CPS: Medium: Collaborative Research: Field-scale, single plant-resolution agricultural management using coupled molecular and macro sensing and multi-scale data fusion and modeling

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- Develop an intelligent platform capable of perceiving and responding to dynamic field conditions and crop responses, optimizing trade-offs between yield, water use efficiency, and nitrogen use efficiency.

- Optimize novel point sensors for detecting leaf water loss, leaf temperature, soil nitrate levels, and plant nitrate levels.

- Integrate multi-scale spatial and temporal data to infer nitrogen and water dynamics

- Provide actionable insights for precise fertilization and irrigation scheduling.

Impact:

- A data-driven decision support platform that delivers actionable insights for optimizing agricultural management.

- Reduce environmental impact by reducing nitrogen runoff and water usage.

- Enhance farmer profitability

- Train the next generation of engineers and scientists in the AgTech sector.