

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

Submit signed PDF applications with all attachments via email to <u>psc.broadband@nebraska.gov</u> 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 <a href="https://psc.nebraska.gov/telecommunications/2024-2025-precision-agriculture-infrastructure-grant-program-c-5600">https://psc.nebraska.gov/telecommunications/2024-2025-precision-agriculture-infrastructure-grant-program-c-5600</a>.

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:

- <u>Connectivity Subprogram</u>: 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.
- <u>Devices and Technology Subprogram</u>: 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:**

- <u>Provider</u>: A wireless network provider that provides adequate precision agriculture connectivity. Proof needed: Proof of business registration and service authorization in Nebraska.
- <u>Agricultural Cooperatives</u>: 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.
- <u>Agronomist</u>: 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.
- <u>Agricultural Producer</u>: 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.

Section I: Applicant Details (Ap	nlias to all annliaente)
Section I. Applicant Details (Ap)	plies to <u>all</u> applicants)
1. Subprogram Type: (See Descriptions Above)	Devices and Technology Subprogram
2. Applicant name (Legal name of the farm/business applying for the grant):	LNP Ag Drone Spraying, LLC
3. Applicant type: (See Definitions Above)	
Proof of applicant type should be included with application as	Agronomist
Attachment B.	
4. Applicant street address:	5485 S PROSSER AVE
4a. Applicant city:	ROSELAND
4b. Applicant state:	NE
4c. Applicant zip code:	68973
5. Applicant contact (first and last name):	Lisa Powell
6. Applicant e-mail:	LNPAGDRONESPRAYINGLLC@GMAIL.COM
7. Applicant phone number:	(402) 419-1964

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.

LNP Ag Drone Spraying, LLC was founded in 2024. I began the business with two DJI T20P drones, initially focusing on spraying fungicides and insecticides. However, after entering the market, I recognized a valuable opportunity in cover crop seeding. Using drones for cover crop application offers significant advantages, such as the ability to distribute seed before harvest, providing more time for the crops to establish and grow.

I am seeking support through the Precision Agricultural Infrastructure Grant to expand my drone fleet with the addition of a Talos T60X. In 2024, I covered a total of 3,330 acres through both spraying and cover crop seeding. The addition of a T60X will enable me to at least double the acreage covered, thanks to its longer flight times and larger capacity, which reduces the need for frequent refills. This upgrade will greatly enhance efficiency, especially for cover crop spreading, and allow me to better serve the growing needs of the market.

Section II: Project Details (Applies to <u>all</u> applicants)		
1. Project name:		
2. Precision agriculture production type:	AGRICULTURAL SPRAYING DRONE	
3. Project location descrip served.)	ption: (This should include a detailed description of the pro	ject area and location(s) to be
This will serve Adams Count	y and the surrounding areas.	
of how the on-farm conn	escription of the precision agriculture project you plan to ir ectivity or devices and technology will be utilized to enhar lude information showing that the applicant is prepared t	nce productivity, efficiency, and
I plan to add a Talos T60X to the current LNP Ag Drone Spraying fleet. This larger-capacity drone will enable me to cover more acreage. I currently hold a Part 107 Remote Pilot Certificate and a Part 137 exemption, as well as the following Nebraska State Pesticide Licenses: Category 00 General Standards, Category 01 Agricultural Plant Pest Control, and Category 12 Aerial Pest		
Control. I will be purchasing the drone from Terraplex. Once the drone is purchased, I will need to obtain an 8050-1 registration from the FAA, which typically takes 4 to 6 weeks to process. nTerraplex will assist with this registration. Additionally, I will need to update my insurance coverage. I am currently insured through Ellerbrock Norris and will simply need to add this new drone to my policy.		
	ude allowable costs <u>only</u> ): uctions and examples on our website.	<sup>\$</sup> 36,144.00

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.	<sup>\$</sup> 9,036.00
7. PRO-AG Grant Amount Requested:	<sup>\$</sup> 27,108.00
8. Estimated number of locations served in project area:	50
9. Technology type(s) used in proposed project:	
Agricultural spraying drone	
10. Expected Start Date ( <i>Should <u>not</u> be prior to 4/15/25)</i> :	4/15/2025
11. Expected completion date ( <i>Should <u>not</u> be after 4/15/26</i> ):	6/15/2025
<ul> <li>12. Timeline: Please outline the timeline for your project deployment, including clear readiness for immediate action upon grant award. Provide an explanation of any maddress potential challenges during the implementation process.</li> <li>Timeline: <ul> <li>04/15/2025 - Grant awarded</li> <li>04/16/2025 - Talos T60X ordered from Terraplex</li> <li>04/23/2025 - Drone registration submitted to FAA</li> <li>05/01/2025 - Drone delivered by Terraplex</li> <li>05/02/2025 - Drone insurance purchased</li> <li>06/01/2025 - Drone registration complete</li> </ul> </li> </ul>	

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.

The lifespan of a drone can easily exceed five years with proper maintenance. Batteries and components can be replaced as needed, ensuring its continued functionality over time.

For 2025, I've already committed to spraying and spreading cover crop across approximately 7,000 acres, including direct work with farmers and partnerships with a farm manager. I plan to expand the acreage covered each year and would welcome the opportunity to add a pilot to the team.

Section II Project Details – Subsection A: Applies to Connectivity subpro	gram 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: (Must be < 25/3 Mbps)	
5. Speeds upon completion: (Must be <u>&gt;</u> 100/20 Mbps)	
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

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.

In 2024, I covered approximately 3,300 acres through spraying and cover crop seeding. Since it was my first year operating drones, I intentionally started small, committing to only a limited number of acres. This approach allowed me to learn the ins and outs of drone spraying without overwhelming myself. Now, in my second year, I'm ready to apply that knowledge and expand the acreage I cover. In 2024, I was able to help a farmer avoid the need for a second insecticide application by timing the treatment perfectly. This is where I believe drones offer significant value to farmers, providing precision and efficiency that traditional methods can't match.

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.

My current drone fleet consists entirely of DJI models, including two T20Ps and one Mavic M3M, which I use for mapping. However, I'm moving away from DJI drones due to potential cybersecurity concerns and the looming risk of government bans. After consulting with Terraplex, they recommended the Talos T60X as an equivalent to the DJI Agras T50. The T60X has a 50-liter capacity, compared to the T50's 40-liter capacity, making the Talos T60X a better fit for my needs.

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.

The T60X has a potential lifespan of well over five years with proper maintenance.

Propellers will be replaced after 1,000 acres of use or sooner if any damage is detected. Based on my experience in 2024, propellers tend to wear out before reaching 1,000 acres, and this was the component I replaced most frequently last year.

With multiple batteries on hand, I ensure they are charged in the shade to help extend their lifespan. I have an enclosed trailer, which allows me to keep the batteries cool and protected, further optimizing their longevity.

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.

Before each flight, drones are thoroughly inspected to ensure there are no damaged propellers or parts. This inspection is conducted as part of the setup process for spraying.

At the end of each day, after spraying is complete, the drone is cleaned and checked again for any damage before being stored. Batteries are fully charged indoors prior to spraying and are also charged inside the enclosed trailer to protect them from direct sunlight.

During the off-season, all drones are stored in a climate-controlled environment to preserve their condition.

#### 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.

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.

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.

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?

#### 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.

To Do:

1 Register Drone – Terraplex will assist with the registration process once the drone is purchased.

Completed:

- FAA Part 107 Certification
- Issued: 03/01/2024
  - FAA Part 137 Exemption
  - Nebraska Department of Agriculture Pesticide Applicator License
- License No. 120458, Commercial, Expires 04/15/2027

Categories: 00, 01, 12

Nebraska Aerial Business License

Expires: 12/31/2025

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

I will ensure that all licenses and certifications are renewed before their expiration dates to maintain my licenses and keep the business in good standing.

My pilot license is valid for 24 months, and I will complete the required recurrent training courses online to keep it up to date. My Nebraska Commercial Pesticide License expires on April 15, 2027. I will take the necessary classes to ensure the license remains in good standing.

Section IV: Legal – Subsection E	3: 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.

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.

Increasing the number of acres I can cover will provide farmers with an alternative to traditional aerial (plane) application for fungicides and insecticides. In some cases, I may be able to treat a field more quickly than a plane can, which is especially important when applying insecticides, where timing is critical. Expanding the acreage could also create job opportunities, whether for a pilot or an assistant to help with tasks like refilling and battery changes. The additional revenue from covering more acres will support the growth of my business.

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.

Adding a T60X to my fleet will enable me to cover more acres, and I plan to continue expanding my coverage each year. To secure those additional acres, I will market my services to seed dealers, farm managers, and aerial businesses that don't yet use drones. I'll also give presentations at grower meetings to increase visibility and attract more business. Additionally, I plan to partner with companies that work directly with farmers, such as pivot system providers and chemical companies, to broaden my reach and secure more acres.

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.

Some farmers apply fungicides and insecticides using pivots or ground rigs, both of which require a significant amount of water. In contrast, drones use aerial application rates, typically around 2 gallons per acre, while ground rigs can use as much as 10 gallons per acre. By increasing the number of acres I can cover, I can offer farmers an efficient alternative to these traditional methods, making drone application a viable option.

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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.
Here's a polished version of your financial breakdown:
Year 1
Income
             Application (4,500 acres x $10 + 2,500 acres x $15) = $82,500.00
             Grant = $27,108.00
Total Income = $109,608.00
Expenses
             1 Talos T60X drone (including batteries & charger) = $9,036.00
             Fuel = $4,000.00
             Insurance = $15,000.00
             Part-Time Help = $10,000.00
             Licensing = $1,000.00
             Maintenance = $5,000.00
             Legal & Accounting = $5,000.00
Total Expenses = $49,036.00
Net Profit = $60,572.00
Year 2 to 5
Income
             Application (5,000 acres x $10 + 3,000 acres x $15) = $95,000.00
Total Income = $95,000.00
Expenses
             Fuel = $4,000.00
             Insurance = $15,000.00
             Part-Time Help = $10,000.00
             Licensing = $1,000.00
             Maintenance = $5,000.00
             Legal & Accounting = $5,000.00
Total Expenses = $40,000.00
Net Profit = $55,000.00
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#### Section VII: Cost Benefit Analysis (Applies to <u>all</u> 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.

#### Short-Term Impact

I anticipate that the drone will pay for itself by the end of the first year and start generating net income by year two. These projections assume steady demand over this period with multiple drones in operation. If demand continues to grow, I may need to add a larger drone to the fleet and bring on an additional pilot to manage the increased workload.

#### Long-Term Impact

The long-term impact could be substantial, with net income potentially reaching six figures within five years. As the business grows, I would likely need to hire another pilot to accommodate the increased demand and operations.

#### Section VIII: Monitoring and Evaluation (Applies to <u>all</u> 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].

I expect the Talos T60X to be fully operational by June 1, 2025, in time for the 2025 spraying season.

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].

Operational Efficiency

KPIs: Number of committed acres by June 1st

Economic Impact & Income Produced KPIs: Number of acres treated

Job Creation KPIs: Employee satisfaction and development

Long-Term Sustainability

KPIs: Number of repeat committed acres Evaluate fields where drones were utilized and identify areas for improvement

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. Operational Efficiency KPIs: Number of committed acres by June 1st Will be monitored from now until June 1st. Currently, I've committed to 5,700 acres and need 1,300 more before June 1st. Economic Impact & Income Produced Milestone: Achieve \$50,000 in revenue by September 1st KPIs: Number of acres treated Revenue will be tracked based on invoicing. Invoices will be sent to customers at the end of each month for services rendered. Job Creation Milestone: Hire Part-Time Help KPIs: Employee satisfaction and development Will seek part-time help between now and the start of the spraying season. Long-Term Sustainability Milestone: Develop a growth plan for the next 5 years KPIs: Number of repeat committed acres Regularly evaluate fields where drones were utilized and identify areas for improvement. Monitoring will take place after the spraying season ends, with a reevaluation after harvest. I will meet with customers to discuss this year's performance and plan for the upcoming year.

#### Attach/Include (see Program Guide for details):

#### **<u>ALL</u>** Applicants Must Include:

<ul> <li>Attachment A. Project Budget/Documentation</li> <li>Attachment B. Eligible Entity Documentation</li> <li>Attachment C. Cybersecurity</li> <li>Attachment D. Dil Attactation</li> </ul>	<ul> <li>Attachment G. Legal</li> <li>Attachment H. Technical</li> <li>Attachment I. Financial Statements</li> <li>Attachment J. Data Comparability</li> </ul>
<ul> <li>Attachment D. DJI Attestation</li> <li>Attachment E. Match Documentation</li> </ul>	Attachment J. Rate Comparability Attachment K. Shapefiles
Attachment F. Other Supporting documentation (if applicable)	Attachment L. Project Diagram Attachment M. List of Key Operational Lc

#### **APPLICANT CERTIFICATION:**

#### Connectivity Subprogram Applicants Must Also Include:

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l, the undersigned Lisa Powell	representing LNP Ag Drone Spraying, LLC	, hereby
[Legal Name]	[Farm/Business Name]	
certify the eligibility of our entity/project for	r the Precision Agriculture Grant (PRO-AG). By signing this stat	ement, l
confirm the legal name, contact details, size	e, and location of the farm site(s), along with our eligibility type	asa
Agronomist	Attached are supporting	documents
[Provider/Agricultural Cooperative/Agronomis		
validating our eligibility, and I declare adher	rence to all requirements outlined in Precision Agriculture Con	nectivity
Infrastructure Grant Act (Neb. Rev. Stat. § 86	6-1401 et seq.) & Commission Order C-5600. I certify that all info	rmation we
have submitted on this application and its s	supporting documents is true and correct. I certify that we are	not currently
using, nor will we use, prohibited communi	ications equipment and services developed by organizations o	n the Federal
Communications Commission's Covered Lis	st pursuant to 47 U.S.C. § 1601. I understand that the submission	n of any false
information or failure to comply with Comn	mission requirements may result in penalties towards me and/o	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.

LNP Ag Drone Spraying, LLC by Lisa Powell	01/16/2025
Printed Name of Authorized Person	Date

Title of Authorized Person

LNP Ag Drone Spraying, LLC by Lisa Powell Signature of Authorized Person

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