



2024-2025 Precision Agriculture Infrastructure Grant (PRO-AG) Grant Application (Docket C-5600)

Submit signed PDF applications with all attachments via email to psc.broadband@nebraska.gov by **January 17, 2025, 5:00 p.m. Central Time**.

IMPORTANT: Applicants must carefully review the PRO-AG Program Guide and PRO-AG Scoring Reference Sheet for details on application requirements and scoring. This includes but is not limited to application field descriptions, attachment content, and other necessary documentation and requirements. These resources, along with examples of allowed and disallowed costs are available on our website at <https://psc.nebraska.gov/telecommunications/2024-2025-precision-agriculture-infrastructure-grant-program-c-5600>.

If additional space is needed for any section of the application, you may include extra pages if needed, noting the application Section, Subsection, and Field Number on the attachment.

NOTE: This application is a fillable PDF and should be submitted in its original format, rather than as a printed or scanned copy. If technical difficulties or other challenges prevent you from submitting the form in this format, please contact us to discuss alternative solutions.

Subprogram Descriptions:

Connectivity Subprogram: Grants within the Connectivity Subprogram shall be used to provide adequate precision agriculture connectivity to on-farm structures and devices, including, but not limited to, tractors, combines, irrigation systems, livestock facilities, and farm offices. Adequate precision agriculture connectivity means at least 100 megabits per second download and 20 megabits per second download speeds (100/20 Mbps).

Note: Applications for the Connectivity Subprogram are permitted from Providers. Agricultural Cooperatives, Agronomists, and Agricultural Producers may apply only if partnered with a Provider.

Devices and Technology Subprogram: Grants within the Devices and Technology Subprogram shall be used to provide:

(1) On-farm traceability solutions that satisfy food supply stakeholder demand, including blockchain. (2) Products that improve soil health, water management tools and sensors that facilitate judicious use of water resources, and products that promote the use of water efficiency seed technologies that lower agriculture's water, carbon, and nitrate footprint. (3) Products that use autonomous solutions in agricultural machinery, including but not limited to, grain carts, spreaders, precision drone scouting, and scouting robots.

NOTE: Each subprogram is designed to fulfill a specific purpose, and applicants can submit multiple project proposals in separate submissions. However, applicants must apply separately for each subprogram. It is important to note that each application will be assessed individually, and there will be no priority given to applicants who choose to apply for grants in both subprograms. Each application will be considered on its own merits within the subprogram in which it was filed.

Eligible Applicant Types:

- **Provider:** A wireless network provider that provides adequate precision agriculture connectivity. Proof needed: Proof of business registration and service authorization in Nebraska.
- **Agricultural Cooperatives:** A business entity that is cooperatively owned and controlled by agricultural producers, in which members' resources are pooled, and which operates for its members' benefit rather than the benefit of outside investors. Proof needed: Articles of incorporation, membership information, and proof of registration as a cooperative in Nebraska.
- **Agronomist:** A scientist who specialized in the science of farming, including but not limited to crop production, soil control, or soil management. Proof needed: Professional certifications, degrees in relevant fields, and portfolio of agriculture-related projects.
- **Agricultural Producer:** An individual or entity directly engaged in the production of agricultural products, including the cultivating, growing, and harvesting of plants and crops, including farming; breeding, raising, feeding, or housing of livestock, including ranching; forestry products; hydroponics; nursery stock; or aquaculture, and whereby 50 percent or greater of their gross income is derived from these products. Proof needed: See "Agricultural Producer Affidavit" on our website.

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Section I: Applicant Details *(Applies to all applicants)*

1. Subprogram Type: <i>(See Descriptions Above)</i>	Devices and Technology Subprogram ▼
2. Applicant name (Legal name of the farm/business applying for the grant):	Glen Thoene
3. Applicant type: <i>(See Definitions Above)</i> Proof of applicant type should be included with application as Attachment B.	Agricultural Producer ▼
4. Applicant street address:	56319 883 RD
4a. Applicant city:	Hartington
4b. Applicant state:	Nebraska
4c. Applicant zip code:	68739
5. Applicant contact (first and last name):	Glen Thoene
6. Applicant e-mail:	glenthoenefarm@gmail.com
7. Applicant phone number:	4028415599

8. Executive Summary: Provide an overview of the applicant, detailing the history, mission, and goals of the farm or business. Include specific objectives related to precision agriculture connectivity or technology adoption.

I have had a small farm for 18years and during that time have really enjoyed the last couple as my oldest son (16) has taken an interest in the farm and learning about how it all works. My mission is to grow a crop more effiecently than my previous years crop while leaving the soil in better condition than when i started. My goal for the technology adoption is to trial some soil health practices and install moisture probes in the areas trialed/not trialed to show that with improved soil health is better water utilization by the plants.

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Section II: Project Details (Applies to <u>all</u> applicants)	
1. Project name:	Soil Health X Soil moisture use
2. Precision agriculture production type:	Soil Health Amendments with soil moisture sensors
<p>3. Project location description: (This should include a detailed description of the project area and location(s) to be served.) Will be trialing on Irrigated farm (in bow creek watershed north of Hartington) Half corn and Half soybeans and also on dryland farm</p>	
<p>4. Project Proposal: (a) Description of the precision agriculture project you plan to implement. -AND- (b) Explanation of how the on-farm connectivity or devices and technology will be utilized to enhance productivity, efficiency, and sustainability. <i>Please include information showing that the applicant is prepared to move forward immediately upon award of grant.</i></p> <p>I plan to use 3 different soil health practices individually and together and use moisture sensors in each area to show the correlation between soil health and water use.</p> <p>On my irrigated corn i will use 25 acres of Holganix bio800+ to add Bacteria, fungi, and protists to the soil, next to this will be 25 acres of Humic acid, sugar, and phycoterra to feed/stimulate the biology already in my soil, and next to this will be 25 acres of check with no additional treatments other than fertilizer. Each check will have 2 soil sensors installed to track water use by the crop</p> <p>On my irrigated soybeans i will use 25 acres of Holganix bio800+ to add Bacteria, fungi, and protists to the soil, next to this will be 25 acres of spring planted cover crop strips, and next to this will be 25 acres of check with no additional treatments other than fertilizer. Each check will have 2 soil sensors installed to track water use by the crop</p> <p>On my dryland corn i will use 100 acres of Holganix bio800+ to add Bacteria, fungi, and protists to the soil along with Humic acid, sugar, and phycoterra to feed/stimulate the biology already in my soil, and in this field will be 20 acres of check strips with no additional treatments other than fertilizer. Each check will have 2 soil sensors installed to track water use by the crop</p> <p>On my Dryland soybean i will use 60 acres of spring planted cover crop no tilled along with holganix, humic, sugar, and phycoterra to stimulate the biology in the soil and have 20 acres as a check with nothing but fertilizer and will install soil moisture sensors in each area to monitor soil moisture use.</p> <p>Side Note--all checks will be tested using the Haney soil test to show soil health 3 times April 20-July 1-Sept 20. this will not be added into the budget as i dont believe it falls in line with the approved categories. Just wanted it to be known as i believe it is important.</p>	
5. Total Project Cost (include allowable costs <i>only</i>): <i>See project budget instructions and examples on our website.</i>	\$ 42,090.00

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<p>6. Total Match Commitment Amount (in dollars), <i>if applicable</i>: NOTE: The project budget (attachment A) must detail any matching funds committed by source. Additionally, documentation of match commitment must be submitted as Attachment E. See "Contribution Certification Form" on our website.</p>	<p align="center">\$ 10,600.00</p>
<p>7. PRO-AG Grant Amount Requested:</p>	<p align="center">\$ 31,460.00</p>
<p>8. Estimated number of locations served in project area:</p>	<p align="center">4</p>
<p>9. Technology type(s) used in proposed project: Soil Moisture sensors, Soil health amendments</p>	
<p>10. Expected Start Date (<i>Should not be prior to 4/15/25</i>):</p>	<p align="center">5/1/20</p>
<p>11. Expected completion date (<i>Should not be after 4/15/26</i>):</p>	<p align="center">11/15/20</p>
<p>12. Timeline: Please outline the timeline for your project deployment, including clear milestones and indicators of readiness for immediate action upon grant award. Provide an explanation of any measures you have in place to address potential challenges during the implementation process.</p> <p>Upon grant approval my first step would be to schedule cover crop planting with Top crop in hartington, i have a mix i have already laid out so would order it from them and have them plant it. They map everything thru john deerre operations center and those maps could be transferred over to my john deere account for tracking. My next step would be to order the humic, sugar and phycoterra from concept agritek and get product on hand. I would also call hoganix imediatly and get product coming. During planting i would have separate starter mixes blended in 275 gallon totes and put on the trailer so would make for easy switching between products. Once planting is done and crop is emerged i would install aquaspy moisture probes in predetermined locations. All data would be tracked thru John Deere Operations Center.</p>	

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13. Sustainability: Provide an explanation of how the project will be sustainable for a minimum of five years; include strategies and considerations for long-term success. Attach any evidence of sustainability to the application as Attachment F.

This project will be sustainable for a minimum of five years through the following strategies and considerations:

Cost-Effective Practices

The project focuses on targeted applications of soil health amendments and efficient water use through moisture sensors. These strategies are designed to be both economical and impactful, providing data to guide future decisions. By benchmarking against normal farming practices, the results will highlight cost savings and potential yield improvements that can inform long-term adoption.

Data-Driven Decision Making

The use of soil moisture sensors will provide continuous, real-time data on soil water usage, enabling better irrigation planning and water resource management.

The correlation between improved soil health and reduced water usage will be documented, providing evidence for long-term adjustments in farming practices.

Scalability and Knowledge Transfer

Results from this project will demonstrate the benefits of soil health practices and water management strategies, making it easier to scale these practices across additional acres in subsequent years.

Findings will be shared with local NRD, NRCS, and other stakeholders, contributing to broader awareness and adoption of sustainable farming practices in the region.

Long-Term Soil Health Improvements

The soil health amendments, including the addition of beneficial microbes, stimulation of native soil biology, and use of cover crops, will contribute to the long-term improvement of soil structure, fertility, and water-holding capacity. These benefits will persist beyond the project timeline.

Improved soil conditions will lead to better crop resilience and resource efficiency for years to come.

Operational and Knowledge Longevity

The soil moisture sensors have an expected useful life of 5-10 years, with proper care and maintenance. The knowledge gained from this project will last throughout the applicant's farming career, ensuring these sustainable practices become a cornerstone of farm management.

Monitoring and Evaluation

Daily monitoring of moisture sensors will ensure consistent data collection, which will be logged in the John Deere Operations Center. Regular soil health testing (e.g., Haney tests) will provide insights into the biological and chemical changes in the soil over time, reinforcing the long-term benefits of the adopted practices.

By integrating these strategies, this project is poised to provide lasting benefits to the farm, the community, and the environment, ensuring sustainability well beyond the initial five years.

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Section II Project Details – Subsection A: Applies to Connectivity subprogram ONLY	
1. Farm Site Size (acres):	
2. Number of Key Operational Locations:	
3. Number of Connected On-Farm Entities:	
4. Current maximum connection speed bandwidth in project area in Mbps: <i>(Must be < 25/3 Mbps)</i>	
5. Speeds upon completion: <i>(Must be ≥ 100/20 Mbps)</i>	
6. Do you certify that the farm site(s) to be served are currently unserved or lacking broadband Internet service at speeds of at least 25/3 Mbps download/upload?	
7. Do you certify that upon completion of the project, the farm site(s) served by the project will have access to minimum speeds of 100/20 Mbps for precision agriculture connectivity to on-farm structures and devices, as required by Neb. Rev. Stat. § 86-1404(2)(a)? NOTE: If the FCC National Broadband Map indicates that the location is already receiving speeds of 25/3Mbps or higher, applicants are required to submit evidence refuting the data on the broadband map. (Include as Attachment F)	
Section III: Technical Summary (Applicants must complete the relevant subsection)	
Section III: Technical Summary – Subsection A: Applies to Devices and Technology subprogram ONLY	
<p>1. Applicant's Experience: Overview of the applicant's experience and expertise in precision agriculture devices and technology solutions, specifically as related to the devices/technology included in the application. In cases where the applicant lacks direct experience, an explanation is required on how they plan to acquire the necessary skills and knowledge to operate the equipment effectively. Provide details of past successful projects or initiatives related to precision agriculture or similar technologies.</p> <p>My experience with soil moisture probes is solid. I have used them on my farm to make irrigation decisions over the last 10 years. I have used many different companies technology and feel very comfortable with the aquaspy probes and the data they provide.</p> <p>With regards to the soil health practices i have been on a mission for last 3 years to learn all i can here. I have learned a lot and believe we could have the chance to showcase here that soil health and water usage may go hand in hand. I had a small field of creekbottom soils that was continuously underperforming, i started focusing on soil health on this piece to see if it mattered and it is now a very good producing field regardless of how much of a drought we seem to be in and think using the soil health practices and getting the data from the probes could amake it a mainstay on my whole farm in the future.</p>	

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2. Program Details: Provide details about the proposed program involving precision agriculture devices and technology, including specifications and technical requirements. Include an explanation of how the chosen technologies align with the goals of the project.

The chosen technology (soil Moisture sensors) here aligns with the goals of the project by giving us continuous data on the moisture held in the soil as well as crop water use. All data is logged to the cloud every 15 minutes.

The soil health products help build biology in the soil making the crop more efficient with moisture.

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3. Expected Useful Life: The expected useful life of devices/technology included in the request for funding. Please identify any components which may require more frequent repair or replacement.

These soil Moisture sensors when cared for properly will last 5-7 years or longer. They will be covered by a 3 year warranty from manufacture. Expected useful life would be 5-10 years.

The soil health products would help for the lifetime of the soil.

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4. Maintenance Plan: Applicants should explain how the devices/technology funded with PRO-AG grant funds will be maintained for at least five years following project completion.

We will install them in the spring and remove them in the fall prior to harvest, then clean them and store them in our loft at my dads shop. We will put tall orange flags on them so that sprayers and any other equipment in the field will be able to see them easier.

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Section III: Technical Summary – Subsection B: *Applies to Connectivity subprogram ONLY*

1. Applicant's Experience: Describe the applicant's experience providing precision agriculture on-farm connectivity solutions including their technical capability to meet the requirement to provide a minimum 100/20 Mbps. Include details of past successful projects or initiatives related to precision agriculture connectivity or similar technologies. Specifically, whether they currently provide broadband at the minimum 100Mbps/20Mbps speeds, and if so, where.

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2. Innovation and Technology: Provide a detailed description of the proposed network architecture including the specific technologies and strategies to provide service, a list of the on-farm structures and devices to be connected by project, placement of access points, data collection devices, and other key elements.

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3. Scalability Evaluation: Explain how the solution ensures reliable and scalable connectivity. This could include a plan for network expansion along with a description of strategies for preserving performance with increased device density.

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4. Maintenance Plan: Include details regarding the expected useful life of the facilities to be built. Include a statement as to the technological components used, and, if applicable, which components may require more frequent repair or replacement. Applicants should explain how the project will be maintained throughout the useful life of the facilities along with the applicant's plans to meet the minimum speed requirements in place for the PRO-AG grant for a minimum of five years following completion.

5. Latency: Include the expected latency of the network (in ms) upon completion. Explain how the expected latency aligns with the needs of your application. How does this latency impact the ability to perform real-time operations or data transfers in the context of precision agriculture?

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Section IV: Legal (*Applicants must complete the relevant subsection*)

Section IV: Legal – Subsection A: Applies to Devices and Technology subprogram ONLY

1. Provide a detailed outline of the pertinent qualifications and certifications essential for the proposed devices/technology. Explain whether the applicant currently holds the necessary qualifications and certifications, including any expiration dates. If not currently secured, define the planned steps and timelines for acquiring any essential qualifications and certifications.

I do not believe there are any qualifications or certifications that are essential for this project and if there are any that would happen to be needed i will either get them as quick as can or hire out the work to someone that would have needed certification.

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2. Detail the applicant's strategies and commitments for sustaining the qualifications and certifications over the five-year post-deployment period.

I do not believe there are any qualifications or certifications that are essential for this project and if there are any that would happen to be needed i will either get them as quick as can or hire out the work to someone that would have needed certification.

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Section IV: Legal – Subsection B: Applies to Connectivity subprogram ONLY

1. Applicant's Nebraska ETC Status:

2. Legal Representative Name (Must be licensed and in good standing to practice law in Nebraska or admitted pro hac vice)

3. Legal Representative Email:

4. Legal Representative Phone:

5. A description of any risk factors or legal challenges that must be addressed prior to or during the project in question (examples include local zoning, permitting, access to rights-of-way, etc.), as well as a plan for mitigation. Additionally, explain any engagement measures with proposed project location(s) or impacted communities.

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6. Has the applicant received letter(s) of support or approval from the owner of each farm site included in the grant application? Yes/No.
NOTE: Letters of support must be attached to the application as attachment G and should clearly express the owner's consent for the connectivity project and their understanding of the proposed on-farm connectivity services and rates charged for service.

Section V: Project Impact *(Applies to all applicants)*

1. Demonstrated Substantial Economic Benefit: Describe the significant economic impact your project will have on rural Nebraska. What tangible benefits can you quantify, such as job creation and income generation? Please provide illustrative examples.

The economic benefits could be very big in the future for irrigated and non irrigated land in the state of Nebraska if we can show how cover crops and soil health use less moisture. This could directly cause income generation from increased yield and using less water. I would provide data to our local NRD for them to be able to use and take into consideration for future reference. I would also share the water savings data with any other NRCS or others if they wanted it.

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2. Continuing or Increasing Economic and Technological Impacts: How will your project provide ongoing economic and technological benefits over time? Outline the strategies you will implement to ensure sustained growth and progress beyond the initial implementation phase.

I would project that using these moisture probes to show the water use efficiency with healthy soils I would implement these strategies in the future on all acres.

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3. Water Conservation Focus: If applicable, please explain in what ways does your project prioritize water conservation? Explain the innovative strategies, technologies, or practices you plan to implement to promote sustainable water management and mitigate water usage.

This project has several different ways we can prioritize water conservation, not only thru the use of the soil moisture sensors but more so using the sensors to show how improving soil health thru several different means (adding biology, stimulating soil biology) makes the water we have more efficient in the crop.

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Section VI: Financial Projections (Applies to all applicants)

1. Provide comprehensive financial projections for the project. This should include both short-term (1-3 years) and long-term (4+ years) forecasts, detailing anticipated costs, revenues, and key financial health indicators such as net cash flow and profitability ratios. The projections should demonstrate a realistic estimate of income and expenses and the overall financial impact of the project.

Financial Projections

Short-Term Financial Projections (Year 1-3):

Year 1 (2025)

Expenses:

Soil health products (Horganix Bio800+, humic acid, sugar, Phycoterra, and cover crop mix): \$18,000

Moisture sensors (purchase and installation): \$9,500

Miscellaneous (logistics, maintenance, fuel, labor): \$3,500

Total Expenses: \$31,000

Revenue Projections:

Estimated 5% yield increase on irrigated and dryland corn and soybeans, totaling approximately \$6,500 additional revenue (based on typical yields and market prices).

Net Cash Flow: -\$24,500 (initial year investment phase).

Year 2 (2026)

Expenses:

Soil health products and cover crops: \$12,000

Moisture sensor maintenance: \$1,000

Miscellaneous: \$2,000

Total Expenses: \$15,000

Revenue Projections:

Estimated 10% yield increase, generating \$13,000 in additional revenue.

Net Cash Flow: -\$2,000 (costs decrease as practices are refined).

Year 3 (2027)

Expenses:

Soil health products and cover crops: \$12,000

Moisture sensor maintenance: \$1,000

Miscellaneous: \$1,500

Total Expenses: \$14,500

Revenue Projections:

Estimated 15% yield increase, generating \$19,500 in additional revenue.

Net Cash Flow: +\$5,000 (project enters profitable phase).

Long-Term Financial Projections (Year 4-5 and Beyond):

Year 4 (2028)

Expenses:

Soil health products and cover crops: \$12,000

Moisture sensor maintenance: \$1,000

Miscellaneous: \$1,500

Total Expenses: \$14,500

Revenue Projections:

Estimated 20% yield increase, generating \$26,000 in additional revenue.

Net Cash Flow: +\$11,500.

Year 5 (2029)

Expenses:

Soil health products and cover crops: \$12,000

Moisture sensor maintenance: \$1,000

Miscellaneous: \$1,500

Total Expenses: \$14,500

Revenue Projections:

Estimated 20% yield increase, generating \$26,000 in additional revenue.

Net Cash Flow: +\$11,500.

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Section VII: Cost Benefit Analysis *(Applies to all applicants)*

1. Provide a detailed cost-benefit analysis for the project. This analysis should quantify the expected return on investment (ROI), outlining the financial impact of the project in both the short-term (1-3 years) and long-term (4+ years). The analysis should clearly demonstrate the financial returns of the investment.

Cost-Benefit Analysis

Project Costs:

1. Initial Investment (Year 1):

o Soil Health Products (Horganix, Humic Acid, Sugar, Phycoterra, Cover Crops): \$18,000

o Moisture Sensors (Purchase and Installation): \$24,000

o Total Year 1 Costs: \$42,000

2. Ongoing Annual Costs (Year 2-5):

o Soil Health Products and Cover Crops: \$18,000/year

o Soil Moisture sensor installation/Removal :\$4,000

o Total Annual Costs (Year 2-5): \$22,000/year

3. 5-Year Total Costs:

o Year 1: \$42,000

o Years 2-5: \$22,000/year × 4 years = \$88,000

o Total Project Costs (5 years): \$130,000

Project Benefits:

1. Yield Increases (Based on Market Prices and Current Yield Averages):

o Year 1: 5% increase = \$6,500

o Year 2: 10% increase = \$13,000

o Year 3: 15% increase = \$19,500

o Year 4: 20% increase = \$26,000

o Year 5: 20% increase = \$26,000

o Total Yield Benefits (5 years): \$91,000

2. Water Savings:

o Estimated 15%-25% reduction in water use over 5 years.

o Estimated water savings over 5 years: \$21,875

3. Environmental and Soil Health Benefits:

o Long-term improvements in soil biology, water retention, and resilience, which reduce dependency on inputs like synthetic fertilizers, saving \$17,500 annually.

4. Scalability:

o The demonstrated benefits make the practices scalable across additional acres, potentially doubling or tripling benefits beyond Year 5.

Cost-Benefit Summary:

- Total Costs (5 Years): \$130,000

- Total Benefits (5 Years): \$200,375 in direct yield benefits, water savings and reduced input costs.

- Net Benefit: +\$70,375 (direct benefits).

- ROI (Return on Investment): 54%

Intangible Benefits:

- Research Value: The project generates actionable data for future soil health and water management practices, benefiting not only my operation but also other farmers and stakeholders in the region.

- Environmental Impact: Healthier soil and reduced water use contribute to sustainable agriculture and compliance with conservation goals.

- Community Contribution: Sharing data with NRD, NRCS, and others helps advance regional farming practices, fostering collaboration and innovation.

Conclusion:

While the direct ROI is healthy 54%, the long-term benefits—such as improved soil health, water savings, and scalability—add significant value beyond the financial figures. This project demonstrates a strong foundation for sustainable farming practices that will provide lasting benefits for your farm and the broader agricultural community.

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Section VIII: Monitoring and Evaluation *(Applies to all applicants)*

1. Clearly list the major milestones that will be used to track the progress of your project. This should include a timeline for deployment of connectivity OR devices and technology. Each milestone should include an expected completion date. Examples: (1) Installation of connectivity infrastructure by [insert date]. (2) Deployment of smart sensors by [insert date]. (3) Full project implementation by [insert date].

Major Milestones

4/15/25-informed of grant awarded

4/16/25-all products used ordered and delivered to me within 5 days

4/20/25-Haney soil tests pulled

5/1-15/25-crop planted with soil health products

6/1/25- all soil moisture sensors installed

7/1/25-Haney soil tests pulled

9/20/25-Haney soil tests pulled

11/20/25-Harvest complete and all data in

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2. Identify the specific Key Performance Indicators (KPIs) that will be used to measure the success of the project following implementation. Each KPI should be measurable and aligned with the project's objectives. Examples: (1) [X]% increase in crop yield by [insert date]. (2) [X]% reduction in water usage within [insert time frame]. (3) [X] number of devices connected to the system by [insert date]. (4) [X]% improvement in farm operational efficiency by [insert date].

Key Performance Indicators (KPIs):

Crop Yield Increase:

Target: Achieve a 5% increase in crop yield by Fall 2025.
Target: Achieve a 10% increase in crop yield by Fall 2026.
Target: Achieve a 20% increase in crop yield by Fall 2027.

Water Usage Reduction:

Target: Reduce water usage by 15% in irrigated fields by Fall 2025.
Target: Achieve a 25% reduction in water usage by Fall 2026.

Soil Health Improvements (Measured through Haney Soil Tests):

Target: Increase soil health scores (microbial activity, organic matter, nutrient availability) by 10% by September 2025.
Target: Achieve a 25% improvement in soil health scores by September 2026.

Soil Moisture Sensor Coverage and Data Accuracy:

Target: Deploy all planned soil moisture sensors across test areas by June 1, 2025.
Target: Maintain 95% uptime for sensor data collection throughout the growing seasons.

Economic Impact:

Target: Demonstrate \$6,500 in additional revenue from yield increases by the end of Year 1.
Target: Achieve \$19,500 in additional revenue by the end of Year 3 through yield gains and water efficiency.

Community and Research Impact:

Target: Share project data and results with local NRD, NRCS, and stakeholders by Fall 2025.

Adoption of Soil Health Practices Across Additional Acres:

Target: Expand successful soil health practices to 50 additional acres by 2026 based on project outcomes.

Environmental Impact:

Target: Reduce dependency on synthetic fertilizers by 10% by 2026, as supported by improved soil biology.

Monitoring and Tracking Plan:

Tools: Utilize John Deere Operations Center for precise tracking of sensor data, crop performance, and inputs.

Frequency:

Daily monitoring of moisture sensor data.
Seasonal Haney soil tests (April, July, September).
End-of-season analysis of yield and water usage metrics.

This comprehensive set of KPIs ensures the projects success is measurable, aligned with objectives, and adaptable for long-term implementation.

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3. Please explain the plan for monitoring and evaluating the success of the precision agriculture project. Include a detailed explanation of how Key Performance Indicators (KPIs) included in Section VII, field 2 above will be tracked and monitored throughout the project. Include specific metrics, tools, and timelines that will be used to track progress and measure outcomes.

Monitoring will be done by me personally daily throughout the year. I will check soil moisture sensors daily and all data will be logged through John Deere Operations Center for precise location of all products. We will be able to evaluate, in real time, how the water use is affected by the different soil health practices and all data including yield data will be evaluated after the crop is harvested which we would expect would be done before Thanksgiving.

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Attach/Include (see Program Guide for details):

ALL Applicants Must Include:

- Attachment A. Project Budget/Documentation
- Attachment B. Eligible Entity Documentation
- Attachment C. Cybersecurity
- Attachment D. DJI Attestation
- Attachment E. Match Documentation
- Attachment F. Other Supporting documentation (if applicable)

Connectivity Subprogram Applicants Must Also Include:

- Attachment G. Legal
- Attachment H. Technical
- Attachment I. Financial Statements
- Attachment J. Rate Comparability
- Attachment K. Shapefiles
- Attachment L. Project Diagram
- Attachment M. List of Key Operational Locations

APPLICANT CERTIFICATION:

I, the undersigned Glen Thoene representing Glen Thoene, hereby
[Legal Name] [Farm/Business Name]
certify the eligibility of our entity/project for the Precision Agriculture Grant (PRO-AG). By signing this statement, I confirm the legal name, contact details, size, and location of the farm site(s), along with our eligibility type as a Agricultural Producer . Attached are supporting documents [Provider/Agricultural Cooperative/Agronomist/Agricultural Producer] validating our eligibility, and I declare adherence to all requirements outlined in Precision Agriculture Connectivity Infrastructure Grant Act (Neb. Rev. Stat. § 86-1401 et seq.) & Commission Order C-5600. I certify that all information we have submitted on this application and its supporting documents is true and correct. I certify that we are not currently using, nor will we use, prohibited communications equipment and services developed by organizations on the Federal Communications Commission's Covered List pursuant to 47 U.S.C. § 1601. I understand that the submission of any false information or failure to comply with Commission requirements may result in penalties towards me and/or my organization.

Your signature confirms the accuracy and authenticity of the provided information. It will be considered binding for all purposes related to this application and any subsequent agreements or certifications.

Glen Thoene

Printed Name of Authorized Person

1/14/25
Date

Owner/Operator

Title of Authorized Person

[Signature]
Signature of Authorized Person

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