# NSF #2202706: FW-HTF-RL: Testing a Responsible Innovation Approach for Integrating Precision Agriculture (PA) Technologies with Future Farm Workers and Work

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- **Goal**: Building stronger and responsible human-machine networks for precision agriculture. Including the use of big agricultural data, AI algorithms, performance based payments for ecosystem services, and workforce development initiatives to enable farms in South Dakota and Vermont to be more productive and sustainable.
- **Approach:** Involving 48 farms in South Dakota and Vermont in a living lab co-design experiment.
- **Objective:** Understand and build future farmers' trust and confidence in AI-based recommendations about managing nutrients on their working lands.

Future technology
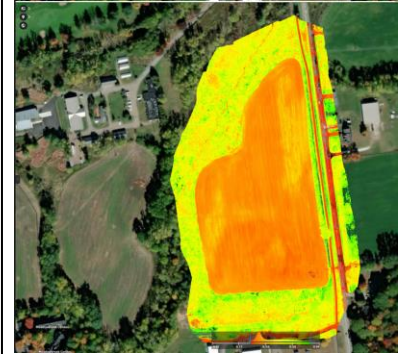
- <u>On 48 fields</u>: Collecting baseline data from multispectral and hyperspectral sensors on drones (UAV), field monitors, in-situ nutrient sensors, and interviews and surveys.
- Converting data into useable information about managing nutrients and crop yield on their working lands.

Future workers

- Yearly workshop with 100 – 150 farmers on precision farming techniques in South Dakota.
- Occupational and job analysis for developing appropriate precision agriculture curriculum

Future work

- Piloting an on-farm, sensor-driven performance-based payment for ecosystem services (PES) mechanism
- Involving farmers and other stakeholders as co-producers and co-evaluators of technologies and policies.