth regulators (PGRs) in crop management. Combination of AI models offers tailored recommendations for PGR usage, taking into account factors like crop dynamics, variety variations, and optimal maturity levels for harvest.

We virtually combine data on the peak sugar yields with natural maturation processes and impact of PGRs to alter natural maturation processes, boost sugar content and thus build an integrated schedule for spraying and harvesting.

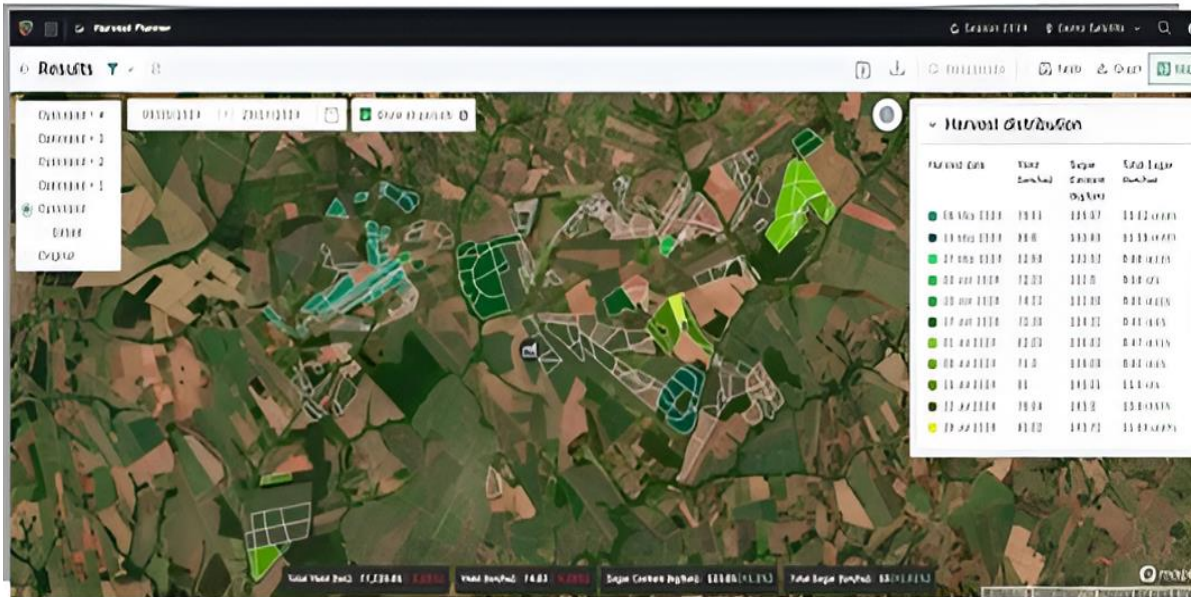
TWO AI MODELS WORKING SIMULTANEOUSLY RANK EACH PARCEL ON THE NEED TO APPLY RIPENERS AND WHAT WOULD BE ROI ON THE USE OF THOSE CHEMICALS



Furthermore, logistics play a pivotal role in the success of sugarcane harvesting operations. We provide invaluable support by swiftly analyzing numerous logistical scenarios, weighing factors such as transportation costs, time allocation, and alternative solutions. By empowering our clients with comprehensive insights, we ensure that every decision is informed, maximizing efficiency and profitability throughout the harvesting process. It's essential to emphasize that our tools are not designed to replace agricultural experts but rather to augment their expertise, freeing up valuable time from routine tasks to focus on strategic decision-making.

Even the most sophisticated tools cannot replace the nuanced understanding that experts possess regarding specific field conditions, including terrain features, soil compositions, and water sources. Therefore, our graphical information serves as a collaborative platform, enabling experts to fine-tune harvesting plans using a map view—a familiar and intuitive interface for those immersed in field operations. This interactive platform allows for real-time adjustments to the harvesting plan, accommodating diverse scenarios and local conditions. Experts can explore different strategies, evaluate their potential impacts, and refine the plan accordingly, all the while witnessing the immediate effects on final outcomes.

HARVESTING SCENARIOS VISUALIZATION ON THE MAP ALLOWS FINE TUNING OF THE HARVESTING PLAN USING KNOWLEDGE AND EXPERIENCE OF THE EXPERTS.



In conclusion, our aim is to revolutionize the harvesting process through the integration of AI, ultimately boosting yields and minimizing losses. Years of dedicated research and development have enabled us to achieve unprecedented levels of forecasting accuracy and frequency, surpassing human capabilities.

However, technological advancements alone are insufficient without user adoption and alignment with existing processes. Therefore, we place equal emphasis on developing cutting-edge AI-based solutions and crafting user-friendly interfaces that seamlessly integrate with our customers' operations.

This approach empowers our customers to realize tangible benefits, such as recovering an additional 400,000 metric tons of sugar annually—equivalent to the production output of several full-scale sugar plants. By bridging the gap between innovation and usability, we strive to drive meaningful change and propel the agricultural industry towards a more efficient and sustainable future.