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AG MANAGEMENT STRATEGIES

- An innovation and optimization process that will change the way a farm operates in today's world.
- A diagnostically designed management strategy that focuses on using interrelated data and information to improve decision-making.



P₂I (PLANT TO IRRIGATION)

- Technological process that enables the crop plant to exchange information and perform immediate and precise irrigation actions without the manual assistance of humans.
- Without human interaction, P₂I supports real-time communication between the growing plant (P) and action taking irrigation machines/devices (I) in order to accelerate decision making processes to meet precise crop demands for water without the side effects of negative plant stress.
- Plant-Triggered Irrigation is a computer system able to perform tasks that normally require human intelligence, such as visual perception and decision-making. The precise and timely application of water is guided by the data collected from the plant.



PLANT-TRIGGERED IRRIGATION

- Real-time data collected from the plant that prompts precise water applications designed to remotely manage, without human intervention, the optimal growing conditions for crop quality and higher yields.
- The application of irrigation water is guided by real-time data collected from the plant that prompts precise water applications (P₂I - Plant to Irrigation) designed to remotely manage, without human intervention, negative plant stress and the Most Active Root Zone (MARZ), all of which creates the optimal water application for crop quality and higher yields.

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MARZ (MOST ACTIVE ROOT ZONE)



- A management model that specifically identifies and dissects the distribution and strength of active roots. The Most Active Root Zone (MARZ) is that depth of soil where the Plant-Triggered Irrigation system precisely administers irrigation events to meet crop demand.
- The analysis breaks down this root activity and determines the depth at which the roots are most active (MARZ) and most efficient in the uptake of water. We then define where the Most Active Root Zone is located where the vast majority of total water is consumed by the plant during all environmental conditions.

PLANT WATER HEALTH



- Plant Water Health is the science and practice of understanding plant intelligence and overcoming the succession of soil moisture stress related factors that limit plants from achieving their full genetic potential.
- Plant Water Health is defined as the condition where a plant's yield potential is measured against the effects/impact of water stress (i.e. oxygen deficit and or water deficit) and duration of the stress.

PLANT STRESS



- Plants are most productive under optimal conditions. Plant Stress is defined as a condition of too much or too little water within the soil profile. Our analysis can precisely identify these water related stress conditions within the Most Active Root Zone (MARZ) and precisely administer irrigation actions via Plant-Triggered Irrigation, to maintain the proper soil, moisture and oxygen levels within the soil profile for optimum plant performance.
- The extremes of drought and saturation conditions are managed towards the optimal soil conditions that positively impact the crop's yield and quality. Reducing negative plant stress is achieved through the immediate Plant-Triggered Irrigation process whereby overwatering and under watering stresses on the plant are mitigated in-season.



Water Solutions for a Growing World!

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OXYGEN DEFICIT STRESS

- Root systems require oxygen for respiration to carry out their functions of water and nutrient uptake. In soil, adequate oxygen is essential. Plant roots growing in soil moisture conditions that exceed field capacity will quickly exhaust the supply of dissolved oxygen and can reduce yield potential unless normalization of oxygen occurs within the Most Active Root Zone (MARZ).



WATER DEFICIT STRESS

- Water availability and timing can be a limiting factor in plant growth and yield potential. Plants experience water stress when the water supply to their roots becomes limiting, or when the transpiration rate becomes intense.
- It is possible, through Plant-Triggered Irrigation, to separate the effects of water deficit that occur before a large part of a plant's Most Active Root Zone has been depleted of water.



SOIL WATER HEALTH

- Soil Water Health is a system of practices designed to enhance crop production, soil function, and improve or sustain the proper water and oxygen balance. The term Soil Water Health, when applied to a crop/soil system, describes the measurables regarding irrigation/precipitation and the various components of water flow within the soil profile and the MARZ (Most Active Root Zone).
- Successful agriculture depends on healthy soil, oxygen and water ratios. Since soil organisms respond sensitively to irrigation management and cultural practices, proper Soil Water Health has the capacity to improve the vital living system or ecosystem, which occurs below the soil surface, to sustain optimal plant productivity.

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WATER USE EFFICIENCY

- Once the Most Active Root Zone has been identified, we can measure how effective water applications are in keeping water within that zone, and below that zone.
- Water accumulation below the Most Active Root Zone is not available to the plant. By tracking this information, we can quantify availability, movement and operational waste.



YIELD IMPACT ANALYSIS

- Identify and quantify a value assumption, whereby the value of plant stress is estimated and creates the confidence to invest.
- Diagnostic assessment and predictive model that factors in the positive financial benefits, like bridging Plant Stress to yield potential, of implementing Plant-Triggered Irrigation in order to manage and reducing Negative Plant Stress for production agriculture.