ASPEN TECH POLICY HUB

OPERATIONAL PLAN

FarmPivot Revolving Loan Fund

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SECTION 1: EXECUTIVE SUMMARY

To set the stage for a widespread transition to agricultural practices that are productive, resilient, and help solve climate change, the **Washington State Department of Agriculture (WSDA) should establish a revolving loan fund (RLF) with the goal of scaling climate-smart agriculture across the state.**

The proposed FarmPivot RLF would provide flexible, low-interest, long-term loans and technical assistance to farmers across the state of Washington to reduce barriers for them to transition to climate-smart practices. This fund should be seeded using donations from corporations, philanthropic organizations, and the government, with a total of $5 million raised over a 5-year period. Based on our modeling, this fund will create a simple and effective financing tool that should become self-sustaining by year 10. In addition, the FarmPivot RLF should incentivize Washington farmers to lead by example and provide valuable data on greenhouse gas (GHG) emissions, carbon sequestration, and farmers' profitability as they adopt climate-smart practices.

The FarmPivot RLF would transform agriculture in Washington and beyond by:

1. Increasing farmers' profitability and climate resilience through finance and technical expertise that leads to the adoption of climate-smart practices;
2. Supporting government and industry climate commitments by reducing GHG emissions, increas-

ing carbon sequestration, and sharing data on business and climate impacts from climate-smart farming; and

3. Creating a new model for financing the transition to climate-smart agriculture.

The purpose of this operational plan is to describe the goals, design, and administration of the proposed RLF. The plan includes 4 main sections:

1. **Section 1: Introduction** provides an executive summary of the operational plan.
2. **Section 2: Fund Design** describes the design of the fund, including fund establishment, seeding capital, fund oversight, and fund performance over time.
3. **Section 3: Loan Application** describes the details of the loan application, loan eligibility, selection criteria, and monitoring and reporting requirements.
4. **Section 4: Technical Support** summarizes additional technical support and resources, including details about climate-smart farming practices, financial benefits, carbon credit marketplaces, and additional technical assistance.
5. **Appendix A: Fund Examples** includes examples of similar farmer loan funds in other states and countries.

SECTION 2: FUND DESIGN

The purpose of the FarmPivot RLF is to support Washington farmers in transitioning to climate-smart practices that reduce GHG emissions and sequester carbon, and to share data about the climate and business impacts of these practices. The fund supports farmers by providing a low-interest, long-term loan with flexible repayment terms. This 8-10 year loan would allow farmers to take the time needed for the trial and implementation of climate-smart practices, and allow for the potential risks and short-term losses in the process. The loans could be used for operating expenses or equipment purchases necessary to add or expand practices on currently managed land, including equipment, seed, labor, and farm consulting services to support the transition. The loan cannot be used for land

purchases.

The loan fund, paired with technical assistance, would encourage a systemwide change to climate-smart practices that would increase farm profits over time. Farmers that make the transition would be well-positioned to profit from lower input costs, reduced risk from weather extremes, and access to new markets for carbon credits and ingredients labeled as climate-smart.

The fund is designed as an RLF that would become self-sustaining by approximately year 10 as it cycles interest and principal payments from old loans to issue new loans. The RLF should be seeded with a mix of funding sources, including donations and grants from philanthropic organizations, corporations, banks, and the government.

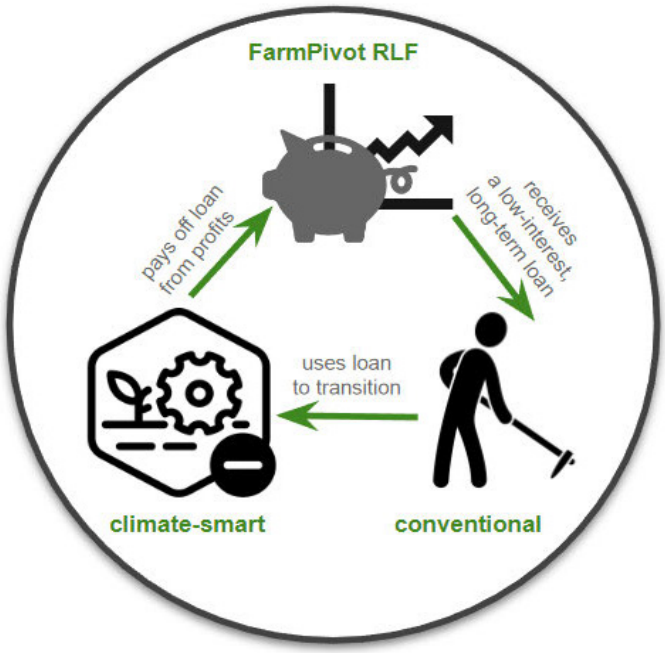

Figure 1: Overview of FarmPivot RLF

FUND ESTABLISHMENT

The FarmPivot RLF should be established under one of the following organizational structures:

1. **Washington State Governmental Agency:** Establishing the FarmPivot RLF under an agency within the Washington State Government, working in partnership with a financial institution, would provide both stability and administrative capacity. The public agency would provide assurance against the risk of default, and the financial institution would provide a streamlined set-up and administration process and increase flexibility in eligible sources of seed capital. This option would support the state's mandate to become carbon neutral and support carbon sequestration. In this structure, the involvement of the government agency reduces the risk of the loan, while the involvement of the financial institution provides expertise in transactions.

a. Potential host state agencies include:

   i. Washington State Department of Agriculture (WSDA)

   ii. Washington State Conservation Commission (WSCC)

   - WSDA and WSCC are the key state agencies involved in promoting soil health initiatives and soil carbon sequestration efforts mandated by the Climate Commitment Act.

   iii. Washington State Housing Finance Commission (WSHFC)

   - WSHFC established a similar revolving loan program for farmland protection and ownership.

b. Examples of this structure include:

   i. The Agri3 Fund, established as a public-private partnership by the UN Environment Programme and Rabobank; and

   ii. The Farm Protection and Affordability Investment (Farm PAI), established under the WSHFC.

2. **Nonprofit Organization:** Establishing the FarmPivot RLF within a nonprofit organization would allow for a more streamlined set-up of the fund. It would make administrative processes easier and would increase the flexibility of eligible sources of seed capital.

a. Appropriate non-profit host organizations might include:

   i. The Nature Conservancy in Washington

   ii. Northwest Agriculture Business Center

DIVERSITY, EQUITY, AND INCLUSION

To increase diversity, equity, and inclusion in the agriculture sector, the FarmPivot RLF should ensure that the promotion of the program and loan application review include priority for underserved farmers, including Black farmers, Indigenous farmers, people of color, veterans, people with disabilities, and women. In addition, the fund oversight and staffing described below should include professionals who represent underserved groups, in order to build relationships and capacity within the industry.

FUND OVERSIGHT STAFFING

To set up and administer the FarmPivot RLF, the organization that hosts the fund would leverage existing staffing resources or hire additional staff. In addition to a non-compensated management oversight committee, the fund would require a dedicated fund manager, as well as additional technical support staff. These roles include:

- **Fund Manager:** A dedicated Fund Manager should be appointed to run the FarmPivot RLF, including by coordinating fundraising, prospecting, risk management, annual reports, and partnerships with external government agencies, corporations, and other partners.
- **Technical Expertise:** Additional technical expertise would be needed on either a part-time or contract basis to run the FarmPivot RLF. The organization that hosts the fund would provide staff time and leverage other partnerships to engage these specialists. Some of the specific skills and expertise needed could include:
  - **Farm Specialist:** A farm specialist would provide support for farming-related technical topics, including specific climate-smart farming practices, farm monitoring, reporting, and other related duties.

- **Financial Specialist:** A financial specialist would support various fund and farm-specific financial activities, including fund financial reporting, loan processing support, financial forecasting, and other related duties.
- **Marketing and Partnership Support:** This staff would support the Fund Manager on multiple administrative and managerial activities including: marketing the fund; building partnerships with carbon credit market providers, farmers associations, and government organizations; and other related duties.

- **Management Oversight Committee:** The Management Oversight Committee's role is to provide relationships with the Washington agriculture community, oversee the FarmPivot RLF's overall performance, and serve as an advisor to the Fund Manager. The committee shall meet quarterly to review the fund's performance and forecasting, and provide any advice or resources to the Fund Manager. This committee should be composed of subject matter experts in the agricultural industry, with existing relationships and expertise in government affairs, commercial agriculture, farming, finance, and natural resource conservation in Washington State and beyond. The committee should have a diverse demographic representation including Black, Indigenous, and people of color (BIPOC), veterans, people with disabilities, and women. Local agencies and nonprofits to approach include:
  - Washington State University (WSU), including the Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS) chapter;
  - Washington State Department of Agriculture;
  - Washington State Conservation Commission;
  - Yakama Nation Land Enterprise;
  - Familias Unidas por la Justicia;
  - Northwest Farmers Union;
  - Washington Young Farmers Coalition; and
  - Washington Future Farmers of America (FFA) Association.

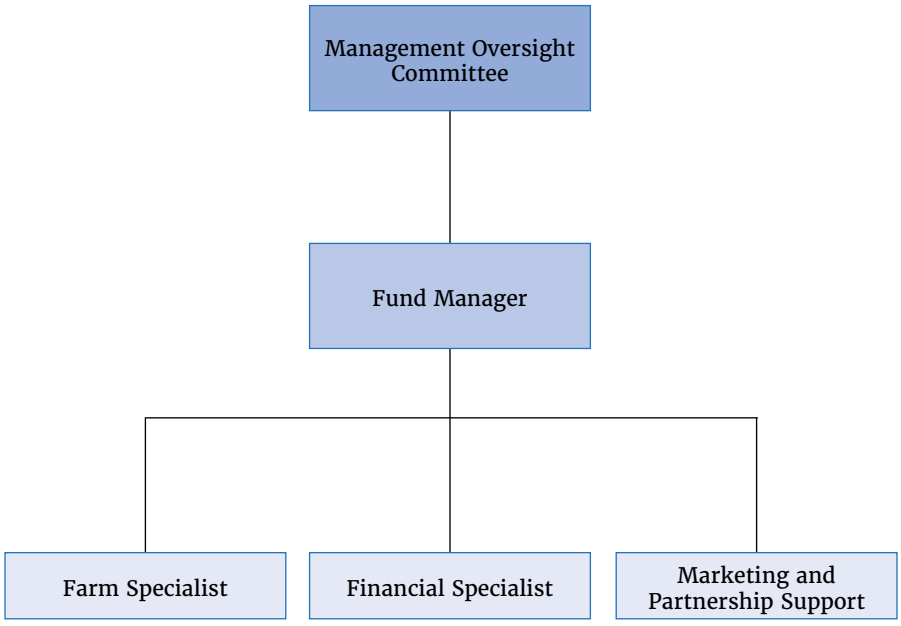

Figure 2: Sample Staffing Chart for FarmPivot RLF Oversight

FUND TARGET

The FarmPivot RLF should be established with $5 million in capital initially to achieve the program's goals. However, this capital can be raised in phases, with $1 million annually for the first 5 years. This fund size would enable the RLF to be self sustaining and establish a model that could be replicated by other state agencies or agricultural trade groups around the US. The annual impact report, informed by anonymized data on return on investment (ROI) and climate impacts, could be used to encourage more widespread adoption of climate-smart agricultural practices in Washington and beyond.

Table 1 presents the most recent agricultural statistics and census data related to the number and size of farms in Washington. In total, the state has approximately 35,800 farm operations, with an average size of 410 acres. The FarmPivot RLF should target mid-scale farms in the 50 to 500 acre range, which is roughly 22% (~7,800) of the total number of farms in Washington (see Table 1).

There are two key reasons to target this range:

- These farms are large enough to provide quantifiable benefits in terms of GHG emissions reductions and carbon sequestration.
- Targeting these farms would allow the fund to diversify between different cropping systems and regions while keeping the number of annual farm loans manageable from a staffing and administration standpoint.

Based on two data sources, we estimate that loans of approximately $75 per acre would support the adoption of 3 or more climate-smart practices on a cropland farm. Using this range, a loan of $500,000 per year could support about 6,700 acres of farmland, which is between 40-60 midscale (between 50 and 500 acres) farms per year. Depending on the number of applications received, the total number of farms supported for any given year can vary from this range. Finally, to avoid a single large farm using the entire fund budget in a single year, the Fund Manager may set a threshold on the maximum farm acreage.

Farm Range (acres)	Number of Farms	Percentage of Total Farms in WA[1]
1 to 9	11,523	32%
10 to 49	12,323	34%
50 to 179	**5,501**	**15%**
180 to 499	**2,623**	**7%**
> 500	3,824	10%

Table 1: Washington Farm Size Statistics

FUND SEED SOURCES

The FarmPivot RLF should be seeded with a blended finance approach, combining donations and grants from corporations, philanthropic organizations, and the government. To raise the capital for the fund, the Fund Manager should approach corporations first, followed by philanthropic and government organizations:

- **Corporations with Supply Chain GHG Reduction Targets:** The Fund Manager should approach food and agriculture corporations that have committed through the Science Based Target Initiative (SBTi) to become carbon neutral by 2050 by reducing GHG emission reductions along their supply chain. The initial set of corporations to approach should include major buyers of Washington-grown crops. After this initial outreach, the Fund Manager can subsequently expand to other corporations with carbon neutral commitments. Potential corporations to approach are listed below, with links to relevant web pages about their climate initiatives:
  - Cargill, Inc.
  - General Mills, Inc.
  - The J.M. Smucker Co.
  - McDonald's Corporation
  - Lamb Weston Holdings, Inc.
  - Kroger Company
  - Walmart Inc.
- **Corporations with Climate Pledges:** Three major corporations based in Washington — Microsoft, Starbucks, and Amazon — have committed to finding solutions to the climate crisis and supporting innovative ideas, including in food production and agriculture. The FarmPivot RLF should be seeded using grants and donations from these and other companies; however, a successful RLF could lead to other impact investment. Potential sources of funding include:
  - **Microsoft Climate Innovation Fund:** Microsoft has a $1 billion investment initiative to accelerate technology development and deployment of new climate innovations through

equity and debt capital, including a dedicated carbon removal program. Microsoft has led many policy initiatives at the state and federal levels to promote climate-smart agriculture as part of their carbon removal goals. The Microsoft Climate Innovation Fund provides grants as well as investment funding for innovative ventures.

- **Starbucks Foundation:** Established in 1997, the Starbucks Foundation has provided more than $25 million to programs that strengthen coffee- and tea-growing communities globally, including through the Starbucks Global Farmer Fund. The foundation provides Neighborhood Grants to help build sustained local impact and inspire increased partner volunteerism with nonprofit organizations that work in local communities.
- **Amazon Climate Pledge Fund:** In 2019, Amazon co-founded the Climate Pledge Fund, which currently has $2 billion in funding to support the development of sustainable and decarbonizing technologies and services, including investing in corporations whose solutions would facilitate the transition to a low-carbon economy. The fund focuses on investments and support for the food and agriculture industry.

- **Philanthropic Organizations:** The Fund Manager should seek donations and grants from organizations with existing missions to support Washington agriculture. An initial set of organizations to approach could include:
  - Leading Harvest
  - Washington Farmland Trust
  - Tilth Alliance
  - Northwest Agriculture Business Network
  - Washington Farm Bureau
  - Washington FFA Association
  - Equilibrium
  - Business Impact NW
- **Government Funding:** The Fund Manager should approach government programs with climate-

smart agriculture, carbon removal, or GHG reduction goals at the local, state, and federal levels. The initial set of programs to approach should include:

- WSCC: Sustainable Farms and Fields
- WSDA: Soil Health Initiative (this initiative directs agencies to maximize carbon sequestration and storage)
- Washington State Department of Ecology: Climate Commitment Act
- US Department of Agriculture (USDA): Funds provided for climate-smart agriculture through the Inflation Reduction Act

See the FY2022 Federal budget summary by Carbon 180 for program budgets that specifically include funds for soil carbon and climate-smart agriculture.

LOAN DETAILS

The FarmPivot RLF would use a revolving loan model, where the farmer borrows money from the fund to assist with transitioning a defined set of farming practices to climate-smart agricultural practices. The farmer is then responsible for repaying the loan (including the principal with interest) using the increased profits that the climate-smart farming practices generate.

Appendix A includes examples of other RLFs designed for farmers, which could provide a model for the FarmPivot RLF. Consistent with these examples, an interest rate of between 4% and 8% and a payback duration of up to 10 years were selected to ensure the loan terms are attractive to farmers. Below is the recommended list of loan specifics[2]:

- **Interest rate:** Between 4-8%, fixed rate
- **Duration:** Up to 10 years
- **Use:** Operating expenses necessary to add or expand practices that reduce GHG emissions or sequester carbon, including equipment, seed, labor, and farm consulting services to support the transition. Fund may not be used for purchasing land.
- **Collateral:** Land, equity, livestock

- **Payback method:** To provide more financial flexibility to the farmers, the payback can be interest-only payments for the first few years. The principal can be repaid in a lump sum at a specified later date or in subsequent payments.
- **Fees:** No fees
- **Location/Timeline:** Loans can be reviewed/approved remotely (no office visits required).
- **Minimum Practices:** Minimum of one climate-smart practice implemented on 50% of acreage (see Appendix A: Climate-Smart Agricultural Practices in the associated policy brief).
- **Technical Support:** The Fund Manager and technical support team would provide technical assistance, as well as access to findings from agricultural research organizations, a farmer-to-farmer web-based information-sharing network, case studies, and other resources.

FUND PERFORMANCE

This section presents a sample modeled scenario of the fund performance over a 30-year period. This scenario assumes the FarmPivot RLF would be seeded with a total of $5 million dollars, where the capital is raised over a 5-year time period. Loans would be issued to farmers representing a wide range of farm size, crop type, and geographic locations across Washington, to reduce risk of a major weather event affecting the overall fund portfolio.

This scenario assumes total loans of $500,000/year disbursed on an annual basis. It assumes $100,000/year in operating expenses, which include fundraising costs, partnership costs, and a portion of staff salaries or consultant support. The organization hosting the fund would provide compensation for the dedicated Fund Manager from existing staff budgets, however, a portion of the FarmPivot RLF operating budget could supplement the other staff salaries and any short-term contract consultants as needed. The scenario assumes a 5% interest rate over a 8-year period for all loans on average, with loan repayments starting at year 3.

Table 2 presents a budget that includes the FarmPivot RLF cash flow (capital raises, loan repayments), use of funds (loans, operating costs), and the annual and cumulative fund balance over a 10-year period for this modeled scenario. Figure 3 shows the same information in a graphical format for

a 30-year time period. In this scenario, the FarmPivot RLF becomes a self-sustaining fund around year 10, when the cash flow from the repayments is greater than the annual loans and operating costs. Note that additional financial modeling would be required to understand different loan rates and repayment scenarios.

The Fund Manager would be responsible for generating an annual business and climate impact report. The annual report for the FarmPivot RLF would include information about the total fund balance, number of loans provided, loan repayments, loan defaults, total acres of farming practices transitioned, estimated GHG emissions reduction, estimated carbon sequestered, and farmer ROI for specific climate-smart practices.

YEAR	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cash Flow										
Capital Raise for Fund	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	-	-	-	-	-
Loan Repayments	-	-	$77,360	$154,720	$232,080	$309,440	$386,800	$464,160	$541,520	$618,880
Use of Funds										
Operating Costs	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
Issue Loans	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
Fund Balance										
Cash Flow - Use of Funds	$400,000	$400,000	$477,360	$554,720	$632,080	-$290,560	-$213,200	-$135,840	-$58,480	$18,880
Fund Balance	$400,000	$800,000	$1,277,360	$1,832,080	$2,464,160	$2,173,600	$1,960,400	$1,824,560	$1,766,080	$1,784,960

Table 2: Summary of FarmPivot RLF Budget Over a 10-Year Period

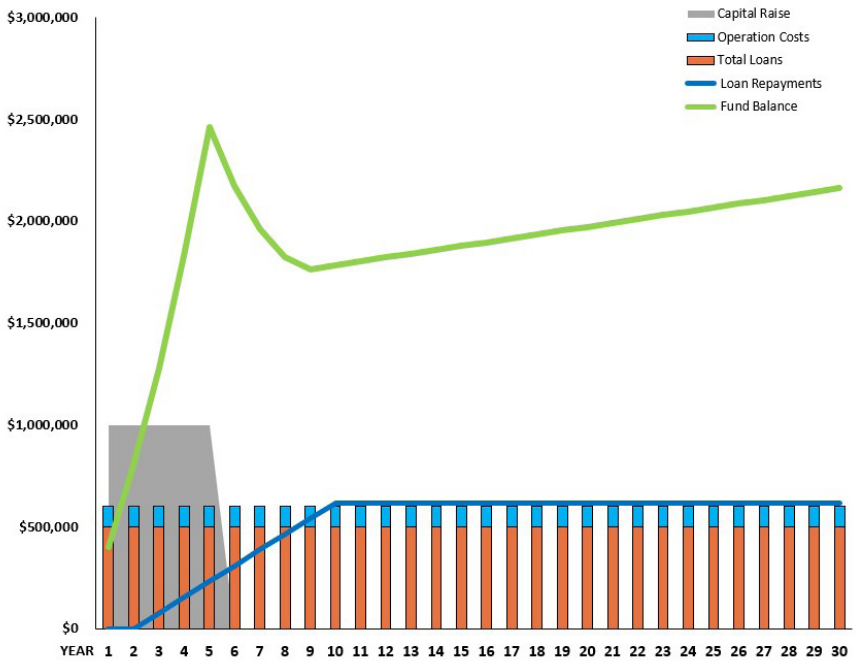

Figure 3: Example of a Modeled Scenario for FarmPivot RLF Performance

SECTION 3: LOAN APPLICATION

This section describes the application process, eligibility, selection process, and monitoring and reporting requirements for the climate-smart practices the farmer plans to adopt.

APPLICATION SIGN-UP

The FarmPivot RLF should have a dedicated website to process applications and provide online account access for payments, fund balance, and farm metrics reporting. The website should have the following pages:

- **Welcome page:** Figure 4 below shows a mock-up of the welcome page of the website.
- **Sign-up page:** The sign-up page should allow an interested farmer to provide basic details on current farming practices and contact information. See Figure 5.
- **Contact Us page:** The contact page should provide the contact information (email and phone number) for the Fund Manager.

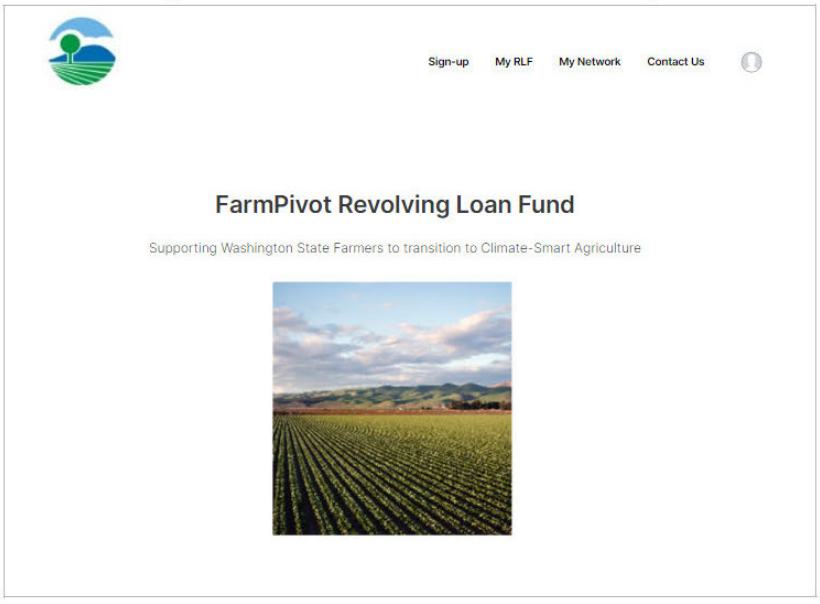

Figure 4: FarmPivot RLF Website - Welcome Page

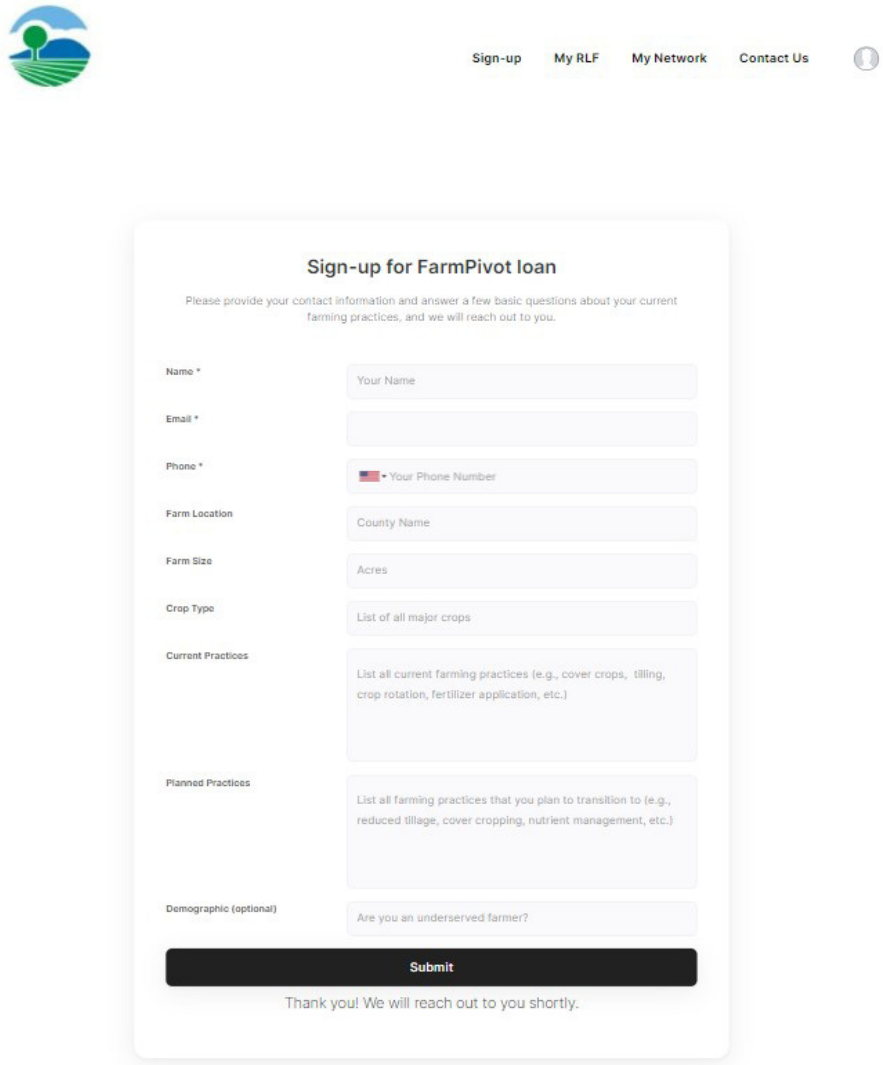

Figure 5: FarmPivot RLF Website - Sign-up form to express interest in applying

LOAN ELIGIBILITY CRITERIA

The FarmPivot RLF should be accessible to farms of all sizes and production systems that seek to add or expand climate-smart practices in their operations. There is no minimum revenue requirement; however, the fund would focus on farms in the mid-size range of 50-500 acres with demonstrated

creditworthiness. The farm operation must include crops grown for consumption and may not be managed solely as conservation land. Additionally, to avoid a single large farm using the entire fund budget in a single year, the Fund Manager may set a threshold on the maximum farm acreage.

Loans would be provided to eligible farmers seeking to add or expand at least one climate-smart practice on 50% or more of their acreage, as described in the policy brief (see Appendix A: Climate-Smart Agricultural Practices Matrix). Applicants would provide available crop production records (e.g., results from harvest records, water bills, spray records, equipment use logs, custom work receipts, fertilizer receipts, cover crop seed receipts, soil sampling, field photos, etc.) for prior years, and then annually during the life of the loan. These records would be used to establish eligibility and support annual reporting of the climate and business impacts of the FarmPivot RLF.

LOAN SELECTION PROCESS

Following the initial inquiry or application, the Fund Manager would contact the farmer to collect additional information about their current farming practices and plans to adopt new climate-smart practices. This information may include the following details, but may not be limited to:

- Location of the farm
- Acres of farm to transition to climate-smart practices
- Land ownership
- Crop types (current and transition crops)
- Farming practices (current and transition practices)
  - Irrigation
  - Tillage
  - Cover cropping
  - Crop rotations
  - Fertilizer application

- Pesticide application
- Livestock integration
- Other practices

- Financial conditions
  - Collateral availability
  - Current credit reports
  - Access to market

- Other information
  - Disadvantaged or underserved status
  - Additional information

The Fund Manager would use best practices in risk and financial management to assess the eligibility of the farmer to access the loan. The Fund Manager would conduct a site visit or use satellite imagery to verify the accuracy of the records submitted with the initial loan application. Once the Fund Manager establishes the eligibility of the loan, the loan processing would start immediately.

MONITORING AND REPORTING REQUIREMENTS

Enrolled farmers would be required to provide crop production records (e.g., harvest records, water bills, spray records, equipment use logs, custom work receipts, fertilizer receipts, cover crop seed receipts, soil sampling, field photos, etc.) for the year prior to the loan application, and then annually during the life of the loan period. The Fund Manager would conduct an annual site visit or use satellite imagery to verify the accuracy of the records provided with the reporting. The Fund Manager and support staff would compile these records and generate an Annual Impact Report, using anonymized data from all participating farms.

The Annual Impact Report would include data from the following metrics:

1. **GHG Emissions Reduction:** The measurement of GHG emissions reductions and increase in soil carbon would be estimated using standardized methods and tools based on the GHG Protocol Agricultural Guidance (Corporate Standard Supplement). The Fund Manager should support farmers in uploading crop production records.

   The Fund Manager and technical consultants would support farmers in using the Washington Climate Smart Estimator and other tools[3] to estimate GHG emissions for their specific climate-smart agricultural practices.

2. **Acres and Estimated Carbon Sequestered:** The science for precise measurement of soil carbon is still evolving and requires significant resources for soil modeling and field measurements. To scale climate-smart agriculture while the science of soil carbon sequestration is still evolving, the FarmPivot RLF should focus on adoption of practices and soil health improvement rather than precise measurement of soil carbon.

   - The Fund Manager should use farmer-submitted records to compile data, including acres of climate-smart practices adopted and soil sample results for key indicators such as percentage soil organic matter (%SOM).
   - The Fund Manager would also estimate tonnes of carbon sequestered using models (e.g., COMET-Farm) and best available industry estimates.

3. **Farm Revenue:** The measurement of improvement in farm revenue should be relatively easy and can be extracted from crop sales records. Farmers would provide records of crop yield, harvest and sales, and losses.

SECTION 4: SUPPORTING INFORMATION

This section provides details about climate-smart agricultural practices, financial benefits of climate-smart practices, the carbon credit marketplace, and other technical resources.

CLIMATE-SMART FARMING PRACTICES

Climate-smart agriculture is a dynamic approach to farming that reduces GHG emissions, sequesters carbon, and builds resilience for a changing climate. The suite of farming practices that help accomplish these goals may also be called sustainable, regenerative, conservation practices, or a soil health management system. Examples of more commonly used climate-smart practices include no-till farming, cover cropping, and improving nutrient management. The USDA's National Resource Conservation Service (NRCS) lists a range of such farming practices based on their GHG reduction and carbon sequestration potential. Every farm situation is different, so farmers need flexibility in choosing which practices are best suited to their site conditions and cropping systems.

To be eligible for the FarmPivot RLF, farmers must begin active adoption of at least one new climate-smart practice on 50% or more of their total acreage, as described in Appendix A of the policy brief, to maximize the farm's potential for GHG emissions reduction and carbon sequestration. Farmers must provide records verifying that the transition to these practices begins in year 1 of the loan, then show documented progress toward implementation across all acreage in each subsequent year.

FINANCIAL BENEFITS OF CLIMATE-SMART FARMING

Farmers can expect to gain an array of expected financial benefits from adoption of one or more climate-smart practice(s).

Increase in Farm Net Income: A report by the Soil Health Institute indicated that net income increased for 85% of farmers growing corn and 88% of farmers growing soybeans when adopting practices that build soil health, such as no-till farming or cover cropping. The 2022 Economics of Soil Health Systems on 100 Farms Report indicated that across 10 states in the US, net farm income

increased by $52 per acre on average for corn farms, and $45 per acre on average for soy farms when using a soil health management system. The same practices that build soil health also achieve an overall GHG reduction by decreasing the amount of fertilizer inputs needed and increasing the carbon storage capacity of the soil.

Future Crop Premiums: Several signals at the national and international levels indicate that crops grown using climate-smart agricultural practices will be in demand by corporations with supply-chain environmental, social, and governance (ESG) goals and will earn higher prices in the near future. Some of the key highlights are listed below:

- **USDA:** In February 2022, the USDA announced the new Partnerships for Climate-Smart Commodities opportunity to fund research that creates new market opportunities for commodities produced using climate-smart practices.
- **STAR:** Saving Tomorrow's Agriculture Resources (STAR) is a free tool for farmers to report and earn a rating of 1 to 5 STARs for their conservation practices, such as nutrient management, cover cropping, crop rotation, water treatment, and inclusion of livestock. Major commodity buyers, such as Kellogg's, are promoting the STAR system to identify climate-smart crops.
- **Rabobank:** In their 2022 FoodBytes Innovation Report, the global financial services provider Rabobank predicts that the concepts of "decarbonization" and "net zero" will replace "sustainability" in the global food and agriculture supply chain. This shows that customers are interested in net zero crops and that crops grown using climate-smart practices will be in demand.

CARBON CREDIT MARKETPLACE

Soil carbon credits are a new but quickly growing financial tool led by companies such as IndigoAg and Nori, a Washington-based start-up. Farmers who adopt certain practices may choose to enroll in a marketplace to earn payments for the additional carbon they sequester in their soil. Corporations that want to offset their carbon emissions can purchase these credits through the marketplace.

Industry experts believe that the current price of carbon in the marketplace is too low, but it is

expected to increase as the marketplace advances. For example, in 2020, the current price of carbon credits purchased by companies like IndigoAg started at $20 per tonne for carbon removal and storage in soil, and most recently sold at $40 per tonne in the summer of 2022. As new research improves the measurement and estimation methods for soil carbon, farmers who have already adopted climate-smart practices will be well-positioned to add a new revenue stream from soil carbon credits.

Farmers who participate in the FarmPivot RLF can also participate in the carbon credit marketplace to increase their financial incentives. Stacking carbon credits with the revolving loan would increase farm revenue and allow the farmer to pay off the loan earlier, thus benefiting the farmer and the fund.

TECHNICAL ASSISTANCE

The transition period from conventional to climate-smart practices has many challenges beyond the financial need for equipment, seeds, and other resources. The technical support team at the FarmPivot RLF would provide support to farmers by sharing research and regional examples of transitioning practices. Additionally, the technical support team would connect the farmers to external technical assistance as needed. These resources should help farmers determine specific practices that would work best on their own farm and measure the impact on GHG emissions, soil carbon, soil health, and financial return. Furthermore, providing technical assistance to borrowers during the loan term would reduce risk in the performance of the loan and provide data on climate impacts on Washington farms. There are two primary ways that the FarmPivot RLF should support farmers with additional technical assistance:

- Connecting farmers with technical assistance informed by cutting-edge research and leveraging relationships with local soil health research initiatives, as well as conservation and agriculture extension organizations.
- Connecting farmers with a network of regional peers who are also using or transitioning to climate-smart practices through the internet.

TECHNICAL ASSISTANCE FROM RESEARCH ORGANIZATIONS

The Fund Manager and/or support staff would support the enrolled farmers by aggregating the latest research and technical assistance on climate-smart agriculture on a central resource webpage. Local universities, including WSU, provide publicly available technical information on soil health and climate-smart practices. Over time, the FarmPivot RLF staff should formalize a technical assistance agreement with WSU and other research organizations to directly assist farmers enrolled in the fund.

TECHNICAL ASSISTANCE FROM A CENTRAL RESOURCE WEBPAGE

Another resource that can support farmers in transitioning to climate-smart practices is a public web-based information sharing forum. This central resource webpage could be hosted on the FarmPivot RLF's website, and the content would be updated by the Fund Manager, support staff, and farmers enrolled in the fund. The page would include a Farmer StoryMap and Forum developed by and for farmers who are interested in or already using climate-smart practices, allowing them to share the challenges, risks, and outcomes of their transition process. The page could also include links to other resources in Washington and other regions, such as those hosted by the WSU Center for Sustaining Agriculture and Natural Resources, National Association of Conservation Districts, USDA Climate Hubs, and Soil Health Institute. Figure 6 below provides a screenshot of a StoryMap to show the locations of farmers using climate-smart practices; here is a link to a sample.

A Washington-specific StoryMap could be used in the following ways:

- A farmer ***interested in learning*** about a specific climate-smart farming practice can search for farms that use these practices in the region.
- A farmer is ***in transition for a specific climate-smart practice***, has a practice-related challenge, and wants to ask another farmer for resources to overcome that challenge.
- A farmer has ***successfully transitioned*** to one or more climate-smart practice(s) and wants to serve as an example, mentor, or advisor to another farmer interested in transitioning.

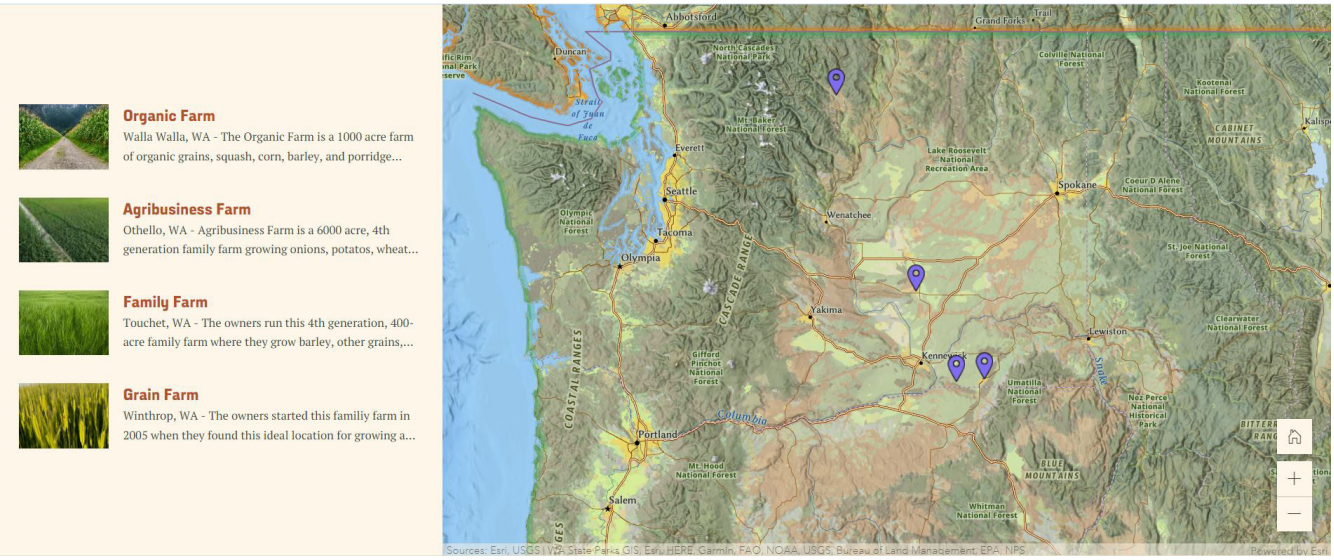

Figure 6: Screenshot of a StoryMap showcasing farmers in the region using climate-smart practices. A demo of this StoryMap can be found here.

APPENDIX A: OTHER FUND EXAMPLES

To build on existing models, the FarmPivot RLF should be established with the basic structure of an RLF, as described here by the US Department of Energy's Office of Energy Efficiency and Renewable Energy. The list below provides loan fund examples that are designed for farmers and may serve as models for Washington State:

Name: Agri3 Fund

Operated by: United Nations Environment Programme (UNEP) and Rabobank

Type and Terms: RLF, 1–5% interest

Total fund: 2020– $1 billion US dollars (USD)

Name: Regenerative Practices Rebate Program

Operated by: Farmers Business Network with Environmental Defense Fund (partnership)

Type and Terms: Traditional operating loan, 1 year, 3.35%+ interest, and 0.5% discount on the base rate of a 1-year line of credit for farmers

Total fund: 2022– $25 million USD pilot, 30–40 farmers

Name: Perennial Fund

Operated by: Mad Agriculture

Type: RLF, 8–10 years

Total fund: 2021– $10 million USD pilot, 10 farmers

Name: Beetcoin Fund

Operated by: Slow Money

Type and Terms: Revolving micro-loan, 0% interest

T**otal fund:** 2022- $1 million USD, 42 farmers and food businesses

Name: Agricultural Revolving Loan Fund

Operated by: Alaska Department of Natural Resources Division of Agriculture

Type: RLF for operating expenses, 3-3.5% interest, 1 year

Total fund: 2014- $22 million USD

ENDNOTES

1 May not add up to 100% due to rounding.

2 Some of the loan details are modeled on the Perennial Fund, operated by Mad Agriculture.

3 The Cool Farm Tool is an alternate measurement tool for estimating GHG emissions, biodiversity, and water use, that could also be used.

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