



## C-5529 Precision Agriculture Infrastructure Grant (PRO-AG) Grant Application

**IMPORTANT:** Applicants are strongly advised to carefully examine the PRO-AG Program Guide and PRO-AG Scoring Reference Sheet for details regarding application and attachment requirements, including but not limited to details on application field descriptions, attachment content, and requirements.

### Section I: Applicant Details

1. Subprogram Type:	Devices and Technology Subprogram
2. Applicant name:	Walters Ag, LLC
3. Applicant type:	Agricultural Producer
4. Applicant street address:	911 Road 7
4a. Applicant city:	Shickley
4b. Applicant state:	NE
4c. Applicant zip code:	68436
5. Applicant contact (first and last name):	Wade Walters
6. Applicant e-mail:	walterswade@outlook.com
7. Applicant phone number:	402-759-1831
8. <i>Connectivity Subprogram Only:</i> Applicant's Nebraska ETC Status:	
9. <i>Connectivity Subprogram Only:</i> Does the applicant currently report through FCC BDC speeds of at least 100/20 Mbps provided to customers within the State of Nebraska?	

### Section II: Project Details

1. Project name:	Drone Application and Instant Soil Sampling		
2. Precision agriculture production type:	Crop Production		
3. Project location description:	This project will be located in Fillmore County Nebraska predominantly on our farm between Shickley and Geneva. Also the devices may be used on custom acres in the area in Fillmore, Thayer, and Clay counties that our customers may hire us for spraying and soil sampling.		
4. Estimated number of locations served in project area:	1 location		
5. Technology type(s) used in proposed project:	Drone- DJI Agras T50 Sprayer Drone Kit Soil Probe- Chrysalabs Soil Probe		
6. Start Date:	5-1-24	7. Expected completion date:	4-30-25
8. Total Project Cost:	47745.00	9. Total Match Amount:	11936.25
10. PRO-AG Grant Amount Requested:	35808.75		

**Connectivity Subprogram Only:**

11. Farm Site Size (acres):		12. Number of Key Operational Locations:	
13. Number of Connected On-Farm Entities:		14. Current maximum connection speed bandwidth in project area in Mbps: (Must be < 25/3 Mbps)	
15. Speeds upon completion: (Must be 100/20 Mbps or >)		16. Monthly customer rate for proposed 100Mbps/ 20Mbps service:	

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

**ALL Applicants Must Include:**

- Attachment A. Business Plan
- Attachment B. Legal
- Attachment C. Technical Summary
- Attachment D. Cybersecurity
- Attachment E. Match Documentation
- Attachment F. Monitoring and Evaluation

- Attachment G. Project Impact
- Attachment H. Other supporting documentation (if applicable)

**Connectivity Subprogram Applicants Must Also Include:**

- Attachment I. Shapefiles
- Attachment J. Project Diagram

**APPLICANT CERTIFICATION:**

I, the undersigned Wade Walters, representing Walters Ag, LLC, hereby 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 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-5529. I certify that the information submitted on the application and all supporting documents are true and correct. I certify that the applicant entity is not currently using, nor will it use prohibited communications equipment and services developed by organizations on the Federal Communications Commission's Covered List.

This application accepts handwritten, electronic, and typed signatures, all of which carry equal legal weight. Your signature, in any of these forms, 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.

Wade Walters

02/23/2024

Printed Name of Authorized Person

Date

Member

Title of Authorized Person

Wade Walters, Member

Signature of Authorized Person

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## **Attachment A**

**Executive Summary-** Walters Ag LLC is a 4<sup>th</sup> generation family farming operation located near Shickley, NE. We currently raise corn, soybeans, seed corn and sell seed to other farmers. Walters Ag was founded in 2014 by Wade and Spencer Walters and is still run by both today. Our mission is growing high quality crops in a sustainable manner that will provide sufficient returns to pass the farm to the next generation. Walters Ag strives to be on the forefront of technology in the agricultural industry and we have implemented many practices that help us work more efficiently and cost effectively on our farms. Our goal is to grow our operation to the level that there is room for us to bring our kids back into the business should they choose to do so. We implement technology to help us progress and grow a less labor-intensive crop and be able to more precisely apply inputs thus saving costs. We also utilize technology on the precision side to be better stewards of the land.

**Project Proposal-** We plan to implement a project to bring drone spraying and instant soil sampling to our family farm business. The drone will allow us to apply crop protection products in a more precise manner on small acre areas that are not feasible for larger sprayers to get into. We will be able to spot spray certain parts of the field resulting in less chemical use and only spraying where needed. We will utilize the drone to spray crop protection products later in the season when ground sprayers cannot access the fields. For the soil probe from Chrysalabs we will be able to get instant soil sample readings. This will give us the ability to make geolocated nutrient recommendations in season and adjust our fertility plan more quickly and accurately. Also, the probe will eliminate the cost associated with having to send samples to a soil lab for analysis. We will also offer this as a service to our customers, getting them sample results quickly in order to make recommendations to them on their farms.

The drone and soil probe will enhance productivity by allowing us to control when our fields get sprayed or soil sampled by being able to do it ourselves and not have to wait on another applicator to show up when weeds or pests are present and need controlled right away or when in season decisions are needed in regards to soil fertility.

This technology will improve our efficiency by being able to cover more acres more quickly with the soil probe and cut out the turnaround time that a soil lab would have taken (3-5 days) to get a sample back. With the drone we will be more efficient by only spraying areas that need it and not having to blanket apply herbicides a field.

The sustainability of these two pieces of technology is a very important part of why we are wanting to implement the drone and soil probe on our operation. By using the drone on just part of the field we will be using less chemicals and only applying where application is needed. For the soil probe, if we can more accurately and quickly determine what soil nutrients are needed, we can more precisely apply those nutrients and not over apply by not knowing what our soil actually requires to grow the best crops.

**Timeline-** As soon as funding is available, we would move forward with ordering both the drone and the soil probe and could have them on site ready to use in less than 1 month. The soil probe will be

put to work in 2024 for in season analysis. The drone may be able to be utilized pending proper certification but may not be used until the 2025 season if FAA certification and approval is not completed in time.

**Sustainability-** The spray drone will have a useful life of over 5 years and will just need regular maintenance and possible battery upgrades to continue to be an available asset on our operation. The soil probe also has an expected use of over 5 years, and we plan on utilizing it for much longer.

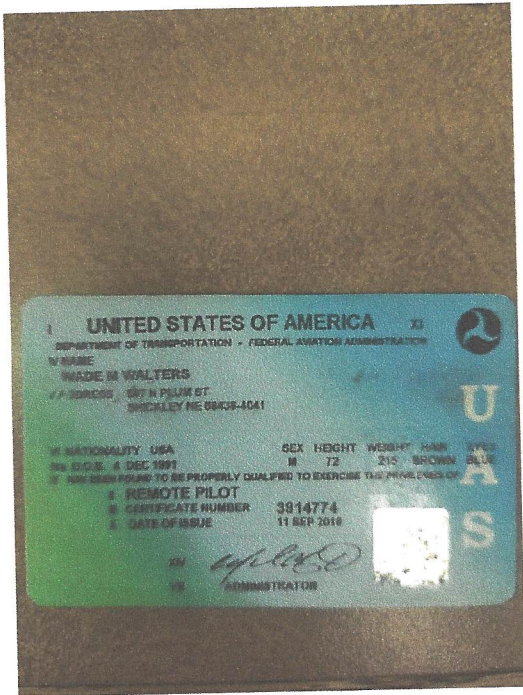
### Eligible Entity Documentation-

The screenshot shows the Nebraska Secretary of State's Corporate & Business Search interface. At the top left, it says "Official Nebraska Government Website" and "NEBRASKA.GOV". At the top right, it says "All State Agencies | All State Services". The main header is "Nebraska Secretary of State". Below the header is a search bar with "New Search" and "FAQs / Help" links. A maintenance notice states: "This application will be down for maintenance on Monday, February 26th from 8:00 AM - 8:15 AM." The search results for "WALTERS AG, L.L.C." are displayed, including the following details:

<b>SOS Account Number</b> 10186506	<b>Status</b> Active	<b>Designated Office Address</b> 911 ROAD 7 SHICKLEY, NE 68436
<b>Principal Office Address</b> 911 ROAD 7 SHICKLEY, NE 68436 USA	<b>Registered Agent and Office Address</b> WADE M WALTERS 911 ROAD 7 SHICKLEY, NE 68436	<b>Date Filed</b> Jan 03 2014
<b>Nature of Business</b> Not Available	<b>Entity Type</b> Domestic LLC Qualifying State: NE	
<b>Next Report Due Date</b> Jan 01 2025		

The date "Thu Feb 22 16:14:15 2024" is visible in the top right corner of the search results area.





**Project Budget-**

DJI Agras T50	\$32,995.00
Chrysalabs Soil Probe	\$14,750
Training and Licensing Fees	\$3,000- ineligible
<b>Total Costs</b>	<b>\$50,745.00</b>
Total Eligible Costs	\$47,745.00
Match Amount	\$11,936.25
<b>Grant Amount Requested</b>	<b>\$35,808.75</b>

**Financial Projections**

	Drone	Soil Probe
Yearly Acres Covered	1000	5000
Cost Per Acre	\$15	\$8
<b>Total Added Revenue</b>	<b>\$15,000</b>	<b>\$40,000</b>
<b>Costs</b>		
Fuel	500	1000
Labor 20ac/hr @ \$50/hr	2500	7800
Insurance	2000	

Repairs	1000	200
Total Costs	6000	9000
Net Revenue	\$9,000	\$31,000

Long- term projections would be similar. The only thing that would change in our estimates is as acres go up labor and repairs will rise with it.

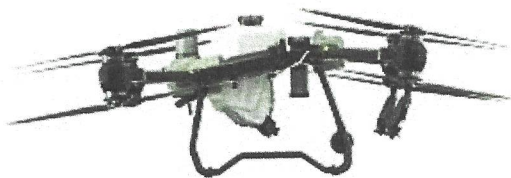
### **Attachment B Legal**

Wade Walters, who would be the primary operator of the drone, is currently a Part 107 certified remote pilot. He is planning to pursue getting his aerial pesticide applicators license, the Part 137 Agricultural Aircraft Operator Certification and petition for a section 333 exemption in order to legally operate the drone when approved for the grant. This process will take a few months to complete. The soil probe does not require any certifications, but training will be sought upon delivery to ensure it is used and calibrated correctly. The drone can be used for scouting upon delivery but being able to legally spray may take into the 2025 crop year before licensing is complete.

### **Attachment C - Technical Summary**

Walters Ag, LLC and our team have extensive experience operating and managing precision agriculture equipment. For example, we currently utilize auto steer, tractor and implement operating systems, farm operations management data recordkeeping solutions, water sensors, scouting drone, irrigation management technology, and others. All members of the team are tech savvy and able to run precision agriculture equipment and devices. We will acquire the needed skills for the soil probe and the drone through training and certification classes. In the past we have implemented the use of variable rate planting and other variable rate operations by creating maps, loading them into the monitors, and then using them as we planted in the field. We have also implemented precision irrigation by reading soil probes, creating variable rate irrigation recommendations and running those recommendations in our center pivots.

See below for details about the planned technology implementation and devices.





The T50 agricultural unmanned aerial vehicle continues the powerful coaxial dual-rotor power system and adopts a split anti-torsion fixed structure with higher strength. Equipped with dual atomization spraying system, front and rear phased array radar and binocular vision system, it integrates aerial survey and flight defense, bringing you more stable operation guarantee and better operation effect.

#### Features:

##### Field Work

59.3 Acres Per Hour

##### Fruit Tree Work

11.8 Acres Per Hour

##### Seeding Operations

1.5 Tons Per Hour

##### Magnetic Drive Impeller Pump

##### Double Atomizing Centrifugal Nozzles

##### Brand New Solenoid Valve

The T50 has been upgraded to two sets of active phased array radars, two sets of binocular vision, and a dual atomization spraying system, which integrates functions of aerial survey and flight defense.

The T50 is equipped with a seven-inch remote controller screen, which supports intelligent route planning and a transmission distance as far as 2 km.

Weighing 52kg, the T50 supports the spreading of a 50kg load and spraying a 40kg load, with a 2200mm maximum wheelbase, 16 L/min spraying and 108 kg/min sowing.

##### Chrysalabs Soil Probe



- 30-Second Soil Analysis- Instant Upload to the Cloud- Real-Time Results on the ChrysaLabs App

The drone will assist in meeting project goals by implementing autonomous solutions in agricultural machinery. While not totally autonomous it will fly on its own with the help of a pilot. It will also help improve soil and water quality by more precisely applying crop protection products so that they are not over applied causing environmental issues.

The soil probe will meet the project's goals by being able to quickly give in season recommendations on soil fertility. By doing so, we will better be able to apply nitrogen only when and where needed without having to wait for a lab test. It will improve overall soil health through its soil sample readings telling us what nutrients are needed for healthy productive soil.

Both the drone and the soil probe will be maintained for their whole useful lives which is projected to be well over 5 years. We will do periodic maintenance testing battery capabilities, checking propellers, cleaning chemical tanks and doing overall airworthiness inspections on the drone. For the soil probe we will be doing calibrations regularly to ensure that it is performing accurately. There should not be much maintenance on the probe, but the company will back up the product and be able to service it should a component fail.

**Attachment D- Cybersecurity**

Our wireless networks that we download and upload data to are password protected and we utilize antivirus software to ensure protection on all of our devices. We try to ensure that our networks are secure and that they cannot be accessed by outside parties. Being a small family farming operation we do not have a formal cybersecurity plan however we do take as many measures as possible for a small company with limited staff to ensure the safety of our data and network.

**Attachment E – Match Documentation**

Match Source	Funding Commitment	Percentage of Total Matching Funds
Applicant: Walters Ag LLC- funds on hand	\$11, 811.25	100%
Total Matching Funds	\$11,811.25	100%

**Attachment F – Monitoring and Evaluation**

We plan to monitor the technology we acquire as we utilize it in our operation. We will evaluate annually how much return each piece of equipment (drone and soil probe) is able to bring back to our operation. We will also evaluate annually how much cost savings we can realize by bringing these services in-house and what effect these devices have on our labor hours. We will be evaluating if these investments give us a return on our investment and how fast. Our goal is to have



a 3 year or less ROI for each piece of precision agriculture technology we implement in our farming operation.

### **Attachment G- Project Impact**

This project will impact our own family farming operation as well as those of our customers who hire our services of spraying or soil sampling. The main impact of the drone spraying is it will give us the ability to more precisely spray small areas and reach areas a ground sprayer cannot. It will also give us the flexibility to spray when ground conditions won't allow after a rain. We can help our area of the state raise better crops with less weed and disease pressure. The soil probe will have an impact on our family operation and other area crop growers by being able to give everyone quick precise soil data to make recommendations for their fertility needs. By being able to get recommendations quickly we will be able to make applications in a timelier manner a potentially help all farmers finish their fieldwork faster. The project will also impact our community as these tools will allow us to hire one additional full-time employee to work on our operation if we purchase both of these tools.

The economic benefits directly to use will be cost savings of hiring custom applicators. Economic benefits to the broader agricultural community in our area will be being able to save on chemical costs by applying less acres when broad application is not needed. We will be able to sample soil at a lesser cost for customers than currently available methods of using a lab. We will be able to place nutrient resources more efficiently on acres that need it by testing the soil and making recommendations based on those tests.

The main project area will be in Fillmore County, Nebraska between Geneva and Shickley but our customers could potentially be in Clay or Thayer County as well.